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AND

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FOR

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A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor [illegible]

No. 1.—1846.] SATURDAY, JANUARY 3. [Price 6d.

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GARDENERS' BENEVOLENT INSTITUTION.

NOTICE is hereby given, that the ANNUAL GENERAL MEETING of the Subscribers to this Institution will be held at the LONDON COFFEE HOUSE, Ludgate-hill, on WEDNESDAY, 28th of January next, for Electing Officers for the ensuing year, and receiving the accounts of the Charity for the past year, and other business The Chair will be taken at Eleven o'clock precisely after which an ELECTION for FOUR PENSIONERS will take place from among the following Candidates whose Testimonials have been examined and approved of by the Committee —

Names.	Age		
JOHN ADAMSON	69	Mortlake	3d application
BARNEY I ARELLY	68	London	do
THOMAS FARMER	65	Mitcham	do
JOHN GARNELL	79	East Ham	do
CHRISTOPHER GIBBONS	60	Hendon	do
JAMES STADMAN	78	London	do
JAMES LYDERET	65	Ilagshot	2d application
JOHN LONGHURST	58	Charlton	do
WILLIAM MAY	77	Foot's Cray	do.
WILLIAM HAVERS	73	Chigwell	1st application
CHRISTOPHER BIRMINGHAM	75	Broad Cliff, Devon	do
EDWARD MARSHALL	65	London	do
ANN PRATT	68	Waltham Cross	do.
SARAH PRYOR	77	London	do
HENRY RICHES	71	London	do
GEORGE WALLIS	70	Bristol	do.

The Ballot will be kept open for two hours after the business of the Meeting has been considered.

The Subscribers and Friends of the Institution will afterwards celebrate their Anniversary by dining together at the above house

The Right Hon. the LORD MAYOR in the Chair.

STEWARDS.

James Cooke, Esq.	James Garraway, Esq
William Dodsar, Esq.	William Gregory, Esq.
J Dromgole, Esq.	John Henderson, Esq.
Wm J Epps, Esq.	Wm J Loyd, Esq.
Thos Finden, Esq.	Rob Palmer, Esq.
J. W. Freshfield, Esq.	John Wrench, Esq.
James Veitch, Esq., jun.	

E. R CURTIS, Secretary, 97, Farringdon-street

UNIVERSITY COLLEGE, LONDON.—JUNIOR SCHOOL.

—Under the Government of the Council of the College.

HEAD MASTER, THOMAS H. KEY, A.M.

The School will Re-open for the next term on Thursday, 15th January, 1846. The hours of attendance are from a quarter past Nine to three quarters past Three. The afternoons of Wednesday and Saturday are devoted to drawing. The Subjects taught are Reading, Writing, the English, Latin, Greek, French, and German Languages; Ancient and English History, Geography, both physical and political, Arithmetic and Book-keeping, the Elements of Mathematics and Natural Philosophy, and Drawing.—Fee for the Term, 5l. Prospectuses and further particulars may be obtained at the Office of the College.

Dec. 26, 1845. CHAS. C. ATKINSON, Sec. to the Council.

UNIVERSITY COLLEGE.—JUNIOR SCHOOL.

Mr. W. A. CASE, M.A., Fellow of University College, London, receives into his house, which overlooks and opens into the play-ground, a few Pupils for University College School.

For further particulars, apply at the Office, University College; or to Mr. CASE, at his house, 20, Upper Gower-street.

MARNOCK AND MANLEY

beg to inform their friends that they have selected with great care their Stock of VEGETABLE and FLOWER SEEDS for the present season, including every variety worthy of cultivation.—Catalogues will shortly appear, and may be had on application at their Nursery, Hackney, London.

THE TRUE FASTOLFF RASPBERRY.

GREAT YARMOUTH NURSERY. NORFOLK, 1845.

YOUELL & CO., being the parties who first introduced to the notice of the Horticultural world the above truly excellent Raspberry, unequalled for the size of its fruit and richness of flavour, and possessing an extensive Stock of fine Canes, beg to offer the same upon the following terms, guaranteed to be of the same quality as those they had the honour of supplying Her Most Gracious Majesty the Queen, His Grace the Duke of Northumberland, His Grace the Duke of Rutland, His Grace the Duke of Marlborough, the Earl of Harrington, the Earl of Liverpool, the Earl of Abergavenny, the Earl of Egremont, the Lord Bishop of London, Lord Viscount Lorton, Lord Sondes, and most of the Nobility, as well as the Horticultural Society of London, the latter having awarded YOUELL & Co two prizes for it.

Packages containing 100 canes	.	£1	4 0
Do. do 50 do.	. .	0	13 0
Do do 25 do	. .	0	7 0

A liberal discount will be allowed the Trade when "quantities" are ordered

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Great Yarmouth Nursery, Jan 3.

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Gaines's Climax, canary yellow, with deep cherry blotches 10s 6d

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SUPERIOR NEW EARLY PEA.—WARNER'S "EARLY EMPEROR"

Pea, the earliest in cultivation, quite hardy a good cropper, with fine pods, and most delicious flavour. Height about 2 ft —5s. per quart —To be had of WARNER and WARNER Seedsmen, 28, Cornhill, London.

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Priced Catalogues of FLOWER SEEDS are now ready, and can be had on application at 4, East-street Hill Hatton Garden

FOR SALE.—1000 one-year old MOSS ROSES,

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A remittance expected from unknown correspondents.

ANDROMEDA FLORIBUNDA, 2s. 6d. each, 24s. per dozen.

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Epigæa repens, each	3	6
" per doz.	30	0
Kalmia latifolia & others, per doz	9	0
Azaleas, fine hardy Ghent Varieties, per doz.	12	0
Do American do, p doz.	9	0
25 Hardy American Plants, one of a sort, for	10	0
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Yucca filamentosa, p doz	24	0
Ilex latifolia, new, each	7	6
25 Hardy Dwarf Rhodo, one of a sort	10	6
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12 half do do.	12	0
12 Climbing Roses, do.	10	6
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Camellias of best double sorts, from p doz. 30s to 60		0
25 Hardy Herbaceous Plants for	10	6

The above packed to go to any part of the United Kingdom, or the Continent on receipt of a money order.

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TO THE PLANTERS OF ENGLAND AND LOVERS OF THE PICTURESQUE

JAMES GRIGOR, NURSERYMAN, Norwich, begs to state that he is now sending out plants of the True HIGHLAND PINE, a noble landscape ornament, and a tree which produces very superior timber.

"I very particularly admire the Highland Pine, its growth, and leaf, and bark, are beautiful. I shall be truly proud of my first specimens, of which I beg you will send me 1000 of your finest for trial I am very much obliged to you for calling my attention to trees of such value"—*Newcastle (Duke of), Chamber, December 2 1844*

"Now that we are on the subject of trees, I may mention what I have very likely told you in some of my previous letters, that I prefer the Highland Pine to all other trees except the Oak, taking into consideration its beauty in winter, and by moonlight and in the evening."—*Wm Wordsworth, Rydal Mount, Dec 7, 1844* Who, then, would be without this tree?

Plants	1 to 2 inches	.....	5s per 1000
"	2 to 4 "	.....	10s "
"	4 to 6 "	.....	15s. "
"	6 to 8 "	.....	30s. "
"	8 to 10 "	.....	25s. "
"	10 to 12 "	.....	30s "
"	12 to 15 "	very strong, 5s per 100	

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Norwich, Jan 1

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Plants in May, 1846, 10s 6d each, the usual discount to the trade when three plants are ordered A remittance required from unknown correspondents —Jedburgh Jan 8, 1846

WOODLANDS NURSERY MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD & SON have the honour of informing their friends that they still continue to supply ROSES on the following terms, the selection of sorts being left to themselves —Strong Plants and warranted superior varieties —

Extra superior selected Standards on tall stout stocks from 5 to 6 feet, adapted for planting in conspicuous situations .. .. Per Doz £1 16 0

Per 100.

Superior Standards ..	Per Doz.	£1	4 0	— 10 0 0
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Fine Dwarfs	.. ..	0	12 0	
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Fine Dwarfs on own roots, in 50 varieties	.. ..	2	10 0	
Ditto Climbing, 9s to 12s. per doz				
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A proportionate number of plants presented with each order, towards defraying the expence of carriage, &c.

W W & SON'S descriptive Catalogue of Roses, also Catalogues of Camellias, Greenhouse, and Herbaceous Plants, will be sent *free* on application.

GILLESPIE'S EARLY GREEN FLESH MELON.

—This new variety is with confidence recommended as being of superior quality, rich and juicy the flesh delicate, pale green, well swelled and good form, average weight about 2lbs, also good bearer, having cut 18 fruit from 3 plants the past summer. At the Manchester Botanical Gardens Exhibition, 21st of May, it gained the First Prize, and also on the 2nd of July, with a brace cut from the same plants, upon one of them being tested by the Judges and several gentlemen, they pronounced the kind first-rate Early applications will secure 2s 6d. packets, containing six seeds of 1844 growth upon receipt of the amount, from JAMES GILLESPIE, Gardener, Platt Hall, Rusholme, near Manchester, T D. Watkinson, Market-place, or A. Foote, Seedsman, Salford.

TRUE FASTOLFF RASPBERRY.

JOHN BELL begs to inform his Friends and the Public, he has still a large Stock of the above RASPBERRY, which he offers at the following prices —

Fine strong Canes, at per 100, package included	1l 0s.
Smaller ditto, per 100, package included	0 15

The Trade supplied on liberal terms.

For list of ROSES, J. B. begs to refer the readers of this Paper to his Advertisement of the 6th and 13th

Orders addressed, Seed Warehouse, 3, Exchange-street, Norwich, will meet immediate attention

Horticultural Establishment, Bracondale, Norwich.

GREAT YARMOUTH NURSERY, NORFOLK.

YOUELL AND CO. beg to offer the following good and desirable plants to the notice of their Friends and Amateurs, feeling assured from their well known mode of executing all orders, that those favouring them with their commands will receive none but articles of the very best quality

Superb new heavy-edged PURPLE PICOTEE, "BURROUGHES'S PRESIDENT," 15s. per pair. For particulars, see *Gard. Chron.* of 11th Oct.

Also, "BURROUGHES'S DUKE OF NEWCASTLE," the best light-edged Purple Picotee, 15s. per pair.

CARNATIONS AND PICOTEES.

			£	s.	d.
12 pairs extra fine and very superior first-class Show Flowers, by name			2	10	0
25	ditto	ditto	5	0	0
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PANSIES ditto .. 10s. ,,
Ditto, very best first-rate Show Flowers 18s. ,,
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Also their New Superb Seedling CINERARIA, "No. 1," named "NORFOLK HERO," 5s. per plant, the following description of it will be found in the *Gardeners' Chronicle*, May 31, 1845:—"Y Y—No 1 is a very fine specimen of a creamy-white, dark disk, very broad petals, and flowers unusually large, measuring 3½ inches in diameter."

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2 years old, per doz.	9	0
3 ,, .. ,, ..	12	0
4 ,, .. ,, ..	18	0
5 ,, .. ,, ..	30	0
6 ,, .. ,, ..	60	0
Cedrus Deodar, 1 yr., fine	18	0
,, ,, 1 foot ..	30	0
Pinus excelsa, 3 inches..	9	0
,, ,, 4 to 5 ins	18	0
,, ,, 18 inch, fine bushy plant ..	42	0
,, Gerardiana, 2 yrs.	30	0
Abies Khutrow, 2 years	9	0
Abies gracilis .. each	2	6
,, orientalis ..	5	0
Picea cephalonica, p. dz.	30	0
Pinus cembra .. ,, .	12	0
Cupressus torulosa, per doz., fine	18	0
Do, seed pans, p. doz.	6	0
Podocarpus totara, each	5	0
Do. Dicrydioides ,,	7	6
Do. ferruginea ,,	5	0
Phyllocladus trichomanoides .. .. ,,	5	0
Taxodium sempervirens,,	7	6
Dacrydium cupressinum,,	5	0

RIBES SANGUINEUM FLORE PLENO, 10s. 6d. per plant
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Great Yarmouth Nursery, Jan. 3.

NEW KITCHEN GARDEN SEEDS

CHARLES FARNES, NURSERYMAN AND SEEDSMAN, 126, St John's-street, London, begs to inform his Friends and the Public generally, that he is now sending out the following articles, which are warranted to grow well, and give satisfaction to all purchasers Early orders are requisite, as some sorts are only to be had in limited quantities.

PEAS. Per quart—	s.	d.
Earliest May	1	0
Royal Green Marrow ..	2	6
Shilling's Grotto do ..	1	6
Thompson's Dwarf do. ..	1	0
Queen of Dwarfs (Waite's)	5	0
Dancosis Monastery ..	2	6
Fraser's Shanley Marrow	3	0
British Queen do ..	2	0
Prince of Wales do. ..	5	0
Large New Mummy do ..	5	0
Large Mitford do. ..	1	0
Large Mammoth do. ..	2	6
Dwarf Skinless	1	0

BROCCOLI. Per Pkt.

True Early Walcheren White	1	0
Do. do. Grange's do. ..	0	6
Do. do Chappell's do. ..	0	6
Legg's New Hardy Late do.	1	0
Chappell's Large Cream	0	6
Imperial Winter ..	0	6
Beet, Splendid Black ..	0	6
,, Dark Crimson ..	0	6
Carrot, Earliest Horn ..	0	6
,, Scarlet Surrey ..	0	6
,, Large Altrincham	0	6
,, ,, White Cattle	0	6
Cauliflower, earliest var.	1	0
Celery, Lancashire Hero, fine red solid	1	0
Walnut-flavoured pink do.	1	0
Cucumber, splendid Hybrid Frame	2	6

Per packet—

Davis's Free-Bearing do	2	6
French Beans, new Royal Dwarf .. Per quart	4	0
Do, do Long Negro ..	4	0
Do., Fulmer's Early ..	1	6

Per packet

Lettuce, Ady's Large Cos, true	0	6
Do, Paris Summer do. White	0	6
Do. do Large, do Green	0	6
— London Market, do. White	0	6
Do, Large Malta Cabbage	0	6
Melon, Seymour's new Persian, great bearer, of rich flavour, and very handsome, weight 2 to 3 lb	2	6
Onion, all sorts for spring and winter use, per oz	0	6

Per packet.

Parsley, Enfield Matchless, curled	0	6
Do., Deptford fine do. ..	0	6

Per oz.

Parsnip, Improved Guernsey	0	6

Per bushel.

Potatoes, early Ash-leaved	10	0

Prices of other varieties free from disease, will be sent on application.

Radish, the finest early Scarlet, transplanted stock, for frames or open ground, per quart .. 4 0

With many other Articles too numerous for insertion.

Collections of KITCHEN GARDEN SEEDS (being the most economical way of procuring a supply for the whole year) at reduced prices as below:—

		£	s.	d.
No. 1.—	A complete collection, sufficient for the largest establishment	12	12	0
No. 2.—	Do. in smaller quantities	5	5	0
No. 3.—	Do sufficient for a large garden	3	0	0
No. 4.—	Do. in smaller quantities	1	10	0
No. 5.—	Do. sufficient for a small garden	0	15	0

A General Catalogue of GARDEN, GRASS, and AGRICULTURAL SEEDS will be forwarded on application.

C. M. AND R. WESTMACOTT, SEEDSMEN, FLORISTS, &c, Stuart's Grove Nursery, Fulham-road, Chelsea also at 186, Cheapside (opposite St. Paul's), London, which latter premises (recently occupied by Messrs. T. & C. Lockhart) they respectfully inform their friends and the public they have taken, and beg to announce that their Descriptive Catalogue of Flowers, Vegetables, and Agricultural Seeds for 1846 is now published, and will be forwarded on receiving a pre-paid application.

C. M. & R. W assure their friends that all Seeds or Bulbs purchased at their establishments will be warranted in excellent condition, and true to name and variety

Country orders will be packed with the greatest care and punctuality—186, Cheapside, opposite St. Paul's.

HEATING BY WARM WATER.—An improved method of HEATING, by the CIRCULATION OF HOT WATER, may be seen in operation daily, at J. L. BENHAM & Son's Stove Grate Manufactory, 19, Wigmore-street, Cavendish-square. Estimates given for warming Churches, and other Public or Private Buildings, in town or country A great variety of Warm Air Stoves of every description, from 15s. to 6l.—19, Wigmore-street, Cavendish-square.

COOPER'S PATENT PRESERVED FRUITS have been proved to keep in a sound and perfect state, for family use for five years; they are put up in stoneware bottles, of different sizes, lined with glass. An assortment of Fruits that are usually preserved, a machine corkscrew to draw the corks, with the particulars of the patent process, and testimonials, are packed in a hamper, and will be delivered to any part of London for 10s., by an order addressed to the patentee at the manufactory, No. 7, the upper end of St. John-street, Clerkenwell, London. These Fruits are presumed to be of a superior quality to any ever before offered for public notice one trial will prove their excellence.



*** These Fruits, &c., have been considered an agreeable present for country friends.

HORTICULTURAL GLASS OF BRITISH MANUFACTURE, at J. WELCH, jun., PHILLIPS, and Co.'s Warehouse, 12, Panton-street, Haymarket.—Having made arrangements with a British Manufacturer, they are enabled to offer the above article in unlimited quantities at the following terms, in Squares not exceeding 40 inches long:—

No. 0—	(equal to Foreign Sheet)	4½d. per foot.
1—	averaging from 16 to 18 oz. to the foot	5½d. ,,
2	,, 21 to 23 ,,	7d. ,,
3	,, 32 ,,	1s. ,,

J. WELCH, jun., having been many years with Mr. Drake, of 8, Jermyn-street, and 315, Oxford-street, and at the time of the glazing of Chatsworth Conservatory, has devoted himself to the Horticultural Glazing Department, begs to call the attention of Horticulturists generally to the above prices for Glass, which they undertake to glaze in any part of the United Kingdom.

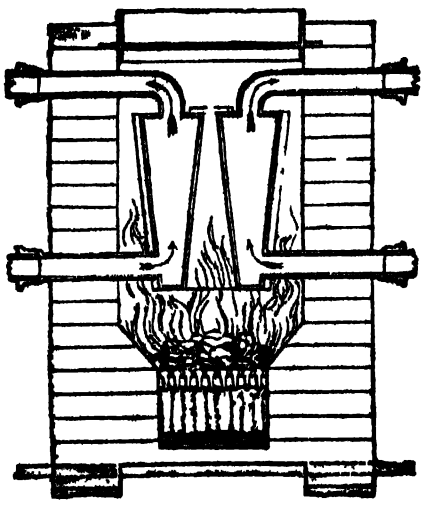
They also beg to recommend for Pits and Garden Lights the 16 oz. Sheet Glass, in sma l sizes, which they offer at the following low prices:—

Under 5 in. by 3 in. at 1½d. per foot.
,, 6 in by 4 in. at 2d. ,,
,, 9 in by 7 in. at 3d. ,,

They also beg inspection of their stock of Stained and Ornamental Glass, situate as above at 12, Panton street, Haymarket.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 26, Castle-street East, Oxford-street. For Ready Money only.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick, Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place, and in more than one hundred other places.—186, Fleet-street, London.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and prices at 190 Fleet-street.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

GYPSUM.—PURE GYPSUM (in fine powder), in 5-ton lots at 25s. per ton in the stream, or 27s. 6d. per ton landed. Also Guano (Peruvian and African), Superphosphate of Lime, Bones, Sulphuric Acid, and all other manures of known value, on Sale. By MARK FOTHERGILL, 40, Upper Thames-street, London.

GUANO (GENUINE PERUVIAN & BOLIVIAN), ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, Jan. 3.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40 New Bridge-st., Blackfriars. E. PURSER, Secretary.

LIEBIG'S WHEAT MANURE now ready for delivery.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed: Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

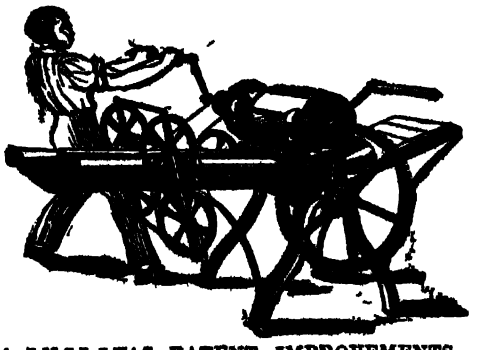
DENTON AND CHARNOCK'S PATENT DRAINTILE AND PIPE MACHINE.

A PREMIUM OF £10 was awarded to this Machine at the recent Meeting of the Yorkshire Agricultural Society, at Beverley, as the Best Machine of the day Price £90.

Particulars may be obtained, and a Machine seen, on application to Mr. BAILEY DENTON, 9, Gray's-Inn Square, London; or Graveley, near Stevenage, Herts, to Mr T. H Charnock, Wakefield; or to the Makers, Messrs. Bradley and Co., Engineers, Wakefield.

DENTON'S "A" LEVEL for workmen in cutting drains may also be had. Price 30s

DRAINING TILES.



AINSLIE'S PATENT IMPROVEMENTS.—For MAKING and DRYING Draining Tiles of the 1st CLASS Gentlemen having works in operation, or who are about to erect them, will find the above worthy their attention.

The Process combines EFFICACY with ECONOMY, as Tiles can be made ready for BURNING at all seasons; generally from ten to thirty hours, according to the nature of the clay. To be seen at Alperton, Acton, Middlesex; Mr. HOWE, Engineer, 119, Great Guildford-st, Southwark; the Polytechnic Institution, Regent-street, London. Particulars may be had from JOHN AINSLIE, Alperton, Acton, Middlesex.

HYDRAULIC RAMS to be had of FREEMAN BROS, Engineer and Fountain Maker, 76, Strand, London. Rams adapted to all situations.

No. 1 Ram, Supply Pipe, 4 in.
No. 2 Ram, Ditto 2 in.
No. 3 Ram, Ditto 1 in.



Deep Well Engines and Pumps worked by Steam, Horse-power, or Manual-labour. Fountain Basin in Iron, from W. Rowley's pattern. Jets made to any device. Buildings, Baths, &c. heated upon the most simple and economical plan. Steam Closets, Cooking Apparatus, &c.

Sole Agent for TENNANT'S PATENT WATER PURIFIER.

The AGRICULTURAL CHEMICAL ALMANAC, by FREEMAN BROS, price 2d., now ready.

DRAINING TILES.—Wanted to be delivered at the Anerley Station, Croydon Railway, some thousands. Answers to be addressed to S., *Gardeners' Chronicle*, stating price of Two-inch Pipe Tile, and Three-inch Drain Tile.

NEW KITCHEN-GARDEN SEEDS.—No. 1.—Complete Collection, consisting of 20 Quarts of best kinds of PEAS, and all other Seeds in proportion, and of the most approved kinds, for one year's supply for a large establishment £6 6 0
No. 2.—Complete Collection, in smaller quantities, equally choice sorts 3 3 0
No. 3.—Ditto, ditto, ditto 1 1 0
Messrs. SUTTON & SONS have the honour and privilege of referring to Gardeners and Gentlemen residing at the undermentioned places, who have annually availed themselves of this economical and advantageous mode of obtaining the best sorts of GARDEN SEEDS, and who have expressed themselves in the highest degree pleased with the result; viz., at or near Glasgow, Perth, Edinburgh, Aberdeen, Castle Douglas, Berwick-upon-Tweed, Newport, Monmouth, Cardigan, Carlisle, Carmarthen, Ludlow, Gloucester, Hull, Newcastle-upon-Tyne, Bury St Edmund's, Lynn, Wolverhampton, York, Bristol, Exeter, Brighton, Ventnor, Plymouth, Windsor, Bath, Newbury, Oxford, and many others, of whom the addresses may be had on application.
Early Orders are requested and recommended, as some sorts are in great demand.
*** Parcels delivered free to any office in London, or any Station of the Great Western Railway between London and Bristol.
Remittances are not required from known Correspondents, nor from those who give satisfactory references.
Reading Nursery, Reading, Berks, Jan. 3.

GLOXINIA PASSINGHAMII.—This intensely rich and highly valuable variety will be found figured in "Paxton's Magazine of Botany" for the present month; short extract, see folio 209, "G. Passinghamii possesses a vigorous habit, very prolific bloom, and large highly-coloured flowers of *deep rich violet*, and all the properties that can render one of this interesting family valuable. It is a genuine importation from the Corcovado Mountains (in South America)." Plants will be delivered early in May at 10s 6d each. If three plants are ordered by the trade, one will be given over. The stock being limited, early orders are requested.—WILLIAM E RENDLE and Co, Plymouth

The Gardeners' Chronicle.

SATURDAY, JANUARY 3, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY,	Jan 5—	Entomological	8 P.M.
SATURDAY	— 10—	Royal Botanic	4 P.M.
WEDNESDAY,	— 14—	Microscopical	8 P.M.

THERE is no doubt that the modern methods of HEATING PLANT-HOUSES are very great improvements upon those which have passed away. The tank system, *well applied*, is indeed almost as superior to common hot-water pipes, as the latter were to flues or steam-pipes. But we should foolishly deceive ourselves if we imagined that we had arrived at the end of all alterations for the better; or, if we thought that the shape of a boiler, or the exact adaptation of the surface of hot-water pipes to the work they have to do, were the next points on which attention must be most steadily turned. We believe, on the contrary, that to this hour, with a few very partial exceptions, one of the most indispensable of all the conditions to be fulfilled, when houses for plants are heated, has been overlooked.

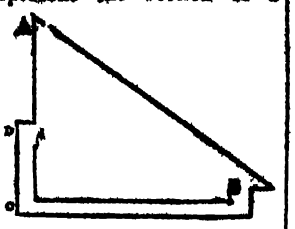
We are now able to command any degree of heat and any amount of moisture. We have guarded ourselves against impure air and deleterious emanations. By means of metal and cheap glass, we may have houses as light as the day; and philosophers are even striving to dissect the light itself, to separate the component parts of one of the most subtile of all natural agents, and to appropriate to the use of man just that part which he wants, or thinks he wants, and no more. But in the midst of all these mechanical and philosophical appliances two things have been forgotten, of which one is of no small importance to the mass of garden lovers; and the other to the plants they rear. The gardener demands the utmost possible result at the smallest possible cost. Plants require a perpetual change of the atmosphere they breathe. We cannot flatter ourselves that either of these ends have been attained. We heat our houses well, but expensively; we grow our plants well, but it might be done better.

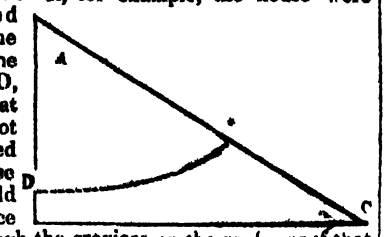
If we could dispense with hot-water pipes and all the contrivances connected with them, we should save three-fourths of the cost of warming a building. If ten pounds could be made to do the work of forty, that would be no small gain to Horticulture; and if we can show that such a result is probable, every gardener in the kingdom will, we are sure, give his attention to the best means of working out the problem. Could it also be proved that the effecting of one of the objects above-mentioned would of necessity include the other, the question would immediately assume an importance beyond all others which can at present be entertained; for it is to be remembered that such a matter concerns those of humble means infinitely more than the wealthy. The latter are satisfied with what is effected by the costly apparatus now employed; the former have no apparatus at all, nor are they likely to have. By them the advantage of cheap glass, or even glass for nothing, would be but little felt, for glass without artificial heat is of but small importance in gardening.

In our opinion the system of heating employed at Polmaise, to which we last week alluded (p. 871) is the most decided instance of advance in the right direction that has yet been made. By means of a hole in the wall, a furnace, a few drains, and a wet blanket, everything is gained which for a Vinery near Stirling is demanded.

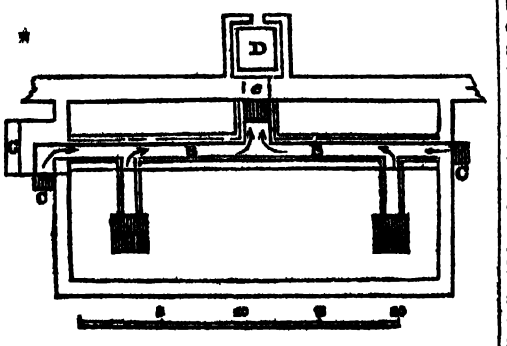
In order to save the trouble of reference we reproduce below* the plans of this house, as given at p. 500; but for the purpose of simplifying its explanation we beg to direct attention to the following diagram.

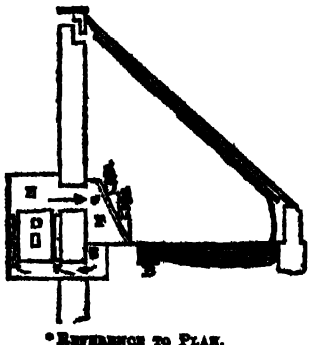
Let A B C D represent the section of a lean-to glass-house; D be a furnace; B a hole in the floor; and D C B an underground drain. It is evident that if a fire is lighted in D, the air surrounding D will expand and force its way from D to A. At the same time the air at B pressing downwards into the flue, B C D, in order to take the place of the buoyant air which has escaped at D, will cause another current from A to B, because as the air passes along the drain, B C D, the loss at B must also be supplied by A B, or rather by the whole area included in A B C D. This being so, the air in the interior of the house will by degrees become heated by the mere action of the furnace D, and if that action is kept up long enough and the drains are properly distributed, the whole interior will acquire an equable temperature. It will be obvious, however, that this depends upon two circumstances, the one the position of the furnace D, and the other on the drains B C D. If, for example, the house were constructed without the drain, as in the fig. A C D, then in that case the hot air, impelled into the house at D, would rise and force its way through the crevices in the roof, or if that were impossible, it would lie in the upper part of the house as low as D*, while D * C would remain a body of unheated air. But open a ground-drain and rapid motion is immediately established. On the other hand, if the furnace be placed at A no heat could be introduced into the house in sufficient quantity to affect the interior, even although an under-ground drain were in action; because the small quantity of heated air that would be introduced at A would immediately escape through the roof, or, if drawn downwards by the sucking action of the ground-drain, would rapidly become cold by passing over the surface of the glass roof, or otherwise.





If we now apply these principles to the Polmaise house (of which the annexed is an ideal section)

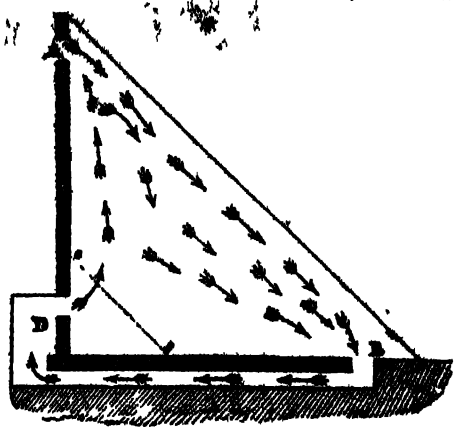




*REFERENCE TO PLAN.

A. The Grating, where the cold air is admitted to the stove from within the house.
B. The Drain, conducting the cold air to the stove, over which is the gangway.
C. A Valve for admitting fresh air from without, keeping a healthy atmosphere within.
D. The Stove.
E. The Warm Air Chamber, and e the outlet from the chamber.
F. The Woollen Cloth nailed underneath a stage for plants which extends to within 3 feet from each end of the Vinery, dispersing the warm air equally through the Vinery, and steaming it by applying water through the rose of a watering-pan upon the cloth.
G. Steps into the Vinery.

we shall see at once, by the direction of the arrows, how the currents of air are established; and it will



become evident that if the furnace D is powerful enough, and remains long enough at work, the whole interior of such a house must become so equally heated, or so nearly so, as to be quite sufficient for all gardening purposes.

There would, however, be a fatal objection to this plan, and one indeed which would render it practically useless, unless it could be overcome; and that is the dryness of the air which always results from the use of furnaces, whether open or closed. It is certain that by quick degrees the interior of a house thus warmed, would be so parched, as effectually to destroy all vegetable life; and, indeed, to be unfit for animal respiration. Two extremely simple methods have been devised to meet this difficulty. The first is, to stretch over the mouth of the hole at D a blanket, extended from *e* to *f*, as is shown in the last diagram, and to keep it moist by means of worsted threads, with one end dipping into a reservoir of water. The other method is to connect the drain BD with other drains, communicating with the external air and the furnace itself, so that fresh moist air shall be always introduced, if occasion should be found for it. (See ground plan, in the accompanying note).

Such is the principle of the Polmaise plan of heating, which experience shows to answer the purpose as perfectly as theory would have expected. That it is more or less like other plans which have been previously proposed is true enough; but it is not the worse for that, and it has, as we think, the high merit of doing well, with very simple and unexpensive materials—what others have effected less perfectly, at a large expense. As we have already stated, Mr. MURRAY has perfectly heated a Vinery by means of a hole in a wall, a furnace, a few drains, and a wet blanket; and we know of no one else who has done anything like that. He has distributed his heat by means of currents of air, instead of costly radiating surfaces; he has moistened his air by the capillary attraction of a few skeins of worsted instead of expensive tanks of heated water, and we do not believe that he has in any way whatever incurred unusual expense of fuel in doing so: indeed we have his own assurance (p. 500, 1844) that only half the usual quantity of fuel is required.

We look upon this as an important move in the construction of plant houses, and upon the development of the principle as one fertile with endless practical appliances. Why, for example, should not a small pit be heated by means of a JOYCE's stove at one end, and a drain along the middle opening into the pit at the opposite end. But this and other matters connected with the subject we must reserve for another occasion.

LAST year Mr. OLDHAM, of Mansfield, was so obliging as to furnish many of our readers, gratis, with MISLETOE SEED. He is now desirous of learning whether any of those who received it, have discovered anything new in the manner of propagating it; and we are sure, if they have, they will oblige him by communicating their experience through our columns.

THE SHRUBBERY.

IF a definition were required of an artist, an amateur, or a gardener, as to what constituted a Shrubbery, their answers would, in all probability, be of a very different character.

The artist would insist on boldness of outline, intricacy, harmonious arrangement of tints, &c. The amateur would dwell with delight on borders crammed to suffocation with Pelargoniums, Pansies, and Verbenas; and the gardener in general would insist on clumps, or masses.

However, as there are, it will be allowed, certain first principles of taste in this as in other matters, which cannot be transgressed without a sacrifice in point of effect, it becomes a question whether one principle

might not be laid down for general cases (independent, in a considerable degree, of the question of size), which would carry out the views of the whole three.

I propose not here to say anything about what is termed a flower garden; this is, or ought to be ruled by a principle of its own, subservient only to the situation it is intended to occupy, and to a just relation to the surrounding objects or scenery:—First, then, I would urge, that in the disposition of ground to ornamental purposes, one main walk, of a greater width than the others, should traverse the whole domain; or at least that portion of it that is really interesting, or leading to striking views:—Secondly, that where space will admit of it, all other affairs of a purely decorative character should in the main be ruled by this leading principle, when once properly established, and should be as it were episodes to the main design:—Thirdly, that the general outline of the planting should be of a bold and expressive character, and bear a proper relation to the sinuosities of this walk; and that all digressions from this should be accomplished without any sacrifice of the main features, or of the sky or ground outlines.

These principles being assumed, I will make a few remarks on what I consider prevailing errors. I have generally found that the boldest and most intricate outlines have, by far, the most lasting effect; provided such walks are cleverly marked and supported by judicious planting. The spectator should not be allowed to see too much at once, unless from one or two favoured spots. The whole tour of the domain, in my opinion, should consist of a series of "dissolving views," if I may be allowed the term; and if Nature has not created this character, it can be done more than some folks imagine upon a dead level, by bold lines, and intricate outlines of plantation alone.

Tameness of outline, then, in leading walks, is, I would suggest, the besetting sin; in addition to which, the thirst for destruction of "breadth" of lawn (by throwing down single trees, and what are called clumps, in all directions), has a tendency to sacrifice all lively expression, to an endless and sometimes tiresome display, in detail, of nicknacks; for which a much more legitimate situation might be found, and where they would be more at home.

Two of the greatest improvements in modern ornamental gardening, as principles, are, in my opinion, the almost total repudiation of the mixing flowers and shrubs, and of deep edgings to the outline of walks;—both of which were accomplished in a considerable degree by the late Mr. Loudon, who laboured unceasingly at this very point.

The disposition of those flowers in masses, however, which have been banished the shrub border, is no very easy matter, without affecting the noble outlines which irregular plantations assume; yet it will, I think, be granted that a dark background of evergreens is particularly well adapted to exhibit gay flowers in mass. Three leading principles in the disposition of these masses, of shrub margins, should, I think, be allowed to regulate the whole:—First, that all bold recesses formed by the outline of plantations or shrubberies, should be held sacred—no masses here. Secondly, that they should be generally situated between the prominent points and the recesses; nearer, however, to the points: and Thirdly, that in form or figure, when they are near the walk, one side of the figure should be nearly parallel to that walk; and when nearer the shrub border, they should in some degree adapt themselves to the sinuosities of that border. Elliptic, reniform, or circular figures, will be found very well adapted in general, and will please longer than more complex forms; their business in this situation is chiefly to furnish colour; the figure and general expression being furnished after all by the marginal line of the shrubs.

Where bold walks possess an extensive and broad margin of this kind, much may be done in the way of decoration, independent of the regular *parterre*: and if the nakedness of the mass-ground in winter were an objection, it would be easy where plenty of labour is allowed to turf or plant it at the approach of winter, when the gay Verbenas and Pelargoniums had quailed before the ice-king. To plant such masses with winter stuff, many eligible plants offer themselves—such as the common Wallflower, the Christmas Rose, the winter Aconite, the wild wood Anemone, the Snowdrop, the Crocus, the Windflower, Anemone, &c. Hundreds of these should be potted in due time, and well established: added to which a nursery of Rhododendrons, and other dwarf shrubs, such as Box, Aucuba, Laurustinus, &c., would be a useful adjunct. This is, however, carrying matters with a high hand, and presupposes considerable expense.

Much discretion is requisite also in placing single permanent specimens of trees or shrubs on lawns, where it is requisite to preserve breadth of feature. The immense acquisition of new plants, of late years, adapted for lawns, has forced many a person into the dotting system, who formerly despised it: this is, undoubtedly, a retrograde direction, however, in point of taste. Such things should, in general, where space allows it, form a slight digression from the main walks and principal lawns; and might, under good management, be made to form a distinct feature, without deranging the general plan.

In places of some extent, it should ever be borne in mind that the formal edges of shrub-borders, which are absolutely necessary at first planting, are but means to a given end; these means are, however, frequently mistaken for the end, and the dubbing shears and edging-iron applied annually with a pertinacity truly mortifying to those who can appreciate better things.

No formal cut lines can ever produce so rich and grand an effect as the majestically sweeping and rich outline, as well as varying tints, produced by such permanent and massive forms as full-grown Hollies, Laurels, Rhododendrons, &c., fringed overhead occasionally with pendent forms:—such as the Laburnum, the Purple Beech, or the Abies canadensis.—*R. Errington, Oulton.*

A LIST OF GREENHOUSE PLANTS

To keep up a succession of bloom throughout the year:—

JANUARY.
Scottia dentata, red and green.
Epacris grandiflora, scarlet.
Polygala oppositifolia, pink.
Muraltia mixta, lilac.
Trymalium odoratissimum, white.
Corothrostylis bracteata, pink.

FEBRUARY.
Hovea pungens, blue.
Epacris purpurascens, lilac.
Correa Cavendishii, pale red.
Acacia Riceana, yellow.
Selago distans, blush.
Boronia serrulata, rose.

MARCH.
Burchellia capensis, scarlet.
Hovea Celsi, blue.
Chorozema cordatum, yellow.
Pimelea hispida, blush.
Hardenbergia ovata, purple.
Azalea indica-alba, white.

APRIL.
Bouvardia splendens, scarlet.
Witsenia corymbosa, blue.
Pultenæa subumbellata, yellow
Eriostemon buxifolium, lilac.
Pimelea decussata, red.
Chorozema varium, yellow.

MAY.
Mirbelia speciosa, purple.
Boronia anemonefolia, pink.
Bossiæa linophylla, orange.
Epacris campanulata, red.
Habrothamnus fasciculatus, scarlet.
Kennedya Marryattæ, scarlet.

JUNE.
Indigofera sylvatica, rosy-lilac.
Burtonia conferta, violet.
Chironia decussata, red.
Veronica speciosa, purple.
Pimelea spectabilis, pink.
Echeveria rosea, rose.

JULY.
Sollya heterophylla, blue.
Crowea saligna, pink.
Chilodia scutellarioides, violet.
Swainsona coronillæfolia, pink.
Mimulus glutinosus, yellow.
Statice Dickensonii, pink.

AUGUST.
Indigofera decora, rose.
Phænocoma prolifera, purple.
Eutaxia myrtifolia, yellow.
Anemone japonica, purple.
Abelia rupestris, blush.
Statice monopetala, pink.

SEPTEMBER.
Lilium lancifolium, white.
Plumbago capensis, blue.
Babingtonia Camphorosma, blush.
Cestrum aurantiacum, yellow.
Clethra arborea, white.
Kalosanthes coccinea, scarlet.

OCTOBER.
Veronica salicifolia, white.
Sedum Sieboldii, pink.
Chironia floribunda, pink.
Spermadictyon azureum, blue.
Lisianthus Russellianus, blue.
Lycopia pinnatifida, violet.

NOVEMBER.
Pittosporum undulatum, white.
Linum trigynum, yellow.
Templetonia glauca, crimson.
Boldoa fragrans, green.
Correa Lindleyana, pale red.
Mastacanthus sinensis, blue.

DECEMBER.
Luculia gratissima, rose.
Candollea tetrandra, yellow.
Correa rosea, rose.
Iochroma tubulosum, blue.
Primula sinensis, fl. pleno, rose.

James Donald.

WINTER FLOWERS.

Centradenia rosea.—This neat and dressy little flower, although not so gay as some of the forcing tribes, is nevertheless a most interesting little shrub; and is scarcely capable of forcing—in fact, scarcely needs it, as under ordinary cultivation it will blossom abundantly by the middle of January, on a warm and light shelf near the glass. Cuttings struck early in February, and highly cultivated, will be bushy plants by the end of June, at which time they should be chiefly in 5-inch pots, and should be removed from the stove or propagating house, to a light and airy greenhouse shelf. They must not be shifted after this, but allowed to become rather "pot-bound," and will not require any further attention, except moderate waterings, until the end of September, when a few may be introduced to a light and warm shelf in a stove, or intermediate house, where a temperature of 65° to 70° by day can be given. The rest may follow successively; and it is worthy of particular remark, that they do not open well without the influence of considerable light: all forcing them without this is vain; therefore a very light shelf near the glass is indispensable.

Soil.—Equal parts sound loam, sandy heath soil, and vegetable earth, with a good sprinkling of sand and charcoal.

Hardy American Shrubs in General.—These, for all practical purposes, may be classed together, and a most important adjunct they are to the early forcing-house, where flowers are required on a large scale, and continually. The following genera will be found most eligible for this purpose; viz., Rhododendron, Azalea, Ledum, Daphne, Andromeda, Gaultheria, &c. In removing these from the open border to force, care should be taken to mutilate their roots as little as possible. An old Pine pit is a very suitable place in which to commence their forcing. They should have a bottom-heat of 75°, and an atmospheric temperature averaging 65° with abundance of atmospheric moisture permanently supplied. When severe economy is not a primary object, and a good stock of these delightful shrubs are required through the spring, the best plan by far is to pick the nurseries in the end of September, where, amongst thousands, those may be selected which are at once compact bushes, and abound in buds. After forcing they should be slightly protected whilst severe weather prevails, after which they may either be turned out of their pots in beds of peat earth, or be transferred to the American garden. Amongst these the Daphne cneorum is one of the most delightful plants when forced, that can be imagined. About 30 years since it was quite a custom to force these in the neighbourhood of the metropolis; and at a nursery at which I spent some of my early days, we used to graft them on the common wood Laurel, on stems about 12 or 15 inches high. Managed thus, they possessed, in due time, umbrella-like heads, slightly pendulous; and when forced were the admiration of all. The little Gaultheria procumbens, too, was another favourite in those days; and large tufts, in low and wide pots, bearing a profusion of blossoms, had a very pretty effect.

Tropæolums.—These, such as T. tricolorum, T. Jarrattii, brachyceras, &c., it is scarcely fair to class amongst winter flowers; with good management they may, however, be made to blossom abundantly by the beginning of February. Of course, forcing with these is much facilitated by a very early growth, as also early rest, in the year previous to the demands on their forcing propensities. Bulbs which have been thus early aroused, and at rest by the end of June, are perfectly adapted to this end. My method is to half-fill a 5-inch pot with sphagnum, and to lay one bulb of each on the surface; then to close up the top with a handful of the same material, placing them in a cool cellar or fruit-room. By the end of August I remove the covering, as they will soon begin to shoot, and the moment this is perceived, I pot them; and to do justice to this delicate plant, the potting is a most important matter.

Mode of Potting.—I mix equal portions of fibrous loam, sandy heath soil, half-rotten leaves, half-rotten horse-manure, and charcoal in small fragments, about equal parts; the whole of these materials as rough as possible. They are then passed through a riddle of nearly 2-inch mesh, and the largest portions reserved for the pot-bottoms; the remainder is then subjected to the ordeal of a riddle of ¼-inch mesh, and the finer particles of soil totally rejected. In filling my pot for the bulb, I invert a small pot; this I surround with charcoal in lumps, and on this I place the roughest of the material, and fill up with the last riddling. Nothing can succeed better than mine have done for many years. They should be watered very sparingly until they have half filled their trellis, and should at all times have a light and airy situation. A temperature of 60°, by day, is quite sufficient for them in December and January; more will do mischief.—*R. Errington, Oulton.*

Home Correspondence.

Culture of the Chinese Primrose.—Although this may be easily and successfully cultivated in pots, as recommended at p. 704, yet it is more easily and advantageously cultivated in general by planting it out in some shady situation during the summer months. For autumn-flowering specimens the seed should be sown about the middle of March, in pots or pans, and placed in a little heat until the young plants appear, when they should be removed to a greenhouse. As soon as they are large enough let them be pricked out into pots or pans, keeping them in a shady part of the house. They will thus, with a little attention, be strong plants, ready for planting out by the end of May. Prepare a frame under a north wall (the most suitable situation for them) with a compost of three-parts leaf-mould and a little turfy loam or sand. Let the plants be placed about 6 or 8 inches apart; keep them close for a few days, after which the covering should be removed entirely, to allow the dews and rains to fall on them. They will require no more attention until the time arrives for potting, but they should have a liberal supply of water and liquid manure occasionally. The bad specimens should, of course, be removed as they come into flower, in order to give the others more room to grow. About the middle of September they should be taken up and potted in 6, 7, or 8-inch pots, according to the object of the cultivator, in a compost similar to that recommended at p. 704; afterwards, replace them in the frame, keeping them close for a few days, and constantly wetting the foliage three or four times a day to keep them from flagging. In about a fortnight they may safely be removed to the greenhouse, and watered more sparingly as they come into flower. You will thus insure a good succession of bloom throughout the autumn. Seed for specimens to flower in spring should be sown about the middle of April, and treated as above, keeping them free from damp and frost during the winter months and giving them more water, as the spring advances, which is all that is required to make them flower abundantly. After the plants have done blooming, plant them out again as before, and they will make fine specimens for flowering in the following autumn.—*C. Gardner, Stoneham Rectory.*

Thornfield Pines.—At p. 817, "M. G." requests me to give him some information concerning my method of causing premature fruitfulness of the Pine-apple, which he states is of vast importance, and should not have been omitted in the first edition of my book. Now I beg to differ from "M. G." in this particular. Long practice has taught me that nothing which tends to check the roots is deserving of a place in any book on the culture of the Pine-apple at the present day. Any gardener, who will fully carry out my system, as laid down in my second edition, will have no reason to complain of unfruitfulness in the plants. The leading features of this system are, first, a peculiar mechanical arrangement of the soil (see pp. 2 and 62), by which the roots may be preserved in a healthy state for many years, without ever being disturbed. Secondly, preservation of the old stool (or storehouse of organizable matter, as it has been very justly termed), which will have to forego a triennial process, as mentioned at p. 52, to prevent the plant from becoming inconveniently high. Thirdly, uniformity of bottom-heat, see p. 55; and, Fourthly, a due amount of atmospheric moisture, see p. 42. If the above directions are strictly attended to, I dare guarantee that any amateur or gardener, having a suitable house, will produce three full crops of average sized fruit in every two years. I have already cut four fruit from one plant in 15 months, and there is every probability of my cutting four fruit in the forthcoming twelvemonth from another plant.—*Joseph Hamilton, Thornfield.*

Forcing Vines early with badly ripened Wood.—

Being always in the habit of forcing my first Vinery very early, say the first of November, to have Grapes by Easter, I find, however, this season, that my Vines are not going to produce any fruit, excepting a few poor looking bunches. I may mention that they are planted outside, and I have a quantity of leaves and hot dung on the border to raise a slight heat in the soil, and to keep off rain. I attribute the want of fruit to the backwardness of the season, the wood not being properly ripened. In former years I have always had good crops considering the early season of forcing. Has anybody else experienced this? I am afraid mine will not be a solitary instance this next season.—*J. King.*

Bee Flowers.—Since I recommended the Melilotus leucantha (p. 135) as a bee flower, I have received several applications respecting its cultivation. It is a biennial, and should be sown in March, or in the beginning of April, on a deep, rich, and dry loamy soil, in drills about 18 inches in width, and the plants should be thinned to 9 or 10 inches apart. It will grow from 6 to 8 feet in height during the first summer, and from 10 to 12 feet in the second. If some plants of it are cut down to within two inches of the ground when about two feet in height, they will bloom later in the summer, and a succession may be had from June to November, which will be frequented by thousands of bees during every fine day throughout the season. I saved some seed during the past autumn, and shall have pleasure in sending a packet of it to any of your apiarian readers who may forward their names and address.—*E. Briggs, Swainsted, near Bourn.*

Gooseberry Caterpillars.—May I ask "J. P.," who states (p. 874) that he has failed in preventing caterpillars from attacking his Gooseberry trees by the application of soot, whether he acted upon the instructions formerly given. Did he apply the soot in a fresh state when the buds were just opening on a damp morning, when the young leaves were moist with dew? If he neglected any of these particulars, I cannot answer for his success. When applied as recommended at p. 21, I have never found it to fail for upwards of 20 years on a very extensive scale.—*William May, Hope Nursery, Bedale, Yorkshire.*

Sulphur v. *Rabbits.*—About two years ago, while visiting a gentleman's seat in the north of England, my attention was arrested by seeing several men stooping down at some rabbit holes, with something burning in their hands. On inquiry the men said they were "sulphuring the rabbits." "Sulphuring the rabbits!" said I; "What can that be?" The reply was, that the gentleman was going to give his farmers a day or two's sport in hunting and shooting rabbits, and that when the holes are fumigated in this style, they will allow themselves to be run to death rather than enter them for several days afterwards, and the practice had been carried out with perfect success. The manner in which this was effected was by having a rag thickly covered with sulphur paste ignited, and in each hole it was held as far as the arm would reach for about a minute. This year, when I planted out Dahlias, &c., in a place exposed to the destruction of vermin, I took the precaution to dust each plant all over with sulphur, and the ground round it. On going a few days afterwards to see how the plants were doing, I found most of them partly eaten; and in order to try the efficacy of sulphur, I gave the remaining parts of the plants a thick covering with it, and in a short time again visited my nurselings, and was surprised to find hardly a vestige of them left; the rabbits and hares had eaten most of them down to the very earth, and it appeared to me that sulphur gave them a relish for the plants rather than otherwise. It had not the least effect in preventing their destruction. —*Orford.*

Frogs and Toads not Viviparous—The frog is the first to deposit its spawn in the spring. The spring of the past year (1845) having been very backward, I discovered none of that gelatinous substance full of black specks, in ditches, till the 30th of March; and what I then saw appeared to have been recently deposited. I put some of this into an inverted bell-glass of water, and when the sun shone upon the water the whole mass rose to the surface. At first I was quite at a loss to account for this, but I soon found that it was occasioned by the little round lumps of spawn expanding in the centre, and consequently decreasing in their specific gravity. What was more curious, those lumps which were uppermost appeared above the water like transparent lenses, exposing to the sun the round black eggs or germs of the future tadpoles. On the 2d of April those eggs appeared like Onion seeds, then kidney-shaped, and the next day showed signs of life. On the day following, very small tadpoles were wriggling about. As they ate their way through the lumps of gelatinous substance, these filled with water, and began to sink while the full ones rose and took their places. By this curious process the whole of the spawn was successively exposed to the sun and hatched. The remaining substance, like jelly, afforded the first food for the young tadpoles—an admirable provision of Nature. I fed them afterwards with a green slimy weed, commonly found in wet ditches, and usually called water-flannel, among which they would have been found, if they had been hatched in the natural way. I supplied them frequently with water from the ditch until the 1st of June, when the tadpoles began to change colour. Their hind legs now appeared, and, on the 9th, the fore legs; then the tail or fin began to shrink, and in three more days they hopped out of the water, perfect little frogs, about the size of small horse-beans. The spawn of the toad is deposited in the water about a fortnight later than that of the frog. It does not lie in a mass together, but in two distinct rows, resembling strings of black beads, each about two yards in length. This remarkable difference in the spawn, independent of the toad being destitute of teeth, might suffice of itself to show that the useful and much misrepresented toad is not a degenerated species of frog, as M. Raspail supposes; nor viviparous, as some have imagined. On the 15th of April I procured some toads' spawn, from which I obtained tadpoles on the 28th, which differed in no way from the frog tadpoles, except that their colour was darker. I put both together, and they throve equally under the same treatment, without one set devouring the other, as some assert that tadpoles do; and they became perfect toads about the 1st of July. The spawn of toads being in strings, cannot float without support, like that of frogs; and to secure its position near the surface of the water, it is cast among floating weeds and tangled roots, and often in deep water. The tadpoles do not burst the little black beads, which are the actual tadpoles, and they gradually swell and open into life. In the face of this fact, so easily ascertained, there is an opinion, advocated even by some of our best naturalists, that toads produce their young alive, and in the reptile state. They appear to argue from the supposed analogous case of certain lizards, which are said to be either oviparous or viviparous in different localities. Those who advance this theory appear to lose sight of their own declaration, that the spawn is fertilised as the female deposits it. But my own observation and experiments prove that this is erroneous. And how could tadpoles live and be supported in the body of the parent for the time required for their perfect formation in the water, which is near two months and a half! The great number of tadpoles produced from a single toad would require the toad to be as large as a sea turtle. The circumstance of very small toads having been found in places distant from water, has been brought forward in support of the above opinion: but it must be recollected that the toad once formed returns to the water no more, except in the pairing season. It is usually found in dry banks and obscure places; its nature will, therefore, lead it away from its native ditch, and little toads can easily climb up banks and make their way rapidly enough to a considerable distance.—*J. Wighton.*

A New Vegetable; "Rhaflower."—We have been in the habit of eating the leaves of the Rhubarb plant for many years, and seeing that the fruit stalks of this vegetable were counted as waste, I thought it very likely that they were the better part of the plant, and I now find that the pouches of unopened flowers bear the same relation to the leaves of Rhubarb that Cauliflowers do to Cabbage leaves, and may be obtained in great abundance, and that at a time (April) when all kinds of vegetables are valuable. The pouches of flower-buds are of a beautiful colour when dressed in the same manner that Rhubarb is dressed, and resemble the inside of a fig; the flavour is milder than that of Rhubarb stalks, but I do not look upon it so much in the light of an article for making tarts of, as I do for its use as a boiled vegetable, to be used like Broccoli. Let no one take my opinion of this matter, but let every one judge for himself as soon as the flower stems shew themselves. As a matter of course, the plants should be grown in rich ground, and the pouches to be crisp should be got very young, and will require some care in cooking.—*Alexander Forsyth, Alton Towers, Dec.* 31, 1845.

Corydalis claviculata.—Although a considerable number of handsome flowers, indigenous to our island, have been admitted into gardens, there remain many adorning their native wilds alone, and awaiting the hand of some judicious man of taste to rescue them from unmerited obscurity. I propose that the elegant, the delicate Corydalis claviculata be forthwith elevated to the dignity of a garden flower. This plant (better known to many as Fumaria claviculata, Linn.) is by no means of frequent occurrence. It inhabits the sandiest soils, and equally enjoys trailing along the ground, and climbing in shady places amongst the ferns and brambles. It is therefore well suited to cultivation on the north side of masses of rock-work, or in the shady, bushy parts of a shrubbery. In proof of its perfect hardiness, let me state, that last Wednesday, the day before Christmas-day, I saw the Corydalis in full bloom in its native habitat among the Fir plantations, at Parkmount, near this place; and a friend, into whose garden I transplanted a few specimens last autumn, informs me that his are flowering, and may probably seed so abundantly as to occasion him some trouble to keep them in bounds. Notwithstanding this hardy constitution, our plant is peculiarly characterized by much apparent tenderness, and a habit of remarkable slenderness and delicacy. The stems are long, filiform, and of a rosy tint; the leaves, furnished with tendrils of a tender light green, and beautifully reticulated with translucent nerves, like most Fumariaceæ; the cream-coloured flowers can scarcely be called showy, being small, in axillary racemes. I shall feel much pleasure in supplying such of your correspondents as feel inclined to patronise my *protégé* with seeds or young plants.—*F. A. Mulleson, Pulborough, Petworth.**

Spot on the Pelargonium Leaf.—I beg to inform Mr. Hood (p. 856), that spot is not occasioned by cramping the roots, for I have found from experience that, unless the pots are filled with roots, a fine head of bloom cannot be obtained. Some weak young plants are more subject to spot than stronger growing varieties, which was probably the case with Mr. H.'s plants. I have invariably seen the spot make its appearance in autumn, more particularly if the weather is wet and cold, before housing the plants; but I have never seen the Pelargonium thus affected when the plants were in good condition. Of what strength does Mr. H. use guano-water for his plants?—*J. Parker, Elm Grove, Roehampton.*

Cisterns, to render Watertight.—In reply to "A Subscriber," who asks (p. 874) if India-rubber can be used to render slate cisterns watertight, I beg to refer him to Messrs. A. Jeffery and Co., Brunton Works, Limehouse, for marine glue, a material which will fully answer his purpose. It should be carefully used; and if he mentions for what purpose he requires it, and how he should best apply it, I have no doubt the patentees will give proper instructions.—*Agricola.*

Journeyman Gardeners.—Among the many communications which appear in the *Chronicle*, I find nothing respecting the condition of the journeyman gardener, who has to struggle on against adverse circumstances on the poor pittance of 9*s.* a week, which are the general wages in Scotland, and on this sum they are expected to maintain a respectable appearance (which they in general do), but to how many privations do they subject themselves in doing this; and, moreover, to attain any proficiency in the business, they must purchase books. Now, supposing them to have acquired a pretty fair share of education before they commence their apprenticeship, and this I hold to be absolutely necessary, books on horticultural subjects can scarcely be said to be within the reach of men who earn only 9*s.* per week, although in most places of any consequence they have lodgings and firing. I am not aware how the journeyman gardeners' conditions may be bettered but this is a "consummation devoutly to be wished"; should you, however, or any of your correspondents, put in a word in their behalf, something might be done, for I imagine, that if gentlemen were made fully acquainted with the case in all its bearings, they would raise the condition, and endeavour to increase the comfort of those who must one day succeed the men who are now their masters.—*J. M'I.* [In our opinion men should not become gardeners who have not friends capable of assisting them with the means required for their education. Journeyman gardeners should, like other people, put the saddle on the right horse.]

Transmission of Seeds to New Zealand. — From having observed (p. 840) a query respecting the transmission of European seeds to New Zealand, I am induced to offer the following method, and its results. I contemplated emigrating to New Zealand some twelve or fifteen months previous to starting, consequently I had that time to prepare. I managed to collect a large number of seeds, such as Gooseberries, Currants, Raspberries, and Strawberries, and many ornamental herbaceous plants, besides Acorns, Laburnum seed, Ash seeds, &c., &c., and about a bushel and a half of Quick seeds (Crataegus oxyacantha) for hedging. The last named, as also Asparagus seeds, I put in large flowerpots as soon as they were gathered, and sunk them to some depth in the open ground; there they remained until spring, when I took them up, washed the seeds clean, and spread them out to dry; by this process they occupied less room than if dried as they came off the trees; such as Strawberries, Raspberries, and all those pulpy fruits, I washed as soon as they were gathered; all were dried by sun heat. When thoroughly dry, they were wrapped in common brown packing paper, with the name carefully written on each package; they were then stored in a dry airy place until my embarkation, which was in June, I then procured a box sufficiently large to hold them, without pressing them too hard, I pierced this box in a number of places with a small auger, for the purpose of admitting air, and in this all the seeds were carried to New Zealand, except the Quicksets, which were conveyed in a canvas bag. On boarding the vessel I found that it was impossible to keep them between decks, the small quantity of articles allowed there prevented me, and therefore had to submit to regulations by allowing them to be "stowed away in the hold," I took care, however, that they were put from under the hatches, and clear from the sides of the vessel, as they would in either case have been liable to get wet in stormy weather. We were five months on the voyage, during which time I took the advantage of the hatches being opened, on three different occasions, to bring my seeds on deck, where I unpacked and spread them out to dry, not more than an hour on each occasion. In addition to what I collected in the country, I had upwards of a hundred other different kinds of seeds, which were packed in a hamper, and received the same treatment on board as the former. On arriving in New Zealand, I found it was not such an easy matter to rent a bit of ground, on reasonable terms, as we were led to believe previous to leaving England; and thinking my seeds would take hurt by being longer out of the soil, I roughly formed a few small boxes, in which I sowed some of those that I considered the most valuable, such as Gooseberries, Strawberries, Fuchsias, and a small packet of Pelargonium-seeds. Peas, Beans, Turnips, and a few other things, I sowed in a neighbour's garden, all of which germinated; thus proving that they travelled from England in good condition. Owing to matters not turning out to my expectation in New Zealand, I went to Sydney; but before leaving I gave the remainder of my seeds to a friend, and being a

* In my article on "British Evergreens" at page 872, I fell into an error, by trusting to memory in describing the Ivy in Parham Park. Its measures 2 feet nine inches in circumference, which gives a diameter of 11 inches. In the same paper, *spring* was printed *for spiny*, and *arms* for *aims*.—*F. A. M.*

gardener, took every care to do them justice. He afterwards informed me that most of them had germinated. I am convinced that anybody taking the same care, might convey seeds from England to New Zealand with certainty of success. They will also carry with equal success in canvas bags, hung up in the cabin or other airy place (as stated at p. 840); and when that can be done it is preferable. Such was the way in which one of our passengers carried seeds, which were sown by myself some weeks after landing, and they germinated very well. Such as Acorns and Walnuts will carry safest packed in a box or cask, in tolerably dry sand, as in the other case they are apt to get too dry, when the shell would crack, and consequently the embryo lose its vital power. Generally speaking, however, the grand point in preserving seeds, either on sea or land, is to keep them dry, in order to prevent the loss of the carbon, which every seed contains more or less.—*Alex. Burnett, Bibby Hall, near Liverpool.*

Harrison's "Floricultural Cabinet."—It is with extreme reluctance that I call attention to the piratical propensities of this periodical. I feel, however, that in self-defence I am bound to do so. On taking up the Number for December I saw an article headed "Trip to Paris in search of Autumnal Roses," and signed W. Paul, Cheshunt. I was at first somewhat surprised, having never written anything for that journal, and searched closely in expectation of finding it given as an extract from the *Gard. Chronicle*, where it appeared some 15 months ago. No such acknowledgment was made. Now, what I complain of is, that the article appearing at the present time as an original communication, places me in the awkward position of giving and describing *as new varieties* such as are now well known, and in almost every amateur's collection. As the original appeared in your columns, I trust you will not object to insert this letter. It is written from no hostile feeling; merely to explain what would appear to readers of both periodicals trifling and absurd.—*W. Paul, Nurseries, Cheshunt, Herts.*

Societies.

BOTANICAL SOCIETY OF EDINBURGH.

THIS Society held its second meeting for the session on the 11th instant—Dr. Archibald Inglis in the chair. Donations to the Library and Museum were announced from Dr. Dickenson, Liverpool; W. Brown, Esq., R.N.; Philosophical Society of Glasgow; Literary and Philosophical Society of Liverpool; and Professor Koch, Erlangen. Ralph Holden, Esq, and John Waller, Esq., were elected Resident Fellows of the Society.—Mr. J. M'Nab read a continuation of his journal of a tour through part of the United States and the Canadas. The last portion communicated to the Society gave an account of the botanical rarities observed in the neighbourhood of Toronto, and concluded with an excursion from Fort Niagara to Queenston, and thence to the Falls. The portion of the journal describing the remarkable distribution of the trees, shrubs, and herbaceous plants in the vicinity of the famous Falls having been read before the Society at a previous meeting, was therefore omitted. In the present notice, embracing the journey from Niagara to New London, Mr. M'Nab particularly alluded to the excellent state of the cultivated grounds through the Hamilton and Gore districts, and the suitableness of large tracts of the wooded country for emigrants. On some waste land round the head of Burlington Bay, many good specimens of herbaceous plants were picked in flower; of these the Lespedeza hirta, Polygala verticillata, Gerardia tenuifolia, and G. pedicularia, were abundant, with Chrysopsis alba; the latter plant being noticed for the first time as an inhabitant of Canada. Two strong herbaged Grasses, Andropogon furcatus and Limnetis cynosuroides, were mentioned as abounding in the neighbourhood of Hamilton, but neither seemed to be relished by cattle. The moorland ground in the vicinity of Brantford afforded many interesting botanical rarities, among which Euphorbia corollata was conspicuous. Liatris stricta, Aletris farinosa, Lespedeza frutescens, Batschia Gmelini, Arenaria stricta, Viola palmata, with many others, were plentiful in flower, and proved most attractive objects on the dry sandy plains; while the moister places yielded Tofieldia glutinosa, Zigadenus chloranthus, and Glycine Apios in profusion. The forests through the inland districts were exceedingly rich and varied, many of them containing large and lofty trees of Oak, Elm, Beech, Hickory, Ash, and White Pine. Some of these districts, in process of clearing by the recent settlers, presented a very remarkable appearance in consequence of large groups of stately trees standing dead, many with stems from 10 to 14 feet in circumference, and varying from 80 to 100 feet in height. The mode resorted to by the settlers for killing the trees is by cutting, during the early part of winter, a notch five or six inches deep round the lower part of their stems. The White Pines presented a very singular appearance caused by a peculiar seeming twisting of the decayed trunks in a uniform direction from left to right throughout their whole length. During the drying of the stems numerous fissures or rents are formed in a spiral manner from 1-8th to half an inch in width, about four inches deep, and generally from four to 10 inches distant at the bottom, presenting a ragged edge and narrowing upwards, causing the bark to fall off in large flakes. When dead, they are blown down, piled in heaps, and set fire to. The quantity of splendid timber annually consumed in this way was described as being very great; but being at a distance from water communication it is rendered comparatively worthless. Many of the roadsides, through the wooded districts for miles together, were richly adorned with the scarlet and blue cardinal flowers (Lobelia cardinalis and syphilitica), and the crimson Monarda (Monarda didyma). The American Elderberry (Sambucus Canadensis) also presented a striking feature, being very abundant and densely clothed with fruit. The only tree noticed by the party, not previously seen in any other district, was the Tamarack or Black American Larch (Larix pendula). This tree, of which there was an extensive forest on the banks of the Thames river, near New London, was generally of straggling growth, and never exceeded 3 feet in circumference.—Dr. Balfour read an account of a botanical trip to Ben Voirlich and Ben Nevis, in August last. He gave an account of the general features of the district, and noticed the occurrence of moraines and large angular boulders near the upper part of Loch Lomond, and the smooth rounded rocks, with distinct groovings, which are seen near the waterfall of Glen Nevis. Both of these phenomena being probably indicative of the former existence of glaciers. He then gave an account of the Flora, and noticed the occurrence of Carex frigida near Loch Hoy; of Isoetes lacustris, Carex saxatilis, and Poa Balfourii, in large quantities on Ben Voirlich; and of Lysimachia vulgaris, Carex vesicaria, Rubus affinis, suberectus, and Radula var. follosus, Bab., near Inverarnon. After noticing the varieties of Quercus pedunculata and sessiliflora which occur in Glen Falloch, he proceeded to give a detailed account of the botany of Ben Nevis. Besides the usual alpine plants, he picked Saxifraga rivularis, Stellaria cerastoides, Poa alpina vivipara, Poa laxa, and Poa montana, Cornus suecica, Cistopteris dentata, Carex saxatilis, and various alpine forms of Hieracia. Specimens of the plants were exhibited to the meeting. At this meeting the election of office-bearers for the ensuing year took place, when Professor Balfour was chosen President; and Drs. Greville, Seller, Archibald Inglis, and Douglas Maclagan, Vice-Presidents.

Reviews.

The Journal of the Horticultural Society. Vol. I. Part I. 8vo. Longmans.

IN consequence of the desire of the Council of the Horticultural Society to supply the members gratuitously, and at a stated period, with a work which should present at short intervals of time an account of the proceedings of the Society, of the experiments tried in the garden, of the new plants introduced, and of such recent inventions, observations, or discoveries as most directly bear upon the pursuit of Horticulture, it has been determined to substitute a quarterly 8vo "Journal" for the 4to "Transactions" hitherto published, and now to be brought to a close after the appearance of one more Number. The work before us is the first Part of this periodical. It contains four lithographed plates, exhibiting the parasites and morbid appearances connected with the Potato murrain. An interior view of Mr. Dillwyn Llewelyn's curious Orchideous house, the end of which is a waterfall, and the floor a basin, forms the frontispiece. Various woodcuts, explaining the structure of this house, or representing new plants, complete the illustrations. The contents of the Part will be found in our advertising columns. The papers which will attract most attention are doubtless the account of Mr. Llewelyn's house, and the very full reports on the Potato disease, in a botanical and physiological point of view, by the Rev. M. J. Berkeley, the great mycologist, and chemically by Mr. Solly. Mr. Scott has given a clear account of the Mango-growing at Sir George Staunton's. A very useful communication by Mr. Williams, of Pitmaston, on Melon-growing, contains some capital hints for the small gardener; while Mr. Gordon's account of Cryptomeria japonica will be read with interest by all who care for hardy evergreen trees; and a very interesting communication by the Dean of Manchester on the habits of plants, is full of matter for reflection.

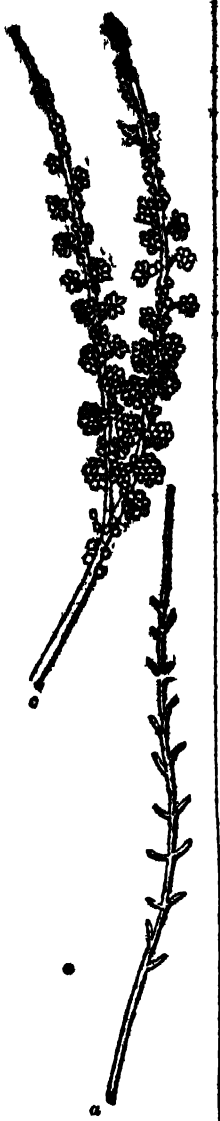
Mr. Berkeley attributes the Potato disease to fungi, as our readers are aware. Mr. Edward Solly entertains the opposite opinion, and, with us, refers it to atmospheric conditions. We must leave our readers to study the arguments of these two able observers, and to form their own conclusions if they can. For the present we shall merely quote what Mr. Berkeley says about the fungus itself:—

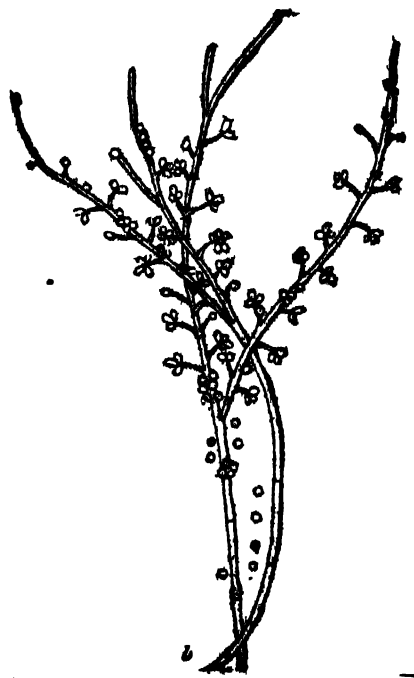
"We come now to the theory which has been so much canvassed, and which is now peculiar almost to Dr. Morren, unless M. Payen is to be reckoned also as its advocate. Of this opinion, notwithstanding the opposition, and in some instances the ridicule almost, with which it has been assailed, I must, as said above, profess myself at present. I do not mean to say that there are no difficulties in the case, or that weighty objections may not be raised, but I think that these difficulties have been exaggerated, while in other instances the exact question has not been understood. It is agreed that the disease commences in the leaves; and in those instances where the mould has not been observed, it is probable that the decayed foliage was examined too late. In a few hours the fungus has run its course, and in a week or so the greater portion of a field is laid waste so as to make it difficult to get specimens for examination. The decay is the consequence of the presence of the mould, and not the mould of the decay. It is not the habit of the allied species to prey on decayed or decaying matter, but to produce decay—a fact which is of the first importance. Though so many other species have this habit, these have not. The plant then becomes unhealthy in consequence of the presence of the mould, which feeds upon its juices and prevents the elaboration of nutritive sap in the leaves, while it obstructs the admission of air and the emission of perspiration. The stem is thus overcharged with moisture and eventually rots, while every source of nutriment is cut off from the half-ripe tubers. It would be as reasonable to say, with our knowledge of the nature and habits of the cereal fungi, that bunt, or mildew, or the other allied diseases which affect corn, are the consequence and not the causes of disease. In favourable seasons they are not developed; in unfavourable seasons they spread like wildfire: in one sense, therefore, the atmospheric conditions are the cause, but merely as they stimulate into action the latent pest. The immediate cause of disease is the fungus which preys upon the tissues of the corn. So exactly, in the present instance, as far at least as the aerial portions of the plant are concerned, the Botrytis is the immediate cause of destruction. In some instances it may have been aided by unseasonable frost, but this has certainly not always been the case. The mould, indeed, would not have spread but from peculiar atmospheric conditions favourable to its growth. What these are it may be impossible to say, but it is a fact well known to every student of the extensive tribe of fungi, that their growth, and especially their numbers, depend more than all other vegetables on atmospherical conditions, or what Fries has happily called 'cosmica momenta.' Even the peasant knows this to be the case with Mushrooms. Dry and wet summers occur, and both are equally barren; while in other seasons, apparently but little dissimilar, they occur in the utmost profusion. A species will be most abundant for a year or two, and then for a period vanish entirely. It is notorious that this is the case in other parts of the creation, especially amongst insects, peculiar species of which sometimes swarm to such an extent as to baffle the naturalist. In the summer of 1826, for instance, Vanessa cardui existed in the greatest profusion in England, and it was traced by Mr. A. Way from England to Nice. The species of late years has been comparatively rare. There is nothing surprising, then, in the fact of the immense prevalence of a parasitic mould. No one wonders when the Hop-grounds are ravaged by their peculiar mildew, because the cultivation of Hops is so limited; but if it were as universal and of as much importance as Potatoes, its ravages would equally excite attention. It is by these instruments, contemptible in the sight of man, that the Almighty is pleased sometimes to accomplish his ends. Instances, like that of the Hessian fly, will readily occur of the immense disproportion between the means and the end. The peculiar habit of the species, as said above, contradicts the notion of its appearance being the consequence of decay. I have in vain tried to make the spores vegetate, as is so easily done with other species. The spores of Botrytis Bassiana, which destroys the silkworms, and certainly is not the consequence, but the cause of decay, because the disease is readily communicated to the most healthy caterpillars even of other species, vegetate readily upon various substances. I do not assert that others may not have better success; but at present, in whatever way I have tried them, I have not been able to get a single spore to sprout, much less to propagate them upon foreign bodies. I do not know of any single instance in which any of the nearly allied species have been found in any other situation than growing from the tissues of plants; were this ever the case, they could not have been overlooked, as their spores are so much larger than those of other species of the genus. Botrytis cana is the only species which approaches them in this respect, but it is distinguished at once by its cinereous flocci and its evident relationship to B. vulgaris. The species are, in fact, as peculiar to the living tissues of plants as are the several species of Puccinia and Uredo, which could not exist, or at any rate be perfected, elsewhere. The mycelium of the cereal fungi is known to exist from the earliest period in corn, and is perfected only under favourable circumstances; and there is every reason to believe that the case is the same with these essential parasites, which certainly do not thrive on putrescent matter, but cause the decay of the matter on which they thrive. The direct observations of Bauer, Corda, and Léveillé, prove merely what a thousand facts indicate, unless, indeed, we have recourse to the notions entertained by many of spontaneous or equivocal generation from languid or diseased tissues; for the question at last reduces itself to this, which is indeed one involved in mystery, but which, as far as I can judge, wherever the veil is partially lifted up, seems after all to point to the same general laws by which the higher portions of the creation are governed. To my own apprehension, then, it appears clear at least that the cause of the premature decay and putrefaction of the haulm is to be found in the parasitic fungus, in consequence of which attacks the tubers are unripe, and in a bad condition for preservation."

As it may be interesting to some of our readers to see what sort of plants these species of Botrytis are, we add the figure of that which attacks silkworms, along with a few notes by Mr. Berkeley on other species.

Speaking of the Botrytis infestans, which he regards as the destroyer of the Potato crop, he observes that—

2. "The peculiar characters of the species consist in the flow-creeto-palmi not dentipeted, or undulated tentacles [illegible] spores, and above all the curious swellings which give it somewhat the appearance of Gastrobotrys. The spores, however, are not disposed round the knots as in that genus and Asterobotrys, or even confined to them. The only species which exhibits anything of the kind is one which has been named Botrytis Urticæ by Mlle. Libert, and which indeed M. Desmazières considered as identical. It appears to me, however, that it is quite distinct, the flocci being far more divided, the spores bifid, and the colour instead of white, a greyish lilac. I have had the opportunity, fortunately, of comparing specimens, which occurred in the autumn, at Tansor, in Northamptonshire, with authentic individuals from M. Desmazières. Various allied species occur in similar habitats characterised by their large spores. These, though closely allied to each other, differ in their mode of ramification and in the form and size of their spores. The best known of these is Botrytis parasitica, which occurs on Cruciferæ. Many other undescribed species occur, related to Bot. effusa, Grev., but differing in various characters. All exercise a greater or less influence on the health of the plant attacked. Dr. Morren informs us that Beet-root has suffered from a species during the present autumn, and also Pear-trees. No good figure has yet appeared of Botrytis Bassiana, which attacks silkworms. I have therefore availed myself of a sketch kindly communicated by Dr. Montagne. It will be seen that it is extremely like Botrytis diffusa, Alb. and Schwein; but this is, I believe, more in appearance than reality, for perfect specimens of that species exhibit a very complicated structure, each head consisting of numerous lobes each of which bears a number of spores attached to little spicules—a structure, quite different from that of Botrytis."





Botrytis Bassiana, from a sketch by Dr. Montagne.
a Young thread. b Thread more advanced, with young spores. c Ditto full grown, with mature spores.

New Garden Plants.

[It has appeared to the Editor that the lists of new plants, or of old plants newly brought into notice again, may be placed in a more useful form than they have hitherto assumed in this Journal; and that it would also be agreeable to a large class of readers if they were rendered more scientific and original, without losing their popular character. He has, therefore, decided upon remodelling this part of the *Gardeners' Chronicle* so as to meet those objects. In future, the department of new plants will receive a strict editorial revision, and when species are described for the first time, their specific characters will be given in technical form, but in the *English language.*]

1. Weigela rosea. Rosy Weigela. *Hardy Shrub* (Caprifolia). North of China. Native name "Nouk-chok-whoa."

"A shrub like a Philadelphus; old stems whitish, smooth; young ones green, slightly winged; wings alternating with the leaves and covered with hairs; leaves opposite, nearly sessile, elliptical, 1¼ inch wide, 3 inches long, serrated above, nearly smooth below, on the midrib and veins hairy; flowers axillary and terminal, three or four springing from each axil or end of the shoot, rose-colour; peduncles short with green short thread-like bracts at the base; calyx cleft into five unequal segments, three above and two below, two-lipped, smooth, light green; corolla monopetalous, tubular; mouth reflexed and cleft into five equal segments, smooth; stamens five, shorter than corolla, and inserted or growing to its sides; smooth above, but hairy from the point of union to the base of the corolla; style 1; stigma capitate, a little longer than the stamens; germen inferior, rather more than an inch long, nearly sessile, and having the appearance of part of the peduncle of the flower." Such is Mr. Fortune's description of this most beautiful shrub, which has reached this country in safety, is apparently hardy, has already been distributed by the Society to a limited extent, and promises to take rank with the Chinese Azalea as an object of ornament. A drawing received from him represents it as forming loose clusters of from three to five flowers at the end of every little side branch, and his dried specimens show that the drawing is faithful in that respect. The flowers are rather more than an inch long, and are an inch and a half in diameter when expanded. In colour they are very like the well-known Chinese Crab (Pyrus spectabilis), pure white under, deep rose externally. The genus Weigela, which originated with the Swedish traveller Thunberg, has been referred by modern botanists to Diervilla, and several species of it inhabiting Japan have been published by Messrs. Siebold and Zuccarini under that name. But although in many technical characters it approaches that genus, yet it is very different in habit; and since the seed-vessel is crustaceous, not membranous, and the seeds winged, not wingless, it seems expedient to preserve the original genus. The species now described is more like the *Calysphyrum floridum*, also a Weigela, and a most beautiful one, from the North of China, than any of the Diervillas of Siebold and Zuccarini, from all which it differs in its very large flowers, except their D. grandiflora, the leaves of which have very long stalks, and the stamens hairy filaments. Hitherto this plant has been kept in a greenhouse, but it has so much the appearance of a hardy shrub that, especially considering its flowering in the North of China in the month of April, it will probably live in the open air.—*Journal of the Horticultural Society*, p. 65.

2. Dendrobium scoeninum. Fluted Dendrobium. *Stove Epiphyte.* (Orchids.) New Holland. Messrs Loddiges.

Sp. Char.—Stems slender jointed, smooth, hard. Leaves, terete fluted. Flowers solitary, white, middle sized. Sepals and petals drawn to a fine point, the former a little powdered with violet. Lip white, edged with crimson, 3-lobed, the back lobes blunt and short, the middle one taper pointed, with 3 green wavy raised lines along the middle. Column with two erect, rounded, crimson-edged wings.

A curious little epiphyte, with the habit of *Dendrobium calamiforme*, and some other New Holland species, and probably very near the little known *D. crispatum*. It has nothing to recommend it to the cultivator, except its singular manner of growth, which resembles that of a little Bamboo, but with terete fluted leaves. It is occasionally sent to this country, under the erroneous name of D. canaliculatum.—*J. L.*

3. Habrothamnus corymbosus. Corymbose Habrothamnus. *Greenhouse shrub.* (Nightshades.) Mexico.

A very handsome species, sent to Kew by Mr. Low, of Clapton, quite distinct from the H. fasciculatus. It is everywhere glabrous, apparently a much taller plant, and with the corolla of a very different shape, widening upwards and then suddenly contracted, so as to have an unecolate tube; and having the segments of the corolla much longer, acuminated, and at length reflexed. Its growth appears to be much more rapid, and it is more easily cultivated, only requiring the protection of a greenhouse in the winter. In summer it does best in the open air, and may readily be increased by cuttings. As far as can be judged from the description, it seems to be the Meyenia corymbosa of Schlechtendahl.—*Botanical Magazine*, 1845, *t.* 4201.

Miscellaneous.

Gardeners' Education.—We learn that Messrs. Knight and Perry have engaged Mr. Holmes to deliver a course of Forty Lectures on Chemistry and Experimental Philosophy to the men employed in their Nursery at Chelsea.

The Derby Florists' Challenge.—There appeared in our columns, a week or two ago, a notice of a match likely to take place between the florists of Derby and Nottingham, the former offering to show 30 distinct varieties of Tulips, whilst the latter considered 12 would be sufficient; some correspondence has taken place between the parties, and as the Derby growers (who are the challengers) will not lower their number to 12, the "men of Nottingham," have proposed to remove the difficulty by meeting half-way, and exhibit 21 distinct varieties; 4 blooms in each of the feathered classes and 3 blooms in each of the flamed, their object being quality before quantity; they have likewise offered to select five florists of Nottingham, who shall each cut a pan of six flowers from his own garden, which pans shall be exhibited against a similar number of the Derby florists for any sum not exceeding 10*l.* Mr. Wood, of The Coppice, Nottingham, has also proposed to stage a pan of six distinct varieties, one in each class, against the best pan that can be produced by any Derby florist for any sum not exceeding 5*l.*, thus bringing into competition some of the best flowers grown in that part of the country. We understand that, should the Derby florists not accede to any of the terms proposed, the Nottingham growers will leave the preliminaries to be settled by any indifferent person or persons, and exhibit according to their arrangements.

The means employed for obtaining Double Flowers.—How many erroneous circumstances up to this day have been admitted to explain the cause of doubleness in certain flowers! Thus, for example, many gardeners pretend, that, to obtain double Brompton Stocks, you must gather the seeds exclusively from those flowers which are the most double. What influence can these flowers have when entirely deprived of all the organs of generation! None whatever. To explain this phenomenon, we must make practice agree with theory. Every gardener who sows seed, wishes to obtains plants with double flowers, so as to obtain blossoms which produce the greatest effect. Every double plant is a monstrous vegetable. To produce this anomaly, we must attack the principle of its creation, that is to say, the seed. This being granted, let us examine in what way these seeds ought to be treated. If, after having gathered the seeds of Malcolmia annua, or Ten-weeks Stock, we sow them immediately afterwards, the greatest number of the seedlings will produce single flowers, whilst, on the contrary, if we preserve these same seeds for three or four years, and then sow them, we shall find double flowers upon nearly all the plants. To explain this phenomenon, we say that in keeping a seed for several years, we fatigue it and weaken it. Then, when we place it in a suitable soil, we change its natural state, and from a wild plant make it a cultivated one. What proves our position is, that plants, in their wild state, shedding their seeds naturally, and sowing them as soon as they fall to the ground, yet in a long succession of time scarcely ever produce plants with double flowers. We think, then, after what we have said, that whenever a gardener wishes to obtain double flowers, he ought not to sow the seeds till after having kept them for as long a time as possible.—This practice ought to be observed with all plants that we wish should produce double flowers, for all varieties of the Brompton Stocks, Pinks, &c. As to Brompton Stocks, Ten-weeks Stocks, and others of the same kind, there is no doubt that to flower them well they should be sown in autumn in well-worked soil, taken up when the cold weather comes, and kept under a frame during the winter. In the spring they may be planted out again, when they will flower magnificently, and yield an abundant harvest of seeds. If you have not a frame at your disposal, you may obtain the same result by sowing the seeds, at the end of February, under a south wall, for example. The principles that we admitted above, are just as applicable to Melons and all plants of that family. We admit, like many other observers, that Melon plants obtained from seeds the preceding year, ought to produce, and do produce, really very vigorous shoots with much foliage; but very few fruitful flowers appear on such plants, whilst, on the other hand, when we sow old seeds, we obtain an abundance of very large fruit. In fact, in all varieties of the Melon the seeds should always be kept from three to eight years before being sown, if we would obtain fine fruit and plenty of it.—*Revue Horticole.*

CALENDAR OF OPERATIONS.

(*For the ensuing Week.*)

The usual mode of inducing shy blooming plants to produce flowers is to cramp their roots. We have no such control, however, over Orchids, for if we confine their roots, we disarrange their economy, and endanger the existence of the more delicate kinds; but as most of them will exist in a dormant state for many months, if moisture is withheld from their roots, we can compel them to alter their natural time of growth to suit our seasons. Spring and autumn growth should, therefore, be discouraged by these means, with all the shy blooming kinds. The experiment should commence now by keeping them as cool and dry as they can bear for about six weeks, and in spring, by increasing the heat as the season advances, but still withholding water till early in the summer, and then giving it only when their buds are ready to start. In reference to the shy blooming kinds the most essential part of their management is to compel them to confine their growing season to our summers—say from the middle of May till the end of August. Young Stanhopeas are more difficult to flower than established plants; because they are more susceptible of being influenced by changes of temperature or moisture. At this stage they may be made to grow in any month in the year. They will also endure more hardship than any other of the tribe. From this time to the beginning of May give as little water as the roots as is consistent with the health of the plants, and to the middle of February, 55° in the proper temperature. The atmosphere should not be drier than that for a collection of stove plants; therefore, where two houses do not exist, the coldest end of a stove is a good place to winter them in.

CONSERVATORIES, STOVES, &c.

About 40° is a good temperature for this house when not attached to sitting rooms, and only used for the purpose of wintering large specimens without plants in blossom, but where a supply of stove plants in bloom is constantly kept up from a forcing pit, which is essentially necessary to every good conservatory in winter, the best heat is 45°. Cinerarias, which are great ornaments in this house in winter, are thirsty plants, and should be well attended to with water, they are also liable to the attacks of insects, and unless they are looked after, they will soon establish these among other plants. Chinese Primroses are also very ornamental here; although they grow well near the glass, they do best in shaded places. In regard to soil, two parts rough leaf mould, and one of well decayed cow-dung, with a little sand, suits them best, and in this they like plenty of moisture. *Stoves.*—All stove plants should now, and for the next six weeks, be quite at rest, and in that state 55° is quite high enough for them in cold weather. No more water should be given at the roots than what will keep the leaves from flagging, but the atmosphere should be kept more or less moist. A high and dry temperature is much more injurious to stove plants than any cold they can suffer in a temperature about 45°. *Pits and Frames*—Keep the plants in these structures as hardy as possible, by fully exposing them in mild weather, but do not give them any more water than is absolutely necessary. Remove all decayed or decaying leaves, and keep the atmosphere in as healthy a state as possible.

KITCHEN GARDEN FORCING

Pineries.—Where a supply of Pines is wanted throughout the year, it is sometimes necessary at this season to subject some of the fruiting plants to a high temperature to start them into fruit. If a few of those most likely to fruit soon can be put into a house by themselves, where a temperature of from 65° to 70° can be maintained by night and 72° by day, with about 85° of bottom-heat, it will bring on the fruit. The other plants can then be kept at a moderate temperature till the end of the month; this will prolong the succession of fruit, and be much better than subjecting many plants to a high temperature at this dull season. *Vineries*, &c.—As before mentioned, observe great moderation in regard to increase of temperature in houses in which forcing has just commenced. *Peach-houses.*—If the buds are swelling, 50° by night may be maintained; sprinkle the trees frequently, and protect the roots from the effects of frost. It is an excellent plan to have a stock of Peach-trees in pots, or tubs, for the first early crop. If any of the blossom-buds have expanded, it will be well to assist the setting of the fruit by means of a camel-hair pencil Trees, in bloom, require a temperature of 57° by night, and a rise of 5° or 10° by day, with fire heat according to the state of the atmosphere. *Cucumbers*, should have every possible amount of foliage exposed to the light; and continue, as opportunities occur, successional crops of Kidney Beans, Mushrooms, &c.

FLOWER-GARDEN AND SHRUBBERIES

During changeable weather, like the present, little can be done in the regular work of this department; but where alterations are contemplated, such as making new walks, new flower-beds, or renewing the soil in old ones, these should be forwarded whenever the weather will permit. Holes for planting choice or new shrubs or trees may also be prepared by removing the bad soil, and replacing it by a compost suitable to the plants; and even when trees are planted and not growing well, the soil may be carefully removed from the roots, and replaced by better material. In wet weather plenty of work may be found in making pegs, brooms, flower sticks, repairing rustic baskets, and seats, and in painting wire trellises. In the reserve garden, beds containing autumn-sown annuals would be the better for having a few branches of evergreens stuck into them to shade the plants from bright sunshine after frost, which has often a very injurious effect, and to protect them from drying winds.

FLORISTS' FLOWERS

A great addition having been made during the past year to the votaries of Flora, and a corresponding demand for information and instruction on the several points of cultivation being the natural consequence, we shall continue our weekly hints on this subject, observing that independent of the usual routine recommended, we shall be able to bring forward several interesting methods of culture, founded on experiments during the last season. Whilst the weather continues open follow the advice given during the few past weeks. Should frost set in, cover Auricula frames with two good mats, giving air by tilting the lights whenever possible Should the plants by any means get frozen, allow them to thaw gradually, without being exposed to the action of the sun's rays. Those who have not obtained the necessary number of Ranunculuses to make up their beds, ought to do so without delay, as the period of planting, the 14th of February, will soon be here. If the beds have not been already formed, perhaps the simplest and best way is to excavate the soil 2 feet deep, put in 6 inches of decayed cow-dung, covering this with maiden turfy loam to the depth of 12 inches more, the remaining 6 inches to be equal parts loam, leaf-soil, and sand, thoroughly incorporated.

KITCHEN GARDEN AND ORCHARD.

All unoccupied ground should now be turned up by rough digging, trenching, or ridging; regulating these operations according to the nature of the soil, and the character of preceding and contemplated future crops. *Keep forward Lettuces from being injured by frost; and look sharply after Cauliflower plants under hand-lights, as well as Lettuces, Endive, and Radishes, in cold frames; protecting them with straw or reed covers, or Spruce branches. If not already done, seize the earliest opportunity of mild weather to sow the first crop of Peas and Beans, choosing established early varieties. Orchard.*—Proceed with pruning, and protect newly-planted trees by mulching their roots. Where planting is not finished, the operation should be deferred for a month or six weeks longer. In the meantime, however, the ground may be prepared for the reception of the trees.

COTTAGERS' GARDENS

As soon as the weather will permit sow Marshall's dwarf Prolific and Mazagan Beans, which are the kinds generally used for early crops; the latter is the hardiest. They may be planted in shallow drills drawn about 18 inches apart, in the warmest part of the garden, and covered about 2 inches in depth. On the first fine day also sow a few of the Early Frame or Charlton Peas. For this crop the seeds should be sown rather thickly, and in case of severe frost they should be protected by Fern or Furze. Some of the latter chopped may be put into the drills to prevent the ravages of mice.

MONTHLY DEPTH OF RAIN, in inches and hundred parts of an inch, which fell at Chiswick in the years 1841, 1842, 1843, 1844, and 1845

	1841	1842	1843	1844	1845
	In	In	In	In	In
January	2 60	1 00	1 33	2 25	2 97
February	0 76	1 32	2 15	2 27	0 93
March	1 32	1 81	0 47	2 44	1 25
April	1 58	0 15	1 62	0 93	0 95
May	2 16	1 73	5 26	0 25	2 89
June	2 45	1 58	1 62	0 97	1 16
July	3 56	1 52	1 67	2 10	2 81
August	2 69	2 81	4 28	1 84	2 79
September	3 71	3 39	0 98	1 81	1 77
October	1 61	1 71	4 19	4 13	1 19
November	3 41	4 47	2 13	3 06	2 11
December	2 12	0 76	0 58	0 39	2 61
Annual amount	30 97	22 11	25 48	21 94	23 13

State of the Weather near London, for the week ending Jan 1, 1846, as observed at the Horticultural Garden, Chiswick

Dec.	Moon's Age	Barometer Max	Barometer Min	Thermometer Max	Thermometer Min	Thermometer Mean	Wind	Rain
Frid 26	27	29 976	29 976	50	37	43 5	S W	
Sat 27	28	30 10	29 786	52	41	46 5	W	17
Sun. 28	●	29 806	29 471	52	28	37 0	S W.	16
Mon 29	0	30 018	29 700	52	40	46 0	S	06
Tues 30	1	29 968	29 644	54	25	39 5	W	01
Wed 31	2	30 106	29 465	52	40	46 0	S W.	44
Jan								
Thurs 1	3	30 061	29 692	46	30	38 0	N W	
Average		30 17	29 669	51 1	33 5	42 3		35

Dec. 26—Densely overcast, cloudy partially overcast at night
27—Clear, fine, faintly overcast densely overcast at night
28—Boisterous, with rain, clear and frosty at night
29—Frosty overcast
30—Overcast windy, fine, clear
31—Fine, with bright sun, uniformly overcast, boisterous, with very heavy rain at night
Jan 1—Clear; fine, with sun, clear at night
Mean temperature of the week 4½ deg above the average

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Jan 10 1846

Jan	Aver Highest Temp	Aver Lowest Temp	Mean Temp	No of Years in which it Rained	Greatest quantity of Rain	Prevailing Winds							
						N	N E	E	S E	S	S W	W	N W
Sun. 4	47 8	31 0	39 7	6	0 35 in	2	2	2	1	2	2	2	6
Mon. 5	41 0	33.2	36 6	7	0 60	6	1	4	—	1	6	1	1
Tues 6	40 9	29 9	35 4	7	0 33	1	4	2	2	3	6	2	—
Wed 7	40 2	32 6	34 4	4	0 14	1	2	3	2	2	2	4	2
Thur 8	37 4	29 7	33 6	5	0 10	3	2	6	2	—	5	1	1
Fri 9	38 6	31 7	35 0	6	0 20	1	4	2	3	3	3	3	1
Sat. 10	41 0	29 4	35 2	7	0 40	1	5	2	3	4	1	2	2

The highest temperature during the above period occurred on the 5th, 1834—therm 54°; and the lowest on the 8th, 1841—therm. 6°.

Notices to Correspondents.

BEANS—*Flytrap*—The deleterious principle of the Scarlet Runner and French Bean is said to be Cytisine, the same which causes Laburnum seeds to kill children who incautiously swallow them

BEES—*S*—The manner in which bees build their cells is but little known. You observe "when the bees begin to work, being close together, each is surrounded by as many sides as there are sides to the cells, and thus they cannot but make a six-sided cavity." But cells are not all of one size, and by what rule are the larger or drones' cells made? The queens' cells also, are not hexagonal, but round and inverted, so that, were we to suppose the larger ones to be formed on the same plan as the smaller, and increased in size by the extension of the working bees' legs, there would yet be this obstacle to surmount and they would be placed on a "level space to perform their operations." The fact is, when bees build cells, they can readily twist about in all ways You object to the bee being endowed with fore thought, which "some suppose to be evident in his building his hive and putting up food for his winter consumption." And the ground of your objection is "that the fluid prepared by flowers is very sweet and tempting and that nothing is so natural than that the creature in youth seduced into excess, has after a while been tain to disgorge superfluities and has thus acquired the useful habits which has rather incautiously been overpraised." But, be it remembered that the honey-bee is gregarious the whole year round, and thus differs from all British bees, the humble one, for instance "stores up food for a ready supply for its brood in summer only." The honey bee on the other hand, is continually engaged in rearing brood when the weather admits of it, and without a ready supply of honey and pollen always at hand, its young would inevitably perish. So far from revelling in excess their object is to store up the sweets exuded from the flowers, to enable them to increase their kind *W.*

BOOKS—*E C D*—Probably Mackintosh's "Practical Gardener" will be the best book for the lady to consult. The "Flower-Garden" may, we believe, be had separately.

CHARCOAL—*A Well-wisher*—When wood, after being exposed to fire, falls to an ash, it is burnt not charred. To char you must keep the fire burning very slowly, and with very little access of air. What are called turfs here are what you name sods: you cannot do better than use them for smothering the fire and keeping out the air. For the manner of making charcoal see p. 720, 1844.

CHIMONANTHUS—*Sub*—The proper time for pruning Chimonanthus (Calycanthus præcox) fragrans, and the only pruning required, is about the beginning of July. Pinch all the points of the stronger young shoots with the finger and thumb, which causes them to produce laterals, which in general are covered with flower-buds.¶

COLOURS OF PLANTS—*A Gardener*—Whence do fruits and flowers derive their colours? Ask the redbreast who adorned its bosom, or the raven why it is not white. Enquire of yourself how your hair was made black and your blood red. No one can answer such questions. Walnuts will not bear till they are old: if you would hasten them, dig round their roots at some distance from the main stem and fill up the hole again.

DAHLIAS—*An Old Sub*—We recommend you the following 12 sorts, in which you will find a good variety of colours. Antagonist, Hudson's Princess Royal, Proctor's Nonpareil, Cleopatra, Standard of Perfection, Beeswing, Widnall's Queen of Roses, Lady St. Maur, Catlough's Eclipse, Bermondsey Bee, Duchess of Richmond, Admiral Stopford.*

FORESTING—*Gloucester*—To our mind there is no *good* English work on Foresting. There are many sketches of what should be done, such as Billington's, Withers's, and others, but they are so incomplete, as to be of very limited use Main's "Forest Planter" is perhaps the nearest a good book, though very far from what is wanted. There is also a small treatise on planting, published by the Society for the Diffusion of Useful Knowledge. Your best plan will be to consult our weekly Calendar for the four past years and for the present.

GLAZING—*W M*—You may now buy squares 40 inches long at the same price as if they were 12 inches; for we have effectually broken through that part of the impositions of the glass cutters We are of opinion that the experience of a hard winter is required before it can be ascertained whether the new plan of bringing glass into more contact, instead of overlapping will answer If you attempt it, use good white-lead for the joints There is an objection on the part of many good gardeners to training fruit trees over trellis, instead of nailing them It is said that the currents of air setting between the tree and the wall lower the temperature, and diminish the utility of the wall itself, and we believe that they are right

HOTHOUSES—*R W*—Three compartments, each 40 feet in length, will afford a moderate supply of Grapes and flowers for a small family, but some pits in addition would be found very useful All may be heated by one boiler, provided the pipes are furnished with well adapted stop-cocks. For the early Vinery—Black Hamburgh Black Prince, Royal Muscadine, and White Sweetwater For the late—Black Frontignan, White ditto, White Muscat of Alexandria, and the St Peter's.‖

HORTICULTURAL SOCIETY—*Sevenoaks*—Apply for them to the Secretary, 21, Regent-street. They will be sent as a matter of course

HYACINTHS—*Aliquis* Use tepid water for your Hyacinths in glasses, and add four drops of a saturated solution of sulphate of ammonia to every pint of water This will be found to have a very beneficial effect ‡

INSECTS—*H S*—It is scarcely possible to free land from wireworms, they may however be reduced by sticking slices of Potato or Turnip in the ground, to which they will resort; and if these be examined daily, very considerable numbers may be collected and destroyed ‡

NAMES OF FRUITS—*R C, Kingston*—1 8, Uvedale's St Germain, 2, Passe Colmar, 5, Carlisle Codlin, 6 Marks's Codlin, 7, Kerry Pippin, 8, 11, Nonsuch, 10 Hawthornden 12, Pigeon, 14 Norfolk Beaufin 17, 25, Dutch Mignonne, 18, Dumelow's Seedling, 19, Kirke's Lord Nelson 20 Yorkshire Greening; 24 Grey Leadington ‖——*D J—* 1, 8, Hollanduury, 5 Franklin's Golden Pippin, 6, Wormsley Pippin, 7, Gravenstein; 9, Dutch Codlin ‖——*C N, Berks*—3 Padley's Pippin, 4, Sometimes called Fall Pippin ‖——*T S*—1, Vicar of Winkfield, 9, Worthless ‖

NAMES OF PLANTS—*N F N*—Omphalodes verna ——*J M C D*—It is usual in this country for persons who ask for information to do so civilly, and we do not believe that in Ireland there is any different custom You put your questions in so unintelligible a manner that they cannot be answered and to this you add impertinence In future do not write to us If, as you say you are requested by other persons at Drumcondra to do so, we must request them to find a more civil and a more sensible medium of communication We are always willing to answer questions even as ignorant as yours but they must be asked in a proper manner ——*W L*—Lotus tetragonolobus ——*J B*—Leptospermum obovatum —*Sub*—Populus angulata ¶ ——*J B*—Zygopetalum intermedium. ——*A Kentish Man*—Lælia anceps and Odontoglossum Cervantesii.

PHLOX VERNA—*Sub*—This is a very scanty bloomer but it may be helped by planting it in a rich light sandy soil, either on rockwork or by elevating its stems by placing a few pieces of stones or bricks under them. It requires rather a dry situation and plenty of light ¶

POMEGRANATES—*W F*—The best way to treat your Pomegranate planted against a south wall, where it has remained several years growing vigorously without flowering, is to keep it as dry as possible in winter, and to give it plenty of room on the wall, allowing it to grow without pruning in summer ¶

POTATOES—*Omega*—In order to have young Potatoes in March, you should plant some Ash leaved Kidneys on a slight hot-bed as soon as possible Let the bed be made to the height of 3 feet, and 1 foot of soil over it ‖——*Tyro*—The "Rose" end is the youngest, the point of the Potato, the place where the eyes are placed closest together.

PRIMULA SINENSIS—*L P*—Your crimson seedling is not equal to many we have seen, the white variety is large and good, but it wants purity of colour "

ROSE WATER—*J W*—Distil fresh Rose petals in the following proportions —10 lbs of petals, 7 fluid ounces of proof spirit, 2 gallons of water We would willingly oblige you, but we cannot name dealers or give prices, which is the business of advertisers Consult the nearest chemist and druggist. he will show you his apparatus ‡

SEEDS—*I P*—Your Palermitan seeds are all of greenhouse or stove plants, with the exception of Convallaria japonica, Ligustrum japonicum, and the Cypress Oak. The Oxalis are very pretty things, and may be grown in flower-pots in a frame.

SIZES OF POTS—*S*—By refering to p. 83 you will find the information you seek ‡

TALIACOTIUS—*R W*—Thank you. We have not forgotten that but we thought the matter too serious for a joke

TORENIA SCABRA—*Amateur*—This is an herbaceous plant, and it is its nature to die down, keep it cool till next March, and then a little warmth and moisture will set it growing again. Very sorry you did not take our advice about heating. It rarely answers to use 3-inch pipes

TREE ROOTS—*J Shrimpton*—You will not injure your Elm-trees by cutting a trench 25 feet from their trunks. In fact, you must do so if you desire to establish a flower-garden near them.

VINES—Can any correspondent oblige us by saying if he knows of an example of the Thomery plan of Vine management in this country, and if so, how it answers ?——*G*—Three feet is quite deep enough.——*T B*—Vines which have been exposed to the frost since bearing, and which are to be forced in February should now be taken into the house and pruned and dressed preparatory to starting them. The borders should also be forked up and put in order before artificial heat is applied.‡

MISC—*B B*—Seedling Apples must possess great excellence, otherwise they ought not to be recommended. Yours are, however, worthy of further trial; this season having proved unfavourable.‡——*Enquirer*—The Beurré de Capiaumont is in season in October. In quality it is not equal to many others which ripen at the same time, still it deserves cultivation, being handsome and a great and sure bearer.‖——*P M F*—If you now take up your Gansel's Bergamot carefully, trench the border and replant the tree, it will certainly bear.‖

FARM IN EAST LOTHIAN TO BE LET.

TO BE LET—THE FARM OF PLEASANTS, in the parish of Spott, containing 190 Imperial Acres, or thereby. The Lands are of excellent quality, and are situated about two miles from the seaport of Dunbar, one of the principal stations on the line of the North British Railway. Entry will be given to the Houses, Grass, and Fallow, at Whitsunday next, and to the remaining Lands at the seperation of Crop 1846 from the ground. John Forrest, at Bowerhouse Gate, will show the Lands. The Conditions of Lease will be seen at Messrs DALMAHOY and WOODS, W.S., 69, Queen-street, and offers for the Farm will be received by them till the 16th of February, 1846, which may be made either in Money, or in Wheat, payable at the highest fiars of the county, or partly in both.—Edinburgh, Dec. 23, 1845.

The Agricultural Gazette.

SATURDAY, JANUARY 3, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Jan 7—Highland and Agricultural Society.
THURSDAY, — 8—Agricultural Imp Soc. of Ireland.
THURSDAY, — 15—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.

Antrim Union—County Cork—Lincoln—Longford.

FARMERS' CLUBS.

Jan 5—Darlington, Usk, Newark
Jan. 6—Wivelscombe, Aberayronny, Rochford Hundred, Framlingham, St. Quivox
Jan 7—Monmouth, Braintree and Bocking
Jan. 8—Blofield and Walsham, Richmondshire.
Jan. 9—Wrentham, Tavistock, Debenham, St Germains, Halesworth, Hadleigh, Wakefield, St. Austell
Jan. 10—Northampton Book Club, Cardiff, Swansea, Carlton on Trent, Winchcomb
Jan 12—Bamister, Yeaford, Wanlock, Great Oakley, W Hereford
Jan. 13—Wootton Basset, Lewis, Isle of Thanet
Jan 14—Harleston.
Jan. 15—Grove Ferry.
Jan. 16—Wadebridge.

ONE HUNDRED AND THIRTY-SEVEN THOUSAND AND THREE HUNDRED TONS OF GUANO were consumed in this country between the 1st of July 1844, and the 1st of July, 1845. Of this quantity, Africa supplied us with about 100,000 tons, and South America with the remainder. The cost price to the farmer of this manure may be estimated as follows:—

100,000 tons African, at 8*l* per ton	..	£800,000
17,300 tons Peruvian, at 12*l*. per ton	..	447,600
Making a total cost of	..	£1,247,600

A million and a quarter of money spent by British farmers in a fertiliser which was unknown in English practice five years ago, is an *astounding fact*, and one which is pregnant with interesting considerations. Thus in the first place it is a direct and practical refutation of the libel so industriously asserted by some, and blindly believed by others, that the farmers of England are "as stubborn as the clays they cultivate," and are unwilling to adopt modern ideas for the improvement of their practice, and the increase of their produce. There are, doubtless, some who are even yet ignorant of the value of this fertiliser; but the fact of the great consumption to which we have alluded proves that the cases are not "few and far between" in which the farmer has been neither dull of conviction nor tardy in action.

A demand increasing in four years from nothing to 130,000 tons, is evidence enough that there are some apt scholars amongst us. In like manner it is an answer to the open enemies and lukewarm friends who doubt the utility of our agricultural societies, and who sneer at the efforts of all who labour with their pens or their voices to stimulate the mind of the farmer to enquiry, and to diffuse, over the length and breadth of the land, the principles of the science and the practice of an art upon which so much depends, and comparatively so little is known.

For if we grant that some few persons directly interested in the cultivation of the soil knew the utility of the manure on its first importation, and that analysis pointed out to others the *why* and *wherefore* of the fact, how is it that this fact is now no longer new or strange in any part of Her Majesty's dominions? How is it that it has endured the ordeal of doubt and denial, and has gained such general confidence in so short a time? By what means has the knowledge of a practice so novel as the use of this manure been so quickly diffused? Truth, strong as it may be, cannot travel without a conveyance, and facts are generally longer on the road than fiction. Nor does ignorance ever give place to knowledge without a struggle for the victory. To the meetings, speeches, publications of our societies, and to the press connected therewith, we must attribute the extraordinary results we have alluded to. By bringing the ignorant and the learned together, those who were willing to be instructed mingling with those who were capable of teaching, by employing capital in collecting and publishing facts, by making these the texts from which our speakers have discoursed to thousands, and which our journals have carried to every market table in the kingdom; by these means, all of which our Agricultural societies and clubs have employed, information on this point of practice has been promulgated, and ignorance has been dispelled at a speed, and in a degree unparalleled at any other period in the history of agricultural improvement, and probably unattainable by any other means. By these means, the disadvantages of locality and circumstance, of isolation and limited opportunity of active communion with the world and its daily progress, have been overcome—disadvantages which have always been regarded as fatal obstacles to the progress of improvement, either in the knowledge or the practice of our farmers.

The efficacy of these means is, however, evidenced by other cases as well as the one now quoted. Thus it is a matter well ascertained that we have progressed more during the last four years, under the influence of these means, in our knowledge of the true economy of all other manures—especially of bones—than during the previous forty years. It is equally, too, a matter of fact, that the same mode of procuring and spreading knowledge abroad, has caused as great an advantage to be made in the fundamental work of improvement—draining, both as regards principle and detail.

And the rapid increase which has taken place in the use of guano is suggestive of another important reflection. The million and a quarter of capital which has been spent in guano is so much *extra* capital employed in the cultivation of the soil. In proof of which we find that the great demand for guano did not, during the past year, diminish the market for other manures. For example, bones have been 30 per cent. dearer during 1844 and 1845, than in the previous year. This million and a quarter of extra capital beneficially employed in cultivation, cannot have produced less than two millions worth of food for the population and wealth for the country. What then, indeed, is the value of the assertion that the farmers of England are "behind their age;" or, that the institutions which have been founded for the encouragement and promotion of agriculture, are but "a mockery, a delusion, and a snare;" and are as incompetent to effect that purpose as the farmer is unwilling to be taught. An ounce of such a fact as we have stated at the commencement of this article will outweigh a ton of this empty verbiage. To the practical farmer, however, there is one other consideration connected with the great fact to which we have drawn attention, which is of paramount importance. It is the consideration how a supply adequate to such a consumption is to be obtained for the future. At the present moment, indeed, this question is of peculiar interest; we shall, therefore, in our next, attempt to inquire into the prospects of the market for the *future*.

ANOTHER YEAR IS GONE. A remarkable and eventful, and it is to be at least hoped, an instructive year to the agriculturist. It is gone as entirely and irrevocably gone as "the years before the flood." What has it bequeathed to us? What light have we gathered from it, wherewith to light up the mysterious and shadowy prospect of the future?—for, it is by the experience of the past that the future is to be alone discerned, so far as human eye can penetrate. And surely if ever a coming year was fraught with an almost painful intensity of interest to every man in this kingdom that sets himself down as in the remotest degree "connected with agriculture" in any shape or sense, it is the year that now lies before us like a shut book, as yet sealed and silent, yet pregnant with coming facts and disclosures, in politics, in science, in art; in all that bears upon the history and progress of agriculture, the gradual unfolding and revelation of which, as surely as "one day telleth another, and one night certifieth another," so surely will they make each one of us wish that we had watched with more attentive, more prescient eye, the indications of the future, with which every past seems to have teemed, when looked back upon from the vantage-ground of after-knowledge.

It does not, and never did, form any part of our task to concern ourselves with the progress of mere political changes or opinions, however closely at times they may seem to unite and almost identify themselves with the history of agriculture; but in whatever department of knowledge the matter is to be found that moulds itself into the shape of purely agricultural speculation, we hold it to become *ipso facto* an essential part of agriculture itself, viewed as we will now venture to express the firm hope that it may be viewed, as a really advancing art, absorbing and appropriating to itself every ray, however scattered, that shines from the most distant star in the wide and profound expanse of human science. Putting aside, then, the mere question itself which has agitated, and is agitating the minds of all around us throughout the length and breadth of the empire—we allude, of course, to the possible alteration of the Corn-laws—a question in which landlord, tenant, and labourer, all feel a vital and unavoidable interest which it would be almost an affectation to overlook, at the opening of a year likely to prove so important an epoch in the annals of agricultural experience, we extract from the pack the card which intrinsically and alone belongs to us. It turns up in the likeness of the following query. What, if any, will be the effects of the expected change, not upon class or person, collective or individual, but upon *agricultural practice?* It might seem almost presumptuous to ask or guess, almost idle to dilate upon, had we nothing but surmise or conjecture to proceed upon, or to offer. But we have more. We have the history of past practice; of the causes, of every description, that have operated to retard or to advance its improvement. And in the review which presents itself, our eye is caught by one or two leading features that have ever and anon solicited our attention and claimed our repeated remark, throughout our progress in the journey we have traversed. One is the utterly and strangely disproportionate application of capital to agriculture, as compared with all the other great objects of human enterprize and investments of human labour and invention; the other is a matter of closer detail and lying more out of a cursory view, but powerfully significant; it may be comprised in the proposition that the farmers' attention has been hitherto called rather to THE PRICE THAT HE CAN OBTAIN FOR A GIVEN QUANTITY THAN THE AMOUNT THAT HE CAN GROW UPON A GIVEN SPACE.

We are no mere theorists. We are not careful to examine into remote or collateral causes that lie out of our province. Our concern is only with effects, and with such too as are obvious and indisputable. We affirm with regret the proposition as to price and quantity above stated, and we appeal to our readers if this remark be not true, in reference to the past; and if true, whether it do not betoken a screw loose somewhere in the movement of the agricultural machine, interrupting its due and proper action, and distorting it from its due and proper object and purpose, as the means of producing *an indefinitely increasing supply, to a constantly increasing demand?* Observe the effects of the application of capital and invention to other arts. They show themselves in improved machinery, greater produce, lower price, and *increased profits!* Is this true or is it not? as a practical and striking fact, is it true or is it not that the fortunes made by cotton-spinning and calico-printing have increased and extended enormously since the improved machinery and economised labour have multiplied the produce and reduced the price to an extent astonishing to contemplate? Is it true or is it not that the very machines that have economised labour have yet in the end immensely increased the number of hands employed? that the double blessing of lower price to the consumer, and higher profits to the producer, have gone hand in hand! And if it be true, as it is well known to be, that *profit does not depend upon price*, in regard to that which we "put on," why should it be otherwise in regard to that which we "eat and drink?" Why should that which is an axiom in the one be a paradox in the other? Both are trades in which capital invests itself in human labour employed, through the medium of machinery, upon the task of production. Why should a truth which is positive to the loom, be negative to the plough? The productive capabilities of each are alike unknown, and, as far as human knowledge has reached, unlimited; the latter, perhaps, even more than the former. What is the chilling cause that arrests investment in the elder branch of human art, agriculture; and sells its birthright to the younger, manufactures? We pause for a reply; but it is the pause, not of fear, but of hope; of hope not illuded by future expectations, but founded upon past experience: and truly the experience of the past ten years has been instructive beyond all former retrospect. With a population increasing at the astounding rate of a thousand a day, a thousand mouths to feed each day beyond the number of the day before, with the acreage of our little island cut and sliced, and taken up in every direction by the overbearing railroad, that swallows two thousand acres to a hundred miles, how have we met the increased and increasing demand? By hugely increased importation? Evidently not. Have our fields, then, grown larger? No! but they have *produced more*. The example of the few, and the encouragement derived from that example and its results, have not been wholly lost. The movement is but in its infancy, but it bids fair to attain a stature that shall vindicate its place among the rapid and gigantic growths that modern times have seen in other arts, and to exemplify the scientific and economic truths that their progress has established. We claim no position as the advocates or opponents, much less as the judges, of financial or legislative enactments. We utterly and distinctly decline to beat up even our most worn-out ploughshare for the sword of controversy. But we cannot turn a straight furrow without keeping our eyes open; and if the political hurly-burly around us divert our attention for a moment, it is only that we may hear and reflect, and, as far as in us lies, endeavour to judge of the future by the best of all prophecy, the history of the past. For many

a long year we *have* so endeavoured, and upon the best of our unbiassed judgment we humbly express a firm belief that both the advantages and the evils—in fact, the whole effect—of the suggested change, which the political journalists have knitted of late in our ears, has been absurdly magnified, as much by the ignorance as by the feelings and wishes of the combatants on both sides, and that of all the panic-dreams that ever sat like a nightmare upon the energies of human enterprise, or cramped the sinews of a noble pursuit, the idea, in a densely inhabited country, where population is rapidly increasing, trade and commerce extending, industry and skill unequalled, and true science dawning, that human food is likely to become too cheap, and its production unprofitable, is the most unaccountable, and will be eventually found the most illusory and groundless.—*C. W. H.*

BARLEY WILL BEAR THE WINTER.

In answer to your inquiries in a late Number as to the capabilities of Barley bearing autumn-sowing, I beg to acquaint your readers I am in the practice of sowing Barley (Chevalier, which is one of the most tender kinds), as early in the winter as feeding off my Turnips admits. I have now Barley just coming out of ground, and I never knew this grain on dry and clean land injured from early sowing in the slightest, except last winter on a little spot or two under a high hedge, where the snow had drifted 4 or 5 feet deep, and lay for five or six weeks.

I think the severity and long continuance of the frost of last winter after I had sown, enables me to say Barley will stand sowing in November; for, although I had none sown last year till the end of December, still the winter after Christmas was more than a common one, and indeed was in places destructive of Wheat. Some of my Barley that was so early sown was on the top of a hill, exposed to the coldest winds, in a high and very bleak situation, and this early-sown Barley was the best I had, and is more particularly alluded to in the Maidstone Farmers' report of my crops, as one of the finest they had ever seen, and grown from only six pecks of seed per acre.

Oats, too, bear sowing early remarkably well. In the Farmers' Calendar there is an account, by A. Young, of an experiment on sowing of Oats in December, January, and February, which proves those sown in December, although much cut up by frost, yielded the most, and I can testify positively to the same result. Last year I had three acres sown in December, which the frost injured very severely, so much so, that I thought of ploughing them up in April, and although only 7 pecks of seed per acre were sown, I have had thrashed 10 quarters per acre produce from this piece. Oats on the whole do not appear to bear severe frost so well as Barley; but as yet I have experienced no failure to make me afraid to sow either grain in the autumn on dry and clean land. On springy land such early sowing will not do, nor on foul land. In the former case, the frost will destroy vitality; and in the latter, the weeds grow so strong and fast, that the young corn cannot keep pace.

The practice of early sowing of Barley has of late years been much spreading in Hertfordshire and Essex, where they manage clay soils (with the exception of draining too shallow), most admirably. They get their heavy land ploughed up early in the winter, into ridges the size of their drills, and when the surface has been mellowed by a frost, they sow—the horses and the drill wheels passing along the furrows, so as to leave no stepping on the land; and on clays that in the south and west would be pronounced unsuited to Barley, they there grow most excellent crops, and of the finest quality. I believe it is generally admitted that the earliest sown Barley gives the finest quality, and is least liable to be laid.—*Henry Davis, Spring Park, near Croydon.*

EXPERIMENT WITH DISEASED POTATOES AT CHATSWORTH.

I have great satisfaction in giving the result of an experiment that I have instituted here (amongst others) which has proved in every way effectual in stopping the progress of the disease; and if the disease has not gone so far as to have affected the whole of the skin, or outside of the Potato, and consequently destroyed all the eyes, will render them safe to be used as sets for a future crop, since there is nothing whatever of a contagious nature about the disease, which has unquestionably been caused by the cold, wet, and ungenial season acting unfavourably to the due performance of the functions of the plant. Therefore no apprehension need be entertained of the disease for the future, except through the influence of a similar visitation of season. The crops in all parts of the country were considerably above the average, which fully proves there was no constitutional deficiency; the Potatoes are equally as fine as usual, but contain more than their due proportion of water; hence the deficiency in quality, and the reason of their rapid decay. Before proceeding further with this report, I shall take occasion to advert to a practice, which has proved extremely beneficial in its application to wall and other fruit trees in this garden, and although it may seem to have no connection with the present experiment, has nevertheless had something to do with its origin. The climate in the Peak of Derbyshire is subject to great variations of temperature, and the atmosphere at times is excessively damp; and it not unfrequently happened that the leaves of Peach trees have been destroyed by the early autumn frost, before the wood was half ripened, and in consequence the young shoots contained much crude sap, which for want of the action of the leaves could not perform its proper functions, and consequently would remain in its crude state in the system of the plant, causing canker, disease, and unfruitfulness. As a remedy for this unfavourable state of things, I apply slaked lime reduced with water to the consistence of thick whitewash, while it is quite fresh, which is put upon every twig, branch, and stem of the trees, with painting-brushes. Its effect is so satisfactory that it is applied as regularly as the trees are pruned, in the early part of winter, and has been the practice here for 18 years; after an unfavourable season like the last, we invariably have the commoner kinds of fruit trees, such as Gooseberries, Currants, and Plums, dressed over with it, and the result is alike satisfactory. The effect of the lime is to aid in ripening the young wood by its caustic property; it absorbs a great portion of the superfluous moisture from the tender unripe shoots, and affords protection against severe frost, and the influence of sudden changes of weather. Returning again to the subject of this article, it will be seen that the evils above spoken of are produced by exactly the same circumstances as the disease that affects Potatoes; and from a due consideration of these facts, in connection with the latter, it struck me very forcibly, that hot slaked lime would at once apply itself to the disease, and arrest its progress, and accordingly the experiment was tried as follows:—The Potatoes were carefully sorted, keeping the sound ones separate from those that were diseased, some of the latter being so bad that their whole surface was affected with it, and a tally put to each sample denoting their particular condition; there were two kinds thus sorted; namely, "Irish Cups," and a variety of "Second Earlies." A quantity of the common quicklime of this neighbourhood being put into a large shallow tub, water was added in the proportion of about 3 gallons to every stone (of 14 lbs.) of lime, and well mixed; the Potatoes were put into a wire riddle, and just dipped overhead in it, keeping it well stirred until all were done and placed in separate heaps. A portion of each sample were dibbed in the ordinary way, and the same quantity of their corresponding samples which had not been put into the lime, placed with them; the rest were put in hampers and stowed away in a dry airy shed. This was done early in November, when a few of each sample were put into a hothouse to see what effect the quicklime had on their eyes: they soon became excited, burst through the lime, and produced vigorous sprouts. A few of each sample were also boiled, but their flavour was not in the least affected.

The effect produced by the lime is evidently to arrest the disease at once by its powerful caustic property, and it absorbs from the tubers the superabundant moisture which they contain, and consequently prevents further decomposition. Having frequently examined them, I can confidently assert that the disease has not made any progress whatever since its application. They were affected with the disease in every stage of its progress between the sound and rotten Potato, and in every case it has proved effectual in stopping it, which is easily seen when they are cut; while those of the same samples, not subjected to it, and placed exactly under the same circumstances, show every sign of progressing decomposition, and some are entirely rotten, and others that were sound at the time of the operation are now considerably affected. The advantage and importance of this remedy is, therefore, very great, rendering the diseased Potatoes fit for sets. I shall have no hesitation in planting them in spring for a general crop, and, in fact, intend them for this purpose.

With respect to autumn planting, I am decidedly of opinion that as a general rule it will be beneficial; but, under circumstances similar to the present, I think it will prove to the contrary, which I infer from two reasons: 1st, because the Potatoes of this season already contain a superabundance of water, and to have them planted in autumn is contrary to the general rule recommended for their preservation; 2nd, because, if the disease goes on, the extent of the evil could not be ascertained until it was too late to repair it; whereas, by spring planting, we should in a great measure remedy both evils. The few that we have planted are nearly all rotten.

The mode of pitting recommended by the Irish Commissioners has my entire approval; nothing can be worse than the practice of pitting Potatoes in large heaps, for, independent of its tendency to produce decay, it impairs their energy for producing a future crop by causing them to grow before their natural season. For the future, should there be any appearance whatever of the disease, I would recommend the lime to be applied immediately upon their being taken out of the ground, for as lime is a non-conductor, the Potatoes might safely be pitted with it from the day they are dug up. I would strongly recommend the process to be at once put into operation by every person who has any unsound Potatoes in his possession, as I feel confident it will put an immediate stop to the progress of decay. The ease with which it is performed will enable every cottager to do sufficient for *himself* and his family for the whole year in a very few hours, and should the weather oblige him to put them into his cottage, it will rather add to the health of the house than otherwise. I would also recommend every person to dip their sound Potatoes which are intended to be planted, in the same mixture, only that they may add about one-fourth more water to the same quantity of lime. Independent of the certainty of this remedy, the cost is so trifling that it is within the reach of every one who grows Potatoes, not exceeding 3*d.* per bushel, which, I should say, would dip 10 loads of Potatoes.—*Joseph Paxton, Chatsworth, Dec. 28.*

THE BENEFIT OF FARMING WELL FROM THE COMMENCEMENT TO THE END OF A LEASE.

In a work by Professor Low, on Landed Property, at page 19, it is stated that "everywhere the mass of tenants will be found to prefer their tenancy at will to all the advantages which a permanent tenure can afford, because they know that they pay a lower rent, and can make it good by smaller exertions."

Notwithstanding the endeavours now made by agricultural societies and papers to induce tenants to seek and landlords to grant leases, the first part of Professor Low's opinion is in accordance with known facts: but although in some instances the reason he assigns for the tenant's preference of yearly tenure may have some influence, it has probably, in most cases, only a small share in biassing their judgments. Habit is, perhaps, a chief cause; and to this may be added a fear of the bargain proving bad, from uncertainty of prices, or of the continuance of the Corn-laws, or of their own lives; to which may be further added the want of knowing how much they may gain themselves by investing their capital in improvements, want of capital to invest, or the fear that any benefit may arise to the landlord from such improvements.

If tenants could be induced to act on a more liberal principle, we should find a great change on this latter point. Why should they persist in their too general determination not to effect any improvement which would benefit any one but themselves, when by laying aside this illiberal feeling they themselves may gain perhaps 10, 15, or 20 per cent. per ann., in addition to the repayment of their capital, and in addition also to the ordinary profit of farming without improvement? We are all surely bound to do what good we can to our neighbours without respect to whether they be landlords, tenants, or others, when we can do so without injury to ourselves; and if this be admitted, what must be the error of those who refuse to do any action that may prove beneficial to another, although actually far more so to themselves, even preferring to deny themselves a large profit to prevent others from deriving any. If they would be persuaded to look at this determination in its true light one could not but in charity hope that they would cease to adhere to it. But, setting this mode of argument aside and adopting another, if they kept such accounts as enabled them, with the degree of accuracy which a proper system of accounts would produce, to know how much gain they deprived themselves of in abstaining from improvements, it may reasonably be imagined that this feeling would be eradicated on the grounds of self interest alone. If this test of accounts were thoroughly carried out, it would probably appear also that by exhausting the land for the last two or three years of their tenancy, they injure themselves considerably, though perhaps not to the same extent as their landlords, because in declining to gain as much as they may, by continuing a good system of farming, they, in fact, sustain a loss to that extent, and I wish to impress this on their minds as an argument likely to prevail whenever common sense is allowed to influence their conduct; for it is to be hoped that this system of exhausting land prior to quitting is adopted far more generally from the mistaken notion that it is a saving of expense, and therefore a gain to the person who quits, than from any unfriendly feeling or ill-will to the landlord. However, a mere saving of outlay is not always a gain, and in fancying that these are synonymous, lies the fallacy which causes tenants to adopt too frequently an injurious mode of cultivating land which they know they are to quit in a few years, and which also tends in a great degree to disincline them to effect improvements requiring at the time an extraordinary outlay of capital. To give an instance of the benefit of the reverse policy—a farm was newly let at a fixed rent at its then value. In the ordinary course of tillage it came to the turn of one field, which was strong Wheat land, to be Wheat after a fallow; the fallow being the first year of the new tenancy. The tenant worked it as well as he could in its then state, and sowed it with his Wheat in the autumn next after entering; but at the following harvest he scarcely regained the seed. He then determined to drain every furrow; to effect which and clean it, as it had become foul from the crop missing, he again fallowed it; thus getting no crop at all the three first years from that field, at the same time having to pay rent, tithe, and taxes. He then again sowed it with Wheat, and had an excellent crop, and it has borne good crops ever since. His landlord allowed tiles, and he says it is now a pleasure to work the land, whereas previously it was often so wet, that the ordinary operations of farming could not be carried on at their proper season. This tenant had no lease, nor was he at all afraid of benefiting his landlord, nor of his rent being raised in an improper manner before he had had ample time to recover his principal and interest; the fact being that his landlord has since, in consequence of the price of grain having lowered, lowered his rent, joined him in other improvements, and effected others solely at his own cost, by way of encouragement, and as a mark of his approbation. Had the tenant, however, drained the field in the first year, while it was in fallow, it is evident that he would have had a good crop the second year instead of in the fourth; and I leave it to those more acquainted than I am with the value of crops, to calculate the loss arising from

this being delayed; merely remarking, that supposing, as was stated by himself, that the difference between the crop of Wheat which failed and that which succeeded, after draining, was about 20 bushels per acre at 7s. per bushel, there would be a gain of 7l. an acre; far more than the tenant's outlay in the first year, to say nothing of the saving which may have arisen from preventing the loss alluded to, had he exercised a sound discretion at first, nor of the greater facility for working the land afterwards, both of which may fairly be taken into account in computing the difference by way of profit and loss. But, this being an extreme case, supposing that 10 bushels per acre were gained by draining, at 7s. per bushel, equal to 3l. 10s.; this, as in the present case, where tiles were allowed, would more than reimburse the tenant's principal and interest in one year's crop, after which the capital would be free to be used in a similar way in another field, and so on till all were drained that needed it, the tenant in the meantime deriving the benefit year by year of more abundant crops of grain, gradually dispensing with fallows, and substituting Turnips, or other fallow crops, requiring a less number of horses to work his land, &c.; this again enabling him to keep more stock, this producing more manure, this again raising better crops, thus increasing his prosperity in a ratio far more rapid than is generally thought. After all the draining necessary had been effected, the capital employed in it may be used to advantage in what is termed the "higher branches of the art of farming;" I say this with all deference to your friendly criticism on my last paper, but, being a dabbler in gardening, I am humbly of opinion that, without due provision for the roots, we shall have but few branches, whether higher or lower, and although I am as free to admit as any one, that skill and care in training and pruning the latter are essential to perfection, yet attention to the former is necessary to existence. This leads me to doubt the policy of tenants aiming at the higher branches of farming before they have thoroughly conquered the lower ones, for nothing probably pays better than draining, and where it is really needed to the extent required in the case I have alluded to, it is hopeless to expect even a common profit without it. I therefore submit, that although it may be most advantageous, where a landlord agrees to effect the necessary draining on a farm, for a tenant to occupy his capital in what is termed "the higher system of farming which is gaining ground," yet where, as is commonly the case, this is not done by the landlord, a tenant should not hesitate in his choice, but commence with that as the basis of all future improvements.—*A Looker-On.*

(To be concluded next week.)

Home Correspondence.

Glass Milk Pans.—Those who have read the strictures upon the "Glass trade" in the *Gardeners' Chronicle*, and have witnessed their results, will readily acknowledge the beneficial effects which would follow if you were to advocate the introduction into the butter dairies of the kingdom, milk pans made of glass properly annealed, as a substitute for those composed of lead now in use. You would then confer benefit upon glass-man, dairyman, and the public in general. I mean not to urge the deleterious effects which lead has upon some sour milk, for I am not chemist enough to illustrate the subject, but I will urge, that of all materials of which dairy utensils are composed, none can be compared for sweetness, cleanliness, and delicacy, to glass.—*Glan Hafren, Welshpool.*

To Cure Bacon.—Having been in the same dilemma as your querist "Curly Tail," a friend in Yorkshire gave me the following recipe:—Take 3 galls. of spring water, 6 lbs. of common salt, 3 lbs. of common loaf-sugar, 4 ozs. of saltpetre, and 4 ozs. of bay salt; boil the whole over a slow fire, skim it; when quite cold it is fit for use. Rub the meat to be cured with fine salt and saltpetre pounded, and let it drain two days to free it from blood, then put the brine over it. Hams, chines, and clumps should remain in the brine three weeks. Fat pork will keep 12 months in brine, and be better than the new if kept well covered with brine.—*F. C.*

Thick and Thin Drilling Wheat.—As I promised, I send you the results of thick and thin drilling Wheat; the field, a clover ley on the chalk (soil thin), manured with an equal dressing of stable-yard dung, well rotted, ploughed, and pressed, after which it was rolled with a two-horse roll, well harrowed and drilled with Chidham Wheat, the best I could procure. One land, in the middle of the field, of an average quality, measuring 2 roods, 15 poles, drilled 10½ inches wide, at the rate of 1 bushel per acre, produced at the rate of 32½ bushels per acre, head and tail; the proportion of tail was 1 bushel in 9; weight of head, 62 lbs. per bushel; tail, 57½ lbs. per bushel; the remainder measuring 7 acres, 2 roods, 33 poles, on each side of the above land, drilled 10½ inches wide, at the rate of 1 bushel, 7 gallons per acre, produced 30½ bushels per acre; weight of head, nearly 63 lbs.; tail, nearly 56 lbs. per bushel; proportion of tail, 1 bushel in 9. The cause of this last weighing more than the thin drilled was simply that it remained five days longer in the field, having been cut five days earlier than the thin drilled, and all carted in one day; it will be seen from this that the thin drilled Wheat took longer to ripen than the thick; taking into consideration the greater weight of the thick drilled it is evident there is considerable gain by thin drilling; had the Wheat been of equal dryness, the market value would have been the same; it was all drilled on the 29th October, 1844; the thin drilled ripened on the 29th of August, the thick on the 23d August. Very little difference was observable through the winter; in the spring, so soon as the ground was dry enough, it was rolled with a heavy 24-in. iron roller, 10 days after harrowed with thick-tined harrows, a few days after hoed with Garrett's patent horse hoe, and 10 days after this hoed by hand. It was the opinion of several people who saw it just before harvest, that it (the thin drilled) would not produce so much per acre as the thick; it was five days later to reap. On minute inspection the ears of the thin drilled were found to be much finer, and free from blight, and there were not so many mimes in the ear as in the thick drilled. My object was to make it a fair experiment; to insure this, I superintended the whole of the operations myself; the land was as near an average of the whole field as possible, if any difference not quite so good Wheat land as some to its right; the manure all the same, seed all alike, rolled all in one day, harrowed the same, horse-hoed ditto; the hand-hoeing consumed several days for the whole field. In conclusion, I would say, should any one try thin drilling, they will never succeed unless it is well hoed and kept perfectly free from all sorts of weeds; their object should be to grow the crop they sow; this can be done by thin-drilling and clean hoeing; but if people will not drill, they cannot hoe; and if they continue to sow broadcast, they must sow thick, in order that the weeds may be kept under by the thick corn. I know of some of my neighbours who still continue to sow on the same sort of land that I occupy 3 and 4 bushels per acre, and say that a less quantity is not safe; the reason is clear to me, they suffer the weeds to grow, and all farmers know that weeds grow best in thin corn, unless kept under by the hoe; so to save hoeing they adopt thick sowing, for it is clear, that when Wheat is thick, weeds cannot grow so well. You may publish all, or any portion of this letter you think proper. I have inclosed a sample of each for your inspection. P.S.—The weights and measures are all imperial.—*James Eames, Chawton, Alton, Hants.*

Seed Wheat.—I feel no doubt about a large proportion of the Wheat sent being in a state fit for germinating; but it may be a question whether it is good policy to sow any portion of so very bad a sample. So far as I am acquainted with really trustworthy experiments it appears to me that, *cæteris paribus*, the best crops may be expected from the best seed. But this is one of the many thousand points upon which practical men are divided in opinion; though we might have fancied that there could scarcely be one upon which a greater uniformity in opinion ought to prevail. When agricultural societies shall more fully understand than they seem to do at present the importance of an organised system of experimenting, such questions as the one you have put to me will be answered once for always, and no one but the most perverse will be able to dispute the correctness of the answer. I very much doubt whether the sample owes the poverty of its character to frost. Is it not one among numerous instances that can be produced this year of our climate having failed in bringing to perfection this and certain other crops, in localities not quite so fully favoured as some others, where the same crops have been pretty well ripened? I asked my miller, a few days ago, how it happened that I could not get half so much gluten as I had expected from a lump of dough, and that what I did get was of inferior quality—in fact, I had been obliged to send to another mill for some flour for the purpose, having to prepare some for exhibition. He expressed great surprise, as the flour was of this year's growth, from an excellent sample of Wheat, which had (unexpectedly to himself) weighed heavier than usual. The only conclusion at which I could arrive was, that the sample had either been cut too green, with plenty of starch, but little gluten, or else that it had ripened without having received a sufficient quantity of that kind of manure upon whose presence an abundant supply of gluten mainly depends. Some flour I received from him afterwards contained much the same quantity of gluten as usual. It is sometimes rather hazardous explaining what may be the natural causes of occasional and local failures in our crops—for some of the laws of nature are not always in good repute among a certain class of practical men. A friend of mine got well hissed at an agricultural dinner a short time since for recommending a plan to which gardeners have recourse of continually importing certain seeds from abroad in order to keep up their stock of fine plants in those cases where our own climate may not be equal to the task of thoroughly perfecting their seeds. I believe the advice was most excellent, and that if farmers generally paid better attention to procuring the very best seed, they would largely increase the amount of their produce.—*J. S. Henslow, Hitcham.*

Relative Value of Food.—On reading your report of Professor Playfair's lectures, delivered the other week, my attention was directed to what I considered to be an error (perhaps of the press) in the tables given (at the close of the lecture) to show the relative value of various articles of food, containing each 1 lb. of protein, the nitrogenised element of food. It is there stated that 100 lbs. of Turnips, which contain 1 lb. of protein, cost no less a sum than 2s. 8d., being at the rate of upwards of 60s. per ton. Now, I would ask, what farmer would not be willing to dispose of any quantity at 20s. per ton, which would reduce the cost of 100 lbs., containing 1 lb. of protein, to 11d. Carrots, too, are charged at the rate of 4l. 10s. per ton, and upwards. The price mentioned for Potatoes is pretty correct, according to their present value, for those of good quality, but at least double the amount for what they can be procured for by the poor man in favourable seasons. Bread, flour, and flesh are charged correctly according to their market value, but Peas and Beans somewhat too high; 1½d. per lb. would be, I think, sufficient for either, and allow, too, for the cost of grinding them to meal. Whilst calling attention to these errors, I would not, however, dispute the theory of Professor Playfair, which I think is very good and just, viz., that it is desirable to encourage the labouring classes, and particularly the poor of Ireland, not to place such exclusive dependence on the Potato crop as an article of food, but to seek more frequently the aid of pulse and grain, which (even with the corrections I have taken the liberty of making) I think can be clearly shown to be capable of being supplied nearly, if not quite as cheap as Potatoes, and particularly if used in conjunction with other vegetables. It is now generally known that food is required for two purposes, to nourish the body and to support respiration. To supply the former, a healthy man requires 5 oz of gluten or fibrine, which can be furnished by 3 lbs. of bread, 2 lbs. of oatmeal, 10 oz. of cheese, or 20 oz of beef, but requires no less than 15 lbs. of Potatoes, whilst, for all the purposes of respiration, 7½ lbs. of Potatoes are amply sufficient. An Englishman would, I take it, find considerable difficulty in stowing away this enormous quantity of vegetable food, and how an Irishman is able to manage it is beyond my ability to explain, but I presume the inconveniency is such that a less quantity is generally taken, and thus the system denied its proper nourishment. However, to pursue our subject, the 7½ lbs. additional of Potatoes necessary to supply the requisite quantity of gluten at one half the cost stated by Professor Playfair amounts to 2d., whilst the same nourishment is contained in half a pound of Peas, at the cost only of 3 farthings, thus showing the superior economy, as well as the advantage, of varying the diet. I would venture, in conclusion, to suggest to the Irish landowners and men of wealth, the desirableness of establishing in every village soup kitchens, by means of which Peas, Swede Turnips, and Carrots, with a little meat, may be economically converted into good wholesome food, a quart of which per head gratuitously dispensed would warm the stomachs and gladden the hearts of thousands that will otherwise feel the pinching of poverty and hunger during the approaching winter. —*W. C. Spooner.*

Top-dressing.—Surely, it must be an easy matter for the chemist to inform us what are the practical results of the system of manuring recommended by "Oxygen." It is not necessary to show what oxysalts are produced, but that nothing valuable is carried off by the atmosphere, which is the fate of the carbonate of ammonia evolved from putrifying manure. Let fresh manure in a closed vessel be subjected first to the summer, and then to the autumnal heat of the air; let the nature of the substance which taints the air be ascertained, and the quantity, and thus we shall know whether such manure may, without important loss, be used as a top-dressing either in summer or autumn. If no such loss occurs, then, whether or not there be any beneficial oxidising effect of rain and air, there will be gain by preventing the loss of carbonate of ammonia, and also by the manure being at once intimately mixed with the soil. If the chemist decides that such serious loss does take place by evaporation, then even if one better crop is produced by top-dressing than by burying the same manure, we must conclude that it results solely from the manure being diffused through the whole of the soil, and becoming thus immediately effective, and that subsequent crops would prove that on the whole top-dressing is wasteful.—*Sigma.*

Yeast.—I have been informed that yeast may be dried, and kept in that form for a long time, without losing its properties as a ferment; and that Paris is, or used to be, supplied with large quantities of yeast in this form from Flanders. Can any of your readers state whether the fact is so? You have once or twice, in your columns, inserted receipts for making yeast, and it would be a great addition to the value of such receipts if you could publish some method of preserving yeast uninjured for a considerable length of time. —*Z. F. M.*

Experiments with Varieties of Wheat.—The ten varieties of Wheat mentioned below were all drilled 9 pecks to the acre, on the 19th of Nov., 1844, on a field of clay land, in a good state of cultivation, and were cut between the 1st and 7th of Sept., 1845.

No.	Name.	Quantity of Land planted. A.	R.	P.	Number of Bushels of 60 lbs. produced. bush.	lbs.	For Acre. bush.	lbs.
1	Spalding Red.....	0	1	19	17	47	48	9
2	Chidham.....	0	1	19	18	0	48	24
3	Whitfield White ...	0	1	17	15	60	44	50
4	Burletta.....	0	1	8	12	40	47	3
5	Red Cluster	0	1	16	16	30	47	23
6	White Horde.....	0	1	17	17	46	55	41
7	Belipse.....	0	1	2	10	12	46	26
8	Red Chaff Dantzic.	0	1	16	11	3	31	55
9	Brown's White	0	1	15	13	26	39	2
10	Red, unknown	0	1	15	13	36	39	29

—*C. Randell.*

Food for Horses, &c.—Can sawdust, shavings, young branches of trees, or twigs of Hawthorn-hedges, be turned to account as food for cattle, horses, pigs, &c.? If so, that which is fit for human food might be economised. A chemical change might, I think, be produced, by which food might be obtained which would yield, perhaps, only a small amount of nourishment, but which would keep up the animal heat of the system. For cattle, especially for milk cows, it is well-known that

...nutritious and palatable winter food.—*J. S. H.*

Relative Weekly Expense of Keeping Horses.—

1.— 1 cwt. of Grass-hay, at 2s. 6d. per cwt. .... 7s 9d—7s 9d
2.— 1 cwt. " at 3s. 6d. " 7 9
7½ peck of Oats, or ½ peck per diem, at 2s. 6d. per bushel ..... 1 1 —8 10
3.— ½ cwt of Oat-straw, at 1s. 6d. per cwt. 3 0
½ pecks of Oats, or 1½ peck per diem, at 2s. 6d. per bushel ..... 5 5½—6 5½
4.— 2 cwt. Bean-straw, at 1s. 6d. per cwt. 3 0
4 pecks of Oats, at 2s. 6d. per bushel 2 6
Cutting to chaff ..... 0 6 —6 0
5.— 100 lbs. of Bean-straw, at 1s. 6d. per cwt..... 2 0
300 lbs. of Carrots, at 1s. 6d. " 3 10
7½ pecks of Oats, at 2s. 6d. per bushel 1 1
Cutting straw and Carrots ..... 0 6 —7 5
6.— 1½ cwt. Bean-straw, at 1s. 6d. per cwt. 2 4
5½ pecks of small Potatoes, at 2s. 6d. per sack 1 10½
1½ pecks of Oats, at 2s. 6d. per bushel 1 1
Cutting straw and boiling Potatoes .... 0 8 —5 11½

Comparative Table of nutriment, according to R. L. Rham :—

333 lbs. of Mangold Wurzel, 175 lbs. of boiled Potatoes, 140 lbs. of Bean straw, 374 lbs. of Wheat ,, 195 lbs. of Oat ,, 50 lbs. of grain of Oats,	equal to 100 lbs. of best Hay.

I have taken a great deal of trouble, and think the foregoing Table correct; though very different in expense, yet each contains the same amount of nutriment, except the hay alone.—*Anonymous.* [A very useful table.]

Societies.

To Agricultural Societies and Breeders of Horses.—As the season approaches for the preparation of covering stallions, for agricultural purposes, the following suggestions, the result of practical experience, are thought worthy of the attention of the committees of the different societies throughout the country who offer premiums for this description of stock, and I would submit them also to individual farmers, breeders of horses. The system hitherto adopted at almost every competition of horses has been to commence with high feeding, and to accumulate an extraordinary quantity of flesh upon the animals exhibited, often to an extent which endangers their lives when they are subjected to severe exercise, and which also tends to destroy the procreative powers. The physiology of the horse ought to be so well understood by competent judges, than an animal loaded with an excess of flesh should in every instance be pronounced ineligible. Although condition is perfectly understood in the hunting stable and the field, where fast work is required, it is somewhat remarkable that this essential property should be almost entirely neglected by those who aim at the improvement of farm horses. Many valuable animals are annually destroyed by not enforcing attention to this particular, and frequent complaints are heard of stallions, and the loss and disappointment is hardly ever ascribed to the proper cause. It certainly would be for the benefit of all breeders of horses to attend to the simple fact, that wherever great muscular exertion is required, this can only be obtained with safety by careful and skilful preparation of the animal to perform the same, without injuring the constitution, by divesting it of all superfluous flesh. Agricultural societies, therefore, should at once set the example by giving additional encouragement to the owners of horses exhibited in the highest possible condition (so well described by Nimrod) to enable them to perform every description of work, and discourage every ignorant attempt of bringing forward to their exhibition, horses in the condition of fatted bullocks, scarcely able to walk to the shambles.—*B.*

BRISTOL AGRICULTURAL SOCIETY.

Annual Meeting, 1845.—The President of the Society (W. Miles, Esq., M.P.) on taking the chair, said, it would be remembered that, together with Lord Spencer, he had been appointed by the Royal Agricultural Society of England to try the Southampton prize Wheat against other Wheats. He had tried it against four other Wheats, and Lord Spencer against two other kinds, and in both their experiments it had turned out the worst of the whole. He (Mr. Miles) had tried it against Jonas's Prolific Seedling, the Hopeton, the Red Straw White, and against a Wheat not much known in this country, but which he had procured from Scotland, through a gentleman, Mr. Hope, who spoke of it in the highest terms as a Wheat which yields an increased produce on any land equal to the rent of the land, called Fenton's Wheat. These Wheats he drilled in after the rate of 2 bushels per acre (which he considered the best quantity), and the produce was as follows:—Jonas's Prolific Seedling, 55 bushels 2 pecks per acre; Red Straw White, 47 bushels 2 pecks; Hopeton, 54 bushels 1 peck; Southampton Prize Wheat, 40 bushels 2 pecks; and Fenton, 54 bushels. After advising his hearers to change their seeds and variety, by which he was sure a great deal of good might be effected, the Chairman proceeded to state the result of some experiments with Newberry's dibbling-machine, manufactured by Earl Ducie. He had with this machine sowed the very smallest quantity—2 pecks per acre. It would be recollected that the spring was very much against dibbling sowing. They had about March very biting winds, and as the experiment was tried on a sloping field, and at the top less deep than at the bottom, it as a whole failed. They, however, selected a portion of the field to try the result; the crop was, of the Red Straw White, 34 bushels 3½ pecks per acre; Hopeton, 34 bushels 3 pecks; Southampton prize Wheat, 32 bushels; Fenton, 40 bushels 2½ pecks, a very extraordinary produce. His opinion of the machine was, that on a flat surface, and with light ground, it would be found to be a most valuable instrument. He should state, that in Buckinghamshire and Hampshire, where it was used, the general rate of sowing was 5 pecks per acre. The next experiment he had tried was upon Turnips. The seed he used was Skirving's. He was anxious to get a good crop, with as little manure as possible, as thereby much expense in haulage would be saved. Instead of using 20 tons of manure per acre, he employed 10 tons, and he used with it two descriptions of assistant manure. With the first lot he put 10 bushels of the ashes of burnt weeds, and with the other 10 bushels of powdered animal carbon, the refuse of sugar refining. The produce was so equal that neither could be said to have excelled. The manure with the ashes produced 26 tons 7 cwt. per acre, and that with the powdered animal carbon 25 tons 16 cwt. per acre. He had likewise tried experiments with the dross from sugar refining, which was used in France to manure Vines, and the result was a failure. It, in fact, deteriorated the value of the crop. The chairman next adverted to the state of the Potato crop, and attributed the evil to the chill produced by frost on the 28th of July. His early Potatoes had scarcely suffered at all. His next crop of whites was hit very much, and he lost one-half. His flesh-coloured Kidneys did not lose 1 in 60, but his late Potatoes were much injured. He should not hesitate to put partly injured Potatoes in the ground, 7 or 8 inches deep, as he did not think the disease would hang by the Potatoes, but had been caused by atmospheric influence.

Farmers' Clubs.

SUBJECTS FOR DISCUSSION.

1. Merits and details of systems for securing the tenants' rights.

See "Journ. Eng. Agri. Society," vol. vi. p. 44; *Agricultural Gazette*, 1841, pp. 265, 841; 1845, pp. 567, 789; "Farmers' Magazine," January, 1846; Lord Kames' "Gentleman Farmer," p. 109; Layton Cooke "On the Value of Land," pp. 9, 10; Curwin's "Hints on Agricultural Subjects," p. 231; "Report from H.M.'s Commission on Occupation of Land in Ireland," p. 14.

No one doubts the existence of tenants' rights; but there is matter for discussion as to what they are, and how they may be best secured. (1) The intrinsic value of an estate depends, in the first place, upon the constitution of its soil, the efficiency of its drainage, roads, and buildings, and upon its nearness to a good market for its produce; and, secondly, on the cultivation it has received from the tenant. Now, in our opinion, the rights of an out-going tenant amount to the whole of the difference which he has produced, during his occupation, in the intrinsic value of his farm; *except in so far as this may have been, as it were, bought from him by the landowner for value given.* He may have increased, so to speak, its *permanent* value. Well, with the proviso just named, it appears to us that any such increased value is *his* property. And he may have improved the cultivation of the land; and he has a right to any *increased* value thus conferred upon the land, in addition to any sum he may have paid for its cultivation on entering the farm. (2). There are various ways of securing these two classes of rights. It is well, we think, to keep the two separate. The second is best secured by an arrangement between the outgoing tenant and his successor. The first only should depend on the connection between landowner and tenant; and the best way for securing it is by offering the tenant its value on the commencement of this connection. What would be an equivalent? That is for the tenant's consideration: let the landowner make his offer; and we are very much mistaken if a tenant is to be found who would not willingly make over all his rights of *this* description in consideration of a lease, at the present value of the land, giving him possession of the farm for a term of years, varying from 14 to 21 years, according to its condition and capabilities. But there are various other ways of securing these rights—they proceed upon the plan of determining the just amount of a tenant's claim at the end of the lease, and then discharging it. Lord Kames recommends that at the end of the lease the tenant shall be entitled to a renewal of it at six-fifths of the former rent; or if the landlord dislikes the arrangement, that he shall have a claim for 10 years purchase of the ⅕ thus proposed to be added. Again, it is the practice in some parts of North France (see "Agr. du Departement du Nord, par M. Vilmorin," p. 30), that at the end of the lease the tenant offers a new rent, and the landlord can decline it only by paying him three years' purchase of the increase he has offered. And lastly, in Lincolnshire it is the practice to pay the tenant *aliquot portions* of his expenses under the items of drainage, liming, claying, bone manure, oilcake, &c.—*fractions* whose denominators are the number of years respectively during which the influence of each operation is supposed to last, and whose numerators are the number of years respectively, according to that supposition, during which, dating from the period of its performance, each operation has yet to exert a beneficial influence. The difficulties attending this method are fully detailed in the works to which we have referred.

2. On stall feeding as against feeding in yards.

It is supposed that the animals are full grown, and are put up to fatten. Whether will they fatten faster in stalls tied by the neck or placed in couples in small yards or "hammels"? The latter is the common practice in Scotland, the former in England. In the latter more straw is required for litter. We know of only one experiment on the subject, but it was performed carefully, and its results favoured yard feeding. See Stephen's "Book of the Farm," vol. ii, pp. 148, 149. We shall shortly refer to this subject in another section of the Paper.

Blandford.—*Annual Meeting, Dec.* 20.—At this meeting, Mr. Sturt, after a few preliminary remarks, spoke as follows:—He did not look to high prices as the test of their prosperity, because there was no agricultural prosperity so sound as that which arose from low prices, founded upon abundant produce. The price of all agricultural produce was now remunerating, and this might arise from various causes. There was one cause, tending to this, the failure of the Potato crop, which would demand their consideration, but then came the abundance of labour in many parts of the country, which partly counteracted the effects of this failure, and, as a member of their Society, which had for its object the encouragement and improvement of the labouring class, he hoped this would continue throughout the winter, and that they should be able to find the labourers such employment as would assist them in meeting the failure in the Potato crop—he hoped such labour would be found as might be remunerating to the labourers and to themselves; and that in cases where the pressure was great, the hand of benevolence would also be extended to the sufferers. He was afraid that the condition of the agricultural labourers would, in many respects, be severe during the winter; he was afraid that the labourers, or very many of them, who had been accustomed to live chiefly upon Wheaten bread and Potatoes, would find their store of the latter exhausted. And how was the gap to be supplied? He thought that they should all assist those labourers who might suffer privation through causes over which they had no control; and if there must be any sacrifice for this purpose, he hoped it would be made cheerfully. He believed some sacrifice would be required, and he could not doubt that it would be readily made, when he saw the many useful societies that had sprung up to assist the poor, including clothing and fuel clubs, supported by the clergy, gentry, and tenantry of the parishes. He was glad to see his reverend friend, Mr. Huxtable, on his left, who, he hoped, was about to be delivered of one of his practical speeches. Mr. Huxtable would tell them a great deal as to growing Swedes and feeding sheep and cattle. But everything had its dark side, and he could imagine a farmer saying—"I attended the meetings at Sturminster and at Blandford; I heard all Mr. Huxtable said, and from his honied words I was induced to go and see what he had done. I went to his farm and was received with the utmost courtesy; I saw everything in the most open way, I found that my head knowledge was much increased, but I wished that head knowledge to be founded upon a *metallic* basis. (A laugh, and loud cheers.) My land is better than Mr. Huxtable's, but then the expense. Suppose I grow upon my 50 acres, 20 tons an acre of Turnips, where is the stock to come from to feed upon all this produce?" Such was probably the cogitation of many farmers who had examined Mr. Huxtable's improvements. (Hear.) Now, he would say that if any of his tenants who wished to improve their crops found the want of capital to buy stock to feed off their Turnips, he should be ready and happy to find them all the capital they might require. (Hear, and "What, find them all in capital?") Oh, yes, he would find it all, upon this one simple and fair condition, that at the end of the four or six months, he should be paid back the outlay, from the proceeds of the cattle fed upon the increased crops. ("That's fair.") It would give him greater pleasure to find his money fructifying—he believed that was the word—in the pockets of his tenants, than to take the chance of obtaining a large interest by speculating in railway shares.

Debenham.—The *General Meeting* of this Society took place on Nov. 7. The spirit of competition amongst the cottagers for prizes offered by the club for the best productions of fruit and vegetables continue to increase, and we doubt not the liberal kindness of the Rev. Mr. and the Hon. Mrs. Bedingfeld, will preserve it. There were (this day), upwards of 200 different productions submitted. We noticed amongst the company inspecting the cottagers' tables the Rev. Mr. and the Hon. Mrs. Bedingfeld, Dr. Chevalier and family, J. J. Mechi, Esq., Tiptree Hall, D. R. Meadows, Esq., &c. &c. &c. —*W. G., Hon. Sec.*

Stratford-on-Avon, *Nov.* 14.—Mr. T. Gibbs, Blacon Farm, near Warwick, read a well-digested paper on "fences and hedges." He introduced the essay by describing the origin and use of hedges, and deprecated the great and unnecessary width of them as formerly made. He thought the Hawthorn preferable to all other trees for the purpose. A good fence can scarcely be made on the site of an old one, but the greater part of it should be grubbed up, and the soil to the depth of 2 or 3 feet carted away, and the bank made up with fresh mould. Previous to doing so, having removed the bank to the right and left as far as the hedge is dead, throw a quantity of the subsoil to the depth of a foot or two towards the ditch or face of the mound, filling up the space with the fresh soil; by doing so few weeds will grow. Planting new hedges is commenced by constructing a bank to receive the plants; if possible, stake the ground out in summer, and plough it 6 or 7 feet wide, shovel the soil in a line towards the intended bank side; having removed the top soil, plough or dig about a foot deep of subsoil, then throw it that distance from the bank side of the trench to the ditch side; shovel the top soil lying at the back of the bank into the space where the subsoil came from; lay the Quick horizontally, not perpendicularly; cover the roots on the top soil, and the stems on the subsoil; the plants in the top table should have a slight inclination upwards; leave the ditch one foot wide at the bottom, and the bank not too upright; put no turf or good soil in front; the common practice of making a table with inverted turf laid "Grass to Grass" is bad; with the worst soil in front little or no weeding is required. Quicks should be chosen with fibrous roots and clear strong stems, planted 6 ins. apart, each plant in the top table placed opposite the vacant space in the bottom one, so that in growing the stems will be only 3 ins. apart. The third and last consideration was the overabundance of timber in hedgerows. A rather large tree will extend from its extremes 22 yards, which is equal to one-twentieth of

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* I have several times weighed for our horses, and find they eat and waste 75 lbs. of hay, uncut, in 24 hours, and when cut, 4 lbs. to 5 lbs. less.

† Oats are generally, in this part of Somersetshire, from 16s. to 18s. per quarter; this year they are about 24s. per quarter.

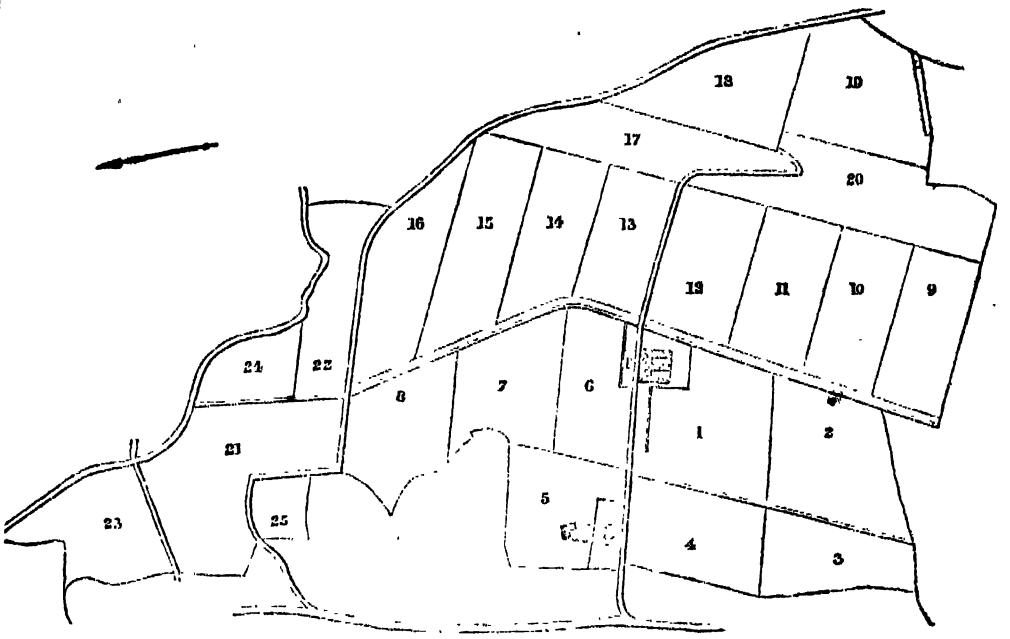
‡ Best hay is generally about 3l. 10s. per ton.

§ Small Potatoes, for pigs, can generally be bought for about 2s. 6d. per sack; and this year I have bought many sacks (a little infected, so as not to be likely to keep long, but large Potatoes) at 2s. per sack.

an acre, so that in 20 years it covers an acre of ground. The Ash does more injury than any other tree, seldom suffering any kind of grain to grow under it. In estimating the injury done by trees of this description, Mr. G. thought rent, labour, manure, seed, &c., all lost. Next in its pernicious effects ranked the Elm. The young Oak should be protected in preference to the Elm, out of regard to our posterity, but the Oak seldom if ever improved when older than 80 years. Select an acre or two of land of the worst description, fallow and subsoil plough it, and plant Ash, Oak, and Larch. There will be no seed, corn, or labour, lost; but the spot of inferior soil enriched. The latter kind of tree Mr. Gibbs considered the best suited, as in 14 or 15 years it is fit to fell for posts and rails. In a discussion that ensued, it was observed as an instance of the extreme benefit derived from planting Larch, that the Duke of Athol grew them to an immense extent, and that land not worth 1*s.* per acre a few years since, is now valued at 10*s.* per acre for sheep-grazing, the leaf of the tree containing a nutritious matter highly enriching to the soil. It required sound land well turned up, and the growth was found to be much accelerated by placing a handful of lime under each plant.

Farm Memoranda.

WHITFIELD FARM, WOTTON, GLOUCESTERSHIRE.—For 20 years previous to 1839, this farm, the property of the Earl of Ducie, had been occupied by the same farmer, under a system of yearly tenancy—and probably at no time or place has this system ever shown itself so fruitless of anything like energy, or, indeed, common carefulness on the part of the tenant. The estate then consisted of 232 acres, 65 of which were arable, and it was let at a yearly rental of 200*l.*, the parochial taxes in addition to this being 65*l.* The valley in which it lies was then crowded with hedge-row timber—indeed, upwards of 3000*l.* worth were afterwards sold upon the farm—and the brook which ran with tortuous course throughout its length was fringed with Hazel and Alder, while here and there cultivated Willow beds proclaimed the excessive wetness of the land. With the exception of a few acres of the arable land, which were annually let for Potato culture to farm labourers about, and the few pasture fields immediately around the buildings, which were annually depastured by dairy stock, and rarely, if ever, mown, the whole farm was miserably managed. There were no roads through it passable, except in dry weather; the hedge-rows were wide, straggling, and full of gaps; and both pasture and arable land were much neglected. Excepting the hill side on the east, and this was partly covered by brake and brushwood, the whole farm was undrained and wet, the crooked brook could not take off the water sufficiently fast, and during heavy rains the lower parts of the farm were flooded. The western side of the farm was a clayey soil, and where this joined on the east of the brook with the sandstone rock, which there cropped out to the surface, a number of copious springs burst out, and added to the already excessive wetness of the land. I remember very well visiting the farm for the first time, on a spring day in 1839. The eastern side is a dry limestone eminence, and after passing through a field of Wheat on this calcareous soil, whose scanty crop testified to the unassisted warfare it had waged with Knapweed, Thistles, Coltsfoot, and Couch, I came to the brow of the hill, and had a view of the valley in which the farm lay. Excepting two or three large arable fields on the near side of the valley, visible through gaps in the coppice which lay immediately below me, the land appeared almost covered with trees. The Grass-fields on the far side—they were not, on an average, 3 acres apiece in extent—were hardly visible in the midst of their hedgerows. The farm-house and old buildings lay close upon the western boundary of the estate, and were nearly buried amidst clumps of Elm-trees and Oaks. The prospect from the same spot is very different now—its distant features, of course, remain the same, and indeed are all the more visible for the removal of foreground obstructions. The Forest of Dean, 6 or 8 miles off on the other side of the Severn, hid in places by the neighbouring hills at Eastwood, forms the western horizon; the course of the Severn is traceable through the vale by the red cliffs which bound it, though the river itself is not seen except at one point; and the rich vale of Berkley, with the old castle in its midst, lies stretched out northward in all its former beauty. But the foreground, formerly so green, is now entirely bare: cleared of its hedgerows and trees, with a straight brook bisecting it—cultivated in a patchwork of quadrangular 10-acre fields, unseparated by fences—with extensive red-tiled and white-washed farm buildings in the valley below us, and the farm-house standing where it used, but undisguised, as formerly, by the green trees—so far as beauty is concerned, the scene now presents a most unfortunate contrast to its former appearance. Beauty, however, is not the chief object at which proprietors of land must now aim in the management of their estates. An ampler production of food, and increased opportunity of employment, are every year becoming more forcibly impressed on us as the true objects of farming, and in these respects Whitfield in its present condition is of more than double its former national value. The old tenant, according to Mr. Morton's estimate in his first report, employed a farm capital of about 730*l.*—less than 70*s.* per acre, and his labour bill did not amount to 200*l.* in the year, or 18*s.* per acre, and the gross produce of the land was not 560*l.*, or less than 2*l.* per acre in annual value. Since his time 30 acres have been added to the farm, nearly 3000*l.* have been spent by the landlord in permanently improving it in buildings, roads, and drainage. Consider the influence on the comforts of the labouring population of this district which this expenditure has exerted. The present tenant must employ a capital in cultivation and in stock to consume the produce of that cultivation, nearly four times that invested by his predecessor; his labour bill amounts to upwards of 700*l.* annually, or nearly 3*l.* an acre, and the annual gross produce of the land must be worth nearly 2000*l.*, or between 7*l.* and 8*l.* per acre. Let any one consider these facts, not in their personal but in their national bearings, and he must confess the great and profitable room there still is over large districts in this country for the higher cultivation of the land. I find I have already exceeded due limits, and I must, therefore, postpone any account of several interesting matters to be noted in the history of this farm. The following is a plan of the estate as it is at present laid out. It will be seen that it is cut through by a parish road, across the valley, and by farm roads across and up and down the valley. The buildings are centrically situated. The tenant's house is on the western side, and commands a good view of the farm. The fields are numbered; all those on the western, and to some height on the eastern side, are of a sandy loam more or less tenacious. The rest is calcareous, either clayey or free, a band of the former character over a bed of magnesian limestone lying along the tops of fields 9 to 16, and the top of the hill on the eastern side (18 and 19) being a free stony shallow soil on the limestone rock. —*M. S.*



Reviews.

The Rotation of Crops, and System of Agriculture, best adapted to the different Districts of Pembrokeshire: an Essay, to which was awarded a Prize of 10 sovereigns, given by the Right Hon. Earl of Cawdor, July 30, 1845. By Thomas Morgan. Haverfordwest, J. Potter, High-street.

THIS is one of those district agricultural reports to which we attach so much value. It is not a complete account of the agriculture of Pembrokeshire—it does not profess to be so: its contents are confined to one department of farming; they aim at exhibiting the suitableness of certain rotations of cropping to the circumstances of a particular district. These circumstances are, accordingly, in the first place, detailed with some minuteness, and the author, while he describes the geology as an index to the subsoils of Pembrokeshire, points out how it fails in accurately indicating the soil, or determining the character of its cultivation, in consequence of the extreme variety of elevation, and therefore of climate, to be met with. Mr. Morgan tells us that all the series of stratified rocks met with in Pembrokeshire "belong to very early deposits; and few of them possess such decided characteristics with reference to the growth of particular crops, as to enable us to decide with accuracy on the system of cropping best suited to the different geological divisions. The diversity of climate would also render useless any classification of soils and crops, having merely reference to the rocks from which they may have been produced. It would be absurd to lay down a course of crops which would be applicable to the parish of Llandewy and apply the same to Maenclochog; and yet geologists do not make any great distinction between them. It would be not less absurd to class in an agricultural point of view, the soils which lie a little to the south west of Tavernspite, along with those which form the ridge of land situate to the south east of Pembroke; and yet in a geological point of view they are identical. Such classification, even if it could be made, would be rendered useless in practice, by the great changes which have been effected in the soils of the county, by the action of water, in having conveyed soils from one formation to another, and also by the extensive application of lime. These considerations induce us to place less reliance upon geology than we should perhaps do, in assigning limits to particular rotations."

Mr. Morgan, in the first part of his Essay, adopts De Candolle's theory of root excretions as the true explanation of the rotation of crops. He brings forward various facts of yearly occurrence in the experience of the farmer, illustrative of the suitability of the land for certain crops after they have borne certain others; he says that "some plants have the power of conveying to the soil a quantity of food for vegetables, more than equal to that which they take from it for their own nourishment," and contends that "it is very difficult, if not impossible, to account rationally for this power in any other way than that of assigning it to the function of excretion, supposed to be possessed by the roots of plants." Now Mr. Daubeny's experiments, lately referred to in this Paper, have shown that there is an adequate reason for the necessity of the rotation of crops, in the exhaustion, by each, of certain substances in the soil whose presence in an available state is very limited, though in a dormant state it is abundant. Each crop thus takes up the portion of vegetable food that is ready for it, and then the soil has all the other years of the rotation, during which, with the assistance of the air and rain, to bring a fresh portion of the requisite substances into a state of solubility, before the time of the crop requiring them comes round again. This is a theory in agreement with facts which have been proved to exist; and it is greatly preferable to one founded on ideas whose accuracy has never yet been determined except under unnatural circumstances. The root excretions of De Candolle have never been *seen* or examined; Dr. Daubeny failed to detect them in soil on which the most acrid plants had been grown—and they are not necessary to account for the fertility of land consequent upon the growth of particular crops. It was a practice long ago among the best farmers of Italy, and it is a common practice still, to grow various plants to plough in as manure. The fertility of land was increased, then, surely not by the more excretions from the roots of these plants, but by the whole vegetable substance of them, which, during their existence, they had drawn from the air; and so, with an old pasture ploughed up—we need not refer to the years during which, while the land was resting, agents were at work comminuting the soil and improving its texture, we mean the worms, to whose industry we owe most of surface soils—and surely, still less need we refer to the excrementitious matters of vegetable origin which *may* during that period have accumulated, but which in all probability have an existence only in the mind of the theorist; the true cause of the fertility which we observe lies in the fact, that during all these years the plants have been drawing stores of valuable food from the air, a large per centage of which has each year been given to the soil in the dung of the animals fed upon it, and a still larger portion has been ploughed in with the sward, in the roots and stems of which it had accumulated.

Mr. Morgan describes the rotation of crops suitable for Pembrokeshire in three classes.

"One is the system of growing white and green crops alternately, in uninterrupted succession; another is that of growing white and green crops, alternately, for a series of years, and then of laying down to pasture for another series; the third is that of growing a succession of white crops, followed by a few years pasture. Of the first of these systems, we have examples in Norfolk, and other parts of the kingdom, and also in Flanders; of the second, we have examples in Scotland, and in the north of England; of the third system, we have numerous examples at home."

The essay concludes with a series of tables explanatory of the various rotations which have been considered, and illustrative of their relative profitableness or economy. We might, perhaps, dispute in some of their details the expense of the various operations performed during the various courses of crops there described, and perhaps also the amount of return derived from them but no one can question the accuracy of the writer

asserting the greater profitableness of those rotations where the land is made to yield an alternate succession of green and white crops over others, which we presume still prevail, in which, after a succession of grain crops, generally Oats, the land is neglected, and left to rest till a sufficient amount of food for plants shall again have accumulated.

In our opinion, Mr. Morgan has written a very interesting essay, and one well calculated to improve the agriculture of his county.

Miscellaneous.

Characteristics of the well-bred Ox.—1. The head shall be fine, somewhat long, and diminishing to the muzzle, which shall be thin. 2. The horns shall be fine, and placed on the summit of the head; the eyes shall be prominent and clear. 3. The neck shall be free from coarseness, large where it joins the shoulder and breast, and diminishing to the head. 4. The breast shall be wide, and project well in front of the fore-limbs. 5. The shoulder shall be broad, but join without abruptness to the neck before, and to the chine behind. 6. The back and loins shall be straight, wide, and flat. 7. The girth behind the shoulders shall be large, and the ribs well arched. 8. The hook-bones shall be far apart and nearly on a level with the back-bone; and from the hook-bone to the bending down of the tail, the quarter shall be long, broad, and straight. 9. The tail shall be broad at the upper part, and small and progressively diminishing towards the extremity. 10. The legs shall be short, fleshy to the knee and hock, and below the joints flat and thin, and the hoofs shall be small. 11. The skin shall be soft to the touch, the belly shall not hang down, there shall be little hollowness behind the shoulders, and the flanks shall be well filled up.—*Low's Domestic Animals.*

CALENDAR OF OPERATIONS.

JANUARY.

NEITHER an annual routine of operations, however complete, nor written directions, however accurate, as to when, where, and how to perform them will suffice to ensure profit by farming, indeed, if any one has only books and writings to depend upon, he had better not risk his money in business at all Experience is wanted as well as book knowledge, for it is difficult, and perhaps impossible, to convey to the mind by mere description the circumstances and appearances which the practical man recognises as his guides in the details of farm management Certainly a knowledge of the theory of agriculture may be obtained perfectly from books, but the most perfect acquaintance with this will not of itself suffice to make farming profitable To ensure a sufficient annual income by farming a man requires that experience which in other trades is acquired by apprenticeship—he requires it in order to the proper and seasonable performance of the various farm operations he requires it especially in the transaction of his market business—it is by skill in this department that many an otherwise bad farmer grows richer than his neighbour who farms well, and he requires it perhaps most of all in the management of his labourers, for it is upon the practical skill exhibited here that much of his success will depend, it is not that the more skilful man can get his work done by a less number of hands, but that with the same, or even it may be a greater number, his work is done with vastly greater efficiency and with double influence on the productiveness of the crop Though, however the mere reading of a Calendar of Operations will not confer this experience, it has an usefulness of a humbler kind, it tends to remind the amateur farmer, to urge upon the attention of practical men the practice and results of the best farming, and it explains, too, the operations which it directs It is with these objects in view, at the request of very many of our readers, that we propose to fill a weekly column during the ensuing year. It is proposed to describe in detail the operations chiefly of *arable* farming One word more In the compilation of this Calendar, want of room will often render an arbitrary style almost unavoidable but this, nevertheless, we now beg to acknowledge once for all is never less appropriate than when treating of the details of farm practice, and we shall avoid it as much as possible.

The main points for the farmers' attention in January are draining management of manure, management of live stock, management of fences, irrigation, preparation for spring crops We shall discuss these during successive weeks.

Draining—Let us suppose an extreme case – that of an estate overrun by irregular hedgerows, and soaked with water The first thing to do is, beginning at the lowest point, to bring up a sufficiently deep (say 3 feet 6 inches or 4 feet) main drain, which should be as straight as is consistent with its proper position along the lowest parts of the land. Then clean out all the old fence-ditches, and dig drains 3 feet deep from the surface in each, opening a connection between each and the main, and place tiles or stones in them and fill them up—then grub up those hedgerows which are to be removed; it may then be well to provide for the removal of the water of any land-springs, the position of these being ascertained, this is to be done by deep drains with tiles, connecting them with the main drain. The uniform system of drainage—whose object is to convey away the rain-water which falls uniformly over the surface, after it shall have soaked through the soil and subsoil - may now be commenced. Determine the depth and the interval to be adopted—the first according to the nature of the subsoil, and the consequent expense of the operation, and the second thus—dig a series of pits, say 3 feet deep and 15 inches wide, about 3 yards apart,* across the slope of the field—wait till the rain has filled them, then dig a drain 3 feet deep *down* the slope, immediately between two of these holes, and observe next day how many of the holes it has drained It is rarely advisable to have the interval above than 18 yards—an interval of 7 or 8 yards is more common, and unless the subsoil be very stony and expensive to work, the drains should be 3 feet deep. They should in every case, except where the land is very steep, be directly down the ascent. The main should be about 6 or 4 inches deeper than the parallel drains, in order that the pipes of the latter may deliver their water above the tiles of the former. Drains should be filled in as soon as made; as, excepting in certain soils the earth will at this season very readily crumble in. A little Grass or stubble may be laid above the tiles or stones after they have been carefully placed, and the earth should then be placed firmly above that—there need not be any attempt at puddling or trampling the earth in, but this object should be to replace it as nearly as possible in point of consistence with that before being removed One-inch pipes may be made at 3*s.* per 1000 ft.—they may be bought at the tile for from 10*s.* to 15*s*, they are perfectly efficient draining tiles. The common half round tiles may be had at from 26*s* to 35*s* per 1000 ft; 1000 ft. of the ordinary size parallel drains, say 4 in wide at bottom and 14 at top, filled 13 inches deep, will require about 24 cubic yards of stones, which to quarry, haul, and break, may cost 1*s.* 6*d.* a yard, or 36*s.* in all.—To calculate the cost of *digging* drains, assume that a man deserving 2*s.* 6*d.* a day will remove from 18 to 24 cubic yards of earth, according to his position, whether confined or free, and the land, whether stiff or open, and apply that to the various circumstances of depth, width, and material met with in draining.

Besides tile or stone draining, plug draining, as it is called, is in use in many districts—*it* is never advisable, and admissable only on pasture lands of a sufficiently clayey texture. It may be contrasted for at from 3*d.* to 3½*d* per perch of 16½ ft., 2 ft. deep. The drain is cut of that depth, and 2 inches wide at bottom—a core of wood about 8 inches high, which fits it, is placed in the bottom of it, and earth is filled in and trampled down, the wood is then drawn along, earth is again filled in and trampled, and so the work proceeds.

The cost of a permanent and efficient drainage will be from 4*l.* to 7*l.* per acre, including in that sum the expence of overcoming the difficulties of uneven land, rock, hedgerows, &c. &c. It is the foundation on which alone good farming can be prosecuted.

* This simple method is suggested by Mr. Parsons, of West Lambrook, Somerset.

Notices to Correspondents.

AVERAGE COST OF WHEAT CULTURE—*J H*—There is great difficulty in making trustworthy calculations in farm matters, and there are doubtless many farmers who would object to the following —

AVERAGE COST OF WHEAT

After Clover.	£	s.	d.	After Fallow Crop.	£	s.	d.
Rent and Taxes....	1	5	0	Rent and Taxes.....	1	5	0
1 Ploughing.....	0	8	0	Scarifying	0	3	6
2 Harrowings.....	0	1	0	1 harrowing	0	0	6
Drilling	0	1	6	Drilling.....	0	1	6
Seed, 2 bush. at 7*s.*	0	14	0	Seed	0	14	0
Harrowing	0	0	6	Harrowing	0	0	6
Rolling	0	0	6	Rolling	0	0	6
Hoeing	0	3	0	Hoeing	0	3	0
Cutting	0	9	0	Cutting	0	9	0
Carting to rick and buildings	0	1	0	Carting to rick	0	1	0
Thrashing and cleaning 28 bush. at 4*d*	0	9	4	Thrashing	0	9	4
Carting to market .	0	3	6	Marketing	0	3	6
To which should be added, the Clover being depastured, value of manure, —the droppings of the sheep	1	0	0	Add half the cultivation and manure of the previous year*..	3	0	0
	4	10	4		6	10	10

Produce, 9½ qrs at 52*s* ..... 9*l* 2*s*.

* It is very difficult to determine the average cost of Turnip cultivation, which is here supposed to precede the Wheat. Where large quantities of bones and artificial manures are used, it will be considerably more than 6*l*, exclusive rent

BUCKWHEAT—*Clowdesley*—Sow, on sandy soil, a bushel and a half of seed, broad-cast, in May and you will probably harvest a crop of three or four quarters in October

CARROTS—*J P, Holderness*—Sow them in rows on the flat about 18 inches apart, and cultivate the intervals as deeply as possible during the growth of the crop Red Carrots are perhaps somewhat more nutritious than white Carrots, but they are far less productive.

COMPARATIVE VALUE OF FODDER—*Inquirer*—We cannot refer to any statement on this subject which is worth much, because it is seldom that any kind of fodder can exhibit its true value when given by itself. They benefit one another by being given in mixture

FLAX MILL—*To a Correspondent*—There is no portable Flax mill We know of one however, likely to answer, which is now in process of invention.

GLOUCESTERSHIRE BACON—*To any Inquirer*—It is made thus — After it has been killed one day, put a light coat of salt on the sides, and when that dissolved, about ½lb of saltpetre is used to every 50 lbs of bacon, and covered with salt as it is lying single on the floor. After three or four days, put four or five sides together and turn them every three days, after 10 days 20 side may be put together and turned once a week in three weeks from the first salting they will be ready for the stoves, unless they are very heavy, in which case this should be delayed another week

HAMMEL FEEDING—*A Gloucestershire Landowner*—See under heading "Farmers' Clubs" We are sorry we are unable to give you more references

PATENT BAKING PROCESS—*Devonshire*—Next week

PEAT DRAINING TILES—*Jas Russell*—They are made by a machine lately invented by Mr Smith, of Deanston, an account of which we shall, through the kindness of that gentleman, shortly be able to give our readers.

PIG FEEDING—*Inquirer*—A ton of Potatoes and a quarter of Peas should last 12 large hogs a week, and during that period they may have produced from 8 to 10 score lbs of bacon, worth from 60*s.* to 70*s*, but how much of this produce is due to the one, and how much to the other kind of food, we cannot say

SEEDS—*Inquirer*—They will pay best to feed (if they have been "done" well hitherto), if bought when done *growing*, whatever may be their age.

STALLED CATTLE—*Inquirer*—A man and boy can manage, litter, and feed (cleaning and cutting the roots themselves) 40 head of stalled cattle

TO PICKLE WHEAT—*Arator*—The easiest way, and a very effectual one, is to dissolve 8 ozs of blue vitriol (sulphate of copper) for each 4 bushels, in as little water as will take it up, and then laying the Wheat down on a barn floor, throw the solution over it, and mix it rapidly up, so that each grain shall be wetted. Leave the heap for an hour, and during that period it will have thoroughly dried. Lime is unnecessary, indeed, were it added, it would be injurious.

VALUE OF SWEDES—*Inquirer*—A full grown sheep, eating 24 lbs. of cut Swedes daily under shelter, and receiving nothing else, may increase in weight between 1st of Nov. and 1st of March, 5 lbs. a quarter, value 10*s.* in mutton, and say 2*s* in wool—12*s.* received for 120 days feeding on Swedes, at 24 lbs. a day; *i. e.* for rather more than 25 cwt. of cut roots, or, allowing for waste in cleaning, for 28 cwt. of roots as they would be offered for sale—this is equal to 8*s.* 6*d.* per ton. This is, we think, an average result.

*** Communications reaching town after Wednesday, cannot be answered the same week.

Markets.

SMITHFIELD, FRIDAY, Jan. 2.—Per stone of 8 lbs.

The supply of Beasts being somewhat extensive, and the attendance of buyers rather limited, the Beef trade was in a very sluggish state, at quotations in the commencement of 4*d* per 8 lbs. There were on offer 70 Beasts and 800 Sheep from Scotland.—For Sheep we had a pretty inquiry, and Monday's prices were well supported.—The number of Calves was small, yet the Veal trade was inactive at unaltered currencies.—Prime small Pigs sold freely, other qualities slowly, at previous rates.

Best Beasts, Herefords, &c. &c.	3	6	to	3	8		
Best Short Horns	3	4	—	3	6		
Second quality Beasts	3	0	—	3	2		
Calves	4	0	—	4	10		

Best Downside Half-breds	3	8	to	3	10		
Best Long-woods	3	6	—	3	8		
Sheep and second quality	3	4	—	3	6		
Pigs	3	6	—	3	8		

Beasts, 2020; Sheep, 9160; Calves, 440; Pigs, 490.

POTATOES—SOUTHWARK, WATERSIDE, Dec. 29.

The supply to this market during the past week was very limited by the usual causes. Prices, on some selling vessels arrived, both from Wisbeach and Scotland, and fortunately they had a quick passage, for else, most of the Scots would not stand a long talk. A number of loads arrived from Shoreham by the steam-boats, and from Yorkshire by the steamboats and by railways, which kept this market completely supplied for the very limited demand. The prices ranged as follows:—York Reds from 80*s* to 90*s* per ton; York Regents 70*s* to 75*s* per ton; and French Rocks from 60 to 80 per ton.

COVENT GARDEN, JAN. 3.—The market still continues to be well supplied with Fruit and Vegetables, more especially with the latter. Pine-apples are not plentiful, but sufficient for the demand, which is not great. Hothouse Grapes are becoming scarcer, prices for them have not altered, however, since our last report. The supply of Apples continues to be well kept up, the best dessert variety at present in the market being the Newtown Pippin. Pears are good in quality, and command a tolerably brisk trade. Oranges are becoming more abundant; but in consequence of the increased demand, prices for them, and also for Lemons, are rather on the rise. Nuts remain nearly the same. Of Vegetables the supplies of most articles are sufficient for the demand. Cauliflowers are rather scarce; but Broccoli is abundant, and Savoys, Brussels Sprouts, and other winter Greens, are plentiful. Carrots and Turnips are excellent in quality, and sufficient for the demand. Potatoes have altered very little in price since last week; trade for them is not brisk. Seakale and Rhubarb are more plentiful; and the same may be said of French Beans. Asparagus, although rather small, is good in quality. Celery, both red and white, is abundant, and Lettuces, Endive, and other kinds of salading, are sufficient for the demand. Cut Flowers chiefly consist of Euphorbias, Bignonia venusta, Epiphyllums, Acacias, Mezeria, Heliotropes, Cinerarias, Pelargoniums, Camellias, Chinese Primroses, Chrysanthemums, Violets, and Roses.

FRUITS

Pine Apple, per lb., 4*s* to 6*s*		Lemons, per dozen, 1*s* to 6*s*	
Grapes, Hothouse, per lb., 3*s* to 6*s*		— per 100, 6*s* to 14*s*	
— Spanish, per lb, 2*d* to 1*s*		Almonds, per peck, 6*d*	
— Portugal, p lb 1*s* to 2*s* 6*d*		Sweet Almonds, per lb., 2*s* 6*d* to 3*s*	
Melons, Spanish, each, 4*s* to 10*s*		Filberts, English, p. 100 lbs., 60*s* to 65*s*	
Apples, Dess., per bush., 4*s* to 10*s*		Nuts, Cob, per 100 lbs., 60*s* to 65*s*	
— Kitchen, 2*s* 6*d* to 4*s* 6*d*		— Barcelona, 80*s*	
Oranges, per dozen, 1*s* to 2*s*		— Brazil, 15*s*	
— per 100, 4*s* to 14*s*		— Spanish, 15*s*	
— Seville, per 100, 14*s*		Chesnuts, per peck, 4*s* to 8*s*	
— per dozen, 2*s* to 3*s* 6*d*		Pease, per bf.-sv., 3*s* to 10*s*	

VEGETABLES.

Cabbages, per doz., 6*d* to 1*s* 6*d*		Celery, per bunch, 6*d* to 1*s* 6*d*	
— red, per doz., 3*s* to 6*s*		Cardoons, each, 6*d* to 9*d*	
Brussels Sprouts, p. half-sv., 1*d* to 2*s*		Parsnips, per doz., 2*d* to 1*s*	
Savoys, per doz., 6*d* to 1*s*		Scorzonera, per bundle, 1*s* to 1*s* 6*d*	
Cauliflowers, per doz., 2*s* to 6*s*		Salsify, per do., 1*s* to 1*s* 6*d*	
Broccoli, Brown, per bdle., 6*d* to 1*s* 6*d*		Onions, per bushel, 1*s* 6*d* to 3*s*	
— White, 1*s* 6*d* to 3*s*		— pickling, per half-sv., 2*s* to 3*s*	
Greens, per doz bunches, 3*s* to 3*s* 6*d*		— Spanish, per doz., 1*s* 6*d* to 4*s*	
French Beans, per 100, 3*s* 6*d* to 4*s*		Shallots, per lb., 6*d* to 8*d*	
Sorrel, per half-sieve, 2*d* to 1*s*		Endive, per score, 6*d* to 1*s*	
Potatoes, per ton, 60*s* to 100*s*		Lettuce, per score, Cab., 4*d* to 6*d*	
— cwt., 4*s* to 9*s*		— — Cos, 6*d* to 1*s*	
— bushel, 2*s* 6*d* to 4*s* 6*d*		Radishes, per doz bunches, 1*s* to 1*s* 6*d*	
— Kidney, per bushel, 3*s* to 3*s*		Mushrooms, per punnet, 1*s* to 1*s* 6*d*	
Turnips, per doz., 1*s* to 2*s*		Small Salads, per punnet, 2*d* to 3*d*	
Red Beet, per doz., 6*d* to 1*s* 6*d*		Fennel, per bunch, 2*d* to 3*d*	
Carrots, per doz. bdls., 3*s* to 3*s*		Savory, per bunch, 2*d* to 6*d*	
Horse Radish, per bundle, 1*s* 6*d* to 2*s*		Thyme, per bunch, 6*d*	
Seakale, per punnet, 1*s* to 2*s*		Wormwood, p 12 sm. bun. 4*d* to 6*d*	
Rhubarb, per bundle, 1*s* 6*d* to 2*s*		Parsley, per bunch, 1*d* to 2*d*	
Asparagus per bundle, 3*s* to 10*s*		— Roots, per bundle, 1*s*	
Cucumbers, each, 1*s* to 2*s*		Tarragon, per bunch, 6*d*	
Spinach, per sieve, 2*d* to 1*s* 6*d*		Mint, per bunch, 2*d*	
Leeks, per doz bunches, 1*s* to 2*s*		Marjoram, per bunch, 4*d*	
Garlic per lb., 6*d* to 9*d*		Chervil, per punnet, 2*d* to 3*d*	

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Jan. 1.

Prime Mead. Hay	90*s* to 92*s*	New Hay	—*s* to —*s*	New Clo.	—*s* to —*s*
Infr New & Rowen	55 — 75	Clover	80 to 110	Straw	30 — 38

James Cooper, Salesman.

WHITECHAPEL, Jan. 2.

Fine Old Hay	95*s* to 100*s*	Old Clover	100*s* to 110*s*	Straw	28*s* to 42*s*
Inferior Hay	— —	New Clover	— —		
New Hay	75 — 88	Infr „	70 — 84		

HOPS, FRIDAY, Dec. 2.

The market is very firm, and good Hops scarce.

PATTERSON & SMITH Hop Factors

MARK-LANE MONDAY, DEC 29

The show of Wheat by land carriage samples from the adjacent counties was small this morning which enabled factors in their early sales to realise an advance of 1*s* per qr but subsequently there appeared less inclination to purchase, and that left over could not be cleared at better prices than on this day se'nnight Free Foreign was in fair request for immediate consumption at late rates. Bonded neglected.—Barley with the exception of the finest qualities, continues to be a slow sale—Beans and White Peas are unaltered in value, Maple must be written 1*s* per qr cheaper.—The supply of Oats is good, but they are nevertheless held very firmly, and in some instances a slight advance is insisted upon, which causes the transactions to be limited.

BRITISH, PER IMPERIAL QUARTER.

	s.	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk White	56	67	Red	54	62
—— Norfolk, Lincolnshire, and Yorkshire	57	63	White	60	65
Barley, Malting and distilling 35*s* to 38*s* Chevalier	33	36	Grind.	27	30
Oats, Lincolnshire and Yorkshire	23	24	Feed	20	23
—— Northumberland and Scotch	20	23	Potato	24	26
—— Irish	20	22	Potato	24	26
Malt, pale, chip	64	69			
—— Scotland and Essex	60	63			
Rye	34	37			
Beans, Mazagan, old and new 38 to 42	Tick	31	44	Harrow	33	40
—— Pigeon, Heligoland 37 to 40	Winds	40	43	Longpod	32	36
Peas, White 44 to 48	Maple	34	36	Grey	32	35

ARRIVALS IN THE RIVER LAST WEEK.

	Flour	Wht	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	6621 Sks. — Brls	2936	4068	4040	265	—	748	1127
Irish	— — — —	—	905	—	23675	—	—	—
Foreign	1670 — 3110 —	16097	4021	—	6951	—	3013	4961

FRIDAY, Jan. 2.

There is very little English Wheat offering on sale this morning, the trade is very firm, and fully supports our Monday's quotations, there appears a slight inquiry for export, but we did not hear of any transactions in Bonded being concluded.—Barley, Beans, and Peas, remain as last quoted—The Oat trade has rather an upward tendancy, but sales cannot be proceeded with at an advance.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	620	1810	140	700 Sks
Irish	—	—	1960	—
Foreign	4320	2600	6100	—

IMPERIAL AVERAGES.

	Wheat	Barley.	Oats.	Rye.	Beans.	Peas.
Nov. 22 per Quarter.	57*s* 11*d*	34*s* 1*d*	25*s* 1*d*	37*s* 1*d*	40*s* 4*d*	40*s* 4*d*
— 29 . . .	58 2	33 8	25 6	38 4	41 9	40 10½
Dec. 6 . . .	58 0	33 10	24 7	38 0	41 3	40 8½
— 13 . . .	58 1	34 2	25 0	38 0	40 8	40 8
— 20 . . .	58 11	33 4	24 8	38 0	40 8	40 8
— 27 . . .	58 4	33 3	25 0	38 1	39 7	39 10
6 weeks' dagging. Aver.	57 11	33 6	24 4	38 2	40 11	40 4½
Duties on Foreign Grain	15 0	5 0	4 0	5 0	3 0	1 0

Diagram showing the Fluctuations in the price of Corn on the average of the six weeks ending Saturday, Dec. 27.

From.	Nov. 22	Nov. 29	Dec. 6	Dec. 13	Dec. 20	Dec. 27
60*s* 0*d*						
— 0						
58 0						
— 0						
57 11						
— 0						
56 0						
— 0						
55 0						
— 0						
54 0						
— 0						

SEEDS, Jan. 2.

Quantity	per qr	Linseed, Baltic	per qr
Carraway	— cwt	Mustard, White	— bush.
Clover, Red, English	—	— Superfine	—
— — Foreign	—	— Brown	—
— — White, English	—	Rapeseed, English, pur	28*l*
— — Foreign	—	— Coker	—
Coriander	—	Tares, New, winter	— bush.
Hempseed	— per qr.	— Foreign	—
Linseed	— per qr	Turkey	— per cwt
— Baltic	—	Turnip (see variable for quotation).	
— Odessa, Map.	per 1000		

Linseed Oil, Foreign, p. cwt 32 to 33

Rapeseed, White - p. bush. — to —

— Superfine — to —

— Brown — to —

— English, pur 28*l* 28*l*

— Coker — to —

Spanish — to —

TO NURSERYMEN AND OTHERS.

TO BE LET, at Wellingborough, a town on the line of the Birmingham Railway, an excellent and old-established NURSERY GROUND, containing about Two Acres of Land, surrounded by a brick wall. A roomy and very commodious dwelling is attached, together with stabling and various out offices. Rent 25*l.* per annum.—Apply to Mr. ROBBINS, Auctioneer and Accountant, Wellingborough, to view the premises and land, or to A. B. C., *Railway Bell* Office, 338, Strand, London.

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" ten rows..... 45

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OR,

IRON ROAD BOOKS, FOR PERUSAL ON THE JOURNEY.

IN WHICH WILL BE NOTED

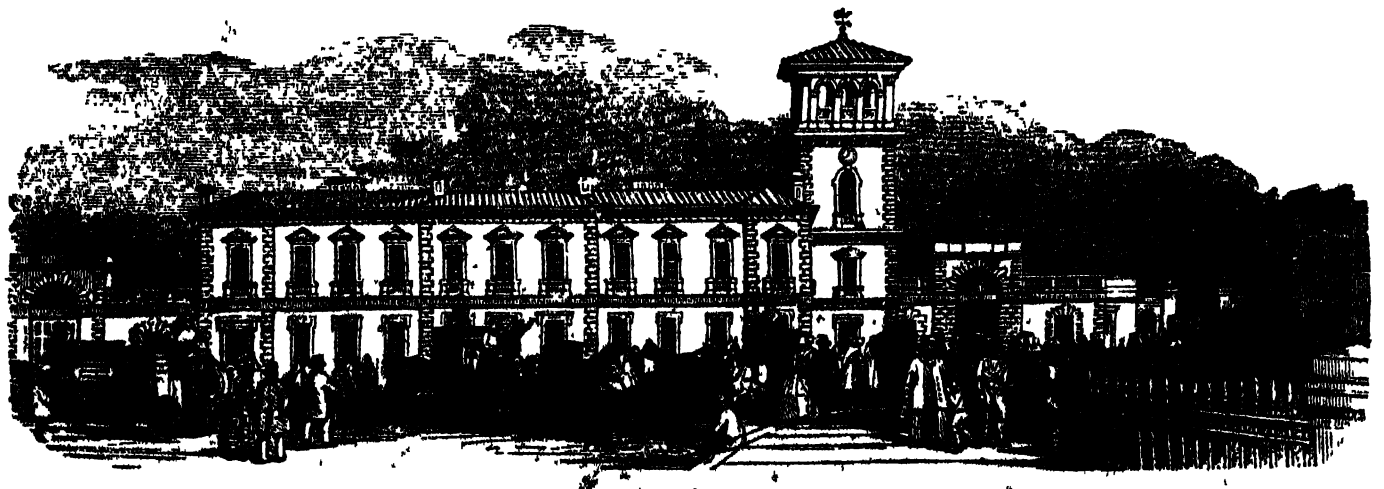
THE TOWNS, VILLAGES, CHURCHES, MANSIONS, PARKS, STATIONS, BRIDGES, VIADUCTS, TUNNELS, CUTTINGS, GRADIENTS, &c, THE SCENERY AND ITS NATURAL HISTORY, THE ANTIQUITIES AND THEIR HISTORICAL ASSOCIATIONS, &c., PASSED BY THE LINE OF RAILWAY.

WITH NUMEROUS ILLUSTRATIONS.

CONSTITUTING A NOVEL AND COMPLETE COMPANION FOR THE RAILWAY CARRIAGE.

No. 1, 1846, for Saturday, January 3, commences with the

LONDON AND BRIGHTON.



CHARTS for the following Lines will be commenced on

Jan. 10, THE LONDON AND BIRMINGHAM. *Jan.* 17, THE SOUTH-WESTERN,
Jan. 24, THE GREAT WESTERN.

*** *Offices for Advertisements and Communications for the* RAILWAY CHRONICLE, 14, *Wellington-street North, Strand, London.*

Printed by Wyndham Hathaway, of No. 6, York-place, Stoke Newington, and Benjamin Musgrave Evans, of No. 7, Church-row, Hoxton Newington, both in the county of Middlesex, Printers, on their Office in Lombard-street, in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 6, Chandos street, in the parish of St. Paul's Covent Garden, in the said county, where all Advertisements and Communications are to be addressed.—SATURDAY, JANUARY 3, 1846.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 3.—1846.] SATURDAY, JANUARY 17. [Price 6d.

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GARDENERS' BENEVOLENT INSTITUTION.—NOTICE is hereby given, that the ANNUAL GENERAL MEETING of the Subscribers to this Institution will be held at the LONDON COFFEE HOUSE, Ludgate hill, on WEDNESDAY, 28th of January next, for Electing Officers for the ensuing year and receiving the accounts of the Charity for the past year and other business The Chair will be taken at Eleven o'clock precisely after which an ELECTION for FOUR PENSIONERS will take place from among the following Candidates whose testimonials have been examined and approved of by the Committee —

Names.	Age		
John Adamson	66	Mortlake	3d application
Barney Farelly	69	London	do.
Thomas Farmer	65	Mitcham	do
John Garnell	79	East Ham	do
Christopher Gibbons	60	Hendon	do
James Stedman	78	London	do
Jams Everest	65	Bagshot	2d application
John Longhurst	58	Charlton	do
William May	77	Foot's Cray	do
William Havers	73	Chigwell	1st application
Christopher Birmingham	75	Broad Clift, Devon	do
Edward Marshall	65	London	do.
Ann Pratt	64	Waltham Cross	do
Sarah Pryor	77	London	do
Henry Riches	71	London	do.
George Wallis	70	Bristol	do.

The Ballot will be kept open for two hours after the business of the Meeting has been considered

The Subscribers and Friends of the Institution will afterwards celebrate their Anniversary by dining together at the above house

The Right Hon the Lord Mayor in the Chair.

Stewards

James Cooke, Esq	James Garraway Esq
William Docker, Esq.	William Gregory, Esq
J Drumgole, Esq	John Henderson, Esq.
Wm J Epps, Esq.	Sam J Loyd, Esq
Thos Finden, Esq	Rob Palmer, Esq
J W Freshfield, Esq	John Wrench, Esq.
James Veitch, Esq jun	

E R Cutler, Secretary, 97 Farringdon street

DOUBLE ITALIAN TUBEROSE ROOTS, 4s. per dozen —The importation of the above named Bulb has just been received at A Corbetti's Italian and Foreign Warehouse 18, Pall Mall. The Orange, Lemon, Citron, Lime, and Shaddock Trees, Catalonia, Agotian, and Arabian Jessamine Plants expected in January.

JESSOP'S NURSERY, CHELTENHAM, Established in 1815, from its extensive connections offers peculiar advantages to Noblemen and Gentlemen requiring Gardeners, Foresters, or Farm-Bailiffs of established skill and reputation.

All communications promptly attended to

GEORGE LIGHTBODY, Falkirk, respectfully intimates to the cultivators of the RANUNCULUS, that his Catalogue of Show Seedlings may be had on application. Gentlemen wishing to form a collection or to add to their present stock, are requested to give their orders early, as the stock is now getting low. Packets of Ranunculus Seed, 2s. 6d. each.

FINE NEW FANSY—"DR. WOLFF."

JAMES BACKHOUSE AND SON, Nurserymen, &c. York, have now plants of the above new and striking FANSY ready for delivery, at 5s. each. Dr. Lindley's opinion of this flower in the *Gardeners' Chronicle*, p. 332, 1845, is as follows —"Your Seedling (Dr Wolff) is a flower of good form and substance, rather novel in appearance, with fine eye, ground colour rich and bright yellow, and the rest of the flower of a rich bronzy purple." An allowance to the Trade.

NEW FORCING PELARGONIUM, "BELLA."

EBECK informs the Public Strong Plants are now ready for delivery at 15s each, free in London. Usual allowance to the Trade *for prepayment only* The above has been repeatedly shown in E B's Prize Collections. Colour, scarlet-rose with dark well defined spot Good shape and habit No orders can be received without a remittance. Post-office Orders on Brentford.—Worton Cottage, Isleworth, Jan. 17.

AMERICAN ONION SEED.

J. G. WAITE begs to inform the Trade generally he has had consigned to him a cargo of the above ONION SEED of very superior quality The Seed has arrived in excellent condition, and far excels the quality of our own growth of this season at the following low prices

Large Yellow, extra fine per lb 3s 6d , per cwt, 19l.
Blood Red, per lb, 3s , per cwt 16l

Terms, cash —4, Fyfe-street Hill Hatton Garden

PYRAMIDAL PEAR TREES ON QUINCE STOCKS FOR GARDEN CULTURE

THOMAS RIVERS begs to offer the following variety of PEARS, fine plants, 3 and 4 years old grafted on the Quince, 4 to 5 feet high, and well furnished with branches at 3s 6d each

1 Archduke Charles	*19 Doyenné, White
2 Bellisime d'été, or French Jargonelle	20 Duchesse d Angoulême
*3 Beurre Brown	*21 Fortune Parmentier
*4 Beurre Coloma	22 Gratioli of Jersey
*5 Beurré d'Amaulis	*23 Jargonelle
6 Beurré Diel	24 Louise Bonne of Jersey
*7 Beurre de Capiaumont	25 Napoleon
8 Beurre d'Aremberg	26 Passe Colmar
9 Beurre Easter	*27 Saint Germain
10 Beurré Moire	28 Sucre Vert
*11 Bon Chretien, Williams	29 Saint Michel Archange
*12 Colmar	* 0 Summer Franc Real
13 Colmar d'Aremberg	31 Von Mons Leon le Clerc
14 Chaumontelle	*32 Glout Morceau
*15 Citron des Carmes	
*16 Crassane	*For Baking or Stewing*
17 Doyenné d'été	Bellisime d'hiver
18 Doyenne Gris	Catillac
	St Leizin

Nos 9, 12, 16, and 27, although generally requiring a wall will bear as pyramidal trees on the Quince in a warm sheltered situation Those marked thus * can be had root pruned full of bloom buds, so as to bear the first season at 5s 6d A Descriptive Catalogue of Pears, with directions for their culture as pyramidal trees will be sent gratis on application the Catalogue of Fruits on receipt of Six Penny Stamps The trees will be pruned ready for planting if desired

The following varieties of CHERRIES are grafted on the Cerasus Mahaleb forming dwarf bushes so as to be easily covered with netting, they are also well adapted for potting for forcing, 3s 6d each

Archduke, May Duke, Royal Duke, Late Duke, Biggareau, Biggareau Napoleon, Black Eagle Elton, Belle de Choisy, Early Amber Heart, Early Purple Guigne, Buttner's October Morello, Elton, Morello Werder's Early Black, Early May, Waterloo, Reine Hortense —Sawbridgeworth, Herts

THE TRUE EASTOLFF RASPBERRY.

PATRONISED BY HER MOST GRACIOUS MAJESTY THE QUEEN, HIS GRACE THE DUKE OF NORTHUMBERLAND, HIS GRACE THE DUKE OF RUTLAND, HIS GRACE THE DUKE OF MARLBOROUGH, THE EARL OF HARRINGTON THE EARL OF LIVERPOOL THE EARL OF ABERGAVENNY, THE EARL OF EGREMONT THE LORD BISHOP OF LONDON, LORD VISCOUNT LORTON LORD SONDES AND MOST OF THE NOBILITY, AS WELL AS THE HORTICULTURAL SOCIETY OF LONDON, THE LATTER HAVING AWARDED YOUELL AND CO. TWO PRIZES FOR IT

YOUELL AND CO. have much pleasure in announcing they continue to supply fine Canes of the above highly valuable and much esteemed RASPBERRY, unequalled for the extraordinary size of its fruit, and richness of flavour

Those to whom Y and Co sent it last season have expressed their high admiration of its superiority over all other varieties and have been awarded several prizes at various Horticultural Exhibitions during the season As a proof they have not exaggerated its excellent qualities, Fruit was submitted to Dr Lindley (see *Gardeners' Chronicle* of the 22d July 1843, p 502), whose opinion of it is as follows —"Eastolff Raspberry —We have received from Messrs Youell of Great Yarmouth fruit of the Eastolff Raspberry and we find it merits all that has been stated in favour of its excellence The fruit that we have received is very large, obtusely conical, and of rich flavour far exceeding in this respect some other new and large varieties The plants bear abundantly, and in long succession"

They also exhibited it on the 1st of August, 1843 before the London Horticultural Society, 21, Regent-street to which a prize was awarded, and again at the Horticultural Society's Exhibition at Chiswick, July 18, 1843, and maintained its high character, by having a Certificate of Merit awarded it. It would therefore be unnecessary for Youell and Co to recommend it more fully, or with greater confidence, to the notice of the public, merely observing that it continues in high perfection throughout the autumnal months and has maintained its superiority in the most unfavourable soils and situations, and requires no other than the ordinary treatment of the old varieties

Fine Canes are ready for delivery, and can be sent with safety to any part of the United Kingdom, or Continent, upon the following terms —

Packages containing	100 Canes	£1	4 0
Do	do. 50 do	0	13 0
Do.	do. 25 do	0	7 0

Small Canes 12s per 100.

A liberal discount to the Trade, when "quantities" are ordered

Fine Standard Roses, by name, 15s. per dozen.
Fine Dwarf do do 6s. "

Great Yarmouth Nursery, Jan 17, 1846.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD & SON have the honour of informing their friends that they still continue to supply ROSES on the following terms, the selection of sorts being left to themselves—Strong Plants and warranted superior varieties —

Extra superior selected Standards on tall stout stocks from 5 to 6 foot, adapted for planting in conspicuous situations	Per Doz	£1 16 0
		Per 100
Superior Standards	Per Doz	£1 4 0 — 10 0* 0
Superb ditto, extra fine	"	1 10 0
Fine Dwarfs	"	0 12 0
Superb ditto	"	0 18 0
Fine Dwarfs on own roots, in 50 varieties	"	2 10 0
Ditto Climbing, 1s to 12s. per doz		
Ditto Dwarfs on own roots, without names	"	1 10 0

A proportionate number of plants presented with each order, towards defraying the expence of carriage &c

W W & Son's descriptive Catalogue of Roses, also Catalogues of Camellias Greenhouse, and Herbaceous Plants, will be sent *free* on application

FUCHSIA SERRATIFOLIA

MESSRS VEITCH & SON can now supply strong well-established plants of the above beautiful FUCHSIA at 10s 6d each The usual discount to the Trade

A Post-office order, or reference, required from unknown correspondents —Exeter, Jan 17, 1846

EATON NURSERY, NORWICH & No. 1 EXCHANGE ST.

J. W. EWING (late Partner in the firm of Mackies and Ewing) begs to thank those friends who have kindly favoured him with their support during his late partnership, and to inform them that he is now carrying on business at the above named places on his own account and in soliciting their patronage begs to assure them of his intention to offer articles of purest stock and best quality only, and having been long acquainted with the first markets in the kingdom he feels confident of being found worthy the trust he hopes to have reposed in him

GARDEN AND AGRICULTURAL SEEDS.

In consequence of the great improvements in horticulture of late years the list of garden esculents has been so increased, as to make it extremely difficult for the amateur, without assistance, to make choice of an article to meet his wishes To obviate this difficulty, J W Ewing has published (to be had on application) A DESCRIPTIVE CATALOGUE of the Vegetables in general cultivation, with some slight hints as to their TREATMENT, which he humbly hopes will be found useful in enabling the purchaser to make such choice of his seeds as may insure to him a constant supply of good Vegetables.

A List of Flower-seeds will shortly be ready for distribution, and in this department, in order to meet the wishes of many of his customers, J W E has determined on sending out each packet with a *printed label*, giving the Latin and English name, the height, colour of the flower and whether Hardy, Half hardy, or Tender

RANUNCULUSES, ANEMONES AURICULAS CARNATIONS PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM

H. GROOM, Clapham Rise, near London, (removed from Walworth) By Appointment FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY,

Begs to recommend to the attention of the Nobility Gentry, and Public his extensive assortment of the above FLOWERS, which he can supply of the best quality

	£	s	d
100 RANUNCULUSES in 100 Superfine sorts, named	1	10	0
Superfine Mixtures per 100 10s 6d to	1	1	0
100 ANEMONES in 100 Superfine sorts, named	1	1	0
Superfine Mixtures per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named	1	1	0
25 pair of CARNATIONS, in 25 ditto ditto	2	10	0
25 pair of PICOTEES, in 25 ditto ditto	2	10	0
25 GERANIUMS, in 25 Superfine sorts ditto	1	10	0
Good kinds per doz, from 12s to	0	18	0
LILIUM LANCIFOLIUM ALBUM good bulbs, each	0	2	6
" PUNCTATUM "	0	7	6
" SPECIOSUM (true) from 1l 1s to	1	1	0

Foreign Orders executed

GREAT FALL IN SEEDS THIS WEEK.

J. G. WAITE'S WHOLESALE VEGETABLE and FLOWER SEEDS — CATALOGUES are now ready, and can be had on application

4, Fyfe-street Hill Hatton Garden London Jan 17 1846

FINE WHITE SPANISH ONION, ALTRINGHAM CARROT, &c Dealers can be supplied with a fine article at moderate prices, by WARNER & WARNER, Seedsmen, 28, Cornhill London General Priced Trade Catalogue to be had on application

SUPERIOR NEW EARLY PEA.—WARNER'S "EARLY EMPEROR" Pea, the earliest in cultivation, quite hardy, a good cropper with fine pods, and most delicious flavour. Height about 2 ft.—5s per quart.—To be had of Warner and Warner, Seedsmen 28, Cornhill, London

SHILLING'S EARLY POTATO. — The above POTATO is a Seedling of their own raising, which they have for several years sent out in their own neighbourhood, where it has been highly esteemed, but having a wish to make it more extensively known, they have appointed the undermentioned Seedsmen in London as Agents, of whom they may be had at 4s per peck

It is a particularly healthy variety very handsome, of middle size, second to none in earliness or produce, and very remarkable for its delicious flavour and nutritious properties When taken up, they got from 12 Potatoes 13½ ozs of clean dry flour or starch, not easily distinguished from the foreign Arrowroot, with which it has been compared They are desirous to call attention to its quality and flavour, and do with confidence recommend it in every other respect

Agents —Messrs T & W NOBLE 152, Fleet-street, London; Messrs HURST & M'MULLEN, 6, Leadenhall-street; Mr KERNAN, 4, Great Russell-st, Covent-garden.

J. & S. Shilling, Nursery and Seedsmen, Northwarnbro', near Odiham, Hants.

GREAT YARMOUTH NURSERY, NORFOLK.

YOUELL AND CO. beg to offer the following good and desirable plants to the notice of their Friends and Amateurs, feeling assured from their well known mode of executing all orders, that those favouring them with their commands will receive none but articles of the very best quality.

Superb new heavy-edged PURPLE PICOTEE, "HURROUGHES'S PRESIDENT," 15s. per pair. For particulars, see *Gard. Chron.* of 11th Oct.

Also, "HURROUGHES'S DUKE OF NEWCASTLE," the best light-edged Purple Picotee, 10s. per pair.

CARNATIONS AND PICOTEES.

		£	s.	d.
12 pairs extra fine and very superior first-class Show Flowers, by name		2	10	0
25	ditto ditto ditto	5	0	0
12	ditto Fine Show Flowers ditto	1	10	0
25	ditto ditto ditto	3	0	0

Extra fine Show Pinks, by name, per dozen pair, 12s.

FUCHSIAS, extra fine, including "Serratifolia,"	24s. p. doz.	
CHRYSANTHEMUMS	ditto	12s. per dozen.
VERBENAS	ditto	6s. ,,
PETUNIAS	ditto	9s. ,,
PANSIES	ditto	10s. ,,
Ditto, very best first-rate Show Flowers		18s. ,,
CINERARIAS, extra fine sorts, by name	12s. to 18s.	,,

Also their New Superb Seedling CINERARIA, "No. 1," named "NORFOLK HERO," 5s. per plant; the following description of it will be found in the *Gardeners' Chronicle*, May 31, 1845:—"Y.—No. 1 is a very fine specimen of a creamy-white, dark disk, very broad petals, and flowers unusually large, measuring 3½ inches in diameter."

ERICAS, fine and free-flowering sorts, by name, 9s., 12s., and 18s. per dozen.

HERBACEOUS PLANTS, fine sorts, 6s. to 9s. per dozen.

	s.	d.		s.	d.
ARAUCARIA IMBRICATA:			Abies gracilis .. each	2	6
2 years old, per doz.	9	0	,, orientalis ..	5	0
3 ,, .. ,, ..	12	0	Picea cephalonica, p. dz.	30	0
4 ,, .. ,, ..	18	0	Pinus cembra	12	0
5 ,, .. ,, ..	30	0	Cupressus torulosa, per		
6 ,, .. ,, ..	60	0	doz., fine	18	0
Cedrus Deodar, 1 yr., fine	18	0	Do., seed pans, p. doz.	6	0
,, ,, 1 foot ..	30	0	Podocarpus totara, each	5	0
Pinus excelsa, 3 inches..	9	0	Do. Dicryfloides ,,	7	6
,, ,, 4 to 5 ins.	18	0	Do. ferruginea ,,	5	0
,, ,, 18 inch, fine bushy plant ..	42	0	Phyllocladus trichomanoides .. .. ,,	5	0
,, Gerardiana, 2 yrs.	30	0	Taxodium sempervirens,,	7	6
Abies Khutrow, 2 years	9	0	Dicrydium cupressinum,,	5	0

RIBES SANGUINEUM FLORE PLENO, 10s. 6d. per plant.

MYATT'S "BRITISH QUEEN," STRAWBERRY, 5s. per 100.

"PRINCESS ALICE MAUDE," ,, 10s. ,,

YOUELL'S CELEBRATED TOBOLSK RHUBARD, fine transparent pink, the best for forcing, 12s. per dozen. Roots placed in a cellar or closet now will be fit for cutting in a month.

The finest DOUBLE ANEMONES, 12s. per lb.

The finest Mixed RANUNCULUSES, all from named flowers, 12s. per 100.

*** Foreign Orders carefully executed so as to ensure safe transmission.

N.B. Steam Ships to London three times a week; to Hull, twice a week; and per rail to London every eight hours.

Great Yarmouth Nursery, Jan. 17.

FIRST PRIZE CUCUMBER, "VICTORY OF BATH."

E. TILEY begs most respectfully to inform the Nobility, Gentry, and the Trade generally, that he will commence sending out the seed of the above superb CUCUMBER the first week in January. It is a superior Black Spine, smooth on the rind, and free from ribs or shrivels; scarcely any or no handle; carries its bloom perfect to the last. It is worthy of remark that the advantages of this over other Cucumbers is that it is a very handsome fruit, the earliest and most productive bearer, and the quickest grower known. It has been grown by the side of the best yet out, and has proved itself more forward than any other by eight or ten days. The average length of this Cucumber is from 18 to 24 inches long. As a further proof of the above it obtained the First Prize in March, 1841, at the Bath Cucumber Show, and First at the Bath Horticultural Show in April, 1844, and Chippenham Horticultural Show, 1844. First, Second, and Third Prizes in March, 1845, at the Bath Cucumber Show, also the Bath Horticultural Show in April, 1845. It will be sent out in packets (postage free), Three seeds, 2s. 6d.; Seven seeds, 5s.

Sold at E. TILEY'S General Seed Shop, 16, Pulteney Bridge, Bath, or Mr. GREGORY, Nurseryman, Cirencester.

A remittance expected from unknown correspondents.

CHALLENGE TO FUCHSIA GROWERS.

J. HALEY, NURSERYMAN AND FLORIST, Blackheath, will Challenge his Fuchsia, the "EMPRESS," against any Seedling variety raised in 1845, for 5l. or 10l., for Beauty of Flower, combined with Habit of Growth; to be decided at one of the London Exhibitions for 1846. For description, see *Gardeners' Chronicle*, Sept. 27, J. Y. B., "This is the best and most decided light variety we have seen, there being no tinge of pink in the tube." See also *Gardeners' Gazette* for Sept. 20, Answers to Correspondents J. H. and B. R. D.; and also in the same Paper, a Report of the West Kent Philanthropic Society of Gardeners. Will be ready to send out early in the spring, with FUCHSIA CANDIDISSIMA, a very pretty and distinct variety, about twice the size of Venus Victrix, having pure white tube and sepals, and a deep rose-coloured corolla, was exhibited and greatly admired at the Regent's-park Exhibition last July.

FUCHSIA SERRATIFOLIA, good plants.... 7s. 6d.

,, SMITH'S QUEEN VICTORIA, do. 7s. 6d.

VERY SPLENDID NEW WHITE FUCHSIA.—The Subscribers beg to intimate to the Floricultural Public, that they have raised a WHITE FUCHSIA of great beauty, which they purpose naming "ACANTHA." The flower is between 3 and 4 inches in length, tube and sepals waxy white, with bright scarlet corolla, which opens well. It is of a compact upright growth, and a most abundant bloomer; plants about 6 inches high being now in full bloom. The original plant is still in flower, and has been since the month of June. See Dr. Lindley's remarks in the *Chronicle*, Nov. 29, page 801 ("Seedling Flowers"); also Mr. Marnock's *United Gardeners' Journal*, Nov. 22, page 744.

Good plants will be ready to send out in spring.

F. & J. DICKSON, Upton and Newton Nurseries.

Chester, Jan. 17, 1846.

POTATOES FOR SALE.—A few Tons of the best and earliest sorts of DEVONSHIRE POTATOES, saved in good condition, and fit for immediate planting, are offered for Sale on reasonable terms.—Application, if by letter post paid addressed to E. EARDLEY, Rose Cottage, Woodbury, near Exeter, will be immediately attended to.—Jan. 17, 1846.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles, in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

NEW PLUMS.

THOMAS RIVERS begs to offer the following fine varieties of PLUMS selected from his collection, dwarf, maiden plants:—

REINE CLAUDE DE BAVAY, a variety of the Green-gage, nearly double in size, and ripening from ten days to a fortnight later, 5s. each.

GUTHRIE'S APRICOT, a yellow Plum raised by Mr. Guthrie at Dundee, ripens end of September, 5s. each.

FELLENBERG, a full-sized purple oval Plum, ripens middle of October, 2s. 6d. each.

KNIGHT'S GREEN DRYING, large as the Washington, ripens end of September, 2s. 6d. each.

SAINT MARTIN'S QUETSCHE, purple, will hang on the tree till November, a rich and valuable late Plum, 2s. 6d. each.

DE MONTMORT, large, purple, ripens in August, succeeding Royale Hative, 2s 6d.

Nurseries, Sawbridgeworth, Herts.

WAITE'S "QUEEN OF DWARF" PEA.—This is a variety that cannot be too extensively introduced to the notice of the horticultural world, it being distinct from any that has been introduced to the public. Its habit is quite distinct from all others; being not more than one foot in height, and covered with pods. The Pea is twice the size of any other Dwarf Pea in cultivation, and excelling by three-fold in produce; has been grown at the Royal Gardens, at Frogmore, and approved of there as a new variety, and also at Her Majesty's table for its superior flavour. Price 5s. per quart. The usual discount to the Trade.

All kinds of Garden Seeds, 20 per cent. lower than any house in the Trade.—4, Eyre-street Hill, Hatton Garden, Jan. 17, 1846.

CUCUMBER AND MELON BOXES AND LIGHTS.—One Hundred 1, 2, and 3-Light Boxes and Lights of all sizes ready for immediate use. Warranted best materials, packed and sent to all parts of the kingdom: 2-Light Boxes and Lights from 1l. 5s. Garden Lights of every description. Conservatories, Green and Hot-houses made and fixed in all parts of the kingdom. Reference given to the Nobility, Gentry, and the Trade, in most of the counties in England.

JAMES WATTS, Hothouse Builder, Claremont-place, Old Kent-road, London

TO PLANTERS AND TO NURSERYMEN.—Seventeen Acres of GENERAL NURSERY STOCK, now SELLING OFF, at reduced prices. The Stock will be disposed of either altogether, with the good-will of the business, or in lots to suit purchasers.

Seventeen Acres of suitable LAND for Nursery purposes, within half a mile of the Railway Station, and all within a ring fence. Rent moderate, and a Lease granted if required.

Amongst other articles, the Stock includes a large quantity of TALL ORNAMENTAL TREES for planting, where immediate effect is required; also 500,000 fine transplanted THORNS.

Any one wishing to purchase the whole Stock and good-will of the business (which is of many years standing), may appoint a respectable Nurseryman to make a valuation, with another person appointed by the owner. For further particulars, and for printed Catalogues, apply to RICHARD MITTON, Nurseryman, Pontefract.—Jan. 17, 1846.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

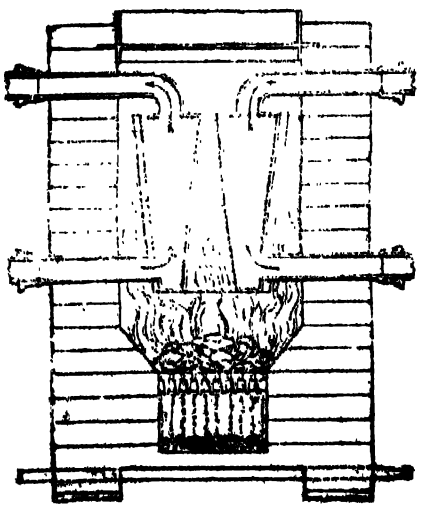
Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELRICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

FOREIGN SHEET GLASS AND GLASS TILES.

C. JARVIS continuing to import large quantities of the above articles, in quality and substance hitherto unequalled, can offer them to purchasers at a lower price than any other house in the trade, for ready money only, at his old established WINDOW GLASS WAREHOUSE, 38, Great Castle-street, a few doors from Regent-street, where orders, forwarded with reference, meet with prompt attention. Every other description of WINDOW GLASS equally low in price.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILL'S recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—190, Fleet-street, London.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and price at 190, Fleet-street.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD HATHEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HEATING BY WARM WATER.—An improved method of HEATING, by the CIRCULATION OF HOT WATER, may be seen in operation daily, at J. L. BENHAM & SON'S Stove Grate Manufactory, 19, Wigmore-street, Cavendish-square. Estimates given for warming Churches, and other Public or Private Buildings, in town or country. A great variety of Warm Air Stoves of every description, from 15s. to 20l.—19, Wigmore-street, Cavendish-square.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,

COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.

47, Lime-street, Jan. 17.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

LIEBIG'S WHEAT MANURE now ready for delivery.

GYPSUM.—PURE GYPSUM (in fine powder), in 5-ton lots at 25s. per ton in the stream, or 27s. 6d. per ton landed. Also Guano (Peruvian and African), Superphosphate of Lime, Bones, Sulphuric Acid, and all other manures of known value, on Sale. By MARK FOTHERGILL, 40, Upper Thames-street, London.

HORTICULTURAL IMPROVEMENTS.

J. READ begs to inform Ladies, Amateur and Practical Gardeners, that during 21 years' practice in the Science of Horticulture, he invented the well-known GARDEN MACHINE called "READ'S Patent," and for which the Horticultural Society awarded him their Silver Medal, as being the best Instrument ever offered to their notice, and in consequence of the number of paltry Instruments that are now offered to the Public, and baldly and falsely advertised as "*superior to all others*," J. R. has taken out a NEW PATENT for certain Improvements in all his Garden and Fire Engines, which surpass any he has hitherto made, and without increasing the price; they may be worked with less labour, and he will warrant to keep the Valves in repair during the term of the Patent. J. R. has no pretensions (like those Mushroom Machinists), to sell "*30 per cent. less than any other house in London*," but will warrant his Instruments 30 per cent. BETTER!

The genuine Instruments are manufactured *only by the Patentee*, 35, Regent Circus, Piccadilly; where they may be seen and proved. N.B.—Observe the words READ'S PATENT, without which none are genuine.

TO MILLWRIGHTS AND MACHINE-MAKERS.—WANTED immediately, Four first-rate THRASHING and WINNOWING-MACHINE and CORN-DRILL MAKERS.—Steady men will find constant employ and liberal wages.—Address, Mr. JOHN RENDELL, Castlemoor, near Blandford, Dorset.

SELECT VEGETABLE SEEDS.

WILLIAM E. RENDLE & CO. have much pleasure in announcing to those who are fond of really choice and good vegetables, that they have this year procured a small stock of the following valuable *sorts*, which are all warranted to grow well, and to be of genuine quality.

A Packet of each will be sent postage free to any part of Great Britain or Ireland for *Ten Shillings*, or a selection of 12 sorts for *Five Shillings*. Any sort separate at *Sixpence* per Packet.

Willcove Broccoli.	Myatt's superior Curled Parsley.
New Early Walcheren do.	Enfield Matchless do.
Chappel's Cream do.	Superb Crimson Beet.
Legg's Late Dwarf do.	Imported Brussell Sprouts.
Snow's Winter White do.	White Spanish Onion.
Large Syrian do.	Green-topped Carrot.
Hampton Court do.	Early Matchless Cabbage.
Potter's Pink do.	Earliest Cornish do.
Walcheren Cauliflower.	Early Hope do.
Large Asiatic do.	Early British Queen do.
Improved Guernsey Parsnip.	London Market do.
Green Flesh Cabool Melon.	Early Paignton do.
Ice Cabbage Lettuce.	Seymour's White Celery.
Drumhead do.	Lancashire Hero (Red) do.
Blood Red do.	Walnut-flavoured Pink do.
Hampton Court Cabbage do.	Latter's Victory of England Cucumber.
London Market do.	Hamilton's Black Spine do.
Ady's Large Cos do.	Snow's Horticultural do.
Wood's New Frame Radish.	
Yellow Scarisbrook Turnip.	
New Early Cream do.	

Complete collection of Seeds suitable for a Kitchen Garden for 1*l.* 10*s., including the above, carriage free, to any part of Great Britain or Ireland.*

ALL OTHER KINDS OF GARDEN SEEDS.

Early orders are desired, as *some of the kinds* are scarce.

Immediate payment is not required from known correspondents, or those who give reference in London.

Plymouth, Jan. 17, 1846.

The Gardeners' Chronicle.

SATURDAY, JANUARY 17, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Tuesday,	Jan 20	Horticultural & Linnean	2 P.M. & 8 P.M.
Saturday	— 24	Royal Botanic	4 P.M.
Monday,	— 26	Entomological (Anniversary)	8 P.M.

We cannot too often repeat that the importance of the Polmaise Heating consists in its cheapness, as well as its efficiency. Wise people say that it is not new—that as good Grapes can be grown without it as with it—that it does no more than hot water pipes and tanks will do, and so forth. But, granting all these propositions, which we do not, what then? The grand point of cheapness remains; and on that we rest our case. Nothing has been thought of yet which is so cheap and efficient as the Polmaise plan.

If a greenhouse costs 75*l.*, a man must pay 30*l.* to heat it, and probably much more. Is it nothing that by the Polmaise plan he may do it for five pounds? If a small range of pits, or a very small greenhouse, must have the cold kept out of them, it is impossible to do it without the risk of overheating them, let the cost be what it may. Is it nothing that the Polmaise plan overcomes these difficulties?

We do not say that it can be applied to stoves; neither do we say that it cannot. The point remains to be ascertained. But supposing it to be unfit for that purpose—what then? Very few persons have stoves or care for the management of them. They are exclusively for the enjoyment of the wealthy, to whom tanks and hot water pipes are sufficient.

Such being the true state of the question we make no apology for persevering in our intention of fully elucidating Mr. Murray's plan of heating; and we now proceed to do so, by adverting to certain points connected with it, which are liable to misapprehension. These are practically disposed of by the late gardener at Polmaise, whose arguments we quote nearly verbatim:—

"I am given," he says, "to understand that many entertain doubts as to the proper place where the warm air should be admitted into the Vinery, believing that it should come in at the front of the house instead of the back, as it does in the Polmaise plan. This objection has often struck those who have visited the Polmaise Vinery, and naturally arises from seeing the difference as to place for diffusing the heat and the practice that is adopted with all other systems of heating hothouses, in which the hot-water pipes, smoke flues, or other means of heating, are placed round the front and ends of the house, that being the best position for the above apparatus for diffusing the heat which they throw off. But the difference in the movement of the air when heated by the Polmaise plan and by hot-water pipes, smoke flues, &c., at once explains why in the Polmaise plan the warm air is brought in at the back wall of the Vinery instead of the front. Those gardeners who have smoke flues for heating their Vineries must have observed that if a little water is thrown on the hot flues in a frosty night, the steam as it ascends flows inwards from the front, at an angle varying according to the coldness of the external atmosphere. This being the case, there is reason in considering that if the warm air in the Polmaise plan was made to come in at the front instead of the back, the revolving movement of the air from the front to the back would only be an inducement for the cold air to enter in amongst the Vines more than it does by any of the old plans. The warm air in the Polmaise system revolves from the back to the front, and thus counteracts whatever cold may fly off from the glass, or enter between the laps, turning its movement downward, parallel with the inner surface of the glass, and modifying its temperature. There is also another evil that might take place if the warm air was brought in at the front, which, perhaps, many are not aware of. Warm air, when conducted from the place where it is heated to another, by anything that will confine it, like a flue or pipe, retains its heat to the distance of 12 or 14 feet from its point of escape; so that the leaves of the Vines within its influence lose their vegetative power, wither, and die. If you would have the hot air brought in at the front, the outlet for it would require to be kept at a considerable distance from the Vines, lest their leaves should suffer at the aperture. In that case the distance which the warm air outlets should be for the safety of the Vines, would be too great for the heat to extend its influence to the front, in consequence of the inevitable draught from the front to the back. The true place for the openings for the inlet of the returning air to the stove is as close to the front wall and as low as you can get them, and I would recommend four of them in a house 30 feet long, for the better dividing the points of draught and diffusing the heat more equally all over the front of the Vinery."

It will be obvious that these statements are of more force when Vines are trained over glass than in other houses; but they deserve attention in all cases.

What is, however, of quite as much importance is the kind of stove that should be used for this purpose, and the manner of setting it. We had supposed that a Joyce's stove would do for the purpose; but experiments do not bear out the opinion. When applied over the mouth of a drain, this stove more readily derives the very small supply of fresh air which it requires from the inside of the pit or house than from the drain itself; and thus it is a long while in producing a good indraught of air into the drain at the cold end of the house. Not that it fails; but it acts imperfectly, and we cannot recommend it for any other than very small places. Dean's stove is liable to the same objection; and we are not prepared to say what kind of stove will prove to be the best. That point is still open to inquiry, and it is not improbable that some modification of an Arnott will eventually be found best adapted to the end in view. This seems certain, that the stove must be so connected with the drain that it cannot derive its fresh air from any other source. If that precaution is not taken the air of the house will not draw into the drain with force enough to establish a rapid motion and mixture among the particles in the atmosphere of the house itself.

We had written thus far when the following interesting communication from Mr. Rivers, of Sawbridgeworth, reached us:—

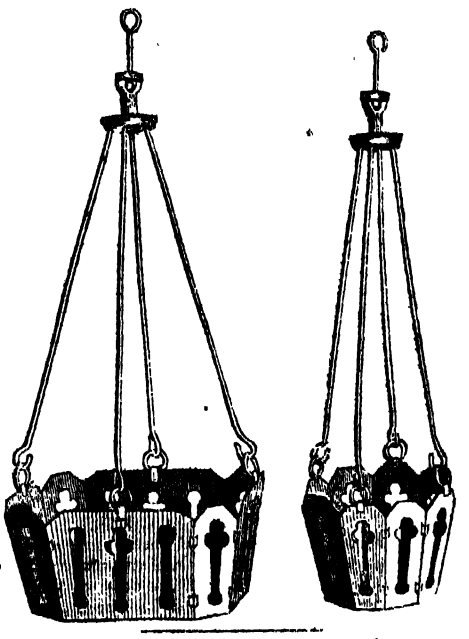
"For several years I have used Arnott's stoves, for forcing Roses, with complete success, so as latterly to have had from seven to eight in constant use in the early spring months. Finding, however, last season that some of them showed symptoms of decay from rust, I gave orders to the village bricklayer to take one to pieces, and make a copy in brick. Like many countrymen in receiving orders which they think difficult to execute, he scratched his head and gave me rather a despairing look. However, on my suggesting that a trial would not be very expensive, he commenced operations and in a very short time built a brick Arnott's stove, which I have no hesitation in saying is the most complete, economical, and efficient article for heating small houses I have ever yet seen. I have now four of them at work, supplying the place of so many iron Arnott's stoves, which had become rusted and useless, for the sheet-iron case, containing the fire-box, soon decays, and is eaten into holes by the oxidation encouraged in the damp atmosphere of a forcing house. One of these stoves is placed in a forcing house for Roses, 20 feet long by 11 feet; this it is more than sufficient for; its height 2 feet 8 inches, and exactly 2 feet square; foundation, common bricks and mortar; the part surrounding the fire-box, which is formed of four "lumps" (I use my bricklayer's terms), is built with "fire bricks" and "fire clay." On the top of the stove is placed a "Welsh tile," 2 feet square and 3 inches thick; the feeding-door is about the centre, a small sliding draught and ash-pit door at bottom, the whole forming a neat and unobtrusive structure; I should add that a short pipe, about 18 inches long, leads from the stove into a small chimney outside. A stove of this kind requires feeding but once in eight or ten hours; I find coke from the gas works the best and most economical fuel.

"I will now point out the advantages of these stoves where economy is an object; and, first, the expense of erection:—The fire-bricks, lumps, fire-clay, Welch tile, and bricks and mortar for a small chimney, with labour, amount to, as nearly as possible, 30*s.*; the cast-iron bars for bottom of fire-box, with feeding-door, and draught-door to 13*s.*, say, for the whole, 2*l.* 5*s.*; now, an iron 18-inch Arnott's stove, which is the size required for a forcing-house of above dimensions, costs 2*l.* 10*s.*, and will not last more than three years; a brick stove, built as above, will last, I should calculate, 20 years, with an occasional renewal of the bars at bottom of the fire-box; these are made so as to be removed without pulling the stove to pieces. The heat given is most efficient and regular; its dryness counteracted by a pan of water being placed on the surface of the stove. There is no irregularity of draught varying with the wind as in smoke flues; no liability to burst from overheating, and consequent danger; no flues to clean; occasionally the chimney and pipe may be swept with a wisp of straw tied to a stick, and that is all; there is scarcely any accumulation of soot, owing to coke being used for fuel; the consumption of fuel is very small, if a fire is kept up all day for forcing, and made up at night with the draught nearly closed; from a half bushel to three pecks of coke (nearer the former than the latter) will be found amply sufficient. For heating large and lofty houses I presume, at present, hot water must have the preference; but I only write for those who wish to have the pleasure of a greenhouse and forcing house at the smallest possible expence; in short, for economists in gardening, the expence of heating has been and is a great bar to the erection of small greenhouses.

"Now for the two objections to a heating apparatus inside the greenhouse. These will at once occur to those who have tried badly-constructed iron stoves; the dust, they will say, when you take out the ashes poisons every thing; the fumes of sulphur from the coke when your draught is bad will kill every plant. How easily the first is met. The boy before he lights the fire in the morning, puts the spout of a small watering-pot, on which is a rose, into the feeding door, and saturates the half consumed coke and ashes before removing them. By this simple precaution not an atom of dust rises; my Roses, with their young and tender leaves hanging over the stove, are as delicate and as clean as those in the open air. To the second I reply, if your stove is built only tolerably well, and your horizontal draught-pipe leading from the stove to the chimney is not more than 18 ins. long, the draught will be so regular, that no fear need be entertained. I have an idea that these stoves enlarged according to circumstances will be found applicable to the Polmaise system of heating; but I must confess that my only motive for penning this article is a strong wish to make what have been hitherto the luxuries of gardening common to the million; with cheap glass and a cheap method of heating, I hope to see what the world has never yet witnessed—greenhouses and forcing-houses in cottage gardens. Our village bricklayer will build these stoves for any one who wishes to engage him; his name I will give on application, and probably I shall induce him to make himself known by an advertisement."

We hope to be able next week to give working plans of this contrivance, together with some account of a similar method in use at the Marquess of Tweedale's.

The following are the prettiest slate baskets in the world. They were designed and executed by J. C. Lyons, Esq., of Ladiston, near Mullingar, for the epiphytes of his rare collection, which is the gem of Irish horticulture, and we are enabled by his kindness to make them public. They are formed of thin pieces of slate pierced to obtain lightness and beauty, and fastened together by brass hinges firmly rivetted to the slate. We believe that Mr. Beck, of Isleworth, proposes to manufacture some in imitation of them.



It is now about nine months since we began our exposure of the English Glass-trade, and about four months since foreign glass was brought fairly into competition with the home-made article. In the course of that time we have been compelled, on behalf of our gardening friends, to insist upon many things from which we would rather have been relieved; we have in particular regretted that it

should have been necessary to call over foreigners to do that which can be better done in England, and our wishes have occasionally led us into the too sanguine belief that some spirited manufacturer in this country would break through the monopoly which has enabled a few glass-houses to keep up whatever price they thought fit to fix upon this indispensable commodity. Until now we have been disappointed in our expectations; but the time at last has arrived when the great object of our exertions is attained, and English sheet-glass can now be had at a price nearly approaching that of foreign.

It will have been remarked that several advertisements to that effect have, of late, been inserted in our columns. We have inquired into the history of the glass so offered, and we have examined samples; we can now state that the manufacture is that of Mr. HARTLEY, of Newcastle, whom we have always looked to as the vindicator of the English glass reputation, and that the quality is excellent. We do not mean to say that the price is yet as low as it will be; but it is certainly as low as in reason can be expected, and all our criticism is thus disarmed. It is also most important to observe that the glass-cutters' imposition of charging more for glass in proportion as the cutting costs less, is utterly abandoned; and nobody of any spirit will ever again be exposed to being cheated in that way. Of course the price of English glass will be regulated by the amount of duty levied upon foreign glass, the latter being, in fact, a kind of bounty upon the former, and, therefore, so long as the duty is 1½*d.* per lb., the English glass vendor will continue to charge so much more for his glass than he will take when the said 1½*d.* duty is discontinued. Nor do we blame him for doing so; he has a fair right to the advantage if he can use it.

And now we will beg our readers to cast their eyes on the following Table, and study it with a little care. They will then see whether or not our advice to them to wait was good. They will here find that if the Government measure reduced the price of glass from 1*s.* 7*d.* to 11*d.*, and from 3*s.* 4*d.* to 1*s.* 10*d.* a foot, the course which was taken in aid of that measure has caused a further reduction of 11*d.* to 3*d.* and of 1*s.* 10*d.* to 5½*d.*; and they will also see that after October 1846 and 1847, the prices must of necessity fall still lower. In other words a greenhouse which would have cost, before April 1845, 100*l.* for glazing it, may now have its glass furnished for less than 13*l.* Surely this has been worth contending for.

Prices of Sheet Glass, weighing 16 ounces to the foot.

Sizes.	With duty before April 7, 1845.	Without duty after April 7, 1845.	Now, with a 1½*d.* duty.	After Oct., 1846, with a ½*d.* duty.	After Oct. 1847 with a nominal duty.
	s. d.	*s. d.*	*d.*	*d.*	*d.*
6 by 4 to 9 by 7	1 4 to 1 7	7 to 0 11	2 to 3	1½ to 2½	½ to 1½
9 by 7 to 12	1 4 to 2 0	8 to 1 0			
12 to 24	1 6 to 2 3	8 to 1 3			
24 to 36	1 6 to 2 6	8 to 1 4			
36 to 48	1 7 to 2 9	9 to 1 6	4½ to 5½	3½ to 4½	3 to 4
48 to 60	1 7 to 3 0	9 to 1 8			
60 to 72	1 8 to 3 4	9 to 1 10			

WEEKLY PRICES OF POTATOES per ton, in *Covent Garden Market*, in 1844, 1845, and 1846.

	1844-5.			1845-6.	
November	16	50*s.* to 50*s.*	November	15	70*s.* to 130*s.*
	23	50 to 50		22	70 to 130
	30	50 to 75		29	80 to 140
December	7	50 to 75	December	6	80 to 160
	14	50 to 70		13	80 to 160
	21	50 to 70		20	80 to 160
	28	50 to 70		27	80 to 160
Jan.	4	50 to 80	Jan.	3	80 to 160
	11	50 to 80		10	80 to 160
	18	50 to 80		17	80 to 160

Also at the waterside, *Southwark*.

November.	25	45*s.* to 70*s.*	November	24	50*s.* to 120
December	2	50 to 70	December	1	50 to 120
	9	50 to 70		8	50 to 120
	16	50 to 70		15	50 to 120
	23	50 to 70		22	50 to 120
	30	55 to 75		29	50 to 120
Jan.	6	60 to 80	Jan.	5	50 to 120
	13	60 to 80		12	50 to 120

FRUIT TREE BORDERS.

ALTHOUGH the attention of almost everybody concerned in horticulture has of late years more particularly been drawn to the unfruitfulness of their trees, still the evil does not seem to be cured; it remains almost precisely where it was: sterility and canker characterise many a costly garden; death annually produces large patches of bare wall, these are succeeded by young and for the moment healthy plants, which in the course of a year or two betray all the symptoms of approaching disease, and this kind of filling up goes on year after year, with the same success. A wall is a costly affair, and when the return is nothing, we cannot wonder why complaints are numerous. Let us examine a little into this matter. Newly formed gardens are, for the most part, comparatively productive. The fruit trees grow away and thrive luxuriantly, and this continues to go on for some years before any sign of unhealthiness presents itself. And why is this? The answer is obvious: the roots are rambling amongst open and fresh trenched soil, where the sun has some influence. They are not beyond its reach, and healthy and vigorous action proceeds for some time. The fruit produced is generally of excellent quality, and why should this not continue so? Our answer is, that under good gardening it does.

No gardener thoroughly initiated in the practical part of his profession now thinks of digging a hole as if he was in search of a spring, and of thrusting the roots of a tree of any kind two or three feet under the surface of soil embedded in manure; such an one would as soon think of planting the head downwards, because he well knows that the result would be pretty nearly similar. How can it be supposed that trees thus circumstanced can continue long to exist, much more thrive and bear fruit? The roots soon get beyond the loose soil, penetrate the subsoil, and are immediately out of the reach of atmospheric influences, and that too in a material containing none of the elements likely to cause fruitfulness; and this subsoil, moreover, may be wet—a circumstance not quite so apparent to our eyesight as the barrenness of our trees and the nakedness of our walls. Supposing, however, that the bottom of the border is not wet, and that the subsoil is naturally dry, the trees notwithstanding remain as unhealthy and as unproductive as if it were so. Gardeners who know what they are about know well that subsoil of any kind, whether it is clay, gravel, sand, or fine loam, is not the place for the roots of trees to grow in. That there are other evils to be guarded against quite as injurious and destructive in their consequences as wet borders is well-known; because all gardens are not naturally placed in damp situations; on the contrary, this is avoided as much as possible; the best soil and the healthiest locality is usually chosen, as it should be, for the vegetable and fruit garden, still the evils we have been discussing exist, and that, too, to a lamentable extent, in spite of capital soil and the most favoured sites our country affords. We know of many gardens which were wet and the soil naturally retentive, indeed London clay (and it would be puzzling to find anything less calculated for garden purposes than this), which, by perseverance and skill, have been rendered productive and fruitful to an astonishing extent. The first step to accomplish this was to drain the ground efficiently, then to expose the soil to the action of the elements, tumbling it about in right earnest, and occasionally adding small quantities of sand and other correctives; thus, in a very short period, Peaches, Pears, and, in fact, all kinds of fruit, have been produced in the highest perfection, where Willows and Alders alone could maintain a footing.

It is marvellous what great results good gardening will accomplish. How many evils which had long appeared insuperable will disappear under skilful superintendence boldly carried out. We are convinced that half the gardens in the country, which are in a state bordering upon absolute barrenness, may either be completely cured, or, at least, to a very great extent, rendered fruitful by the adoption of vigorous and well-matured measures—and the everlasting cry of bad soil, bad situation, too frequently the result of bad management, or the original formation of the gardens improperly executed, will be entirely done away with.

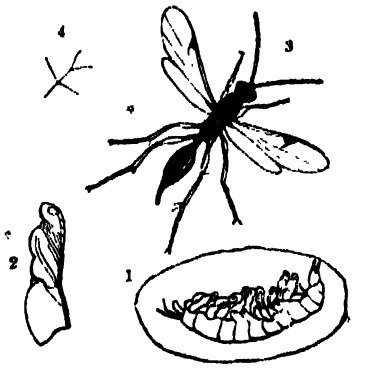
If it is worth while to possess a garden at all, it is surely worth a consideration whether or not it shall remain a mere waste, "a withered spot." That from which most is expected is often the least productive, not for the want of manure possibly, but from ignorance of the principles necessary to productiveness. Every discussion on the subject will bring us to understand more perfectly the absolute necessity of complete drainage, and next to that complete trenching, to enable the moisture to reach the soil, instead of remaining a hard solid mass, as impenetrable to air as to the roots of trees, and in truth quite unsuitable for all garden purposes.—*One who has handled the Spade.*

ENTOMOLOGY.

PROCTOTRUPES VIATOR.—After the number of Essays that have appeared in the *Gardeners' Chronicle*, to illustrate the economy of insects, it seems to be unnecessary to insist farther upon the utility of such investigations, the interest they ought to create, or the satisfaction to be derived from the communication of fresh discoveries amongst these wonderful little creatures. My stock of materials is far from being exhausted; and it now affords me much pleasure to make known the history of a parasitic insect whose economy has hitherto been hidden in obscurity. There is a genus of the tribe of Pseudo-Ichneumonidæ, called Proctotrupes, comprising nearly 20 British species,* which are either met with on flowers, in shady groves, or in Moss, at the roots of Grass, under stones, &c.

The female, which is furnished with a strong curved ovipositor, insinuates herself into chinks in the earth and amongst the clods, and there searches for subterranean larvæ of other insects, in whose bodies she lays a considerable number of eggs, which produce maggots that live upon, and consequently destroy, the larvæ. Bierkander, a Swedish naturalist, and the author of the "Reports upon the Insects Affecting the Corn Crops," inserted in the fifth volume of the "Royal Agricultural Journal," mentions the maggots of an Ichneumon which infest the true wireworms of the Elater; they were not able to rear them; but I now think there can be little doubt they would have produced the Proctotrupes, which is ordained to attack and keep in check that scourge of the cultivator.

In gardening operations, one frequently turns up with the spade, especially in the spring, a yellowish-white larva, about an inch long and slightly hairy; the head is of a chestnut colour, furnished with slender feelers, little horns, and a pair of strong curved black jaws; it has six pectoral feet, with a horny ferruginous thorax, two jointed feelers at the tail, and an anal foot. This animal I used to consider the offspring of one of the Carabidæ, possibly of a Harpalus, or of Steropus madidus; but I cannot say that it may not be one of the larger Staphylinidæ; for scarcely anything is at present known respecting these coleopterous larvæ, which are exceedingly difficult to rear; this, however, does not affect the question; for a friend sent me a small clod of damp earth from his garden the middle of last August, containing a cell in which was a dead larva, like the one above described; the body was curved and distorted, and from the ventral segments were protruded about two dozen white pupæ with black eyes (fig. 1, the case, larva, and pupæ); the antennæ, legs, and contour, could be distinctly traced through the thin skin which shrouded them; fig. 2, one of the pupæ magnified. On the 27th and the day or two following, at least half of them hatched, producing one male, and the remainder females, of Proctotrupes viator I believe, a species described by Mr. Haliday.



The male is black and shining; the head is transverse-oval, clothed with short, soft, yellowish pubescence; antennæ not so long as the body, filiform or slightly tapering, compressed, pubescent, and punctured, of a pitchy colour, and 13-jointed (basal joint the stoutest); obovate, 2d minute, 3d elongated, the following slightly decreasing in length, the apical one longer and tapering; ocelli 3, large, forming a triangle on the crown; eyes somewhat lateral and orbicular; thorax long and narrow, clothed with fine pubescence; collar very short and compressed; scutellum small and semi-ovate, very convex; metathorax oval, rough, with a small tubercle or spiracle on each side at the base, and a five-raised line down the back; pedicel a little elongated, roughly punctured; abdomen shorter than the thorax and broader, convex, ovate conic, the apex pointed and furnished with two short appendages; it is exceedingly smooth, inclining to brownish-black, and composed of six segments, of which four are distinct, the first covering more than half the body, the base a little striated; the edge is pale, and the apex is somewhat ochraceous; wings 4, ample, slightly dusky, iridescent, pubescent; superior with a costal and subcostal brown nervure, terminating beyond the middle in a pitchy stigma, which entirely occupies the cell, with a small suffused brown spot below it; in this respect it differs from all my other species, in which there is a clear space between the outer edge of the stigma and the nervure forming the triangle;* the other longitudinal nervures are indistinct; inferior wings smaller, nerveless; legs slender, ochreous-orange; thighs a little thickened; shanks with spurs at the apex; tarsi 5-jointed, anterior the shortest, hinder the longest; basal joint long; apex fuscous; claws and pulvilli blackish. Female similar but rather larger (fig. 3, the cross lines at fig. 4 showing the natural dimensions); the antennæ are scarcely so long, slightly thickened to the extremity, which is fuscous, the basal joints being ferruginous; the abdomen is longer, the segments very indistinct, and it is terminated by a stout incurved ovipositor, formed of two strong striated sheaths, inclosing two others, slender and pointed, which, with a third valve, form the oviduct; the legs are bright, ferruginous, the hinder coxæ blackish, except at the tips; the wings are rather smaller, with the suffused spot a little more distinct.—*Ruricola.*

* Curtis's "Brit. Ent.," pl. & fol. 744; and "Guide Genera," 575.

MYRTLES.

THE ABOTH, OR TRIPLE-LEAVED MYRTLE.

THE accompanying specimen of MYRTLE is of the kind named by the Jews *Aboth*, and is one of the four plants they use in the celebration of the Feast of Tabernacles; the others being the Citron, Date Palm, and Willow. It is distinguished by its tendency to dispose its leaves in triplets, instead of in pairs, subject however to considerable variation; the leaves being sometimes in regular triplets; sometimes in pairs, with intermediate single leaves at right angles with the others, the single leaf being alternately on opposite sides of the stem; sometimes in single leaves only, which are placed alternately on three sides of the stem. The

* Curtis's "Brit. Ent." pl. and fol. 744.

Jews reject all but that with regular triplets, and if this cannot be obtained, they content themselves with the common sort with leaves in regular pairs. Generally, the irregular disposition occurs in the earlier growth of the shoot, which, as it extends itself, displays the regular triplets. I cannot say whether it is a distinct species, or only a variety; I am inclined to believe the latter, for the greater part of its shoots have the leaves in pairs, like the common Myrtle, from which it does not differ in the appearance of leaf or blossom. It appears to grow more compactly than the common sort, which is disposed to straggle when large. The peculiarity does not depend upon superior vigour of growth, for other Myrtles of the same age are considerably larger. It is by much the most ornamental of its tribe, from the compactness of its growth, and the fullness of its foliage.

The use of the *Aboth* is thus described in the "Form of Prayers for the Feast of Tabernacles:"—

"They also prepare the Palm, Citron, Myrtles, &c., used on this Festival, as mentioned Leviticus xxiii. ch., 40 ver.: 'And ye shall take unto you on the first day the fruit of goodly trees (this, by tradition, we know denotes the Citron), branches of Palm-trees (the branches of Dato-trees), and the boughs of thick trees (this denotes a species of Myrtle whose leaves are treble, *i. e.*, such as have three leaves round the wood ef an equal height, with other leaves between the rows, so that the branch appears as if wreathed with leaves), and Willows of the brook; and ye shall rejoice before the Lord your God seven days.'" The explanations included in parentheses are foot-notes in the volume. Our translators have improperly rendered the word "fruit," in the first sentence, by "boughs," stating, however, in the margin, that the Hebrew word signifies "fruit."

The Jews express the union of the four plants by the term *Arbang Minim*, and the signification of each is thus explained by a writer of authority among them:—"These *Arbang Minim* are symbolic of the relation between the Deity and the Universe, composed of the spiritual, the astral, and the inferior world; each of which is figured by one of these *Minim* or species. The *Esrog*, or Citron, which is carefully selected, in order to have it perfect (free from any, the slightest, stain and blemish), indicates the Great First Cause, the Holy One, and blessed be He! Therefore this fruit is not tied up with the other three species, to denote that His Being is absolute, and abstract from all Creation The *Looliff*, or Palm-leaves, denote the spiritual beings who, although separate like these leaves, having individual existence and distinct intellect, are nevertheless closely united to the stem; and however different in degree, form but one whole. The Myrtle denotes the Astral world, which is material (denoted by the word *aboth*, thick, or substantial), and the weeds of the brook indicate this inferior world, which is subject to total dissolution. These are tied together, to show that however graduated, Creation forms but one whole, subject alike to one will, regulated by one legislator, and created for one purpose—the happiness of the creature, each according to its degree. When tied, they are held together by the *esrog* to denote their perfect dependence on the one Great Cause, that gave them all their being, and with whom they must ever remain united."

Let me express surprise that the Myrtle, the most elegant of all shrubs, should still be so little cultivated, under the mistaken idea that it is a tender plant. It flourishes in Cornwall, without any protection or care, in the worst soils, and (the) most exposed situations, flowering the most freely where the aspect is the coldest. Of course our climate is milder than that of any other part of England; yet we have now and then a severe winter—the last for example; and the shrub which stands our severest winters without care, might be preserved elsewhere with moderate protection. Indeed, it flourishes at Swansea, where the winter is often intensely cold; and even at the Mumbles, or Swansea Bay, where the aspect is north-east, and the sun never shines on them in the winter. About 12 years ago a Myrtle was cut down at Falmouth, which from its height, and the size of its stem (trunk I should rather say), was at least 50, perhaps 100 years old. It was in autumn, and I took a number of slips, and stuck them in a Grape-jar with a broken bottom, half filled with common earth, and left them out of doors all the winter to take their chance. Most of them grew, a callus having gradually formed through the winter (at the edge of the bark, which shot out roots in the spring. Plants from these cuttings are now above 7 feet high, and had they been trained with a view to size, they might have been twice that height. Myrtles trained against the wall grow readily to the eaves of a two-story house.

The freedom with which the Myrtle blossoms, and the length of time it continues in bloom, greatly increase its value. It may be said to be in flower for six months of the year, producing its flowers in profuse succession from the beginning of July till the storms and frosts of Christmas. Its autumn blossoms are also the most elegant; for, during the heat of summer they expand and go off quickly, littering by the fall of their petals and stamens; but as the season becomes cooler, they only swell to full-sized blossom-buds, and so remain without expanding, like round pearls shaded with a lovely brownish crimson. Thus, they continue in perfect freshness till actual winter, when they wither and drop. Till this change occurs, no flower is so elegant, whether for the bouquet or the bosom. This winter it remained in full beauty up to a fortnight since, when the heavy gales came on, which have destroyed it. The blossoms on a little sprig which I have taken from the wreck will probably all be detached before they reach you; and faded as they are, they convey a very imperfect idea of what they were a few days ago. I delayed this communication that I might send with it a bouquet of blossomed Myrtles from the open air, gathered after Christmas, which I could generally furnish. This year, unfortunately, I waited too long. The shrub from which this sprig was gathered grows in a cold wet clay, in a court on the side of a steep hill with a north-west aspect, and where every ray of the sun is intercepted from it by buildings for four or five months. It blossoms most abundantly every year, and in a hot summer ripens its berries. It is fully 8 feet high, having been planted out about 12 years. Indeed, I am inclined to believe that a sunny situation in winter is not favourable either to the vigour or the blossoming of the Myrtle.

It is not to be expected that slips from the conservatory will produce hardy plants; but I have no doubt that Myrtles struck from those which, with their parent stocks in succession, have stood the winters of Cornwall or Devon for 100 years, will, with moderate care, live and flourish as out-door plants in all but the coldest parts of England.—*Edward Osler, Truro.*

[This variety is the Italian Myrtle of Miller. The original species being a native of Persia, it would be known to the Jews from a very early date, and would naturally forms one of their religious symbols.]

Home Correspondence.

Polmaise Heating.—I am glad to perceive that you have taken up the subject of heating, as it has long been my opinion that we have much to learn, or, rather unlearn, on that very important subject. I much fear, however, if the Polmaise plan is a step quite in the right direction, as it appears to me next to an impossibility to keep up a proper degree of atmospheric humidity with the apparatus you describe. With Vines in a young, and, consequently, in a comparatively succulent state, I grant you may, to a certain extent, succeed, but as the plants get older and harder in their tissues, &c., depend upon it the demand upon the "wet blanket" will be more than it can supply. It is but right, however, that the plan should be fairly tested by a "fair trial." As I am contemplating some important alterations here, by way of improvement on the present hot water system, I should be glad if any of your correspondents would favour me with the results of the several systems under their respective charges. I do not mean to ask them to take up the dry subject of the old smoke flue, but to state the results of the different modifications of hot water now in use. At present my predelictions are in favour of the tank system, but with me the whole thing is still an "open question."—*J. Walker, Vice-regal Gardens, Dublin.*

The Weather.—I observed your remarks in the *Chronicle* of Saturday last, upon the "Ombrological Almanack." The attention you invited to that author's prediction of the weather on the 12th inst. turned out very unfortunate for his veracity; as instead of its being "clear all day," the air was remarkably thick and heavy. I have not much faith in the safety of these weather *guides, having* tried several of them, though I confess I never heard of this singular titled book before. Pray what has "ombrology" to do with atmospheric variations? Is the word derived from the Greek *ομβρος*, signifying rain or wet? The wet almanack is, however, a peculiar designation. The most exact predictions I have invariably found in "Zadkiel's Almanack," and I here give you an extract, that your readers may notice the result:—"January 20th, stormy and cold; 21st and 22d, high winds, fair, yet frosty nights; 23d, cloudy and showery; 24th, milder; 25th, fair; 26th, snow showers—the new moon brings cold but clear air- frost; 28th, snow; 29th, fair; the 30th, a change—rain and snow or sleet, the last day cloudy and cold, stormy air." "The 27th is especially likely to bring a brilliant aurora borealis, which meteor is generally observed during the sun's aspects with Herschel, being merely a magnetic discharge from the Polar regions." The prediction on the 11th and 12th was "rain and fog prevail," which proved more in accordance with reality than that of the author of the "Ombrological."—*Subscriber, East Ham.*

Effects of the present Mild Weather.—I would recommend suburban gardeners to look after their Currant bushes, whose buds the present mild weather has caused to swell, and if a few days' frost should come, not a bud will be left by the birds. I found they had attacked mine after a night's frost, nearly a fortnight ago, and I immediately adopted a plan which last year I found effectual as a protection. I stretched across each plant, and in various directions from branch to branch, pieces of coloured worsted. If the plants are numerous, and in rows, I doubt not the object may be attained by stretching the worsted from end to end of the rows, a few inches above the plants. The sparrows seem to be particularly fond of the swelling buds of the Currant, especially in frosty weather; and in my garden, a fortnight ago, they had nearly stripped one bush, which appeared to be more forward than the others, before I had suspected them to have commenced their depredations. Having immediately adopted the precaution above suggested, I have not since found that the plants have sustained any further injury.—*J. N.*

Broccoli.—This being the time when gardeners procure their general stock of vegetable seeds for the forthcoming season, I would advise everybody to include in his order Snow's Superb White Broccoli, which comes into use at the same time as, but is much superior to, that generally cultivated sort, Grange's White. With me it succeeded the Cauliflowers in October, and has afforded a regular supply of excellent heads up to the present time—a most desirable thing where a large family is to be supplied with vegetables at that season of the year.—*J. B. Whiting.*

Sulphur v. *Rabbits.*—I stated last spring the effect of my flags of sulphur in keeping the above vermin from my Apple trees; everything I said was strictly correct. In the commencement of last month I found them as usual commencing to gnaw and nip off the shoots of my young Apples; I immediately ordered the flags of sulphur, the same that were used last season, to be placed round the quarters, and not having enough, 20 lbs. of sulphur were melted and an additional number made; since they were placed not a twig has been touched. "Now, look on this picture;" from my complete success during the whole of the last severe winter, I felt the pleasing anticipation of seeing a good show of my favourite spring flowers, the Crocus, which had hitherto every spring been devoured by the hares, even in bud, unless well covered with the trimmings of my Rose stocks or other bushes: accordingly, my flags, fresh dipped, were placed in thick array around every bed; alas! my hopes, like my flowers, were all nipped, although they must, in many instances, have brushed their furry coats against my yellow flags. What shall we say to this? I suppose, simply, that hares love Apple trees passingly well, but their dislike to the sulphur preponderates, therefore they will not pass the flags to have a bite; but with Crocuses it is quite another affair—they love them so dearly that even close contact with vulgar brimstone will not prevent their enjoyment of a bouquet of flowers. Still, I must think that my hares and rabbits are of a more gentlemanly race than those mentioned by your correspondents, for unless tempted beyond "hareish" endurance, they pay every respect to my flag.—*T. Rivers, Sawbridgeworth.*

European Salvias.—The only species worth cultivating, and those only for the shrubbery, are, Pratensis, *blue*; Glutinosa, *yellow*; Hablitziana, *lilac*; Bicolor, *blue and white*; Scabiosæfolia, *lilac*; Sclarea, *lilac and white*; Patula, *white*; Canariensis, *lilac.*—*Anon.*

Packing for Hot-water Pipes.—As I have not seen any notice in the *Gardeners' Chronicle* of Macintosh's Patent Washer for iron-pipes, I now send you a specimen of them. They appear to me to be well adapted to the fitting of heating apparatus for plant-houses, &c., as they are much cleaner than the ordinary plugging, and form a much more certain and durable joint. Though their first cost is somewhat greater than that of tow and paint, yet they are so easily fitted, and require so few repairs that they will probably prove in the end to be cheaper.—*G. Thistlethwaite.* [These seem to be a capital material for the purpose, a full ¼ inch thick, and quite elastic.]

Disease in Vegetables.—Have you heard any complaints about Parsnips? My gardener says about one-sixth of my roots in the garden for family use is diseased similar to those now left.—*R.* [Yes; we find Parsnips, Carrots, Turnips, and Onions, more or less affected by a decay similar to that of the Potato: but without any fungus.]

Bouvardia flava.—Herewith I send you a specimen of the above plant, and I believe the first blooms that have been produced in England. When we take into consideration that the plant from which these flowers were gathered has been grown in heat, and the almost certain improvement it will undergo when subjected to more congenial treatment, I think it may safely be stamped as a decided acquisition to this class of plants. —*W. W. Webber.* [We are obliged to our correspondent for his specimen. The plant had not before come under our observation. It is a true Bouvardia, and a pretty species.]

Green Frogs.—I had sent to me, from Germany, some of those beautiful little green frogs that one sees in glass bottles half filled with water. I meant to turn them out in my conservatory, but as yet have had difficulty in feeding them; from Germany I was told to feed them only on flies, and I have the greatest difficulty at this season of the year in finding any. By a great naturalist I was cautioned against allowing them to hybernate, as, perchance, they would not wake. Have any of your readers any knowledge of what they will eat except flies? or have they any general experience in the frog management?—*Dodman.* [If they could be managed easily, the importation of these little creatures for sale might be profitable.]

Gooseberry Caterpillar.—I destroy these by shaking them from the trees, then by tying a piece of Cabbage-leaf around the stem of the tree with a circle of gas tar upon it. This prevents the caterpillars from again ascending, and when without food they soon perish.—*W. Buck.*

Parrots.—I have a friend who has got a fine grey bird about four years old, which has lost the use of one of its legs and one wing for the last four months; it resembles the rheumatism in the human frame, for it cannot bear to be touched without screaming out in the greatest anguish. Could any of your correspondents give me any advice in giving poor Poll relief, that she may be restored to the use of her limbs?—*J. W., Harwich.*

Protecting Half-hardy Plants on Walls.—The conservative wall now forms an important feature in every garden of any extent; but it is not carried out with that degree of spirit which it deserves; for there are many plants choked up in greenhouses which would flourish on the conservative wall if they were properly protected,

and if the soil in which they are planted was kept comparatively dry. In winter plants are protected with Fern, straw, hay, mats, Asparagus-haulm, Fir-branches, and such like material, and these are all very good in their way; but the plant is twisted about till it assumes the shape of a birch-broom; with a little short litter or soil placed over the roots, and under this coat of mail, it is doomed to exist, whether it freezes, thaws, rains, or shines, till the gardener imagines that the frost has left him for the season. To remedy this evil, and to remove these unsightly objects from that part of the garden which should at all times be clean and neat, I propose the following plan, which I am sure will answer the desired end. Having provided a sufficient quantity of felt-covered frames—made as light as circumstances will admit—at one end of these frames, and at both corners, fix two iron hooks; and at 2 ins. under the wall-plate drive into the wall two iron eyes, at equal distances, so that the hooks on the frame, and the one that follows, may fit properly in, without leaving too wide a space between them. The covers are then to slope to the edge of the walk, and to be made fast to wooden posts driven into the border at equal distances, so that one post may answer for fastening the ends of two frames, which are to be made fast by means of iron hooks and eyes, as near the ground as possible. If felt cannot be procured, or is considered to be too expensive, the frames may be thatched with Wheat straw, which should be put on thinly, for a slight covering will be found quite sufficient for protection in most winters. In mild weather, the frames should be unhooked, and removed out of sight, keeping them in readiness in case of frost. When the frost has entirely disappeared, the frames should be carefully laid past in some dry shed, and before being used again they should have a coating of tar, which will render them more durable. The above plan may be considered by some to be too expensive, but, if we take everything into consideration, it will be found to be the cheapest in the end.—*John M'Intosh.*

Cements.—May I ask "Lusor," who has recommended a cement for tanks, the cost of which does not exceed the sum of 8*s.* per cwt., if he would be kind enough to say what quantity of the cement would be required in the formation of a tank 6 feet in length, 3 feet in width, and 5 feet in depth, to be made of bricks. —*W. G. M., Hereford.*

Potatoes.—I am happy to state that all which were packed in charred sawdust, charred old tan, and other refuse, as well as those packed in dry turf-ashes, are as sound and free from disease as could be wished; they are dry, mealy, and fine-flavoured; but those that were pitted or banked in the usual way have rotted wholesale, and the effluvia arising from them is very unpleasant. The following is the account of my early crops in their different stages of growth. The whole, previous to planting out permanently, were sprouted in pots in the Pine stove, as has been my usual custom for some years. My first crop, planted in October, was longer in sprouting, and produced more plants with curled foliage, than I ever previously had amongst early Potatoes, viz., one plant in 15, on the average. In due time the selected plants were permanently planted, three or four in large fruiting Pine pots, which were placed on bricks in rows in the early Peach-house. I never saw plants grow away more healthily and luxuriantly, the foliage being large, of a beautiful dark green colour, and the stalks as thick as the finger, with not a blemish to be seen on a single plant in the whole crop; they are now just in good condition for table—as fine-sized clean tubers as could be wished at this season. My next crop, similarly planted, and arranged in the second Peach-house, is 12 or 14 inches in height, and doing equally well. My third crop, planted on a slight hotbed that had previously produced Asparagus, with a Melon frame over it, is equally healthy, and in every respect free from disease—indeed, I have not a fault to find with them. The plants average from 8 to 10 inches in height, and are very strong. I have several other plantings, from 1 to 4 inches in height, all equally sound and clear; and those latter crops are not producing one-tenth the quantity of curled leaves, which I account for in this way. Although I am not an advocate for allowing seed Potatoes to remain in the soil to get over ripe, this last season the haulm was cut down long before the tubers were ripe, indeed, in a soft and watery state; and those I planted first were not stored in dry material long enough after greening to mature them, while the other plantings were packed in dry packing stuff in an Onion loft; and although the same variety off the same piece of ground, and dug up on the same day, they are of a different quality altogether—they are as sound and firm as could be wished. Potatoes, over-ripe, exhausted by fermentation, &c., will produce curled foliage, and young tubers without stems, equally with those which have not come to maturity. I have long had practical proof of this. The various plantings I have made on borders and quarters in the open ground are equally satisfactory. I have examined them in various places, and have found all the tubers in a perfectly sound and plump state, the eyes pushing very full and strong indeed. I always plant whole tubers. I am in no fear now of a return of the disease, should next season be a favourable one. In this locality the atmosphere on Christmas-day, New Year's-day, and many other days of late, was warmer by several degrees (both day and night) than we had it in last July; and for the last fortnight this locality has been in complete harmony with the beautiful warble of the woodlark, which abounds here, and which, in my opinion, is next to the nightingale. The merry song-thrush, stormcock, hedge-sparrow, and robin, also enliven the scene; and the ringdove or wood-pigeon is cooing merrily, besides numbers of starlings and wood-peckers. Beech-nuts are abundant, which those merry warblers seem to luxuriate on.—*James Barnes.*

Potatoes.—Why do not some of the Potato dealers send agents to this country, where we have a large quantity of Potatoes to sell of excellent quality, and without a trace of disease? I think I could myself offer them 1000 tons from my own farm, and estates under my charge.—*J. M., Inverness.*

Societies.

BOTANICAL SOCIETY OF LONDON.

Nov. 29.—*Ninth Anniversary.*—The President in the chair. The Secretary read the report of the Council, from which it appeared that 16 members had been elected since the last anniversary, and that the Society now consisted of 182 members. It was stated that the report of the Herbarium Committee would appear in the spring, and that the exertions of the members to obtain the rare and interesting plants had been attended with the greatest success. The report was unanimously adopted, after which a ballot took place for the Council for the ensuing year, when the chairman was re-elected President, and he nominated John Miers, Esq., F.R.S., and E. Doubleday, Esq., F.L.S., Vice Presidents; A. H. Hassall, Esq., F.L.S, and E. Palmer, M.D., were elected new members of the Council; Mr. J. Reynolds, and Mr. G. E. Dennes, were re-elected treasurers.

REGENT'S-PARK GARDENERS' INSTRUCTION SOCIETY.

Dec. 11.—Mr. Reith in the chair. Mr. Campbell read the following paper on the culture of the Fig:—"The Fig is a native of Central Asia, and was introduced in 1525. The most approved method of propagating it is by layers and cuttings about a foot in length, taken off the most fruitful and well-ripened shoots, potted in a light sandy loam, and struck in a slight bottom-heat; from these, plants may be obtained in the second or third year. When grown on walls they should be placed in the warmest situation. The border should be made of fresh loam of a medium texture, 2 feet deep and 15 wide, upon a well-drained bottom, and when enriching is required, this should be effected by means of manure-water. In pruning, the knife is not necessary (if pinching and thinning is properly attended to during the summer months with the finger and thumb), except to cut out the old wood. He proposed the fan system of training and for protection in winter mats or canvas, because of the ease by which they could be made to suit the weather—taking off the unripe fruit previous to covering. In forcing the temperature may be commenced at 45°, and gradually raised to 80° as the plants and the season advance. He had seen them do well planted out in pits, from which two crops in a season were regularly taken. The roots in all cases should be encouraged near the surface, and the border should not be stirred by the spade, but by a fork. A moist heat should be kept throughout, and syringing over the leaves employed until the period of ripening, when a few leaves may be taken off, which shade the fruit, and the water withdrawn. When ripe, the fruit should be gathered in the morning and used in the same day. The most select sorts are early white Marseilles, a good bearer and suitable for forcing; black Ischia, Pine-flavoured, do. do.; brown Ischia, excellent; brown Naples, very good; large blue or long purple, very good and bears carriage; Lee's Perpetual, valuable from its long period of fruiting."—Mr. Reith did not approve of divesting them of any of their leaves; he had seen excellent crops grown in a Vinery.—Mr. Townsend recommended strong soil and large tubs for forced plants, confining those planted out in pits to divisions of 2 feet apart, and well draining and watering profusely. The Brunswick was large and fine, and might be added to the above.—Mr. Bruce had practised covering them on walls with Spruce branches, which, from their gradually becoming bare towards spring, was an advantage.—Mr. Elliot disapproved of the width and depth of the border as being too much, but approved of giving manure-water, all solids having to become liquids before being taken up by the plant. The late fruit should be taken off soon after being seen, and he would not syringe over the leaves, as it tended to close up the pores.—Mr. M'Ewen agreed with Mr. R. as regards the leaves; he also coincided with Mr. E., and, though once an advocate for the free use of the syringe, which may be indispensable for dirty plants, yet, by a judicious course of management in connection with the improved modes of heating, they can be kept clean and healthful, thus preventing the dashing over the leaves and the choking of the pores consequent thereon.—Several specimens were exhibited and named, and six new members chosen.—*G. M'Ewen, Sec.*

Reviews.

Cyclopædia of Biblical Literature. By John Kitto. 8vo. Parts 1 to 24. Black, Edinburgh; Longmans, London.

Among the innumerable comments which much or little knowledge has poured forth upon the Bible, so vast an amount of error, ignorance, or misdirected learning, has been wasted, that a biblical student who does not think fit to devote his whole life to the study of the holy writings has no chance of ever understanding them critically. To the mass of people this most important branch of knowledge could hardly be said, a few years since, to be accessible at all. Indeed, the diversity of subjects alluded to in the Bible is so great, that no single commentator could possess the knowledge required for the examination of every part of the vast subject.

When, therefore, Dr. Kitto ventured upon the difficult path of biblical criticism, it was with a full knowledge of the impossibility of dealing with it single handed. He engaged the co-operation of the most learned oriental scholars, and by parcelling the subject among them, giving to each that particular topic which he had most studied, an amount of exact knowledge and practical criticism has been brought together which has never been equalled.

To us the subject is, exclusive of all other reasons, most attractive for the sake of the natural history, on which we have ourselves occasionally touched, and which has been by Dr. Kitto intrusted to Dr. Royle and Col. Hamilton Smith. Their names are a guarantee of the care and skill with which it has been treated. Indeed, Dr. Royle seems to have exhausted the whole subject, so far as his inquiries have extended; and, although obscurity still hangs, and in all human probability always will hang, over some of the allusions in the Scriptures, yet all that it is possible to interpret has now met with a faithful expounder, to whom both the learned and unlearned may look with confidence. His article on Dudaim will show how he has dealt with his materials:—

"*Dudaim.*—This word, in its plural form, only occurs in two places of Scripture: first in Genesis xxx. 14-16; and secondly, in Canticles vii. 13. In the first passage it is mentioned several times: 'Reuben went out in the days of Wheat harvest, and found *dudaim* (mandrakes) in the field, and brought them home to his mother Leah. Then Rachel said to Leah, give me of thy son's *dudaim*;' also in ver. 15, and in ver. 16, it is said, 'And Jacob came out of the field in the evening, and Leah went out to meet him, and said, Thou must come in unto me, for surely I have hired thee with my son's *dudaim*; and he lay with her that night.' In the second passage we learn that these *dudaim*, or the plants which yielded them, gave out a peculiar odour: 'The *dudaim* (mandrakes) give a smell, and at our gates are all manner of pleasant plants.' From the above passages it is evident that the *dudaim* were collected in the fields, that they were fit for gathering in the Wheat harvest in Mesopotamia, where the first occurrence took place; that they were found in Palestine; that they or the plants which yielded them diffused an odour, which Michaelis paraphrases, 'Jam et somnifero odore, venereus Mandragoras;' and that they were supposed to be possessed of aphrodisiac powers, or of assisting in procuring conception. From this it is manifest that there is little to guide us in determining what plant is alluded to at such early periods, especially as no similar name has been recognised in any of the cognate languages. Hence great diversities of opinion have been entertained respecting the plant and produce intended by the name *dudaim*. These Dr. Harris has thus summed up: 'Interpreters have wasted much time and pains in endeavouring to ascertain what is intended by the Hebrew word *dudaim*. Some translate it by 'Violet,' others 'Lilies,' 'Jasmins,' 'Truffles or Mushrooms;' and some think that the word means 'flowers,' or 'fine flowers.' Bochart, Calmet, and Sir Thomas Browne suppose the *citron* intended; Celsius is persuaded that it is *the fruit of the Lote tree*; Hiller that *Cherries* are spoken of; and Ludolf maintains that it is the fruit which the Syrians call 'mauz' (that is the Plantain), resembling in figure and taste the Indian Fig; but the generality of interpreters and commentators understand *Mandrakes*, a species of Melon, by *dudaim*.' Here, however, the author has confounded the Melon '*Cucumis dudaim*,' with the Mandrake or Mandragora, adopted by the generality of authors. The grounds upon which the Mandragora has been preferred are, first, 'The most ancient Greek translator interprets the Hebrew name in Gen. xxx. 14, by Mandrake Apples (*μῆλα μανδραγορῶν*); and in the Song of Solomon, by Mandrakes, *οἱ μανδραγόραι*. Saadias Onkelos and the Syriac version agree with the Greek translators. The first of these puts *laffach*; the two latter *yabruchin*; which names denote the same plant' (Rosenmüller, *Bib. Bot.* p. 130, and note). The earliest notice of *μανδραγόρας* is by Hippocrates, and the next by Theophrastus (*Hist. Plant.* vi. 2.) Both of these C. Sprengel (*Hist. Rei Herb.* i. 38, 82) supposes, intend *Atropa Mandragora*. Dioscorides notices three kinds: 1. the female, which is supposed to be the *Mandragora autumnalis* of Berloton; 2. the male, *Mandragora vernalis* of the same botanist (these two are, however, usually accounted varieties of *Atropa Mandragora*); 3. a kind called *Morion*. It has been inferred that this may be the same as the Mandragora of Theophrastus, which, by some authors, has been supposed to be *Atropa Belladonna*. To all of these Dioscorides ascribes narcotic properties, and says of the first, that it is also called *Circæa*, because it appears to be a root which promotes venery. Pythagoras named the Mandragora *anthropomorphon*, and Theophrastus, among other qualities, mentions its soporific powers, and also its tendency to excite to love. Its fruits were called Apples of love, and Venus herself Mandragorites. But it is not easy to decide whether the above all refer to the same plant or plants. Persian authors on *materia medica* give *Mandragoras* as a synonyme for *yebrookh*, or *yabrooh*, which is said to be the root of a plant of which the fruit is called *loofah*. This, there is little doubt, must be

the above *Atropa Mandragora*, as the Arabs usually refer only to the plants of Dioscorides, and, on this occasion, they quote him as well as Galen, and ascribe narcotic properties to both the root and the fruit. D'Herbelot, under the article 'Abrousanam,' details some of the superstitious opinions respecting this plant, which originated in the East, but which continued for a long time to be retailed by authors in Europe. By the Arabs it is said to be called *tufah-al shaitan*, or devil's Apple. If we look to the works of more modern authors, we find a continuance of the same statements. Thus Mariti, in his *Travels* (vol. ii. p. 195), says that the Arabs called the Mandrake plant (*yabroohak*), which is no doubt, the same name as given above. 'At the village of St. John in the mountains, about 6 miles south-west from Jerusalem, this plant is found at present, as well as in Tuscany. It grows low, like Lettuce, to which its leaves have a strong resemblance, except that they have a dark green colour. The flowers are purple, and the root is for the most part forked. The fruit, when ripe, in the beginning of May, is of the size and colour of a small Apple, exceedingly ruddy, and of a most agreeable odour; our guide thought us fools for suspecting it to be unwholesome. He ate it freely himself, and it is generally valued by the inhabitants as exhilarating their spirits and a provocative to venery.' Maundrell was informed by the chief priest of the Samaritans that it was still noted for its genial virtue. Hasselquist also seems inclined to consider it the *dudaim*, for, when at Nazareth, he says, 'what I found most remarkable in their villages was the great quantity of Mandrakes that grew in a vale below it. The fruit was now (May 16) ripe. From the season in which this Mandrake blossoms and ripens its fruit, one might form a conjecture that it is Rachel's *dudaim*. These were brought her in the Wheat harvest, which in Galilee is in the month of May, about this time, and the Mandrake was now in fruit.' Considering therefore that the earliest translators have given *Mandragora* and *Yabrokhim* as the synonymous names for dudaim, and that the root and fruits of *Atropa Mandragora* have, from early times, been supposed to be possessed of the same properties which are ascribed to the *dudaim*, there does not appear to us any other plant, which has been yet adduced, better entitled than it to stand for the dudaim. But there does not exist sufficient collateral proof to confirm the selection by the Greek translator of the Mandragora as the *dudaim*, in preference to some other plants, which might be adduced, and to which similar properties have from ancient times been ascribed."

With this care and intimate knowledge of the vegetation of the East is every botanical subject dealt with; and as the other contributors seem each to have executed his task as faithfully, Dr. Kitto's Cyclopædia will take a high place among the classical works on Biblical criticism.

New Garden Plants.

7. INDIGOFERA DECORA. Decorated Indigo. *Greenhouse Shrub.* (Leguminous Plants). China.

Received from Mr. Fortune, May 1, 1845. A dark-green handsome bush, with somewhat glaucous branches. The leaves are pinnate in from two to five pairs and an odd one, quite smooth on the upper side, but slightly covered on the under side with very fine hairs, attached by their middle; the leaflets are exactly ovate, with a short bristle at their end, between 1½ and 2 inches long, of a very dark green colour; and to each pair there are two short bristle-like stipules. The flowers grow from the axils of the leaves in horizontal racemes much shorter than the leaves themselves; they are of a light rose-colour and very handsome. The calyx is a flat membranous five-toothed cup, with the two upper teeth very far apart. The standard of the corolla is oblong, nearly flat, very slightly keeled behind, nearly white, but pencilled with delicate crimson lines near the base; in length it is equal to the wings and keel, and forms with them an angle of about 45° when expanded; the wings are narrowly lanceolate and ciliated, of a pale bright rose-colour; the keel is rather paler, and bordered with a woolly or very downy upper edge. It is a greenhouse plant which will grow freely in almost any sort of soil, especially sandy peat. In summer an ample supply of water is required, and air at all times when the weather is favourable. To prevent the leaves from being scorched by the sun, it will be necessary to use shading. In winter water should only be given when the soil becomes dry. It strikes freely from cuttings under ordinary treatment. This is a good addition to our greenhouse plants.—*Journal of the Horticultural Society.*

8. LOBELIA GLANDULOSA. Glandular Lobelia. *Hardy Perennial.* (Lobeliads). Carolina. SYN. *L. Crassiusculo.*

This is a hardy herbaceous plant, of the easiest cultivation, growing freely in any kind of garden soil, and not unlike the well-known *L. syphilitica*, but much less showy. It attains the height of two and a half feet, flowers in September and October, and, like so many of its race, prefers a moist situation to a dry one. Elliot says that it grows in damp Pine barrens. The stem is between 3 and 4 feet high, quite undivided, angular and covered with short hairs. The leaves are sessile, oval-lanceolate; near the base of the stem narrowed into a short winged stalk, irregularly toothed, and bordered with hard white conical glands, which also appear on the edge of the bracts and calyx, from which remarkable circumstance the species derives its name. The spikes are something less than a foot long, and covered at short intervals by pale blue flowers, rather smaller than in the well-known Lobelia syphilitica. The sepals are reflexed on the edge and slightly toothed. The lower lip of the corolla consists of three sharp ovate lobes, the upper of two very narrow channelled reflexed ones. Two varieties of it are mentioned by M. Alphonse De Candolle; one a smaller plant with a smooth corolla and calyx, the other with oblong downy leaves. We have not remarked either in gardens. It is also said to vary with oval, lanceolate, and linear leaves, which are more or less toothed.—*Botanical Register*, 1846, *t.* 6.

Garden Memoranda.

Messrs. Fairbairn's Nursery, Clapham.—Since we last visited this establishment, several novelties have sprung up in the shape of horticultural buildings. At the east end of the former range a spacious greenhouse has been erected for the accommodation of specimen plants and young stock. This structure is about 80 feet in length, 12 feet in breadth, and about 11 feet in height. It is span-roofed, the front or south side being about 10½ feet in depth, and the north side 6 feet; the latter resting on a back wall of 8½ feet in height. This wall is, however, provided with windows which slide up and down by means of weights and pulleys, thus offering ample means of ventilation in summer, and increasing the amount of light in winter. The sashes in the roof are moveable, and the front or upright sashes, which are about 3 feet in height, also move up and down by means of weights and pulleys, making the front altogether about 7 feet in height, one half being glass and the other brick work. A slate shelf, about 5 feet in breadth, on a level with the bottom of the upright sashes, runs the whole length of the house; in front of this is the pathway about 3 feet in width, and on the other side of the pathway is a pit about 4 feet in width, which is chiefly filled with Camellias. On the front shelf were many fine specimens of Cape Heaths, for which this nursery is justly celebrated; but the best display of large and fine plants of this beautiful genus was in a new house which has lately been erected for them at the west end of the former range. This is a neat-looking structure about 40 feet in length and 15 feet in breadth, and from its being well ventilated, appears to be extremely well adapted for the growth of greenhouse plants in general; but especially of Heaths. It is span roofed, the south side being 14 feet in depth, and the north side about 5 feet 6 inches, resting on a back wall of nearly 8 feet in height. The latter has several windows or ventilators in the length, and the top lights are all moveable as well as the sashes in front, which are about 3 feet in height. A slate shelf, 2½ feet in breadth, extends the length of the front and ends, and in the centre surrounded by a stone pathway is a raised platform, on which the plants are placed. It is glazed by British sheet-glass; the panes being overlapped, and about 2 feet in length, which gives the roof a clean and light appearance. This, as well as the other new house, is heated by hot-water circulating in iron pipes from one of Spiller's upright cylindrical boilers. In addition to these it may be mentioned that a small Pelargonium house has been put up at the end of the propagating house, both being warmed by hot-water flowing from one boiler. In all the houses, the Heaths, both specimen plants and young stock, were in luxuriant health, and exhibited the best of management. They are growing in Shirley peat, which being very fibrous in texture, is every way well adapted to the culture of such plants. The balls are not elevated in the pots, as is sometimes done, this being considered unnecessary where the soil is used in a rough state, and where the pots are effectually drained, which is the chief agent of success in pot-culture.

Helmington-hall, West of Durham, the Seat of Mrs. Spencer.—There is here a number of plants of the Salvia fulgens, 5 feet in height, growing on the open border in flower. They have bloomed well all the third season of the year, and are still continuing thus far in the fourth to produce flowers and foliage equally good, being a rare circumstance in this mountainous county; they have been much admired. Has anybody else Salvias in flower on the open border, without artifical protection in this northern climate?—*A. D.*

Broughton hall, near Manchester. — The Rev. J. Clowes, we are glad to learn, has been fortunate enough to obtain from Fernando Po an entire plant of Ansellia Africana in good preservation. The pseudo-bulbs are about the height of an umbrella, and appear, from the remains of the flowering stems at the top, to spread abroad to about the same circumference. Each flower is reported to be as large as a Tulip, and to be very handsome. Oncidium phymatochilum is also coming finely into bloom, producing two strong stems.

Miscellaneous.

Destruction of Insects: Kyle's Liquid.—A liquid for destroying mealy bug and other insects, invented by Mr. Brown, chemist, Layton, having been sent to the garden by Mr. John Kyle, the following trials were made. As recommended by him, the liquid was applied with a camel-hair brush to Begonia undulata, Epidendrum cochleatum, and a Mammillaria. The plants were apparently uninjured. In every case the insects were killed. *A Composition* for destroying scale on Pines having been sent to the garden by Robert Dymond, Esq., whose gardener was the inventor, the following trials were made with it. The composition, being like black paint, was diluted with water, according to the donor's directions, and applied to the plants with a brush. Not having Pines to operate upon, common stove and greenhouse plants were substituted. The plants were rendered unsightly until the old leaves dropped off, the substance being of such a nature as not to wash off by syringing with clean water. The young leaves soon became covered with scale like those which were dressed with the liquid. In this case very few of the insects were killed; and although they had been destroyed, the remedy proved worse than the disease. *Spirit of Wine, in the form of vapour*, has been tried to destroy scale and other insects on plants. The plant experimented upon was put into an empty water-tub, and covered up close to retain the steam; a small vessel full of hot water was placed beside the plant, over which a cup was placed containing the spirit. In this operation six hours seem to be about the time required. The quantity of spirit should be in proportion to the space intended to be filled. For a common water-tub, if the spirits are good, a wine-glassful is quite sufficient. Several Orchidaceous plants have been cleaned by this process without being in the least injured.—*Journal of the Horticultural Society.*

Indestructibility of Potato-Starch.—The following case may not be uninteresting at the present time, as it shows the resistive power of starch to the ordinary influences of vegetable decomposition.—A gentleman living in this neighbourhood, four years ago (in 1841) made a pit in an outhouse for the purpose of preserving his winter stock of Potatoes. The pit was made and filled with Potatoes, in dry weather, but when the winter had set in, it was found to be nearly full of water, and the Potatoes to be so far decayed as to be considered worthless. Accordingly, they were buried in a large hole, about three feet deep, in the garden, covered with earth to the thickness of about a foot or two, and thus left, as was thought, to rot and become converted into manure. A few weeks since, on digging over the spot where these Potatoes were buried, a white mass was turned up, which proved to be part of the remains of the Potatoes. A careful examination of the spot was now made. The Potatoes, which originally occupied a space about two feet deep, were found compressed into a layer of eight or nine inches in thickness. The upper part of this layer consisted of a mass of white powder, which, on being examined by the microscope, was ascertained to be pure and perfect starch. In the lower part of the layer, the cortical portion of the tubers, as well as the starch, still remained; thus each Potato, in a flattened state, like a dried Fig, could be separated from the rest, and on removing the dry peel, the interior was found to consist of the starch, nearly pure, but a little more coloured than that in the upper part of the layer. These flattened remains of the Potatoes have a strong and most offensive smell; but the starch, on being washed, is as sweet and white, and in every respect as good, as that obtained from fresh and sound Potatoes, although it has been buried in the ground, and has remained in contact with the decaying portion of the tubers during a period of full three years and a half. The surface of the decayed Potatoes was covered with an immense number of earth worms, completely matted together, and the mould for six or eight inches above these was full of maggots, similar to those of the common house flies; but neither worms nor maggots were found among the decayed Potatoes.—*Deane in Pharmaceutical Journal.*

CALENDAR OF OPERATIONS.

(For the ensuing Week.)

THE great utility of charcoal and wood ashes is admitted on all hands for gardening purposes; I would, therefore, beg to direct the attention of the gardening world to the necessity of a somewhat systematic course of procedure in the mode by which it is made. Now is the time (whilst the felling of trees, the "stocking" of hedges, or thinning of woods are proceeding) to lay in a considerable stock for the year. The process of burning is most simple. I begin by burning all the largest of the brush as a centre of operations; following up with the smaller wood; and when in a due state of combustion, covering the whole with the rough refuse of the kitchen garden, which has been twelvemonths in collecting. Finally, a coating of turves or soil—double if turves; the latter being reserved for prime potting purposes. The material thus managed, will furnish large masses of charcoal for Orchids, &c.; smaller lumps for drainage to pots; and wood-ash in abundance for dressing seed-beds, for any plants which require fresh material.

CONSERVATORIES, STOVES, &c.

Conservatory.—In recourse to artificial heat for this structure, too much stress cannot be laid on the moderation necessary. As has been well observed, the fire king is sometimes a greater enemy than the ice king. Try to ensure sufficient atmospheric moisture without drip. To accomplish this, there should be a moderate, but permanent moisture supplied, either on some part of the floors or in contact with a return pipe, especially during the day; and at night back air, more or less, continually.—Do not excite stove plants at present; wait for longer days and more light.—Take care to dispel damp by all possible means from plant-frames, and pick off all decaying matter.

KITCHEN GARDEN FORCING.

Pinery.—Fruiting plants up, or required to rise very soon, for early fruit, should now be allowed a slight rise in the thermometer; on light days 70° or 75°, and in sunshine 10° more may be indulged in. Those who are about commencing, or have already commenced, the Hamiltonian system, must carefully guard against over-excitement through bottom heat at this period. The same

remarks apply also to those in pots on the old plan. Mr. Hamilton is of opinion that a sudden rise of only 5° will do much injury, whilst 10° degrees would inevitably lead to disappointment. Those who are inclined to try the planting-out system had better postpone it for a few weeks, and even then Mr. Hamilton is decidedly of opinion that special compost and previous training are necessary in order to ensure success. *Early Vinery.*—Supposing the buds to be now considerably advanced, thinning them becomes a daily and important operation. In all disbudding, do not take Nature by surprise—gradual, but rather frequent disbudding is the maxim. Above all things, ensure a permanent supply of atmospheric moisture; if this is accomplished by fermenting materials so much the better. See that they are frequently turned and moistened. Put abundance of covering on outside roots, and if it be slightly fermenting so much the better. *Late Vinery.*—In the majority of cases the last Hamburghs and St. Peters will now be all cut; if they are to be taken out to rest let it be done forthwith, the pruning performed and the wounds immediately dressed with thick paint. They are best, in my opinion, laid on the ground, and covered up with straw for fear of injury by frost. If the late Vinery is devoted to Vines alone, throw the lights wide open directly. *Peach-house.*—Proceed cautiously here as recommended in last Calendar. Supposing them to be in course of blossoming give a little more fire in the day, only to enable you to give more air; the latter cannot be given too freely if the weather is not severe, and the thermometer within can be maintained at 55°; let it, however, sink at night to 40° or 45°. If the roots inside have not been watered, or only slightly so, and the drainage can be relied on, apply another thorough watering with rich liquid manure, clarified of course, and heated to 75°, part of which heat will be reduced immediately it comes in contact with the soil. *Cherry-house.*—Follow Nature closely in this house; no extreme here will succeed. Plenty of air, permanency of atmospheric moisture, and a very moderate temperature, are the requisites. *Figs.*—Steer a course with these about intermediate between the early Vinery and the Peach-house. In sunny days, however, the temperature may rise equal to that in the Vinery. Observe to fumigate in all the aforesaid structures, the moment one green fly appears. *Frames or Pits.*—If the hot, dung is sufficiently worked, let the seed-bed be made forthwith; for Cucumbers and Melons a two-light frame is very handy for this purpose. Cover the dung inside with 6 inches of old and clean riddled tan and plunge the seed pots near the glass nearly full depth, taking care if the bottom-heat exceeds 90° to keep it subdued with cold water. The more frequently the latter is applied the better, and to be able to accomplish this keep up lively linings. Endeavour to get a spare frame or pit for early Potatoes; a bottom-heat of 70°, that will last for a month, will be amply sufficient; the sooner it dies away after that the better, a continuance of bottom-heat too long will draw the haulm. If a frame can be spared, sow Horn Carrots and frame Radishes in alternate rows, 3 inches apart; a very slight bottom-heat of 65° will accelerate them much. Proceed with successional Asparagus; the early beds, if kept well lined, will do again, or they will make excellent Potato-beds, or for early Carrots and Radishes. Provide successions of Kidney Beans and Strawberries, as soon as spare room can be provided for them. Remember that Strawberries are best started in pits or frames with a bottom-heat of 70°, with abundance of air; and thence removed to the hothouse shelves if necessary.

FLOWER-GARDEN AND SHRUBBERIES.

Little can be said about these matters at present. Proceed, as before observed, with all alterations before the necessary spring work arrives. Take care to have labels of all kinds in readiness; see to half-hardy plants, and tree Roses of tender habit. A wicker screen for the former, or even Spruce Fir boughs stuck round them, and meeting at top, is a very good protection: they oftentimes suffer as much by close covering as by frost. Frosty winds are perhaps more prejudicial than anything. For tender Roses, a bunch of Wheat straw bound round the head, and sawdust or riddled tan round the base, is a very good protection.

FLORISTS' FLOWERS.

Ranunculuses.—Do not let highly stimulating manures enter into the compost of the beds; night-soil has been used with success, forcing a magnificent bloom; the succeeding season, however, the roots appeared to dwindle, and many were lost. The advice given last week will be found one of the best as well as the most simple methods of forming a bed for this beautiful flower, and in their cultivation we would advise attention to the old adage of "Let well alone," for amateurs may be assured that the less complex their management is the better. *Auriculas.*—The surface soil on the pans or boxes in which seedlings have been picked out, may now be removed, and a top dressing of leaf soil and cow manure well rotton, and blended together in equal parts, may be applied, taking care that no dirt lodges in the leaves. Expose to all air in open mild weather, avoiding cutting winds, which are more detrimental than frosts at this season of the year, covering well up at night, though especial care must be taken not to shut them up wet. *Carnations* will require considerable attention just now, removing all mildewed leaves, stirring the surface soil in the pots, and making preparation by turning and well sweetening the soil for potting. Make sure of plenty of leaf soil, get it either for "love or money;" in composts it is the florist's "right arm." *Tulips* will give the amateur some employment, and as his favourites venture above ground, envelope them in a covering of wash or Calais sand, as before directed. If possible, protect the beds from excessive frost.

KITCHEN GARDEN AND ORCHARD.

Proceed with digging, trenching, &c., whenever spare ground occurs, and time permits. If some of this ground should require digging a second time, previous to cropping, so much the better; it will amply repay the labour. All fruit-tree planting not done in the autumn should be proceeded with at mild intervals; wherever the subsoil is bad it should be entirely removed, and a platform of brick-bats, rubble, or cinder-ashes, rammed hard at about 1 foot below the ground level. On this, place, if possible, a little rough turf in a fresh state, and be sure to mix some fresh maiden soil with the compost. Sound and tenacious loams for Apples and Pears; sound, yet mellow loam for Peaches, Apricots, &c., and free upland soil for Plums, Cherries, Vines, and Figs. Follow up nailing and training of fruit-trees; lose no time, when the weather permits, of advancing these matters. Where such is completed, I would advise a syringing with the laundry soapsuds; saturating every crevice in the wall. This is an old plan, and practised by Speechly, and a very cheap and good one. A few Onions may be sown on a warm border shortly, for drawing in a young state; if they should be destroyed by frost, the loss will not be great. Attend to early Peas; proclaim a war of extermination against all rats and mice forthwith—the new phosphorus preparation seems to be excellent. It is a good plan to sow some sawdust amongst the stems of those Peas already up, provided the leaf is not expanded; when such is the case top-dressings are apt to do mischief by preventing the action of the leaf. See that your Lettuce plants are duly protected: I suffer mine to have a thin screen of new straw on them, night and day at this time of the year. It will do no harm while the thermometer does not average above 40°. However, if very mild weather intervene, let them be uncovered. If frozen, endeavour by all possible means to keep them so, and don't uncover them until after two days of a thaw. Some early Peas should be sown in boxes or pots, for fear of an accident to those sown in the ground. Any light situation in-doors will answer.

COTTAGERS' GARDENS.

Those who possess even very small gardens will have to follow much of the routine business contained in the kitchen garden and orchard division of the Calendar. The Apricot, the Cherry, or the Pear tree, against the gable, will require of course the same kind of handling. Gooseberry and Currant pruning must be completed as soon as possible. After pruning, it is well to top-dress the bushes a little. To accomplish this, draw a little of the surface soil away with a hoe, then apply the manure, and, finally, soil the whole over about 2 inches deep. If the weather be mild, and the soil in a mellow state, the Cabbage plot may be hoed through; and if a stock of August plants are at hand, on such soils gaps may be filled up at the same time as I observed in last Calendar. Early sprouting Potatoes are better in the ground than on the shelf; and under existing circumstances, I would strenuously advise all who have ground to spare, to plant such forthwith, taking care to have at least 6 inches of soil all round them.

FORESTING.

All pruning and thinning must of course proceed without delay. Where principals are crowded by superfluous stuff, or nurses, let them be removed. Remember that after all the loose discussions about pruning young trees, intended for timber purposes, the preserving a good leader free from competition is the principal object. The pruning-knife will do this as well as the bill-hook and saw, if timely applied. Attend to Coppices, thin and dress the stools, remove weak and useless shoots. Drain and dig, or trench ground for new plantations. New Coppices may be planted in favourable situations.

State of the Weather near London, for the week ending Jan. 15, 1846, as observed at the Horticultural Garden, Chiswick.

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 9	11	30.021	30.529	49	47	48.0	S.W.	
Sat. 10	12	29.477	30.376	44	37	39.5	S.W.	.01
Sun. 11	13	29.317	30.237	48	34	37.0	S.W.	.01
Mon. 12	O	30.067	29.846	36	31	33.5	S.E.	
Tues. 13	15	29.954	29.491	48	35	41.5	S.E.	
Wed. 14	16	29.424	29.429	50	37	43.5	S.E.	
Thurs. 15	17	29.866	29.729	49	39	44.5	S.	
Average		30.075	29.948	46.1	36.4	40.7		.02

Jan 9—Uniformly overcast; densely clouded at night
10—Overcast throughout; drizzly rain at night
11—Hazy and drizzly
12—Uniformly overcast; cold haze; densely overcast
13—Hazy; very fine; partially clouded
14—Foggy; slightly overcast and fine
15—Fine, with light hazy clouds; overcast.
Mean temperature of the week 5 deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Jan 17, 1846.

Jan.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 18	31.7	41.7	35.7	10	0.45 in.	—	3	—	2	4	4	4	3
Mon. 19	39.9	41.1	35.5	10	0.38	2	2	—	3	4	4	4	1
Tues. 20	39.4	40.3	34.4	6	0.45	4	2	1	2	3	3	1	
Wed. 21	38.3	47.2	39.1	8	0.84	2	2	1	3	4	2	4	1
Thur. 22	35.0	43.2	39.9	9	0.87	—	1	2	4	3	2	1	2
Fri. 23	34.4	44.2	39.3	8	0.16	—	2	2	3	2	3	1	4
Sat. 24	33.0	43.2	38.1	7	0.61	2	2	2	1	2	4	1	1

The highest temperature during the above period occurred on the 19th, 1825—therm. 60°; and the lowest on the night of the 19th, and morning of the 20th, 1838—therm. 6° below zero.

Notices to Correspondents.

BEES—*Bee-fancier*—As the plan you have tried failed to cure your bees of dysentery, I fear that they are now too far gone to benefit by any other mode of treatment; however, if the weather is mild, try to entice them abroad by a little pure honey in a plate placed in front of the hive. The food and airing will refresh the bees. Some recommend giving a little port wine or salt in the food, but when bees have plenty of honey, and when their hives are dry, there need be no fear of that disease, nor of any other.—*W.*

BOOKS—*S H*—Probably, for your purpose, Paxton's "Botanical Dictionary." Another useful one is the "Dictionnaire Raisonné des Termes de Botanique et des Familles Naturelles par Lecoq and Juillet." A bookseller will give you the prices: we never do that.——*Inquirer*—"Mills on the Cucumber," and "Moore on the Cucumber" are the two books which you will consult with most advantage.——*F F*—Macintosh's "Practical Gardener."

CARNATIONS AND PICOTEES—*S C*—You will find the following good sorts, and moderate in price:—*Carnations:* Ely's Colonel Wainman, Hoyle's Duke of Leeds, Headley's William Cobbett, Gregory's King Alfred, Puxley's Prince Albert, Soorn's Bloomsbury, Hogg's Colonel of the Blues, Leighton's Bellerophon, Addenbrook's Lydia, Ely's Bright Venus, Brooks's Flora's Garland, Fletcher's Duke of Devonshire. *Picotees:* Gidden's Teaser, Sharp's Duke of Wellington, Kirtland's Mrs. Annesley, Brinklow's Duchess, Hufton's Queen of Sheba, Brinklow's Conductor, Wilson's Pluperfect, Ely's Grace Darling, Syke's Eliza, Gidden's Diana and Beauty of Hemingford.

CEMENTS—*M O* says, "I have in my garden some underground places which would be very useful for tools, &c., but for a percolation of water through the brick arches at top. I purpose covering them either with a rough asphalte or compost (as it will be underground) and shall be greatly obliged by your advice or that of any of your experienced correspondents, which is likely to answer best, and what proportion of pitch or lime should be mixed with fine gravel for the purpose, my plan being to make either an asphalte of pitch and gravel, or a compost of lime and gravel, as may be recommended." [Can any one oblige us and others by advising him?]——*Wymondham*—Probably "Lusor" will give further information on this point. No doubt it is important that the mixture should be made properly. Thanks. We know Bradley's works well. They are of little value, though curious.

GRAPES—*T Foster*—We will report on these next week.

GRASS EDGINGS—*G J B*—We agree with Mr. Errington. The width of the edging of Grass will be determined by the length as well as breadth of the walk. For yours a foot will be a proper width. Indeed, it is not often advisable to have the edging narrower, because it is not easily kept in good order. The objection to it is the expense of mowing, sweeping, &c.

GREENHOUSE PLANTS—*Clio*—Yes, you can; they will not refuse you. The remainder can be had of any good London nurseryman. As to heating, one 4-inch pipe is enough for a small greenhouse. You only want to exclude frost; and even a little of that will not hurt you. Four rows of pipes for a greenhouse! why your advisers must live in Bedlam. An Arnott's stove might answer, if you can manage it: but a Joyce's will not do; it is not powerful enough.

MANURE—*Ignoramus*—Chop your old horses to pieces, and bury them in the border. If unpleasant fumes arise, water the border with weak sulphuric acid. They are a capital manure for Vines. See "Roberts on the Vine" a book you should read.

NAMES OF FRUITS—*B*—Your Pear is the Easter Beurré.‖

NAMES OF PLANTS—*Zero*—The flower is like that of Polygala speciosa; but the leaf is more similar to P. myrtifolia; the latter should be glaucous. It is very difficult, indeed, impossible, to speak positively from examining a single flower and leaf.——*H C*—Garrya elliptica; the male.——*A Young Gardener*—Scolopendrium officinarum. We have not ourselves seen the fruit of Brugmansia sanguinea. The seeds of it are poisonous.——*A Constant Reader* has not sent any flower. The bits of leaf probably belong to Helleborus niger, the Christmas Rose.

NOISES—*A S*—The inconvenience experienced by the noise of vehicles passing and repassing is apparently caused by the reverberation from the wall next the road. The nuisance will therefore be removed by pulling down the wall and substituting iron railings, as proposed. We doubt whether raising the wall would be as effectual.

PLANTING—*Portrane*—Screw together by the middle three stout laths, each 10 feet long, and so place them that they cross each other at equal angles. You will thus form a star of six points. The centre will be 5 ft. from each point, and the points will be 5 feet apart. If you lay this on the ground and stick pegs into it at each point and centre you may by shifting the star, gradually set off your field exactly into 5 feet spaces, which cannot possibly be wrong.

POLMAISE—*A Constant R*—We have applied for working drawings, and, when they come, will publish them. Your difficulty is imaginary; the same effect will be produced by a furnace at one end, provided the drains are properly arranged. Wait a little, till our plans are published.

POTATOES—A correspondent asks whether it is not possible to put an end to the absurdity of calling Potatoes "seed." We cannot answer his question; but we well know the inconvenience of the practice, which leads to all sorts of confusion. It is a part of the slip-slop of rural districts, and is only worthy of Mrs. Malaprop and her children, if she had any.——*R Bennett*—Your steamer is a decided improvement. But you might easily conduct the condensed steam into the boiler, instead of catching it in a box. We see no use in that.

PRIMULA SINENSIS—*H D*—There is no novelty in your seedling specimens of this Primula; the crimson varieties are weak in colour; those of a lilac colour are the best.

PRIZES—*An Enquirer* should apply to the Secretary for what is due to him. It may be had the week after it is awarded, unless medals are required, and then as soon as they can be prepared: at least, that is the practice with the Horticultural Society, and, we presume, with others.

PRUNING—*A B*—The shoots of your newly-planted Perry Pears are not likely to die back if not shortened; but if cut back they will afterwards push with greater vigour.‖

RAILWAYS—It is under consideration.

ROSEWOOD—*W S*—Upon referring to Dr. Lindley's unpublished "Vegetable Kingdom," we find that this kind of wood, which the French call Bois de l'alixandre, is apparently produced by some Brazilian Mimosa (p. 553.) Others, however, have referred it to a Loosestrife called Physocalymna floribunda, or to a species of Jacaranda (pp. 575 and 677), but these last statements are objected to.

MISC—*A Gardener*—Apply to the principal bookseller in your county town.——*A Constant Reader*—Calceolarias come from Foxgloves! Your question amuses us; even our friend, the author of the "Vestigus," would hardly push theory so far as that. They have been obtained from Chili, where they grow wild, and have been changed by domestication, just as dogs, pigeons, and poultry are. Graft Daphne odora on D. pontica. Keep your Rose seeds in moist soil, and sow them in the spring in a little peat.——*Doveron*—A 14-inch wall can be built 14 feet high, without supports or buttresses, if the workmen and materials are good. It is impossible to tell how much sulphuric acid your tank requires, because you do not yourself know the quantity of ammonia. Add the sulphuric acid, a little at a time, as long as there is any effervescence, and not longer. Your other questions should have been addressed to a bricklayer.——*Sub*—Your Raspberries which you have taken up and replanted will soon form new roots, and become established again; but they cannot be expected to bear so well this year as they would have done had they not been disturbed. You may with advantage stick early Peas as soon as they are two or three inches above the ground, previously earthing them up a little, as a kind of protection from frost.‡——*Winton*—You will find a list of fifty hardy herbaceous plants, all dissimilar and pretty, in our volume for 1843, p. 681 ‡

LIQUID MANURE.
ENGLAND INDEPENDENT OF THE WORLD FOR CORN.
THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.
The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

The Agricultural Gazette.

SATURDAY, JANUARY 17, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
THURSDAY, Jan. 22—Agricultural Imp. Soc. of Ireland.
THURSDAY, — 29—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

Jan.	19—Batley	Jan.	26—Wellington
—	20—{ Bromsgrove / Plymton St. Mary	—	28—Newton
		—	29—Ottery St. Mary
—	22—Shadwell	—	30—Rhins of Galloway

SOME weeks ago we stated as the result of information kindly given us by the Secretaries of FARMERS' CLUBS, that these societies might be fairly arranged in two classes—the one self sustained and in vigorous activity, because composed of men who know the advantages of inter-communication on agricultural topics, and the benefit of an acquaintance with the theory of their art, and who therefore meet together to discuss points of farm practice, or to hear hired lecturers illustrate the teachings of agricultural chemistry or geology—the other dependant for its vitality on the patronage of the influential and the educated in the neighbourhood, because the members are not sufficiently alive to the advantages derivable from their membership to keep the society in action without assistance. The vigour of these latter clubs is therefore simply in accordance with the nature of the support they receive.

Certainly, if kept alive for a few years by the exertions of its office-bearers, a club of this kind will ultimately come to be arranged amongst those of the first kind—its members will acquire such an interest in its operations as a society, as to take the management and support of it entirely into their own hands. It is doubtless the anticipation of this which to a great extent supports the secretary of such a society in the arduous labours of his somewhat thankless office; and there is no doubt that however valuable the influence of the landowners and gentlemen of the neighbourhood may be when applied to the support of a club such as we allude to—these societies are yet of much greater usefulness when self sustained than when dependant upon extraneous aid for their vigour or vitality.

We give in another page the history and present management of two clubs which may be considered as fairly representing the two classes we have referred to; the first, the Richmondshire Club, certainly claims a position amongst the most influential and independent, and therefore amongst the most useful of its kind; and the other society (Readers in its neighbourhood will recognise the initials), must, we suppose still acknowledge its dependence upon the support from without which it receives. Both of their histories are, we consider, instructive to those who may wish to establish such societies—the latter particularly so. We doubt not that after a few more years of that patient and industrious assistance which it has hitherto received, the C— H— Farmers' Club will rightfully claim a place amongst the most intelligent and useful in the land.

THE PROSPECTS OF THE GUANO MARKET are well entitled to our consideration. The "*great fact*" of the vast and increasing consumption of this manure (see p. 9), makes the subject of a future supply one of much importance to the practical farmer. The value of the manure is now fully established, and a liberal supply is essential not merely because of the direct advantages to the productiveness of the country accruing from the use of it; but also because the quantity imported will, in no slight degree, be the measure of the price it will bear, and thus, in a great degree, of the other foreign fertilisers which the farmer uses.

The late spread of information on the subject of manures, and the consequent increasing use of special hand-tillages, insure a *demand* that must produce an exorbitant price, if the supply be inadequate. The consideration of our future supply of guano presses still more peculiarly upon our notice, when our progressive demand is first taken in connexion with the not less startling facts, that, of the 137,000 tons consumed during last year, 100,000 tons at least were derived from Ichaboe, and that the deposit there is now completely exhausted: 100,000 tons of guano per annum must thus be obtained from some new source, or old sources must increase their supply by that amount. If this can be done, the position of the consumer is anything but unfavourable. The question for consideration is—can this be done? Our answer is—it can! At the first glance the prospect seems a cheerless one. Ichaboe is exhausted. Peru has only sent us 50,000 tons in five years, and the extent of the stock at Saldanha is not known; while its quality, as yet practically untried, is certainly much inferior to any hitherto brought to this country. Still—it can be done! The prospect is not really so gloomy as it appears at first glance; it requires a closer examination to develope the actual features of the scene. However inferior the Saldanha guano may be to that of Africa, which is now exhausted, the Peruvian is superior to both, and although we have imported only 30,000 tons during the last 15 months, yet an unlimited supply may be had from that country; and it is an important fact, though one scarcely so well known, that the Government of that country is willing to afford us a supply commensurate with our demand so soon as their existing engagements will permit them.

These engagements, it is well known, are such as preclude the free exportation of the manure, and make the importation of the article into this country a monopoly in the hands of one company. As this monopoly was granted in payment for benefits previously conferred upon the Peruvian Government, the contract, of course, must be fulfilled to the letter. Nor ought we, the consumers of the article affected both in price and quantity by the negotiation, to consider it altogether a grievance; for, although it has given to the importers security against competition, and has thereby kept the price higher than it otherwise would have been, we are indebted to this company for making the manure an article of commerce at all—for pushing it into the market—for instituting inquiries into its effects—and for stimulating other speculators to the discovery of fresh sources of supply.

But with all respect in the world for existing contracts, and all gratitude for the good they have effected, we may still look forward to their termination with pleasure. The necessity of a supply, and the ability of Peru to afford it, induce this feeling; and whether the contractors are in a position to resign the monopoly of this trade or not, under the circumstances, which now bear upon the market, we cannot but feel it to be a public benefit that their exclusive right must soon legally expire. And this benefit is the more immediately of importance to us, since the Peruvians have discovered the value of guano as the *materiel* of an export trade for improving the public finance of their country. It has, indeed, already been proposed by the leader of the Opposition in that country, to sell licenses to load and ship the guano. Under these circumstances, therefore, we may fully rely upon Peru to afford us a liberal supply at a fair price, on the termination of the contract which expires in 1846.

Another fact strengthens us in this expectation. The contractors have proposed, and the Executive has submitted the proposal to Congress, for an extension of time of the original contract, and permission for the contractors to ship 10,000 tons more of guano, for which they have offered to advance Government a further sum of 203,000 dollars, or about 40,000*l.*, and this Congress has refused; and thus afforded unquestionable evidence that they are disposed to make the article the subject of a legitimate and open traffic, and thus materially improve their own finances, and give us a full supply of the best article for the future.

There is one more cheering circumstance connected with the prospects of the guano market. We may hope for liberal supplies not only after the termination of the contract in 1846, but also previous to that period; indeed, we may expect an immediate importation of nearly double the quantity hitherto sent us. The contractors have shipped up to July last only 50,000 of the 120,000 tons to which they are entitled by their contract. This contract was, to lend the Government 100,000*l.*, and to export in five years from 1841, for the account of the Government 120,000 tons of guano; upon which the contractors were to have ship charges, and 5 per cent. commission on gross sales, and to repay themselves and holders of the bonds, for the loan of the 100,000*l.*, out of the net proceeds of the sale.

Congress having refused to renew this contract, or rather to grant a new one on the same terms, in consideration of a loan of 40,000*l.*, affords a proof not only of their knowledge of an existing demand for the article, and of their ability to supply it to us in larger quantities; but it also gives us reason to expect from the present contractors a much larger importation during next year than we have hitherto witnessed. Indeed, it appears that they are still entitled to ship 70,000 tons, which is more than they have brought into market during the past four years, and it is not probable that they will lose the benefit of this supply, with the facts before them that the quantity used last year has been so enormous, and that the supply from Ichaboe is cut off.

For these reasons, therefore, we look upon the prospects of the supply of an article now so essential to our husbandry, as most satisfactory, and we refer our readers with sincere pleasure to an extract in another column from the communication of the "*Anglo-Peruvian*" correspondent of the *Morning Herald* for confirmation of the facts we have stated, and further illustration of the effects which they are likely to have upon our market.

They show that the Peruvians are fully aware of the immense demand that we have for their article, and that they are willing to supply it more liberally than the contractors have done. Had it not been so, this Government would have renewed the contract; for it is obvious that unless they do supply a larger quantity than is now in our market, they will not improve their finances. This, indeed, it will be seen, is the argument used in Congress. And, on the other hand, this communication informs us that the contractors must work "now or never," in order to make the most of their bargain, and to secure the quantity of guano to which they are entitled. With 70,000 tons yet due to our market, and the certainty of a full supply after another twelvemonth, we have no cause to fear but that, independently of any new sources of supply which may be developed, we shall have abundant stock for both *present* and *future wants*: and an abundant supply is a sure guarantee of moderate price.

ON THE MANAGEMENT OF COMPOST HEAPS.

[A LETTER by North Dalrymple, Esq., of Fordel and Cloland, to Mr. M'Bride, Balcar, Secretary to the Rhins Farmers' Society. Taken from the *Ayrshire and Renfrewshire Agriculturist.*]

I promised you when you were here to send you an account of our way of making muck. It is, however, only Lord Meadowbank's plan, with the addition of urine and some different details. For instance, his lordship made up his dunghill at once, having a great quantity of materials ready, whereas we mix our muck, moss (*i. e.* peat), &c., once a week.

1st. In the spring, or indeed in any season, we dig the moss, throwing it into a heap of about 4 feet thick, which will subside a good deal after getting the winter frost and the summer sun, when the rain washes out the tannin, which is poisonous to vegetation. A man can dig 48 cubic yards of moss for a shilling. A cubic yard is thrown into the Forth for a farthing. In the summer season, and in dry weather, the moss should be broken, to dry it; the best way is to spread it, and put the roller over it, and then keep turning it with a long hoe till a great part of the moisture is expunged from it, as this makes the carriage less expensive. The cart that brings it to the yard should have large wings to make it hold more. When brought home it ought to be put under cover, say the cattle sheds.

2d. All the stable, byre, &c., dung is laid in a convenient part of the yard where the dunghill is to be formed, and placed compactly together, to exclude as much as possible the sun and air; and a man might tramp a little on it to keep the ammonia from escaping. This dung is mixed with moss every Saturday, in the following method, viz. a layer of moss 4 inches thick is laid on the space where the midden is to be built, above that we put dung, then moss, next dung, and so on in the proportion of 1 ton of dung to 3 of moss, till it is 3½ feet high; the last layer must be moss 4 inches thick. When it is half its height it should be watered with cesspool water; and, again, when at its intended height the whole mass should have buckets-full of urine thrown over it to saturate it well. Every other day moss is put all round to catch any liquor that may ooze out, and this may be mixed with the midden again when it is turned. We always build our dunghills to a wall. This first dunghill, then (or pie, as we call it), must be its own breadth from the wall, leaving a space of 4 feet between it and the next pie to be made, and this is for the man to walk whilst turning it. The next Saturday this first made-up pie is turned to the wall, and watered every 18 inches or 2 feet, and made 5 feet high, or even six, if room is required; under it must be 4 inches of moss, as before described. This is intended to save the juices, and it may be covered with 4 inches of moss, and over that whins or sticks to keep the hens from scratching. This, too, may be watered now and then on the surface if you have urine to spare. When this is finished, a new pie must be made on the old stand of the rough dung lying in the yard and moss as before, always leaving a space for the man to walk. This again on the next Saturday is made 5 feet or more in height, and so on. This will be in prime order for using two months after it is made. The moss at the top will fix the gases, and the dung, cart for cart, will produce as good crops as any common farm-yard muck. I do not know whether your moss is so near as to make this pay, but, of course, you will make your calculations. I generally keep six pigs, which make an uncommon quantity of excellent muck, in this way:—On a Saturday I put 4 inches of moss in the yard of the stye, then straw, and next urine; this is repeated twice a-week, and in a fortnight, or on the second Saturday, they are cleaned out, and their dung mixed with the cow, horse,

and other dung, to be made into a pie that day; and this is repeated every fortnight. The horse, cow, and pig dung are better mixed together, layer and layer, which prevents the former from fire-fanging. You saw a midden in my yard which measured above a 100 tons, and that was made in less than four months from eight cows, which were in the house half the day, eight horses, which are a good deal at Grass in summer (except the carriage horses), and the six pigs.

3d. When we have urine to spare we put it on dry moss under cover till it will imbibe no more; this is turned in about two months, and if allowed to lie for some time becomes a rich manure. We have also several necessaries: the night soil is received into wooden boxes on four small wheels, and these are cleared out at certain times and mixed with moss, at the rate of ten of moss to one of the other. Moss is always put into the bottom of the boxes after they are emptied, which saves the urine, and the boxes should be so fitted that not a drop of this is lost. You may think all this expensive, but if you have an *orra man* he can do these jobs as he has time. We lose nothing that will ferment—road and ditch scrapings, hedge scourings, weeds (not in seed), sawdust, brackens, rushes, leaves, cabbage and kail stocks, &c., &c. The lowest part of the peat moss is the richest—what is at the top is apt to produce chickweed—and it should be compounded with lime.

4th. We have several cesspools for collecting the urine, which otherwise would be lost. There are drains through the cattle yard and round the walls inside, which lodge in the cesspool, and when one is full, what runs over goes into another, and so does the stable and byre urine, and the soapsuds from the washing house. Even the greasy water, &c., from the kitchen should be collected, and if thrown on moss will add to the dunghill. My land, which was poor a few years ago, is now in good heart; and the field of Oats I showed you near the house produced 75*ll* stooks on seven Scotch acres.

Lastly, Cesspools.—In land that will not hold water, the sides of the tank require to be built with ashlar, bedded on and pointed with Roman cement and sand, paved with square jointed flags, and pointed with the same material. If the tank is to be covered, the best and cheapest covering is a flat brick arch. A tank measuring 12 cubic yards in the interior will hold 2,000 gallons of liquor. Assuming it to be built 1 yard in depth, 4 yards long, and 3 wide, it will cost, exclusive of excavating the earth and carriage of materials, as under, viz.:—

126 square feet, building sides and ends, at 9*d.*	..£4 14 6
12 square yards pavement, at 4*s.*	.. 2 8 0
700 bricks for arch, at 2*s.* 9*d.*	.. 0 19 3
Building arch, say	.. 0 10 0
	£8 11 9

Tanks can be built in retentive clay soils for about half the above, as rubble building is sufficient. An open tank may be made, too, to throw moss and urine into, and thus save an arch, but it must be under a shed. If you put a dead horse or cow against a wall, and cover it with 10 tons of peat moss, it will make that quantity of manure in 18 months; but it must be turned some time before using.

RICHMONDSHIRE FARMERS' CLUB.

I HAVE read with considerable interest the remarks on Farmers' Clubs which appeared in your Leading Article on Dec. 27. Feeling a deep conviction that these discussional societies, when properly conducted, are the best institutions ever devised for the improvement of practical farmers, I learn with regret your opinion that they have hitherto been generally short-lived societies.

Perhaps it would be presumption in me to say our Farmers' Club here belongs to the class you describe as "existing in well-cultivated districts, where the occupiers of land are an intelligent class of men, who know the importance of inter-communication on agricultural topics, and the advantage of an acquaintance with the theory of their art, and who therefore unite together to discuss points of farm practice, or to hear hired lecturers illustrate the teachings of agricultural chemistry or geology;" still as our Society seems to go on prosperously, a few particulars respecting its rise and progress may be acceptable to some of your readers.

The Club was commenced in 1841 by Mr. Jaques, an extensive landowner, assisted by five leading agriculturists in the neighbourhood; the object being "to establish a library and reading room, and to discuss various questions connected with agriculture." It rapidly grew into favour, and has received not only the support of the proprietors and farmers of the district, but nearly all the respectable inhabitants of the town are now regular subscribers. The meetings for discussion are held monthly; they are generally well attended, and the proceedings are conducted in the most orderly manner.

The affairs of the club are managed by a president, vice-president, committee of nine members, secretary, collector, treasurer, and librarian. The annual subscription is 5*s.*, and we have now more than 300 members. For the advantage of persons living at a distance from the town, the monthly meetings are held on the Thursday nearest to the full moon. On the members assembling, the chair is taken by the president, or, in his absence, by the vice-president; the secretary proceeds to insert the names of the members present in the minute-book, and while he is doing this the chairman inquires if any member has a subject which he wishes to hear discussed at a future meeting; if there is no reply, the committee suggest two or three subjects, and the selection is decided by vote. New members are next proposed, and then the secretary reads over the minutes of the preceding meeting.

The person who has to introduce the subject for the evening is then called upon, and the discussion begins. No person is allowed to interrupt the speaker; and on his sitting down, the chairman asks each member in succession, beginning with the one on his left hand, to deliver his sentiments on the subject. Some decline; others content themselves with asking a question; and many speak on the subject generally. After all the members have been asked to give their opinion, the secretary and chairman usually speak, and then the person who introduced the subject has the privilege of making any additional observations, or answering any of the questions or objections of the speakers who had followed him. The remarks made by the respective members are taken down at the time they are spoken; and although I do not use short-hand, yet, writing with tolerable rapidity, I find little difficulty in getting the meaning, though perhaps not always the exact words of each speaker.

No smoking or drinking is allowed during the meeting; political subjects or allusions are prohibited, and the whole of the proceedings are conducted with great regularity. When the Club was first formed, many valuable books were presented to the library by Mr. Jaques, the Earl of Zetland, Col. Arden, Mr. Dundas, Mr. Ridley Colborne, and other friends to the Institution, and the room now contains nearly all the standard works on Agriculture, Chemistry and Geology. As our funds increase, works on general literature will be added.

On the Library table paper and materials for writing are placed for the accommodation of subscribers, and the following papers and periodicals are regularly taken, viz., the daily "Times," the "Gardeners' Chronicle and Agricultural Gazette," the "Mark Lane Express," the "Yorkshireman," the "Yorkshire Gazette," "Chambers' Journal," the "Mechanic's Magazine," the "Farmers' Magazine," the "Journal of the Royal Agricultural Society of England," the "Transactions of Highland and Agricultural Society of Scotland," the "Transactions of the Yorkshire Agricultural Society."

These few remarks may give a general notion of our Club, and its mode of proceeding. Thus far we have seen no signs of lukewarmness in our members, and I cannot but hope that an institution affecting interests so valuable to all the community will continue to receive the countenance and support of all good men.—*H. J. Turner, Sec.*

C—— FARMERS' CLUB.

OUR Society was not originally intended to embrace more than the farmers of the C——- parishes, and, at first, consisted only of some of the tenants on my estate, and on the adjacent one of Sir T. D. A. A few other members have joined it since. It was founded in October, 1842. The members met twice monthly, until the end of April, 1843, when we considered that our season terminated. Similar meetings were held during the seasons 1843-4, and 1844-5. Our days of meeting are the first and third Fridays of each month. There are generally from 12 to 20 members present; I remain at the meeting until half-past 7, when I retire with any friends who may have accompanied me; and I am assured that the half-hour, or hour, which the members pass together after our departure, when their conversation on the subject of discussion is perhaps less constrained, is by no means the least useful portion of the time that they pass in each others' company. The agricultural experience of the members is by no means confined to our own locality. One of them farmed during many years in Ireland, and then near Northampton. The Rev. J. I. gives us information that he acquired in the county Donegal, and at a curacy in Wiltshire. One of our young farmers is the son of a considerable landholder in Northamptonshire; another accompanied me to Scotland in 1843, and passed six weeks among the Lothian farmers; and Mr. F., my steward, brings to our meetings the information gained by long residence as an agricultural agent in East Lothian, matured by nine years' experience here, and by diligent reading and study on agricultural subjects. I must confess myself the least informed of the whole party; so I have the most to learn, and at every meeting I hear something new to me. During the first year there was a good deal of backwardness among the farmers in delivering their opinions. They now state what they have to say with more ease, and a subject is often discussed, and very opposite opinions are stated and maintained, with much point and apposite illustration. The members of the club seem quite to enter into the spirit in which our proceedings ought to be carried on. We have obtained many a valuable and awakening fillip from the visits of experienced and scientific friends, who have been good enough to attend our meetings. Mr. P., of Bedfordshire; Mr. C., of M——; Dr. Buckland, Dr. Daubeny, and Mr. Pusey. The presence of such friends has done us real service. Under Dr. Daubeny's direction, I made an experiment in 1844 with 16 different manures, including the phosphorite which he had brought from Estremadura. Owing to the remarkable dryness of the season, the experiment failed; but we trenched the plots with great care, and I have just now forwarded to Dr. Daubeny the result of the experiments on the crop of this year.

The Society derives great advantage from the interest which our rector, the Rev. W. R. F., takes in its proceedings. He always attends when he can, and, though not an experienced agriculturist, the intelligent and close attention that he bestows on the subjects under discussion, renders his presence invaluable to us. He takes notes of what passes at each meeting, and I know that he is of opinion, that our meetings aid in strengthening amongst us friendly and kindly feelings, and a social intimacy that have a highly beneficial effect. You may be disposed to inquire whether we yet see any agricultural improvement consequent on the establishment of our Society? I should confidently reply in the affirmative. During ten years I have myself used only two-horse swing ploughs, and single horse-carts. I have been husbanding my liquid manure. I have diminished the size of my hedge-rows; I have brought six Clydesdale horses from Scotland; and I have devoted a limited sum annually to the thorough drainage of my land. The advantage of these and other changes has been freely discussed at our meetings, and I have great pleasure in saying, that I think prejudice is fast yielding before the manifest advantages which improved practice, founded on scientific deduction, has introduced on land in my own occupation. I believe that many a farmer, who would reject a change of system when urged directly to himself, will gradually try and adopt it when he hears it explained and recommended, and the objections to it stated and met in discussion at a social meeting like ours. Without the necessity of confessing that he has hitherto been in error, he is thus converted into an advocate, and an example of improvement. I may also remark, that a farmer strongly advocating any system, whether old or new, is stimulated to prove its excellence by increased skill and diligence. I am able to devote only a very moderate sum to improvements; but I am convinced that whatever facilities I may offer to my tenants, they will readily avail themselves of. I do not think that I could have said as much formerly; and this is a change which I attribute mainly to the effect of our farmers' meetings.

I must add, that our improvements are in great measure due to the prudent conduct by which my steward has conciliated not only the respect of the farmers, but the obedience and confidence of the labourers. Had he come among them in an overbearing spirit, contrasting the agricultural skill and labour, to which he was accustomed in East Lothian, with what he finds here, his knowledge would not have availed, and his influence would have been nothing. But he has had the good sense to make the best of what he found amongst us. Had he wished to introduce a ploughman or a few labourers from Scotland, I should not have objected. But he wisely preferred improving the labourers here, and I am now certain that any plan which he might suggest to them, or any agricultural machine that he might introduce, would receive the best efforts to render it successful of labourers, who, 10 years ago, would have regarded any such novelty with an ill will and a jealousy which would have ensured its failure. My object is to improve, as much as I can afford it, the farm houses and buildings on my estate; to keep down the quantity of game, so that it shall not injure the farmers' crops, nor hold out an inducement to the labourers to poach; to elevate the intelligence and character both of my tenants and the labouring population; and then to offer to each skilful and trustworthy tenant, who has capital to do justice to the land, a long lease; being convinced, that without a certain permanence of tenure on the part of the farmer, the capitalists of this country will never be induced to embark their abundant capital in the cultivation of the soil. May I, without entering at length into this subject, be allowed here to state my strong opinion, that if the cultivators of the soil were such, and so circumstanced, as I have endeavoured to describe, and if they were liberated from the burdens now peculiarly incident to land, capitalists would find no safer investment for their money than by advancing it to farmers; and farmers would have every chance and inducement to do the duties attendant on their healthful and happy profession in the mode the most remunerating to themselves, and the most beneficial both to their landlords, to their labourers, and to the whole community—the whole community—for all our national interests are indissolubly linked together, and we are far the best customers of the manufacturers, as they are of the agriculturists. I add a list of some of the subjects which at different times our club has discussed.

Clay soils; their cultivation and improvement.
Duration of the germinating principle in seeds.
Principles on which white and green crops should be successively cultivated.
Soils and subsoils of this district, and the manures most applicable to them.
Breed and management of pigs best adapted to this district.
Ditto sheep, cattle, and horses.
The best winter food for beasts.
The effect of warmth on cattle during the winter.
The best means of preparing the soil of Claydon for green crops.
The preparation of the land for Wheat.
Ditto Beans.

The C—— Farmers' Club possesses Von Thäer's "Principles of Agriculture," presented by Mr. Shaw, the *Gardeners' Chronicle*, of three years previous to the present, bound up, and it will soon have the *Gardeners' Chronicle and Agricultural Gazette* of the present year. We take in the "Farmers' Magazine,"

the "Farmers' Journal," and the "Journal of the English Agricultural Society."

In October last we had a ploughing match for a silver mounted butter dish to the owner of the successful plough, and pecuniary prizes to the two best ploughmen, presented to the club by my brother. Much emulation was excited amongst the members of the club, and amongst their ploughmen. The former have increased their subscriptions from 5*s.* to 7*s.* 6*d.* yearly, in order to offer prizes to the three best ploughmen in a match to take place in October, 1846. One of our members said to me the other day: "Our worst ploughmen next year will be as good as our best this."

You were so good as to intimate your willingness to communicate with our club on agricultural subjects, and we could not fail to derive advantage from accepting your offer. We should feel obliged to you for suggesting any topics for our discussion, or for any hints that you could give us, with a view to rendering our association more useful.—*H. V., C. H., Bucks, Dec.* 15, 1845.

Home Correspondence.

On the insufficient Amount of Capital applied to Agriculture.—I was gratified in reading in your Paper of January 3, a review of the most striking events of the past year, and more especially your observations on "the disproportionate application of capital to agriculture, as compared with the other great objects of human enterprise;" and your proposition "that the farmer's attention had been hitherto called rather to the price he can obtain for a given quantity, than the amount he can grow upon a given space." Of the perfect correctness of these observations there can, I think, be but one opinion, and I believe that no one can be more fairly entitled to be considered the farmer's friend, than he who impresses upon him again and again these most important considerations, and fearlessly enforces, by reference to passing events, the practical tendency of those arguments, to which you have called our attention. That we live in critical times is undeniable; but, for this very reason we must examine the details of our practice, and endeavour to reduce our system to those right principles, by an adherence to which alone we may either employ profitably those means already within our reach, or tax our energies to devise others. No evidence of this subject will probably be received so readily as that which is given by agriculturists themselves; and it is for the purpose of impressing upon the attention of your readers one or two practical illustrations of the remarks to which I have alluded that I quote as follows:—1st, from a report of Lord Essex's late speech at St. Alban's. His Lordship himself, a practical agriculturist, is reported, *inter alia*, to have stated his intention of supporting in the House of Lords a proposition, should it be brought forward next session, for the introduction of Linseed, Lentils, and Indian Corn into this country free of duty, for the purpose of feeding stock, and says—"It would tend more than any other thing to fill your land with fatness, and your barns with corn. You will find in nine farms out of ten in the course of the year but little horned stock, with the exception of a few cows, calves, and heifers, starving upon straw. This matter is worthy your consideration." Assuming that this picture is drawn from the life, does it not most strikingly bear out your statement; for, as Lord Dacre said at the same meeting "land is a machine employed by capital applied to it." The 2d case to which I would allude, is the report in your paper of Saturday last of the annual meeting of the Blandford Farmers' Club, in which Mr. Sturt, in reference to the agricultural improvements carried out by the Rev. Mr. Huxtable, appears to have borne the most overwhelming testimony to the truth of your observations. After bestowing some rather faint praise upon the *modus operandi* of Mr. Huxtable, Mr. Sturt pointed out what he may well call "the dark side" of the picture, and according to his own imagination represents the probable cogitation of many farmers who were then present, and might have examined Mr. Huxtable's improvement, to amount to this, that their limited capital would be insufficient to provide stock to consume such superabundant produce—to which is added an offer of advancing to his own tenants the capital they might require for that purpose—or in other words render them dependent upon the bounty of their landlord. [Surely, he is only to *lend* money at interest.] Now, sir, to my mind these reports suggest food for the most serious, in some points even painful reflections. Are both these statements correct? is the latter especially mere "imagination," or the naked truth? One thing in the meanwhile is certain, that under such a system that amount of labour cannot possibly be absorbed, which would be turned to a profitable account if a sufficient amount of capital were employed in agriculture. In conclusion, I would earnestly impress upon my brother farmers the truth of your observations, and urge them, as a matter of self preservation, to adopt your thoroughly sound advice and turn their attention in future, less "by the price that can be obtained for a given quantity, than the amount that can be grown upon a given space."—*A Subscriber and Member of the R. A. Society.*

How is Phosphate of Lime rendered available as Food for Plants?—The use which the philosophers of former days made of the phrase "occult qualities" in their disquisitions, affords a frequent subject for ridicule to us moderns. It appears to me, however, that our modern agricultural chemists are justly liable to a similar reproach when they attribute changes (which they are unable to produce in their own laboratories) to that sort of unknown, universal solvent which they term "atmospheric influence." For instance, they state that phosphate of lime remains in the soil inert and useless for the purposes of vegetation, till rendered soluble by exposure to atmospheric influence. Now, phosphate of lime is one of the most insoluble substances in nature, and can only be rendered soluble by the presence of acids; and as there is in almost all soils sufficient carbonate of lime to be incompatible with the presence of any free acid except the carbonic, it follows that the only intelligible explanation is that carbonic acid renders phosphate of lime soluble. Can any chemist assert that phosphate of lime is soluble in carbonic acid?—*P. V.*

"Wayte's Pasture Renovator."—I shall be glad to submit to a competent authority in phytological matters the following inquiry, requesting your obliging reply in your Notice to Correspondents:—We have an implement in this neighbourhood (which ought to be more extensively known, constructed by Mr. Wayte, a machine-maker, at Basford, near Nottingham), for renovating old pasture lands, and newly-laid-down seeds, with Grasses and Clover. Its operation is similar to that of the land-presser, only with this difference, that the edges of the wheels are sharp, adapted to cut into the old turf (an incision, perhaps, 1½ to 2 inches deep), and the wheels are only about 1 foot in diameter, fixed side by side on the axle, perhaps a dozen of them, and removable at a greater or less distance, at will, from each other. In its work, therefore, it leaves the surface of the ground scored in seams, at equal distances, and of the depth above spoken of. The seed is delivered in the usual manner of drill machines, and so as to fall into these said seams; it falls partly on their edges, partly on the sides of the incision (the form of the wheel from the centre to the circumference being wedge-like, leaving a cleft in the ground, as thus —V—), and partly it drops down to the bottom, in which case I have no doubt it perishes, from being buried too deep. The inquiry connected with the above observations is as follows:—Will Grass seeds, generally, and white Clover perish, if sown by the said machine at the present season of the year? I should observe that the ground is dressed over well with soil and manure, which will be also well brushed into the clefts with the brush harrow. My bailiff says the seeds will vegetate quickly, and be killed with the frosts we must of course expect before spring, and that we shall lose our labour. My own opinion is that the seeds will lie dormant; neither die, nor vegetate before it is a seasonable time of year for their growth; that by being thus deposited in the ground now they will acquire a condition ready for early growth. It is an object to us, if we can do it with safety, to get our seed sown now instead of in March, both because the implement will work better on the soft Grass, and because in the more advanced season we are very busy in sowing our spring corn, and have less leisure than now to attend to the pastures. Can you oblige me with your opinion?—*W. P. L.* [The best method of covering seeds is to sow them on a roughly harrowed surface, and then work the land with Mr. Smith's web or disc harrow. Seeds are easily buried too deep, and they would certainly be liable to this in the plan suggested by our correspondent. We would not sow now till late in March.]

To Keep Horses.—Will you kindly inform me the best time to sow Indian Corn; my plot is due south, and sheltered. I wish to grow some as green food, so highly recommended by some of your correspondents, and the remaining portion to ripen, if possible; as I wish to try the effect of it in feeding horses. Have you any experience in its being more fattening than Oats, and is it as well calculated for horses doing severe work as Oats and Beans? My horses being 15 hands high, working a 4-mile stage out and back, equal to eight miles (this twice, and on alternate days three times), I give each three feeds per day, of 4 quarts of Oats and 1 quart of Peas (both ground) for a feed, mixed with 22 lbs. of straw-chaff, on which I find they do well; Carrots and Turnips I find too relaxing for them, although I give a few occasionally. Can you inform me if I should better myself by a change to hay-chaff and ground Indian Corn? Has any of your correspondents found Linseed-jelly prove relaxing to their horses? I had my chaff and ground Corn mixed with it, but my men declared it purged the cattle too much. In the Number now before me (Dec. 27), in answer to "Inquirer," you state that you give straw *ad libitum*; am I then to understand you consider it as nourishing as hay? I know many comparative Tables appeared in the *Chronicle* last year on the subject, but I hear so many various statements it leaves me in uncertainty. With respect to another subject of controversy at present, thick and thin sowing, in this island their main objection rests against the latter, as they would lose a valuable crop of Clover, it being their invariable rule to sow Clover with corn. Do you think the supposed increase would compensate for the loss of green food?—*A Four Years' Subscriber, Jersey.* [Indian Corn you will not get to ripen; try it in your garden, under a south wall, in rows 3 or 4 feet apart. Our horses eat so much Carrots, that, though they have as much straw as they choose, they eat but very little. We do not consider Indian Corn a particularly nourishing food; Barley is far more so. Wide drilling is no hindrance to the growth of Clover among your corn; on the contrary, it will rather favour its growth.]

Farm Capital.—I am induced to recur to the subject of farming rather sooner than I had intended, to assure agriculturists that in anything I have written I have not had the slightest intention of annoying a class of men for whom I have the greatest respect, and whom I consider as the mainstay of the country; and it is because I entertain this opinion, that I have endeavoured to direct their attention to what seemed to me a losing system in tilling the soil. Is it fair to assail a man with such sweeping accusations as have been levelled against me, because I have given instances of apparent apathy, neglect, ignorance, or whatever term may be most justly applied to bad management of crops and land? As well might a magistrate be considered as prejudiced against the whole race of shoemakers for committing half a dozen for transgressing the laws. There are general rules applicable to farming, as in other trades, a deviation from these, in minor points, is often necessary to meet the difficulties of climate, situation, and soil; but this does not alter the principle; it is merely carrying it out in the most approved manner: for instance, if two men are farming, one on a stiff clay, and the other on light rich land, it will be advisable that both should possess capital, the expenditure will be, however, greater in the former case, from the necessity of thorough draining than in the latter, the rich land not requiring so heavy an outlay under this head. Thus capital is wanted by both tenants, although the manner of laying it out depends upon circumstances. I never dreamed of recommending a farmer to risk his money without security, either by lease, or other arrangement with his landlord, with which most agriculturists are well acquainted. I see no reason to alter "the burden of my song," viz., "that no individual should hold a greater breadth of land, than he has capital to plough, sow, reap, and graze with advantage to himself and his landlord." The arguments used against my statements are certainly most decided, being assertions without proof; it is easy to say it is, or it is not, neither of which can convey to the mind of any reasonable man, conviction contrary to common sense. If I have used any expression in my former letters calculated to wound the feelings of any man, I am sorry for it, my only object has been to elicit truth by pointing out error, which I shall still continue to attempt, however imperfectly I may succeed. Not five miles from where I am at present sitting, many acres are undergoing the judicious application of capital at the rate of about 6*l.* per acre; the land is now scarcely worth anything, at the end of two years it will rise in value from 2*s.* 6*d.* to 2*l.* 10*s.* per acre. Surely this is sufficient presumptive evidence in favour of manuring with gold, and offers a tolerable per centage. Those who are at all familiar with rural districts must be aware that this is not a singular instance of what may be accomplished by prudence, science, and money. It is in vain to contend that agriculturists have not the means to speculate with, it only shows they have undertaken a business for which they were not prepared; poverty is no crime, yet it incapacitates a tenant from entering the field with those who have capital; it keeps both himself and his farm poor, and he rarely ever rises in position over one of his own labourers. Cheap food must keep pace with cheap manufactures; how is this to be attained? Not by trying to farm 300 acres on means which are barely enough to cultivate 200, which has hitherto been too much the custom. The joint occupancy of a farm is a very feasible project, and in this way, supposing two men agree to take a farm, one having capital, the other skill, what is to prevent them joining in partnership? A has money, for which he requires interest; B has health, strength, and agricultural science, which he is anxious to turn to the best account, but feels cramped from the want of money, and has an objection to involve himself in debt. B therefore proposes to A, to exchange his experience for the loan of A's gold, securing him against loss of capital in the lease, or agreement with the landlord, promising him high interest, with other advantages, provided he consents not to interfere in the routine of cropping and tilling; a plan of this description might work well and throw capitalists on the land, and attach a new interest to the soil. I should like to hear the unprejudiced opinion of practical farmers on this suggestion; men who look as much to general improvement as to private benefit. —*Falcon.*

Cow Clubs.—I observed in your Paper a week or two ago a copy of the rules of a Cow Club in Derbyshire, and as the subject is an interesting one I beg to forward you a copy of the rules of one that was established here by the Earl of Yarborough, in 1831, which you are at liberty to publish if you think proper. We have now 97 cows in our club, and I also send you a copy of the account for 1844 which will show you the state of the funds, &c. Our rules differ in some respects from those you published; for instance, we pay 10*l.* for every cow that dies, whilst their payment is guided by the supposed value; and, although much may be said on both sides the question, yet I may say that after nearly 15 years' working ours is found in practice to answer well. We are of course careful not to admit cows that are not healthy. I have been connected with the club since 1832, and have not known a single case of abuse arise from paying the 10*l.*

BROCKLESBY AND LITTLE LIMBER COW CLUB.

The object of the Club is to secure each Member, by a system of mutual assurance, from sustaining individually the whole loss arising from the death of a cow; the loss being thus divided amongst all the Members.

RULES:—1st—A Treasurer to be appointed, who shall conduct the business of the Club, and with whom shall rest the decision as to the admission of Members.

2d—Each Member to pay to the Treasurer, on the first Saturday in every Calendar Month, his Subscription (in advance) of One Shilling for each Cow he may have entered.

3d—Any Member whose Cow shall die, to be entitled to receive from the Club the sum of Ten Pounds.

4th—No allowance to be made to any Member in respect of any Cow above Twelve Years of age.

5th—When a Cow dies the skin to belong to the Owner of the Cow; but if the carcase can be sold, the money to be paid to the Funds of the Club.

6th—If a Cow dies in Calving, the Calf to belong to the Owner of the Cow.

7th—Any Member neglecting to pay his Subscription for three successive months to be deprived of all benefit from the Club, and to forfeit what he may have previously paid.

8th—Any Member leaving the District, or ceasing to keep a Cow, to be entitled to receive from the Treasurer his proportion of the Funds then in hand, after deducting therefrom Twenty Pounds which was given by Lord Yarborough towards the Funds on the establishment of the Club.

9th—A new Member to pay on his admission, for each Cow he may enter, such a sum as may be the proportion of the general Funds to which each Cow in the Club would be entitled, after deducting therefrom Lord Yarborough's Subscription of Twenty Pounds.

10th—If the Funds in the hands of the Treasurer shall at any time not be sufficient to pay the allowance for any Cows that may die, the Members immediately to make up the deficiency.

11th—The Monthly Subscriptions to be discontinued at the discretion of the Treasurer, whenever he shall consider the Funds in hand sufficient as a guarantee, until reduced by deaths or otherwise.

12th—On the first day of January, in every Year, the Treasurer to make out an Account, showing his Receipts and Payments during the preceding Year, and the Balance remaining in his hands, and cause the same to be printed, and a copy supplied to each Member.

—*Stephen Gibbons, Treasurer and Secretary, Brocklesby Park, Lincolnshire.*

Potato Disease not caused by Moisture.—I have been digging a plot of ground that has borne a crop of Potatoes this year, both red and white, which were nearly all bad. The same ground was Potatoes last year, and they were not very clean gathered. Several had got dug into the ground 5 or 6 inches deep, and these have produced Potatoes perfectly free from the disease, whilst those in the rows above, only 4 inches deep, were nearly all bad. This convinces me that the disease is not caused by moisture alone, or these would have shared the same fate as those that were planted in the rows above them, the land being both wet and strong.—*J. P., Holderness.*

On the Management of Agricultural Societies.—I perused with much satisfaction your brief observations on the late Smithfield Cattle Show, with the whole of which I entirely coincide; indeed, previous to reading them, the following reflections, and not for the first time, came across my mind. Are the beneficial effects of these meetings to agriculturists at all in proportion to the expence of getting them up? Might they not under different arrangement be much more productive to the farmer in general, and indeed to the whole community? It is pretty generally acknowledged, that from the degree to which the fatting process is carried, a prize animal rarely, if ever, pays its expences. A great loss is therefore incurred in order to prove on the one hand the point of perfection to which a particular breed can be carried, and on the other, the merit or superiority of the animals belonging to a particular person, so that that individual, if a breeder, should have attention drawn to him, and thus he may be compensated by letting and selling his stock at considerable prices, for the great expence and attention he has bestowed to improve them. Now, is the fact of an animal having gained a prize a sufficient proof that he belongs to a family possessing the merit of converting a given amount of Turnips, Hay, corn, and cake, into the utmost quantity of superior meat. Is not the pocket of the feeder very frequently as much conducive to success as the feeding properties of the animal? The Smithfield Club has been established many years, but has it added year after year, as it should have done, to the mass of knowledge which ought to be collected and disseminated on the feeding and fatting of animals? Has it decided which of the three breeds, the Short-horn, the Hereford, and Devon, is the most profitable to graze or feed? These, with many other important subjects, are still matters of opinions, which are as dissimilar as the four winds of heaven, and arise in great measure from the partial experience and prejudice of individuals. One will contend, that there is nothing like a Short-horn, another that a Hereford is the most profitable, and a third that a good Devon is the best; and there are not wanting those who will proclaim the superiority of the old Long-horns, or some other indigenous breed in their own locality. The tyro is disposed to exclaim, Who shall decide when doctors disagree? The Smithfield Club and the Agricultural Societies ought to have decided all this long ago; instead of which, nearly all the valuable knowledge which the agricultural public possess, has been furnished by various private individuals, who have experimented carefully, and published their experiments. For I take it, that it is of far greater importance to know what description of food, or mixtures of food, will fat an animal cheapest, than whether Mr. A.'s or Mr. B.'s cattle are the fattest. And it is of greater consequence, certainly, for a farmer to know what description and breed of animal it will pay him best to tie up, and at what age. The same observations will apply with equal force to the various Agricultural Societies scattered over the country, where the Christmas prizes for cattle are almost invariably carried off, either by neighbouring gentlemen, who fat for honour rather than profit, or by a few farmers, who possess advantages with regard to grazing, which the bulk of farmers do not possess. It is seldom that cattle fatted on Turnips, in stalls or boxes, in the usual method adopted on arable farms, are fit for the butcher before the spring. The above remarks will apply to sheep with equal force; *e. g.*, in this county opinions vary much as to which is the most profitable, the Hampshire Downs, or the pure Sussex. Although the former were not honoured with a prize at the Southampton meeting of the Royal Agricultural Society of England, their advocates are not one jot the less confident as to their more profitable qualities, and boldly assert, that they will make more mutton out of a given quantity of food than the others. Now, how extremely desirable would it be, that such a question, and others of a similar character, should be decided, and how easy would it be for a society possessing such resources as that of England to institute experiments, so as to reduce matters of opinion to matters of fact. In making the preceding observations, I am far from being inimical to either of the Societies animadverted on, but I should like to see them attend more to the *cui bono*, and enable agriculturists to gain profitable knowledge from every meeting they hold, and if possible from every prize they bestow. How desirable would it be to give a certain number of prizes for the animals fed with the greatest profit to the owner.—*W. C. Spooner.*

Societies.

AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

At the late half year meeting of this Society, the report of the council was read, and we make the following extracts from it:—"The Society having now completed the circle of the four provinces, by holding their annual cattle shows consecutively in each, the time has arrived for visiting the province of Munster again, and accordingly measures were taken for selecting the best locality in that province for the purpose. Several places were named as likely to seek for the favour, but the council conceiving that the claims of the city of Limerick were to be preferred, have no hesitation in recommending their adoption. Accordingly, arrangements having been entered into with the local committee for that county, and the proper guarantee having been signed, and presented to the council, at Ballinasloe, the city of Limerick was there announced as the place of meeting for 1846.

"*Draining.*—The council in their anxiety to guard against the consequences of the failure in the Potato crop, and to provide sufficient employment for the labouring population during the ensuing season, passed a resolution requesting the government to give increased facilities to the draining of land, and the lowering and embankment of rivers, as being of vital importance to the improvement of husbandry in this country; and accordingly a deputation waited on the chief secretary at the Castle, for that purpose, who was pleased to express his full concurrence in the plan, and to state that he would bring it under the immediate notice of her Majesty's government. The council have also to state that his Excellency the Lord Lieutenant, in order to promote the system of Potato-planting and thorough-draining in Ireland, and thereby to procure additional employment for the labouring population during the ensuing season, has placed the sum of 500*l.* at the disposal of the council for that purpose, 400*l.* of it to be applied in such manner as the council might advise; and the council having taken the subject into their serious consideration, and with a view to stimulate and encourage the large landed proprietors to come forward upon the present occasion, and to aid and assist their tenantry in the improvements of their farms and the general drainage of the land, come to the resolution to recommend to the general meeting that the sum of 400*l.* should be divided into 32 separate premiums to be distributed among the different counties in Ireland for the promotion of thorough-draining upon the principles contained in the conditions of Sir Richard O'Donnell's gold medal, the competition for which was productive of so much benefit and advantage last year. With regard to the subject of planting Potatoes from the original apples or seed, in pursuance of the suggestions of his Excellency, the council are fully aware of its importance, and are most anxious to carry it into effect; but they feel that the season is too far advanced, at present, to enable the council to offer any such premiums with any reasonable hope of producing any corresponding benefit by doing so. The council, however, are of opinion that much benefit might be produced by her Majesty's government giving increased facilities to the importation of Potatoes for seed from such countries as may be ascertained to have escaped the prevailing distemper."

After a good deal of discussion as to the best method of rendering the sum placed at their disposal by Government, efficient for its intended purpose, it was resolved that the competition for the prizes placed at their disposal by his Excellency the Lord Lieutenant, should be confined to the four provinces, on the principle contained in the terms of Sir Richard O'Donnell's gold medal last year, and that three separate premiums should be given for the purpose in each, viz.:—"1st Prize—To the proprietors of land within each of the four provinces of Ireland who, between the 13th of December, 1845, and the first of September, 1846, shall have effectually thorough drained, in the best and most approved manner, upon Mr. Smith, of Deanston's, principle, the greatest quantity of land in the occupation of tenants, not less than 200 statute acres, either solely at his own expense, or charging a reasonable per centage to his tenants for the outlay—or otherwise by the mutual instrumentality and co-operation of landlord and tenant—A cup, or other piece of plate, of the value of 50 sovereigns. 2d Prize—To the like proprietor, who shall, within the same period, have effectually thorough drained, in the best and most approved manner, and on the same principle, the greatest quantity of land, in the occupation of tenants, not less than 100 statute acres, either at his own expense, or by the like instrumentality and co-operation—A cup, or other piece of plate, of the value of 30 sovereigns. 3d Prize—To the like proprietor, who shall have executed the greatest quantity, on similar conditions, not less than 50 statute acres—A cup, or other piece of plate, of the value of 20 sovereigns.

"*Conditions of Competition.*—That competitors shall declare for which of the above Prizes they respectively enter for competition, and shall not be admitted to compete with the same work for any other. That a full report of the operations should be sent in to the secretary, on or before the 1st September, 1846, containing a detailed statement of the different expenses—the quantity of drains executed per statute acre, and number of perches, pursuant to a form to be supplied for the purpose—the nature of the agreement between landlord and tenants, the average price of labour, and whether by task-work, or otherwise—also, that the labour in the execution of the work, shall be paid for in money and not in provisions or other commodities, or allowed in rent." The Secretary read the following balance-sheet of the receipts and expenditure at the Cattle Show at Ballinasloe, as furnished by the Finance Committee:—

Dr.—To amount of premiums awarded	£638	5	0
Gold and silver medals, do.	56	0	0
Expenses of judges	123	12	0
Sundry expenses connected with the meeting	67	4	6
	£885	1	6
Cr.—By cash received from local committee towards payment of premiums	500	0	0
Ditto entrance fees and lectures	21	4	0
Balance to debit of the society	363	17	6
	£885	1	6

—*Charles Roper, Chairman; Dec.* 15. 1845.

Farmers' Clubs.

SUBJECTS FOR DISCUSSION.

5. What is true Economy in Farming?

It is that method of investing a given capital by which it may be made to yield the largest annual return.

Take certain cases (this is the only way to arrive at certain conclusions):—For instance, to begin at the lower end of the scale, take the case of a man with perhaps not more than 50*l.* to 100*l.* in his pocket—whose capital, in fact, consists for the most part in the labour of himself and his family. He takes a little farm of 15 to 20 acres; Is it his interest to purchase one or perhaps two horses, a cart, a plough, harrows, and other implements? Is it not rather his interest to cultivate the land by manual labour? by the spade or fork? There is ample matter for discussion in the question. Under what circumstances is unassisted spade husbandry profitable? Take another case—that of a man with a capital of 1000*l.* or more, or who can obtain credit to that amount. The best method of investing his money will of course depend on the circumstances of the district in which he is located. If near a market, and permitted to sell any or all of his produce, and buy town manure, the most profitable farming will approximate to the business of the market gardener. If some miles from market, on arable land, he may choose either to take a large farm and *half* cultivate it, in the hopes of reaping a large crop because an *extensive* one, or he may take a farm of half the size, of course paying half the rent, and, being secured by a lease, he may *thoroughly* cultivate it, in the hope of reaping, though off but half the extent, an equally large crop, because an *abundant* one. Which method will be the more profitable?

Other cases may be taken involving the circumstances of the stock-farmer, the dairy-farmer, the grazier, &c.; and similar questions may be proposed. These matters may, of course, be discussed (so to speak) *qualitatively*, *i. e.* merely upon the principle involved in them; and the only reasonable conclusion that can be arrived at is, that a farm *too large* for the tenant's capital tends to impoverish him. But every one will agree in this, because each will place his own meaning upon the words "too large;" and, therefore, if it is intended to be instructive, the discussion must be conducted *quantitatively*, *i. e.* certain cases must be taken, and the amount of capital per acre determined in each, from which, under given circumstances, the greatest profit is derivable. These sums will vary so much as from perhaps 5*l.* to 15*l.* or 20*l.* per acre; so true is it that the business of the farmer is entirely dependant on circumstances, and that however accurately defined may be the principles on which it is founded, these principles, rigid and unalterable as they may be, will nevertheless justify practices of the most opposite character in different districts of the country.

But the discussion on this subject may involve the consideration of items of farm practice, in connection with which there may be a general and yet an unquestionable inattention to economy. Take as an instance the ordinary management of farm manures; and it may involve the consideration of other details, on which opposite sides doubtless will be taken, and each of them plausibly supported. Take as instances, the consumption of roots *on the land* by sheep folded over them *in winter*; the consumption of the produce of our Grass fields dried (as hay) *in winter*, instead of *green* (on the pastures) *in summer*; the policy of applying manure *long* and *fresh* as a *top-dressing*, instead of rotten under ground. But economy in farming, in point of fact, involves the whole principle and detail of farm practice, and these subjects will each of them supply matter for discussion amply sufficient to occupy an evening.

Northampton Book Club, Jan. 10: *On the use of Lime, and the best mode and time of applying it.*—Lime is extensively employed in agriculture in this county, and the subject excited an animated discussion amongst some of the leading members, who annually use large quantities of it; the following resolution was passed unanimously, "That lime is a necessary constituent of all soils; and, when applied, it should be immediately and thoroughly mixed with the soil when the land is in a dry state, and that the application of it should be at as great a distance of time from the application of manure as the rotation adopted will admit of."—*Wm. Dunkley, Sec.*

Isle of Thanet: *The Annual Ploughing Match.*—The dinner took place at the Fountain Inn, Margate, Dec. 2. J. Cramp, Esq., of Garlinge, presided, supported by several magistrates and gentlemen of note in the neighbourhood. In proposing "Success to Agriculture," the chairman laboured to show its vast national importance. Quoting from "Spackman's Resources of the British Empire," and "M'Culloch's Statistics," he dwelt at length on the amount of capital invested, the number of hands employed, and the quan-

city of food produced. Mr. Cramp then instituted a comparison between the countries of England and France with reference to the Corn-laws; also the difference in the expences of cultivation here and in France. The following is his published statement on this head.

The comparative costs of production in the two Countries, may be thus stated:—

To cultivate 150 Acres of Arable Land, in England, upon the ordinary or common system of cultivation, if well managed, will cost per annum £900 0 0

LESS IN FRANCE.

		£	s.	d.	£	s.	d.
By Tithes ..	At 8s. per annum	60	0	0			
,, Rates ..	Poor, County, Highway Church, and Assessed, 4s. per acre	30	0	0			
,, Rent ..	One-third, from 25s. in England, or 8s. 4d. per acre	62	10	0			
,, Horses ..	Six at 20l. per horse in England,—one-third less ..	40	0	0			
,, Labour..	4 Ploughmen, at 25l. £100 0						
	4 Labourers at 31l. 10s. 126 0						
	2 Boys at 8s. per week 20 16						
	£246 16	49	7	0			
	Deduct (only) one-fifth, an English Labourer being much superior to a French						
,, Tradesmen..	Iron in France very dear, Wood very cheap ..						
,, Seed Corn..	One-third from 87l. the cost in England	29	0	0			
,, Manure ..	One-third from 30l., Oil-cake, &c.	10	0	0			
,, Interest on Capital	Wear and tear, less by 400l.	40	0	0			
					320	17	0
					£580	3	0
To which must be added a District Tax, called the "Contributions" which ranges about 1s. 6d. per acre		11	5	0			
And the "Octrol," a Tax upon all Commodities carried into Towns, which may be stated at 1s. per acre		7	10	0			
					18	15	0
					£598	18	0

[We do not publish the first part of this document, as it bears upon a political question with which this paper has nothing to do.]—On the health of the magistrates of the eastern division of the county being drank, Sir Brook William Bridges, Bart., replied. He considered it his duty to support this association, and he urged all present, landlords, tenants, and others, to put their shoulders to the wheel, to employ every means in their power to produce food for our enormous population. He approved of such meetings as this because they connected the different classes of society, fostered a friendly feeling in every breast, and rewarded industrious merit. During the evening about 30 labourers and servants entered the room and received at the hands of the secretary of the association various rewards.

Farm Memoranda.

WHITFIELD FARM, WOTTON, GLOUCESTERSHIRE.—In my last notice of this farm (see page 13), I stated that nearly 8000*l.* had been spent on it by the landlord. The exact sum, omitting fractions, was 7828*l.*, and it was spent thus:—

On roads and bridges	£	451	0 0
Grubbing up hedges, tree roots, levelling, &c. ..		1414	10 0
Drainage		2066	0 0
Fences and walling		111	0 0
Subsoil ploughing		181	0 0
Liming		626	0 0
Buildings		2978	10 0
		7828	0 0
The valuation of the farm, in 1840, by an eminent professional man from Bristol, was		200	0 0
Since then land has been added to the farm of the value of		30	0 0
Making its annual value in its original state ..	£	230	0 0

The valuation of the farm (rather high, as I consider it) by the same person, in 1843, was 564*l.*; so that it had increased in annual value during those three years by 334*l.*, which is about 4¼ per cent. upon the sum spent. This is by no means a very large return from the outlay—not nearly so large as we often hear of in other instances; but the expenses were in some instances necessarily, and in others (according to our improved knowledge) unnecessarily greater than those incurred in other cases of a similar kind. As an instance of the first, look at the two first items for roads and for grubbing up hedgerows and levelling. Few estates are so utterly in a state of nature as to require an outlay of about 8*l.* an acre, which this amounted to, in levelling and road making. And then look at the item of 2066*l.* for the drainage of about 200 acres (the whole of the farm did not need draining). This operation (though somewhat more costly in the case of Whitfield, owing to hedgerows, Willow-beds, quarries, and other such like hindrances) need not have cost so much per acre, had the cheap pipe-tiles been then manufactured. Upwards of 1000*l.* were spent in tiles, stones, and hauling; and it is not too much to say that this sum would have been reduced to 400*l.*, had pipe-tiles been used instead of the ordinary tiles and flats, or stones. And, lastly, the item of 2978*l.* 10*s.* might have been considerably less; thus, 628*l.* were spent in the erection of threshing machinery of a new description. I mention all these things, lest the reports of Whitfield farm, which have been extensively published, should have had the effect of deterring landowners from setting vigorously to work in the permanent improvement of their estates. The comparatively small interest which Lord Ducie derived in this case for the large outlay he incurred, was owing to causes which are not now in existence, or which need not be in the way. Improved methods of execution, and the examples which his lordship's experience affords, will much cheapen future operations of a similar kind. I will shortly send you an account of the buildings which have been erected on this farm.—*M. S.*

Reviews.

Essays on Various Subjects, by Members of the Stewponey Farmers' Club, during the Year 1844. London: Simpkin, Marshall, & Co.

THE STEWPONEY FARMERS' CLUB is one of the most efficient of any we know. It has gone the length of publishing the Essays read by its members at their monthly meetings. And a very valuable series of papers they are. We have, in this little volume, essays on mixing and deepening soils; on keeping and using cart-horses; on the relative value of artificial manures; on the cultivation of Turnips; on the management of Grass lands, and the best rotation of green crops; on the management of sheep; on the best method of harvesting corn; on the management of fences; on the advantages of draining; on the best method of bettering the condition of the agricultural labourer; on farm accounts, and on farming leases. And it would be difficult, if not impossible, to name another dozen of subjects of equal importance to the farmer, or more suitable for discussion by a Farmers' Club. Some of these Essays we have already laid before our readers; that, for instance, by Mr. Maughan "On Leases," and others; and we shall, for the present, confine ourselves to the first paper in the volume—that by Mr. Mathews "On Deepening Soils." And we refer to this especially for the purpose of quoting his excellent remarks on the benefits derivable from discussion and intercourse amongst farmers. He says—

"In towns and populous districts association is easy of attainment, and the inhabitants thereof have the advantage of this admirable mode of eliciting knowledge by a constant collision of their wit and intellect with that of others. An evening is seldom spent alone, and their daily occupation compels a constant interchange of reciprocal mental benefits. With the farmer it is far otherwise, his locality is insulated, and his occupation in a great degree solitary. He has to surmount serious practical obstacles to effect an association with his fellow men, and it unfortunately happens that in the season of the year when many circumstances combine to give him leisure, those practical obstacles are augmented, and it requires more than an ordinary degree of energy to overcome them. His neighbours are not at hand, his paths are neither smooth nor clean, he is compelled to call to his assistance the aid of his horse, the horse involves a man, and both involve expence. He has besides with considerable mental exertion, to get the better of an awful *vis inertiæ*, which is engendered by early rising, long continued exercise, and exposure to the sedentary influences of a cold atmosphere. Thus it is, that the every day business of a working farmer has hitherto prevented him even the disposition to acquire the elementary principles of the first of human occupations, and has rendered him incompetent to register and to reflect with practical advantage on the daily observations of a long life.

"These obstacles are much aggravated by the mistaken feeling too prevalent with the working farmers, that he has not done his duty, unless at the close of each day he has thoroughly exhausted his physical strength, so that day after day, week after week, year after year, his life and energies are consumed by hard bodily labour. In good truth he lives by the sweat of his brow, and too often forgets that Providence has planted a spirit underneath it which calls for some share of his daily attention.

"Farmers are now learning what ironmasters, chemists, and manufacturers long ago discovered to be good economy: viz., to abandon a certain portion of their manual labour, in order to leave their mental energies sufficiently awake to receive beneficial impressions, to study the *rationale* of their business, and not to receive anything as conclusive truth unless supported by good sound sense and intelligent reasoning; they are learning, indeed they have learnt, that there is no more necessity for a farmer's mind to lie fallow, than there is for his land. But as I have said there are obstacles to be encountered, and obstacles which unless met and dealt with manfully and courageously will still prove stumbling-blocks to his advancement. He must be impressed with the necessity of bringing a small portion of his physical energies to his fireside at the close of every day, and consider that he has not done his duty to his land, to his stock, or to his labourers, till he has devoted some portion of his time to the attentive consideration of how each is to be benefited and improved.

"The subjects suggested for our consideration during the ensuing year, are admirably selected, both as affording us amusement and instruction; and we can none of us well and attentively consider them without finding ourselves at the close of the year much more intelligent and much better farmers than we are now.

"Gentlemen, we must meet, and talk, and think, and there is no doubt but that by individual contributions (for we can all throw in our mite), our common stock of knowledge will be much increased—and increased, I trust, to a degree, that will fully and amply repay us for the cost and trouble of attaining it."

The subject of Mr. Mathews' essay is the advantage of mixing and deepening the soil, and this he illustrates by an extraordinary case in point. We have merely room for the passage in which he details his experience, but we recommend our readers to obtain this little book, and benefit by the perusal of the whole of this essay, as well as of the other valuable papers it contains:—

"I selected 15 acres of land, of a very impracticable character, and in its then state almost valueless. I chose it the more on that account, and from its contiguity to the turnpike-road which it adjoins, and from which I knew it would be seen by all my neighbours, and by such agricultural persons as chanced to travel by it. I found I could only compass seven acres of it the first year, and it is to that seven acres my observations will apply. I trenched it in 1840, retrenched it in 1841, and have had two crops off it subsequently; so that having had it under a process of improvement for four years, I am enabled to lay before you the experiment in its extended and ultimate form.

"When I first examined the field, I found about five inches of what was called soil, and I soon discovered that in wet weather it was very wet, and in dry weather it was very dusty. The immediate subsoil was a siliceous concrete, impervious to water, in which was imbedded a great quantity of large pebble-stones, but not at all in the character of gravel; below that was a tolerably fair quality of loamy red sand. I trenched it 24½ inches deep, and as I had to stock through the concrete and remove the stones, it was an operation of very considerable expense. I then planted with Carrots. The second year I retrenched it the same depth, and took early Potatoes. The third year I manured it for Turnips, and the fourth year I was bold enough to plant Wheat, where Wheat had never before grown, and a much better crop I have seldom seen.

"The detail of my expenditure and receipt is as follows:—

		£	s.	d.	£	s.	d.
1840	EXPENDITURE.						
Trenching 24½ inches deep, taking out 1700 tons of stones, sowing Carrot-seed, hoeing, getting up, and marketing, 25*l.* 10*s.* per acre		178	10	0			
Rent, Levies, and Tithe		7	0	0			
1841					185	10	0
Retrenching		36	7	3			
Seed Potatoes		26	10	6			
Soot put in with the Sets..		3	10	0			
Planting, cleaning, getting up, and marketing		15	0	0			
Rent, Levies, and Tithe		7	0	0			
1842					88	7	9
Manure, 70 tons, at 10*s.* a ton		35	0	0			
Bones and soot drilled with seed ..		14	0	0			
Turnip-seed, drilling, and cleaning. ..		10	10	0			
Rent, Levies, and Tithe		7	0	0			
1843					66	10	0
Seed-wheat, six bags		6	0	0			
Ploughing and drilling		3	10	0			
Rent, Levies, and Tithes		7	0	0			
					16	10	0
Total					356	17	9
1840 RECEIPT.							
Stones sold to turnpike surveyor ..		47	5	0			
Sixty tons of Carrots at 50*s.*		150	0	0			
Five tons of small consumed		5	0	0			
					202	5	0
1841							
Potatoes sold in the field		83	0	0			
Small Potatoes consumed		5	0	0			
					88	0	0
1842							
Turnips consumed and drawn off ..					28	0	0
1843							
Eighty bags of Wheat at 19*s.*					76	0	0
Total					£394	5	0

"This, gentlemen, is the result of an experiment under which I believe a greater outlay has been made in manual labour than has ever been expended before upon land of a purely agricultural character. The improvement in the quality of the soil is visible to all who see it, and I think cannot be estimated at less than 1*l.* per acre to rent."

Miscellaneous.

Prospects of the Guano Trade.—The arrival of the mail with letters from Lima enables me to give you correct data, which may be useful, and certainly are important to the English creditors, who ought to be quite aware of the real state of the guano fund, and prepared to act upon that knowledge when the Minister Plenipotentiary, Mr. Ythirroya, arrives. His appointment has been finally announced to Her Majesty's Government, and he is expected by the next steamer from the West Indies. No doubt one object of his mission is to make some arrangement with the English bondholders. The Lima papers of July are occupied with his mission and with the guano question. The Executive had submitted to Congress the proposal of "an extension of the time of the original contract, in favour of the contractors, and permission for them to ship 10,000 tons more guano, for which they had offered to advance the Government a further sum of 203,000 dollars, or, at 48*d.* the dollar, about 40,000*l.*". Congress refused to pass this measure, which was then pending, I may here say, that the first contract permitted the contractors to export 120,000 tons guano, within a limited number of years. This term expires in 1846. The contractors had, however, only shipped 30,000 tons up to July last; and supposing that they have since then shipped 20,000 tons more, it is evident that they must get the remaining 70,000 tons shipped off in the next 12 months. They are naturally very anxious to have the period of their lease extended, and offer this 40,000*l.* bonus for this object. But the Congress having now become aware of the immense value of the guano fund, are not inclined to part with it, and wish rather to make it available for re-establishing the finances and credit of Peru. The Minister now expected may, therefore, be empowered to deal with it in treating with the bondholders. When the Peruvian

Government, in 1841, gave a lease of five years to the contractors (for a loan of 100,000*l.*) authorising them to export 120,000 tons for account of the Government, the value of the guano in Europe was not known, and it was supposed that 20,000 tons per annum would be the extent of the consumption. They now view it very differently, the consumption in 1845 having reached 130,000 tons, and the probable demand for 1846 being 150,000 or 200,000 tons. They are aware likewise that the African guano is exhausted. Congress, therefore, argue that it would be a folly to forego the resource which such a fund offers to Peru for the paltry consideration of 40,000*l.*; inasmuch as even supposing that Peru only shipped 50,000 tons per annum, the net proceeds, after paying freight and all charges at the present price here, is about 4*l.* per ton, or 200,000*l.*, which would not only pay the dividends on the English debt, about 100,000*l.*, but leave a large surplus for other objects. This position is perfectly correct, and were the Government of Peru on the termination of the contract to ship it to their own agent in Europe, or as the talented leader of the Opposition in Congress, Mr. Tirada, suggests, to sell the liseners to load guano—there is little doubt of this revenue or much more being derived from it, on the most moderate calculation. On the other hand the contractors' representatives in Lima appeal through the press for the extension of their lease—1st, On the ground of the hardship to them in not having had sufficient time to sell the quantity granted to them, and not having yet reimbursed themselves for the 100,000*l.* advanced to the Government; 2d, On the interest of Government in preserving a monopoly of the export to the contractors in England, because they argue that the price can thus be maintained high, and such part of the net proceeds as the Government chose, can be devoted to buying up the bonds in England at their present reduced value, by the houses of the contractors, for account of the Government—a proceeding, they say, which would be inconsistent with the honour of a Government if they themselves attempted it. This last argument, though gravely advanced by the contractors' representative in the Lima papers, is, I am happy to say, repudiated by the Executive, as the Minister in submitting the project to Congress, expressly informs them, that not only is "Peru honourably bound to fulfil her engagements, but that, by a special agreement, ratified by the official dispatch of the 15th January, 1842, to the British Minister, the one-fourth of the net proceeds of the guano is specifically pledged to the payment of the British bondholders." Such is a brief outline of the guano question. It is evidently the interest of the British creditor that Congress should persist in refusing to concede any more time to the contractors, and should apply the guano fund in a direct shape to meet its engagements, for which it is ample. If the contractors have not exported all the quantity originally conceded to them, it is their own fault; they have aimed at a large profit by limiting the supply, and enhancing the price to the consumer, and have defeated their object. Still, they cannot complain of small profits, for supposing them to get only 70,000 tons of the 120,000 they might have brought, they realise a net proceed of 4*l.* per ton, or 280,000*l.*; thus leaving 180,000*l.* balance in favour of the Peru Government, after repaying themselves the loan of 100,000*l.* This 180,000*l.* ought to be applied to pay the English creditors; instead of which, they, under the terms of their contract, assume the right to pay it over to the Government in the same nominal amount of bonds, which, supposing them to cost the present price of 35, is only 63,000*l.*, leaving them a profit of 117,000*l.*, besides 5 per cent. commission on the gross sales, which, at the present price of 10*l.* per ton, is 700,000*l.* gross; five per cent. on which is 35,000*l.* Their appeal, therefore, *in formâ pauperis*, will hardly be deemed reasonable. You will understand that all the guano that has come or is shipped by the contractors is still for account of the Government, subject to the repayment of the original loan of 100,000*l.*; and the contractors' profit is the commissions and charges on the sale; and the further large profit which I have named of paying half the proceeds to the Peruvian Government in their own bonds, bought *sub rosa*, at a depreciated rate, thus departing from the real meaning of the specific agreement made by Peru with the British Minister, by minute of 15th January, 1842, to apply one-fourth of the net proceeds to the British creditor. —*Correspondent of Morning Herald.*

CALENDAR OF OPERATIONS.

JANUARY.

Management of Live Stock.—As we said last week, Mr. Warnes' system of box-feeding is perhaps as good a method of converting hay, roots, and other food into beef, as any of the other systems, such as stall, yard, or hamel feeding. It is, however, applicable only to those animals which are feeding for the butcher. The main points to be attended to are to keep them well supplied with litter, and to be regular in giving them the requisite quantities and kinds of clean food in a clean place. We have at present 34 head of cattle in boxes, and 10 in stalls. They are all littered early in the morning, the latter being cleaned out, and then fed with a basketful (weighing about 50 lbs.) of cut Swedes. A large beast will eat this up clean, and then lie down for two or three hours. A lot of chaff from the thrashing machine, or cut straw, is laid before each beast as it is lying down, and they eat some of it. It is a good plan to prepare this chaff thus:—Boil ¼ lb. of Linseed-meal per gallon of water in a boiler, and put in two or three handfuls of salt, then spread the chaff out and throw this liquor over it. The savoury taste and smell thus imparted, will induce the animals to eat. About 11 A.M., all those beasts that get oil-cake receive their allowance. Some of them get from 4 to 12 lbs. of a sort of porridge of Linseed and Pea-meal, mixed up with chaff, at this time. At 1 P.M. they all get about ½ of a basketful of cut Swedes again, and before night they again receive a basketful, with some straw chaff. Of course the actual quantity given each time must be regulated according to the ability of the animal to eat, and each time the trough should be thoroughly cleaned out. The fatting beasts in stalls and hamels may be fed in this way also; they will not require any water. The young beasts in yards may be kept in good store condition till Christmas on Turnip-tops, *ad lib.*, and Oat straw, water being supplied to them; and after Christmas they should receive a few roots, say a basketful a-piece in the day along with the straw. Those of them which are intended for fatting in the ensuing year, should all through winter receive a little (say 1 lb.) oilcake daily each. Our practice on this farm is to buy in stock in autumn and sell in spring, but we shall soon be able to state the experience of an excellent farmer as to the policy of feeding young stock well during their first and second winters.

Cows will soon begin to calve; we shall early next month enter at some length into the subject of their management.

Sheep in sheds should this month be making about their best progress. Those intended for the butcher after shearing in May, should have received from the 1st Nov. Peas, Oats, or oilcake, commencing with ¼ a pint of the first, ½ of a pint of the second, or ¾ lb. of the third, and increasing gradually up to ½ of a pint, 1 pint, and 1 lb. respectively each. They will eat with these from 15 up to 25 lbs. of cut Swedes each daily, according to the weight of the animals. It is a fair rule to go by, that an animal when full grown will eat daily of green food a weight equal to one-quarter the weight of its carcass, when in fair condition, and it may be assumed that the oilcake given will reduce the quantity of Swedes required, by about 8 lbs. of the latter for every pound of the former. A good crop of Swedes pulled and cut, the sheep being folded on the land, will keep 10 sheep for five months per acre; the same crop may be assumed as equal to the keep of 13 or 14 under shed. We have 350 sheep so kept this winter; they eat about 3½ tons of roots daily, and a lad about 19 years old, with two boys under him, manage the whole. They are placed on two sides of a long yard, which is sheltered on each side, and the space under shed is divided into pens, about 10 feet by 15; in each of these pens 10 sheep are kept. They are littered as often as the straw becomes wetted, which is about twice a week, and the manure is removed from beneath them about once a month. We pare their feet once a month, and whenever there appears the least growth of soft spongy matter like that which precedes foot-rot, it is cut, and a little nitrous acid is placed upon it. We have had no foot-rot as yet, and though this mode of feeding has hitherto been liable to produce, or at least develop that disease, we hope to have escaped it this season. The Sheep are fed three times a-day, about 8 lbs. of Swedes a-piece being given them the first thing in the morning, half a pint of Peas about 11 o'clock, 4 lbs. of Swedes at 1 P.M., and 8 lbs. in the evening. With regard to Pigs, Potatoes or Swedes (perhaps 30 lbs a-piece daily to large hogs) and Barley-meal or Indian Corn, or light Wheat, ground (4 lbs a-piece daily), is as good and fattening food as they can receive, *i. e.* except on dairy farms where skim milk or whey can be given them. Sows may be put to the boar at this season, and their pigs will then be ready for the stubbles in September.

Notices to Correspondents.

ANNUAL AVERAGE PRICES OF WHEAT.—*R R.*—"Where can these be obtained (the annual average) for the past few years?" We do not know. There is a chart on the subject published by Mr. Wyld, Charing-cross East, but the information which it gives extends only up to 1840.

DISSOLVED BONES.—*A Young Farmer.*—2 cwt. to 2½ cwt. per acre dissolved in 1 cwt. of sulphuric acid, and diluted with water in such quantity as will enable you to spread that quantity over an acre by means of a water-cart, will be a good dressing for Grass land. Apply it as soon as the land is dry in April.

DRAINING.—*A Young Landlord.*—We would drain clay lands 3 feet deep, at intervals of 6 yards. If it contain springs, these must be led off the land by channels proper for them. The uniform drainage necessary on all clay lands is for the purpose of so drying it as that *the rain water* as soon as it falls shall always sink in just where it falls, and run off by the drains. Clay land thus drained will, after a hot summer has, in union with the drains, once thoroughly dried it, have lost in a great degree that plastic texture which, wetted *as it now is*, makes you think it impossible to drain by channels 3 feet deep.

FARM BUILDINGS FOR 150 ACRES.—*A Sub.*—There is no absolute *need* for a barn at all, unless you so call a floor for a thrashing and winnowing machine, and an adjoining one for a granary, as well as a house for the straw. Your corn crops may be stacked outside, close by the thrashing barn. You will need a stable for three pair of horses, and sheds for cattle and sheep, as well as pigsties, all of extent proportioned to the fertility of the land and the mode of its cultivation, and you will want a shed for carts and implements. All we can do for you in the mean time is, to refer you to the 8th vol. of "The Highland Society's Transactions," where you will find plans of buildings suited to farms of various sizes and under various modes of cultivation.——*R L.*—Please to excuse a delay till next week.

GLASS MILK PANS.—*A Subscriber* asks our correspondent "Glan Hafren, Welshpool," to be kind enough to say where he procured his glass milk pans, their cost and size; also if he has used them for some time. He says that several farmers are awaiting the result of this inquiry. [We should be particularly obliged by your remarks on Dairy Farming.]

HAND FLOUR-MILLS.—*Melibœus.*—You are quite safe in Mr. Dean's hands; he is the best authority on the subject you can apply to; he has several machines—they obtain an extensive sale to colonists and others leaving the country.

MARKETS.—*Sub.*—Short-horn cattle for feeding may be bought at any of the fortnight fairs in the north of England—Newcastle, Durham, Bedale, Northallerton, Thirsk, and Darlington, are all places well supplied with well-bred bullocks and cows. At several of these places chartered fairs are held, at which cattle for grazing are usually bought. The fair on the first Monday in March, at Darlington, is celebrated for its supply of short-horns for summer feeding.

Markets.

SMITHFIELD, MONDAY, Jan. 12.—Per stone of 8 lbs.

Best Scots, Herefords, &c. 4s	0 to 4s 6	Best Downs & Half-breds	4s10 to 5s 2
Best Short Horns	3 8	4 0	Best Long-wools	4 6	4 10
Second quality Beasts	3 8	3 4	Ewes and second quality	4 0	4 4
Calves	4 4	4 8	Pigs	3 8	4 0

Beasts, 2292; Sheep, 21,210; Calves, 62; Pigs, 330.

We have to-day a full supply of Beasts, and a very dull trade. Prices are, for the most part, lower. The best Scots, &c., however, are still making 4s 4d per 8 lbs. Several of inferior quality remain unsold.—We have but a moderate supply of Sheep; the general quality is, however, good. Trade is heavy at rather lower prices.—Veal trade continues steady.—Pork trade is very heavy, and prices considerably lower.

FRIDAY, Jan. 16.

Beasts, 702. Sheep, 3910. Calves 99. Pigs, 270.

The number of Beasts fresh up to this day's market is not very large, but quite adequate to the demand. The mild weather causes a very slack attendance of buyers, and much stock remains unsold. The best Scots, &c., make about 4s 2d, and Short-horns barely 4s; Second quality 3s 8d to 3s 10d.—Although we have but few Sheep in, there are more than the trade requires. We have not for a very long time noticed so little disposition to purchase. The best Downs barely make 5s, and Long-wools 4s 8d to 4s 8d; Ewes, &c., 4s to 4s 4d.—Veal trade generally is hardly so good, but a choice Calf still makes about 4s 6d.—Pork trade continues very heavy.

G. West Smithfield.

ENGLISH TIMBER AND BARK.—Jan. 12.

Round Timber, perload.		Plank, per foot cube.	Inch board, per ft. sqpe.
Oak	2l 15s to 3l 15s	2s 6d to 3s 2d	4d to 6d
Ash	5 0 7 10	2 6 4 2	3 6
Elm	3 0 4 10	1 9 2 6	2 2½
Beech	2 10 3 10	1 6 2 3	2 2
Lime	3 10 4 10	2 0 2 6	2½ 5d

Oak Bark (per load of 48 cwts.), 18l. to 16l. 5 0s.

COVENT GARDEN, Jan. 17.—The supplies have been well kept up during the past week, and prices have varied but little. Trade remains much the same. Pine-apples are tolerably abundant, and good in quality. Hothouse Grapes are scarce, but foreign sorts are good and equal to the demand. Good dessert Apples are also scarce, and the same may be said of Pears, among which we observed a few good specimens of Benré Rance, which is now beginning to make its appearance. Oranges are pretty plentiful, and Nuts of all kinds are sufficient for the demand. Among Vegetables Asparagus is rather more plentiful, and consequently a little cheaper than it was last week. Plenty of good Seakale may be obtained at last week's prices. The supply of Broccoli, Brussels Sprouts, and other winter Greens, is good, white Broccoli from Cornwall fetching from 1s. to 3s. per dozen heads. French Beans have not altered in price since last week, nor has Rhubarb, which is every week becoming more plentiful. Celery is excellent in quality, and sufficient for the demand. Potatoes are, generally speaking, of better quality than they have hitherto been, and they are rather if anything, lower in price, the very best samples, however, still bring 8l. a ton. On several of the stalls we observed good-looking samples of Chiccory, but being a new article in the market there is as yet little demand for it. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Poinsettia pulcherrima, Jasmines, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Cinerarias, Gardenias, and Roses.

FRUITS

Pine Apple, per lb., 4s to 6s		Lemons, per dozen, 6d to 9s	
Grapes, Hothouse, per lb., 2s to 6s		— per 100, 4s to 12s	
— Spanish, per lb., 0s to 1s		Almonds, per peck, 0s	
— Portugal, p. lb., 1s to 2s 6d		Sweet Almonds, per lb., 2s 6d to 3s	
Apples, Dess., per bush., 4s to 10s		Filberts, English, p. 100 lbs., 40s to 45s	
— Kitchen, 2s 6d to 3s 6d		Nuts, Cob, per 100 lbs., 50s to 70s	
Oranges, per dozen, 6d to 2s		— Barcelona, 30s	
— per 100, 2s to 12s		— Brazil, 16s	
— Seville, per 100, 8s to 16s		— Spanish, 14s	
— per dozen, 2s to 3s 6d		Chesnuts, per peck, 4s to 8s	
		Pears, per bl.-sv., 3s to 10s	

VEGETABLES.

Cabbages, per doz., 6d to 1s 6d		Celery, per bunch, 6d to 1s 6d	
— red, per doz., 2s to 3s		Cardoons, each, 6d to 9d	
Brussels Sprouts, p. bl.-sv., 1s to 2s		Parsnips, per doz., 3d to 1s	
Savoys, per doz., 6d to 1s		Mushrooms, per bundle, 1s to 1s 3d	
Broccoli, Brown, per bdle., 6d to 1s 6d		Salsify, do., 1s to 1s 6d	
— White, 1s to 4s		Onions, per bushel, 1s 6d to 3s	
Greens, per doz. bunches, 2s to 3s 6d		— pickling, per bl.-sv., 2s to 3s	
French Beans, per 100, 2s to 3s		— Spanish, per doz., 1s 6d to 4s	
Sorrel, per bl.-sieve, 9d to 1s		Shallots, per lb., 6d to 8d	
Potatoes, per ton, 80s to 100s		Endive, per dozen, 6d to 1s	
— per cwt., 4s to 5s		Lettuce, per score, Cab., 4d to 9d	
— bushel, 2s 6d to 4s 6d		— Cos, 6d to 1s	
— Kidney, per bushel, 4s to 5s		Radishes, per doz. bunches, 1s to 1s6d	
Turnips, per doz., 1s to 2s 6d		Mushrooms, per pottle, 2d to 3d	
Red Beet, per doz., 6d to 1s 6d		Small Salads, per punnet, 2d to 6d	
Carrots, per doz. bchs., 2s to		Fennel, per bunch, 2d to 3d	
Horse Radish, per bundle, 1s 6d to 3s		Savory, per bunch, 4d to 6d	
Seakale, per punnet, 1s to 2s 6d		Thyme, per bunch 4d	
Rhubarb, per bundle, 2d to 3d		Watercress, p. 12 sm. bun. 4d to 6d	
Asparagus per bundle, 3s to 4s		Parsley, per bunch, 1d to 2d	
Cucumbers, each, 1s to 2s		— Roots, per bundle, 1s	
Spinach, per sieve, 1s to 2s		Tarragon, per bunch, 6d	
Leeks, per doz. bunches, 1s to 2s		Mint, green, per bunch, 6d to 9d.	
Garlic, per lb., 6d to 8d		Marjoram, per bunch 4d	
		Chervil, per punnet, 2s 2s 6d	

POTATOES.—SOUTHWARK, WATERSIDE, Jan. 14.

The arrivals to this market since our last report have exceeded any former arrivals in one week during the present season, and with the exception of a few cargoes that had made a long passage, the Potatoes generally are in tolerable condition, but the supply was too large for the demand, and considerable deductions were submitted to. The prices ranged as follows:—York Reds from 80s to 120s per ton; ditto Regents, 90s to 140s per ton; Scotch Reds, 60s to 90s per ton. There are three cargoes of Jersey Blues in the market selling at 60s per ton, also one from Spain and one from France, selling at 80s per ton. Several of the higher quotations may be considered nominal. The market this day is excessively heavy in consequence of the town mills being so liberally supplied on Saturday last by the railway conveyance, besides which Vegetables are unusually abundant and cheap. There continues to be large arrivals from Scotland by the steamboats, many of which were shipped in an unsound condition; and as the buyers have been deceived by them with previous shipments, it is found very difficult to dispose of some of the samples at any price.

HOPS, FRIDAY, Jan. 16.

The market continues firm at full prices, and choice samples are scarce.

PAYNE, SON & SMITH, Hop-Factors.

HAY.—Per Load of 36 Trusses

SMITHFIELD, Jan. 15.

Prime Mead. Hay	85s to 98s	New Hay	—s to —s	New Clr.	—s to —s
Intr. New & Rowen	65 75	Clover	80 to 110	Straw	0 14

JOHN COUPER, Salesman.

CUMBERLAND MARKET, Jan. 15.

Prime Mead. Hay	90s to 98s	Old Clover	110s to 115s		
Inferior	70 84	Inferior do.	98 105	Straw	34s to 36s
New Hay	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

MARK-LANE, MONDAY, Jan. 12.

Notwithstanding the supply of Wheat by land carriage, samples from Essex, Kent, and Suffolk, was but moderate this morning, it could not be disposed of excepting at a decline of 2s. per qr. upon the prices of this day se'nnight. In free Foreign there is very little doing, buyers being unwilling to comply with the demands of holders. In Bonded we did not hear of any transactions; but floating cargoes, both soft and hard, are inquired after on speculation, as well as for export.—Best Barley maintains its late value, but secondary quality is very unsaleable, and 1s. per qr. lower.—White Peas are 2s. per qr., Maple and Grey 1s per qr. cheaper.—Beans sell slowly on the terms of last week.—The sale for Oats is quite in retail, but they fully maintain last Monday's quotations.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	58	67	Red	54	62
—— Norfolk, Lincolnshire, and Yorkshire	57	63	White	56	63
Barley, Malting and distilling 31s to 33s Chevalier	33	36	Grind	27	30
Oats, Lincolnshire and Yorkshire	22	26	Feed	20	24
—— Northumberland and Scotch	23	26	Potato	24	28
—— Irish	20	24	Potato	24	28
Malt, pale, ship	54	60			
—— Hertford and Essex	60	68			
Rye	31	37			
Beans, Mazagan, old and new 28 to 42	Tick	31	44	Harrow	34	46
—— Pigeon, Heligoland 37 to 46	Winds	40	48	Longpod	32	34
Peas, White 40 to 44	Maple	33	35	Gray	30	34

FRIDAY, Jan. 16.

The arrivals of all Corn during the week have been very moderate, but so little business has been transacted in any description, that prices of each, either English or Foreign, may be regarded as entirely nominal; there has been a partial inquiry for Bonded Wheat, and sales have been made at 54s. to 58s. per qr. for Dantzic; good Rostock as low as 51s. Fine Polish Odessa afloat continues to be held firmly at 48s. per qr. f.o.b. cost, freight, and insurance.

IMPERIAL AVERAGES.

Dec.	6 per Quarter.	Wheat.	Barley.	Oats	Rye.	Beans.	Peas.
		55s 0d	29s 10d	20s 7d	35s 0d	41s 8d	43s 4d
—	13	50 4	32 9	21 6	36 8	40 8	42 6
—	20	52 11	33 7	19 4	36 5	39 6	42 5
—	27	53 4	32 4	20 6	36 6	38 7	39 10
Jan.	3	55 1	31 11	22 3	35 6	37 9	39 1
—	10	56 3	31 10	21 9	36 11	39 3	38 11
6 weeks' Aggreg. Aver.		57 2	32 3	23 3	34 4	39 1	41 2
Duties on Foreign Grain		15 0	6 0	5 0	5 0	6 0	6 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Jan. 10.

Pass.	Dec. 6	Dec. 13	Dec. 20	Dec. 27	Jan. 3	Jan. 10
55s 4d						
— 0						
53 6						
— 3						
52 11						
— 6						
52 3						
— 0						
50 6						
— 9						
— 1						

Remainder next Sat.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition, at the Auction Mart, Bartholomew-lane, on Thursday, January 22, 1846, at 12 o'clock, (by order of the Assignees, late the property of the Metropolitan Union,) a first-rate Collection of DAHLIAS, comprising Gloria Mundi, Beeswing, Essex Primrose, Cleopatra, Arethusa, Red Rover, with many other new and fancy varieties; also a splendid assortment of Verbenas, Fuchsias, Pansies, Carnations, Chrysanthemums, &c., consisting of all the new and approved varieties of this season.—May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

ORCHIDACEÆ, &c.

MESSRS. J. C. & S. STEVENS beg to announce they will SELL BY AUCTION, at their Great Room, 38, King-street, Covent-garden, on TUESDAY, 20th of January, at 12 o'clock, a small Importation of ORCHIDACEÆ AND OTHER PLANTS from Mexico, just arrived by mail packet "Tweed." May be viewed the day prior, and morning of Sale, and Catalogues had.

FOR PUBLIC SALE, early in February next (unless previously sold by Private Contract), MUSTARD SEED, 500 quarters Danish White, of fine quality.—For samples and particulars, apply to AYLWIN BEVAN COLE and HARRIS, Brokers, 90, Lower Thames-street, London.

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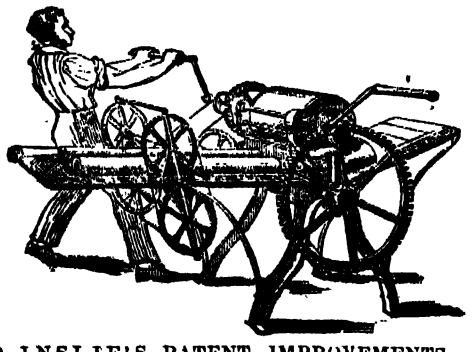


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4 Dr. DAUBENY; on the Spanish Phosphorite as a Manure.
5 SIR H. VERNEY, Bart., on Spanish Phosphorite and other Manures.
6 Mr. CAMBRIDGE; on Reducing the Size and Number of Hedges.
7 LORD PORTMAN; on the Disease in Potatoes.
8 Mr. COX; on the Cultivation of the Potato.
9 The Rev. A. HUXTABLE; on Raising Swedish Turnips on Barren Land.
10 Mr. PAWLETT; on the General Management of Sheep.
11 Mr. FRENCH; on the Advantages of One-horse Carts.
12 Mr. ROBERTS'S Prize Essay on Gorse.
13 Mr. LOOMES; on the Advantages of One-horse Carts.
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15 Mr. ETHERIDGE'S Prize Essay on the Tile Yards.
16 Mr. TURNER'S Essay on Fences.
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19 Mr. CURTIS; on Insects affecting Corn-crops.
20 Mr. ROALS'S Prize Essay on converting a Moory Hill-side into Catch-meadow.
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30 M. BOUSSINGAULT; on the Jerusalem Potato or Artichoke.
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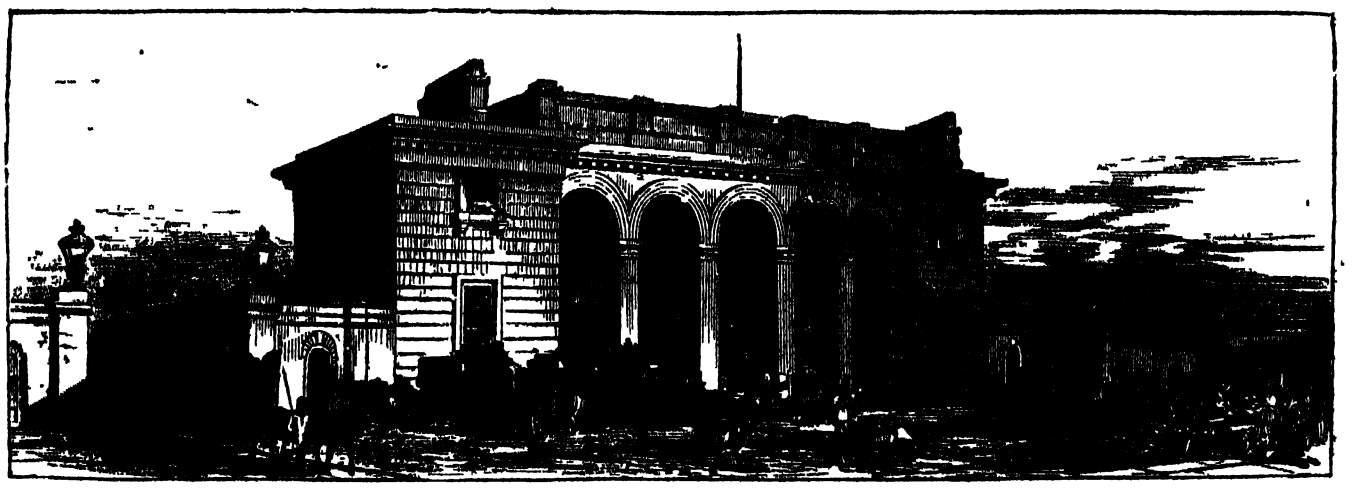
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No. 4.—1846.] SATURDAY, JANUARY 24. [Price 6d.

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Farm, condition of entering	61 c	Poinsettia heating	52 c
Farmers' Almanack, Johnson's, rev.	61 a	Potatoes prices of	61 c
Farmers' Clubs in Berk hire	59 c	Packing bulbs &c	61 b
— subjects for discussion by	60 a	Pterostigma grandiflorum	55 b
Farm buildings	59 a	Ranunculus	51 c
— at Whitfield	61 c	Season, mildness of	55 b
Farming—double culture	60 b	Seeds to pack	51 b
— high	57 c	Sewage, thick and thin	59 c
Vennes, management of	61 c	Sowerby's Eng Botany, rev	55 a
Fringe, green	54 a	Stall feeding 57 a,	59 c
Fruit trees for a N wall	56 b	Superphosphate of lime as manure	61 b
Guano and stable manure	61 b	Tanks, to render watertight	54 b
Grass land, manure for	62 a	Tulip-tree	56 c
Heating, brick Arnott stoves for	51 b	Walks, gravel, to form	54 b
— by the circulation of warm air	55 a, 58 b	Wayte's renovator	59 b
— at Polmaise	58 c	Wheat sowing	58 b
		Whitfield farm buildings	60 c
		Winter flowers	53 c
		Worms, to kill	60 c

GARDENERS' BENEVOLENT INSTITUTION — NOTICE is hereby given, that the ANNUAL GENERAL MEETING of the Subscribers to this Institution will be held at the LONDON COFFEE HOUSE, Ludgate-hill, on WEDNESDAY, 28th of January next, for Electing Officers for the ensuing year and receiving the accounts of the Charity for the past year, and other business The Chair will be taken at Eleven o'clock precisely, after which an ELECTION for FOUR PENSIONERS will take place from among the following Candidates, whose Testimonials have been examined and approved of by the Committee —

Names.	Age		
JOHN ADAMSON	69	Mortlake	3d application
BARNEY FARRELLY	69	London	do.
THOMAS FARMER	65	Mitcham	do.
JOHN GARNELL	79	East Ham	do
CHRISTOPHER GIBBONS	60	Hendon	do.
JAMES STEDMAN	78	London	do
JAMES EVEREST	65	Bagshot	2d application
JOHN LONGHURST	58	Charlton	do
WILLIAM MAY	77	Foot's Cray	do
WILLIAM HAVERS	73	Chigwell	1st application
CHRISTOPHER BIRMINGHAM	75	Broad Cliff, Devon	do
EDWARD MARSHALL	65	London	do
ANN PRATT	63	Waltham Cross	do
SARAH PRYOR	77	Hendon	do
HENRY RICHES	71	London	do
GEORGE WALLIS	70	Bristol	do

The Ballot will be kept open for two hours after the business of the Meeting has been considered

The Subscribers and Friends of the Institution will afterwards celebrate their Anniversary by dining together at the above house

The Right Hon. the LORD MAYOR in the Chair.

STEWARDS

James Cooke, Esq	James Garraway, Esq.
William Docker Esq	William Gregory, Esq.
J Dromgole, Esq	John Henderson, Esq.
Wm. J Epps, Esq.	Sam J Loyd, Esq
Thos Finder Esq.	Rob Palmer, Esq
J. W. Freshfield, Esq	John Wrench, Esq.

James Veitch Esq jun

E R CUTLER, Secretary, 97 Farringdon-street.

CRAVEN HORTICULTURAL AND AGRICULTURAL SOCIETY, OPEN TO ALL ENGLAND.

THE EXHIBITIONS of the above Society for 1846 will be held in Gargrave. The first Exhibition on the 8th of July, and the second on the 9th of September Rules and Regulations, with a List of Prizes, may be had of Mr. J. STANSFIELD, Hon. Secretary

The funds of the Society are in a very prosperous condition and upwards of 14l was subscribed at the Committee Meeting on Monday last.—Gargrave, Jan 24.

CAPE HEATHS.

J. W. BAWSON, Brixton Hill, begs to offer the following —

Ampullacea major	Altonia
Tricolor major, Superb	Irbyana
Infundibuliformis	Cavendishii
Vestita alba	Depressa
Jasminiflora	Hartnellii
Propendens	Retorta
Ventricosa superb	Carinata
,, pregnans	Eximia
Savilleana	Elegans
Coventryana	Hyemeana
Odorata alba	Mundula
Splendens	Aristata

The above Sorts from 18s. to 30s. per dozen.

100 Varieties, good sorts .. .. .. 3l.

Good Specimen Plants of Infundibuliformis, Massoni, Hartnelli, Tricolor of sorts, Ampullacea major, Pulverulenta, and other sorts, to dispose of at moderate prices.

DOUBLE ITALIAN TUBEROSE ROOTS, 4s. per dozen.—The importation of the above-named Bulb has just been received, at A. CONSTANTE'S Italian and Foreign Warehouse, 10, Pall Mall. The Orange, Lemon, Citron, Lime, and Shaddock Trees, Camellias, Agaves, and Arabian Jessamine Plants expected in January.

FUCHSIA CHALLENGE ACCEPTED.

WILLIAM MILLER, NURSERYMAN, Ramsgate, will agree to show his FUCHSIA "MISS PRETTYMAN," a Seedling of 1845, against Mr Hailey's "EMPRESS," on the conditions named in his challenge Miss Prettyman—Large glossy white tube and sepals, with blood-purple corolla, free bloomer, of very graceful and superior growth, similar to Cassandra, but the flowers a decided improvement upon Smith's Queen Victoria, being both smooth and shining, and pronounced by Dr. Lindley "a flower of good contrast"

W M 's List, containing a full description of it and four other choice Seedlings, and also the characters of his beautiful rich, novel, dark-eyed seedling Verbenas, may be had by application enclosing a penny stamp —Providence Nursery, Ramsgate

KNIGHT'S CELEBRATED "ISPAHAN" MELON.

R. GLENDINNING begs most respectfully to direct the attention of Melon Growers to the description of this most superior variety, as advertised in the *Gardeners' Chronicle* and *Gardeners' Journal* January 10th and also of his genuine BEECHWOOD MELON, presented to him by Sir John S Nebright, Bart

Knight's "Ispahan" Melon 10s 6d. per packet of 6 seeds.
Beechwood ..... 5s 0d ,, of 12 seeds

To be had also genuine at Messrs. FLANAGAN & SON'S, Seedsmen, 9, Mansion House-street, London

Chiswick Nursery, near London, Jan 24

CUCUMBER PLANTS.

CUTHILL'S BLACK SPINE CUCUMBER PLANTS, very strong, now ready to plant out. Plants of the Lisianthus Russellianus, 2s 6d to 5s each, seed of ditto, 1s 6d per packet, with printed directions, Lianthus Nigrescans, 3s 6d per packet, Lianthus Glaucifilius, 1s 6d ditto, Passingham's Victoria Green Flesh Melon, 2s 6d, ditto, Cuthill's Early Scarlet Flesh Melon, 2s, ditto, and his Black Spine Cucumber Seeds, 2s per packet

JAMES CUTHILL Florist, Denmark hill, Camberwell, London

SCARLET PELARGONIUMS

PHILIP CONWAY has devoted his time and attention to the culture of the above favourite plant for the last ten years His exhibition of them at the Horticultural Society's Grand Show at Chiswick, on June 15th, 1849, was fully admitted to have been one of the most extraordinary productions of the day, and was, he believes, the first of that class that ever received a prize at these celebrated exhibitions Since that day the SCARLET PELARGONIUM has rapidly advanced in the estimation of the Public The Horticultural Society of London and Royal Botanical are now both offering First, Second, and Third Prizes for their improved culture. P C has taken great pains in collecting all the best and approved varieties, and he feels assured his collection cannot be surpassed either for pot-culture or bedding out P. C warrants all his plants to be particularly healthy and well established in their pots Extra large plants extra in price as under

1 SHRUBLAND SUPERB, the best of all the large varieties for pot-culture 5s.

2 GENERAL TOM THUMB, the most distinct and best variety yet sent out, both for bedding and pot-culture, 1s 6d, 2s 6d and 3s 6d

VICTORIA a new, beautiful and distinct variety for bedding very dwarf, 2s 6d and 3s 6d

4 MRS MAYLIN, the best of all the large sorts for bedding very distinct, most brilliant colour and immense trusses 2s 6d

5 PRIZE FIGHTER, improved a splendid variety for bedding 1s 6d., 2s 6d, and 3s 6d

6 CYRUS'S QUEEN excellent free blooomer, a good pot-plant, 1s 6d.

7 PRINCE ALBERT first rate for pot-culture and early forcing, 2s 6d

8 GOLIAH, immense and brilliant truss 2s 6d

9 NIMROD splendid scarlet one of the best, 1s 6d

10 PROSPERO improved dwarf, for bedding, 1s 6d

11 THOMPSON'S KING, a splendid sort, 1s 6d

12 INGRAM'S, improved dwarf for bedding, 1s 6d

13 GLOBE or Compactum, excellent variety 1 6d

14 COMPTE improved dwarf for bedding, 1s 6d

15 BRIGHTON HERO, excellent for forcing, 1s.

16 PINK NOSEGAY, makes a find bed, 1s 6d

17 SHRUBLAND, 1s. 6d to 3s 6d

Good Plants of Gen. Thumb, for bedding, 18s. per doz

Good Plants of Prize Fighter, improved, 12s per doz

Good Plants of Victoria, 24s per doz

Old Brompton, Jan. 24

LEE'S DWARF ITALIAN MARROW PEA

J. AND C. LEE are now sending out the above new PEA this season, and having grown the Stock for the last five years they can strongly recommend it as a distinct and most excellent variety Its habit is exceedingly dwarf and robust; it is a very prolific bearer, and the Pea is equal in size to the largest Marrowfat, and is of most delicious flavour. It comes in earlier than any other Marrow. It has been grown in the gardens of Clumber, Welbeck, Thoresby, Buncham, Tottenham-park, and Todworth, and is highly extolled by the Gardeners of these places. In Quart Packets, sealed, price 8s, Nursery, Hammersmith.

MR. GEORGE CORNWELL, Market Gardener, Barnet, begs to recommend his New Victoria RASPBERRY to the notice of Gentlemen, and likewise Gardeners, as being the finest fruit, and best flavoured Raspberry of any grown, it was sold in Covent-garden last season higher than any other, it is likewise an abundant bearer, and grows 10 feet high. To be had at E CHARLWOOD'S, Covent-garden, Messrs. W. and J WOOLL, Fleet-street, of Mr GEORGE CORNWELL, opposite the Red Lion, Barnet; and all the principal Seedsmen in London, at 8s. per 100, or 9s per dozen

N B.—Three Hundred large bushy LAURELS for sale.

PINE PLANTS.—A gentleman who is giving up his Rinery is desirous of disposing of his Stock of Pine and Succession Plants, which are of the best description and in excellent condition. Any person in want of them will find them worth attending to, as no reasonable offer will be refused. Or, if preferred, the Advertiser will take a young stock of Camellias or Orange Trees in exchange.—Apply, if by letter post-paid, to Messrs. Low and Co., Nurserymen, Upper Clapton, or to M.M S., 15, St. Helens'-place, Bishopsgate-street.

THE BEST VERBENAS OF THE YEAR.

GEO. SMITH has pleasure in offering his matchless seedling VERBENAS, of which G. S. warrants them to surpass any other eight known flowers of them have obtained first class prizes. They are large, of first-rate form some of them beautifully edged or spotted. They have been justly admired by all who have seen them. To be sent out the last week in April, at 20s. the set, or 3s. per plant, post free. DUCHESS OF SUTHERLAND.—A fine flesh with bright cherry spot. A first class prize at the Royal Botanic Gardens of London; first at the Royal Metropolitan, first at Cremorne Gardens. DUC DE NEMOURS.—Fine rose with yellow eye. First class at Royal Metropolitan. EMPEROR.—Bright crimson, with white eye. First class at the Royal South London. LOVELY ANN.—Vivid scarlet edged with pink First class at Highgate MODESTA.—Fine cream with rose spot. MISS WATSON.—Glossy blush with fine yellow eye First class at the Royal Metropolitan MERRY MONARCH.—Bright scarlet edged with dark rose. First class at Highgate QUEEN OF BEAUTY.—Delicate pink with rose spot. First class at the Royal Horticultural. G. S. has a seedling Petunia (ALBA MAGNA), quite white, the throat veined with violet; was shown at the Royal Botanic Gardens, and it was allowed by unanimous and general voice to be the best white Petunia they had seen; it was also favourably noticed by the *Gardeners' Chronicle*. Price 3s. 6d per plant. A descriptive catalogue of Verbenas, &c &c., early in spring. All orders from unknown correspondents must be accompanied by cash or reference.—Tellington Nursery, Hornsey-road, Islington, near London

NEW FUCHSIAS.

GEORGE NICHOLS, Hunslet Hall, near Leeds, begs to offer the following Varieties, which are now ready, and can be sent either by post, free of postage, or in pots without charge for hamper —

NICHOLSII a handsome, large, and noble variety, the corolla new in colour and extremely beautiful, flowers very stout and finely formed It is a free bloomer, of compact habit, with splendid very dark green foliage

For Dr LINDLEY'S opinion of this beautiful Fuchsia, see *Gard. Chron.*, Sept 13, 1845 "G. N —No 10 —This is a superior flower, stout of a fine and glossy texture, bright carmine tube and sepals, the latter expanding well exposing the corolla, which is of a purple maroon colour" Price, 10s 6d

NOVELTY This variety is new in colour and distinct from all others. See *Gardeners' Chronicle*, Sept. 6, 1845 —"G. N. The greatest novelty among your Seedlings is No 10, this arises from the sepals being half green, and rather reflexing, which exposes a large crimson purple corolla" Price 7s 6d.

DR WOLFF See *Gardeners' Chronicle*, Aug 9, 1845 —"G. N —No 2 is a large and handsome flower, of good form and substance." Price 5s.

The three together may be had for 20s, prepaid

NEW FLOWER SEEDS.—NO MONOPOLY.

J. G. WAITE, WHOLESALE SEEDSMAN, 4, Eyre Street Hill, Hatton Garden, London, returns his best thanks for the very liberal support he has hitherto received, and begs to call the attention of his friends and the public in general to the following Reduced Scale of Prices of a small portion of his very extensive Stock

	per oz —s d		per oz —s d.
Brachycome iberidifolia	30 0	Campanula stylaris	5 0
Schizopetalon Walkeri	14 0	Primula sinensis, fimbriated, splendid	15 0
Schizanthus retusus or Hookeri	7 0	Mimulus cardinalis	4 0
Phlox Drummondi splendid mixed	20 0	Convolvulus minor, new dark	2 0
Lobelia heterophylla	40 0	Geranium, saved from 'General Tom Thumb,' 100 good seeds	2 6
Rhodanthe Manglesii, clean seed	10 0	Stock, Scarlet, Ten-week, per lb	4 0
Nemophila discoidalis	5 0	Dahlia, saved from all the newest varieties	5 0
Clintonia pulchella	12 0	Viscaria oculata	4 0
		Tropæolum canariensis	2 0
		Cyatus guttatus	2 0
		Lobelia gracilis	2 0
		Cockscomb, prize	7 0
		Petunia, splendid hybrid	10 0
		Campanula Loreh	1 0
		Wall leaf Purple, extra fine	5 0
		,, Scarlet Brompton	8 0
		New Dark Black Wall flower	8 0
		Sweet Peas, mixed, p bush	6 0
		Lisianthus Russellianus, per doz packets	3 0

With printed directions

Cuthill's Improved Black Spine Cucumber 18s per oz, Latter's Victory of England, 18s per oz, Snow's Horticultural, 15s. per oz.; and every other variety of Floricultural, Agricultural, and Horticultural seeds in cultivation, 20 per cent lower than the London agreed prices —4, Eyre-street Hill, Jan 24

CHARLES DALY AND SON begs to inform the Trade that they are ready to dispose of 2 years Seedling THORNS, at 2s. 6d. per 1000, 2 years transplanted 10s per 1000, 2 years Seedling Scotch and Spruce, 1s 6d per 1000, 1, 2, and 3 years Seedling Ash, 6d. to 1s 6d, 1 year Mountain Ash, 2s. per 1000; 1 year Seedling Hollies, 3s per 1000, 3 years do., 5s. do.; 2 years Seedling Black Thorn, fine, 20s. per 1000; Common Laurel, 10s. to 15s. per 1000, Portugal, do., 1 foot to 18 inches, 8s. per 100, Irish Yews, 1½ foot, 6d each; 2 feet, 2s.; do. 4 to 5 feet, 5s. each Rhododendrons, 1 to 1½ foot, 4d. each, Evergreen Privet, 2 feet, 15s per 1000 variegated do. 1½ foot, 20s. per 1000, Irish Ivy, 3s per 100, Elms 3 to 4 feet, Mountain Ash 5 to 7 feet, sold cheap Seed Potatoes, Early Foxes, 1s 6d per stone, Golden Dwarf, 2s do —Parties ordering from C. D and Son must be accountable to Messrs Warner, 23, Cornhill, or Messrs. R Ronalds and Sons, Brentford.—Colarain, Jan. 24, 1846

HORTICULTURAL AGENCY OFFICE.

THOMAS WILD has a few first-rate CUCUMBER SEEDS, carefully saved by the raiser, also a few Seeds of the best Scarlet and Green Melons in cultivation an American Hybrid, promised to ripen its fruit in the open air, a few good Calceolarias, Geraniums, Verbenas, Roses, and Two Primulas —the best ever raised, they have been seen and admired by the leading florists of England.

T. W will feel a pleasure in sending Blooms and a Descriptive Catalogue on application.

THOMAS WILD, 3, Tavern-street, Ipswich, Suffolk.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.

EXHIBITIONS OF 1846,

ON WEDNESDAYS, MAY 20th, JUNE 3d, and JULY 1st.

SCHEDULE OF PRIZES.

CLASS I.—MISCELLANEOUS GROUPS AND SPECIMENS, For which Medals are offered on all the three days.

Letters.		May 20.	June 3.	July 1.
AA	STOVE AND GREENHOUSE PLANTS; collections of 30 species, or distinct varieties, I.G.—II.G.—I.S.G.			
AB	STOVE AND GREENHOUSE PLANTS; collection of 20 species, or distinct varieties, II.G.—III.G.—II.S.G.			
AC	STOVE AND GREENHOUSE PLANTS: collections of 10 species, or distinct varieties, I.S.G.—II.S G.—II.S.			
AD	STOVE AND GREENHOUSE PLANTS; collections of 6 species, or distinct varieties, II.S.G.—II.S.—III.S.			
	N.B. Private growers only are to compete in AC and AD. Those who exhibit in AA and AB cannot also exhibit in AC or AD. Fuchsias, Pelargoniums, and Calceolarias are entirely excluded from AA, AB, AC, and AD. In AA, 4 species of a genus, two plants of each, will be admitted.			
AD	SPECIMEN PLANTS; whether *new* or *old* kinds, II.S.—III.S.			
	N.B. In this letter the awards will be given to the most ornamental plants; being also those in the highest state of perfection, both with respect to culture and bloom. None but plants of the most decided merit, as objects of ornament, can be allowed to compete in AD.			
AE	NEW OR RARE PLANTS, in bloom, II.S.—III.S.			
AF	NEW OR RARE PLANTS, not in bloom, but remarkable for the beauty of their foliage or habit of growth, II.S.—III.S.			
	N.B. No plant will be considered as NEW which has been exhibited at any of the Royal Botanic Society's Exhibitions; nor will any award be given to plants entered under AE and AF, whatever their merit may be, unless they are considered by the Judges to be new or extremely rare.			
AG	ALPINE PLANTS; collections of 12 rare species, III. S.—S.			
	Note.—All plants exhibited in Class I. (except under letter AF), are required to be in bloom.			

CLASS II.—NATURAL GROUPS.		To be awarded on		
Letters.		May 20.	June 3.	July 1.
BA	PAPILIONACEOUS PLANTS; collection of 6 greenhouse species	II.S.		
BB	CACTACEOUS PLANTS, the tall kinds, as Epiphyllum, Cereus, &c.; collections of 6 species or varieties		I.S.G.	
BC	CACTACEOUS PLANTS, the dwarf kinds, as Mammillaria, Echinocactus, &c.; collections of 30 species		II.S.G. III.S.	II.S.G.
BD	GESNERIACEOUS PLANTS; including Gesneria, Gloxinia, Sinningia, Niphæa, Achimenes, or others; collections of 10 species			II.S. II.S.G.
BE	RANUNCULACEOUS PLANTS, such as Clematis, Anemone, Ranunculus, Paeonia, &c.; collections of 6 species	II.S. III.S.		II.S.
	ERICACEOUS PLANTS.			
BF	CAPE HEATHS; collections of 15 species, or distinct varieties	III.G. I.S.G.	III.G. I.S.G.	III.G. I.S.G.
	N.B. Private growers only are to compete in BF	II.S.G.	II.S.G.	II.S.G.
BG	CAPE HEATHS; collections of 12 species, or distinct varieties	I.S. II.S.G.	I.S. II.S.G.	I.S. II.S.G.
	N.B. Nurserymen only are to compete in BG	II.S.	II.S.	II.S.
BH	CAPE HEATHS; collections of 6 species or very distinct varieties	II.S.G. II.S.	II.S.G. II.S.	II.S.G. II.S.
	N.B. For Private growers only, who do not compete in BF	III.S.	III.S.	III.S.
BI	CAPE HEATHS; collections of 6 species, or very distinct varieties, grown in 8 or 9-inch pots	II.S. III.S.	II.S. III.S.	II.S. III.S.
	N.B. Private growers only, who do not compete in BF and BH, can exhibit in BI			
BK	GREENHOUSE AZALEAS; collections of 8 plants	I.S. II.S.G.		
	N.B. These plants are expected to be large, and of superior growth: preference will also be given to those collections which contain the greatest number of distinct kinds, where merit in other respects is equal.	II.S.		
BL	GREENHOUSE AZALEAS; collections of 4 distinct varieties	II.S. III.S.		
	N.B. Private growers only are to compete in BL			
BM	NERIUMS, single specimen plants of large growth			II.S.
BN	CLERODENDRUMS; collections of 4 species or distinct varieties			II.S. III.S.
	ORCHIDACEOUS PLANTS.			
BO	Collections of 15 Exotic species, or distinct varieties	I.G. III.G.	I.G. III.G.	I.G. III.G.
BP	Collections of 10 Exotic species, or distinct varieties	II.G. I.S.G.	II.G. I.S.G.	II.G. I.S.G.
BQ	Collections of 6 Exotic species, or distinct varieties	I.S.G. I.S.	I.S.G. I.S.	I.S.G. I.S.
	N.B. The same Exhibitor can only compete in one of the letters, BO, BP, or BQ	II.S.	II.S.	II.S.
	FILICES.			
BR	BRITISH FERNS (cultivated in pots) collections of 30 species	II.S. III.S.	II.S. III.S.	II.S. III.S.
BS	EXOTIC FERNS; collections of 6 species of large growth, not cultivated in stove heat	II.S. III.S.	II.S. III.S.	II.S. III.S.
	Note.—The Exhibitions in this Class are intended to display the effect of natural classification, by representing the habits and affinities of natural orders, or of genera. All the plants, with the exception of those in BC, BH, and BS, are required to be in bloom			
BT	CORRECT LABELS; the most correctly and neatly named collection	II.S. III.S.	II.S. III.S.	II.S. III.S.
BU	GARDEN LABELS; specimens of the best construction and material	III.S.	III.S.	III.S.
	The price per hundred to be taken into consideration in awarding this Medal.			

CLASS III.—FLORIST'S FLOWERS, IN POTS.				
CA	CALCEOLARIAS; collections of 8 distinct varieties, grown in 11-inch pots	II.S.G. II.S. III.S.	II.S.G. II.S. III.S.	II.S.G. II.S. III.S.
	N.B. Private growers and Nurserymen compete separately in CA			
CB	CINERARIAS; collections of 4 distinct varieties, grown in 11-inch pots. (See Reg. No. 9)	II.S. III.S.	II.S. III.S.	
CC	FUCHSIAS; collections of 6 distinct varieties, grown in 11-inch pots	II.S. III.S.	II.S. III.S.	II.S. III.S.
CD	PELARGONIUMS; collections of 12 new first-rate and distinct varieties, grown in 8-inch pots	II.S.G. II.S.G. II.S.	II.S.G. II.S.G. II.S.	II.S.G. II.S.G. II.S.
CE	PELARGONIUMS; collections of 12 distinct varieties, grown in 11-inch pots	I.S.G. II.S.G. II.S.	I.S.G. II.S.G. II.S.	I.S.G. II.S.G. II.S.
	N.B. Private growers and Nurserymen compete separately in CD & CE			

SCHEDULE OF PRIZES—continued.		To be awarded on		
Letters.		May 20.	June 3.	July 1.
CF	PELARGONIUMS; collections of 8 distinct varieties, grown in 48-inch pots	II.S.G.	II.S.G.	II.S.G.
	N.B.—Private growers only, who do not compete in CD and CE, can compete in CF.	II.S.	II.S.	II.S.
CG	ROSES; collections of 12 distinct vars.	I.S.G. II.S.G.	I.S.G. II.S.G.	I.S.G. II.S.G.
CH	ROSES; collections of 8 distinct vars.	II.S. II.S.G.	II.S. II.S.G.	II.S. II.S.G.
	N.B.—Those who exhibit in CG cannot exhibit in CH. In another season ROSES will be required to be shown in 8-inch and 11-inch pots.	III.S.	III.S.	III.S.
CI	NARCISSUS, 12 distinct species or vars.	III.S.		
CK	LILIUMS, 4 distinct varieties			II.S. III.S.

CLASS IV.—CUT FLOWERS.

DA	BRITISH PLANTS; collections of 25 fresh and wild specimens, illustrating the exogenous portion of the British Flora	II.S. III.S.	II.S. III.S.	II.S. III.S.
DB	BRITISH PLANTS; collections of 25 fresh and wild specimens, illustrating the endogenous portion of the British Flora	II.S. III.S.	II.S. III.S.	II.S. III.S.
	N.B.—It will be required that the names of the Plants, and of the Places in which they are gathered, shall be attached to them, preference being given to the most rare and correctly named: none but authentic wild specimens to be produced. The Catalogue of the Botanical Society of London will be taken as the standard of rarity.			
DC	DEVICE, executed with cut flowers, illustrating the principles of the harmony or toning, as well as the contrast of colours in ornamental flower gardening			II.S.G. III.S.
	N.B.—The device to occupy 5 feet square or a circle of 6 feet in diameter. These devices will not on any account be admitted except at the last exhibition.			
DD	TULIPS; in stands of 12 varieties	II.S. III.S.		
DE	ROSES; collections of 100 distinct vars.		II.S. III.S.	II.S. III.S.
DF	ROSES; collections of 50 distinct vars.		II.S. III.S.	II.S. III.S.
	N.B.—Private growers only are to exhibit in DF.			
DG	ROSES; collections of 12 new, first-rate and very distinct varieties		II.S.	II.S.
	N.B.—Private growers are to adopt such method of arrangement or classification as may best accord with their own views. Nurserymen and dealers are required to follow the classification published in their respective catalogues. Not more than 3 trusses of bloom of each variety to be exhibited.			
DH	ROSES; stands of 12 single blooms			III.S. B.
DI	VERBENAS; in stands of 12 varieties			III.S. B.
	N.B.—Each variety to be shown in a single truss.			
DK	CARNATIONS; in stands of 12 varieties			III.S. B.
DL	PICOTEES; in stands of 12 varieties			III.S. B.
DM	PINKS; in stands of 12 varieties			III.S. B.
DN	PANSIES; in stands of 24 varieties			III.S. B.
DO	BULBOUS IRIS; in stands of 12 varieties			III.S. B.
	Note.—Exhibitors of cut flowers to provide their own boxes or stands, which are not to exceed 8 inches in depth at the back, nor 20 inches from the front to the back, with covers to remove.			

CLASS V.—SEEDLINGS.

EA	GREENHOUSE AZALEAS			III.S.
EB	HEATHS			III.S.
EC	PELARGONIUMS of 1845			III.S.
	N.B.—These are to be exhibited in 6-inch or 8-inch pots, so as to show the habit of the variety under superior cultivation. In awarding the prizes, the Judges will take into consideration the habit of the plant, as well as the quality of the flower.			
ED	PELARGONIUMS of 1846	C.	C.	C.
EE	PELARGONIUMS, combining brilliant scarlet flowers, with the habit, foliage, and character of the "fancy" varieties			III.S.
	N.B.—It is suggested that the old kinds, "Ignescens" and "Moore's Victory," may assist in producing flowers of this Class. To merit this prize the plants must have brilliant scarlet flowers and compact habit of growth.			
EF	SCARLET PELARGONIUMS			III.S.
EG	CALCEOLARIAS			III.S.
EH	FUCHSIAS			III.S.
EI	ROSES			III.S.
EK	VERBENAS			III.S.
	Note.—Certificates will be given to seedlings of merit which have not money prizes awarded to them, the exhibitor having the option of receiving either the certificate or the money value, 10s. To be eligible for competition, all the subjects in this Class must be growing in pots, and distinctly marked with the names they are to bear. No seedling can have a prize awarded to it unless these conditions are complied with.			

CLASS VI.—FRUIT. To be exhibited on July 1st.

FA	MISCELLANEOUS COLLECTION; consisting of 10 dishes of distinct kinds of dessert fruit cultivated in the United Kingdom, II.G.—I.S.G.—II.S.G.	
	N.B.—Merit in other respects being equal, preference will be given to the collections which contain the most distinct kinds of fruit.	
FB	PINE-APPLES; collections of not fewer than 6 fruits, not more than 2 of one kind, I.S.G.—II.S.G.	

SCHEDULE OF PRIZES—continued.		£	s.	
FC	PINE-APPLES; a single fruit of the "Providence," II.S.G.—II.S.—III.S.			
FD	PINE-APPLES; a single fruit of the "Queen," II.S.G.—II.S.—III.S.			
FE	PINE-APPLES; a single fruit of other kinds, II.S.G.—II.S.—III.S.			
FF	MELONS; a single fruit of the common varieties, II.S.—III.S.			
FG	MELONS; a single fruit of the Persian varieties, II.S.—III.S.			
FH	GRAPES; collections of 3 dishes of distinct varieties, I.S.—II.S.G.—II.S.			
FI	GRAPES; single dish of one black variety, II.S.G.—II.S.—III.S.			
FK	GRAPES; single dish of one white variety, II.S.G.—II.S.—III.S.			
FL	GRAPES; or Vines in pots, 1 plant, II.S.—III.S.			
FM	PEACHES AND NECTARINES; collections of 4 dishes of distinct varieties, II.S.G.—II.S.—III.S.			
FN	PEACHES AND NECTARINES; collections of 2 dishes of distinct varieties, II.S.—III.S.			
FO	APRICOTS; single dish, III.S.			
FP	PLUMS; single dish, III.S.			
FQ	FIGS; single dish, III.S.			
FR	CHERRIES; single dish, S.			
FS	APPLES; collections of 4 dishes of distinct varieties, III.S.—S.			
FT	APPLES; single dish, C.			
FU	PEARS; collections of 4 dishes of distinct varieties, III.S.—S.			
FV	PEARS; single dish, C.			
FW	STRAWBERRIES; collections of 4 dishes of distinct varieties, III.S.—S.			
FX	STRAWBERRIES; single dish, C.			
FY	STRAWBERRIES; collections of 6 pots with ripe fruit, II.S. —III.S.			
FZ	CITRUS; collections of 4 dishes of distinct species or varieties of this genus, II.S.—III.S.			
FFA	RARE EXOTIC FRUIT, suitable for the dessert, II.S.G.—II.S.—III.S.			
FFB	EXOTIC FRUIT of other useful or rare kinds, II.S.—III.S.			
FFC	NEGLECTED HARDY FRUIT, II.S.—III.S.			

Note.—A DISH of fruit is defined thus:—Grapes, 3 bunches. Peaches, Nectarines, Apricots, the Citrus family, Apples, and Pears, 6 fruits. Figs and Plums, 12 fruits. Cherries and Strawberries, 24 fruits. ANY EXCESS OR DEFICIENCY in the numbers specified will DISQUALIFY. All fruit must be perfectly ripe and sound; and (except Pine-apples and Grapes) must be exhibited in punnets of 9 inches diameter, dressed with the leaves respectively belonging to each kind of fruit.

REGULATIONS.

1. The Exhibitions will be opened to all competitors, whether Fellows of the Society or not.

2. In order that the subjects received for exhibition may be promptly arranged and displayed to advantage, the Exhibitors are requested to communicate their intentions to the Secretary previously to the several days of exhibition, specifying the probable extent of table room in square feet or otherwise, which their plants, flowers or fruit will require.

3. Unless previous notice has been given, the Exhibitors on entering the Garden will be requested to sign a book, or deliver a statement in writing, specifying in what letters their articles are to be exhibited. They are also to apply to the Clerk for labels to attach to their several exhibitions, and to see that when staged they are marked with the proper letters. The Exhibitors are particularly requested to bear in mind, that omissions or mistakes arising from neglect or improper entries on their part cannot be rectified after the awards have been made.

4. No subjects will be eligible for competition unless the entry has been made previously to Half-past Eight o'clock in the morning, at which time precisely the gates will be closed, and after which no subjects for competition can on any account whatever be received, nor can any person be allowed to open packages containing articles for competition.

5. Exhibitors are requested to observe that the Judges must proceed at TEN o'clock to examine the merits of the subjects exhibited, by which hour the placing and arranging of all *plants*, *flowers* and *fruit* must be completed.

6. At Seven o'clock in the evening the Exhibition will close, and the several articles exhibited will then be delivered up to the Exhibitors.

7. All persons who supply subjects for competition for which rewards are offered, may obtain pass tickets before TEN o'clock, and will be re-admitted to the Garden at two o'clock, by delivering their tickets at the workman's gate.

8. Assistant gardeners will be admitted with the Exhibitors until half-past eight o'clock in the morning; but no person whose services are not required in that capacity will be allowed to enter with the Exhibitors, nor can any person remain in the Garden after ten o'clock, excepting those who are engaged by the Society.

9. Subjects of decidedly inferior quality cannot be received for competition, and such subjects the Judges are empowered to REJECT. And in order to uphold the value and importance of the Society's awards, the Judges are authorized either to WITHHOLD or to DIMINISH the value of the awards; that is, to grant *either first, second, or third prizes at their discretion.* The Judges are also invited to recommend to the Council to INCREASE the number or amount of the awards, and to give medals for subjects of extraordinary merit which may be exhibited, although not specified in the Schedule.

10. It is particularly desired that *all plants* be distinctly labelled with their *scientific names* and the places whence introduced, where practicable; and *all cut flowers* and *fruit* are required to be distinctly named.

11. Exhibitors who shall obtain a first prize cannot receive any other award in the same letter, except in AE and AF and in Class V.

12. Should any Exhibition contain one or more plants which have not been in the possession of the Exhibitor *two months* previous to the Exhibition at which the plant or plants are shown, such circumstance will *disqualify* the exhibition to compete for prizes; except in the case of plants newly imported by the Exhibitor and entered under letter AE or AF. In the event of any dispute with respect to this Rule, the Exhibitor will be required to sign a written declaration, which will be considered final.

13. The Judges will not be appointed from among the Fellows, Members, or Officers of the Society; nor will any person who shall accept the office of a Judge be allowed to compete for prizes.

14. Successful competitors are requested to notify to the Secretary, within *one fortnight* after the last Exhibition, in what form they are desirous of receiving their prizes, viz., whether in medals, plate, or money.

By order of the Council,
J. DE C. SOWERBY, *Secretary.*

The MEDALS offered are of the following values, which will be given in PLATE or CASH when the Medal is not preferred.

	£	s.		£	s.		
1a. Gold	15.		I.S.G. Silver-Gilt	6	0	b. Bronze 15s.	
1b. Do.	10.		I.S. Silver	4	0	c. Certificate 10s.	
1c. Do.	7.		II.S.G. Silver-Gilt	3	0		
			II.S. Silver	2	0		
			III.S. Do.	1	1		

(Concluded on page 51.)

[ROYAL HORTICULTURAL SOCIETY'S ADVERTISEMENTS continued.]

SIZES OF POTS.

	Commonly known as	Usual width.	Usual depth.		Commonly known as	Usual width.	Usual depth.
6 in.	32s.	6 in.	6 in.	9 in.	16s.	9½ in.	9 in.
8 in.	24s.	8½ in.	9 in.	11 in.	12s.	11½ in.	11 in.

TERMS OF ADMISSION TO THE EXHIBITIONS.

All Fellows and Life Members of the Society, and Bearers of Ivory Tickets, will be admitted to the Gardens from Two until Seven o'Clock upon entering their names in the Gate-book.

Visitors will only be admitted by Tickets, to be obtained by the Orders of Fellows and Life Members.

All Fellows and Life Members may obtain, on or before Saturday, May the 9th, any number of Tickets at the rate of 4s. each; and *after that day, except on the days of Exhibition*, any further number at the rate of 5s. each, by application at the Offices in the Inner Circle of the Regent's Park.

Tickets may be obtained at the Garden *on the days of Exhibition*, at the rate of 7s. 6d. each.

Each Ticket will entitle one person to admission between the hours of Two and Seven on any one of the three days of Exhibition, at the option of the holder.

No Tickets whatever will be issued except on the personal application or written Order of a Fellow or Life Member of the Society, and the number of Tickets required must be stated in the application.

OFFICES AT THE GARDENS, Inner Circle, Regent's Park.

FUCHSIA SERRATIFOLIA.

MESSRS. VEITCH & SON can now supply strong well-established plants of the above beautiful FUCHSIA at 10s. 6d. each. The usual discount to the Trade.

A Post-office order, or reference, required from unknown correspondents.—Exeter, Jan. 24, 1846.

FINE WHITE SPANISH ONION, ALTRINGHAM CARROT, &c.—Dealers can be supplied with a fine article at moderate prices, by WARNER & WARNER, SEEDSMEN, 28, Cornhill, London. General Priced Trade Catalogues to be had on application.

SUPERIOR NEW EARLY PEA.—WARNER'S "EARLY EMPEROR" Pea, the earliest in cultivation, quite hardy, a good cropper, with fine pods, and most delicious flavour. Height about 2 ft.—5s. per quart.—To be had of WARNER and WARNER, Seedsmen, 28, Cornhill, London.

RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM.

HOGROOM, CLAPHAM RISE, near LONDON, (removed from Walworth.) BY APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY.

Begs to recommend to the attention of the Nobility, Gentry, and Public his extensive assortment of the above FLOWERS, which he can supply of the best quality.

		£. s. d.
100 RANUNCULUSES in 100 Superfine sorts, named		2 10 0
Superfine Mixtures	per 100—10s. 6d. to	1 1 0
100 ANEMONES, in 100 Superfine sorts, named		2 2 0
Superfine Mixtures	per 100	0 10 6
25 AURICULAS, in 25 Superfine sorts, named		3 3 0
25 pair of CARNATIONS, in 25 ditto	ditto	2 10 0
25 pair of PICOTEES, in 25 ditto	ditto	2 10 0
25 GERANIUMS, in 25 Superfine sorts	ditto	3 10 0
Good kinds	per doz., from 12s. to	0 18 0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each		0 2 0
" PUNCTATUM	"	0 7 6
" SPECIOSUM (true)	from 1l. 1s. to	3 3 0

Foreign Orders executed.

SELECT VEGETABLE SEEDS.

WILLIAM E. RENDLE & CO. have much pleasure in announcing to those who are fond of really choice and good vegetables, that they have this year procured a small stock of the following valuable sorts, which are all warranted to grow well, and to be of genuine quality.

A Packet of each will be sent postage free to any part of Great Britain or Ireland for *Ten Shillings*, or a selection of 12 sorts for *Five Shillings*. Any sort separate at *Sixpence* per Packet.

Willcove Broccoli.
New Early Walcheren do.
Chappel's Cream do.
Legg's Late Dwarf do.
Snow's Winter White do.
Large Syrian do.
Hampton Court do.
Potter's Pink do.
Walcheren Cauliflower.
Large Asiatic do.
Improved Guernsey Parsnip.
Green Flesh Cabool Melon.
Ice Cabbage Lettuce.
Drumhead do.
Blood Red do.
Hampton Court Cabbage do.
London Market do.
Ady's Large Cos do.
Wood's New Frame Radish.
Yellow Scarisbrook Turnip.
New Early Cream do.
Myatt's superior Curled Parsley.
Enfield Matchless do.
Superb Crimson Beet.
Imported Brussels Sprouts.
White Spanish Onion.
Green-topped Carrot.
Early Matchless Cabbage.
Earliest Cornish do.
Early Hope do.
Early British Queen do.
London Market do.
Early Paignton do.
Seymour's White Celery.
Lancashire Hero (Red) do.
Walnut-flavoured Pink do.
Latter's Victory of England Cucumber.
Hamilton's Black Spine do.
Snow's Horticultural do.

Complete collection of Seeds suitable for a Kitchen Garden for 1*l.* 10*s.*, *including the above, carriage free, to any part of Great Britain or Ireland.*

ALL OTHER KINDS OF GARDEN SEEDS.

Early orders are desired, as *some of the kinds* are scarce.

Immediate payment is not required from known correspondents, or those who give reference in London.

Plymouth, Jan. 24, 1846.

SHILLING'S EARLY POTATO.—The above POTATO is a Seedling of their own raising, which they have for several years sent out in their own neighbourhood, where it has been highly esteemed; but having a wish to make it more extensively known, they have appointed the undermentioned Seedsmen in London as Agents, of whom they may be had at 4s. per peck

It is a particularly healthy variety, very handsome, of middle size, second to none in earliness or goodness, and very remarkable for its delicious flavour and nutritious properties. When taken up, they got from 12 Potatoes 13½ ozs. of clean dry flour or starch, not easily distinguished from the foreign Arrowroot, with which it has been compared. They are desirous to call attention to its quality and flavour, and do with confidence recommend it in every other respect.

Agents:—Messrs. T. & W. NOBLE, 153, Fleet-street, London;
Messrs. HURST & M'MULLEN, 6, Leadenhall-street;
Mr. KERNAN, 4, Great Russell-st., Covent-garden.
Mr. W. C. FARNES, Seedsman, 128, St. John's-st., West Smithfield, London.
Messrs. BATT & RUTLEY, Seedsmen, 412, Strand, London.
J. & H. SHILLING, Nursery and Seedsmen, Northwarnborough, near Odiham, Hants.

THE TRUE FASTOLFF RASPBERRY.

GREAT YARMOUTH NURSERY. NORFOLK, 1846.

YOUELL & CO., being the parties who first introduced to the notice of the Horticultural world the above truly excellent Raspberry, unequalled for the size of its fruit and richness of flavour, and possessing an extensive Stock of fine Canes, beg to offer the same upon the following terms, guaranteed to be of the same quality as those they had the honour of supplying Her Most Gracious Majesty the Queen, His Grace the Duke of Northumberland, His Grace the Duke of Rutland, His Grace the Duke of Marlborough, the Earl of Harrington, the Earl of Liverpool, the Earl of Abergavenny, the Earl of Egremont, the Lord Bishop of London, Lord Viscount Lorton, Lord Sondes, and most of the Nobility, as well as the Horticultural Society of London, the latter having awarded YOUELL & Co. two prizes for it.

Packages containing 100 canes	.	£1	4 0
Do. do. 50 do.	. .	0	13 0
Do. do. 25 do.	. .	0	7 0

Small Canes, 12s. per 100.

A liberal discount will be allowed the Trade when "quantities" are ordered.

For full description of the above see their advertisement of last week.

Great Yarmouth Nursery, Jan. 24.

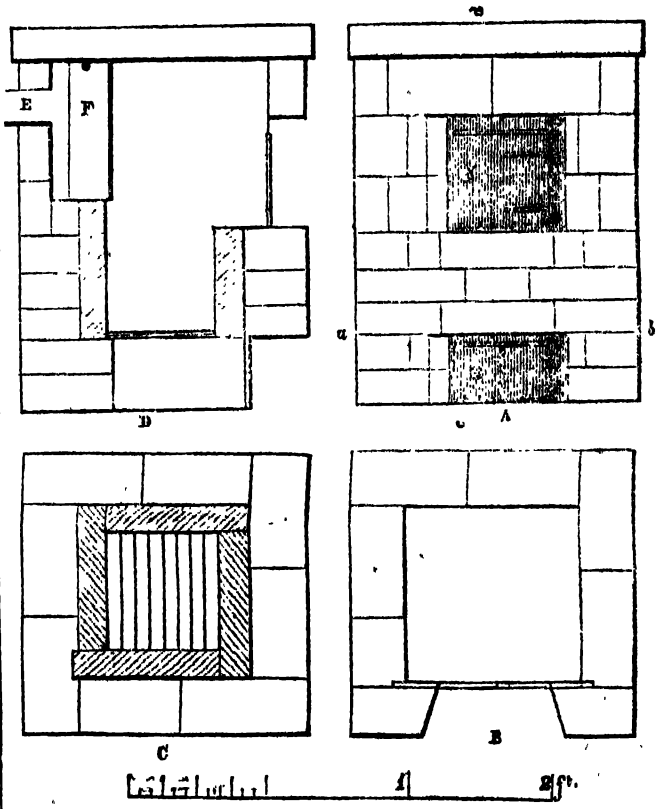
The Gardeners' Chronicle.

SATURDAY, JANUARY 24, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY,	Jan. 26—Entomological (Anniversary)	.	8 P.M.
TUESDAY,	Feb. 3—Linnean	. . . .	8 P.M.
WEDNESDAY,	— 4—Society of Arts	. . . .	8 P.M.
FRIDAY,	— 6—Botanical	. . . .	8 P.M.

The following figures explain Mr. RIVERS's mode of constructing BRICK ARNOTT STOVES, as described in last week's *Chronicle*:—



A, Front elevation; B, Ground Plan; C, Horizontal section through *a b*, in A, showing the fire bars or grating; D, Vertical section through *c d*, in A, showing the front and back fire lumps, the former reduced to 9 inches in depth; E, Iron pipe leading to chimney; F, Fire-lump placed 1½ in. from the mouth of the pipe leading to the chimney, and about the same distance from each end; this causes the smoke to pass round, thus preventing a too rapid consumption of the fuel. The first five courses of bricks, in height, are laid flat, the remaining three courses are laid on edge.

As several of our correspondents have this week taken up the subject of Polmaise Heating, we shall defer any further remarks upon it till next week.

IN our Paper for the 10th of January, is an extract from the "Journal of the Horticultural Society," detailing the results of the growth of bulbs transmitted from India, and sent from the India House to the gardens of the Society, and of which one half was packed in cotton, and the other enveloped with wax. It is shown that the latter, though they had been confined in the wax for three months, appeared quite firm and fresh, and though they did not move for a month, yet afterwards grew strong and healthy; while those sent in cotton and brown paper had grown considerably in their transit, and when potted, grew first, but soon displayed symptoms of debility.

The above experiment originated in the successful results which attended the transmission of some seeds similarly enveloped in wax from the India House to different parts of India. Though the mails give great facilities for the transmission of such things as far as the shores of that country, yet it is not an easy matter to send them across the length and breadth of India in the different seasons of the year, the country being at one time inundated with rain, at another scorched up with heat, and having only a few months of comparatively moderate weather. In the moist weather, roots, seeds, &c., are apt to be rotted, and in the hot weather, parched up. Gaoutchouc cloth forms a good protection against external moisture, but equally prevents the escape of any that is enclosed, and that is apt to be the case with things packed up in the rainy season. Cotton in this case is useful in absorbing moisture, but is objectionable for this very reason in the dry weather, though having the advantage of being a bad conductor of heat.

The idea of enveloping some seeds and bulbs in wax originated in the difficulty of sending such seeds as the Spanish Chesnut and the Filbert, which it was desirable to introduce into the Himálayas. Of the Chesnuts, all those at first sent were either dried up, or completely decayed. It appeared that if they could be hermetically sealed up, there seemed no good reason why they should not arrive in good order even in the most distant parts of India. A thick coating of gum was first thought of; but it did not answer at first, from being too dilated. We know not why if seeds are stuck into a thick mucilage and allowed to dry, it should not answer. Wax just a little melted was then tried, and with complete success in repeated attempts. The Chesnuts and Filberts were described as arriving at Bombay, Calcutta, and Saharunpore, in a perfectly sweet and fresh state. Both vegetated, and those sent to the Saharunpore Botanic Garden are now growing in the Himalayan Mountains. The wax has also been employed for enveloping the ends of cuttings of fruit-trees, which have also arrived in a living state; so much so, that Apples, Pears, and Plums sent in this way are now about 9 feet high in the same locality; and no doubt they will bear fruit there, as a Ribstone Pippin introduced about the year 1828 from Liverpool, bears very fine fruit, and was this year covered with thousands of Apples. The above facts may be useful to some of our readers in conveying to a distance seeds and bulbs which are difficult of transmission.—*F. R.*

WE some time since (p. 293, 1844,) brought under the notice of our readers the value of COFFEE-CHICORY as a winter salad, and substitute for Endive. It may be interesting to some persons to be informed that this article is now introduced into Covent-garden Market, where it may be procured, at a very cheap rate, of Messrs. GRIMLEY and Co. We have tested it, and find it far superior to the common Chicory, which is too bitter. It is as delicate as Batavian Endive, for which, indeed, it might be easily mistaken when on the table.

WEEKLY PRICES OF POTATOES per ton, in *Covent Garden Market*, in 1844, 1845, and 1846.

	1844-5.			1845-6.	
November	23	50s. to 50s.	November..	22	70s. to 130s.
	30	50 75		29	80 140
December...	7	50 75	December...	6	80 160
	14	50 70		13	80 160
	21	50 70		20	80 160
	28	50 70		27	80 160
Jan.	4	50 80	Jan.	3	80 160
	11	50 80		10	80 160
	18	50 80		17	80 160
	25	50 80		24	80 160

Also at the waterside, *Southwark*.

December..	2	50s. to 70s.	December..	1	50s. to 120
	9	50 70		8	50 120
	16	50 70		15	50 120
	23	50 70		22	50 120
	30	55 75		29	50 120
Jan.	6	60 80	Jan.	5	50 120
	13	60 80		12	50 120
	20	60 80		19	50 120

THE AMATEUR GARDENER.

THE RANUNCULUS.—From general observations regarding the amateur and his pursuits, it is necessary that I should descend to particulars, and initiate the uninstructed into some of the mysteries of floral cultivation. I shall begin with the Ranunculus, as being a prime favourite of my own, and as having had consider-

all purpose in growing it. An opinion is prevalent that this flower is more difficult to cultivate than most others which are grown in the open air, and it must be confessed there is reason for it. Skill and attention are indispensable to the successful culture of the Ranunculus, and in this sense it presents difficulties. Many flowers seem almost independent of the care of man, demanding scarcely any time or thought for the production of their beauties; the Ranunculus lays a heavier tax upon its votaries, and if it is cheerfully paid it will rarely fail to develope its surpassing charms.

Few garden spectacles are more attractive than a well-grown bed of Ranunculuses, and it is to be regretted that the sight is so rare. A few solitary patches are occasionally met with, but a large bed, containing 150 or 200 distinct sorts is so rare that some counties will not furnish it. Those who have had the privilege of leisurely contemplating such a bed will not readily forget the pleasing impressions it produced, and will think that some time and money would be worthily bestowed in the creation of such a splendid phenomenon. The foliage being very humble in its growth, and having rather a spreading character, the bed, if properly planted, will be quite covered with a carpet of soft green, from which at intervals, of 3 or 4 inches, will rise the tall slender flower-stems, which appear scarcely strong enough to support so full and heavy a flower. But who can describe the flowers themselves, with their infinitude of colours and endless varieties of tints, spots, and stripes! As the roots will not require to be planted for a month to come, I hope to induce many of the readers of the *Chronicle* to attempt the production of such a bed for themselves, and they will then, if successful, confess that its varied beauties cannot be described.

It has been thought that certain neighbourhoods cannot grow the Ranunculus, and it is unquestionable that some soils are much more favourable for this purpose than others. The locality in which I reside had a bad character in this respect, and I remember Mr. Tyso, whose authority in this matter is first-rate, gave his opinion, as he passed through the neighbourhood, that Ranunculuses would not be likely to attain perfection in it. The soil is a tenacious loam, with a gravelly subsoil, and certainly appears a wrong habitat for this very sensitive plant. However, I tried, and for several seasons met with entire success. I first grew a bed of about 200 roots in a small garden in a country town. I placed the bed on the north side of a row of lime-trees, whose friendly shade, in the month of June, counteracted the arid nature of the soil and situation. The leafless branches admitted the full sunlight in the earlier periods of growth, and yet administered appropriate shelter from the hotter beams at a season when they would otherwise have been fatal. The great beauty of this bed I must attribute to the circumstance just mentioned, for I do not think any care would have secured a perfect bloom in that spot, if artificial shade had not been given. On removing from the premises where this experiment had been tried, my next attempt was in a very small garden indeed, completely surrounded with buildings, and having, in consequence, some very inimical currents of wind. The bloom here was also very fine, and gained the applause of many amateurs who saw the bed. My success led to the purchase of considerable quantities of the root by several gentlemen, but they met with very varied success. Indeed, there were so many failures, that I was obliged to conclude my own treatment was more careful than that of others, and I will endeavour to detail the precise methods I adopted, for the instruction of any who may wish this season to try their fortune with this flower.

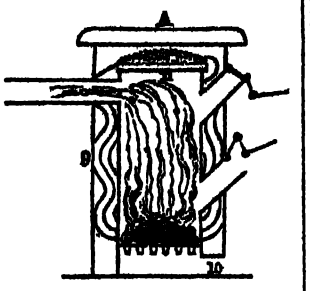
Choose a small bed in the lowest part of your garden, and in a situation where the rays of the sun will only fall for about three or four hours a day, either in the morning or evening, although the former is much to be preferred. That I may not neutralise my efforts by too intricate directions, I observe that what is called good garden mould may be taken as it is, without any foreign admixture, unless it is very poor, when a little leaf-mould, or very rotten frame manure, may be added. Dig up the bed thoroughly to the depth of twelve inches, and leave it rough until a January frost has pulverised it. Then level the bed, and after some heavy rains have settled the soil, any time in February the planting may take place. Previous to this, of course, the roots must be procured, and I will, next week, initiate you into that very important branch of the business. Carefully survey your domain in the interim, and cautiously choose your site. Having decided on the spot which will best secure fresh air, moisture, and shelter in the heat of midsummer, boldly commence operations, and in an hour or two you will have done all that can at present be accomplished.—*H. B.*

HEATING BY THE CIRCULATION OF WARM AIR.

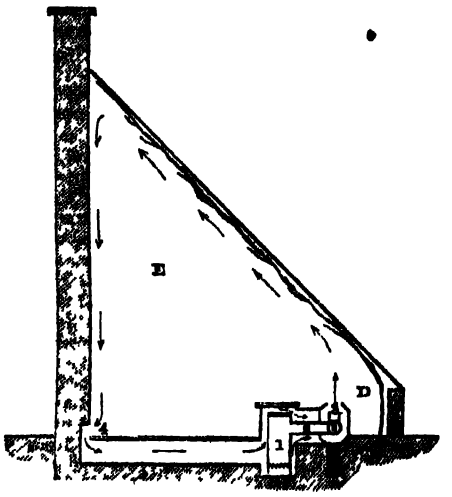
THE following woodcut represents a Vinery which was erected here in 1840, and exhibits a different arrangement, in the circulation of the heated air, to the one at Polmaise. By reference to the ground plan, it will be seen that the stove is placed in the inside of the house, at the end; that the air-chamber, in which is a smoke-pipe, is 2 feet from the front wall; and that the chamber runs the whole length of the house. The smoke-pipe passes up the end of the house, within 2 feet of the glass, entering a chimney in the back wall, but which is not shown on the plan.

From the stove being at the end of the house, it may appear that the heat will not be equally diffused, but this is not the case; for the heated air can be carried along to the other end by keeping the cover on, which makes the other end of the house the hottest, if the covers are raised at B and C on the ground plan.

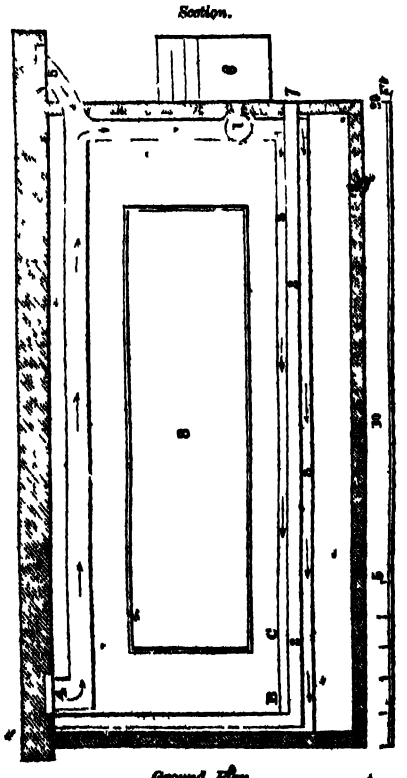
In the Polmaise system I do not like the return, or cold-air drain, being so far from the front of the house. The house would, I apprehend, be considerably warmer at the top than at the front. Because, on the system here, although the sides of the hot-air chamber are only 2 feet from the front, by placing two thermometers, one at D and another at E, in transverse section, there is a difference of from 5° to 10°, according to the state of external temperature, the thermometer at E, of course, being highest. Perhaps, however, the difference is not so great in the Polmaise plan. The current of air in the house here is so strong that it rushes with great rapidity to the top (as indicated by the direction of the arrows), so much so that the leaves of the Vines are in constant motion throughout the whole house. So strong is the current of air that a candle will not burn at the distance of 4 feet from the air-chamber when the covers are tilted; and it is remarkably strong at the valve (fig. 4) at the entrance into the cold drain; the instant the valve is shut the motion of the leaf stops.



A, A section of the stove on a larger scale, with two furnace-doors, one open and the other shut, with a small handle for opening; 9, Spiral tubes in the hot air chamber to make the passage of the cold air longer round the stove, 10, the ash pit, 11, Cast-iron cover on the top of the fire, covered with sand, as shown by the dots.



Section.



Ground Plan.

Reference to the Plan.—Section. 1, The fire-place of the stove. 2, 2, The smoke pipe, 5 inches diameter, with trough for holding water. 3, 3, The heated air-chamber, with covers to lift at pleasure. The arrows show the direction of the heated air, and the return into the cold air drain, to be again heated by the stove. *Ground plan.*—4, An opening in the back wall of the house to admit the cold air into the drain below the pavement of the pathway. 5, An opening on the outside, to admit fresh air at pleasure. 6, Stoke-hole, with three steps down to it. 7, A plug on the end of the smoke pipe, to take the soot out of. 8, A pit in the Vinery for growing Cucumbers, forcing Sea-kale, &c.

There is no provision made here for moisture, except by the troughs on the pipes; but with these, and the moisture that goes through the pavement into the cold-air drain, there is abundance; for in a very short time after the house is shut up every leaf in the house is hanging with small globules of water, so that I never use the syringe (which, by-the-by, I do not approve of), nor is it necessary, if the houses are properly constructed. If we could syringe them on the upper surface of the leaf only, it might be all very well; but the system of dashing water on the under side of the leaf will, I hope, be soon among the things that were. If more moisture was required here, it could be easily obtained, equally as at Polmaise, by hanging a wet woollen cloth in the air-chamber, and it might be made to pass through a series of thick cloths. Those who have never been in a house where air is kept in constant circulation, would be astonished at the feeling it produces. Gardeners can tell generally within a degree or two the temperature of a house without referring to a thermometer, but here it always feels to be 10° or 12° lower than it really is. It never has a hot suffocating effect, let the temperature be ever so high, and what the effect is on plants their appearance plainly indicates.

Here, then, is a Vinery already heated nearly in the same way that you recommended for a pit by one of Joyce's stoves; for my own part I can see no difficulty in the case, whatever stove is used. The one here is Mr. White's, of Haddington; in fact, the whole house was planned and erected by him, the rafters being iron and the astragals zinc; the system of giving air is excellent. I may mention that the cost of coke for the stove averages 3*l.* 15*s.* a-year, or about four tons and a half. I keep greenhouse plants in the house all winter, fire being only applied to the Vines about the latter end of March.

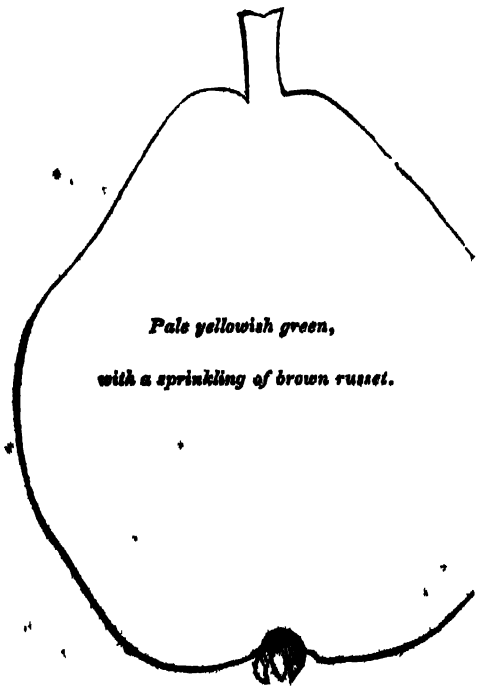
I have never been able to produce such large bunches as those raised at Polmaise, the heaviest being 2¼ lbs. The border is not at all rich, being made at first with nothing but light turfy loam. The number of bunches, and the weight of the whole has been great, and the Vines at present are all I could wish.—*Alex. Shearer, gr. to the Marquis of Tweeddale, Yester, Haddington.*

SUMMER FRANC RÉAL PEAR.

Synonymes.—Franc Réal d'Eté, Knoop's Franzosische Zimmtbirne, Franse Cancel-peer, Fondante, Beurré Hâtif, Beurre d'Août ronde, Franc Royal d'Eté, Gros Micet d'Eté, also, according to Knoop, but erroneously, Fondante de Brest, Inconnu Cheneau.

THERE are, probably, few amongst those who aim at having a succession of Pears, from the earliest to the latest, that have not experienced the difficulty of providing against occasional deficiencies of supply between the Jargonelle, and the early autumn varieties. It is precarious trusting to a very limited number of early kinds; they generally bear well, but the fruit, rapid in its progress to maturity, remains in perfection only a few days, seldom more than a week; and it hastens to decay as quickly as it advanced to ripeness. Hence the necessity of being provided with several varieties, amongst which the Summer Franc Réal will be very properly included, for the early period alluded to.

It was obtained from France; but some authors suppose it is of Dutch origin. There can be no doubt as to Knoop's figure of it in his "Pomologie," tab. 3; the engraving, though not fine, is strongly characteristic. The Fondante de Brest or Inconnu Cheneau, which he has made synonymous, is, however, a distinct sort.



Pale yellowish green,

with a sprinkling of brown russet.

The fruit here represented was one of medium size from a standard, on which it bears abundantly. The flesh is white, buttery, and rich. In perfection in the first fortnight of September. The tree grows vigorously; shoots yellowish-brown, sprinkled with pale-brown dots. Leaves large, ovate, somewhat cordate at the base, acuminate, the margin almost entire; they are remarkably woolly when unfolding. Flowers middle-sized; petals roundish obovate. This variety does not require a wall; and as it bears abundantly, a small tree, grown

as a dwarf. This alford, in most cases, a sufficient supply during the time it remains in perfection. It succeeds on the Quince stock.—*R. F.*

Home Correspondence.

Polmaise Heating.—The great mistake which has been committed relative to the merit of this system, as far as its heating capabilities are concerned, is the considering the Vinery at Polmaise heated at all; because, from the evidence which has been as yet produced, it does not appear that the apparatus has been worked at a season when the weather was such as to test its heating capabilities sufficiently to enable anybody to pronounce a definite opinion upon the subject. To ripen Grapes (aye, and good Grapes too) in September and October, does not require much aid from a heating apparatus of any kind; for the fruit which Mr. Crawshay sent to the meeting of the Horticultural Society last year was in no way inferior to what that gentleman had sent in former years, nor, I will venture to assert, to the Grapes ripened at Polmaise; while it is well known that Mr. C. uses no fire heat at all, except what is necessary to expel damp in dull weather when the Grapes are ripening, and his sashes are glazed with wide unputtied laps, so as to admit a regular current of air at all seasons, let the weather be what it may. "Oh! but," say the advocates of the Polmaise system, "the Grapes were very fine; so fine as to frighten all competitors from the Stirling exhibition." Granted. But, surely, nobody who ever pruned a Vine, or thinned a bunch of Grapes, would, in the present advanced state of horticultural science, attribute the whole of the merit of swelling fine Grapes in the dog-days to the heating of the Vinery alone. A kindly atmosphere, such as will be produced by the heat of a stove striking against a wet blanket, and a free circulation of air, are two most important elements of success; but we all know that no amount of atmospheric management will be sufficient to produce fine fruit upon plants which have not their roots in an equally healthy and well-managed situation. The whole secret of the production of fine Grapes at Polmaise is, the Vines have been well-planted, and being as it were pet children, have been attended with that solicitude which, in the hands of a good cultivator, would have resulted in good Grapes, had there been no heating apparatus at all; and nothing, in my opinion, can be more unphilosophical than to suppose that the production of fine summer fruit can by any possibility be attributable to the system of heating employed at a time when, as we have already seen, but very little artificial assistance from fire heat is required. However, to speak of the system itself, I have very grave doubts whether the apparatus at Polmaise, or any other one similarly constructed, is capable of producing and maintaining a forcing temperature with anything like ordinary winter weather. A few years back, when everybody was advocating the use of Joyce's, Arnott's, Chunk, and other stoves, which were said to heat large buildings by very small supplies of fuel, I was induced to make the attempt to heat a small Vinery, considerably less than the one at Polmaise, for the production of winter Cucumbers. For this purpose, I used a plain Arnott stove, which, together with the pipe which conveyed the smoke to the chimney, presented a radiating surface of about 30 feet superficial. Over the top of the stove, and also over the pipe, which was carried horizontally to the end of the house, I had large evaporating pans, and though I could heat the water nearly to the boiling point, and produce a temperature of 80°, in mild calm weather, I could not by any amount of attention keep the house higher than 60°, without covering it, during the prevalence of a brisk wind, accompanied by a few degrees of frost. Now, if an apparatus of the preceding power was insufficient to heat a much smaller house than the one at Polmaise, with, say the external air at 20°, what power would be necessary to heat a larger house to 70°, with the thermometer outside at zero? and when the advocates have answered this question, will they also solve the following problem: What will be the amount in the saving, say in 10 years, between erecting a proper hot-water apparatus, which would cost, say 20*l.*, and using the stove and its appurtenances, which would require to be removed every alternate year, at an expence of from 7*l.* to 10*l.*? From what I have seen, I suspect the strongest stoves made would not endure more than two seasons hard forcing. Depend upon it the strong job is the cheap job, and whoever thinks to garden economically by dealing at cheap shops will, in the course of time, find he has made a wrong calculation. Two years back I had orders to procure estimates for repairing old and constructing such new erections as had been agreed upon, and to heat the whole in the best and most economical manner by hot water. This I did at an expense of nearly 700*l.*, adopting the revised plan of Mr. Penn, and was told by the advocates of brick tanks, cement gutters, and other ephemera of the day, that I had incurred an extravagant and unnecessary expenditure. But how stands the matter now? My apparatus will last a lifetime, while, if I had saved 100*l.* by using brick and cement, it would have required 200*l.* by this time to have replaced that material. In constructing these erections provision was made for circulating the atmosphere, according to Mr. Penn's practice, and though I was very much pleased with the theory, in practice I have found no advantage to result from it. When I say practice, I mean I have not found plants to grow any better in the moving atmosphere than they have done in what is considered a stationary one. Indeed, so satisfied am I that there is nothing in it, that whenever the arrangements for [illegible] with our unwillingness to [illegible] have been removed; and in erecting another range of houses 12 months back, the only part of the arrangement I considered it necessary to adopt was the making provision for the constant admission of fresh air through and about the hot-water pipes. This is an advance in the right direction, and so satisfied am I of its invigorating influence, that were I in a situation where fuel was less expensive, I would not close the ventilators of my plant stove from year's end to year's end. Place a coarse wet woollen net over your hot-water pipes, and moisten it either by the capillary attraction of a few strings of worsted, or occasional sprinkling; admit air through the front wall to the hot-water pipes, and you have all the necessaries of a fine, fresh, and moist atmosphere, or a dry one, if you require it, by withdrawing the net. The heated air, as it passes through the net, absorbs moisture equal to its capacity of carrying it, and hence the hygrometric state of the atmosphere is always uniform and proportionate to the temperature—a consideration of the greatest importance in all horticultural buildings, especially in the growing season. The Polmaise system is merely a revival of Mr. Penn's original plan, exploded in the first volume of the *Chronicle*, and abandoned by Mr. Penn himself as impracticable. To make currents of heated air circulate contrary to the laws of Nature, as is attempted in the Polmaise plan, enjoins a waste of power which one would think would not be attempted in the present day; and though I had ample opportunities of seeing in Mr. Penn's houses that currents of warm air could be made to travel contrary to their natural course, yet I could also see that this could only be accomplished to a very limited extent, and that, too, by a waste of power which would have been sufficient to heat a house of double the size, and with the same result, if applied in the right way. Therefore, looking at the Polmaise system in all its bearings, and with no other object in view than that of wishing that right should prevail, I must regard the plan as an unpromising instrument, and one which must, like Mr. Penn's, and several others that have been broached within the last few years, soon be numbered "among the things that were." If I am wrong, I am willing to pay the penalty of my miscalculations, but until the laws of Nature are changed the Polmaise system cannot answer as at present arranged, except by a great waste of power, however well it might work for summer forcing, if the stove was placed in the front instead of the back of the house, and the heated air be permitted to work as is its natural bent. Arranged in that way, I have no doubt the plan will answer sufficiently well to please some people, but whoever wishes to have his table supplied with early Grapes will find it the cheapest in the end to erect a proper and substantial apparatus. Upon this I am quite willing to risk my professional character.—*W. P. Ayres, Brooklands Park, Blackheath, Jan.* 14.

Importance of Motion to the Air in Vineries, &c.—Your observations on the Polmaise heating have created considerable sensation in this quarter, and I doubt not will bestir many an active mind in other lands "to work out the problem." The fact that the leaves of plants constantly imbibe certain necessary constituents from the atmosphere, suggests how requisite it is to produce motion in the air of Vineries, greenhouses, or stoves. The natural atmosphere also teaches us that it would not be well either for the vegetable or the animal kingdom did it want motion. When we enter a Vinery all is calm, and if we could investigate the functions of a small leaf as it selects certain constituents for food, refusing and giving off other matters, we should be more able to calculate the importance of producing motion in the air. True, there is confused motion going on even in a common Vinery, where the air as it becomes heated ascends from the flues or hot-water pipes, descending again to colder parts of the house, but it seems as proper to give a direction to this motion as that Nature should cause the wind to blow only in one direction in a certain place at one time. It may also be found advantageous to change the direction of the current according to the lesson taught us by Nature, and it seems practicable enough to effect this upon the revolving system by having two classes of air drains, with dampers, &c. I have witnessed the splendid crops of Grapes at Polmaise for the last two seasons. I have breathed the lightness and experienced the pleasant feeling of the air, even when the thermometer ranged above 70°, and would have guessed the temperature at 55°. On one evening when the heat proceeded more from the stove than from the sun, I could distinctly observe the leaves trembling as the descending air fell upon their upper surfaces in its rapid circulation. I was more struck with the thickness of the leaves and their footstalks, and the size of the Grapes, than with the wood of the Vines. I did not think the borders superior. When the trough was filled with water, and the woollen threads attached to the web in it, the capillary attraction of the threads rendered the cloth wet and made every leaf drop with moisture in five minutes. This evaporation was at once rendered quick or slow by the greater or less number of worsted threads thrown from the web into the water. I had witnessed something of the success of revolving air in Vineries some 14 years ago, at North Berwick House, in East Lothian, where the external air was conducted from a sunny spot through a drain over a chambered furnace, and let free at occasional openings of a double covered flue. I have also for several years past had an opportunity [illegible] very the Grapes produced by the agency of [illegible]'s hot air stoves, under the management of Mr. Gardiner, who has given the plan of his house in another column. The application of the "wet blanket," and the particular current given to the air, are new features in heating, however, for which the horticultural world is indebted to Mr. Murrity, of Polmaise. I may remark, however, that eminent horticulturists calculate the original cost of the stove at from 12*l.* to 20*l.*, and they say that the probable loss of heat by the warm smoke passing too directly up the chimney, in place of circulating round a flue, are strong barriers to the general introduction of the Polmaise system of heating. Mr. Gardiner, at Oxenford Castle, near Edinburgh, in renewing the old flues of three forcing houses, has introduced feeding air drains across the Vine borders to the bottom of the front flue. The front flue (by which the smoke enters) is buried to the level of the floor, and has a circulating air chamber, six inches in width, around both sides of it, the back one being covered over to make the air travel; the front one is designed to be covered with cloth, through which the air may be moistened at pleasure from water held in the hollowed-out fire-clay covers of the flues. The returning smoke flue is built above the ground close to the back wall, with the trellis in front of it, so that the very productive Vines on the back wall may occupy the whole floor, as far as the retaining wall, which bounds the front flue. By this arrangement it will be observed, that the interior of the house looks remarkably level and neat, and the heated air ascends both from the back and from the front flue condensing along the middle of the house, where there are inlets to drains that return it again to be heated before it re-ascends. Some argue that the air should all arise from the front, while others hold to the back. Mr. Gardiner is combining both. In nature, I presume, the cold moist air generally descends over the upper surfaces of leaves, while the warmer air radiates upwards upon their backs. In the process of evaporation in the morning, however, I imagine that the back of the leaf is moistened, thus tending to counteract the effect of sunshine upon its upper surface. Mr. Gardiner has varied the arrangement of the flues in the different houses, and it will be interesting to know the result of their success and economy, as a few shillings will make the requisite alteration where old flues require repair. It is thus quite obvious that the important problem of giving motion to the atmosphere and leaves in hothouses is on the fair way of being solved.—*Robert Arthur, Waterloo-place, Edinburgh.*

Plants for Decorating the Greenhouse in Winter.—Your correspondent, Mr. Errington, has written well on the subject of winter flowers, but all of this matter has more or less related to plants forwarded for the purpose of the conservatory in higher temperatures. A most desirable, but more restricted class remains to be illustrated, that of strictly winter greenhouse plants; the list, in addition to those already given, should comprise such plants as will flower in their natural colours and habits in a common, well-appointed greenhouse during the months of November, December, and the first fortnight of January. I am able to do little more than make a start by observing that my greenhouse (not conservatory) is now like May with Cinerarias, the old Coronilla, Chrysanthemums, Mignonette (standards), Fuchsia microphylla, in small pots, a vigorous, herbaceous sucker, chosen in October, and the rest of the plant broken away; Salvia fulgens and patens; and has been during the above mentioned months, rejecting all flowers which bloom at this time out of doors, and all leavings of October. Out of half a dozen Coronillas, three will generally be in flower thus early. The Salvias were starved and stopped through the summer, and had a slight shift in September. The Cinerarias were early seedlings of the year. Salvia splendens was not included, though present, being always effective but never strictly comfortable, and many others rejected as being liable to damp off in flower. Colour and quantity of the plants should be preferred to any floristical excellence or fine specimens; the house should be kept like a drawing-room, all the flowering plants being put together in one or two compartments, and their situations changed with regard to effect almost daily. May I trust to the courtesy of amateur proprietors of greenhouses (the most likely persons) to add to my lowly list, and assist with their information.—*Micklewell.*

Noises (*see p.* 40).—Your correspondent, "A. S.," had better, I think, before pulling down his wall, try the effect of nailing up the common Laurel all over it, thickly and closely; this should be kept clipped and trimmed (chiefly in the spring), which will keep it regular and thick. The size to which the stem of the common Laurel grows is a recommendation in this case beyond Ivy. Magnolias fastened to the wall would be ornamental during the time of flowering. The common Laurel is used as a thick covering to walls, in the way I mention, at the Earl of Shrewsbury's, Alton Towers. It is there cut close in the spring, and is green all the year round; it harbours no insects, and is of a cheerful green colour. Should the wall in question be accessible to cattle, Laurel must not be used, but Holly will answer instead, without any risk. It must be nailed flat to the wall, and thus form a kind of cushion, which will deaden reverberation, as pictures and curtains do in a room, pictures particularly.—*A. Z.* [The wall adjoins the road. What is to be done while the trees are growing?]

The Ombrological Almanac.—In a short notice of this almanac in your Number for January 10 (page 23),

to the following passage—"By far the best of these weather almanacs, and no wall done that it is really worth being consulted. With Mr. Legh, the author, meteorology has long been a serious study. He calculates the variations of the atmosphere upon philosophical principles, and his results are well deserving of attentive study." From this I was induced to purchase it, and hoped to have found the work worthy of the character it had received, *i. e.* calculated "upon philosophical principles," but judge of my surprise on reading the following passage at page 10, "On the formation of Gases, Atmosphere, Clouds, and Rain:"—"The quantity of mist we see rising from the earth and sea is inadequate to form all the moisture that descends in rain and its congelations; hence the most probable fact is that gases concocted by electricity in the bowels of the earth, and expanded into gas by the heat of the sun, arise in far greater quantities invisibly than visibly, and when out of the reach of the earth and its electric and attracting convulsions, arrange themselves above, according to their specific gravities; the three only gases with simple bases would be arranged thus:—oxygen and its compound, atmospheric air, lowest, then nitrogen, then hydrogen. It is known that when either oxygen or atmospheric air is united to hydrogen, heat and electricity (of both of which there is, no doubt, abundance in the regions above) is produced, according to the proportion in which it is mixed, either mists, clouds, precipitation of drops of water, or detonations. Now, this union is brought about by the attraction of the heavenly bodies, increased by being in conjunction, so that the oxygen is drawn up, and, by reciprocation, the hydrogen is brought down, and, according to the power at the time, either pale blue sky, which is the first symptom of gaseous mixture, or else remote clouds, or near and impending clouds, or their collision and precipitation in rain, or transmutation into hail or snow, or otherwise, or else ignition and detonation in lightning and thunder, is the consequence. Here is the whole foundation of the science." The above extract is a fair specimen of the "Essay on Anemology and Ombrology," with which the Weather Almanac is prefaced, and if these are the "philosophical principles" on which Mr. Legh has calculated his Almanac, and on which he places "the whole foundation of the science," the day is far distant when we may expect accurate results from such reasoning, and which the veriest tyro in natural philosophy would laugh to scorn. As a specimen of the result of the predictions from such data, he gives the weather for the day on which we write, January 19, "fair, pale suffusion;" query, *pal* suffusion, for it has rained in torrents for the last ten hours, with every probability of a continuance, the mercury in the barometer being 28.20 inches.—*A. G.* [It is necessary, for our own justification, to state that we have ourselves examined this Almanac, and that we find that our reviewer gave an opinion of it which it scarcely deserves.]

Green Frogs (*see p.* 37).—I kept many of the beautiful little green tree frogs, Hyla viridis, through two winters, and they remained perfectly healthy. Those I turned out at Selborne, in a coppice bordering a large pond, about a year and a half since, but have no subsequent knowledge of them. I have now four living in a glass jar, and they appear to be in perfect health. My plan has been to give them a turf during the summer, which was kept damp, but not wet, and a little shallow vessel of water was placed on the turf at one corner of the glass box in which the animals resided. The turf was changed once a week. I fed them profusely with flies, and often in the autumn with the larger tipulidæ, which they ate eagerly. In the winter I left them to the hybornation, which, however, amounted only to a very partial torpor; and in the spring they were ready for the flies as soon as the flies were ready for them. I do not doubt that these pretty amphibia might be naturalised in this country in favourable situations, and I only await the arrival of a sufficient number in the ensuing spring, to give a full and fair trial. They are found in plenty on the Continent in colder situations than the south of England.—*Thomas Bell.*——These frogs are used on the Continent as barometers. The first I ever saw was in a shop at Munich. On inquiring of the owner, he informed me he had had it for several years. It was kept in a tall confectioner's glass about a foot high, and a piece of coarse gauze or muslin tied over the top; at the bottom was some wet Moss, sufficiently deep for the little creature to hide itself in; this was changed every week or fortnight. It was very fond of flies, but these, the man said, he gave it occasionally more as a *bonne bouche*, than as a matter of food. A little wooden ladder reached from the bottom to within an inch of the top of the glass. As the weather changed, so did froggy ascend or descend, and if it was set fair he would sometimes sit for days on the top step; whilst, if bad weather came, he would also for days hide himself in the wet Moss. I afterwards mentioned the circumstance to the late Mr. Doubleday; he expressed a strong desire for one, which, with some difficulty, I procured on my next visit to the Continent. This lived with me for many weeks; I had a basket made, into which the glass dropped, and which I suspended in the carriage. I am quite sure at last the little creature knew me; its eyes would sparkle when I came up to it; if I gave it a fly, it would suffer the insect to buzz about for perhaps a minute, then make a sudden dart, and swallow it at a mouthful. Unfortunately Mr. Deuce placed it in a glass nearly filled with water, and it died soon after he had it. I have never since been able to procure another. They are extremely interesting, and in an elegant-shaped glass would form a most beautiful and useful ornament in any drawing-room as a thermometer. Mr. Doubleday would inform me where I could procure one, he would much oblige.—R., *London.*

Cements.—In reply to the inquiries of "W. C. M.," p. 56, I can only inform him, that a cubic foot of the cement will weigh 1 cwt. 2 qrs. 22 lb; and as his tank will require about 700 bricks to line it, half brick thick, each brick will probably require a pound of cement. But if his tank is under ground, how much easier and cheaper it would be to line the excavation with a face wall built in Aberthaw lime (or any lime burnt from the blue lias), grouting behind it with the same, and plastering the inside with Roman cement; this will be sure to hold, and will not injure the water. If it be above ground, it will require pretty thick walls; for "W. C. M." should be aware that the lateral pressure of water 5 feet deep, will be from 280 to 300 lbs. on each square foot. If "M. O." p. 40, can procure a sufficient quantity of scales from smith's anvils, and make them into a mixture with Aberthaw lime, clean out the joints of his arches, and fresh point them, and plaster the whole with the same, he may be assured no wet will ever percolate through them.—*Tusor.*——I beg to inform "M. O." that he will find a composition of gas tar cinders, from a mill, what is termed dross, and gravel mixed together, a most durable and excellent composition. I have used it most extensively, for roads, garden walks, and floors under sheds and stables. I have also made a mixture of tar and lime, which is most durable, and a neighbour of mine has lined a soft-water tank, and says it answers well. The nearer the tar is got from the bottom of the tank the better. It requires well rolling after being put on, and if you are unable to roll for want of space beat it well with a shovel.—*Subscriber.*

Preservation of Pelargoniums in Winter.—A year or two ago, I observed a mode of preserving Pelargoniums during winter, without the aid of glass, highly recommended in several periodicals; it was this: The plants to be preserved were to be taken out of the ground in autumn, before having suffered from frost, the earth shaken from their roots, and then they were to be hung up, foliage downwards, in a dark dry cellar, or such like place, there to remain till the arrival of the period for their being planted, viz., the ensuing spring. I then thought this a rather novel mode of sustaining for so long period as our winters generally are, such plants as Pelargoniums; but I determined to test it by experiment, for in such cases facts are more valuable than thoughts. Accordingly in the autumn of 1844, I carefully lifted a number of fine robust healthy Geranium plants, from a flower border, in which they had been growing during the summer. I cleared the earth from their roots, without injuring the latter, and hung them up in such a situation as was recommended, where I was certain they would be kept dark, dry, and free from frost. They kept fresh for a few days; but soon symptoms of death made their appearance: the leaves lost their lovely green hue, and curled up; the juice escaped from the stems,—and in a very few weeks the plants appeared like mere bundles of broken reeds. From this I inferred (and any person of common sense would have done the same) that the experiment would be unsuccessful, and I wondered not at this being the case, for I could not even allow myself to think that it was possible for Pelargoniums to be kept in life under such circumstances. Determined, however, to give it full fair play, I kept my vegetable mummies in their situation until the spring of the following year (1845), when I committed the withered remains to the care of mother earth, to the utter disgrace of my flower borders. There they stood for several weeks; but the genial warmth of spring had no effect upon them—they showed not the least indications of growth or of returning life—and fully satisfied of the fallacy of that mode of preserving such things during winter, I cleared them off to their proper place—the mould heap. Another experiment, however, somewhat akin to the above, succeeded better; but I believe it is already well known to gardeners. This was to keep them during winter in a situation in all respects similar to that above mentioned, with this exception, that the plants were kept in the pots with the earth in which they had been growing during the previous summer undisturbed. This succeeded wonderfully. The plants in the spring, after their long confinement, had, of course, a very sickly appearance; but when put out in the open air they soon commenced to grow, and grew vigorously too, and very soon produced abundance of fine flowers. It may be proper, however, to remark that, in this case, the experiment was tried with Scarlet Pelargoniums alone.—*Geo. Lawson, Dundee.*

Societies.

HORTICULTURAL SOCIETY.

Jan. 20.—C. B. Warner, Esq., in the chair. J. S. Schröder, Esq., of Stratford Green, Essex, and M. Louis Van Houtte, of Ghent, were elected Fellows. At this meeting, considering the season, a large number of gay plants were brought together, and foremost among them was a charming collection of Orchids, from S. Rucker, Esq., of Wandsworth. These comprised some remarkable specimens, especially one of Cœlogyne cristata, producing four spikes, each containing five snow-white blossoms; Lycaste Skinneri, a Guatemala species, remarkable for its beautiful large pink flowers; Brassavola glauca, with greenish-white blossoms; Trichopilia tortilis, remarkable for its twisted petals and pink spotted lip; the Mexican Odontoglossum cordatum, a green-flowered Laelia, and a cut spike of Laelia anceps, which, although very fine, was however considerably inferior to a noble cut specimen of the same from the Society's Garden. This large head of bloom contained 10 fully expanded rich purple flowers, which were elevated on a flower-spike of about 5 ft. in length. Some disappointment was experienced on the first flowering of this plant, from which much was expected; but in this instance we imagine it has fulfilled the highest expectations formed of it. Besides the spike exhibited, the plant has five others fast coming into beauty, and will soon form an object of very great interest. The plant was discovered in Guatemala by Mr. Skinner, and Mr. Hartweg also met with it in abundance in the neighbourhood of Chantla, where large masses of it are planted by the Indians in front of their doors. A Knightian Medal was awarded Mr. Rucker for his Epiphytes.—From Mr. Green, gr. to Sir E. Antrobus, Bart., was a beautiful plant of the useful Gesnera zebrina, and a large mass of Epiphyllum truncatum covered with bloom down to the pot. In propagating the latter it was mentioned that young healthy plants of Cereus speciosissimus formed the best stocks for it, inserting the scions in March. The plants are then kept in the stove till they are sufficiently large for flowering, which is about 18 months after they have been grafted. In the autumn of the second year they are removed from the stove to a cool greenhouse, or, if the weather is fine, to a south border. As winter approaches the supply of water is diminished, till finally they are kept quite dry. In this state they remain in the greenhouse till they are required for forcing. Those for blooming first are placed again in the stove early in spring, and as soon as they have matured their first growth they are removed to an exposed part of the garden, which causes them to set their flower buds; as soon as this is effected, the plants are placed in the greenhouse, where they flower in October. Treated in this way a continued crop of flowers may be kept up from October to March. A Banksian Medal was awarded.—From Mr Fraser, of Lea Bridge-road, was a seedling Epacris, being one of the endless variety of E. impressa.—Mr. Ivory, of Peckham, received a certificate for a blue seedling Cineraria, named the Conqueror.—Messrs. Veitch and Son, of Exeter, sent two plants (named Collanias), nearly related to Alstroemeria, producing terminal clusters of red and green flowers of little beauty. They were sent by Mr. W. Lobb from Peru, and were said to be hardy or very nearly so. A singular circumstance connected with them is that the leaves, being closely covered with short white hairs on the upper sides are thereby unable to perform their functions properly in regard to light; but in order to remedy this, by a twist at the base of the leaf, the under sides, which are smooth, are turned uppermost, thus exhibiting one of the many curious yet simple means by which Nature effects the ends best adapted to her purpose.—Mr. Dawson, of Brixton Hill, sent Erica mutabilis and E. Banksiæ; the latter a fine specimen of its kind, to which a Certificate was awarded.—From Mr. Floy, nurseryman, Haarlem, near New York, were three ears of wild Indian Corn, exhibiting some of the changes which occur in its passing from the wild to the cultivated state. In the wild state it consists almost entirely of husks, but in course of cultivation these husks gradually disappear, and the grain becomes larger and firmer, and in this manner it goes on improving till it finally arrives at perfection; thus showing how difficult it is to recognise cultivated grain in its wild form, and in some measure explaining why so little is known regarding the origin of most kinds of our cultivated corn. Seeds of the above were found by an American exploring expedition to the south of the Rocky Mountains, and a few grains having been given to Mr. Floy, he succeeded in raising them in his Nursery, and these were samples of the produce.—Of Fruit, Sir C. Monck, Bart., sent from Wales good samples, considering the unfavourable season we have had, of Lemons and Forbidden Fruit, for which a certificate was awarded. Mr. Toy, gr. to Col. Challoner, received a certificate for fine-looking specimens of West's St. Peter's Grapes; and G. Crawshay, Esq., of Colney Hatch, again sent samples of Black Hamburghs that had been cut 10 days previous to the day of exhibition; they were beginning to shrivel, and were fast passing into the condition of raisins. Mr. Foster, gr. at Benningborough Hall, near York, exhibited a seedling black Grape, which was said to have been a cross between the Blue Morocco and the Royal Muscadine. It was mentioned that the same berry which produced the bunch sent, also produced a white Grape something like a Tokay. Seedling Apples came from Dr. Maclean, of Colchester, and a collection of Pears in excellent preservation from J. Moorman, Esq., of Portland-place, Clapham-road; among these were fine specimens of Glout Morceau, Passe Colmar, Napoleon, Ne plus Meuris, and Winter Nelis. Mr. Moorman having every year about this time sent these and other sorts in fine condition, it has been a matter of inquiry as to how they have been managed; we understand the only secret consists in gathering the fruit free from bruises, and in carefully excluding all light from the fruit-room, a circumstance which is not attended to so much as it should be; although it is well-known that the influence of light on the green surface of the fruit has the effect of exciting evaporation, which exhausts and causes it to shrivel. A certificate was awarded. Of miscellaneous articles, Mr. Toy produced a hot-water apparatus, in the shape of a small wooden tank covered with slates. This was sent to show that hot water might be made to flow and return in the same tank, without a division, and on trial this proved to be

correct.—From the garden of the Rev. Mr. Clowes, Cheshunt, Grafted, Pinuses spectabilis; Hippeastrum aulicum, a beautiful bulb, with large red flowers; a Cape Heath, the rare Epidendrum Skinneri, the cut spike of Lælia superbiens above alluded to, and a new Daphne, with blue flowers, sent from China, by Mr. Fortune. This plant had been forced, to bring it into flower for the meeting, and was rather naked looking; but in the native specimens it appears to be much branched, and to be a most profuse bloomer, the flowers being, of course, much darker coloured than those on the plant exhibited. Being from Ning Po, and also found in the island of Chusan, whence the Glycine sinensis comes, which we know to be hardy, it may possibly prove so also; but if this should not turn out so be the case, a cool pit or greenhouse will be sufficient protection for it. Along with these were two Chinese Primulas, one had been grown in a cold pit in summer, and placed in autumn in the conservatory. The other was kept in a hot-water pit till it was in bloom, which was some weeks later than the one in the conservatory. From the appearance of these plants, it would appear that the Chinese Primrose is not a suitable plant for forcing, for the flowers on the forced specimen were not half the size, nor half so well coloured, as those on the plant that was not subjected to such treatment. Along with these were flowers of the different sorts of Chimonanthus, and a cut specimen of Garrya elliptica, a hardy evergreen shrub, which produces at this season long drooping tails of greenish flowers, and deserves to be extensively cultivated in shrubberies. The Fruit consisted of Apples, among which were Reinette du Canada, a large good sort; Pearson's Plate, one of our best dessert varieties; Boston Russet, the best late American Apple for this climate, in which it succeeds well, proving far superior to the Newtown Pippin, in this country; New Rock Pippin, firm and sugary; and the Beachamwell. Among kitchen sorts, were Gloria Mundi, a large Apple, which should be grown on short-stemmed dwarfs, being very liable to be blown down from tall standards, and Rymer, a hardy sort and great bearer. Upwards of 12*l.* was obtained for the produce of one tree near Nottingham, where it is known by the name of Caldwell.

LINNEAN SOCIETY.

Jan. 20.—R. Brown, Esq. in the chair. Mr. J. N. Sheeler, of Worcester, and Mr. Robert Marnock, of the Royal Botanic Garden, Regent's Park, were elected Fellows. A paper was read from the late Wm. Griffith, Esq., on the structure of the ascidia and stomata of Dischidia Rafflesiana. The author stated that the commonly adopted opinion with regard to the pitchers of this plant was that they were a modification of the petiole, and the lid or operculum of the lamina. From an examination of the plant he had come to the conclusion that the pitchers were leaves which had been formed by a union of the edges of the lamina, a conclusion which had been previously come to by Dr. Lindley in his "Introduction," page 98. He referred to the structure of the stomata, which were only imperfectly developed, and were found on both surfaces of the leaves, but most abundantly on the concave surface of the leaf, and the corresponding inner surface of the pitcher. It is to their presence that the minute white dots existing on both surfaces of the leaves and ascidia are to be attributed. From the existence of these stomata on the dark-coloured concealed portion of the ascidia, the author was inclined to ask the question, can they have the same function with those of ordinary stomates? May not the function of those in which the stoma is opaque be glandular? A second paper was read from Mr. Griffith, "On the Structure and Germination of the Seeds of Careya." The seeds examined were those of C. herbacea. An analogous structure was observed in Barringtonia. Both papers were illustrated by drawings. Specimens of Œnanthe pimpinelloides were presented by Hewit C. Watson, Esq. A packet of dried plants, from Ceylon, was presented by Dr. Kelaart, of Gibraltar.

MICROSCOPICAL SOCIETY.

Jan. 14.—Mr. Wilkinson read a paper on some new forms of recent and fossil Xanthidia. Of the fossil species he particularly described two new species. The first is characterised by possessing an enlargement of the tubes at one end. The second appeared to consist of two cup-shaped bodies joined together at the edges, and having spines or tentacules thickly set all over them. He described several recent species found in the Thames mud, and gave it as his opinion that their skeletons were horny, not siliceous. There was some difference of opinion amongst the members as to the second fossil species being new, but no doubt was expressed as to the first.

Reviews.

Sowerby's Supplement to English Botany.

(Continued from page 438, 1845.)

Pl. 2896. *Carex paradoxa* (Willd.) is a Sedge of no interest to any except professed botanists. It was first noticed in Britain by Mr. D. Moore, the well known Irish botanist, at Ladiston, in Ireland, and more recently detected near York by Mr. R. Spruce. Described by Mr. Babington; Bab. Man. 337.

Pl. 2897. *Calamintha sylvatica* (Bromf.)—*Sp. Char.* "Stems lax; branches few, elongate, nearly erect. Leaves ovate; upper ones acute, sharply serrate. Cymes many-flowered, stalked. Lower lip of corolla with connate segments, middle one emarginate, longer than the two lateral, broadly obcordate. Upper and lateral ones recurved. Root-fibres creeping." A new and very beautiful plant, found by Dr. Bromfield in the Isle of Wight. It is well deserving of a place in a garden, and is more especially handsome when confined to a pot—producing very numerous large flowers, and continuing in flower for many weeks. Described by Dr. Bromfield.

Pl. 2898. *Cuscuta Trifolii* (Bab.)—This is a good figure of an agricultural pest often noticed in our former volumes as most destructive to the crops of Clover in the eastern counties and some other parts of the country. It is supposed to have been introduced with Clover seed from Holland or Belgium, but we have recently been informed that specimens of it exist in some old Herbaria, and that, therefore, it may have stronger claims to be considered as a native plant than is stated in the description appended to the above plate. This is a point of next to no interest to the agriculturist, and it is quite certain that the large quantities of it which destroyed the crops lately were raised from seeds sown by himself on his own land and paid for as foreign Clover seed. We have often pressed upon farmers the necessity of using clean seed, and we have here a strong case in which the necessity of such attention to seeds is shown. Described by Mr. Babington; Bab. Man. 303.

Pl. 2899. *Tyndaridea anomala* (Ralfs.)—A minute and curious aquatic cryptogamic plant solely of botanical interest. Described by Mr. Ralfs.

Pl. 2900. *Erica Mackaiana* (Bab.)—An elegant plant well deserving of a place in gardens. Being a native of Ireland it is hardy, and therefore an acceptable addition to our few hardy species of Heath. It bears numerous purple flowers, somewhat after the manner of E. tetralix, but devoid of the scattered habit of that plant; here the branches are very numerous, and all rising to nearly the same level, and each terminating in a cluster of flowers, they form a dense mass of bloom. We have seen it flowering in the Botanic Society's Garden, Regent's Park. It only requires to be known to become a universal favourite with the cultivators of hardy plants. Described by Mr. Babington. Hook. Brit. Fl. 207. Bab. Man. 192.

Pl. 2901. *Phascum triquetrum* (Spruce.)—A new Moss described by Mr. R. Spruce.

Pl. 2902. *Chorda lumentaria* (Lyngb.)—A curious sea-weed, described by the Rev. M. J. Berkeley.

New Garden Plants.

9. Pterostigma grandiflorum. Large flowered Wing-point. *Greenhouse Herbaceous Plant.* (Figworts). China.

Received from Mr. Fortune, July 30, 1843, from Hong Kong, as an herbaceous plant, with blue flowers, growing on hill sides and near streams. In its wild state this plant does not appear to grow more than a foot or 18 inches high; but in gardens it has become more than three feet high, the consequence of which is that its natural beauty has been greatly impaired. It is a perennial, covered all over with slender spreading hairs. The stems are round; the leaves are opposite, stalked, ovate, crenated, very much marked with sunken veins, and deep green. The flowers, which are nearly as large as those of a Digitalis, and of the deep colour of Gloxinia violacea, grow singly in the axils of the leaves, than which they are considerably shorter. The calyx appears to consist of seven narrow green leaves, imbricated at their base, but the number varies to eight; they form a complete broken whorl, and may be understood to consist in part of bracts which stand close to the true sepals, and become blended with them; of these the three exterior are both broader and longer than the others. The corolla is tubular, two-lipped, with the upper lip broad, ovate, blunt, and notched, while the lower is composed of three smaller divisions placed nearly on the same plane; in this respect, however, the flower varies, some of the specimens having four lobes in the lower lip. The usual number of stamens is four, of which two are perfect and next the upper lip, and two stunted, of the same length but more slender, and belonging to the lower lip; when an additional lobe appears in the lower lip of the corolla it is accompanied by an additional sterile stamen. The perfect anthers are constructed in an unusual manner; at the end of the filament is a large globular green gland, which eventually shrinks up; upon this green gland are planted two lobes of unequal length, bursting longitudinally. The style and stigma too are of a singular form, the former gradually widening and flattening upwards till it ends in a thin broad plate which curves forward and forms a stigma on its anterior edge. This species has been treated as a stove plant, but will probably prove hardy enough to stand in a greenhouse. It appears to grow freely in almost any sort of soil, especially sandy peat. In summer an ample supply of water is necessary, and shading in sunny weather: in consequence of its being subject to damp off in winter, it will require to be kept rather dry for a few weeks: it is very easily multiplied from cuttings in the usual way. Should this species flower abundantly, it will be a good addition to our stove plants.—*Journal of the Horticultural Society.*

Garden Memoranda.

Major Ford's, Bodlondeb, Conway, Carnarvonshire, North Wales.—In the open garden here there are at the present time Potatoes 6 inches above the ground; a dozen Early Cauliflowers have been cut this week; Peas are in bloom; Strawberries have been gathered this week, and Lettuce and Radishes, Mustard and Cress are also in as good condition as in the month of April. Three or four dishes of Beans were gathered on Christmas day, and on the 16th inst. a good dish of young Beans was gathered, which were very much enjoyed at dinner. The sort was the Early Mazagan; it was sown in the beginning of August; a great part of them are still in bloom. Another row of dwarf Beans, sown about the middle of August, are also in full bloom now, and looking as well as if it were the middle of summer. Has anybody else experienced the same result from the mildness of the weather?—*R. H., Jun.* 17, 1846.

CALENDAR OF OPERATIONS.

(For the ensuing Week.)

Although the expediency of night covering for the roofs of hothouses has been frequently pointed out, and pretty generally admitted, yet, little is done in that respect, as far as I am aware. To say that it is economical in point of fuel is only to recount half its merits. I am persuaded (to put a case), that in an early Vinery for instance, a night temperature of 60°, or even a degree or two less, would perfectly suffice, and be superior to one of 65° or 70°, which is the common practice; provided a good night covering were applied to the roof. Drip, it is well known, is liable to do considerable mischief in the conservatory, the late Vinery, and other structures; how easy then by night coverings to force the accumulating atmospheric moisture to make its escape in the shape of vapour, at the back ventilators; instead of, as is too often the case, descending in a shower of drip through contact with a very cold roof.

CONSERVATORIES, STOVES, &c.

Conservatory.—Keep a mild and sweet atmosphere. If any plant becomes foul with insects, remove it immediately, to be thoroughly cleaned; no course of culture will suffice, without thorough cleanliness. *Stove.*—Now is an excellent time to repot such of the Orchids as require it. If you have not yet prepared the necessary material, do it forthwith; few days only is required to this end. Abundance of peat, cut into cubes, varying from 1 inch to 2 inches; fresh sphagnum and charcoal in lumps, with abundance of crocks, should be all at hand. I half char my peat, and soak my sphagnum in boiling water, to destroy insects. Commence potting those showing signs of growth; and follow up in this order. *Geranium House.*—Slightly increase the quantity of water now—fumigate, if a single fly appear, give plenty of air, but beware of cold draughts. *Mixed Greenhouse.*—Cut down, number, and remove decayed Chrysanthemums; let them go dry in a cold pit. Cinerarias, which are cramped in their pots, may soon have a shift; likewise Chinese Primroses for spring work. *Forcing Pits.*—Introduce bulbs, Roses, Pinks, American shrubs, Lilacs, &c., in steady succession. Keep up a bottom heat of 75°, and an average surface temperature of 60° at night, and 70° by day, with air occasionally. *Cold Frames or Pits.*—Begin to water slightly those stores that appear to be suffering for want of that element. Introduce stock of choice Verbenas, Heliotropes, Petunias, and other stores intended for dress beds or borders, to some warm and light situation in the houses or pits at work, in order to produce abundance of early cuttings.

KITCHEN GARDEN FORCING.

Pineries.—Those which are up or rising should have plenty of atmospheric moisture; few allow sufficient. Allow a powerful heat on sunny days, a little syringing also, about once or twice a week, between their stems. Let 80° of bottom heat be your maximum at present. *Hamilton's System.*—Do not disturb the plants till February, although in a bottom heat of only 70°. *Early Vinery.*—Let thermometer be 70° by day, 60° by night. Continue steady disbudding. Stop the shoots as they advance, at the joint above the fruit. If the lower part of the house be deficient of wood, select some well placed buds as they break, to fill the vacancy; and suffer them to ramble considerably without stopping—they will soon furnish the gaps again, by acquiring more strength. *Peach House.*—Air freely all day, with a lively temperature of 60°, sinking low at night. If the trees are nearly done blooming batter them with the syringe about four o'clock in the afternoon. Commence disbudding as soon as the shoots are long enough; removing a small quantity daily. *Cherry House.*—A mild and somewhat moist atmosphere is everything. Air, when in flower, similar to Peaches; let the temperature be, however, 5° less even in the day. See that the roots are in a proper state of moisture. *Figs.*—Syringe morning and evening. Thermometer 65° or 70° by day; 55° or 60° by night. Beware of any extreme at the root. Continue to introduce Mint, Sorrel, Tarragon, &c. in heat. Kidney Beans are best planted four in a 5-inch pot, "stopped," and suffered to become stiff and firm; then shifted finally into full-sized pots; after which give liquid manure constantly. *Cucumbers in Frames.*—Sow successions of choice kinds in case of failure. Pot off young stock betimes, and top them when established in their pots, as soon as the rough leaf is somewhat unfolded. Take care that the new made bed is absolutely sweet, and that no gross steam can enter from the linings. Lay a thick turf under each hill, and in making the hills confine them as much as possible to the centre of the light, in order to be able, if necessary, to apply water to the dung between the hills, which should be done frequently, the oftener the better. If the dung should not have been sufficiently fermented apply hot water if at hand; it will hasten the decomposition. Give air night and day, and in order to be able to do so, keep powerful linings and water them frequently;

the ground until the spring. Turn some Beschinfeed or other early Melons. Get some dung at work for the bed, and carry it through as careful a process as that for the early Cucumbers. If ridged up by the second week in February, they will be sufficiently early to prove a safe crop, and will be ready by the first week in June, if not a fortnight earlier. Provide successions of Asparagus, Seakale, Rhubarb, &c.; the two latter succeed admirably in a Mushroom house. Chicory also in pots in the same place.

FLOWER-GARDEN AND SHRUBBERIES.

Those who have alterations to accomplish this spring, in the way of planting and ground-work, must now lose no time. In planting large shrubs, it is an excellent practice to half-fill the holes intended for the plant or tree, with the rakings of the pleasure-grounds; which I always reserve in heaps, in back places, for that purpose. This imparts an unusual degree of luxuriance to the plants, and of a most enduring character too. Look over and correct the general outlines of ornamental plantations. Break into all hedge-like lines; form bold recesses where space will admit of it; and endeavour to create intricacies. The lines of irregular plantations or shrubberies should be corrected in this way at least every three years; as however well they may have been designed originally, the unequal growth of trees will, in in some degree, militate against the first intention. Rearrange American masses; some of the delicate Azaleas, &c., are frequently overgrown and injured by the grosser Rhododendrons. Biennials may be planted in flower-borders or beds; see to your bulbous tribes; stir amongst them and protect if necessary. Give air to, and examine half-hardy plants; see that they do not suffer from confined damp.

FLORISTS' FLOWERS.

From the mild weather we have hitherto had, all flowers will be more susceptible than usual of frosts and cutting winds. We need not press on our readers the necessity of taking heed of those precautions which have been from time to time inculcated in the *Chronicle*. Many collections of Tulips are now so forward that unless protected in some of the ways recommended, serious consequences would inevitably result to the embryo blooms, which, though below the surface, will certainly be more or less injured by the action of the weather. Ranunculus beds may be thrown up in ridges of about 4 inches, so that the lower part of the bed is allowed to remain undisturbed. By this means advantage can be taken of a fine day, should the weather prove fickle, about the 14th of February; as when suffered to lie in this state, the surface soil becomes sooner dry, and by simply raking level is immediately ready for putting in the roots. Polyanthus seeds may now be sown in pans. Some florists start them in a slight heat, and when up, gradually harden them. Look well after Carnations in pots; those on beds will require protection in exposed situations. Attend to all the minutiæ of cleanliness, watering, &c. &c.

KITCHEN GARDEN AND ORCHARD.

The time has now arrived to commence operations here in earnest, and one of the first steps is to plan out every inch of ground for the whole year, if possible. Laths should be written upon and placed at the heads of the quarters, descriptive of the kind of crop, the manuring, and what succeeded by. It is necessary also, in order to follow up a systematic rotation of crops, to keep a cropping book corresponding with the labels. Most persons will have laid in their stock of seeds for the year. The old remains of last year should be thoroughly examined, and all the seeds deemed safe for the current season reserved, and some mixed with the new samples. A little Cauliflower, and a pinch of brown Cos Lettuce should be sown in boxes, and placed in a house at work. Also some white Spanish and Portugal Onion, to be transplanted in highly manured ground. Sow a little Parsley, a little early dwarf Cabbage—the Vanack or Nonpareil—a little round Spinach, and a pinch of early Dutch Turnip, on a warm slope. A plot of ground should be forthwith appropriated to slopes; it is strange that gardeners do not avail themselves in a greater degree of the immense advantages offered by slanting surfaces. The slopes should of course run east and west, and are most convenient about 3 feet 6 inches wide. They should, if possible, be attached to the frame ground, as many of the articles—as Radish, Horn Carrot, early Lettuces, &c.—will require occasional covering with litter, and frequent attention. Slopes of this kind after carrying their spring or early summer crops, will be equally eligible for autumn ones; more especially for Endive, autumn Carrots, or for raising the stock of winter Lettuces. The sooner Asparagus beds are manured and soiled the better; an article in the *Chronicle*, (No. 40, 1844), describes my practice, from which I see no reason to differ. My Asparagus grown by that mode is excellent and most abundant. Plant Horse-radish, Seakale, and Jerusalem Artichokes as soon as possible. Follow up planting Potatoes, at least the early kinds; soil them over 9 inches deep, and draw off with rakes or hoes 2 to 3 inches in the first week of April, as a cleaning process. Follow up all nailing and pruning, except of Figs and Apricots; get the latter covered soon, to protect the blossom; when that is to be readily distinguished, finish the pruning of these also. Thin orchard trees, dress for American blight, clear Moss, Lichens, &c. Make cuttings of choice Gooseberries, Currants, &c., taking care to pick out the buds at the lowest end of the shoot, in order to avoid suckers.

COTTAGERS' GARDENS.

Plant Horse-radish, Jerusalem Artichokes, Seakale, and Rhubarb. The Artichokes will do in any waste corner, or as a boundary screen to prevent tender things. Make cuttings of choice Gooseberries and Currants; also Honeysuckles in the same manner, and Irish Ivy, for covering naked buildings. Lose no time in planting a good breadth of Potatoes, especially Kidneys; if the first sprout is lost from these they are of little use. If planted in well-managed beds, Drumhead or other Cabbages may be planted in the alleys, and will come in very serviceable for the cow. Get some ground trenched for Parsnips. Make a slope and sow a little Horn Carrots; throw a little Radish or Brown Cos Lettuce amongst them. Run the hoe through Cabbages, and soil up a little.

FORESTING.

Proceed with coppices, and hagging or clearing away coarse undergrowths. Take care in young coppices not to loosen or injure the roots; the saw is by some preferred to the axe. Smooth the tops of stools, to prevent water lodging, and cut low. Take care to fill up blanks by layering or planting. See to all drains; make new where necessary. Prepare new lines of fences; break them up well, and do not spare labour or depth. Prepare ground in the nursery for forest seeds; work it well, the time is at hand for sowing. See that the stores are free from vermin. Prune and thin Larch plantations (dead wood only in pruning.)

State of the Weather near London, for the week ending Jan. 22, 1846, as observed at the Horticultural Garden, Chiswick.

Jan.	Moon's Age.	Barometer. Max	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain
Frid. 16	18	29.838	29.722	51	40	45.5	E.	.04
Sat. 17	19	29.761	29.658	51	36	43.5	S.W.	.01
Sun. 18	20	29.744	29.604	53	35	44.0	S.W.	.24
Mon. 19	21	29.195	29.043	54	41	47.5	S.W.	.44
Tues. 20	☾	29.434	29.309	51	40	45.5	S.W.	.14
Wed. 21	23	29.418	29.146	55	50	52.5	S.W.	.32
Thurs. 22	24	29.220	29.053	56	41	48.5	S.W.	.02
Average		29.502	29.317	53.0	40.4	46.7		1.22

Jan. 16—Thick fog, rain at night
17—Hazy; drizzly in forenoon; cloudy and mild
18—Foggy; hazy; rain at night
19—Constant rain, boisterous, with rain at night
20—Clear and fine, partially overcast at night
21—Rain; densely clouded and mild; boisterous, with rain
22—Boisterous, with heavy rain; densely clouded; rain.
Mean temperature of the week 10 deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Jan 31, 1846.

Jan.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	W.	S.W.	N.W.
Sun. 25	42.2	34.0	38.6	7	0.51 in.	2	2	1	2	7	3	1	
Mon. 26	43.2	32.8	38.0	8	0.80	1	2	2	1	3	4	4	3
Tues. 27	44.6	33.2	38.7	7	0.84	1	4	1	2	6	7	1	2
Wed. 28	43.2	32.6	37.6	8	0.21	2	3	2	—	2	7	4	—
Thur. 29	44.5	31.7	38.1	10	0.17	2	2	1	—	—	2	5	1
Fri. 30	44.6	32.3	38.4	5	0.82	2	2	—	1	1	4	5	4
Sat. 31	43.8	31.8	37.8	9	0.13	2	2	2	4	1	3	5	1

The highest temperature during the above period occurred on the 28th, in 9—therm. 56°; and the lowest on the 27th, 1837, and 29th, 1 39—therm. 17°.

Notices to Correspondents.

MIGHT WE ASK OUR CORRESPONDENTS to use some other signatures than the everlasting "Constant Reader," "A Subscriber," "A Well-wisher," and so forth. Tædet quotidianarum harum formarum. Initials are much better.

ARRACACHA—*G J*—We have some observations on this root ready for publication; and, if *possible*, we will publish them next week.

BOOKS—*J L*—Read, or rather study, Loudon's "Self-instruction for a Young Gardener," Solly's "Rural Chemistry," and Lyell's "Geology." ——*Beekeeper*—"Bevan on the Honeybee."——*D S*—All works on vegetable physiology explain how the age of a tree is to be ascertained. The matter was also disposed of by us at p. 51, 1845. The name of it can only be ascertained by persons conversant with systematical botany. If you wish to study that, you had better begin by "School Botany," the time for using which is already approaching.——*Anon*—No man can learn to pronounce French words by a book: you should take a few lessons of the nearest French teacher: if the sound is all you want, that is soon learned.

BOTANICAL SOCIETY—*Pomme*—We must beg you to apply to the Secretary, in the Regent's Park. We believe, however, that you will find that they do *not* give away plants and seeds. If you will send us your address we will try to oblige you, for the sake of your name; for "a fellow feeling" makes us wondrous kind," as the wit said.

BUDDING'S MACHINE—*Zeta*—This is only suited for small operations, and where great nicety is required. It is easily injured by stones lying on the Grass, and you cannot work it in wet weather unless the Grass is very short and well kept. It is most useful where men cannot mow well, or where a man is his own gardener. It has also the advantage of being applicable to Grass in dry weather, when scythes will not bite.

BULBS—*W S S*—Go on as you have begun, you cannot do better. Force briskly, manure highly, and rest carefully, giving them while growing all the light they can bear. Yes, certainly: you *can* exhibit.

CAMELLIA SEEDS—*H B T*—Sow these about the beginning of February. They will germinate freely in sandy loam, on a gentle bottom heat. When the seedlings have produced two or three leaves, they should be potted off in a mixture of sandy loam and peat, and kept in a close pit until they have become established.‖

EVERGREENS—*A Z*—They should have been removed in November. No time should now be lost. Do not prune them at present; but do so pretty severely in April. When very old it is difficult to transplant evergreens at all, especially Portugal Laurels, and we cannot answer for your success; Alaternuses will hardly survive. There are three things, and no more, required in forming a perfect gravel-walk: 1, it must be thoroughly drained; 2, it must be made of coarse gravel, small pieces of brick, or some such material, at least 6 inches thick; 3, it must be finished with good binding fine gravel, and kept higher in the middle than at the sides. If these precautions are observed, and it is frequently well rolled, it *must* be hard, dry, and smooth at all seasons. Grass, however, will grow unless it is removed by hand; salt, sulphate of copper, and all such agents, are insufficient, especially in a damp country.

FRUIT TREES—*A Lady*—Peaches for a flued wall facing the south:—Royal George, Grosse Mignonne, Bellegarde; Nectarines—Elruge and Violette Hâtive; Moorpark Apricot; and Mayduke Cherry. Morello Cherries, and early varieties of Pears, are most proper for the north aspect; but as the wall is flued you may try Bacon's Incomparable and the March Bergamot.‖——*Em C*—Some kinds of Apple-trees, grafted three years and planted 10 years, will bear about a bushel; at the end of 20 years, three bushels. Pears not quite so much. Two dwarfs will bear more than one standard, occupying double the space, if the former are not closer than 12 feet. Walnut-trees, 10 years planted, will scarcely be in a bearing state; in 30 years a tree may produce several hundred Walnuts.‖

FUCHSIAS—*G M E*—Thanks for your information. Your seedling is new and curious, but not very handsome. It is an unusual cross.

GUANO—*A K*—We have no experience with guano for Rhododendrons, but doubt its being suitable. But why trouble yourself about guano when cow dung is so excellent for them in every respect?——*Amateur*—We do not think any such directions as you request will be useful, because garden ground varies infinitely in condition, and guano in quality. Every one should try for himself, and by a few cheap experiments he can easily learn what is really required by his crops. The only rule that we know of is about 2½ lbs. at a time to a rod of land, if the guano is good.

HEATING—*A Sub*—Undoubtedly your alteration will be an improvement; for it is a bad plan to place fuel in the midst of a mass of iron, and in contact with it. But we should almost suspect that something else is wrong in your apparatus. Are you sure that the water flows as freely into the tank as it ought. If the flow pipe is level you will get motion; but the motion will be much better if the flow pipe is inclined upwards into the tank.——*W Burgess*—Zinc, from its weakness, is not fit for any purpose where strength is required. If your pipe is to be *supported* completely by a brick gutter, so as to *rest on it for its whole length*, then zinc may be used; but not otherwise.——*A Constant Reader, Brighton*—The faults of your house are these:—It is too dark; whenever deep side walls are employed the plants within them suffer; especially if forced into growth in winter. It is much too dry. The last evil is worse than the first. You may remedy it by various means: which will easily occur, and have occurred to your intelligence. A few saucers of water do no good. It is doubtful whether any air-drains would act in your case; but if the heat from the pipe could be made to pass through a moist cloth or some such contrivance, the object would probably be gained without further trouble. You cannot kill green-fly by any other known means than smoking; unless you use gas-water; and that requires care, kills some plants, though not Roses, ruins painted work, and is intolerable in a dwelling-house. Tobacco smoke might surely be applied, if the house were closed for a night; and no worse effect would be produced than if some people had been smoking cigars. You might try aqua ammoniæ and water in the first instance, just strong enough not to burn the leaves; but we cannot answer for success; it is worth the trial.——*Hydra*—You may heat your pits separately, on any water system, by stop-cocks, or mere plugs; or, if a tank is employed, by little sluice gates. The manner of placing them was fully explained in our Journal for 1843, p. 804.

INSECTS—*J M*—The leaf has been eaten by a caterpillar, I expect, before it was expanded. Did you ever find others similarly perforated? *It.*

LAWNS—*Torquay*—Do not use corrosive sublimate against worms; but employ lime water, which is just as efficacious and not dangerous. Soot will be a better top dressing than wood ashes. The plan of strewing guano over ground on which turf is about to be laid is Mr. Teschemacher's, not ours; but we have no doubt of its being much better than using it after the turf is laid. However, we would not take up turf that has been already put down.

NAMES OF FRUITS—*G M E*—Your Pear is the Downton, esteemed only by some, best for a standard; there are many preferable for a south wall.‖

NAMES OF PLANTS—*H B*—Your Gloxinia is in no way superior, and in some respects inferior, to others already in cultivation. It is not *possible* to name an Ornithogalum from a mere scrap without leaves.——*Ghent*—196, Oncidium, or Cyrtochilum maculatum; 800 is so crushed that it cannot be determined; 35 is in nearly the same state, but seems to be Oncidium or Cyrtochilum filipes. The country from which rare plants are received should always be stated.——*M D*—The seed-vessel belongs to Camelina sativa, the common Gold of Pleasure or Camoline.

ORCHIDS—*T S P*—We will answer you by post as soon as we have ascertained the fate of the Gentian seed.

PEARS—*G R*—Knight's Monarch and Ne Plus Meuris.‖

PEAR-TREES—*A C*—Your autumn Bergamot Pear-trees, extending 48 feet horizontally, but productive only at the extremities, had better be cut back one-half; thus leaving room for planting young trees, of new varieties, intermediately. Trench the border, adding fresh soil, and manure; shorten also some of the largest roots, in order that they may push a number of fresh fibres near the stem. Better graft your other tree with the Winter Nelis, Glout Morceau, or Passe Colmar. Liquid manure should be applied chiefly near the extremities of the roots. So much for the present; but recollect that much depends on summer pruning.‖

POLMAISE HEATING—*Donald Malconald*—You seem to misunderstand the object of this method, or we are sure that your good sense would have prevented your writing about it as you have done.——*W C*—Much obliged by your letter and plan, but, unfortunately, we cannot understand them.

TULIP TREE—*Carmarthen*—The timber is of good quality. When cut into planks it casts and cracks if exposed to the open air; but it makes good rafters, and for in-door work generally it may be employed advantageously, if well seasoned. Insects do not attack it. In the United States it is employed for coach panels. It would do for all sorts of purposes to which Deal is applied, and is of better quality.* Orange wood is hard and durable, but of too small scantling in this country for any important use. We are unacquainted with the manner of making toothpicks.

VEGETABLE SEEDS—*Nemo*—The very plan you propose is in constant operation, and everything is tried. The results will appear in the Society's Journal from time to time.

VENTILATING—*J D*—Better to slide your upper sashes than to have back ventilating shutters; one is necessary, but both are needless, and the last are objectionable. Pack Strawberries for travelling in tissue paper, set fast with cotton wool, in a box divided by shelves and cross pieces into very small compartments; and if possible fix the box itself on spiral springs at each corner, resting on an external case.

VINES—*T F*—Your seedling Grape is mentioned in our report of the proceedings of the Horticultural Society; it is very distinct, but not of high quality.

MISC—One shilling each will be given for Nos. 14 and 45, 1842, and No. 2, 1843.——*H P*—Our agent will supply you at 26s. per annum. We do not execute country orders.——*A B*—The Eschscholtzias are best considered and treated as annuals; they are, however, capable of being managed as what are called biennials in the gardens.——*A Constant Reader*—Certainly Asparagus three years old will transplant successfully.——*G B*—The patent washers may be had of any of Macintosh's agents.——*F B*—Luxemburgia ciliosa flowers during the summer months, and appears to thrive best in a moderate stove heat. Echites splendens is a stove climber, requiring a loamy soil, to which may be added a little sandy heath mould with advantage. It may be grown in pots, or it may be planted in the bed, and trained up the rafters or over the roof of the house: in either case it will thrive all the better for having a little bottom-heat, of which it is very fond. Being deciduous, it should be pruned and rested during the winter months.‡

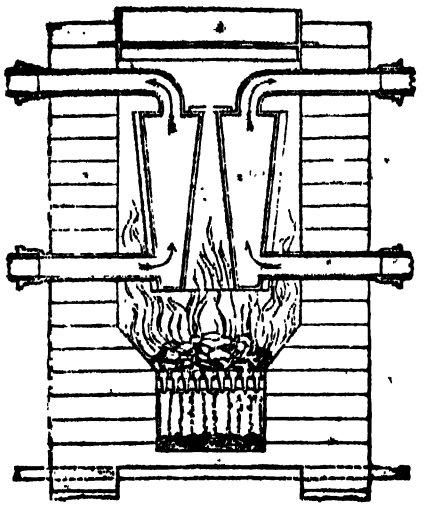
SEEDLING FLOWERS.

PANSIES—No. 1. Your specimen is too small to be of any use.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;
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COTSWORTH, POWELL, AND PRYOR, LONDON;
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47, Lime-street, Jan. 24.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILL'S recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

The Agricultural Gazette.

SATURDAY, JANUARY 24, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

THURSDAY, Jan. 29—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, Feb. 4—Agricultural Society; England. Highland and Agricultural Society.
THURSDAY, — 5—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.—Devon—Galston—Northumberland.

FARMERS' CLUBS.

Jan.	26—Wellington	Feb.	5—Blofield and Walsham
—	27—St. Peter's		Richmondshire
—	28—Newton	—	6—Wrenham
—	29—Ottery St. Mary		Hadleigh
—	30—Rhins of Galloway		Wakefield
Feb.	2—London		Claydon
	Darlington		St. Austel
	St. Columb		Lichfield
	Stewponey	—	7—Dartford
	Newark		Cullumpton
	Market hill		Cardiff
—	3—Waterford		Carlton-on Trent
	Jedburgh		Durham
	Mr. Quivox		Melrose
—	5—Rawick		Northampt. Book Club

THE most profitable method of converting the immediate produce of the farm into beef, milk, mutton, bacon, &c., for human food, involves a very important question in farming. Yet it is one on which, notwithstanding the patronage of it indicated in the prize lists of our Agricultural Societies, less information exists than on almost any other agricultural subject. The competition for prizes at our Society Exhibitions and Smithfield Shows, however it may have instructed us on the points in cattle indicating early maturity and aptitude to fatten, has thrown but little light on the treatment which fattening or growing animals ought to receive. It is the practice in some districts to tie animals up by the neck in stalls from a comparatively early age till they are fit for market; in others they are fed till fat, in twos and threes, in small yards, each with its shelter shade. And Mr. WARNES, again, of Trimmingham, Norfolk, advocates a system of box-feeding, as he terms it, the animals being loose, each in a railed apartment, under shelter, about 10 feet square, where they are fed and littered till ready for the butcher. Now which of these methods will tend to produce the greatest amount of beef in proportion to the food consumed? Who among the hundreds and thousands that annually feed cattle on Turnips and Mangold Wurzel, and hay and corn, in stalls, hammels, and boxes, have any well ascertained facts to communicate in answer to this question?

It is astonishing how very little definite information there exists as to the economy of most of our agricultural processes: the subject under consideration is a striking illustration of this assertion. We have access to a very well furnished Agricultural library, and lately searched it with diligence, in order to obtain information for a correspondent whose inquiry related to this subject, and amidst all the voluminous writings with which our agricultural literature teems, we found the account of but one solitary experiment* on this important question, as to the treatment of live stock when fattening. The Gold Medal of the Highland and Agricultural Society was awarded in 1839 to J. BOSWELL, Esq., of Balmuto and Kingcaussie, Kincardineshire, for his report of experiments undertaken to determine the comparative advantages of feeding cattle in close byres and open hammels—to determine the relative economy of feeding in stalls or small yards. To this experiment we shall now direct attention.

Mr. STEPHENS, in his "Book of the Farm," gives the results in a more satisfactory form than that in which they appear in the "Transactions" of the Society, and we shall, therefore, extract his account of the matter.

"To give as much variety to this experiment as the circumstances would admit, it was conducted both at Balmuto and Kingcaussie, and the beasts selected for it were of different ages, namely, two and three year olds. At Balmuto, four three year olds were put in close byres, and four in open hammels, and the same number of two year olds were accommodated in a similar manner at Kingcaussie. Those at Kingcaussie received Turnips only, and, of course, straw; at Balmuto a few Potatoes were given at the end of the season in addition to the Turnips. The season of experiment extended from 17th October, 1834, to 19th February, 1835. The results were these:—

	st.	lb.		
The 4 hammel fed 2 year olds at Kingcaussie gained of live weight	45	8		
The 4 hammel fed 3 year olds at Balmuto	45	0		
			90	8
The 4 byre fed 2 year olds at Kingcaussie gained of live weight	32st.	7lb.		
The 4 byre fed 3 year olds at Balmuto gained of live weight	36	0	68	7
Gain of live weight by the hammel fed			23	1

"It is, however, not all gain; for the hammel fed consumed more Turnips) the Aberdeen Yellow Bullock), than the byre fed.

	Tons.	Cwt.	Qr.	lb.
Those at Kingcaussie consumed more by ..	1	7	2	6
And those at Balmuto	2	4	3	22
Total more consumed	3	11	2	0

"In a pecuniary point of view, the gain upon the hammel fed was this:—23 stones 1 lb. live weight= 13¾ stones of beef at 6*s.* per stone gives 4*l.* 2*s.*, from which deduct the value of the Turnips at 4*d.* per cwt., 1*l.* 4*s.* 2*d.*, leaving a balance of 2*l.* 7*s.* 10*d.*"

So far as a single experiment can be said to determine any point in farming, we think hammel-feeding is proved, under the circumstances of this trial, to be more profitable than stall-feeding. Mr. BOSWELL says, "I feel convinced that there is no point more clearly established than that cattle improve quicker, or, in other words, *thrive better*, in open hammels than in close byres."

The third mode of feeding we mentioned (box-feeding) has not, that we are aware, yet received a strict comparison in economy with stall and hammel-feeding; but it is a practice that is rapidly spreading, and that is a pretty fair indication of its excellence. And as it has of late excited much attention, we hope to be able shortly to publish the experience of some of our readers upon it. Our own experience is decidedly in favour of it; our cattle never did better than those this winter fed in boxes.

In Dairy farms, containing but little arable land, the mode of feeding is influenced by other circumstances, such as scarcity of litter; and in *this respect* stall-feeding is, of course, the most, and yard-feeding the least economical.

* See Vol. II. of the Highland Society's Transactions.

THE INFLUENCE OF CIRCUMSTANCES ON AGRICULTURAL IMPROVEMENT.

THE general principles of agriculture have been long discovered, nor can their number be materially increased. But they have been, and will be, developed in different degrees, and to more or less extent under different circumstances. At several periods in past history has the art of cultivation nearly approached perfection. We have a beautiful description of the sphere of operation allotted to our first parent—Gen. ii, 8, 14; and who can doubt the wisdom, fruitfulness, beauty, and perfection of primeval culture. The circumstances, however, of "the man" were altered, and Eden became the birthplace of "Thorns and Thistles."

In times of Jewish prosperity Palestine was literally "a land flowing with milk and honey." Agriculture flourished then, and the capabilities of the soil were fully developed. It furnished sustenance and wealth to a teeming population. It was said of the farmer of that day "Doth he not cast abroad the Fitches, and scatter the Cummin, and cast in the principal Wheat and the appointed Barley, and the Rye in their places? For his God doth instruct him to discretion, and doth teach him. For the Fitches are not threshed with a threshing instrument, neither is the cart-wheel turned about upon the Cummin; but the Fitches are beaten out with a staff, and the Cummin with a rod. Bread-corn is bruised, because he will not be ever threshing it, nor break it with the wheel of his cart, nor bruise it with his horsemen. This also cometh from the Lord of Hosts, which is wonderful in counsel and excellent in working." (Isaiah xxviii. 25—29). And so productive was that country in the reign of Solomon, that he sent annually to Hiram, King of Tyre, for Cedar-wood, 20,000 measures of Wheat. View that country under different circumstances, and its agriculture is depressed. "There was no smith found throughout all the land of Israel; but all the Israelites went down to the Philistines to sharpen every man his share, and his coulter, and his axe, and his mattock." (1 Samuel xiii. 19, 20)? and ultimately "behold the fruitful place was a wilderness." Jeremiah iv. 26.

The imperfection of British agriculture at this day may in great measure be attributed to the circumstances under which it has been carried on. During the war labour was scarce and expensive; in several subsequent years prices have not been remunerating. These circumstances have operated in retarding improvements; still every fair opportunity has been embraced and much has been done. In the locality from which I write, the abundance of our produce last year, and the good prices of the present, have enabled us to avail ourselves of abundant labour; and it has been done. A great portion of the profit of our farms has been returned to the land in what must prove permanent improvements. So long as similar circumstances continue farming must be advancing towards perfection. Nor can I imagine these remarks to be applicable to this locality only. Show the agriculturists of this country that they may spend their half-crowns in labour and manure, with the probability of getting three-shilling pieces in return, and they have neither ignorance nor prejudice sufficient to prevent their heartily entering into the speculation; while if at any time they find they are expending their three shillings and getting only half-crowns in return, the case is altered. The readiness now evinced to purchase guano, as mentioned in the *Agricultural Gazette* of the 3d inst., and the improvements going on in the fens of Lincolnshire, mentioned in the same paper of the 10th inst., and a multitude of similar statements issuing daily from the press, prove to a demonstration that men are not necessarily fools because they happen to be farmers. Surely there never was a more manifest desire to advance in any class of the community than is now showing itself amongst agriculturists. They are availing themselves of every kind of fertilizer, encouraging the talent employed in the invention of machinery, and spending an amazing amount of capital in draining the land; and though the population of the country has doubled within the last 30 years, they are supplying the wants of the people with as little foreign aid as at the commencement of that period. They are bestirring themselves also for the removal of those obstacles which at present impede the onward movement, in the establishment of a "tenant right!" And I feel persuaded that if by the full and free discussion of this subject landlords see the advantage to themselves, their tenants, and the nation, of giving fixity of tenure, and security to the men who are to work out improvements—that (other circumstances remaining as favourable as at present), this alone will soon compensate the loss of the many acres destroyed by railroads, and also meet the wants of a still rapidly-increasing population.

In this neighbourhood the old farmers have taken the lead in the great work of improvement, and though we now and then hear of a man all at once becoming a farmer, and creating astonishment in certain districts, yet, in general, the plain, plodding man, whose business is his study, and who is advancing as fast as circumstances favour him, is the safest to follow. This is the sort of men who gathered wealth when prices were good, and are now farming their own land, or retiring on a competency, while their children are entering into their labours. I once knew, and had an opportunity of observing, one of the superior scientific breed of agriculturists. He was an educated man, possessed of all kinds of sense (except common sense); he purchased a fine farm, built a fine house upon it, with barns, bullock-sheds, carts, &c., all on a superior scale. He farmed well, spared no expence in implements or experiments, was one of the best writers of the day on agriculture, received gold medals for wonderful discoveries, set up his carriage and pair; but when prices came down, down came he. The farm was purchased by one of the old sort, who first entered business with a very small capital (I have heard him say, "I did not *go* into business, but got in upon my hands and knees"), and he has just died worth about 50,000*l.* The farm referred to has been for some years occupied by a man formerly plough servant to the purchaser, and he is now retiring from business on a competency, though he has always paid a rent of 50*s.* per acre. Those men were always on the alert to improve favourable circumstances: often have I heard them saying, "Hoist your sails to a fair wind," "Fish along shore when the waters are troubled," "Drive gently over the stones," and using such like maxims. And looking at such men, which form no inconsiderable portion of the agricultural community, and to other classes following in the train, with all the helps of science to boot, we may confidently conclude that if circumstances are favourable, agriculture will improve. —*J. S.*

"HIGH FARMING."

WHILST there is so much difficulty at present in establishing and maintaining Farmers' Clubs as a means of eliciting and diffusing information upon agricultural subjects, it is a great satisfaction to be able in some

measure to supply the deficiency through the medium of a Journal like the *Agricultural Gazette*, which has already rendered most essential service to the art. I ought, perhaps, to apologise for intruding upon your columns, having nothing new to communicate: but the reiteration of recognised truths is frequently of immense importance, and believing, as I do, that English agriculture generally is susceptible of an almost indefinite progression, one is naturally tempted to contribute even the smallest mite towards its advancement; and if, by the means of a mass of accumulating testimony, as recorded in your pages, in favour of recent agricultural improvements, the cultivators of the soil could be induced to provide a profitable employment for all our labouring population, a great blessing would be conferred upon the whole community. A mere cursory glance at the difference in the results of good or bad farming will clearly demonstrate that there ought to be no surplus labourers; neither would there be, were the land properly treated. I do not write theoretically merely, as I usually employ about 100 labourers, and can, therefore, speak from actual experience, that it does answer to cut down useless trees, to grub up hedgerows, to drain deeply and thoroughly where draining is required, to cultivate deeply upon all soils, and, in fact, to carry into the farm the garden practice of the cottage allotment system. In sending you these desultory remarks, I should premise that I do not look altogether for immediate returns in the investment of my capital (though this desirable result often happens, especially in draining) as I farm my own or my father's land; yet, whenever a tenant has a sufficiently long lease, with mutually protecting clauses, I consider his course ought to be precisely similar to that of a person who cultivates his own grounds. I do not intend to touch upon Hop-ground culture, as that would not interest many of your readers, excepting to state that as it swallows up all my farm-yard manure, I am necessitated to look about me for the best substitutes in dressing my corn fields. I now give you the results of a few experiments:—1. With regard to Potatoes: In accordance with your recommendation relative to autumn and winter planting, I planted on 1st of January last year about an acre in some recently trenched ground having a subsoil of chalk; the remainder of the field was planted in April; the sets of the former were put in about 7 inches deep. I searched diligently, yet I never could find a single set injured by the frost. The crop was not large in any part of the field, but it was decidedly best in the winter-planted part. I had also 3 or 4 acres planted in rows 6 feet apart between young Hops; here I had a very good crop, almost free from the prevalent disease, there being not more than 1 in 50 affected. Was this escape to be attributed to the free circulation of air and light? A portion was manured with guano, but this was quite as free as any part from the disease. 2. With regard to the application of guano, and after using during the past year upwards of 30 tons in various ways, I can give my most hearty testimony in its favour as a most valuable manure. I applied it in several places on Wheat with various success. On a field of Chidham Wheat I put 4 cwt. per acre, mixed with ashes and gypsum; it was sown broadcast at Michaelmas, and harrowed in with the seed. It operated very beneficially, and produced a good crop, and there were no symptoms of blight excepting on the spots, about 3 feet in diameter, where the sacks were put down. Here the straw and corn were blighted, evidently from receiving an over-dose. On two fields of red Wheat, I used it with equal success as a top-dressing in March, and grew an excellent crop, both as regards quantity and quality. But in another large field of Chidham Wheat, I left 2 acres, in two different parts unmanured, when the field was sown in October, and upon these parts I put 4 cwt. of guano per acre in the spring. During the winter these 2 acres were much behind the rest of the field, and continued so till about three weeks after the guano had been hoed in, when they took a start, and grew with such rank luxuriance, that they could be distinguished from the opposite hill, nearly a mile distant. At harvest the whole field was more or less blighted, but the guano parts were much worse than any other. For Oats it answered admirably, and I grew an enormous crop; and it did equally well when I used it upon Barley and Sainfoin. But for Turnips it has succeeded far better than any other manure; indeed, I never grow such Swedes and Turnips before, which I attribute chiefly (making an allowance for the general excellence of the crop this year) to the use of guano and the subsoil plough. In one field I tried 4 cwt of guano against 20 tons of rich farm-yard dung, combined with 1 cwt. of guano, drilled with the seed, in which the former certainly has the advantage. This result, considering the high price of dung in this neighbourhood, is nearly as five to one in respect of cost in favour of guano.

Another very excellent manure was a mixture of 1 bushel of ½-inch bones and 2 bushels of dry wood-ashes, combined with about 12 gallons of strong liquid tank manure. These were mixed up together in a shed during winter, and covered over with a coating of gypsum 2 inches thick, and then another layer of dry ashes of about the same thickness, for the purpose of absorbing and preventing the escape of the ammonia during the decomposition of the bones. Of this mixture, I ploughed in about 30 bushels per acre upon a very poor field, and with the Swedes I drilled 2 cwt. of guano; this combination has produced me the finest crop I have grown this year, it being a far larger crop than ever was seen upon the land before, and quite equal to the crop in much better soils. I might mention too, that I tried, with great care, the so-called electro-culture, but as might be expected no results followed—it was a complete negation.

Like many other farmers, until lately I allowed the best portions of my yard manure to poison my home-ponds. Now I have built tanks in all my yards, and placed shoots to carry off all the water that falls from the surrounding buildings. The contents of the tanks are carried during the winter season upon the adjoining pastures in one of Crosskill's water-carts; as yet I have had no opportunity of testing its efficacy, but that it must be a most valuable manure no doubt can be entertained. Perhaps some of your readers, who have had more experience in this matter than myself, can inform me of the most economical mode of applying it in large quantities. I intend to try to make a substitute for guano with this rich liquid; and the plan I propose to adopt is to build a shed, behind my largest tank, which holds nearly 4000 gallons, for the reception of dry ashes and other absorbent materials, and to saturate them occasionally with the liquid. I expect this will form an excellent manure for any crop. The contents of this tank consists of the draining of a yard in which I keep some 150 or so of sheep, besides the drainings from the pigsties, stables, &c.; not a drop is now wasted.

I have found the subsoil plough and Crosskill's clod-crushing roller of great service, and I think them quite indispensable instruments upon every large farm. The subsoil plough that I use is similar to Smith's, of Deanston, and in order to do its work efficiently requires five horses at least, where the land is hard. I cannot imagine how Mr. Mechi contrives to subsoil his land with two horses; it is a secret I should like to understand, and should be glad to adopt, if by so doing I could break my ground regularly 18 inches deep. It is certainly very remarkable, that notwithstanding the most unequivocal testimony in favour of subsoiling, it should be so little practised; but I hope a few years more will bring it generally into use. I now invariably subsoil my fallows for Turnips, since I have derived so much benefit from its effects; excepting, indeed, that on every alternate fallow I employ a Scotch iron swing plough, which a friend in Northamptonshire recommended to my notice: its maker's name is Crawford, near Glasgow. With this plough, drawn by six horses, I can plough 14 inches deep below the unbroken level surface of the ground, without bringing up the under-soil. It is a capital instrument, and well worthy the attention of every farmer who has not tried it. I may observe here, by the way, that subsoiling and very deep ploughing enables me to prepare the stubbles for Turnips with very little after trouble, inasmuch as the pulverisation of the soil is concerned; and as regards the more easily getting rid of Couch and other deep-rooted weeds it is equally serviceable, though no farm in a good state of cultivation ought to be infested with such rubbish. I am now instituting a course of experiments with various sowings, or rather drillings and dibblings of seed Wheat, from 1 peck to 2 bushels per acre.—*J. M. Paine, Farnham.*

WHEAT SOWING.

[From the Inverness Courier.]

We are indebted for the following valuable observations and experiments on Wheat-sowing to our distinguished countryman, J. Baillie Fraser, Esq., of Reylig:—

A good deal has been written lately upon the question of thick or thin sowing of Wheat. All inquiring farmers know the small but valuable pamphlet on this subject by Mr. Hewitt Davis; and there have been in the last twelve months many notices either by that gentleman, or descriptive of his system and crops, inserted in the various agricultural periodicals. In the two last *Gardeners' Chronicles* (the agricultural part) there have likewise been inserted, letters from that spirited, though perhaps enthusiastic, agriculturist, Mr. Mechi, of Leadenhall-street—all strongly in favour of thin sowing and dibbling. I own that till lately I was altogether of these gentlemen's opinion; and certainly theory, and even common sense, strengthened by the result of small experiments, are all in favour of the thin sowing or dibbling system. But there are some contingencies which do not appear to have been taken into account in the calculations of these gentlemen—and as facts are worth a thousand arguments, when rightly noted, I propose giving you, instead of reasons and arguments, an account of some facts which have occurred in my own practice this year, and which show that the best calculations and reasons may be set occasionally at fault.

Last season I sowed about 68 acres of Wheat at the dates and under circumstances following:—

No. 1.—Oct. 26.

5 acres imperial, after Potatoes, of which 1 acre, dibbled with 1¼ bushels of Hopetoun Wheat, duly steeped in blue vitriol steep.
½ acre, dibbled with ½ bushel—same steep.
The rest—say 3½ acres, were drilled with about 2 bushels per acre—same steep.

No. 2.—Nov. 19.

20 acres, after two years' Grass, sown with 6 quarters 2 bushels Hunter's Wheat, pickled as before, with broadcast machine.

No. 3.—Nov. 22.

11 acres, part new land, after Potatoes, with additional manure for the Wheat, sown with 3 quarters of Hopetoun Wheat, steeped as above, with broadcast machine.

No. 4.—Nov. 26.

10½ acres imperial, after two years' Grass, sown with 3 quarters 5 bushels Hopetoun Wheat, steeped as before, with broadcast machine.

No. 5.—Feb. 12, and thereabouts.

23 acres, after Turnips, 4½ quarters Talavera, steeped as above, and drilled at about 8 to 9 inches.

No. 6.—Same time.

6½ acres, very old lea, after a crop of Oats, with Talavera—broadcast machine.

No. 7.—Feb. 18.

2 acres, after Potatoes, drilled, with 2½ bushels of April Wheat, steeped as the rest.

68 imperial acres.

The whole of the lots brairded beautifully; but as the season advanced, in May and June, the whole, except No. 4, were observed to be arrested in their growth, and to recede, as it were; yellow spots and plants made their appearance, and it was obvious that much of the plant was disappearing rapidly. Upon examination, which was made at intervals, repeatedly, over all the fields, it was found that at the root of every sickly plant, there were one or small worms—not of the hard sort, known as wire-worms, but red and soft; in all respects, except in size, like the common red ground-worm, used as bait in trout fishing. These appeared to have sucked the substance out of the plant, in a ring, a little above the roots, so that it died away above ground. To such an extent did this mischief proceed, that in some of the fields large patches, extending to half an acre or more, appeared quite divested of plant, and in others they assumed a miserable, dwindling aspect, so as to forbid, almost entirely, the hope of a crop; and had it occurred to this extent earlier, it might have been thought best to plough down the Wheat, and sow some other grain—but it was too late, and the only hope lay in the tillering out of the surviving plants. This did not take place till late, when the wetness of the season, aiding the good condition of the land, brought on some fields in a wonderful way, and as the ears made their appearance their size bade fair to compensate for the spareness of the stems in several quarters. I have seldom seen larger heads, and more promise of a fine sample. In other fields—especially those after lea—the defalcation of the Wheat plant permitted the Grass and annuals to get up to such an extent as nearly to smother the remaining ones. In consequence of this necessity on the part of the plant, to make good its losses where it could, the ripening was delayed, and this with the cold wet season, rendered the harvest a late one. I shall now give the result of the several lots as above set down.

No. 1 was desperately attacked by the worm; the acre that was dibbled was almost wholly destroyed, and though it was planted again from the thicker patches of other lots, the dry weather at the time, and the growth of weeds, rendered it useless. It gave no crop to speak of. The other dibbled half acre also suffered, and at least one-third was destroyed. The rest gave a heavy crop. The drilled 3½ acres were greatly damaged, but still yielded fairly.

No. 2 (after two years' Grass), was almost utterly destroyed; and the old Grass sprung up so vigorously, that, being valued just before reaping, it was reckoned worth 40*s.* per acre as hay alone. It was reaped 6th October, and has since been nearly thrashed out. The produce is about 2 quarters per acre of indifferent Wheat, but a great quantity of excellent fodder.

No 3 suffered likewise a little from worm, and was poor in some of the patches of new land; but it was reaped 16th October—will probably produce 4 quarters per acre of very good Wheat. Some guano and some soot was used in the poorer parts as top dressing, with but questionable effect.

No. 4 was the only field that sufferred nothing from worm—it grew well, though not luxuriantly, from the first—was reaped 11th September, and will probably yield about 3½ quarters per acre.

No. 5, after suffering so severely from worm, that in many places the drills could scarcely be traced, recovered and tillered out so as to cover the ground well in most places, and yielded luxuriantly—strong straw and long heavy head. It was once hoed between the drills, which did much good; and in some places soot or guano was applied, but it was difficult to mark the effect—reaped 18th September.

No. 6 was so severely assailed as to bare several patches so completely, that Barley was sowed on them, and reaped separately. The Wheat, however, recovered, and was reaped a heavy crop.

No. 7. This April Wheat also had its share of the worm, but in spite of this, and though last sown, it took and kept the lead of all, recovering better where injured, and ripening sooner. The crop from the 2½ bushels, on barely two imperial acres—of which ¼ to ⅓ was destroyed—will be at least 9 quarters.

It is a remarkable fact, that the only smut found in all these Wheats, was in the 5 acres first sowed; and there there was a considerable quantity—not one smut-ball in all the rest; nor was there any serious quantity of rust. I believe the loss, on the whole, from worm, will not be under 150*l.* to 170*l.*

Now, what is to be deduced from the foregoing facts—on which you may depend—in regard to thick or thin sowing? For my part, it appears to me that they act both ways. The thin sowing, where the plant was permitted to remain and thrive, certainly produced well; and former experiments, on a small scale, led to a similar conclusion. But then, in such a case as this just related—when the plant is attacked by wire or other worm, what becomes of your crop? From a thick braird, a good deal may be taken, and yet leave a sufficiency to give a crop;—but look how it happened with my dibbled acre, dibbled, too, far too thickly, as appears from the seed sown. It was a clean sweep, and too late, also, to remedy, by putting in another corn crop; nay, even the ravages of rooks, or other casualties, may tell fatally upon a thin plant, while, on a well covered field, they

would do little harm. Nowhere is the case, the dilemma—sow thick, you expend seed uselessly, and even hurt the produce by rearing more plants than can be well matured, and so damagingly your sample—but you have a crop. Sow thin, dibble, and you risk total loss by worm, bird, or various contingencies. I do believe that the best method of all would be found in transplanting early in September, from a patch thick sown early in July—as they do with Rice in the east; but this implies great labour—garden tilth—and though it might be a boon where unemployed hands are plenty, I fear, under our present system of large farms, the thing is impossible; but to try experiments can do no harm, and it were hard to predict what the result of experience in the small way may lead to on the large scale, in the way of pure self-interest—the only motive which will, and indeed ought, to sway a farmer in the management of his land—for certainly Professor Johnston is right when he tells his hearers that his object is not to make them spend money, but to make it; and that that system is the best which brings in the most profit without injury to the soil.

Home Correspondence.

Farm Buildings.—I have lately acquired by purchase a farm of 270 acres in a southern county, of which about 40 are underwood, 70 meadow and pasture, 30 Hops, and the remainder arable. The buildings being in a very dilapidated condition, and inconveniently placed, I have been advised to remove them, and to erect new ones on a fitter site. At present there are two large decayed barns on the farm, and I am told by my tenant who succeeded to the occupation only last year, that two new barns will be indispensable for the proper enjoyment and management of the farm, viz. one for the Wheat, the other for spring corn. Conversing a short time ago with an eminent builder and constructor of farm buildings in the vicinity of Boston, I mentioned to him my tenant's opinion, and his reply was, "In my country the man would have been called a fool who asked for two barns for 130 acres of arable land, and if the landlord had offered them they would have been rejected by the tenant." I am anxious to be well advised on this point—will you assist me by drawing the attention of your readers to this communication, and by favouring me with your own opinion. I have also been desirous of thoroughly draining my land and constructing my new buildings of brick, and for this purpose I have, at considerable expense, established a manufacture of bricks and tiles on my farm. I am told, however, by my tenant that brick barns will not answer, but that the superstructure must be of wood. Will you or any of your correspondents oblige me with their opinions on that point, and also what increase of rent should be paid by the tenant where, as in my case, the entire expenditure of the drainage is made by the landlord; and also what increase of rent, if any, on the outlay for the new buildings; also the probable expense of constructing adequate buildings for a farm of this magnitude, bricks being supplied on the spot, the farm lying convenient for land carriage, but lime being at a distance of 15 miles. The buildings to comprehend a farm house, barns, stables, lodges, cart house, and all other necessary erections, slated.—*A. L.* [You may get good buildings sufficient for an arable farm of 200 acres, erected for about 1000*l.*, exclusive of the carriage of materials. See some designs in vol. viii. of the "Highland Society's Transactions." If you erect buildings, execute the drainage, &c., during the occupation of your tenant, he should pay at least 5 per cent. on your outlay and keep everything in repair. But you will, probably, find it more your interest to take the farm in hand for a couple of years—improve it, and then let it at a fair rent: this will, probably, give you a higher return for your outlay. We should certainly not erect barns; but if we did they should be of brick rather than timber. See a report in another column by "M. S." on the buildings of Whitfield Farm—an estate also of 270 acres, but all arable. Barns to house grain in the straw are quite unnecessary. Let the produce of the harvest field be all ricked in the yard adjoining a *thrashing* barn and granary.]

White Mustard.—In the absence of fuller information, your correspondent may like to know that I sowed 2 acres (from which Vetches had been cut for stables) on the 12th August, with 16 lbs. per acre of white Mustard; it grew quickly, and on the 11th Oct., being about 18 inches high, it was divided into two parts, and 60 ewes put upon it; they came quickly into season for the ram, eat it to the ground, and did very well on it; it lasted about three weeks, during which time all received the ram. The soil a strongish loam. Rape or stubble Turnips sown here as late as the above never produce anything.—*W. H. Little, Llanvair Grange, Monmouthshire.*

Plug Draining.—In setting forth the Operations for January on draining, I perceive, in concluding that subject, it is stated that plug draining is not advisable except on meadow land. I confess that I am not surprised on seeing such an opinion: your failure, I find, arises from the drains being imperfectly executed. Instead of the drains being only 2 feet deep, they should have been on the arable land 2½ or 3 feet, and instead of the clay being trampled down, as stated, it should have been well rammed on the frame, forming a sound top to the drain, which is a material point, as the whole must depend on that being firm. [The word "trampling" was used inadvertently; the earth *was* rammed down.] I am not giving an opinion without some experience, having effected the drainage on this system of upwards of 300 acres, and superintended a great extent. I can, therefore, say with great confidence that if this system is well executed at proper seasons, it is both durable and economical (on strong land), which is very desirable to both landlord and tenant; as there is a much greater breadth of that description of land requiring draining, it may be judiciously applied at a less outlay. Mr. Hunt, in your second Number, has given an excellent proof of his experience as to its beneficial effects, but, with submission, I must beg to differ with him as to his statement of the expense. I do not consider that it is practicable to effect a thorough drainage on a stiff tenacious clay, 3 feet deep, at a cost of 2*l.* per acre, which Mr. H. states. As it will be requisite on such land to drain nearer (say one pole apart), the cost will be about 3*l.* per acre, under the usual charge for cutting out that depth. I find that on such drains the subsoil plough may be used with great security. In further confirmation of my views, there is a small pamphlet, by Newmann, on drainage, published by Ridgway, which sets forth the system of clay draining, with its rise and progress, which I saw some time since advertised in your columns. I have been induced to take notice of the above subject in order to encourage those who may feel disposed to adopt an effective and economical mode of drainage, assuring them that they will be amply repaid for the outlay.—*A Practical Farmer.*

Double Culture.—There is nothing new in growing two crops together and at the same time; we have in our island followed that system with success, ever since I can remember, and that is upwards of 30 years. For instance, when we grow a Parsnip crop, which we find advantageous as food for our milch cows, as it makes both milk and butter, sweet, rich, and good, we dibble Beans in double rows, the Beans 4 inches apart, with an interval of 6 or 8 feet to the next rows, after which we sow the Parsnip-seed, harrow it, &c., and we generally reap a good crop of each. The crop of Beans does not seem to injure in the least the Parsnip crop. We generally grow Beans with our spring and late Cabbage crops. In every third row of Cabbages we dibble Beans between each Cabbage. We often follow the same system with our crop of Potatoes—dibble Beans between the sets in every third row of Potatoes, leaving a distance of about 2 yards between each Bean. The Beans seem to thrive amazingly by this manner of planting, and the main crops are not in the least injured by it. By this system the farmer is greatly benefited, having at the same time an underground and a top crop.—*Richard Giffard, Bellevue Cottage, Beaumont, St Peter's, Jersey.* [We shall be exceedingly obliged by your suggested communication.]

Wayte's Renovator.—With reference to your answer to me under the signature of "W. P. L.," and on the subject of "Sowing Grass and Clover Seeds with Mr. Wayte's Implement," (in your *Gazette* of January 10) I must observe that it will not do to declare the entire unsuitableness of the machine for the purpose of sowing small seeds (though I am of opinion that the incision made in the ground for their reception is too deep), because, in giving it a trial, as I did, last spring, over the surface of at least 30 acres of old pasture, the most complete success attended its use over about half that quantity of ground, its failure over the remainder being attributable to an error of my own, as will be evident enough, I believe, when I state the process of each experiment. In the case where it was successful (which was a very poor, Mossy field, with but little Grass in it, and less Clover) I first harrowed it five or six times over, to drag up the Moss, and loosen, as I may call it, the hidebound surface. The manure, well decomposed, and about five tons (not more) to the acre, was then spread, the implement used, and the brush harrow applied very thoroughly, this partially and lightly filled in the seams with the mixture of earth (loosened by the harrow), Moss, and manure, forming a light compost very suitable for the vegetation of small seeds. [Yes; *this* mode of using the implement will, doubtless, prepare the land very well for Grass seeds.] This operation was performed in the beginning of April, and the season afterwards becoming, and continuing, most favourable for the growth of Grasses, I had a most abundant crop of White Clover, following the lines made by the implement with the greatest regularity, distinctness, and profusion. The case of failure arose, as I have no doubt, thus:—In the first place, there was more turf on the ground to begin with, and less Moss, and although the harrows were used, it was not with the same effect. Next, also, instead of a top-dressing of manure, a large quantity (from ¼ of an inch to one inch thick) of fresh light earth (dug from a high ridge in an old pasture adjoining) was applied, and this, after the introduction of the implement, brushed in with the brush harrows in the same way as in the other experiment. The clefts or seams were, by this means, as completely and compactly filled up as if the ground had never been scored at all, and though, no doubt, the old turf, by striking its roots into this copious introduction of new soil, was much benefited, and will this year be more so, I could not discern that the fresh plant ever shewed itself. It will be very easy to avoid a similar mistake for the future, but the error evidently lay not in the machine. The detail of two or three other successful experiments with the same implement may, perhaps, not be unwelcome to you. The first was in a field of Red Clover, which was very imperfect, and in places had missed entirely: I here used the machine, sowing Vetches, and using afterwards a pair of light seed harrows, twice or thrice over. The second upon an acre of ground, on which had grown Potatoes several years, and was now being sodded over with turf taken from a field I was going to break up. The third on a recently formed stackyard, also laid down with turf from the same sources as the other plot of ground: in these two last instances, a light dressing of burnt earth was used, after the seed was sown, to cover it as well as we could, and it was brushed in with the brush harrow, the weather being dry. In all these cases the crop of Vetches was abundant, in the second instance immense, and with a large quantity of Grass besides. I can have no hesitation in asserting the great utility of the machine in repairing, by means of Vetches, all cases of failure in the Red Clover crop, though, in order for the Vetches to be in a sufficiently forward state to cut at the time when the Clover is ready for the scythe, the renovation (as Mr. Wayte calls it) should take place in the autumn (the usual time of sowing Winter Dills or Vetches). I think much use might probably be made of this machine in thus sowing bad old pasture land with Vetches in the autumn, in order to secure an early crop of succulent eating for sheep in the spring, rather before the first Grass, care being taken, of course, not to stock the said pastures during the winter months, soon after the seed had vegetated. Should this communication lead any one to wish further particulars, I shall be happy to state all I know relative to the use of Mr. Wayte's implement, and inclose you my address.—*W. P. L.*

Farmers' Clubs in Berkshire.—[We have received from our correspondent a list of many societies in Berkshire, which are doubtless, strictly speaking, "Farmers' Clubs." Nevertheless, they are not, we imagine, *bona fide* monthly discussional agricultural societies to which we suppose "H." alluded. We insert the latter part of our correspondent's letter.]—I still am of opinion that "Knight's Journey-book of Berks" is antiquated as to agriculture, comprised from the gathering of others, as acknowledged in the preface; no doubt, however, it was a great labour to mould such a work, particularly as it combines such various information. Your correspondent "H.," at p. 879, styles my whereabouts "the remotest part of Berkshire." Nevertheless, it is in the centre of the corn district, celebrated for the growth of a good sample of Barley, and is the locality of many well-known intelligent farmers, promoters of all the approved methods of farming.—*F., 7th January*, 1846.

Stall Feeding Two Cows.—The following is the history of an experiment on this subject:—Supposed weight of one, when tied up, 10 score per qr., valued at 21*l.*; the other 9 score 5 lbs. per qr., supposed to be worth 18*l.* 10*s.* Both had been in water-meadows two months before being housed. Quantity of food given to each per diem:

64 lbs. of Swedes, at 1*l.* per ton	0*s.* 7*d.*
11 lbs. of Barley-meal, at 4*s.* 4*d.* per bushel ..	0 11
10 lbs. of hay chaff, at 4*l.* per ton	0 5
Each per diem	1 11

Including attendance, &c., this may be reckoned at 2*s.* per day, or 14*s.* per week. The one was kept in the stall 11 weeks, the other 10.

Value of first	£21 0 0	£28 14 0
Cost of feeding	7 14 0	
Value of second	18 10 0	25 10 0
Cost of feeding	7 0 0	
		54 4 0
Sale price		56 0 0
Profit		£1 16 0

—*From a Correspondent.*

On Thick and Thin Sowing.—Many of the advocates of thin sowing appear to forget several circumstances which are not only unfavourable to that practice, but in some cases render it entirely out of the question. Thin-sown Wheat may be very successful on those rich and highly-cultivated soils, so favourable to the development of the tillering or spreading property of Wheat—and it may be adopted where the farming approaches to a garden-like state of husbandry.—In such cases as these there is very little doubt that thin sowing will be a great saving to the farmer, though in many other cases I am afraid it will have quite a contrary effect upon the farmer's pocket. One of the greatest objections to thin sowing in very many places, is the number of vermin which abound in this game-preserving country. In the first instance the farmer is obliged to use a greater quantity of seed, as a provision for the partridges and other destructive birds; and when the corn has vegetated it is frequently eaten off close to the ground by hares and rabbits, and thus any tillering that might take place is put a stop to; and should the farmer have thin-sown his Wheat, with the expectation of its spreading out to a good plant, he will be woefully mistaken. And again, when the Wheat advances in its growth the damage committed by game in a thin crop is much greater than in a thick one. Where annual and other weeds abound the thick plant will stand a good chance of choking them in their growth, and at harvest time we shall find a clean stubble; but on the other hand a thin plant of Wheat may be hoed many times, and yet at harvest time plenty of weeds will be seen; this will more especially be the case in a wet season, for then the weeds (on some land) will defy our utmost efforts to to put a stop to their growth. In a dry season, and on dry land, the advantage will be on the side of the thick plant, for by its shading the ground it will be kept moist enough for the perfect growth of the corn. It must be allowed that the ears produced by a thin plant are large, yet the quality of corn will be coarse and in no way equal in point of value to the thick planted; and on land not particularly favourable to the abundant growth of Wheat, the quality and quantity will be decidedly inferior. A thin plant of Wheat is most liable

to disease, and it is also liable to have some of it ripe long before some other portion of the crop is come to maturity—this is one cause of the sample being coarse and uneven. If we are certain of producing a fair medium plant of Wheat (what I have termed a thick plant), it matters not how little seed we use; but should we be unable to produce a sufficient plant we must have recourse to a greater quantity of seed.—*Imprimatur.*

Farmers' Clubs.

SUBJECTS FOR DISCUSSION.

6. THE BEST MEANS OF HINDERING ADULTERATIONS OF MANURE.

How are crimes of other kinds hindered? By the employment of a detective force.

We republish the following from a past Number of the *Agricultural Gazette*:—"When a London broker sells substances requiring chemical analysis, he has an examination of them made at his own expense, and when he offers them for sale, he produces the analysis for the guidance of buyers, who regulate their offers by the declared extent of impurity in the samples. Suppose, for example, the substance is nitrate of soda, and that it is worth, if pure, 20*s.* per 100 lbs. When the analysis is produced, it may appear that the sample contains 10 per cent. of impurities of one kind or other; the nature of them is declared; the buyer then considers how much it is worth his while to give, and regulates his bidding accordingly. Why cannot farmers compel the vendors of their artificial manure to produce authenticated analyses in like manner. If the buyers of guano, nitrate of soda, bone-dust, oil of vitriol, sulphate of ammonia, and such things, were to form an anti-fraud league, they might do themselves quite as much good as by means of other leagues now so much in fashion; and if they would hold together steadily, they would soon put an end to the roguery that is so successfully practised upon them. It would not be enough, however, to insist upon seeing an analysis before buying articles capable of adulteration; for there would still be room for cheats to thrive in. What farmers should do in addition would be to put aside a pound of the substance in a glass bottle; to securely cork and seal it up, so that it might eventually become evidence against the seller; if crops fail, or suspicion is aroused, to have it formally analysed; and then if it turned out to be different from the analysis on the faith of which it was bought, to proceed at law against the seller. We will leave the worthy gentlemen who sell loam for guano to picture to themselves what sort of damages a jury of farmers would give in such a case; once caught, they would not like to repeat the experiment." For further information and suggestions on this head, see *Gardeners' Chronicle and Agricultural Gazette*, pp. 218, 259, 377, 393 (vol. 1844); and pp. 464, 472, 535, 543, 559 (1845).

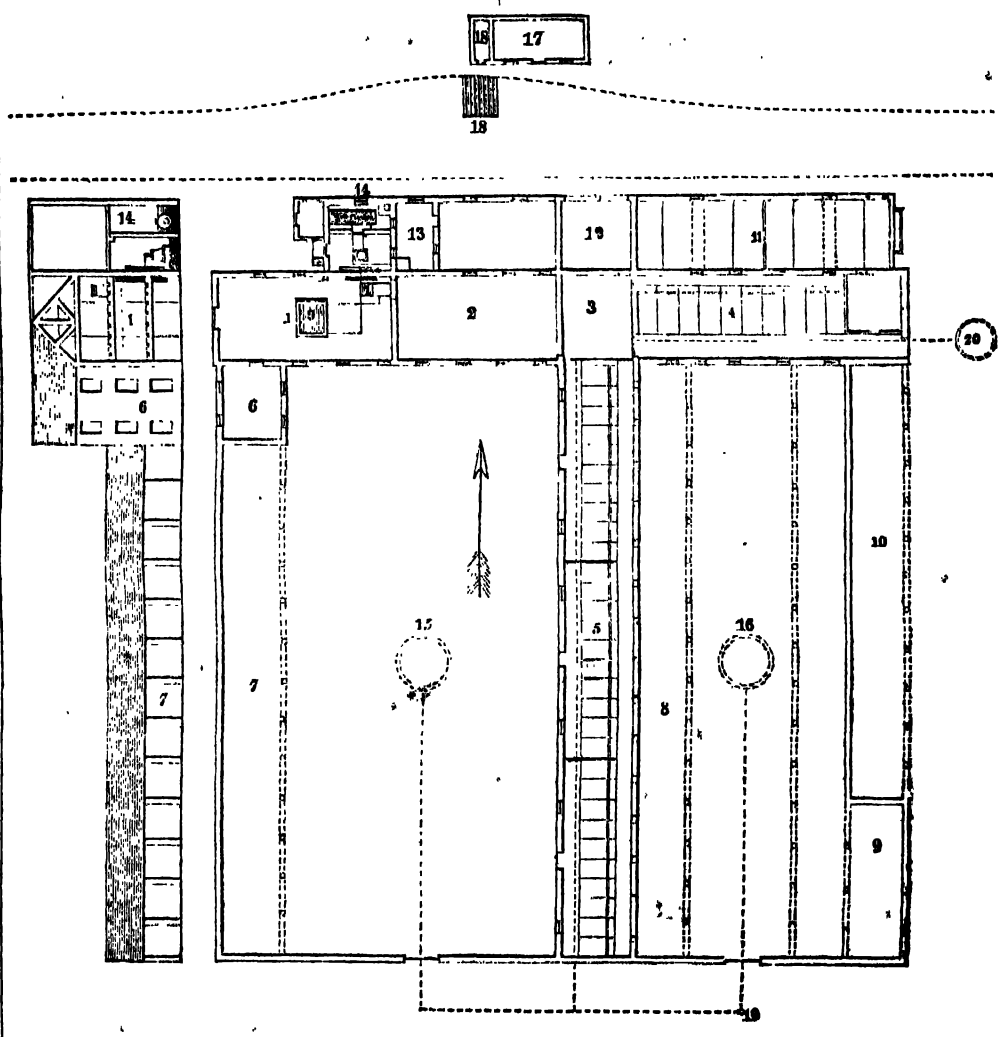
DARLINGTON.—*Liquid Manure.*—At the late annual meeting of this Society after a lecture on Agricultural Chemistry by Mr. White, of York, a discussion took place among the members, and from long observation and experience it appeared that it was most proper to apply solid manure to the land when fresh; that Swede Turnips required a richer manure than white Turnips; and that it was most essential that liquid manure, before its application, should be decomposed and the ammonia fixed either by sulphuric acid or gypsum.—T. Dixon, Esq., of Darlington, the secretary of the club, drew the attention of the meeting to a striking instance of the benefits resulting from the application of liquid manure. In June, last year, he happened to be on the estate of Sir Samuel Crompton, of Wood End, near Thirsk, on the Manor House Farm, when the workmen were cutting a second crop of Grass on a portion of sward land. The crop was exceedingly luxuriant, and being somewhat surprised at the circumstance, he inquired the cause, when he was informed that once or twice in the season liquid manure was applied, commencing early in the spring. This, therefore, was a strong proof, in his opinion, of the beneficial results to be expected from the application of liquid manure, and which, he had no doubt, would lead farmers to pay more attention to the subject.

ORKNEY: *Annual Report.*—[We are happy to make the following extracts from a very favourable report of the progress of agricultural enterprise in this far distant part of the country.]—The paralysis which came over agricultural enterprise in Orkney about the year 1830, and continued until the commencement of the present Society, was occasioned by the almost total loss of revenue from kelp, long the staple commodity of the county, and increased by the very low prices of grain and live stock, causing a decline of profits and continued exhaustion of means, which made the landlords as well as the tenantry unwontedly sensitive to the pressure of every demand, and fearful of increasing burdens already too large, by outlay in farming improvements. In the slow but steadily progressive improvement of the skill, industry and daring of our fishing population, the greater facility of intercourse with the south by steam and otherwise, and the consequent opening of new markets for our produce, but, above all, in the capital which many landlords are now supplying to their tenants at a fair rate of interest, for the improvement of their farms, the Society must see the dawning reaction, which already, it may be trusted, after so protracted a depression, sheds the light of improved prosperity on this remote and long neglected county. That landlords and tenants may not be disappointed of a fair return from their outlay in money and labour, the committee hope to be excused for pressing upon the attention of both the absolute necessity of clearing the way, so far as the power is theirs, from all the encumbrances and obstructions to improvement, with which the old and barbarous usages of the islands may have covered it; and with this view, they would suggest the division and laying in severalty by straight lines of march of all commons and runridge or rundale farms, the total extinction of the present breed of wild sheep, the enforcement of winter herding, the putting down of promiscuous pasturage, and the determined prevention of that most destructive and useless practice, so prevalent in Orkney, of paring the surface of the common or pasture lands for removal to the arable ground, the latter in most cases, already overdosed with the half-decayed vegetable matter and root weeds, which such parings contain. To proprietors of single farms, and to the small farm tenants generally, the committee would take the liberty of pointing out two matters which appear to them sadly overlooked:—1st. In respect to the immense amount of unemployed manual strength yearly wasted about their farms by the young men, sons, or servants, who are occupied in fishing or sea-faring during the summer months, but who (not it is believed from any want of industry in themselves, but from the neglect of their parents or masters to plan out and prepare regular and stated employment for them) are left during the long winter months to loiter about, without aim or object, except the unneeded assistance they may give in thrashing, or, where near the sea, occasionally in securing sea-weed or in sillock-fishing. 2d. The remedy suggested for this first neglect is the cure of the second one, which is, the slovenly way in which water both rising from below and falling on the surface, is allowed to soak and injure, by its tardy and imperfect escape the whole Grass and arable lands of such small farms. In a moist climate like Orkney, with, in many parts, a most retentive subsoil, no improvement can be greater than a system of drainage which shall effect a complete and uniform dryness. The effects of the frequent or thorough-drain system recommended by Mr. Smith, of Deanston, are already to be seen on several farms in Orkney. In every case, the drained lands are producing double, and in many, quadruple their former crops, and this at the same expence of seed and labour, and often at less expence of manure: for it is a fact, that the subsoil, brought to the surface by these frequent drains, being carefully spread over it, has turned out far more valuable in producing a crop, than the heaps of far-carried divots and sour surface parings, which were formerly applied. If the proprietors and small farmers would give constant and well directed employment to the young men, whom they must feed and lodge during the winter months, in well planned and well executed draining, not only would they find the produce of their lands greatly increased, but the appearance and climate of their native county would be vastly improved, and the young men themselves would find a source of cheerfulness and contentment, and have their whole energies roused into pleasing activity from seeing the profitable results of their daily and stated toil.

Farm Memoranda.

WHITFIELD FARM, WOOTTON, GLOUCESTERSHIRE.—I have subjoined a plan, on a scale of $\frac{1}{360}$, of the buildings on this farm. The arrow points north. The following are the references:—

1. The Threshing Barn. 2. The Straw Barn.
3. The room in which roots, &c. are cut up, to be carried along the gangway at the head of
4. The stables, and at the side of
5. The feeding stalls for cattle.
6. Is the granary. It, as well as 1 and 2, are 3-storied buildings. No. 6 and 1 are represented partly in section, and partly in elevation, by the side of the plan.
7. Is a shed along the side of the cattle-yard. It is now divided into 15 boxes for cattle, and the yard formerly intended to have been divided into small courts for young cattle is now merely used as a stance for manure, and a pig-yard.
8. Is a shed in the sheep-yard; another shed also represented in the plan has been lately added on the other side of the yard. The space under these sheds is divided into about 30 pens, in each of which about a dozen sheep are kept.
9. Is a similar shed. 10. Is the cart shed. 11. Pigsties.
12. Shed in which Swedes and other roots in winter, and Clover in summer, are placed for the cattle and sheep.
13. Steaming apparatus. The apartment between this and No. 12 is fitted up with boxes for fattening porkers, six or eight in each pen.
14. Contains the steam-engine and boiler, with a drying-room over head.
15, 16, and 20 are tanks. The two former for the yards, and the last for the stable.
17. Is the cottage of the foreman. 18. Is the weigh engine.
19. Is a liquid manure pump connecting with the yard tanks, and with the feeding stalls.



There are many good points about these buildings, and one or two which, in my opinion, are far from praiseworthy. In illustration of the former, observe the *connection* of the parts; it is on this that the economy of the labour carried on within the buildings depends. The stack-yard lies to the west (observe the arrow) of the barn. It is a double row of ricks with a raised road between them, on which a moveable tram-road is laid. The unthrashed grain is brought to the barn by this railroad, and the straw after passing through the machine is delivered into the straw barn. Thence it is carried with but little labour to the stables, feeding-stalls, and yards. The roots, Swedes, Turnips, Carrots, &c., are piled on land to the east of the cart-shed (No. 10.) A store of them is kept in the shed (No. 12), and they are there cleaned and wheeled into the apartment No. 3, where the cutters are situated; they are there cut, and thence carried with little labour along the stable gangway, as well as along that by the side of the cattle stalls, and from that the cattle are fed; and at the same time (through holes in the wall, between 5 and 8); so are the sheep in the pens under the shed in the adjoining yard. The sties for sows, porkers, and bacon hogs are all situated near the steaming house; the cartsheds near the stables, the granary by the thrashing barn. In addition to what is exhibited on the plan there have been erected, at a cost *in labour* of not more than 5*s.* a head, boxes about 9 feet by 10 for 18 cattle. These are situated along the side of the road west of the foreman's house (No. 17), and they are near the green-food shed (No. 12.) But there are faults to be found in these buildings, though not perhaps in the arrangement of them. One fault is the existence of the large yard No. 15, 150 by 80 feet in extent. The shed along one side (No. 7), is now converted into cattle-boxes, so that this extensive, and I may add expensive, yard is now nearly useless. Where court feeding is adopted, that modification of it which involves the use of hamels or small yards for only two beasts in each, is decidedly preferable to any other. These small yards can all be placed in the proper aspect, an advantage which cannot be secured in the case of a large court, shedded all round. In describing the buildings at Whitfield I would mention the thrashing machinery, only

this is a subject sufficient for another article; but I must just say that the corn is thrashed, the straw is delivered into the barn, or, if necessary, out into chaff; the chaff is delivered into the chaff-house, and the grain cleaned is delivered into sacks, all by machinery, driven by a 6-horse power steam-engine. Great expense was incurred in the erection of this machinery, and many alterations made before it acted successfully, as it now does. The Whitfield buildings well deserve the inspection of any who may be about to erect farmeries; they will instruct in many cases, by offering an example worthy of imitation, as well as in some by exhibiting faults to be avoided.—*M. S.*

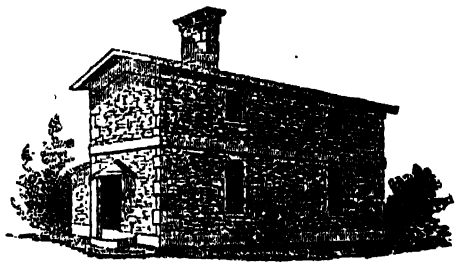
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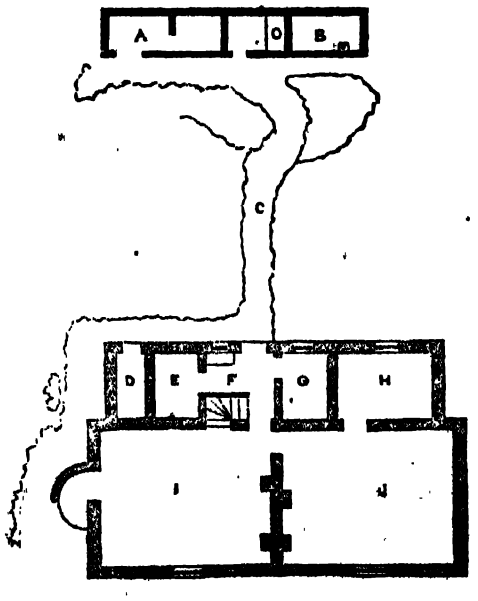
The Plough: a Journal of Agriculture and Rural Affairs. No. 1. Longman, Brown, Green, and Longmans.

No. 1 of a new monthly Agricultural periodical. It contains some very excellent papers on the Practice and Principles of good Farming. The first number of a new publication is rarely distinguished by much variety, but the absence of it in the case of "The Plough, No. 1," is, to a great extent, compensated by the practical usefulness of the two papers, the one entitled "Aratorium; or Cultivation of Lands;" and the other "On the Philosophy of Agriculture," which occupy the greater number of its pages.

The Farmer's Almanack for 1846. By C. W. Johnson, Esq., F.R.S., and W. Shaw, Esq. J. Ridgway.

The distinguishing characteristics of a good farmer's almanack should, we imagine, be a calendar of the operations which, during the several seasons of the year, come under his superintendence; a perfect list of all fairs and markets; and a full and well illustrated sheet of agricultural advertisements. These features are all thoroughly well developed in the almanack before us. The monthly calendar is well written and instructive, as indeed it ought to be, after the course of improvement which, under able editorship, it has undergone during the past five or six years. And it is accompanied by a great variety of useful selections from, and references to our standard works on farming. The advertising sheet is as instructive as usual; and in addition to the illustrations it affords of the present state of agricultural mechanics, as well as of farm enterprise in other departments, it contains on some of its pages, among other useful articles, an essay on the condition of the labouring classes. Now, one point to which this subject should direct our attention, doubtless, is the necessity of increasing the number and improving the character of cottages for agricultural labourers; and on an adjoining page we find a paragraph by Mr. Miles, of St. James's-square, architect, explanatory of the construction of a cottage of his devising; the drawing and plan of which, by Mr. Shaw's kindness, we are enabled to transfer to our columns.





We by no means wish to be understood as approving of the above plan in all its details. For extent and accommodation (for one family), and we imagine cost[illegible]ness, it represents too high a standard of excellence for general imitation by those who are engaged in the really benevolent work of building for their labourers. We extract the following passage from Mr. Miles's explanation. "I and J are, the one a living room and the other a bed-room, each 18 feet by 14.

"In the poor man's dwelling, the labourer's cottage, one fire can only generally be afforded: it is, therefore, a subject worthy of every attention to make this fire as extensively useful as possible. Some improvements lately patented by Mr. Sylvester in grates and fire-places appear to give adaptations peculiarly fitted to small dwellings. With a very moderate expenditure of fuel the living apartment would be provided with a fund of hot water, a good oven, a cheerful open fire, and a warm hearth. Besides these advantages this fire-place would also furnish, at pleasure, warmth consistent with preserving dryness in all the rooms, not however doing away with the necessity of fires in the other rooms, when these may be actually occupied. The ventilation of all the rooms is secured by the chimney, and a free admission of fresh air, the chimney shaft being so constructed as to render the benefit of a change of air or ventilation in every room at the same time. H, 10 by 7, may be used as a bed-room; G, the pantry, 7 by 8; F, the scullery, with a back door and a way to the fuel store, marked E; D is for the poultry; there are two rooms on the first floor over I and J, which are approached by a staircase from the kitchen. A drain from the scullery through the vegetable garden (C) to the covered manure tank (B), with a pump, together with the pigs, &c. (A), are a short distance behind the dwelling. An under-ground tank to collect the rain-water from the roof should be made in a convenient situation. It is intended to build the walls hollow with blocks of moulded concrete, wherever good stone or brick are not to be obtained at a reasonable cost. An entirely new construction is proposed for the roof, which shall be fire-proof, nearly flat, and a sufficiently bad conductor of heat, &c.; withal the expense not to exceed that of a common roof. The floors may be of the same material, thus to render the structure fire-proof."

Miscellaneous.

Guano v. Manure.—On reading the report of a trial made with guano and stable manure, on a crop of Swedes, at the late dinner of the Agricultural Society, by Mr. Nicholas Le Beir, Secretary of the Guernsey Royal Agricultural Society, I could not but be surprised at the result in favour of guano, and which I calculate as follows:—

STABLE MANURE.	£.	s.	d.
15 tons, at 4s. each ..... per English acre	3	0	0
Cartage of manure, at 1s. per ton	0	15	0
Labour of spreading manure, 3 men's day's work, at 1s. 8d. each	0	5	0
Total	£4	0	0
GUANO.			
150 lbs. of guano, at 10s. per cwt	0	15	0
Cartage, and labour of spreading.....	0	1	0
	0	16	0
	£3	4	0
To which add the difference of crop in favour of guano, say 6 tons 2 cwt. Swede Turnips, at 15s. per ton	4	11	6
Total amount in favour of guano..	£7	15	6

per English acre, or 3*l.* 2*s.* per vergée, one-third more than the yearly rental of the land. Surely, with such a golden return, our farmers can no longer be blind to the value and almost miraculous fertilizing qualities of guano.—*An Agriculturist, in the Guernsey Star.*

Sir J. M. Tylden's Experiments with Superphosphate of Lime.—You will oblige me by correcting a trifling error, either of mine or the reporter's, in what I said relative to the use of super-phosphate of lime, at the Sittingbourne Agricultural Society. I am reported to have said that I used super-phosphate of lime with wood ashes. It should have been "guano with wood ashes." I am anxious that my statement should go forth correct, because I should regret that anything should appear to the prejudice of super-phosphate of lime, which, I do not hesitate to say, is the best manure I have met with to force a Turnip crop out of the way of the fly, and, generally, to produce a good crop at the least expense. Should it not be trespassing too much on your space and time, perhaps you will allow me shortly to state my experience in the use of this manure. Last year I used 4 cwt. to the acre, drilled in with the seed, at the cost, all expenses paid, of 30*s.* The crop was as good (of white Turnips) as I ever saw in Norfolk or Suffolk. The ground had been an old ley, three years broken up. This had some effect, of course, but to show the use of the super-phosphate of lime, a part was left without any, and here the Turnips were scarcely larger than peg-tops. I also put on the same field guano, costing 48*s.* per acre. The Turnips here were good, but never so good as those grown with super-phosphate of lime. The whole were put in on the 8th of July; the super-phosphate fit to hoe on the 27th, the guano on the 3d of August. The guano was sown broad-cast and ploughed in, shallow, before drilling the seed. This year I have tried super-phosphate of lime with dung and with guano—for both Swede and white Turnips, and the result is equally satisfactory. For Swedes I used 2 cwt. to the acre, with 40 loads of good farmyard dung, leaving some rows without any super-phosphate of lime. The difference is quite extraordinary, and, but for this manure, I should have had a very bad crop of Swedes. I put 3 cwt. of Peruvian guano and 2 cwt. of super-phosphate of lime to the acre, for white Turnips; but not having enough of the super-phosphate, I used some wood ashes (30 bushels to the acre) with the guano. Those Turnips grown with guano and super-phosphate of lime are very good, but with guano and wood ashes spotty and very unequal. The result of my various experiments leads me to the conclusion that, on fresh land, 4 cwt. to the acre of super-phosphate of lime is as good and efficient a manure as can be, and on land on which Turnips make a regular part of the rotation, I would recommend 3 cwt. with dung, and 2 cwt with guano; and, as far as I can judge, the Turnips grown with guano and super-phosphate of lime are decidedly better than with dung and super-phosphate of lime. The guano sown broad-cast and ploughed in, the super-sulphate of lime drilled in with the seed. Guano, Peruvian, 3 cwt. to the acre. This excellent manure can be had by applying to Mr. Wilson, Lawes's Manufactory, Deptford Creek, or to Mr. Gordelier, chemist, Sittingbourne.—J. M. Tylden, *Milsted, 7th Nov.* [*To the Editor of the Maidstone Gazette.*]

CALENDAR OF OPERATIONS.

JANUARY.

Irrigation.—The long floodings which, with intervals of four or five days, are advisable during winter, should be gradually shortened in the latter end of this month, and during the next. During November, December, and January, a water-meadow may be flooded from 15 to 20 days at a time, and it should then be suffered to lie dry for nearly a week, and the more thorough the draining during that time the better. In mild weather, towards the end of January and during February, six or eight days is a long enough flooding, and when the water is taken off it should be done in the morning, so as to let it dry before night. A good water meadow is a very valuable property: we shall return to the subject before the period in which they should be formed; in the meantime, as an illustration of their value, we give the following statement, by Mr. Stephens, of the produce of eight acres at South Cerney, in Gloucestershire:—The Grass was saved till the 2d day of April, and was then let at 11*d.* a week per sheep, 3*s.* 6*d.* per cow, and 4*s.* for a colt.—The whole produce thus obtained was 35*l.* 1*s.* 10*d.*, or about 4*l.* 16*s.* per acre. And, besides this, 15 tons of hay were made off it that summer (1795).—The following, again, is a statement of the annual debtor and creditor account, per acre, of a meadow in this neighbourhood, that has been presented to us by its proprietor.

Dr. Cash.	£	s.	d.	Contra Cr.	£	s.	d.
To 35 cwt. of hay, at 60*s.* per ton	5	5	0	By rental, including 5 per cent. on expense of formation	2	5	0
Value of spring and autumn keep	2	0	0	By annual expense of irrigation	0	15	0
				Harvest work	0	5	0
£7	5	0		Profit	3	10	0
					£7	5	0

Management of Fences.—No better days than the fine, dry, mild weather we experienced during the first weeks of this month, could be selected for planting fences. The ground to be occupied by the fence should have been previously well cultivated or fallowed. Select two year old Quicks and having marked out the line, lift out a spit of earth all along; lay it so as to raise the fence side of the ditch some two or three inches, and in a trench dug through this and the soil thus covered, plant your Quicks about six inches apart; fill in the trench again, and tramp the earth firmly down: then proceed with the opening of the ditch, throwing the earth in a slight mound behind the young Quicks, or if the subsoil be bad, it may be buried in a line at the back of the fence, keeping the top soil uppermost. To prepare the Quicks for planting, they should be cut off at about five or six inches from the roots. It is unnecessary, and indeed, impolitic, to leave any space between the bank and the edge of the ditch; the fence has a better chance of growing free from weeds when it simply starts from the face of a continuous slope constituting the side of ditch and bank. The present is a good season for those operations in which consist the management of full-grown hedges, but as it is, perhaps, better to postpone them till after the season of severe frosts is over, we shall refer to the subject next month.

Notices to Correspondents.

Agricultural Statistics—*P*—Spackman's "Statistics." Our copy is not at hand, or we would extract for you the information you require. We shall do so shortly. We imagine our agriculture within the last 10 years *has* in a small degree outstripped the increasing demands of our population.

Books—*T P N*—"Agricultural Geology," "Morton on Soils," "On Geology generally," "Trimmer's Geology."——*A Subscriber*—Curwen's "Economy of Feeding Stock," and other "Hints on Agricultural Subjects," was published in 1809, by J. Johnson, St. Paul's-churchyard. You will find much useful information on the subjects you name in Hillyard's "Practical Farmer and Grazier."——*N N*—"Stephens on Irrigation." "Are there such persons as professional irrigators?"—Your best plan is to visit certain districts where the practice is general, and hire some one thence. We should fear letting water from a lead mine on our pastures. Irrigation might be more generally and profitably adopted than it is. We know of no work on the cultivation of Gorse; but you may refer to pp. 75, 90, 139, 188, 203, *Agricultural Gazette*, 1844—for information.

Cast-iron Shares—*Inquirer*—We do not know their cost; probably 1½*d.* to 2*d.* per lb.

Farm of 20 Acres—*Subscriber*—Rent and taxes say	£40	0	0
Draining, if that be needed, will cost	100	0	0
Expence of cultivation one year (we will suppose by the spade) 20 acres, at, say 4*l.* per acre .	80	0	0
Stock to consume during winter, 10 acres of green produce, say	160	0	0
Oilcake, &c.	20	0	0
	£400	0	0

This is as *much* as you will require; but the farm may not require draining, and then you will not incur that expence, and you may resolve to sell the produce and *buy* manure every year, and cost of stock must then be deducted, and both of these together will reduce the sum *by* 260*l.* or *to* 140*l.* To this, however, as well as to the 400*l.* in the other case, you must add the payments due to the out-going tenant. These may be from 1*l.* to 3*l.* per acre, according to circumstances.

Farm Buildings—*Inquirer*—We should not like to erect buildings at our own expense, except with a lease of at least 21 years, and therefore a tenant-at-will on leaving the farm (8 or 10 or 12 years after such erection) should, we think, receive 13, 11, or 9.21ths respectively of the cost he incurred. But we are not sure of your meaning. Is the above an answer to the question you put?

Grass Land—*Inquirer*—If an acre of meadow produces a ton of hay by the end of June: had it not been mown, what would have been the value of the beef or mutton? Has any one any facts to state illustrative of this point? The Grass would doubtless have been more valuable than the hay.

Irrigation—*Constant Reader*—You should let your liquid manure run into the stream, provided *all* the water is turned on your meadows; but if much of it runs down the valley, without irrigating the meadows, you had better keep the manure back and cart it.

LEAVES, &c.—*A Looker-on*—Will you kindly excuse our apparent inattention. We have not yet been able to find room for remarks upon your argument: we shall be very glad to hear further from you on this subject.

LIQUID-MANURE TANK—*W*—Three horses and two cows will void about 8 or 9 gallons of urine daily. Is your tank intended to hold the accumulation of three months? Then, if circular, it must be about 6 feet in diameter, and 5 feet deep; and if rectangular, 6 feet long, 5 feet wide, and 5 feet deep. It may be brick built, brick paved, and well cemented. It may be covered by timber, supporting faggots, and then earth; and a pump may be attached, with pipes reaching to within a foot of the bottom. One tank will suffice; and you may use the liquid either in compost or apply it by means of a water-cart.

MANURES FOR GRASS LAND—*Dodman*—Try on one third, sulphate of ammonia (essence of soot), 1 cwt. per acre; spread broadcast in wet weather first week in April. On another third, at the same time, sow broadcast 2 cwt. per acre of crushed bones, dissolved in 1 cwt. of sulphuric acid, dried with old turf ashes. And on the last third, sow broadcast 3 cwt. per acre of Peruvian guano.

MUSTARD-SEED—*To Readers*—One interested in the culture and application of mustard-seed, as recently used for sheep-feeding, will feel much obliged to any gentleman under whose observation this may fall, who has had any experience in the said cultivation, if he will allow himself to be communicated with by letter on the subject, by "W. P. L.," whose name and address will be left with the Editor of the *Agricultural Gazette*.

PARISH OFFICES—*N C*—We are unable to answer legal questions.

PATENT BREAD—*Devonshire*—We are informed that the practice is to license confectioners and bakers, each to have exclusive right in his own district. Licenses have thus been already granted in upwards of 420 towns and cities in the kingdom. If you have any baker in the neighbourhood you think would take a license, you should make application to the patentee, see page 30. The common process of baking involves an actual loss of a portion of the flour. More bread can thus be made out of a given weight of flour by the new than by the old process.

POND-MUD—*N S*—Dig it out and lay it in ridged heaps, and wait for frost and dry weather, &c., to make it crumble and fall to pieces; then use it as a compost with lime, if your land be not calcareous, or with ashes, &c., if your land be clayey, or if you have the means, with farm-manure, which will be suitable under any circumstances; and spread it in dry weather in March over Grass lands, or as ordinary manure in April on your arable land. On light lands you may apply it by itself after it has crumbled down.

SELF-SOWING MACHINE—*W F L*—Thanks for your letter, which shall appear next week.

SHEEP FEEDING—*Inquirer*—Mr. Huxtable's calculations are founded upon data supplied by his own experience, so that we cannot dispute them; but, remember, it is the experience of one who shed-feeds and carefully attends to his sheep. At the same time, his experience on this subject has unquestionably rarely been paralleled; indeed, if it were common there would have been no need to publish it.

STRAW AND HAY CHAFF—*Inexperience*—If dry, it will keep just as well as when uncut. Half hay and half Oat-straw is very good food, and of course much better than straw alone. Turnips are not liable to injury from the bruises received in throwing them roughly up in heaps to keep. Turnips rot, either through an incipient constitutional decay consequent upon the nature of their growth during the past season, or in consequence of having been exposed to frost before being harvested.

TILE MACHINES—*R M*—We must confess our preference of Ainslie's machine in many respects; but we have not sufficient acquaintance with the subject to render our opinion trustworthy. Your best plan is to look to the decisions of our national Societies on this subject. Ainslie's was too late to compete at Shrewsbury this year.

TURNIP SEED—*Delta*—We have never grown Mangold Wurzel and Carrot seed ourselves, but that which we have found quasver for Turnips is doubtless applicable in other cases. The practice of nurserymen in this particular may be safely copied. We keep Carrots between rows of hurdles 8 or 9 feet apart, pile them up, and thatch them over. We back the carts and tilt them up, and throw up the carts in a very rough way; we never had any difficulty, and have annually grown from 100 to 200 tons for some years. Our experience does not last later than May, but if taken out in spring and turned occasionally, they will doubtless keep till June or July. Mr. Warnes' system of box-feeding is perfectly compatible with the health and cleanliness of the animals. See our Calendar last week.

TUSSAC GRASS—*F H S*—Mr. Lawson, of Edinburgh, has had some experience in this matter. See the report of the Highland Society's Meeting in our last.

WHEAT CULTURE—*Constant Reader*—If your Swede crop was good you are almost sure of a good grain crop succeeding it, though it may all have been carried off.

WHY SHOULD PLOUGHING BE DONE BEFORE FROST, INSTEAD OF AFTER, IF IT "FROST PENETRATES FAST LAND DEEPER THAN LOOSE"—*Inquirer*—Try the two, and you will find the land on which the former plan has been adopted, to be in greatly the better condition. Doubtless because the air, frost, and other causes, influencing the condition of *ploughed* land, are together more effectual than the frost alone, which acts upon that which is unploughed. Frost, unassisted (though in circumstances under which it penetrates farther), is not so influential for good as when assisted by the other agents alluded to, though under circumstances where it cannot penetrate so far.

*** Communications reaching town after Wednesday, cannot be answered the same week.

Markets.

SMITHFIELD, MONDAY, Jan. 19.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	4s	2 to 4s 4	Best Downs & Half-breds	4s	10	5s 2
Best Short Horns	3	10	4 0	Best Long-wools	4	6	4 10
Second quality Beasts	3	6	3 8	Ewes and second quality	4	0	4 6
Calves	4	2	5 4	Pigs	3	8	4 8

Beasts, 9,781; Sheep, 31,220; Calves, 58; Pigs, 275.

There is a considerable falling off in the supply of Beasts as to numbers, but the general quality is very good. We have a good attendance of buyers, and everything is readily disposed of. In some instances rather over our top quotations has been obtained. The supply of Mutton continues short, and in consequence, notwithstanding the weather is very wet and mild, prices are no worse, but rather slightly improved on the best qualities. Good calves are dear. Pork trade is very heavy.

FRIDAY, Jan. 23.

The weather being so unfavourable for slaughtering, we have a very limited attendance of purchasers, and although the supply is not large, we have great difficulty in making a clearance. 4s 4d is an extreme price for the best cows, and 4s for the best Short horns; Second quality, 3s 10d to 4s 4d. The supply of Sheep is short, but quite adequate to the demand; the best Downs make about 5s, and Long-wools 4s 8d; Ewes, &c., 4s to 4s 4d. Good Veal maintains its price; a very choice Calf makes nearly 5s 8d. Pork trade remains very heavy, the weather being so much against it.

Beasts, 703; Sheep, 8910; Calves, 110; Pigs, 250.

4th West Smithfield.

POTATOES.—SOUTHWARK, WATERSIDE, Jan. 19.

The supplies during the past week have not been large, but added to those left of former arrivals, have been more than sufficient for the present consumption. The town markets are still gutted with Vegetables, and most of the market salesmen are liberally supplied with Potatoes principally by railway conveyance. In former years the market salesmen have got the greater part of their supply from the Waterside. Several samples have turned out much diseased. In consequence of long passage, and the depressed state of the market, the Potatoes have laid too long in the ships. The sales have been exceedingly languid, at the following quotations:—York Reds from 60s to 140s per ton; ditto Regents, 90s to 110s per ton; Scotch Reds, 60s to 90s per ton; Jersey Blues, 70s to 80s per ton—the highest prices may be considered nominal.

COVENT GARDEN, JAN. 24.—The market has been well supplied with most articles during the past week, and prices have varied but little; trade, as may be expected, is far from being brisk. Pine-apples are good, and sufficient for the demand. Hothouse Grapes continue to be scarce: foreign sorts are good in quality, and sufficient for the demand. Good specimens of dessert Apples and Pears are scarce, especially of the latter. Oranges are plentiful, and Nuts of almost all kinds are sufficient to meet the demand; prices for them are rather on the rise. Little alteration has taken place in the prices of vegetables. Asparagus is rather more plentiful, and abundance of good Seakale may be obtained at last week's prices. The supply of Broccoli, Brussels Sprouts, and other winter Greens, is good; White Broccoli from Cornwall is plentiful, and fetches from 1s. to 4s. per dozen heads. French Beans have not altered in price since last week, nor has Rhubarb, which is every week becoming more abundant. Celery is excellent in quality, and Potatoes are also, generally speaking, of better quality than they have hitherto been; in regard to price, they are much the same as they were last week, the very best samples still fetching 8*l.* a ton. Chicory continues to be supplied, but there is as yet little demand for it. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Poinsettia pulcherrima, Jasmines, Lily of the Valley, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Cinerarias, Gardenias, and Roses.

FRUITS

Pine Apple, per lb.,	4s	to	6s
Grapes, Hothouse, per lb.,	2s	to	6s
— Spanish, per lb.,	0s	to	1s
— Portugal, p. lb.,	1s	to	2s 6d
Apples, Dess., per bush.,	4s	to	10s
— Kitchen,	2s 6d	to	6s 0d
Oranges, per dozen,	0d	to	2s
— per 100,	4s	to	14s
— Seville, per 100,	2s	to	10s
— per dozen,	2s	to	3s 6d
Lemons, per dozen,	1s	to	2s
— per 100,	6s	to	10s
Almonds, per pack,	6s		
Sweet Almonds, per lb.,	2s	6d	to 3s
Filberts, English, p. 100 lbs.,	30s	to	60s
Nuts, Cob, per 100 lbs.,	50s	to	70s
— Barcelona,	20s		
— Brazil,	16s		
— Spanish,	14s		
Chesnuts, per peck,	4s	to	8s
Pears, per half-sieve,	2s	to	10s

VEGETABLES.

Cabbages, per doz.,	6d	to	1s 6d
— red, per doz.,	2s	to	3s
Brussels Sprouts, p. half-sv.,	1s	to	2s
Savoys, per doz.,	6d	to	1s
Broccoli, Brown, per bdle.,	6d	to	1s 6d
— White,	1s	to	4s
Greens, per doz. bunches,	2s	to	3s 6d
French Beans, per 100,	2s	to	3s
Sorrel, per hf.-sieve,	9d	to	1s
Potatoes, per ton,	80s	to	160s
— cwt.,	4s	to	9s
— bushel,	2s	6d	to 4s 6d
— Kidney, per bushel,	3s	to	5s
Turnips, per doz.,	1s	to	2s 6d
Red Beet, per doz.,	6d	to	1s 6d
Carrots, per doz. bchs.,	2s	to	Horse Radish, per bundle, 1s 6d to 3s
Seakale, per punnet,	1s	to	2s 6d
Rhubarb, per bundle,	2d	to	1s 6d
Asparagus per bundle,	2s	to	12s
Cucumbers, each,	1s	to	2s
Spinach, per sieve,	1s	to	2s
Leeks, per doz. bunches,	1s	to	2s
Garlic, per lb.,	6d	to	8d
Celery, per bunch,	6d	to	1s 6d
Cardoons, each,	6d	to	0d
Parsnips, per doz.,	2d	to	1s
Scorzonera, per bundle,	1s	to	1s 6d
Salsify, do.,	1s	to	1s 6d
Onions, per bushel,	1s	6d	to 2s
— pickling, per hf.-sv.,	2s	to	3s
— Spanish, per doz.,	2s	to	4s
Shallots, per lb.,	6d	to	0d
Endive, per score,	3d	to	1s
Lettuce, per score, Cab.,	4d	to	9d
— — Cos,	6d	to	1s
Radishes, per doz. bunches,	1s	to	1s6d
Mushrooms, per pottle,	0d	to	1s 3d
Small Salads, per punnet,	2d	to	3d
Fennel, per bunch,	2d	to	3d
Savory, per bunch,	4d	to	6d
Thyme, per bunch,	4d		
Watercress, p. 12 sm. bun.	4d	to	6d
Parsley, per bunch,	1d	to	2d
— Moss, per bundle,	1s		
Tarragon, per bunch,	6d		
Mint, green, per bunch,	6d	to	0d
Marjoram, per bunch,	4d		
Chervil, per punnet,	2d	to	3d

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Jan. 22.

Prime Mead. Hay	90s	to	95s	New Hay	—s	to —s	New Clr. —s to —s
Infr. New & Rowen	65		75	Clover	80	to 105	Straw 70 84

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Jan. 22.

Prime Mead. Hay	90s	to	95s	Old Clover	110s	to	110s
Interior	70		80	Inferior do.	98		108
New Hay	—		—	New Clover	—		—

Straw 32s to 36s

JOSHUA BARNS, Hay Salesman.

WHITECHAPEL, Jan. 23.

Fine Old Hay	90s	to	100s	Old Clover	—s	to —s	
Inferior Hay	—		—	New Clover	105		115
New Hay	78		88	Infr.	70		90

Straw 28s to 34s

HOPS, FRIDAY, Jan. 23.

The demand for good Hops still continues, and it is generally believed that when the Premier's plans are made known they will greatly assist the Hop market. PATTESON & SMITH, Hop-Factors.

MARK-LANE, MONDAY, Jan. 19.

The supply of English Wheat by land carriage samples was small this morning, and the condition much worse than heretofore; the new could not be sold excepting at a decline of 2s. per Quarter, and for old as well as free Foreign rather less money was accepted where sales were effected. There was some inquiry for Bonded, a cargo of Marianople afloat is reported as sold at 50s., and a little fine Dantzic also changed hands. Barley, except the very best Malting, must be noted 1s. per Quarter lower. Beans and Peas of all kinds are 1s. and 2s. per Quarter cheaper. In the Oat Trade there is very little doing, but late prices are maintained.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	White	58	66	Red	50 62
—— Norfolk, Lincolnshire, and Yorkshire		50	63	White	60 63
Barley, Malting and distilling 31s to 35s	Chevalier	33	36	Grind.	27 30
Oats, Lincolnshire and Yorkshire	Polands	23	24	Feed	22 24
—— Northumberland and Scotch	Feed	23	25	Potato	24 26
—— Irish	Feed	22	26	Potato	24 28
Malt, pale, ship		54	60		
—— Hertford and Essex		60	65		
Rye		34	37		
Beans, Mazagan, old and new	28 to 40	Tick	30	42	Harrow 32 44
—— Pigeon, Hallgoland	35 to 46	Winds	40	48	Longpod 32 36
Peas, White	28 to 42	Maple	30	32	Grey 28 32

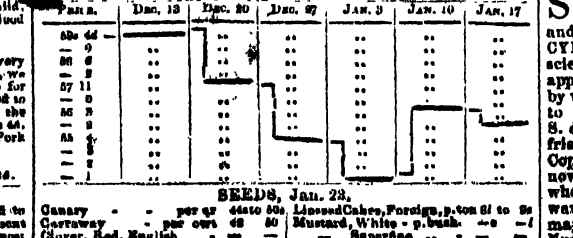
FRIDAY, Jan. 23.

Neither the Queen's speech nor the proceedings in Parliament yesterday have relieved in any degree the dulness which has so long prevailed in the Corn trade; to-day there was scarcely any business doing in either article, and the value of each remains nominally as quoted on Monday. During the week a few transactions have taken place in Polish Odessa Wheat afloat, at 48s. freight and insurance included, and Ibraila at 45s. in bond; to-day the high pretensions of holders generally prevented sales, and few consequently resulted.

IMPERIAL AVERAGES.

Dec.	13 per Quarter.	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
		52s 4d	32s 9d	24s 6d	36s 8d	40s 2d	42s 6d
—	10	57 11	32 7	23 4	36 8	39 6	42 5
—	17	58 4	32 0	22 0	34 8	39 1	39 10
—	3	55 1	31 11	23 2	33 0	37 9	39 1
Jan.	10	56 8	31 10	21 9	33 11	36 6	38 11
—	17	58 8	31 11	22 8	34 9	36 9	39 3
6 weeks' Aggreg. Aver.		56 8	32 3	22 10	34 4	38 4	40 6
Duties on Foreign Grain		16 0	6 0	6 0	9 0	4 8	3 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Jan. 17.



SEEDS, Jan. 23.

Canary	per qr	44s	to 50s	Linseed Cakes, Foreign, p. ton	£7 to £8
Carraway	per cwt	42	50	Mustard, White	p. bush. —s —d
Clover, Red, English	—	—	—	— Superfine	0 0 — —
— — Foreign	—	—	—	— Brown	0 0 — —
— White, English	—	—	—	Rapeseed, English, per last	28£ 28£
— — Foreign	—	—	—	Rape Cakes per ton	— —
Coriander	—	10	16	Safflower	— — — —
Hempseed	per qr.	32	36	Tares, Eng. winter	p. bush. — —
Linseed	per qr	45	48	— Foreign	— — 4s6d
— Baltic	—	42	46	Trefoil per cwt	18 22
— Cakes, Eng. per 1000 lbs.		£12		Turnip (two variable for quotation)	

RICHARD HAY AND SON.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

HORTICULTURAL GLASS.—NET CASH PRICES.

In Squares under 5 inches by 3 inches .. .. 1½*d.* per foot.
Ditto, 5 in. by 3 in., and under 6 in. by 4 in... 2*d.* „
Ditto, 6 in. by 4 in., and under 9 in. by 7 in... 3½*d.* „

In Large Sizes up to 40 inches, long and quite flat.

No.		per ft.
0—1-16th of an inch thick, or averaging 12 oz. to the foot,		4½*d.*
1—1-14th „ „ „ „	16 oz. „	5½*d.*
2—1-10th „ „ „ „	21 oz. „	7*d.*
3—1-8th „ „ „ „	32 oz. „	1*s.*

The thicknesses most recommended are Nos. 1 and 2, and the most proportionate sizes are 18 inches by 6 inches, 28 in. by 7 in., or 38 in. by 9 in.

ROBERT DALE & CO., GLASS MERCHANTS, Hull, beg to call the attention of Noblemen and Gentlemen to the above prices for Glass suitable for Horticultural purposes; and as they are advantageously situated for importing, there being a daily steam communication between the port of Hull and the Continental Markets, and, in addition to this, having made arrangements with eminent English Manufacturers for a regular supply, they are enabled to offer every advantage to the purchaser, and also to insure the prompt execution of all orders with which they may be favoured.

N.B. Cucumber and Striking Glasses supplied.

HORTICULTURAL GLASS OF BRITISH MANUFACTURE, at J. WELCH, jun., PHILLIPS, and Co.'s Warehouse, 12, Panton-street, Haymarket.—Having made arrangements with a British Manufacturer, they are enabled to offer the above article in unlimited quantities at the following terms, in Squares not exceeding 40 inches long:—

No. 0—(equal to Foreign Sheet)	.. ..	4½*d.*	per foot.
1—averaging from 16 to 18 oz. to the foot		5½*d.*	„
2 „	21 to 23 „	7*d.*	„
3 „	32 „	1*s.*	„

J. WELCH, jun., having been many years with Mr. Drake, of 8, Jermyn-street, and 315, Oxford-street, and at the time of the glazing of Chatsworth Conservatory, has devoted himself to the Horticultural Glazing Department, begs to call the attention of Horticulturists generally to the above prices for Glass, which they undertake to glaze in any part of the United Kingdom.

They also beg to recommend for Pits and Garden Lights small size squares, which they offer at the following low prices, packed in 100 feet boxes, not particular to thickness:—

	Under 5 in. by 3	..	1½*d.* per foot.
5 in. by 3 and	„ 6 in. by 4	..	2*d.* „
6 in. by 4 and	„ 9 in. by 7	..	3*d.* „

J. W. & Co. solicit inspection of their stock of Stained and Ornamental Glass at their Warehouse, as above.—12, Panton-street, Haymarket.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

per gross.	per gross.	per gross.
6 in. by 4 .. 6s.	8 by 5 .. 12s.	9 by 7 .. 18s.
7 in. by 4½ .. 9s.	8 by 6 .. 14s.	10 by 8 .. 20s.

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

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TO FLORISTS, HORTICULTURISTS, &c.

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HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

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Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

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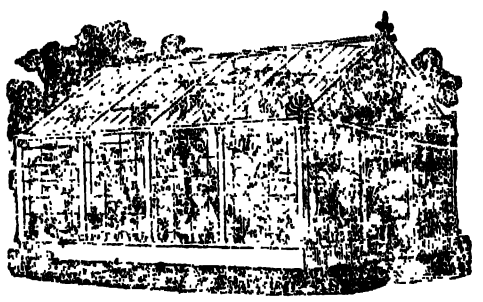
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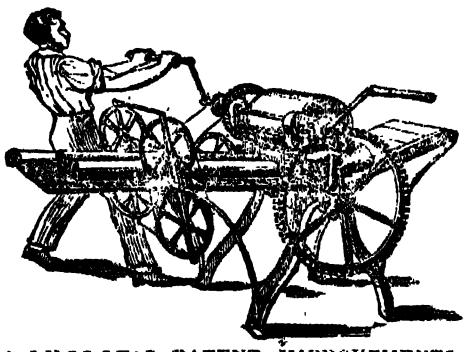
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At the last meeting of the Yorkshire Agricultural Society, the Prize of 10*l.* was awarded to this Machine, after a succession of trials before competent Mechanical and Agricultural Judges, and it has subsequently obtained Medals and Premiums from the Liverpool, Highland, and other Societies.

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Price of Machine, with six rows	£35
" eight rows	40
" ten rows	45

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DINGLE'S HAND DIBBLING MACHINE, for depositing all kinds of Seed. It is so constructed that it will at the same moment make the hole and deliver the exact quantity of Seed with extreme regularity, nor is the soil liable to choke the point.

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Weedon's Free-bearer	0	6
Early Frame	0	3
Kerrison's	1	0
Walker's Rambler	0	6
Windsor Prize	0	6
Early Handglass	0	3
Early Ridge	0	3

MELONS.

Lord Montague, Scarlet-flesh
Sion House, Green-flesh
Cabul
Jones's Netted, Green-flesh
Egyptian, Green-flesh
Holland's Ne Plus Ultra
True Cassabar
Netted Cantalupe
Black Rock
Hoosainee
Knight's Hybrid
Persian
Peignac
Silver-skinned Scarlet
Beechwood
Ispahan
Windsor Prize
Yarmouth Prize
Sir Gore Ouseley
Nutmeg
Wellington Cantalupe
Mumford's Bath Hybrid

And all the other finest varieties cultivated for this unequalled market.

6d. per packet.

ENDIVE.

New Imperial, per packet	0	6	
Batavian	,,	0	6
Green Curled	per oz.	0	6
White Curled	,,	0	6
Herbs, all the kinds, per packet	0	6	

LETTUCE.

Brighton Cos, per oz.	1	0
Imperial Cos ,,	1	0
Spotted or Tiger Cabbage (new), per packet	0	6
Artichoke-leaved, a fine new hardy sort	0	6
Fine London White Cos, per oz.	0	9
Drumhead	0	9
D'Eté Cabbage, per packet	0	6
Bath Cos, & others, p. oz.	1	0

ONION. Per oz.

James's Long Keeping	0	6
Fine White Spanish	0	6
Globe	0	6
Strasburgh	0	6
Deptford	0	6
Silver-skin	0	9
Tripoli	1	0
Blood Red	0	6
,, two-bladed, for pickling	0	8

PARSLEY.

Plain, for feeding early Lambs, per bushel	16	0
Extra Curled, per oz.	0	3

RADISH.

New Scarlet Olive-shaped, a delicious new variety, per packet 0 6
New Rose, per packet 0 6
Early Frame, per pint 1 0
Long Scarlet ,, 1 0
Red & White Turnip ,, 1 0
Black Spanish 0 3

SPINACH.

New Flanders, per pint	0	6
Round, or Summer ,,	0	6
Lettuce-leaved (new), per paper	0	6
New Zealand, per oz.	0	6

TURNIPS. Per oz.

Early Snowball	0	3
Teltow, for stewing	0	3
Early Dutch	0	3
Yellow Maltese	0	3
,, Stone	0	3
Laing's and Skirving's Swede, with all the better kinds for field culture, per lb.	1	0

White and Red Clover, Lucerne, Trefoil, &c., per lb. or cwt.

A few of the very finest Grasses for Lawns, per lb., 1s. 6d.

Myatt's fine new Strawberries.

Asparagus plants, according to age, per 100, 2s. 6d. to 5s.

Seakale do. do. do. 5s. to 10s.

Dulley's Early Scarlet Admirable Rhubarb, per root, 1s. 6d.

Myatt's Victoria do. (the largest in cultivation), 1s. 6d.

Mushroom Spawn, per bushel, 5s.

All the fine new Raspberries, 2s. 6d. to 3s. per dozen.

POTATOES. s. d.

Soden's Early Oxford, per bushel	10	0	Early Cockney, per bush.	8	0
Barnard's Early Frame, per bushel	8	0	Martin's Early Globe, do.	10	0
Shilling's Early Prolific, per peck	4	0	Ash-leaved Kidneys, do.	8	0
			American Kidneys, do.	8	0
			Early Shaw do.	5	0
			,, Forty-fold do.	6	0

And many other most productive late kinds; also seed, saved from the best varieties, 2s. 6d. per packet.

It is worthy of remark, that Potatoes raised from seed during the last two seasons have entirely escaped the effects of the Potato Murrain of last season.

Potato Onions, 3d. per lb.

Budding and Pruning Knives.

Russia Mats, 1s. 6d. each.

Buckwheat, Indian Corn, Rape, Hemp, &c., for Aviaries.

The trade supplied on moderate terms, with every article true to its kind.

FLOWER SEEDS.

Asters, 20 distinct German varieties, in sealed packets, suitable for exhibition, the collection, 10s.

A mixture, including all the colours of the above, per paper, 1s.

Do., in 12 distinct colours, the collection, 5s.

Superb German and Prussian Stocks, 25 distinct varieties, for exhibition, the collection, 10s.

12 varieties of do., distinct in colours, 5s.

12 autumn flowering do., in distinct colours, 6s.

12 named varieties of Brompton Stocks, 6s.

A mixture of all the finest varieties of Ten-week, per paper, 6d.

A mixture of Brompton do., per packet, 6d.

Per packet—s. d.			Per packet—s. d.		
Achimenes, seeds and bulbs of all the varieties.			Lophospermum erubescens	0	6
Anagallis Phillipsii	0	6	Loasa aurantiaca	0	6
,, Monelli, major	0	6	Maurandya Barclayana	0	6
,, Lilacina	0	6	Tropæolum peregrine	0	6
,, superba grandiflora	0	6	,, pentaphyllum	0	6
,, indica	0	3	,, Jarrattii	1	0
,, carnea	0	3	,, tricolorum grandiflora	1	0
,, latifolia	0	6	,, trimaculatum, new	1	0
Anomatheca cruenta	0	6	Ipomœa rubra cærulea	0	6
Amethystea cærulea	0	6	,, punctata	0	6
Anthemis arabicus (dwf. yellow)	0	3	,, rosea	0	6
Antirrhinum (all the new kinds)	0	3	,, striata, & others	0	6
Argemone grandiflora	0	3	Sycios angulata	0	6
,, Barclayana	0	3	Thunbergia alata	0	6
,, speciosa	0	3	,, ,, alba	0	6
Aquilegia glandulosa	1	0	,, aurantiaca	0	6
,, canadensis	0	6	,, chrysops—new, per plant.		
,, siberica	0	3			
,, fine mixed German varieties	0	6	Collinsia grandiflora	0	3
Auricula, from fine named flowers	1	0	,, bicolor	0	3
,, alpine	0	6	Dahlia scabigera (dwarf lilac)	0	6
Brachycome iberidifolia	1	0	Delphinium or Larkspurs, distinct or mixed	0	3
Balsams, 12 very fine distinct colours, all double	0	6	Ditto, biennial and perennial varieties	0	3
,, mixture of above	0	6	Datura, all the varieties	0	3
Blumenbachia insignis	0	6	Digitalis grandiflora	0	3
Browallia, of sorts	0	6	,, new spotted	0	3
Calceolarias, from a collection of named shrubby kinds	1	0	Dianthus, double white, Indian pink	0	6
Calceolarias, from Herbaceous do.	1	0	,, Knight's new hybrid	0	6
Calceolaria pinnata	0	6	,, double Indian	0	3
Calendrinia discolor	0	3	,, aggregatus	0	6
,, grandiflora	0	3	,, latifolia	0	3
Campanula pulcherrima	0	6	,, alpina	0	3
,, Loreil	0	6	,, Cherii	0	6
,, capillaris	0	6	,, superbus	0	6
And many other sorts, fine, as a contrast with bedded out Verbenas, &c.			And others.		
			Didiscus cæruleus	0	6
Cistus guttatus, very dwf.	0	6	Dahlia, fine mixed	0	6
Clintonia pulchella	0	6	Eucharidium grandiflora	1	0
,, elegans	0	3	Eutoca viscida	0	3
Cuphea viscocissima	0	6	Egg plant, white	0	6
,, silenoides	0	6	Eschscholtzia, 3 sorts	0	3
Cineraria, selected from 36 of the latest new kinds	1	0	Eryalmum Perofskianum	0	3
			Fuchsias of all sorts.		
Commantinus fimbriatus, new and fine annual	0	6	Forget-me-not	0	6
Commelina coelestis	0	3	Gaillardia picta	0	6
Carnation and Picotee, from named flowers	1	0	,, bicolor	0	3
Cynoglossum, or Forget-me-not	0	6	,, Richardsonii	0	3
Clarkias, all the varieties	0	3	Globe Amaranthus, of sorts	0	3
CLIMBERS.			Gentianas, of sorts	0	6
Cobæa scandens	0	6	Geum splendens	0	6
Calampelis scaber	0	6	,, Wiesi	0	6
			Geranium, from fine sorts	1	0
			Gloxinia speciosa	0	6
			,, hybrida	0	6
			,, rubra	0	6
			,, Priestleyana	0	6
			Grahamia aromatica	0	6
			Godetia, all the new sorts	0	3

Per packet—s. d.			Per packet—s. d.		
Heartsease, from first-rate prize flowers	1	0	Nemophila insignis major	0	3
Humea elegans	0	6	,, discoidalis, new	1	0
Heliotropium Peruvianum	0	6	,, Crumboides, & others	0	6
Hibiscus Richardsonii	0	6	Nelrembergia splendens	0	6
,, Humboldtii	0	6	,, violacea	0	6
Heliophila araboides	0	6	,, fine mixed	0	6
Helianthemum (Rock cistus), 6 varieties for rockwork	0	3	,, nyctaginiflora	0	3
Do., all the vars., mixed	0	6	Nolana stripulcifolia	0	3
Hollyhocks, 20 German vars., mixed or separate	0	6	,, paradoxa	0	3
Ipomœas, of sorts	0	6	Nuttalia grandiflora	1	0
Ipomopsis elegans	0	6	Œnothera Sellowii	0	6
,, Berichii, new	1	0	,, Drummondii	0	6
Isotoma axillaris	0	6	,, Hartmania	0	6
Jacobæa, double crimson	0	3	,, densiflores	0	6
,, ,, purple	0	3	and others	0	3
,, new lilac	0	6	Papaver Marcelli	0	6
Kaulfussia amelloides, for edging	0	3	,, 16 new Prussian varieties, very showy for borders	5	0
Lantana Sellowii	0	6	Pæas, sweet, all the colours, separate or mixed	0	3
HANDSOME ORNAMENTAL GRASSES.			Phlox Drummondii, various shades	0	6
Lagurus ovatus (Hare's Tail Grass)	0	6	,, new, scarlet	1	0
Agrostis pulchella	0	6	Picotee, from named flowers	1	0
Brisa gracilis	0	6	Platystemon californica	0	3
,, maxima	0	6	Potentilla Garneriana	1	0
Stipa pinnata	0	6	,, Russellianus	0	6
Larkspurs, 12 distinct German vars.	5	0	,, insignis, fine, new	1	0
,, Mixed dwarf Rocket	0	3	Polyanthus, fine, mixed	0	6
Leptosiphon densiflores	0	3	Portulacca splendens	0	6
,, androsaceus	0	3	,, Thellusonii	0	6
Loasas, of sorts	0	3	,, grandiflora	0	6
Linum monogynum, fine	0	6	Primula sinensis (white fringed)	1	0
,, verticillatum	0	3	,, lilac	1	0
,, album	0	3	,, cortusoides	0	6
Lymnanthus grandiflora (new)	0	6	Rhodanthe Manglesii	0	6
,, Douglasii	0	3	Rhododendron ferrugineum	0	6
Lobelia heterophylla major, fine	0	6	,, hirsutum, for dwf. edging	0	6
,, bicolor	0	6	,, fine mixed varieties	1	0
,, gracilis	0	3	Schizanthus Hookerii	0	6
,, ramosus	0	6	,, Grahamii	0	6
,, erinoides	0	3	,, humilis & others	0	3
,, Cruikshankii	0	3	,, Priestii	0	6
,, Dicksonii & others	0	3	,, venustus	0	3
Lychnis speciosa, new	0	6	Schizopetalon Walkerii, very sweet	0	6
,, flos Jovis	0	3	Sphænogyne speciosa	0	3
,, coeli rosea	0	3	Streptocarpus Rexii	0	6
,, prostrata	0	3	Silene speciosa (new)	1	0
Lianthus latifolia	0	6	Stocks, Buck's Intermediate, 16 out of 20 certain to come double	0	6
,, ,, major, fine new yellow	0	6	Stocks, Chapman's Scarlet, 10-week	0	3
,, nigricans	0	6	Stocks, Shepherd's White and Purple	0	3
Malope grandiflora, and others	0	3	Viscaria oculata	0	6
Marvel of Peru, 6 distinct colours	0	3	Violet, Russian, (everflowering)	0	6
Marigolds, all the varieties	0	3	Verbena, a mixture of 6 best sorts	0	6
Musembryanthemum tricolor	0	6	Wahlenbergia grandiflora	0	6
Mimosa sensitiva (Sensitive plant.)	0	6	,, capillaris	0	6
Mimulus, from 12 distinct named varieties	1	0	Wallflower, blood red	0	3
Martynia fragrans	1	0	,, Double German, of sorts	1	0
Myrtle, double flowering	0	6	,, changeable	0	6
Nasturtiums, all the sorts	0	3	Zinnia, elegans coccinea	0	3
Nemesia floribundus	0	6	,, purpurea	0	6
			,, mixed, from 20 separate varieties	0	6

Ornamental Trees and Shrubs of all descriptions.

Named Double Anemones, and Ranunculuses; Gladiolus ramosus and floribundus; Tigridia pavonia, and conchiflora; with many other flowering Bulbs and Herbaceous Plants, which may be planted out till the middle of May.

Carnations, Picotees, and Pinks, per pair, from 1s. to 3s. 6d.

All the better named Heartsease from 6s. to 30s. per doz.

Standard, Dwarf, and Climbing Roses, 1s. to 2s. 6d. each.

Rivers's Catalogue of Fruits, with directions for culture and root-pruning.

Rivers's new edition of the "Rose Amateurs' Guide," 6s.

Paxton's "Cottagers' Calendar," 3d., which ladies and gentlemen should distribute to cottagers.

Seeds for distribution to cottagers, at cost prices.

Potter's Concentrated Essence of Guano, per qt. bottle, 1s. 6d.

A Selection of Seeds best adapted for Ward's Cases may be had on application.

Seeds selected and carefully packed for North and South America, India, New Zealand, and Australia, in the most secure way to arrive safe at any of the above places.

Where a Post-office order accompanies an order for any of the above-named seeds, J. KERNAN will allow, as discount, additional articles to the amount of 2s. in the pound.

Old meadow turf, which will take a considerable time to decompose and char by the regular or natural means, I have found can be produced by the following simple and short process:—Place four bricks, raised two on two, about three feet distant from four others similarly arranged, upon which place a sheet of iron large enough to rest fully on the bricks. By making a fire under this simple machine, and allowing your turf to remain until charred, it will, when bruised, make an excellent stimulant for Annuals, Herbaceous and Pot Plants of all sorts. If the vermin or the season do not disturb them, you will not require more than one plant in a hundred of those that come up. Be careful to begin thinning when the plants are quite young. Do not sow delicate Annuals in the open borders until the end of April, or (what is better) make two sowings, one in the middle of April, and the other the beginning of May. These will succeed each other until October.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Chandos-street, in the parish of St. Paul's Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—SATURDAY, JANUARY 24, 1846.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 5.—1846.] SATURDAY, JANUARY 31. [Price 6d.

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GARDENERS' BENEVOLENT INSTITUTION.—

At a General Meeting of the Subscribers to this Institution, held at the LONDON COFFEE HOUSE, Ludgate-Hill, on Wednesday, 28th January, for the purpose of electing five Pensioners, the following was the result of the ballot :—

1. John Adamson	3d application,	aged 69	.. 74
2. Barney Farelly	do.	aged 69	..117
3. Thomas Farmer	do.	aged 65	..240
4. John Garnell	do.	aged 79	..109
5. Christopher Gibbons	do.	aged 60	.. 20
6. James Stedman	do.	aged 78	..186
7 James Everest	2d application,	aged 65	..104
8. John Longhurst	do.	aged 58	..124
9. William May	do.	aged 77	..117
10. Christopher Birmingham.	1st application,	aged 75	..132
11. William Havers	do.	aged 73	.. 42
12. Edward Marshall	do.	aged 65	.. 3
13. Ann Pratt	do.	aged 63	..106
14. Sarah Pryor	do.	aged 77	..124
15. Henry Riches	do.	aged 71	.. 43
16. George Wallis	do.	aged 70	.. 24

The Meeting then declared that Thomas Farmer, James Stedman, Christopher Birmingham, John Longhurst, and Sarah Pryor, as having the greatest number of votes, duly elected Pensioners of this Society.

E. R. Cutler, Secretary, 97, Farringdon-street.

TO THE MEMBERS OF THE GARDENERS' BENEVOLENT SOCIETY.

JOHN LONGHURST begs most respectfully and sincerely to offer his heartfelt gratitude to those Members who so kindly voted for him, and to the Society at large, for his Election as one of the recipients of their benevolence.

His Friends who recommended him, beg to assure the Society that there never was a more deserving character.

148, Fleet-street.

GREAT FALL IN TURNIP SEED, IN CONSEQUENCE OF SIR ROBERT PEEL'S ALTERATION IN THE TARIFF.

J. G. WAITE begs respectfully to inform the Trade, he can now supply TURNIP SEED full 30 per cent. lower than the London agreed prices. Catalogues may be had on application.

4, Eyre-street Hill, Hatton-garden, Jan. 31, 1846.

SAXE GOTHA AND MAGDEBURGH.

STEIGER & CO., Seedsmen and Florists, beg to acquaint their friends in England that they have established an Agency at Messrs. Holland & Co.'s, No. 66, Lower Thames-street, London, (Custom-house and Shipping Agents,) who are prepared to receive all future Orders for them. They have just consigned to Messrs. H. & Co., a Collection of their most celebrated Stocks, Asters, Balsam Seeds, &c. Orders promptly attended to.

DANECROFT NURSERY, STOWMARKET, SUFFOLK.

S. GIRLING'S GENERAL CATALOGUE OF DAHLIAS and other FLORIST'S FLOWERS, can now be had on prepaid application, containing nearly every new Dahlia of the season. A separate Catalogue of ROSES and PANSIES is also ready, and can be had, if required.

THE FILBY OR FASTOLFF RASPBERRY. TO THE TRADE.

WILLIAM CRISP has a few Thousands of the above RASPBERRY to offer, in quantities not less than 500; they can be warranted genuine. See history of this RASPBERRY, given by Mr. Rivers, in *Gardeners' Chronicle*, Number 46, 1844. The lowest trade price will be given on application.—Direct to William Crisp, Filby Gardens, near Norwich. Delivered free on board steamers at Yarmouth.

ROBERT COOPER begs to inform his friends and the Public that his Catalogue of NEW and CHOICE FLOWER SEEDS for 1846 is just published, and will be sent by post on application.—Slon Nursery, Croydon.

FOR SALE.—2000 two year old bedded MOSS ROSES, good strong healthy plants. Any one wanting the same may apply to W. Martin, Seedsman, South-street, Isleworth, when they will be punctually attended to.

SUTTON AND SONS beg to offer the undermentioned articles, which they can confidently recommend :—

RANUNCULUSES. s. d.
50 Choice sorts, by name 12 6
50 Do. do., a pair of each 21 0
100 Fine mixture 4 0

ANEMONES, &c.
50 New large double varieties, by name.. 15 0
100 Do. do. mixed .. 10 6
100 Single do. 6 0
Gladioli of sorts, per doz. 2 6
Tuberoses (double) do.. 5 0

PERPETUAL ROSES.
The best sort of Bourbons, Hybrid Perpetuals, &c. &c., by name, per dozen .. 18 0

NEW AND CHOICE KITCHEN GARDEN SEEDS.

PEAS, per Quart.
Prince Albert 1 0
British Queen 1 6
Mammoth 2 0
Milford Marrow 1 0
Shilling's Grotto 1 0
Waltz's Queen of Dwarfs 5 0
Fairbeard's Surprise .. 3 6
Sutton's Early Champion 1 0
Sutton's Superb; large, green, and very prolific 1 6
Thompson's Dwarfs .. 1 0
Fluck's Victory 1 0
Knight's Green Dwarfs, Scimetar, Woodford's and others, at lower prices.

BEANS, per Quart.
Johnson's Wonderful .. 0 8
Taylor's Windsor 0 8
Green do. 0 8
Longpods, Mazagans, &c. 0 6
Fulmer's Dwarfs 1 6
Mohawk (Earliest) .. 1 6

BROCCOLI, per Packet.
True Walcheren 1 0
Howden's Purple 0 6
Hammond's White Cape 1 0
Winter Imperial 0 6
Reading White Giant .. 1 0
Chappel's Large Cream.. 0 6

CAULIFLOWER, per Packet.
German, fine large 1 0
Early London 0 6
Early Walcheren 1 0

CARROT, per Ounce.
James's Improved Orange 0 6
Early Dutch Horn 0 6

ONION, per Ounce.
True Reading 0 8
Tripoli, very large 0 8
Many others .. 6d. to 0 8

CARNATIONS AND PICOTEES. s. d
Choice show flowers, by name, per dozen .. 15 0
Do. do per pair.. 2 6

FLOWER SEEDS.
Best 50 hardy sorts .. 12 6
Best 30 do. 7 6
Best 50 hardy and half hardy, including splendid fresh imported Stocks, Asters, Balsams, Zinnias, and many new annuals .. 17 6
Best 30, including do. 10 6

CABBAGE, per Ounce.
Shilling's Queen 1 0
Atkin's Matchless 1 0
Wheeler's Imperial .. 0 8
Earliest Dwarf York .. 0 8
Sutton's Dwarf Imperial 1 0

LETTUCE, per Packet.
Drumhead, very fine .. 0 6
Adey's large Cos 0 6
Brighton, Paris, & others 0 6

MISCELLANEOUS, per Packet.
Whyte's Dark Beet .. 0 6
Myatt's Curled Parsley .. 0 6
Seymour's Superb Celery 0 6
Lion's Paw Solid White . 0 6
Pink Giganic 0 6
Cuthill's Black Spine Cucumber 0 6
Lutter's Vict. of England 1 0
Berkshire Champion .. 1 0
True Beechwood Melon . 1 0
Cabul, and others 0 6

The above and many other excellent sorts of Kitchen Garden Seeds may be had as under :—
No. 1. Full collection for a large establishment 63 0
2. Do. equally choice for a smaller establishment .. 42 0
3. Do. do. .. 21 0

POTATOES, per Peck.
Swaile's Early Frame .. 3 0
True Ash-leaf Kidney .. 2 6

Many other Potatoes, and every other kind of Kitchen Garden and Flower Seeds, new, and true to name

*** Parcels delivered free to any office in London, or any station of the Great Western Railway, from London to Bristol inclusive. READING NURSERY, Reading, Berks, Jan. 31.

WAITE'S "QUEEN OF DWARF" PEA.—This is a Variety that cannot be too extensively introduced to the notice of the Horticultural world, it being distinct from any that has been introduced to the public. Its habit is quite distinct from all others; being not more than one foot in height—and covered with pods. The Pea is twice the size of any other Dwarf Pea in cultivation, and excelling by three-fold in produce; has been grown at the Royal Gardens, at Frogmore, and approved of there as a new variety, and also at her Majesty's table, for its superior flavour. Price 5s. per quart. The usual discount to the Trade.

All kinds of Garden Seeds, 20 per cent. lower than any house in the Trade.—4, Eyre-street Hill, Hatton Garden, Jan. 31.

JOHN CLARKE, of Long Sutton, Lincolnshire, having for the past four years carefully grown a variety of DWARF PEA, presented to him by Mr. F. Grant whose family have cultivated it for table more than 60 years, now offers it to the public as one of the most prolific [illegible] own. It is adapted for field culture. Price 15s. per bushel.

Orders enclosing the amount for quantity required, will be promptly executed.

FLORIST'S FLOWERS.

TYSO AND SON, Wallingford, continue to supply of the best quality :

RANUNCULUSES : 100 splendid named Varieties	..	£5 0
,, 100 very fine ditto	..	.. 2 10
,, 100 double mixed	..	5s. to 1 0
RANUNCULUS SEED, carefully selected in packets,		5s. and 0 10
ANEMONES : 50 fine double Varieties	..	2s. and 2 10
CARNATIONS : 25 superb named sorts	..	40s. to 2 0
PICOTEES : 25 ditto,	.. ..	.. 10s. to 3 0
PINKS ; 25 ditto		.. 20s. to 1 10

EXCELLENT NEW POTATO "The Chalmore Kidney" 2s. per gallon, or 3s. 6d. per peck. Also 100 selected Seedlings from the above, one year old, 20 sorts for 20s.

A General Descriptive Priced CATALOGUE for 1846, with particulars of the Potato, sent on receipt of two postage labels.

THE TRUE FASTOLFF RASPBERRY.

GREAT YARMOUTH NURSERY. NORFOLK, 1846.

YOUELL & CO., being the parties who first introduced to the notice of the Horticultural world the above truly excellent Raspberry, unequalled for the size of its fruit and richness of flavour, and possessing an extensive Stock of fine Canes, beg to offer the same upon the following terms, guaranteed to be of the same quality as those they had the honour of supplying Her Most Gracious Majesty the Queen, His Grace the Duke of Northumberland, His Grace the Duke of Rutland, His Grace the Duke of Marlborough, the Earl of Harrington, the Earl of Liverpool, the Earl of Abergavenny, the Earl of Egremont, the Lord Bishop of London, Lord Viscount Lorton, Lord Soudes, and most of the Nobility, as well as the Horticultural Society of London, the latter having awarded Youell & Co. two prizes for it.

Packages containing 100 canes	.	£1	4 0
Do. do. 50 do.	. .	0	13 0
Do. do. 25 do.	. .	0	7 0

Small Canes, 12s. per 100.

A liberal discount will be allowed the Trade when "quantities" are ordered.

For full description of the above see their advertisement of last week.

Great Yarmouth Nursery, Jan. 31.

FIRST PRIZE CUCUMBER—"VICTORY OF BATH."

EDWARD TILEY begs leave to state that in consequence of the repeated applications to him within the last few days, wishing to know if he has any Seeds left of his FIRST PRIZE CUCUMBER "VICTORY OF BATH," begs leave to state to growers not yet in possession of this superb Cucumber, having thoroughly proved itself for the last two years, that he has a few dozen packets of seed yet left (having sold already more than 2000 seeds). Parties desirous of obtaining the above should delay no time, as the season is rapidly advancing.

For a further proof of the above, see this Paper of January 3d, 10th, and 17th.—Sold at his general Seed Shop, 16, Pulteney-bridge, Bath, in packets of 3 seeds, 2s. 6d.; 7 seeds, 5s. postage free.

A remittance expected from unknown correspondents.

HEREMAN AND SHEPHERD, Florists, &c. Eltham, Kent, in returning thanks for past favours, beg to offer to the Trade and others

	s.	d.	
Crimson China Roses	4	0	per dozen.
Fine named Geraniums ..	9	0	,,
Do. do. do.	6	0	,,
Chinese Primrose	2	0	,,
Choicest Pansies, by name ..	6	0	,,
Very good sorts for Borders ..	1	0	,,
Brompton Stocks for spring flowering ..	1	0	,,
Cucumber and Melon Plants, at ..	1	0	per pot.
Also Japahun, Hoosainee, Beechwood, Hereman's Winter and other Melon Seeds ..	1	0	per packet.
Wallflowers, Seedlings	0	6	per dozen.
Sweet Williams, the finest dark varieties..	1	0	,,

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, and Others.

ABIES CANADENSIS, OR HEMLOCK SPRUCE.—George Baker, Nurseryman, Bagshot, having the largest stock of the above in Europe, of all sizes and in fine condition, can with confidence recommend this noble tree to the notice of the Public, and having so large a stock (viz. 200,000 large plants, 3 feet high, besides smaller sizes), can dispose of them at very low prices; also, with a General Nursery Stock. He begs to offer at unusually low prices, in all sizes, the largest assortment of Kalmia latifolia ever offered to the Public.—Prices can be had by letter, and shall be attended to forthwith.

SEASIDE PLANTING: BLACK SALLOW.

JAMES GRIGOR, Nurseryman, Norwich, begs to inform Proprietors and others connected with maritime situations, that he has just been awarded the Gold Medal of the Highland and Agricultural Society for the best practical mode of planting within the influence of the sea. The complete success of the plan, as seen all over the cliffs of the German Ocean, in the parishes of [illegible] been chiefly accomplished by the use of the SALLOW, which grows so freely by the seaside, and specimens of it may be seen from 9 to 10 ft. in circumference. Sets are now offered as follow :—25 for 3s.; 50 for 5s.; or 100 for 10s. package included; and in larger quantities at a reduced price.

J. G. continues to supply the TRUE HIGHLAND PINE, so strongly recommended by the Duke of Newcastle, Wordsworth the poet, and others, as formerly advertised.—Norwich, Jan. 31.

NEW PLUMS.

THOMAS RIVERS begs to offer the following fine varieties of PLUMS selected from his collection, dwarf maiden plants :—

Reine Claude Monstreuse de Bavay, a variety of the Green-gage, nearly double in size, and ripening from ten days to a fortnight later, 5s. each.

"This beautiful and excellent Plum is worthy of a place by the side of our old favourite, the Green-gage, of which it possesses the good qualities, and far surpasses it in size, measuring 6 inches or more in circumference; it ripens a little later than the Green-gage, generally about the end of September; this most excellent Plum has been raised from seed by Monsieur Esperin of Malines," an old officer of Napoleon's, who has turned his sword into a pruning knife.—*Annales de Flore et de Pomone.*

Guthrie's Apricot, a yellow Plum raised by Mr. Guthrie at Dundee, ripens end of September, 5s. each.

Fellenberg, a full-sized purple oval Plum, ripens middle of October, 2s. 6d. each.

Knight's Green Drying, large as the Washington, ripens end of September, 2s. 6d. each.

Saint Martin's Quetsche, purple, will hang on the tree till November, a rich and valuable late Plum, 2s. 6d. each.

De Montfort, large, purple, ripens in August, succeeding Kentish Egg, 2s. 6d.

Rivers's Nursery, Sawbridgeworth, Herts.

KNIGHT'S CELEBRATED "ISPAHAN" MELON.

R. GLENDINNING begs most respectfully to direct the attention of Melon Growers to the description of this most superior variety, as advertised in the *Gardeners' Chronicle* and *Gardeners' Journal*, January 10th; and also of his genuine BEECHWOOD MELON, presented to him by Sir John S. Sebright, Bart.

Knight's "Ispahan" Melon 10*s.* 6*d.* per packet of 6 seeds.
Beechwood ..... 5*s.* 6*d.* ,, of 12 seeds.

To be had also genuine at Messrs. FLANAGAN & SONS, Seedsmen, 9, Mansion House-street, London.
Chiswick Nursery, near London, Jan. 31.

NEW FUCHSIAS.

GEORGE NICHOLS, Hunslet Hall, near Leeds, begs to offer the following Varieties, which are now ready, and can be sent either by post, free of postage, or in pots without charge for hamper:—

NICHOLSII: a handsome, large, and noble variety; the corolla new in colour and extremely beautiful; flowers very stout and finely formed. It is a free bloomer, of compact habit, with splendid very dark green foliage.

For Dr. LINDLEY's opinion of this beautiful Fuchsia, see *Gard. Chron.*, Sept. 13, 1845: "G. N.—No. 20.—This is a superior flower, stout, of a fine and glossy texture, bright carmine tube and sepals; the latter expanding well, exposing the corolla, which is of a purple maroon colour." Price 10*s.* 6*d.*

NOVELTY: This variety is new in colour and distinct from all others. See *Gardeners' Chronicle*, Sept. 6, 1845.—"G. N. The greatest novelty among your Seedlings is No: 10; this arises from the sepals being half green, and rather reflexing, which exposes a large crimson purple corolla." Price 7*s.* 6*d.*

DR. WOLFF: See *Gardeners' Chronicle*, Aug. 9, 1845.—"G.N.—No. 2 is a large and handsome flower, of good form and substance." Price 5*s.*

The three together may be had for 20*s.*, prepaid.

RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM

H. GROOM, CLAPHAM RISE, near LONDON, (removed from Walworth.) BY APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY,

Begs to recommend to the attention of the Nobility, Gentry, and Public his extensive assortment of the above FLOWERS, which he can supply of the best quality.

	£.	s.	d.
100 RANUNCULUSES in 100 Superfine sorts, named	2	10	0
Superfine Mixtures . per 100—10*s.* 6*d.* to	1	1	0
100 ANEMONES, in 100 Superfine sorts, named .	2	2	0
Superfine Mixtures . . . per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named .	3	3	0
25 pair of CARNATIONS, in 25 ditto ditto .	2	10	0
25 pair of PICOTEES, in 25 ditto ditto .	2	10	0
25 GERANIUMS, in 25 Superfine sorts ditto .	3	10	0
Good kinds . . per doz., from 12*s.* to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	2	6
,, ,, PUNCTATUM . ,,	0	7	6
,, SPECIOSUM (true) . from 1*l.* 1*s.* to	3	3	0

Foreign Orders executed.

FINE NEW PANSY—"DR. WOLFF."

JAMES BACKHOUSE AND SON, NURSERYMEN, &c. York, have now plants of the above new and striking PANSY ready for delivery, at 5*s.* each. Dr. LINDLEY's opinion of this flower in the *Gardeners' Chronicle*, p. 332, 1845, is as follows:—"Your Seedling (Dr. Wolff) is a flower of good form and substance, rather novel in appearance, with fine eye, ground colour rich and bright yellow, and the rest of the flower of a rich bronzy purple." An allowance to the Trade.

FUCHSIA CHALLENGE ACCEPTED.

WILLIAM MILLER, NURSERYMAN, Ramsgate, will agree to show his FUCHSIA "MISS PRETTYMAN," a Seedling of 1845, against Mr. Bailey's "EMPRESS," on the conditions named in his challenge. Miss Prettyman.—Large glossy white tube and sepals, with blood-purple corolla, free bloomer, of very graceful and superior growth, similar to Cassandra, but the flowers a decided improvement upon Smith's Queen Victoria, being both smooth and shining, and pronounced by Dr. Lindley "a flower of good contrast."

W. M.'s List, containing a full description of it and four other choice Seedlings, and also the characters of his beautiful rich, novel, dark eyed seedling Verbenas, may be had by application enclosing a penny stamp.—Providence Nursery, Ramsgate.

LEE'S DWARF ITALIAN MARROW PEA.

J. AND C. LEE are now sending out the above new PEA this season, and having grown the Stock for the last five years they can strongly recommend it as a distinct and most excellent variety. Its habit is exceedingly dwarf and robust; it is a very prolific bearer, and the Pea is equal in size to the largest Marrowfat, and is of most delicious flavour. It comes in earlier than any other Marrow. It has been grown in the gardens of Clumber, Welbeck, Thoresby, Nuneham, Tottenham-park, and Tedworth, and is highly extolled by the Gardeners of these places. In Quart Packets, sealed, price 5*s.*

Nursery Hammersmith.

CHARLES DALY AND SON begs to inform the Trade that they are ready to dispose of 2 years Seedling THORNS, at 2*s.* 6*d.* per 1000; 2-years transplanted 10*s.* per 1000. 2 years Seedling Scotch and Spruce, 1*s.* 6*d.* per 1000; 1, 2, and 3 years Seedling Ash, 6*d.* to 1*s.* 6*d.*; 1 year Mountain Ash, 2*s.* per 1000; 1 year Seedling Hollies, 3*s.* per 1000; 2 years do., 5*s.* do.; 2 years Seedling Black Thorn, fine, 20*s.* per 1000; Common Laurel, 10*s.* to 15*s.* per 1000; Portugal, do., 1 foot to 18 inches, 8*s.* per 100. Irish Yews, 1½ foot, 6*d.* each; 2 feet, 2*s.*; do. 4 to 5 feet, 5*s.* each. Rhododendrons, 1 to 1½ foot, 4*d.* each; Evergreen Privet, 2 feet, 15*s.* per 1000; variegated do. 1½ foot, 20*s.* per 1000; Irish Ivy, 3*s.* per 100; Elms 3 to 4 feet; Mountain Ash 5 to 7 feet, sold cheap. Seed Potatoes, Early Foxes, 1*s.* 6*d.* per stone; Golden Dwarf, 2*s.* do.—Parties ordering from C. D. and Son must be accountable to Messrs. Warner, 28, Cornhill; or Messrs. H. Ronalds and Sons, Brentford.—Colerain, Jan. 24, 1846.

SHILLING'S EARLY POTATO.—The above POTATO is a Seedling of their own raising, which they have for several years sent out in their own neighbourhood, where it has been highly esteemed; but having a wish to make it more extensively known, they have appointed the undermentioned Seedsmen in London as Agents, of whom they may be had at 3*s.* per peck

It is a particularly healthy variety, very handsome, of middle size, second to none in earliness or produce, and very remarkable for its delicious flavour and nutritious properties. When taken up, they got from 12 Potatoes 13½ ozs. of clean dry flour or starch, not easily distinguished from the foreign Arrowroot, with which it has been compared. They are desirous to call attention to its quality and flavour, and do with confidence recommend it in every other respect.

Agents:—Messrs. T. & W. NOBLE, 152, Fleet-street, London;
Messrs. HURST & M'MULLEN, 6, Leadenhall-street;
Mr. KEENAN, 4, Great Russell-st., Covent-garden.
Mr. W. C. FARNES, Seedsman, 128, St. John's-st., West Smithfield, London.
Messrs. BATT & RUTHBY, Seedsmen, 413, Strand, London.
J. & S. SHILLING, Nursery and Seedsmen, Northwarnbro', near Odiham, Hants.

SODEN'S EARLY OXFORD POTATO.—In reply to the numerous applications received for the above much esteemed Early POTATO, JOHN SODEN begs respectfully to say he has disposed of the entire stock to HURST and M'MULLEN, Seedsmen, 6, Leadenhall-st., to whom all future orders should be addressed.—Middle Barton Nurseries, Jan. 31, 1846.

CAPE HEATHS.

J. W. DAWSON, Brixton Hill, begs to offer the following:—

Ampullacea major	Aitonia
Tricolor major, Superb	Irbyana
Infundibuliformis	Cavendishii
Vestita alba	Depressa
Jasminiflora	Hartnellii
Propendens	Retorta
Ventricosa superb	Carinata
,, pregnans	Eximia
Savilleana	Elegans
Coventryana	Humeana
Odorata alba	Mundula
Splendens	Aristata

The above Sorts from 18*s.* to 30*s.* per dozen.
100 Varieties .. .. .. 5*l.*

Good Specimen Plants of Infundibuliformis, Massoni, Hartnellii, Tricolor of sorts, Ampullacea major, Pulverulenta, and other sorts, to dispose of at moderate prices.

TO CONTRACTORS, THE TRADE, &c.

ARTHUR MACKIE begs to call the attention of the Trade to the annexed List of TREES and SHRUBS, which are of first-rate quality, and, as he trusts, will, from the lowness of price, be found worthy of notice. The Norfolk Railway affords great convenience for the cheap and safe transit of plants, the charge to London being at this time at the moderate rate of 27*s.* 6*d.* per ton; and where large quantities are taken, A. M. will deliver them free.

			s.	*d.*	*s.*	*d.*	
Blackthorn, 2 yrs, fine	..	..	6	0 to	7	0	p. 1000
Whitethorn, do.	..	..	2	6 to	3	6	,,
Turkey or Levant Oaks, do.	..	..	7	0 to	8	0	,,
Ash, transplanted	..	.. 2 to 4 ft.	14	0 to	15	0	,,
,, ,,	..	.. 4 to 5 ft.	18	0 to	20	0	,,
Beech ,,	..	.. 1 to 2 ft.	12	0 to	15	0	,,
,, ,,	..	.. 2 to 2½ ft.	17	6 to	20	0	,,
Larch ,,	..	.. 2 to 3 ft.	12	0 to	15	0	,,
,, ,,	..	.. 3 to 4 ft.	14	0 to	18	0	,,
Scotch ,,	..	.. 1 to 2 ft.	15	0 to	20	0	,,
Hazel ,,	..	.. 1 to 2 ft.	15	0 to	20	0	,,
Oaks ,,	..	.. 1 to 2½ ft.	18	0 to	25	0	,,
Blackthorn ,, 2 yrs, fine	..	..	8	0 to	10	0	,,

ORNAMENTAL TREES AND SHRUBS.

Oaks, Turkey or Levant	..	.. 5 to 6 ft.	25	0 to	35	0	per 100
,, ,, ,,	..	.. 6 to 8 ft.	35	0 to	45	0	,,
,, ,, ,,	..	.. 8 to 10 ft.	50	0 to	60	0	,,
Chesnut, Horse ..	..	.. 6 to 8 ft.	16	0 to	20	0	,,
,, ,, ..	..	.. 8 to 10 ft.	25	0 to	35	0	,,
Tree Box ..	..	.. 1 to 2 ft.	6	0 to	8	0	,,
,, ..	..	.. 2 ft.	10	0 to	12	0	,,
Laurels ..	..	.. 1 to 2 ft.	5	0 to	8	0	,,
,, ..	..	.. 2 ft.	10	0 to	12	0	,,
,, ..	..	.. 2 to 3 ft.	12	0 to	15	0	,,
Standard Thorns	..	..	50	0 to	60	0	,,
,, Roses ..	..	..		5*l.* to	6*l.*		,,
Red Cedars ..	..	.. 1 to 2 ft.	20	0 to	30	0	,,
,, ..	..	.. 2 to 2½ ft.	45	0 to	55	0	,,

A reference is requested from unknown correspondents.
Norwich Nursery, Jan. 31.

FLOWER SEEDS.

ARTHUR MACKIE begs to announce that his DESCRIPTIVE LIST OF FLOWER SEEDS is now ready, and can be had upon application. For the convenience of the purchaser A. M. has enclosed them in printed envelopes, and he trusts that the information which will be found thereon will be both interesting and instructive.

The annexed is subjoined as a specimen of the plan he has adopted:—

SCHIZANTHUS RETUSUS.
Blunt-petalled Schizanthus.
Diandria Monogynia. Nat. Ord.—Scrophulariaceæ.
Half-hardy biennial. Height, 2 to 3 feet.
Flowers, crimson and orange. June to October.
A native of the Andes of Mendoza. Introduced 1831.
Deriv.—(*Schizo*, to cut; and *anthos*, a flower; from the irregular form of the corolla.)

For the convenience of purchasers at a distance the above will be forwarded free through the post.

Norwich Nursery,
And No. 10, Exchange-street.

156, CHEAPSIDE (OPPOSITE ST. PAUL'S), LONDON, AND AT STUART'S-GROVE, FULHAM-ROAD, CHELSEA.

WESTMACOTT AND CO. respectfully inform their Friends and the Public that their Descriptive Catalogue of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS (including a miscellaneous collection of Bulbs, Plants, new and superb Roses, &c.) is now published, and will be forwarded on receiving a pre-paid application; it is also attached to the February Numbers of the following publications:—"Paxton's Magazine of Botany," "The Horticultural Magazine, and Gardener and Practical Florist," and "Harrison's Floricultural Cabinet." The following selections are worthy of general cultivation:—

	Per packet—*s.d.*		Per packet—*s.d.*
Brachycoma iberidifolia	1 0	Mathiola (stock) German	0 6
Campanula stricta	0 6	Nemophila discoidalis	0 6
,, tracheloides	0 6	Phlox Drummondii	1 0
Clintonia pulchella	1 0	Primula sinensis, mixed	1 0
Convolvulus minor (new dark)	0 6	Rhodanthe Manglesii	0 6
Fuchsia, from finest varieties	1 0	Schizanthus Hookerii	0 6
Lisianthus Russellianus, very fine, with printed directions	1 0	Schizopetalon Walkerii	0 6
Martynia fragrans	1 0	Thunbergia chrysops, fine plants, each	1 6
Mesembryanthemum tricolor	0 6	Viscaria oculata	0 6
		Viola tricolor (Pansy) extra	1 6
		Zinnia, mixed, German	1 0

Cuthill's Black Spine Cucumber, per packet .. 1*s.* 6*d.*
Peas, Improved Dwarf Marrow (true) per quart .. 1 6
,, Charlwood's Early Surprise (true) ,, .. 3 6
,, Girling's Early Dancroft .. ,, .. 5 0
,, Waite's Queen of the Dwarfs .. ,, .. 5 0

W. & Co. have great pleasure in offering a New Seedling Potato, "Early Superb," which will be found fit for table earlier than the Ash-leaf Kidney, will bear a much heavier crop, and keeps in exquisite flavour till the following spring. Price 5*s.* 6*d.* per peck.

156, Cheapside, (opposite St. Paul's), January 31.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The importation of the above-named Bulb has just been received at A. CORBETT'S Italian and Foreign Warehouse, 18, Pall Mall. The Orange, Lemon, Citron, Lime, and Shaddock Trees, Catalonia, Agorian, and Arabian Jessamine Plants expected in January.

FINE WHITE SPANISH ONION, ALTRINGHAM CARROT, &c.—Dealers can be supplied with a fine article at moderate prices, by WARNER & WARNER, Seedsmen, 28, Cornhill, London. General Priced Trade Catalogues to be had on application.

TO GENTLEMEN AND AMATEUR FLORISTS.

TO BE PARTED WITH.—A few Hundred Roots of that fine flower the RANUNCULUS, at 42*s.* per hundred roots (with names); time of planting, February and March.—Apply, prepaid, to Mr. EYRE, Farnham, Surrey, where may be seen in the blooming season, in Mr. E.'s small collection of fine Pelargoniums, a number of highly impregnated Seedlings for 1846; also his beautiful high-coloured Seedling named "Elisha" (not exhibited), of fine symmetry, may be seen and had cheap. W. CATHERWOOD, Florist, Chelsea.

Farnham, Surrey, Jan. 31.

JAMES BROWN, late gardener to Lord Southampton, Whitchebury Lodge, and for 20 years previous gardener to His Grace the late Duke of Buckingham, at Stowe, begs to inform his friends and the Public that he has succeeded to the business of Messrs. MARNOCK and MANLEY, Nursery and Seedsmen, Hackney, near London, where he intends carrying on the business in all its various branches, and assures them that he will use his utmost endeavours to merit those favours so kindly bestowed on his predecessors.

Nursery, Hackney, London, Jan. 31.

MARNOCK & MANLEY, in returning their most grateful thanks to their friends and the Public for their kind favours so long bestowed on them, beg to recommend to their notice their successor, Mr. J. BROWN, who they have no doubt will endeavour to merit the continuance of those favours so kindly bestowed.—Nursery, Hackney, Jan. 31.

PACKETS containing Six SEEDS, price 2*s.* 6*d.*, of GILLESPIE'S GREEN FLESH MELON, which received such high encomiums from judges at the Manchester Botanic Garden's exhibitions last year, for earliness, superior quality, and extra good bearer.—May be had from THOS. D. WATKINSON, Seedsman, Market-place, Manchester; or J. GILLESPIE, Gardener, Platt-hall, Rusholme; for other particulars, see page 1, in this Paper of Jan. 3.

CUCUMBER AND MELON BOXES AND LIGHTS.—One Hundred 1, 2, and 3-light Boxes and Lights of all sizes ready for immediate use. Warranted best materials, packed and sent to all parts of the kingdom; 2-Light Boxes and Lights from 1*l.* 6*s.* Garden Lights of every description. Conservatories, Green and Hot-houses made and fixed in all parts of the kingdom. Reference given to the Nobility, Gentry, and the Trade, in most of the counties in England.

JAMES WATTS, Hothouse Builder, Claremont-place, Old Kent-road, London.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250 Oxford-street, near Hyde-park.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

per gross.	per gross.	per gross.
6 in. by 4 .. 6*s.*	8 by 5 .. 13*s.*	9 by 7 .. 18*s.*
7 in. by 4½ .. 9*s.*	8 by 6 .. 14*s.*	10 by 8 .. 26*s.*

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists, apply to R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square, London.

HORTICULTURAL GLASS OF BRITISH MANUFACTURE, at J. WELCH, jun., PHILLIPS, and Co.'s War house, 12, Panton-street, Haymarket.—Having made arrangements with a British Manufacturer, they are enabled to offer the above article in unlimited quantities at the following terms, in Squares not exceeding 40 inches long:—

No. 0—(equal to Foreign Sheet)	4½*d.*	per foot.
1—averaging from 16 to 18 oz. to the foot	5*d.*	,,
2 ,, 21 to 23 ,,	7*d.*	,,
3 ,, 32 ,,	1*s.*	,,

J. WELCH, jun., having been many years with Mr. Drake, of 8, Jermyn-street, and 315, Oxford-street, and at the time of the glazing of Chatsworth Conservatory, has devoted himself to the Horticultural Glazing Department, begs to call the attention of Horticulturists generally to the above prices for Glass, which they undertake to glaze in any part of the United Kingdom.

They also beg to recommend for Pits and Garden Lights small size squares, which they offer at the following low prices, packed in 100 feet boxes, not particular to thickness.:—

Under 5 in. by 3 ..	1½*d.*	per foot.
5 in. by 3 and ,, 6 in. by 4 ..	2*d.*	,,
6 in. by 4 and ,, 9 in. by 7 ..	3*d.*	,,

J. W. & Co. solicit inspection of their stock of Stained and Ornamental Glass at their Warehouse, as above.—12, Panton-street, Haymarket.

FOREIGN SHEET GLASS AND GLASS TILES.

C. JARVIS continuing to import large quantities of the above articles, in quality and substance hitherto unequalled, can offer them to purchasers at a lower price than any other house in the trade, for ready money only, at his old established WINDOW GLASS WAREHOUSE, 38, Great Castle-street, a few doors from Regent-street, where orders, forwarded with reference, meet with prompt attention. Every other description of WINDOW GLASS equally low in price.

TOTAL DESTRUCTION OF MEALY BUG, THRIPS, &c.—All lovers of plants are reminded that HERBEMAN'S DILUTUM is a safe and certain extirpator of the above pests. The recipe for composing it is in a work entitled "Blight on Flowers," containing 250 pages of letter-press, illustrated with many plates, and may be had for 5*s.*, or 6*s.* if sent by post to any part of the country, by addressing, with a post-office order, to HERBEMAN and SHEPHERD, Florists, &c., Eltham, Kent. Bottles 1*s.* and upwards each.

Opinion of the Hon. and Rev. W. Herbert.—"I can say positively that it is invaluable in the stove, and has disarmed the Mealy Bug of all its terrors. My houses, were thoroughly infested by it, and it is now nearly extirpated. Mr. Herbeman deserves from horticulturists the highest compliment they can award him. No gardener with Herbeman's liquid will be troubled by the Mealy Bug in his houses, unless by neglect."—*Gardeners' Chronicle*, p. 179 for 1845.

GREAT YARMOUTH NURSERY, NORFOLK.

YOUELL AND CO. beg to offer the following good and desirable plants to the notice of their Friends and Amateurs, feeling assured from their well known mode of executing all orders, that those favouring them with their commands will receive none but articles of the very best quality.

Superb new heavy-edged PURPLE PICOTEE, "BURROUGHES'S PRESIDENT," 15s. per pair. For particulars, see *Gard. Chron.* of 11th Oct.

Also, "BURROUGHES'S DUKE OF NEWCASTLE," the best light-edged Purple Picotee, 15s. per pair.

CARNATIONS AND PICOTEES.

		£	s.	d.
12 pairs extra fine and very superior first-class Show Flowers, by name		2	10	0
25	ditto ditto ditto	5	0	0
12	ditto Fine Show Flowers ditto	1	10	0
25	ditto ditto ditto	3	0	0

Extra fine Show Pinks, by name, per dozen pair, 12s.
FUCHSIAS, extra fine, including "Serratifolia," 21s. p. doz.
CHRYSANTHEMUMS ditto 12s. per dozen.
VERBENAS ditto 6s. "
PETUNIAS ditto 9s. "
PANSIES ditto 10s. "
Ditto, very best first-rate Show Flowers 18s. "
CINERARIAS, extra fine sorts, by name 12s. to 18s. "
20 packets of choice FLOWER SEEDS., 6s., per post, free.
ERICAS, fine and free-flowering sorts, by name, 9s., 12s., and 18s. per dozen.
HERBACEOUS PLANTS, fine sorts, 6s. to 9s. per dozen.

ARAUCARIA IMBRICATA:

	s.	d.
2 years old, per doz.	9	0
3 " " "	12	0
4 " " "	18	0
5 " " "	30	0
6 " " "	60	0
Cedrus Deodar, 1 yr., fine	18	0
" " 1 foot	30	0
Pinus excelsa, 3 inches	9	0
" " 4 to 5 ins.	18	0
" " 18 inch, fine bushy plant	42	0
" Gerardiana, 2 yrs.	30	0
Abies Khutrow, 2 years	9	0

	s.	d.
Abies gracilis .. each	2	6
" orientalis "	5	0
Picea cephalonica, p. dz.	30	0
Pinus cembra "	12	0
Cupressus torulosa, per doz., fine	18	0
Do., seed pans, p. doz.	6	0
Podocarpus totara, each	5	0
Do. Dicrydioides "	7	6
Do. ferrugineus "	5	0
Phyllocladus trichomanoides	5	0
Taxodium sempervirens, "	7	6
Dicrydium cupressinum, "	5	0

RIBES SANGUINEUM FLORE PLENO, 10s. 6d. per plant.
MYATT'S "BRITISH QUEEN," STRAWBERRY, 6s. per 100.
"PRINCESS ALICE MAUDE," 10s. "
YOUELL'S CELEBRATED TOBOLSK RHUBARB, fine transparent pink, the best for forcing, 12s. per dozen. Roots placed in a cellar or closet now will be fit for cutting in a month.
The finest DOUBLE ANEMONES, 12s. per lb.
The finest Mixed RANUNCULUSES, all from named flowers, 12s. per 100.
. Foreign Orders carefully executed so as to ensure safe transmission.
N.B. Steam Ships to London three times a week; to Hull, twice a week; and per rail to London every eight hours.
Great Yarmouth Nursery, Jan. 31.

SUPERIOR NEW EARLY PEA.—WARNER'S "EARLY EMPEROR" Pea, the earliest in cultivation, quite hardy, a good cropper, with fine pods, and most delicious flavour. Height about 2 ft.—5s. per quart.—To be had of WARNER and WARNER, Seedsmen, 28, Cornhill, London.
Catalogues containing all the New and Choice Flower and Vegetable Seeds for the Season are now ready, and may be had on application.
See "Harrison's Cabinet" for February.

The Gardeners' Chronicle.

SATURDAY, JANUARY 31, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Monday,	Feb. 2	Entomological	8 P.M.
Tuesday,	— 3	Linnean	8 P.M.
Wednesday,	— 4	Society of Arts	8 P.M.
Friday,	— 6	Botanical	8 P.M.
Saturday	— 7	Royal Botanic	4 P.M.
Wednesday,	— 11	Microscopical (Anniversary)	7 P.M.

ONE of the surest indications of the value of the POLMAISE HEATING is the eagerness with which it is assailed. We should have despaired of its success had it been treated with indifference; but its advantage is so obvious that people are annoyed at not having found it out themselves. Some think it a reproach to their own sagacity that a furnace, a hole in a wall, a drain, and a wet blanket should do what they have only accomplished by boilers and pipes, with their returns, flanges, waterways, taps, valves, stopcocks, tanks, and cisterns. Others, who can admire nothing but what is complicated, who value every thing in proportion to its dearness and imposing appearance, and despise all that is simple, sneer at the idea of so small a matter, declare their conviction that the scheme is an absurdity, and wonder how men can fancy that they are advancing by stepping backwards. A third class, in their usual tone, coolly deny that any other results have been obtained at Polmaise than could have been had without a heating apparatus of any sort. And, finally, a fourth class protest that they have themselves tried to do the thing, long ago, and abandoned it as impracticable.

Among such objectors the most insignificant are those who, admitting all the merit of the Polmaise plan, which, however, they could never see before, depreciate it because of its want of novelty: it is PENN'S, says one; it is MEYLER'S, says another; it is SYLVESTER'S, exclaims a third. And one gentleman expresses his astonishment (!) that men of science should not be more careful of producing as new that which is so old. He thinks they should be more tender of each other's reputation. We cannot be expected to do more than notice such trifling; the public cares nothing about wire-drawn history; men in active life are not registrars of patent inventions; what really concerns the busy world is the goodness of a thing, not its age; and provided a contrivance answers the purpose nobody cares where it originated. Since, however, priority of invention has been made a question, we would suggest to those who waste their time in such bootless enquiry that VITRUVIUS is an author worth consulting upon the subject.

Mr. AYRES (see p. 53) doubts whether the Vinery at Polmaise is heated at all. There was, in like manner, a witty author who proved by historical evidence that no such person as NAPOLEON BONAPARTE ever existed. In Mr. AYRES's eyes the testimony of the gardener at Polmaise, as to the difficulty of keeping down the temperature, goes for nothing; the scorching of leaves, by the air rushing from the heating chamber, for nothing; the agitation of the atmosphere, for nothing; the necessity of placing the entrance of the hot air in the back wall, because of the heat, for nothing: all these things are nothing; they are no evidence whatever of heating; they only show the advantage of a wet blanket. The testimony of persons who have visited Polmaise goes for nothing, when compared with our ingenious correspondent's foregone conclusions; we trust that the new evidence afforded by Mr. SHEARER, as to the working of a similar apparatus at Lord TWEEDDALE'S, will be more satisfactory to him.

A Scotch gardener, in the neighbourhood of Stirling, denies that he was afraid of showing Grapes against those of Polmaise. Perhaps he will tell us why he and his neighbours did not show. But we must not devote further space to matters like this; more important considerations claim our attention.

It is proved to the satisfaction of reasonable men, by the apparatus at Polmaise, that it is possible to dispense with all the paraphernalia of hot-water apparatus by means of heated air, and suitable contrivances for conveying it; that those conveyances are mainly currents produced in the atmosphere by the difference in density of the cold and heated air; and that therefore the cost of warming buildings for plants is reduced to little more than the charge for brick-work and a furnace. Somebody says, "Oh! no; the Polmaise plan must have cost 20*l.*;" be it so. A hot-water apparatus would have cost 50*l.*, and would have done no more.

What it may be necessary to pay for heating a house on the Polmaise plan will depend exclusively on the size of the house itself, and the objects to be gained; upon the nature of the *furnace* employed, and the closeness with which the simplicity of the Polmaise apparatus is copied. If deviations are introduced, if a little more is done in one respect, and a little more in another, it may be improved, but, of course, will become more costly. Leaving this to the taste and pockets of the public, who will have plenty of plans laid before them, we shall content ourselves with a few general propositions, attention to which is indispensable.

The kind of furnace which it may be most advantageous to employ cannot be decided without direct experiment. Perhaps a brick ARNOTT, constructed like those of Mr. RIVERS, published last week, may suffice for small buildings. The Polmaise stove is one patented by Messrs. HAIDEN, of Trowbridge; that at Yester was made by Mr. WHITE, of Haddington; another, said to be a good one, is HALL'S, concerning which we this day publish a useful suggestion by Messrs. STEPHENSONS; and so also HAZARD'S tube stove will be applicable, provided it is possible to clean out the tubes without inconvenience. In short, it is not very material what stove is employed, provided regard is had to the circumstances included in the following communication with which we have been favoured by a correspondent (J. H. H.), from whom we could wish to hear more frequently, and which we now print without further comment.

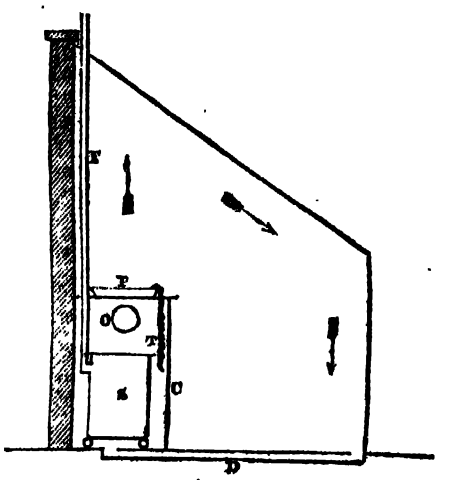
"In your observations on the Polmaise system of heating, you refer to its being an undetermined point what kind of stove is best suited for fulfilling its conditions in the most economical manner, remarking that in the case of a JOYCE'S stove the results were not satisfactory, inasmuch as there is at first a tendency in it to draw in air as much from the house as from the drain. The cause of this appears to me to be obviously that a JOYCE'S stove is merely an urn containing ignited charcoal; it has *no flue* to create a draught; the air that feeds the fire enters through the top or cover of the urn, and the gases of combustion issue by the same channel. It is true the latter, from their higher temperature as they emerge, have a tendency to rise; and there is an ascending column of very feeble power for a short distance above the stove, until their temperature is so far reduced as to allow their specific gravity to operate upon and neutralise their further ascent.

"A JOYCE'S stove, therefore, placed in any situation will draw in air from every direction, and at first rather from above than below. If placed on a confined case or chamber with two apertures, one above communicating with the interior of the house, and the other below with the drain, then as soon as the chamber becomes warmed by the heat reflected from the sides of the stove, an ascending current will begin to be established; but I am inclined to think that the motion of the current will at all times be sluggish with such a stove. The same remarks apply in a modified degree to the Arnott and other stoves of slow combustion; for though they have flues, the very principle on which their economical use depends is the controlled and slow admission of air through the fire and flue. Hence the motion of the current will be proportionally slow as the regulator restricts the admission of air inside the stove.

"In the Polmaise method of heating the current of air from the drain, on reaching the stove, is divided into two parts; one enters the stove, feeds the fire, and passes off by the flue; the other passes by the sides of the stove, and abstracting heat from them, enters the house. The vivacity of the current, therefore, other things being equal, will depend on the stove used being one of good draught; and from circumstances mentioned, I should think Mr. MURRAY must have used one possessing considerable draught as well as great heating power: in fact, the two properties are very close companions.

"The advantage of the Polmaise principle consists in the circulation of air it produces, which is not only beneficial in itself, but more equally and rapidly diffuses the heat communicated to it through an apartment of any kind; and it is worthy of adoption in our own habitations as well as in houses for plants. It is calculated to be of great service in small and cheap greenhouses in combination with an Arnott or any other of the economical stoves.

"With your permission I offer a plan for its adaptation to a structure of this kind. S is an Arnott,



or other stove, surrounded by a close chamber or case C, of wood, brick, or any other material that may be most convenient, built against or fixed to the back wall of the house. This chamber communicates below with the drain D, and there are openings (O) near the top, or they may be made in the top itself, through which the current of warmed air enters the house. A shallow pan of water (P) is placed on the top, from the edges of which depend inside the chamber, strands of cotton or worsted thread (T) to moisten the heated air in its progress; the water that drops from the strands may run into the drain, or be conveyed away in any other suitable way. The flue F, of iron, is carried up inside the house; which I consider a beneficial arrangement, as a great deal of useful heat is lost by its being taken outside, as we often see it done. A current of heated gases is continually rising in the flue, which, as iron is an excellent conductor, assists materially in warming the air of the house; and for the same reason it is also better than a brick flue or chimney built in the wall, from which the air of the house derives no perceptible benefit in the way of warmth."

It will also be desirable to bear in mind the following rules:—

The stove must be so stationed that it shall not be able to obtain its air from any source except the cold air drain. This object may be secured either by building it in continuation of the drain, or by sinking it into the drain, as is represented in the Yester plan, p. 52, E. In any case the ashpit and furnace doors should be ground to a perfectly true face, so as to fit tight. If these precautions are not taken, the furnace will be apt to feed itself from the air about it, and not from the drains.

The stove must not be smaller than would be required for a flue or a hot water boiler. If it is too small, its action will be feeble, and the motion of air produced by it inconsiderable; for we must never forget that a small quantity of fuel cannot, under any circumstances, do a great deal of duty. It

should, moreover, communicate with a chimney long enough to ensure a good draught.

We believe that in the Scotch houses thus heated, the air drains are horizontal. We perceive, however, that Mr. MOORE, the very intelligent director of the Botanic Garden, Glasnevin, recommends them to slope from the extremities of the house down to the furnace. This may possibly be an advantage, and is worth consideration, where the ground will admit of such a construction; if, however, this plan is adopted, great care must be taken that the fire end of the drain is below the source of heat; otherwise the circulating motion of the air will be counteracted, and the whole object of the contrivance will be nullified, as happened to Mr. PENN, when he attempted to remedy his hopeless failure.

By attention to these points we doubt not that the Polmaise system may be applied to all descriptions of greenhouses, and that, by the aid of a bricklayer, persons who cannot afford the costly apparatus now in use, may enjoy the luxury of a Vinery or forcing house, or may keep their summer plants from frost. But it is not merely as a very cheap means of heating that it is valuable; it is doubtless important because of the motion in which it keeps the atmosphere. We have long intended to touch upon that point, one very little understood, and scarcely adverted to by physiologists, and shall proceed to do so in an early Paper.

WEEKLY PRICES OF POTATOES per ton, in *Covent Garden Market*, in 1844, 1845, and 1846.

	1844-5.			1845-6.	
November .30	50*s.*	to 75*s.*	November..29	80*s.*	to 140*s.*
December... 7	50	75	December... 6	80	160
14	50	70	13	80	160
21	50	70	20	80	160
28	50	70	27	80	160
Jan. 4	50	80	Jan. 3	80	160
11	50	80	10	80	160
18	50	80	17	80	160
25	50	80	24	80	160
Feb..... 1	50	80	31	70	140
Also at the waterside, *Southwark*.					
December.. 9	50*s.*	to 70*s.*	December.. 8	50*s.*	to 120
16	50	70	15	50	120
23	50	70	22	50	120
30	55	75	29	50	120
Jan. 6	60	80	Jan. 5	50	120
13	60	80	12	50	120
20	60	80	19	50	120
27	55	80	26	50	120

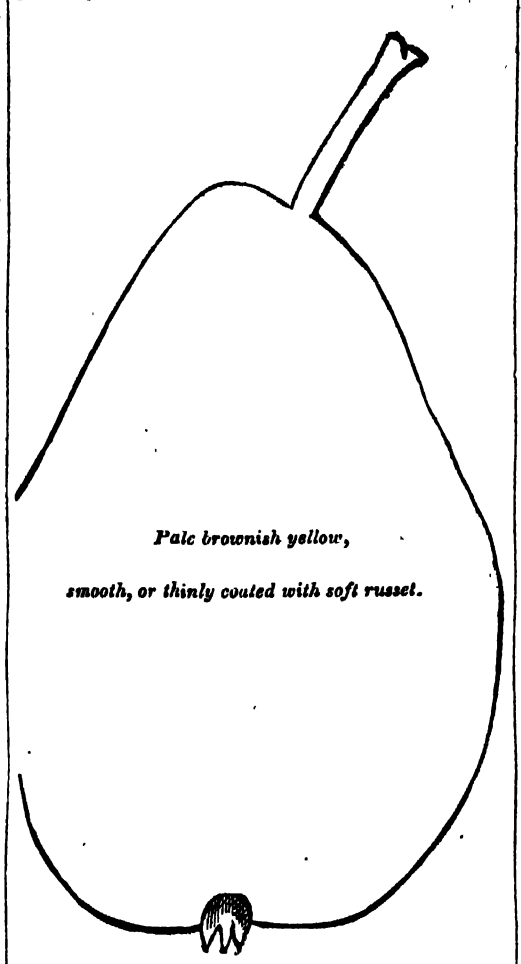
THE MARIE LOUISE PEAR.

Synonymes. — Marie Chrétienne, Forme de Marie Louise, Princesse de Parme, Braddick's Field Standard, Maria.

IT may be deemed superfluous to introduce any notice of a variety the excellence of which has already obtained for it an extensive degree of cultivation. Frequently, however, it has been received amongst collections forwarded for names, even in the past season. It may, therefore, be inferred that, in many remote localities, there are readers of the *Gardeners' Chronicle* who may profit by information respecting a variety of fruit which cannot be too well known.

This most excellent Pear was raised by the Abbé Duquesne, in 1809, and named in honour of the Empress Marie Louise, of Austria, consort of Napoleon. It was sent to this country by Dr. Van Mons, of Louvain, in 1816, not only under the name of Marie Louise, but also merely designated by various numbers. The synonyme of Forme de Marie Louise originated with him; it is one of many similar remarks which he made in examining his immense collection after it had been precipitately thrown into confusion, and replanted; such were applied to this, and other good varieties, the trees of which were found without names, when all that could in consequence be stated on a first examination was, that they possessed the *form* or appearance of a Marie Louise, &c.; which, in many cases, they really proved to be when duly compared. At the time when this and many other new Pears were introduced from Belgium, it was not imagined that such delicious fruit could be produced on standards. Under some name or number from Van Mons, the Marie Louise was received by Mr. Braddick, planted out in a field, and bore fruit superior in quality to that grown against walls. Its external appearance, too, being different, more russeted owing to exposure, it was considered quite a distinct sort, and was much extolled, eagerly sought after, and cultivated under the name of Braddick's Field Standard; but grown side by side with the Marie Louise, as standards, and against a wall, the identity was completely ascertained. There is a Pear called Pitt's Marie Louise, but it is nothing but the common Calebasse.

The accompanying representation is that of an averaged-sized fruit, from a standard in good condition. The flesh is white, smooth, exceedingly melting, buttery and rich. In perfection in October and November; but it has been kept in good condition till January when grown on particular soils, where the fruit will hang till after the trees begin to lose their leaves. The tree has a sufficiently vigorous but rather straggling habit of growth, and requires to be kept clear by judicious pruning. The shoots are dark olive; buds oblong, tapering. Leaves middle-sized, oval, finely serrated; petioles long and rather slender. Flower-buds long and pointed, hence not easily distinguished; flowers middle sized, petals obovate. The tree is generally an excellent bearer, and suitable either for a



standard, wall, or espalier. In a favourable climate it will succeed on a north wall, and thus the season of the fruit may be prolonged. Succeeds on the Quince stock. It ought to be in all collections.—*R. T.*

THE AMATEUR GARDENER.

RANUNCULUSES; CHOICE OF SORTS.—There is a marked difference between the old varieties of this flower and the seedlings which have been raised during the last few years. The tubers of the former are generally less robust and plump; the foliage is often weaker, and the flowers are almost always inferior in size and substance of petal to those of newly-raised seedlings. The art of hybridising has been wonderfully successful with the Ranunculus, and some new beauties are annually produced. Unless the old kinds are very striking and unlike the modern varieties, the amateur is recommended to make his bed of new sorts. His success will be more certain, and the healthy and vigorous growth of the roots more satisfactory.

A packet of carefully selected seed, purchased of a well known cultivator, will repay all the attention bestowed in raising it; but this task should be undertaken by one who has had some general experience in the growth of the flower. Three seasons must pass before all the seedlings can be expected to exhibit their character, and even then the quality they will finally assume cannot always be ascertained. Some of the finest sorts will at first be semi-double, and time is consequently required to test their real excellence. Raising from seed, therefore, is not the course to be pursued by those who are growing Ranunculuses for the first time; and although I hope to be able to assist in this interesting pursuit on a future occasion, it will be more requisite now to point out the best mode of getting a collection of well-known and established flowers.

Without wishing, in the slightest degree, to question the integrity of seedsmen and florists, I feel it necessary to caution amateurs on the subject of purchasing Ranunculuses, as good kinds are expensive, and a failure is therefore very provoking. A very fine show may, indeed, be secured by one or two hundred mixed roots, which may be purchased at very small cost; and where a cheap bed is an object, or where the amateur fears to run a greater risk until he has acquired experience, mixtures may be recommended. But if you intend to raise a bed which shall excite the rivalry of your neighbours, and enable you to compete at a floricultural exhibition, you must be content to pay for flowers of a higher character, which are warranted true to name, and which may therefore be expected to repay you for your expense and care. Get them from the grower if you can, for in changing hands seeds and roots often change names, and discredit the seller and vex the buyer. There are some celebrated growers of Ranunculuses who have devoted their energies especially to this root, and, without mentioning their names, I recommend you to apply to them. You may select from their catalogues, and may rely on their sending you sound tubers. Indeed, if you state the size of your bed, you may leave the selection to them, as they are acquainted with the varieties whose combination will produce the happiest results. Another plan should be mentioned as suitable for those who may not be able or willing to incur much expense: get a dozen first-rate roots, and placing them in different parts of the bed, fill up the spaces with common ones.

If you are not able to proceed as directed, but are obliged to use your own judgment in selecting you must bear in mind that roots may be true to name, and yet in themselves useless. The great difficulty to be overcome in growing the Ranunculus is encountered after the bloom is passed away, and the roots will be either good or bad the following year, as they are then treated. On this subject much will be said hereafter. The criterion by which a healthy root is known, is the plumpness of the forked portions, and the fine velvety texture of the crown; especially the latter. The tuber itself may be small and shrivelled, and yet the crown will indicate a sound condition; while, on the other hand, a plumpness of the tuber is of no service if the crown is dull, and instead of becoming bright when rubbed by the hand or on the coat, crumbles away. Like the Dahlia, the tube of the Ranunculus will be quite healthy in itself, even where all the young buds or eyes are destroyed; it may even live some time in the ground; but vain will be the expectation of seeing a green shoot! When the substance of the tuber is well filled, and the crown is glossy, success may be confidently expected, as far as the roots themselves are concerned. It should be remembered that the silkiness of the crown, although always present in some degree, increases as the growing season advances.

The Turban Ranunculus makes a very splendid show, and I wonder it is not more grown in large gardens, as beds of it, each filled with flowers of one colour, would have a most imposing effect. The various kinds of Turbans may be purchased for three or four shillings a hundred. As an early flower, it is worthy notice. I have had yellow Turbans off bloom and ready to be removed by the second week in June, in time for filling the beds with greenhouse plants. The Ranunculus may be taken up without injury as soon as the flower is withered, if the mould is allowed to adhere to it, and all the roots thus removed are put into the ground in a place secured from rain. They will then gradually become fully matured, and may be cleared away in July. This latter circumstance removes the objection of the beds being occupied too long to allow their being afterwards filled with flowering plants. Half-a-dozen beds on a Grass-plot would present a gorgeous sight in May and June.—*H. B.*

Home Correspondence.

Gooseberry Caterpillar.—Allow me to suggest that instead of leaving the caterpillars on the ground, as Mr. Buck does, relying upon their inability to ascend the trees, a cloth slit half-way across should be drawn under the bush, and when the caterpillars have been shaken off by a sudden jerk of the stem with a guarded fork, they may be removed and destroyed, or quicklime may be sprinkled under the bushes, which will speedily kill them. Two or three shakes will clear the bush of nearly every caterpillar, sufficient time being allowed between each shake—or, rather, each pair of shakes, for some will have lodged amongst the leaves at the first shake, and will fall at the second—for them to loose their hold. A still day should be chosen.—*J. G., Bury.*

Liquid Manure and Guano.—Last season I was directed to use guano for some of our plants, and in addition to guano I have used liquid manure with the greatest success. To eight gallons of pure water I put four ounces of guano, dissolved for 24 hours, and to this I likewise added 16 gallons of liquid manure, mixing the whole together in a large tub; before applying the liquid I mixed it with pure water to suit the nature of the plants to which it was given. I have not tried any hard-wooded plants with it. Three plants of Musa Cavendishii, taken from the mother plant 15 months ago, and watered with strong liquid manure and guano, are of the following dimensions:—The stem is 3½ feet in height, and 2½ feet in circumference at the base. The leaves measure 5 feet in length, and are 2 feet 8 inches in breadth. One of the plants is showing fruit in abundance.—*A. Anderson, Castle Malgwyn.*

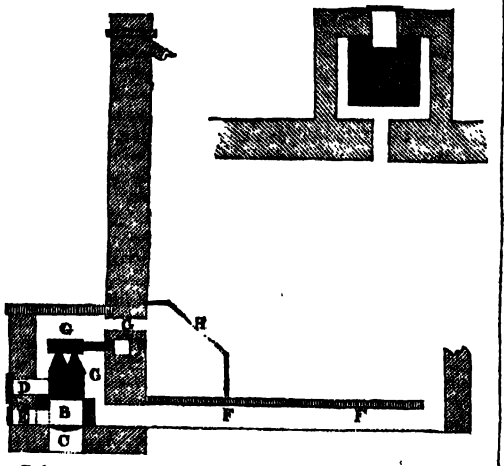
The Chinese Chrysanthemum.—I am glad to perceive that the Chrysanthemum is again beginning to attract the attention of amateurs in this country, and to claim that place in their estimation to which its many valuable properties so eminently entitle it. The Chrysanthemum flowers luxuriantly in the south of Ireland, bidding defiance to frost even during that dreary period when all their autumnal beauties have vanished from our gardens, and before the Snowdrop and Crocus as yet venture to peep forth, and it surely merits every care that can be bestowed on its cultivation; the great diversity which it presents in its form and colour, the elegance and grace of its blossoms, the delicate perfume of the entire plant, its long continuance in flower, the facility with which it is propagated, together with the circumstance of its flourishing at a time when it is the only ornament of the garden, are recommendations which render the Chrysanthemum perhaps the most valuable flower we have. I was much pleased with Mr. Tant's directions for its propagation and management, as given in a late Number, and his list of select plants is a most useful addition, but there is still a great desideratum in this matter. We, in this part of the country, who have no opportunities of seeing large collections of Chrysanthemums in blossom, are unable, from a mere list of names, to form any opinion as to the size, shape, or colour of the flowers, or the merits

or demerits of the several varieties, and when ordering a supply from a nurseryman, we are consequently unable to make a selection. Now, if any of your correspondents would furnish a list with such descriptions as I have alluded to, it would be highly acceptable to many in this country who, like myself, can look to nothing but such a list to guide them in choosing the most desirable varieties, and in judiciously contrasting their colours in the planting. To give an idea of the mildness of this climate, I may mention that I have now (19th January) four Chrysanthemums still in flower in the open air, on one of the walls of my garden, viz., Minerva, Duchess de Montebello, Campestroni, and Starry.—*Clericus Hibernicus, St. Olan's Rectory, Coachford.*

Planting Fruit Trees.—I would recommend everybody about to plant, and desirous of bringing the trees into a good bearing condition, with the least amount of labour, to plant them high and with the roots barely covered: if on newly trenched ground, to plant on the surface, and just to cover the roots over. Four years ago, I planted three young Peach-trees; the ground having been previously trenched, I trod it down, refilled the space with soil, and again trod it down, until the whole was level with the surface of the border, and perfectly smooth; I then placed the trees on the plane surface, covered their roots with soil and trod it down as before. They made excellent bearing-wood the first season, bore a few fruit the second year; the third year I had a fair average crop, and in the fourth year an excellent crop of very fine fruit, which I consider to be a decided proof of the superior effects of shallow planting; whereas, trees planted deeply in the usual way, have been seven or eight years before coming into bearing at all, and then the fruit has been of very inferior quality, which to amateurs and persons possessing small gardens, must be very disappointing. In preparing a border, the soil I prefer is: the green sods from a loamy pasture, chopped fine with the spade.—*J. L. Snow, Swinton Park.*

Spot on the Pelargonium Leaf.—I have for the last few years had from eight to twelve thousand Pelargoniums under my care, and was never before last year troubled with the spot. When shifting my plants last spring, I made use of more rotten dung than on any previous occasion. After shifting, my plants grow away very rapidly; still I observed that they made but little root, and that what they did make rotted off as soon as formed, until I think about the 10th of June, when we had a few days in which the sun shone very powerfully. About that time the plants became spotted, particularly those in the pits, which had their lights entirely off during the day, and tilted during night, and in wet weather. Cold and damp are generally thought to be the principal causes of the evil; but, if cold and and damp were the causes, I should think the present the most likely season of the year for the plants to be affected in; but to all appearance they have quite recovered; if it were possible, however, to have a few days' sun, as powerful now as in June (up to October the sun has great power for a few hours in the middle of each day), I think that in a few days they would be as badly spotted as ever, the roots being in no better condition than they now are. Want of sufficient feeders to support their foliage against the effects of a parching sun, I imagine is the cause of failure; therefore, the spot will appear or not, according to the richness of the compost in which they are potted. Of plants standing in pits upon ashes where any of the roots had found their way through the bottom of the pots they were quite healthy, and appeared to be starting in all directions for suitable food; in such cases the plants were scarcely at all spotted, although the roots in the interior of the pots were equally bad with those of plants standing next them; the first plant that broke after having been cut down, I put into smaller pots, using the same compost as in the spring shifting, and they became spotted equally bad as ever,—the roots went off just in the same way; those that did not break till three weeks later were put into nearly all forest loam and silver sand, and although standing on the same bed next the others, they did not show the least inclination to spot. I also put in a few pans of cuttings in the same compost, half of which failed, and the other half made little or no root till after they were potted off. In the rest of my cuttings (about 7000 principally in loam and silver sand), I had not a failure worth speaking of. I have now shifted rather better than 1000 for forcing, using a mixture of four parts loam, one dung, one peat, and one silver sand.—*Farrant.*

Polmaise System of Heating.—The accompanying wood-cut represents a stove which we consider to be calculated to perform all that can be required under the above system of heating. It is the invention of Mr. Samuel Hall, the engineer, and as far as our experience goes has given satisfaction wherever it has been applied, acting as a means of ventilation, as well as of warming. It possesses this advantage, as well as others, over Arnott's, and most of the stoves which only radiate heat. Wherever it is fixed, the air is in constant motion, and by fixing it outside a building, any quantity of fresh warm air may be admitted. For horticultural purposes the ornamental exterior may be dispensed with, reserving only the fire-box (in which the merit of the invention chiefly consists, by giving a large surface of heating power in a small compass); this may be done very economically, and by any bricklayer, and as the fire-box is cast in one piece, and of very considerable substance, it is not liable to the objection Mr. Rivers has justly made against the durability of wrought iron stoves; neither is it subject to become so quickly red hot, nor so soon cooled under trifling variations in the activity of the fire. In adapting this fire-box, the plan we propose is simply as follows:—To construct the furnace part of fire-bricks, or lumps, whereupon the cast-iron box may be placed, and in all other respects to follow the directions already given in the *Chronicle*. The motive for raising the fire-box is twofold, viz., to obtain a greater depth from the feed door to the fire-bars, so that sufficient fuel may be supplied to last for any required length of time, and also in part to adopt the excellent recommendation of Mr. Rivers, to let the fire have its first and greatest effect upon the fire-bricks, so that the iron box would last for many years, and yet by its extent of surface, and superior conducting powers over the fire-brick, give off a very large quantity of heat (economising fuel thereby).



Reference to Plan.—A, the stove; B, the furnace; C, ash hole; D, feed door; E, door to remove clinkers, &c.; F, cold air drain; G, G, G, hot air chamber and flue into house; H, punched zinc nailed on to wooden frame for hot air to pass through.

In all other respects the arrangement of air drains, &c., might remain as already proposed; but we think perforated zinc much preferable to the blanket for several reasons, viz., as dispersing the air better, and also as being more under control in regard to the quantity of moisture evaporated; for the blanket, if placed under a stage would be continually liable to become wet, when a dry atmosphere might be required. [We do not understand how moisture is to be derived from perforated zinc.]—*Stephenson and Co., 17, New Park-street, Southwark.*

Brick Stoves.—At St. Petersburg, where immense stoves of brick are in general use, the cement used in their construction is never lime-mortar. Clay is always used, or rather such a mixture of clay and sand as constitutes a good brick earth. Great care is taken in the preparation of this substance by kneading it. For instance, the quantity required for four or five very large stoves was, I saw, laid upon a smooth floor, and mixed with water sufficient to bring it to the consistence of stiff mortar; two men in their boots then trampled on it, turning over the mass from time to time, and picking out the small stones. They continued thus kneading it for two days. The bricks for stoves, especially the glazed bricks for the outside, are formed with channels in them, for receiving portions of the clay, to serve as ties between brick and brick. A stove, when built, is left at least a month to dry before a fire is lighted in it.—*M. B.*

Parrots; Cure for Gout or Rheumatism.—The following receipt has the merit of being very simple, and has been so efficacious in many instances to those who suffer from Rheumatism, that if Mr. H.'s parrot (see p. 37) were mine, I should certainly try it. I recommend putting the bird into a warm bath of the following infusion, and giving some of it in the water he drinks, or moistening the bread with it, so as to have some portion of the infusion swallowed:—Take three handsful of dried flowers of Yarrow-stalk, leaves and all; put them into a vessel with two quarts of water, and let it simmer over the fire for 24 hours; then let it stand to cool, and strain it. A wine-glassful to be taken before breakfast, and repeated two or three hours after. Hot fomentations of this infusion are also very beneficial. The herb is extremely common in every Grass-field, and may be bought of any herbalist for about 8*d.* a lb. If Mr. H. is induced to try this receipt, I hope he will make known the result.—*A Reader.*

Tulip-tree (see p. 56).—To make Orange-wood toothpicks:—Saw the wood across the grain, in suitable lengths, say 3 inches, and let them stay till seasoned. Split into thin layers, and scrape to a point with glass, or, better still, a joiner's scraping-iron. Any child who has made spillikins can do it. They easily discolour from dirt, or oven the air, so when finished and tied up in small bundles, they must be kept in paper.—*F. M.*

Passiflora edulis.—In cultivating this for its fruit I have frequently been doomed to disappointment by an apparently healthy plant loaded with fruit suddenly withering in consequence of gangrene surrounding the stem immediately below the surface of the soil. To remedy this I grafted P. edulis on P. quadrangularis, justly conceiving, as I have since found, that the more woody stem of P. quadrangularis was better constituted for resisting the disease than the semi-woody stem of P. edulis. The mass sent of extravasated sap from the graft, 9 inches above the soil, is a consequence of want of nourishment from the root; an abortive attempt to form roots, which, in the Pine-stove, where it grew amongst the effluvia of fermenting leaves, and that arising from occasional waterings with liquid manure, and the generally moist atmosphere, maintained the extensive surface of spongeolic development, and no doubt was capable of, and did imbibe, a very considerable portion of nourishment.—*G. M. Elliott.*

Fermentation of Potatoes.—I lately sent you a notice (see *Gardeners' Chronicle*, 1845, p. 838) of an instance of some Potatoes having been stored away in bean-dust, and the heap having heated so much as very nearly to produce spontaneous combustion. I have another fact of the same kind to mention, which I met with yesterday at Hadleigh. You noticed in the *Gardeners' Chronicle*, about four months ago, Mr. Joseph Rand having obtained starch from 30 sacks of his bad Potatoes. The same gentleman had selected 18 sacks of his best for the purpose of carefully preserving them. They were the Early Shaw, and had been taken up the end of August. These he spread upon a wooden floor of his malt-house, and thoroughly exposed them to the air, with access of light; and after having had them twice carefully picked over, and having removed such as seemed likely to decay, the sample was stored away in a manner I am about to describe. In the process of drying germinated Barley in the malt-kiln, a large proportion of the sprouted radicles fall through certain holes perforated in the tiled floor upon which the Barley is spread, and collect in the heated chamber below. As the dust from the coke rises into this chamber, the dried radicles become mixed with it, and the whole is called malt-dust, in order to distinguish it from the mass of dried radicles which are obtained in a clean state upon dressing the malted Barley, and which are called malt-coombs. This latter material is given to cattle, but the malt-dust is considered to be fit only for manure; though some persons rather disreputably (I am informed) mix it with the malt-combs, and sell the whole by this name. Mr. Rand, thinking that the malt-dust, from its extreme dryness, would afford an excellent packing material for his Potatoes, spread a layer of it in a small chamber of his malt-house, and having placed a layer of Potatoes upon it, so that they were not in contact with each other, he then added more malt-dust, and then another layer of Potatoes, and so on, till the heap was about 5 feet in depth. This was done in October. About a fortnight ago, a party from the Excise, called "the generals," went over his malt-house, and, while they were poking into every corner of the place, happened to stir up this heap of malt-dust and Potatoes, when, to their surprise and alarm, they found the interior in a state approaching to ignition. The Potatoes were parboiled and the malt-dust perfectly charred. Immediate precautions were taken to remove the heap. Most of the Potatoes, being in a fœtid state, were thrown away, and the malt-dust was laid upon another heap of the same material, with the intention of carting it upon the land as manure. In a very short time the heap of malt-dust heated afresh, and no time was now lost in removing it off the premises. I visited the spot, and saw the effect that had been produced on the walls and floor. The fermentation had even spread to the malt-dust, which had not been used about the Potatoes, but had merely lain a short time in contact with that which had, and this was now beginning to heat in so powerful a manner that it was considered advisable to remove the whole. Mr. Rand thinks that the malt-dust would not heat by the application of water alone; and we may, in this case at least, imagine that the peculiar state of the moisture which exuded from the Potatoes was very likely to excite fermentation. I have found by experiment that the diseased Potatoes lose weight very rapidly, under circumstances where sound ones scarcely lose any. The cause is doubtless to be attributed to the destruction of the epidermis.—*J. S. Henslow, Hitcham, Jan. 21.*

Effect of the Potato Disease on the next Year's Crop.—Much alarm having been entertained as to what may be the effect of the late disease on the future crop, I am induced to offer the following observations, which I hope will in some degree prove that the calamity may be attributed entirely to atmospheric influence, and not to any inherent disease in the Potato itself. Likewise, that there is no reason to fear a perpetuation of the malady through the sets, and no need for any dependence on new kinds raised from seed (which by the way, would be but an indifferent mode of feeding the millions through the current year), or of sending for wild Potatoes from America, or elsewhere; or any of the thousand and one recommendations based on the belief of the disease being generated by the Potato itself. Late in the month of June we took up for market nearly the whole of a piece of Shaws, the small ones being kept for sets, and none of them were, or are to this moment, diseased; a small portion of the same piece was not taken up for two months longer, and 4 in 6 were diseased. The land was planted out with Lovegrove's and Fox's Seedlings, two of the earliest kinds with which I am acquainted, and 12 seedlings of our own, raised two years ago (not very early ones). They were grown for sets only, and were taken up with the last of the Shaws. The two former kinds were in a slight degree injured; all the other kinds suffered as badly as the Shaws. About this time we noticed in a piece of Kidneys a large patch exhibit the disease in a few days; another similar patch appeared at a considerable distance from the other in the same piece; whereon we had the whole of the

haulm cut close off and gathered together except that on an adjoining piece. In that state they remained for about a month. When they were taken up we found that where the haulm was injured at least four in six were diseased; but where the disease had not appeared before we cut the haulm, there were not five in 100, and the tubers were as sound and as clear in the skin, and cook as well as ever I saw them. The portion in which the haulm was left on, was not taken up for another month, and 19 in 20 were rotten. Our (Chapman's) New Spring Kidney, a kind possessing the flavour and appearance of those grown under glass, which we grow for keeping up a supply through winter and spring, we preserve on shelves in a fruit room until we plant them, which is on or about the 1st of July. We did so last season, and not a Potato escaped the disease. They were attacked immediately they appeared above the ground; it appeared first in the foliage, which seemed to dry up, and in a few days the stem turned black, and became so brittle, that the wind snapped it off as if it had been glass. It lingered a short time, and then died away; and the result was that we did not obtain so great a weight of Potatoes as were planted. When we planted the above, we had more than sufficient sets for our land, and the overplus remained where the others came from until the 1st of October, when we planted them; on the 16th inst., we dug up the produce, and not a diseased Potato appeared among them. There was part of the sets which had grown, and had formed tubers; these were planted at the same time as the others, and were every one diseased; in fact, I have not seen a worse case. In planting these some of the shoots were broken off, and in that state the sets were planted; some of them proceeded to form new shoots, and have formed tubers; others formed tubers without any shoots, and neither of them have any disease about them. We are growing a kind which I purchased early last summer, many of them not larger than a marble, which are all growing, and are at least a foot high. The person who sold me the sets has since told me, that he allowed a quantity of the same kind to grow later in the land for seed, and nearly the whole of them rotted. We never lost one, and they are perfectly healthy. So likewise are those from the Lovegrove's and Fox's Seedlings. We shall be enabled to fruit these three kinds by March, which will be before most people will want to plant, when I will make it known if they are free from disease. From our own kind we shall raise three crops within the year, viz., the one taken up on the 16th will produce another by May, or beginning of June, in plenty of time for another by October. It may be said, I am promising too much for the future; but of the present, all I can say is, that any one may see them here, or at Mr. Israel's, Covent-garden, where I will exhibit them, and they are as fully matured as if they had had a year to grow in, and as free from disease as any grown 10 years ago. The foregoing are facts, and I leave it to more scientific persons to account for the cause; my opinion is, as I stated in the outset, that the disease is caused by atmospheric influence acting on the haulm, and that the tuber had nothing to do with it, and the malady will never return, unless similar circumstances occur; for it is clear the early Potatoes were not injured up to a certain time, and then they were on a sudden severely attacked; that could not be the fault of the sets. The earlier the kinds, the less they were injured, in consequence of the haulm having nearly performed its functions. The disease made no distinction between old and new kinds, and it is certain that the early removal of the haulm was of great benefit to the crop. The most convincing proof of all, however, is, that the same kind, coming from the same land, kept together in the same manner and place, planted on the 1st July, should all be diseased; and those planted on the 1st October all sound (aye, all!) excepting those which would be as near as possible in the same state as those planted on 1st of July, viz., growing, and with tubers formed; and furthermore, those which had no shoots when planted are in no wise diseased. None of them had a particle of moisture near them from the spring, when they were placed on the shelves until they were respectively planted. It seems, therefore, clear, that at some period of last year, probably about the end of July, there was some peculiar atmospheric change, which, combined with other things, attacked the haulm of the Potato, and through that diseased the (then growing) tubers; for it should be remembered, its ravages were not confined to the Potato alone, but the Tomata (belonging to the same family) was attacked in the same manner; all the early fruit were sound, and all those left on the plants later were diseased. Onions, and other garden produce were attacked in the same manner. And the disease must have been totally independent of the quantity of rain which fell, or how could it attack the Potatoes in the house, where they were kept perfectly dry. If my conclusions from the foregoing facts are correct, there is every reason to hope that we have seen the worst of this disease, and that the perpetuation of it is not at all probable. And if ever it should again occur, the best mode of stopping its ravages is to immediately on its appearance remove the haulm, which is the medium through which it affects the tubers.—*Charles Chapman, Market Gardener, Brentford End.*

Chicory-Salad.—The object of the experiment now making (noticed in a short Leading Article last week in this Journal, p. 51), to introduce this excellent Salad into Covent Garden Market, where it may be still purchased of Messrs. Grimley and Co., &c., is to try to excite a demand for it which may ultimately become as extensive as at Paris and Brussels, where at this time of the year it supersedes Endive, over which, from its greater amount of the bitter principle, it has the great advantage of being both more digestible and more wholesome. A lady of our acquaintance who cannot taste Endive can eat Chicory with impunity.—*W. S.*

The Best Time to Fell Fir Timber is just when the sap begins to flow in the spring. Peel the Larch, its bark being half the value of that of Oak. Immerse the timber in water during the summer months, to set the turpentine, and I warrant it never to warp or spring; its texture will be greatly hardened, and its durability doubly increased.—*J. H.*

Retarding Flowers.—I observed in the autumn at Paris many common flowers blowing out of their season used for the nosegays in the streets and the shops, but more particularly the Violet and the small common white and the red Picotee. The Violet we now blow well enough in the autumn; but what is the culture which produces such abundance through the autumn of the Picotee? On looking over the rules of some Flower Shows, I remarked that most of them contained prizes for the retarding the blooming of common flowers, as well as forcing. For the London nosegay market, this retardation is of no great consequence, as few people are in town, but for the country gardener who has an autumn daily nosegay to produce, this point is of importance.—*Dodman, Dublin.*

Growing Melons without Bottom-heat.—Mr. Walker's communication on this subject affirms results so far beyond what are commonly accomplished as to place all who are interested in Melon growing under great obligations to him, and I feel sure he will excuse me if I ask for further information on one or two minor points. I should be much obliged if he would speak a little more fully of the state of the atmosphere—as regarded moisture—in which he grew his plants; for, I should judge from his recorded opinion that the "tank or gutter system" would be most applicable; that his practice went to contradict one's old notions as to the dryness of atmosphere necessary to the full health and flavour of the Melon. Perhaps he will also say whether his liquid manure was a steep of guano, or merely the common drainage of the dung-heap. And now, Mr. Editor, a question for yourself. Do you think Mr. Walker's method of planting and growing the Melon in the interior of a house warmed by hot water pipes can be fairly termed a "growing of the Melon without bottom-heat?"—*Theta.* [No.]——I read Mr. Walker's remarks (p. 20) on this subject, and it strikes me that there is not that novelty in the system which he seems anxious to impress us with, for a similar plan has been practised in many places in this country, especially at Chatsworth, where for some seasons past, Melons have been grown in pots, and trained up the back wall, and every success has attended the system. In pots they are subject to the various changes to which plants in houses are liable when the pots are not plunged in some material, but in Mr. W.'s house, if I recollect rightly, the pipes by which the house is heated, run parallel to or very near the bed in which the Melons are planted, and the roots must consequently receive a considerable degree of heat, especially when we bear in mind that Melons do not root particularly deep into the soil. I presume, therefore, that the roots must have been in as warm a medium, and one considerably steadier than that in which the leaves were. There are two points in "Mr. W.'s" paper which I do not understand; 1st, it is said that when the roots are not excited, more light is required for the perfect elaboration of the sap. Now I am of opinion that the reverse is the case, for I conceive that light is required to a much greater degree when a reciprocal action is maintained between the roots and leaves; 2dly, though I agree in the remarks regarding the inefficiency of dung beds for Melons, I differ from "Mr. W." as to the inutility of dung as a manure; for I believe that that material is not only necessary but absolutely indispensable as yet to the gardener, for although much has been done in the way of substitutes, yet I have never heard of any place where dung has been entirely dispensed with. Will Mr. W. inform us if such is the case at the Vicregal Gardens, and the result?—*P. S.*

Double Stocks.—The cause of the production of double flowers in Stocks, seems to be a disputed point. I gave a friend part of some seed of 1843, of my own saving, and I sowed from the same parcel, both in the autumn of 1844, and the spring of 1845; in both seasons the produce was double; but my friend informed me that his flowers were nearly, if not all single. The soil on which the plants producing single flowers grew was warm gravelly material; the other was a stiff loam, well worked; this, I imagine, clearly proves that the nature of the soil has great influence in the production of double flowers. In saving the seed, I pay no regard to the parts of the flower, but merely save some of the single from among double flowers.—*J. I., Deptford.*

Oyster Plant.—It were to be wished that some experimental gardener would attempt the cultivation of the Oyster plant (Pulmonaria maritima), a native of Wales, and try the dressing of it for the table. Another sort of pot-herbs, which would be at least worth trying, are the sour kinds of Rhubarb, which might be as good as Sorrel in sauces.—*Anon.*

Conifers in the North of Scotland.—There being what I consider a very fine tree of Abies Deodara growing where I reside, I measured it, and the following are its dimensions:—From the ground to the tip of the leader it measured 11 feet, the diameter of the branches at the ground was 10 feet, the girth of the trunk at the same place 22 inches. The tree is of a fine conical shape, and forms a highly ornamental object. Several pieces of this Deodar were, some years ago, grafted on the Cedar of Lebanon, from 8 to 10 feet in height, and are now the most beautiful objects imaginable. The trunks of some specimens of the latter measure 72 inches in circumference, which, if squared, would be 18 inches in the side. At 5 feet from the ground the same trunk measures 9 feet 6 inches in girth, above this it branches out horizontally, forming a circle, the diameter of which is 61½ feet; the tree, which is 36 feet 6 inches in height, being rather spreading than of elevated stature. Several of its neighbours, however, rise to the height of 56 feet, with trunks 4 feet in girth. It may be interesting to know that a lady still living in the neighbourhood, sowed the seeds of these. In this place is also standing the remains of a once promising Pinus Douglasii, whose trunk, with its stumped branches, is now destined to form a Rose pillar. This tree was planted about 12 years ago, as was also the Abies Deodara above alluded to; the former was then 6 inches in height, which, at the present time, is 28½ ft., thus making a growth of nearly 2⅓ feet per year. Is it usual for the P. Douglasii to die at an early age, or may its death be ascribed to the roots getting down into a kind of "dull dead" sand, as I am told they did. A branch of this tree, which, lying on the ground, had struck root, was separated at the death of the parent, and is now forming itself into a tree. The branch was quite small when separated from the stock.—*Abdalonymus.* [We have heard of other instances of the Douglas Fir dying, without apparent cause.]

Seedling Fuchsias.—Having devoted some attention to the growing and raising from seed the beautiful genus Fuchsia, I am led to believe that the varieties so raised do not in all instances come up to the expectations formed of them when seen in the second year of flowering; in very many cases the flowers of seedling Fuchsias are finer and larger in the first year than they are ever afterwards. All the varieties which I find to sport in this way, whether I raise them myself or purchase them of others, I do away with, and keep no variety that is not lasting. Good cultivation has a great deal to do with keeping up the character of any variety, and therefore many good varieties that have been sent out, are, through bad and indifferent culture, pronounced bad, or good for nothing. We have now a great number of fine showy varieties in cultivation, and I would take the liberty of suggesting to all nurserymen, florists, and raisers of seedling Fuchsias, that where they are fortunate in getting a good variety, and that it is thought worth notice, they should keep and flower it the second year, before sending it out to the public. A similar practice has been adopted for the last few years with seedling Dahlias and Pelargoniums; by so doing, sufficient time will be given to test the lasting and good properties of the plant and flower, besides giving greater satisfaction to purchasers. Any new Fuchsia that would claim the attention of the floricultural world, must be something distinct in all its properties, and it is quite impossible to judge from written descriptions.—*Fuchsia.*

Gnats.—On the edge of a young plantation there are a few Birch trees growing about 15 or 20 yards apart from each other, and the side of the young wood where the Birches are growing extends about half a mile. Last autumn there were, some evenings, immense numbers of long gnats collected into living clouds, and each congregated mass dancing above the top of a Birch tree; sometimes a small detachment might be seen above some of the other trees, but they were as nothing in comparison to those that were collected above the Birch. Is there anything remarkable about that tree which could attract them in such numbers in preference to thousands of other trees growing along with the Birch.—*P. M.*

Societies.

BOTANICAL SOCIETY OF LONDON.

Jan. 2.—F. BARHAM, Esq., in the chair. The Secretary announced that British plants had been received from Mr. H. C. Watson, Dr. Bossey, Dr. Bromfield, Rev. H. L. Jenner, Mr. W. D. Biden, Mr. J. Ray, Mr. F. Barham, Mr. W. L. Notcutt, Mr. E. Lees, Mr. H. O. Stephens, Mr. G. U. K. Thwaites, Mr. T. Moore, Mr. J. D. Salmon, Mr. J. Freeman, Mr. G. Fitt, Miss Beever, Mr. J. Tatham, Mr. Hawkins, Mr. S. P. Woodward, Mr. W. Andrews, Mr. J. Stores, and the Secretary. Foreign plants had been received from Mr. T. Twining, jun. Various donations to the library were also announced. Read "Further Observations on the Potato Murrain," by H. O. Stephens, Esq., of Bristol, corresponding member of the Society. The paper was accompanied by some beautiful drawings.

BOTANICAL SOCIETY OF EDINBURGH.

Jan. 8.—Professor Balfour, president, in the chair. The Treasurer read a letter from Mrs. Graham, presenting to the Society some valuable MSS. papers, on botanical subjects, by the late Professor Graham. Wm. Ivory, Esq.; W.S., 26, York-place, was elected a resident fellow. The following communications were read: —Notice regarding some species of plants recently observed as natives of Britain, by Mr. Evans. Among the species referred to in this notice, were Alsine stricta, Carduus arvensis β. setosus, Glyceria plicata, Barkhausia setosa, &c.; specimens of these, and of Silene italica, from two Scotch stations, were exhibited to the meeting. Dr. Balfour read a short notice from Dr.

R. C. Alexander relative to the Flora of Sicily. Dr. Alexander regards the Sicilian Flora as not an aboriginal one, but as derived from Africa on the one side, and from Greece and other Mediterranean countries on the other. The plants peculiar to the island are by no means numerous, and the Flora is meagre when compared with that of Dalmatia and other countries on the shores of the Adriatic. In the course of two months, residence in the island Dr. Alexander found only about 250 species which he had not seen in Dalmatia. A communication was also read from Dr. Alexander regarding the plants found on the Apennines. He considers the Flora of the Apennines from Piedmont downwards, to be also a derived one; for excepting the genera which occupy fallow land and broken ground, such as Medicago, Ononis, Convolvulus, and sea-shore plants, he found no genus developed, but a species of one type and a species of another, without connecting links. On ascending the mountains, when he got to a region where a magnificent Flora ought to be, he found at most a hardy hill plant that had crept up, but nothing whatever of an Alpine nature. On the Matese, about forty miles north from Naples, vegetation nearly ceased at about 6000 feet, and at the top, which is 7000 feet above the level of the sea, and where there is a snow field that never entirely melts, and, therefore, cold enough for Alpine plants, he met with Aubrietia Columnæ (a mere variety of A. deltoides), Ranunculus montanus, a Geranium resembling a Carniolian species, Arabis alpina, an Allium not in flower, Scrophularia glandulosa, and three forms of Saxifraga Aizoon, which are reckoned by some as species. In nearly the same latitude, on the other side of the Adriatic, on the Biokovo, near Macarska in Dalmatia, there is, at the same height, a most interesting Alpine Flora, and in Ætolia, on the M. Velugo, one equally so. Dr. Alexander found the Apennines by no means so productive as the Alps of Upper Styria and Upper Carinthia; and he looks upon the range as probably so recent in its formation as to be only receiving its Alpine Flora gradually from other districts.—Dr. Balfour also read a communication which he had received from Mr. Campbell, of Islay, relative to Mummy Wheat, specimens of which were exhibited. The Wheat sent by Mr. Campbell resembled what is called Bellevue Talavera. Other specimens of the so-called Mummy Wheat were shown, having all the characteristics of Egyptian Wheat (Triticum compositum). There appeared to be great doubts as to the facts of the Wheat found in mummy cases having generated. In all the instances mentioned, there are numerous sources of fallacy which have not been guarded against. The most authentic and best corroborated instance of the germination of Mummy Wheat seems to be that noticed by Mr. Tupper, who got from Mr. Pettigrew grains which had been taken by Sir Gardiner Wilkinson from some alabaster sepulchral vases. Even in this case, however, it is difficult to prove that the grains had not been recently inserted into the vases. The Wheat which was then produced was the same variety as that now sent by Mr. Campbell.—A communication was read from Mr. Cruickshank, regarding the discovery of Typha angustifolia in Lochmaben Loch, and of Centunculus minimus near Dumfries.—Specimens were exhibited by Dr. Balfour of Mentha rotundifolia, variety velutina in flower, and of Pyrus pinnatifida in fruit, from the island of Arran.—Mr. James M'Nab exhibited specimens of Ardisia crenulata, from the Horticultural Society's Garden, in which the seeds had germinated within the berries while hanging on the plant.

New Garden Plants.

10. NEPTUNIA PLENA. The Double Yellow Water Sensitive. *Stove Aquatic.* (Leguminous Plants.) West Indies.

This curious water plant, with sensitive leaves, has been raised from seeds recently sent from Jamaica, by Mr. Purdie; and a specimen of it from the collection of his Grace the Duke of Northumberland, at Syon, was exhibited at a meeting of the Horticultural Society in October last. Its long spongy stems throw out innumerable thread like roots, and, floating in the water, speedily produce broad masses of leaves cut up into myriads of irritable leaflets. It seems to be common in all parts of tropical America, botanists having received it from Guiana, Mexico, Brazil, and various West India islands. It would also appear to be subject to many diversities of appearance, in consequence of which it has received several different names. Linnæus called it Mimosa plena, or the double Mimosa, because of the broad petal like barren stamens which occur in the lower flowers of each head. Similar appearances occur in the genera Desmanthus and Dichrosachys, and justify Linnæus in the name which he applied to it. The genus derived its name from the Portuguese Loureiro, who ventured to enlist the god of the ocean in the service of botanical nomenclature. Among the circumstances by which it is known from neighbouring genera are its peculiar floating habit, its anthers tipped with a stalked gland, and its flat jointless stipitate pod with membranous valves. One of the species, Neptunia oleracea, yields a material very like the Rice paper of the Chinese, but coarse and inferior in quality to that beautiful substance. It is also said to be used by the Cochin Chinese in salads, its spongy floating stems being crisp and juicy: but Loureiro adds that it is not very digestible. Being a native of the hottest part of the tropics, the gardeners who may wish to cultivate this plant will do well to bear in mind that the water in which it is planted should have at least 80° of temperature, or it cannot be expected to thrive. It seems to be a perennial.—*Botanical Register*, 1846, *t.* 3.

11. VERONICA SALICIFOLIA. Willow-leaved Speedwell. *Greenhouse Shrub.* (Figworts.) New Zealand.
SYN. *V. Lindleyana.*

New Zealand and Tasmannia have already brought us acquainted with those beautiful Speedwells, which bear the names of V. speciosa, decussata, labiata, and perfoliata; and many more have yet to be introduced as gay shrubs or herbaceous plants. Some indeed are probably even now in our gardens, although they have not been hitherto scientifically determined. That which is here given is of the latter class. It has indeed been already well figured in Mr. Paxton's Magazine, but no attempt has been made to determine whether it is really new or not. We entertain little doubt that it is the Willow-leaved Speedwell of Forster, found by that Botanist in New Zealand, and introduced to our gardens for the first time a few years since. The point is not, however, entirely free from doubt, and the conclusion at which we have arrived is open to revision. In all the accounts which we have of the Willow-leaved Speedwell, it is said to have perfectly entire leaves; but in the garden plant they are serrated, or at least some are. We find, however, that wild specimens from Mr. Bidwill, Mr. Allan Cunningham, and others, in our herbarium, are absolutely identical with this plant, so far as cultivated and wild specimens are comparable, except that the leaves are in this instance occasionally serrated; but as the serratures of the leaves are quite uncertain in the cultivated plant, we do not feel justified in attaching importance to that circumstance. Mr. A. Cunningham's specimens of V. salicifolia, which he had doubtless verified with all possible care, are we think not distinct, except in the serratures as already mentioned. The main difficulty consists in reconciling Vahl's statement that the flower-stalks of V. salicifolia are capillary; for it must be confessed that in a wild state this plant does not answer to that description. Yet in other respects it is so much the same, that we incline to the belief that the term capillary was used loosely by the Danish Botanist. In some respects the plant resembles V. Cataractæ, of which authentic specimens out of the herbarium of Mr. Don of Cambridge are before us; but the looseness of the racemes and the coarse callous-toothed serratures of that plant are like nothing observable in this. Our drawing was made in the Nursery of Mr. Glendinning of Turnham Green, in August last. It is a greenhouse plant, which will grow freely in any light sandy soil. Like V. speciosa, it requires an ample supply of water during the summer months, and air at all times when weather permits. As the species flowers on the young wood, it may be cut back after flowering, if necessary; but as young plants are much more handsome than old, it is better to replace them every two or three years. It strikes freely from cuttings. In winter, nothing more than ordinary treatment is required.—*Botanical Register*, 1846, *t.* 5.

12. CATTLEYA MAXIMA. *Lindley.* Largest Cattleya.
Stove Epiphyte. (Orchids.) Peru.

The more our knowledge of the varying forms of Orchids extends, the less do we feel able to determine what characters or peculiarities of structure are of real value in distinguishing species. Everything which among other plants has gained a fixed value, appears here to be unstable; and even the most marked differences in form are proved by incontestable evidence to grow out of each other. This being so, we may be excused for doubting how far this beautiful plant can lay claim to the rank of a species, for it evidently approaches both C. Mossiæ and labiata in many important particulars. Its main peculiarities consists in its long-channelled pseudo-bulbs, and in its very convex wavy petals, which are quite different in appearance from the thin, nearly flat, petals of C. Mossiæ and labiata. If, however, we attach any value to differences of colour, then indeed there remains no difficulty in separating this plant: for it is remarkable for the dark crimson veins richly traced upon its pallid lip, and for a beautiful net-work of purple streaks, which is drawn over all their surface. At first too the colour of the flowers is so pale as to be almost white; but the tints heighten day by day, till at last the blossoms acquire the rich tint represented in the accompanying plate.—*Botanical Register*, 1846 *t.* 1.

Garden Memoranda.

M. A. Houblon, Esq.'s, Hallingbery-place, Essex.—Cucumber-growing, on Mr. Ayres's system, is admirably carried out here; the sort grown is Cuthill's Black Spine, a variety exceedingly well adapted for early forcing. Mr. Spivey has cut from 14 plants, between the 21st of October and the 11th of January, 129 Cucumbers, from 13 to 21 inches in length (averaging 15 inches), besides a number of lesser dimensions, used for stewing. The plants are still in a good bearing state; but Mr. Spivey, who is gardener here, finds from experience that it is better to have a succession of young plants than to restore the old ones, which may be exhausted by having produced heavy crops; consequently he intends about the 1st of February to replace the old plants by a succession of young ones, a system which has been practised for many years with unexceptionable success. —*A. M.*

Miscellaneous.

The Tulip Match between the Nottingham and Derby Florists. — We learn from the *Nottingham Mercury* that the growers there have agreed to the terms of the challenge given by the Derby florists, namely, thirty distinct varieties of Tulips in six classes to be exhibited at Nottingham, on Thursday, the 26th of next May. It was also arranged that a deputation from each party should visit the respective competitors, and see the flowers cut, and properly secured in sealed boxes, preparatory to being brought to the place of exhibition, and there to see them staged for the judges by two o'clock P.M. W. Thornelley, Esq., of Heaton Norris, near Stockport; R. Dixon, Esq., Manchester, and Mr. W. Hepworth, of Halifax, to be the judges. The florists selected to show on this interesting match are, for Derby:—Messrs. J. Gibbens, W. Allen, J. Allen, W. Parkinson, J. Parkyn, and J. Eason. The Nottingham florists comprise: J. Thackeray, Esq., J. Spencer, W. Harpham, J. F. Wood, J. Mart, and W. Wild.

Sawdust Roasting.—It is reported that the King of Sweden has offered a reward of 10,000*l.* (qu. dollars?) to the person who shall contrive the most efficient apparatus for converting sawdust into charcoal without waste.

Caution to the Purchasers of Flowers and Plants.—A fellow dressed like a gardener is going round the metropolis selling, at good prices, apparently fine wholesome Laurels and Pelargoniums, which are nothing but slips totally devoid of roots, and secured together in large pots of clay by straw strongly girded by thick twine, so that should the dupe of a purchaser attempt plucking the slips they remain immovable.—*Morning Paper.*

Extinction of the Liverpool Botanic Gardens.—At a public meeting of the proprietors, held on Monday, it was agreed, in consequence of the gradual decay of botanical taste in the wealthy classes of the community, and the inadequate support which thus admirable and perfect establishment has long received to offer them first for sale to the town council, and if that body should decline to purchase, to break up the gardens, dispose of the plants and hothouses, and sell the land in building lots.—*Daily Paper.*

CALENDAR OF OPERATIONS.

(For the ensuing Week.)

Liquid manures are now allowed on all hands to be great fertilisers, provided they are used in a perfectly clear state. I would advise everybody, therefore, who is desirous of progression in point of high cultivation, not only to provide a stock immediately, (as vegetation is rousing from its lethargy,) but to lay forthwith the foundation of a plan, by which it can be always obtained with ease and comfort, in a systematic way. Soot water is no doubt of considerable value when clarified, and I am inclined to think that this, blended with the urates and guano water, will furnish all that can be desired in this respect. The only safe maxim that I can recommend is, to use it constantly, perfectly clear, and weak; by the latter, I mean clear water merely tinged in colour by it. Used beyond a given strength, it will certainly paralyse the action of the root it was intended to invigorate: used in a turbid state, it will close the soil against the atmospheric influences, for which it thus becomes a very poor compensation.

CONSERVATORIES, STOVE, &c.

Conservatory.—All manual operations here should, of course, be performed as early in the morning as possible, in order that the family may enjoy their rambles amongst the plants without obstruction, in a sweet and free atmosphere, and on very clean floors. Orange trees in tubs are liable to a black fungus on the leaf, having the appearance of soot, this should be thoroughly cleaned away at all times, more especially now; a little soap-suds, warm, is a very good thing, applied with a sponge, and a little sulphur may be mixed with them. Decaying flowers, or unsightly plants, should be instantly removed, and their places filled with superior articles brought from the other departments. This structure, where proper means are allowed, should now be in the highest perfection, and the hybrid Rhododendrons, Camellias, &c., &c., should make a fine display. Large plants of the above that have been some time in their pots or tubs, will require much water—more than people commonly imagine. Use tepid liquid manure, according to my preceding remarks. *Stove and Orchidaceous House.*—A slight increase of heat may now be indulged in on sunny days, by shutting up early, after a thorough ventilation. To obtain this, I would keep a rather lively fire from seven in the morning until eleven o'clock, from which time it may decline until the following morning. By taking the air entirely away an hour afterwards, and watering floors, or other evaporate surfaces, (not pipes or flues) a most delightful atmosphere will be created. Proceed with repotting Orchids, taking them exactly in the order in which they bud; be sure that your material is scalded or half charred, to destroy insects. Keep the plants well elevated, and use plenty of charcoal, in lumps of considerable size, fastening the whole at last, so that the plant cannot be loosened by agitation. Sphagnum, or other Moss, pegged on the top, makes a very good finish, and is, I think, to be recommended in houses which are short of atmospheric moisture. Keep Stanhopeas very high under pots are quite unfit for them. Syringe plants on blocks occasionally. Dendrobiums should have a rather dry atmosphere, yet warm, and will require watering at the root. Let the temperature be 60° by night; 65° by day; rising to 70° on sunny afternoons. *Mixed Greenhouse.*—Little advice can be given here at present, make slow advances. Over rapid ones frequently verify the old adage—"the more haste the worse speed." Sow exotic seeds in shallow pans half filled with drainage, on which place a little light loam and sandy heath

soil; let the seeds be pressed rather firmly and merely covered with soil; finally, add a thin coat of Sphagnum, or other Moss, to counteract sudden fluctuations of atmospheric moisture. Examine carefully trellis plants in pots; those which have received considerable rest, and are required to flower in good time, should now be pruned, disrooted (if necessary), and started on a mild bottom heat, if possible. Some of the Passifloras, such as kermesina and Londoni, and such plants as Ipomœa ficifolia, Pergularia odoratissima, &c., &c., will answer well, treated in this way. Stores of hybrid Roses intended for growing in pots, for a late display, may now be potted off singly, using one half unctuous loam, the other half leaf soil and manure, with charcoal dust. If a warm and moist heat can be obtained, introduce some of your best Fuchsias intended for specimens and for propagation. Keep a mild atmosphere in the mixed greenhouse, and beware of too much night heat.

KITCHEN GARDEN FORCING.

Pinery.—The time is now approaching in which a thorough revision of the whole stock is considered necessary, under the old system. See that tan is ready, leaves, or other fermenting material; also turfy, mellow loams. In the mean time, persist in the routine of practice before recommended; keep early fruiters in a lively atmosphere, "stretching a point" in regard to temperature and moisture on bright days; soon in the afternoon, take away all air, and use much moisture. I hope to be able to furnish, frequently, details of the processes necessary under Mr. Hamilton's system, at proper periods; for I have no doubt that as Mr. H.'s principles become generally known, they will be as generally adopted. He says "that to commence his system, two or three suckers should be left on each plant; it seldom, however, occurs that all will make equal progress; when one takes a decided lead it generally matures its fruit without being robbed by the others. When the fruit is cut, however, one of the others will generally take the lead, and this, for the most part, will be the one that takes the most perpendicular direction. In cutting the fruit be careful not to damage the leaves; no one will ever excel who is careless in this point." Here then we see the benefit of a tank system, on which Mr. H. would be desirous to base his plans. *Early Vinery.*—When the early blossoms begin to open, reduce the amount of atmospheric moisture in a considerable degree. Keep lively fires in the morning, with a free circulation of air (not cold draughts), and shut up early in the afternoon with a temperature of 85° if solar heat; if not, be content with 75 degrees at shutting up time, sinking to 65° by the next morning at daylight. *Peach-house.*—Proceed according to the directions in last Calendar; if any hurry is requisite in order to produce fruit at a given period, let the hurry by all means take place during the course of an unclouded atmosphere; more especially by closing the house early; any attempt at rapid progress during night, or a deficiency of light, will inevitably end in disappointment. *Figs.*—Follow up former directions, and steer a somewhat medium course between the Vinery and Peach-house; inclining to the former. *Cherries.*—Imitate in the general course of forcing—if such it must be called—a mild soft day in a genial April. *Frames or Pits.*—See to your frame for early Cucumbers; if the dung is sufficiently worked build the bed forthwith. Place brushwood a foot deep at the bottom, and introduce more about three-parts the way upwards, if you can; it will facilitate the junction of the back and front linings, on which I would direct the chief reliance to be placed. Use well wrought dung for outsides of the bed, and fill up the interior with an older and weaker material, such as half-spent leaves, &c. *Strawberries, Kidney Beans*, &c. &c., as before.

FLOWER-GARDEN AND SHRUBBERIES.

Grass lawns will be now much benefited by a thorough rolling, as also gravel walks. Examine all belts about the suburbs of the kitchen garden, or otherwise; remove deciduous trees where they injure the best Evergreens, and introduce Hollies, or trees of permanent character in blanks. Stake newly-planted trees carefully; the harm done for want of this is immense. Procure Rose stocks, and plant them in lines on highly manured ground, in the kitchen, or reserve garden; the Boursault is understood to be one of the best stocks for early Roses.

KITCHEN GARDEN AND ORCHARD.

As the season has proved so mild, it will be rather difficult to get manure on the ground where necessary; and few things injure soils more for gardening operations than wheeling in wet weather. As soon as the ground is dry, therefore, let this part of the business be forwarded as much as possible for all spring crops. Where dung will have to lay on the surface until March, it should be soiled over immediately, or the drying winds will steal its properties. As soon as the blossom buds can be distinguished of the Apricots, the trees should be pruned, and nailing completed. The eggs of the caterpillar, which so much infests them in the leaf, should be hunted for, and destroyed; they are deposited in circular groups on the branches, of about the size of a Parsnip seed, and look somewhat like it, having the appearance of being pasted on; they are thus readily destroyed: the trees must have protection forthwith. Take care to secure bundles of the main twigs of Apple prunings; give them a tie at each end, and throw them in some dry place; they are very useful through the summer. Get Peaches and Nectarines pruned and nailed as soon as possible; As soon as nailed, soak the trees and wall with soapsuds, and when dry take a bowl of sulphur mixture, viz., sulphur blended with soft soap water, until thick as paint, or nearly so, and draw a stripe with the brush between every two shoots. I have followed this plan for seven years, and the red spider never troubles me. Keep an eye to Gooseberry buds: country folks here tie feathers over the bushes, to keep the birds away. Try to fit up a few warm slopes with hoops and mat coverings, to receive the early Potatoes, &c. Hoe through and clean all Winter Spinach, or other standing crops; put down scrapers where necessary, and top dress alleys or back walks with spare cinder ashes; which make an excellent and dry walk. My plan is to dig first, and then lay on the dressing. If birds attack your Peas, a little Wheat steeped in nux vomica will rid you of them; the process, however, is somewhat dangerous. Spring Broccoli now coming, such as Grange's or Knight's protecting, should be protected. I push a handful of soft hay amongst the leaves. Plant out August sown Onions for early bulbs, the ground being highly manured, and the drills very shallow, about 8 inches apart. Drain walks where necessary; there should be a drain down the middle, with branches into it, having grids at the sides.

COTTAGERS' GARDEN.

The cottager's leisure hours should be occupied in collecting together all ditchings, road scrapings, and other refuse matters to improve his soil; what other folks call rubbish, will be to him a valuable manure, if husbanded aright. He should take care that his dung heap is secure at bottom by means of puddling or otherwise; and an escape drain should be provided at one end (the lowest) with a perfect stopper, so that in the case of abundance of manure water, through rains or otherwise, the cottager could draw off the surplus into a sunken pit (water-proof), and by means of a water barrow apply it to his grain crops, or cow pasture Consult the Kitchen Garden Calendar for information on other matters.

FORESTING.

It is a well known fact that no woody crop pays better than a plantation of Willows, rightly managed, on soils adapted for their cultivation. Almost any swamp will suit them of a sufficient depth of soil, provided the surplus water be carried off, and for this open drains will suffice. The Huntingdon and common Hoop Willow are the best kinds for profit, and may be cut every three or four years. The ditch side of the cottage, in all marshy situations, ought to be lined with them, whilst Birch for besoms is equally valuable on uplands. The soil for Willow grounds should be well trenched, and if shallow or very wet, thrown up in raised beds. Established plants should be dug through at least every ten years, and the young plantation kept particularly clean. Now is a good time for planting them.

State of the Weather near London, for the week ending Jan. 29, 1846, as observed at the Horticultural Garden, Chiswick.

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 23	24	29.22°	29.154	51	42	46.5	S W.	.27
Sat. 24	25	29 444	29 330	52	41	47.0	S.W.	.24
Sun. 25	27	29 329	29 143	56	46	51 0	S.W.	.59
Mon. 26	28	29 242	29 168	55	41	48 0	W.	.08
Tues. 27	●	29 684	29 359	54	40	47 0	S W.	.02
Wed. 28	1	29.684	29 594	56	39	47.5	W	.06
Thurs. 29	2	29 700	29 346	54	37	45.5	S.W.	.23
Average		29 462	29.270	54.1	40.8	47.5		1.49

Jan. 23—Overcast; heavy showers
24—Hazy and mild, fine, partially overcast
25—Rain; overcast; drizzly
26—Partially overcast; showery; fine; very heavy rain at night
27—Clear; cloudy, rain at night
28—Rain; cloudy; very high tide in the Thames; clear.
Mean temperature of the week 9 deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Feb. 7, 1846.

Feb.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 1	42 3	31.0	36.6	5	0.80 in.	3	4	1	2	2	4	1	2
Mon. 2	41.4	30 5	36 9	6	0.76	1	2	2	2	2	4	5	1
Tues. 3	43 2	31.2	37.5	9	0 42	2	2	3	1	1	7	2	2
Wed. 4	43 6	32 0	38.3	10	0.30	2	4	2	—	6	3	3	—
Thur. 5	43.5	30.9	37.2	6	0.39	2	2	2	1	3	3	2	4
Fri. 6	44 7	31.9	38.3	11	0.95	2	1	3	4	3	3	3	1
Sat. 7	46 3	33.6	39.9	11	0.39	1	1	3	—	3	6	4	2

The highest temperature during the above period occurred on the 4th and 5th, 1843—therm. 56°; and the lowest on the 10th, 1839—therm. 10°.

Notices to Correspondents.

BACK NUMBERS OF THE GARDENERS' CHRONICLE.—The Volumes for 1844 and 1845 can be had, bound in cloth, price 1*l.* 10*s.* each. The following Numbers in the respective years can also be had. Any Subscriber who will forward to the publisher post-office stamps equivalent to as many Numbers as are requested, will have them sent free by post.

1841—1, 8, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 34.

1842—4, 6, 8, 11, 12, 16, 18, 23, 24, 25, 30, 31, 32, 34, 35, 42, 50, 51, 52.

1843—10, 11, 12, 13, 14, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 48.

1844—All but Nos. 36, 46, and 50.

1845—All but Nos. 24, 34, and 45.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each copy. An Index has been added to this present edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

ARRACACHA—We are obliged to postpone our remarks on this subject, from want of room.

BOOKS—*T P*—Macintosh's "Flower Gardener." Trap woodlice on a Mushroom-bed by placing a boiled Potato in some dry hay in a flower-pot examining it frequently and killing those collected.‡

BUDDING—*J G*—The American mode of "Shield budding" has been successfully practised in the case of Peaches and Nectarines, as well as other fruit-trees. ‖

CHARCOAL—*A B*—Soft-wooded plants make the best charcoal. Pile the branches neatly in a large heap; cover it over with sods, leaving a hole at the top and another at the bottom; light it at the latter, and when fairly in a blaze stop the two holes, and watch the heap to see that no flames burst through the sides. Sawdust will not form a good plunging material to place over the slate covers of your tank.‡

ESPALIERS—*P T O*—Wooden rails form the cheapest espaliers in the first instance: but cast-iron supports, or uprights, would doubtless prove the best, and cheapest ultimately. At present there will probably be some difficulty in procuring suitable castings for the purpose.‖

GLASS—*An Old Subscriber*—We do not see of what you complain. The glass is offered at 4½*d.* per foot; and it is not to be had cheaper that we know of. Very small sizes are not sold by the importers of foreign glass; it is not worth their while to import them, for anybody's to use them. The English dealers sell them for less than the mere amount of foreign duty.—*J P*—We have said all that we can say upon this subject; buyers are now able to judge for themselves by consulting our advertising columns; and we really must discontinue that interference with tradesmen which nothing but the necessity of the case could have justified.

HYACINTHS—*L B N*—Nothing is better than three wires passed through the sides of the Hyacinth jar, as in Hunt's manufacture, or secured to a hoop on the jar, and by another near their end.

INSECTS—*S F W*—The scales from your Peach-tree are a female Coccus, which should be scraped off before the spring, when the young will hatch, and the trunks may be scrubbed with soft soap, or washed over with lime, soot, and clay, made into the consistency of paint. *R.*

MILITIA—*Subscriber*—We cannot answer legal questions. Consult "Burn's Justice," vol. 3.

MUSHROOMS—*Blight*—The air of your house is most probably too dry. Pouring water on the flue, although it may create moisture for a time, will not maintain it steadily enough. You may, with propriety, cover the flue with a few inches of soil, and by keeping this moist an arid temperature will not occur.‖

NAMES OF PLANTS—*J W G*—2 seems to be Asplenium maderense. 1 is probably A. Filix femina, in a seedling state and growing in a hothouse; but neither is in fructification.——*Clericus*—We regret to say we are unable to recognise your plant in its present state. Housleek is the most cooling leaf which can now be procured.

PAWLOVNIA IMPERIALIS—*R W*—It is perfectly hardy. It requires the same treatment as any common shrub. It must have a very warm summer to prepare its flowers in. As to cultivation you have nothing to do but to plant it; avoid, however, too rich and moist a soil.

PEAR-TREES—Due attention being paid to summer pruning, any kind of Pear may be trained in the dwarf form.‖

POLMAISE—*W C K*—Doubtless your plan will be a great improvement; but it will not be Polmaise. It will probably be found that the old-flued greenhouses may be readily converted into Polmaise houses at very small cost, because the flue tiles will make the drains; but wait a little until more light has been thrown on the subject of the best stoves. The flues will be warm enough to drive off vapour from woollen cloth. We believe it is of little importance whether good coals are left exposed to the air or not; but some inferior kinds fall to powder under such circumstances, and cannot be afterwards used——*A Gardener*—We are quite unable to answer so very vague a question. You should mention the plan, extent, and object of your parterre. Do you mean what Grass seeds should be sown for the lawn? or what? Apply to Austin and Co., New Road, London.

STOVES—An Irish Correspondent speaks in high terms of Nettleton's stove. Can any one inform us in what respect it is better than a good well-managed Arnott?

THE DUDAIM—*W B H*—You had better put your plant into a large pot, deep, and full of peat and loam in equal proportions. In the summer, place it in the full sun, under a south wall; in winter, remove it to a cold pit, or, if you have the convenience, you might give it the warmth of a sunny greenhouse till the beginning of June, then transfer it to a south border, and afterwards winter it in a cold pit. Have you any seed of it left? Your plant is probably right by your description.

TRAINING—*An Amateur Gardener*—Pears and Apples against walls are best trained horizontally. For stone fruits, such as Peaches, Nectarines, Apricots, Cherries, and Plums, the fan mode of training is to be preferred.‖

WAKING APPARATUS—*Tarus*—Take a mould candle which will burn as many hours as you find necessary, pass through it or round it a string at that place down to which it will have burnt at the time you desire to awake; from one end of the string suspend a metal ball, and below it place a metal basin. It is obvious that when the candle has burnt down to the string, the flame will consume it, and consequently the ball will drop into the basin. The noise will waken you if you manage matters skilfully.

MISC—*A Subscriber*—Catch the great dog and chain him up in the parish pound, or summon his master before the nearest magistrate, or shoot him.——*Felix*—The Paper is published on Saturday morning.——*W G*—The Ash-leaved Kidney Potato may be cut in sets without any danger of their failing in consequence, if it be done judiciously.‖——*T E R*—Seeds of Californian annuals will be worth planting after having been kept one or two years——*A B*—Plants are not technically classed by their duration; such arrangements are mere gardeners' contrivances. Properly speaking it is a perennial, no doubt.——*S E N*—Many thanks. Your information is anticipated, as you will have seen, by the courtesy of another correspondent.——*E H*—If we understand your case, it is possible that your disasters arise from—1st, not having made your bank slope at an angle of 45° or less; 2d, no drains having been provided through the bank, so as to allow the water which comes down the hill to pass through and run off. If this is not done no chance exists of making your bank stand. We suspect that the water lodges continually in the angle of the bank and undermines the new work after every storm. You will not succeed in making a perpendicular clay bank stand in such a situation, even though you wattle it. Wattles cannot resist the thrust of wet clay.——*Helen*—By all means take the suckers off your Roses. Tie Oncidium papilio on a piece of branch with rough bark, and keep it in the damp air of an Epiphyte-house; or, if you prefer it, place it upon a turf of peat from which the Grass has been removed.——*A H*—Both the Junipers *appear* to be hardy; but perhaps experience is not yet sufficient to determine that point. Parasites, properly so called, obtain for their food whatever fluid matter there may be in the branches into which they grow. Epiphytes derive their food from rain and air, and the decaying matter in contact with their roots. We are not aware of any plants to which charcoal is deleterious.——*A B*—You will find that there is damaged Tobacco sold at a cheap rate which will answer the purpose of smoking houses equally well with good Tobacco. Evening is the best time for performing the operation. You may syringe the plants with safety next morning; but in this damp weather you had better light a small fire through the day, giving air at the same time for the purpose of drying up the damp. The smoke will not injure Camellias. You may graft your young Orange stocks as soon as they have attained the size of a good thick goose-quill; graft in spring, or, perhaps better, wait till next autumn. The plants should not be kept *quite* dry in winter, though rather on the dry side; an airy greenhouse is sufficiently warm for them.‡——*Amateur*—Graft your Indian Azaleas on the old phœnicea, which forms an excellent stock for them. The operation should be performed in autumn, but it may also be done with success in spring, say next month.‡

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

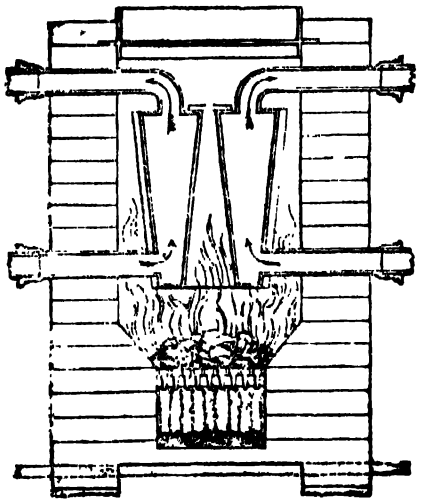
HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and price at 130, Fleet-street.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank System to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HEATING BY WARM WATER.—An improved method of HEATING, by the CIRCULATION OF HOT WATER, may be seen in operation daily, at J. L. BENHAM & Son's Stove Grate Manufactory, 19, Wigmore-street, Cavendish-square. Estimates given for warming Churches, and other Public or Private Buildings, in town or country. A great variety of Warm Air Stoves of every description, from 15s. to 20l.—19, Wigmore-street, Cavendish-square.

GUANO, PERUVIAN AND AFRICAN, warranted Genuine to Analysis: also Gypsum, and all other Manures of known value, on sale by MARK FOTHERGILL, 40, Upper Thames-street.

BRITISH GUANO, equal in quality to Peruvian, at 9l. per ton. Pamphlets gratis on 6 Stamps being forwarded, being amount charged for postage. Agent for DINGLE'S HAND SEED DIBBLE.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
47, Lime-street, Jan. 31

JOURNAL OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, Vol. VI, Part 2.—ERRATUM (in a few of the earlier copies), p. 326, line 18, for "2s." read "22s."

POLMAISE HEATING.

MESSRS. G. & J. HADEN beg to inform the Readers of the *Gardeners' Chronicle* that the apparatus at POLMAISE was erected by them. Also, that they are prepared to give plans and estimates to any gentleman requiring similar apparatus.—Trowbridge, Jan. 31.

THE GRATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. PURSER, Secretary.
LIEBIG'S WHEAT MANURE now ready for delivery.

The Agricultural Gazette.

SATURDAY, JANUARY 31, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Feb. 4 { Agricultural Society of England. / Highland and Agricultural Society.
THURSDAY, — 5—Agricultural Imp. Soc. of Ireland.
THURSDAY, — 12—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.
Bath—Devon—Galston—Gondhurst—Northumberland.

FARMERS' CLUBS.

Feb. 2—London—Darlington—St. Colmb—Stowponey Newark Market hill—Banchory
— 3—Waterford—Jedburgh—St. Quivox—Abergavenny
— 5—Hawick—Blofield and Walsham—Richmondshire
— 6—Wrexham—Hadleigh—Wakefield—Claydon—St. Austell—Litchfield
— 7—Hartford—Collumpton—Cardiff—Carlton-on-Trent—Durham—Melrose—Northampton Book Club
— 9—Hereford—Great Oakley
Feb. 9—Wenlock—Wickham Market—Cirencester—Yoxford—Exminster—Selby
— 10—Framlingham—Rochford Hundred—St. Peter's—Wotton Basset
— 11—Braintree and Booking—Harleston
— 12—Grove Ferry
— 13—Tavistock—St. Germains—Chelmsford—Halesworth—Wadebridge
— 14—Probus—Swansea—Winchcomb

"AGRICULTURE IS DEPENDANT UPON CIRCUMSTANCES." Nothing can be truer. Everybody knows that farming is a system of expediency from one end of it to the other. An acquaintance with the rationale, with the *principles* of the art, will not of itself ensure the success of the farmer. He must, besides this, possess the tact dexterously to develop these principles in accordance with *circumstances*. And this is only to be acquired by experience. The questions, How? When? Where? How much? How often? To what extent? are perpetually recurring; and *unassisted* experience is often the only guide to correct answers; experience, united with a knowledge of the theory proper to the occasion, is sometimes required: the latter is rarely indeed sufficient by itself.

Agriculture is undoubtedly dependant upon circumstances. But can we admit this as an apology for bad farming? The plea would, doubtless, suffice were these circumstances incapable of alteration or control. But is this the case? What are they? There is, 1st, the price of farm-produce; certainly an important consideration, and one which is beyond the control of the individual farmer; but it is one, nevertheless, to which we cannot attribute so conclusive an influence upon cultivation as some do, so long as *under the same set of prices* we see a Norfolk, a Lincolnshire, an East Lothian farm, managed well, and other districts in England and Scotland, whose agriculture is so far below theirs on the scale of excellence. To what must we attribute differences so great? To prices? No; for they are the same to all.

And, 2dly, there is the powerful influence of climate. It varies to a very considerable extent in this country, and may thus justify a departure in one district from what, in another, may be considered the essential maxims of good cultivation. But will climate alone account for the differences we have alluded to? To what particular item in the account of our climate must they be attributed? To differences of temperature? No; for the northern half of our island has had the reputation of being the better cultivated of the two. Are they, then, attributable to differences in the quantity of rain which falls? No; for we can select farms, under the watery skies of Lancashire, as perfect patterns of profitable cultivation as are to be found under the dry climate of Norfolk. It must be admitted, however, that the influence exerted on our agriculture by the quantity of rain which falls is very considerable; but as it is almost entirely dependent on the texture of the soil which receives it, this is a "circumstance" which may be considered as under our control. Drain the so called *wet* lands—those lands over which a baneful influence is thus exerted—and excessive rains will no longer injure them.*

Thirdly—The nature of the soil is an important circumstance influencing its cultivation. There can be no doubt of it; but if it be clayey, drainage, subsoil ploughing, and good farming will open it; if too light, apply clay or marl, and you make it firmer; if shallow, upon clay or sand, you may with safety *gradually* deepen it; so that with the one exception of a shallow soil resting on rock, *this* "circumstance" is capable of control. We are well aware that alterations which can be accomplished only by an unprofitable expenditure are of no value to the farmer; but who will doubt the profitableness of drainage or of deep culture?

Fourthly:—We now come to the circumstances upon which, in our opinion, the differences in our agriculture do depend. And these mainly arise out of the intelligence and capital of the farmer, and out of the relationship which obtains between him and his landlord. Prices may have been "ruinous,"* climate may have been wretched, soil may have been untowardly; but a lease-giving landlord never yet had his estates badly farmed by an intelligent tenantry. Security for the tenant's capital here, its absence there—an educated, we mean professionally educated man, as farmer in the one case, and a clodhopper in the other—and let the differences of climate and soil be what they may, *they* are not the causes to which we must attribute the good cultivation or the bad. When security shall be generally offered by landlords, and when good farmers shall occupy the land, there will be no want of capital to invest in its cultivation. There is plenty of that in this country looking about for an investment, and the experience of a few years under *these* "circumstances" will assure the capitalist that the farmer is the best of all partners. We do believe that simple security of tenure, when it shall have acted for a sufficient length of time, will be found the true specific for agricultural distress; and that when it shall be generally accepted by an educated and intelligent body of farmers, we shall witness a healthful flow of agricultural prosperity, such as has been hitherto unknown. We shall then see our agriculture fostered by favourable "circumstances."

FEW things are more disappointing to a mind that is in earnest, than the discovery that in the endeavour to convey its meaning it has used words which the hearer or reader did not understand. The vain man or the pedant may find a certain pleasure in the use of long words when short and simpler ones would have answered the purpose much better; but there are few hearers, however unlearned, who cannot soon fathom this weakness, and, imperceptibly to themselves, their estimate of the speaker, and respect for his opinions, become duly proportioned to the quality of mind displayed by one who forgets, or is ignorant, that the use of words is to convey, not to confuse, meaning, and to enlighten, not to stupify, the hearer.

We are led to this reflection by the difficulty which has been experienced, and the errors which have been made in the attempts, of late years, to discuss, in sufficiently simple and intelligible language, the SCIENCES WHICH BEAR UPON AGRICULTURE. We live in a country which, of all others upon the face of the globe, presents the most glaring contrasts in the matter of education. We have become notorious over the continent of Europe for the shameful gulf that separates the educated and the uneducated classes. It is true that every day which passes is diminishing the evil, and scratching out the national blot; but the extent to which it still exists in the agricultural districts, wherever the grunt of the locomotive, and the insinuating economy of the penny post, are still in their noviciate, is sufficient to occasion the greatest hindrance to improvement, exactly where improvement is most required. Charity-schools have long tended to diminish this inequality, because they have brought into the most blessed contact the best and the best educated daughters of the rich with the children of the poor. But where are the corresponding establishments for those who lie between the two extremes? Where are the schools for *the children of the farmer?* The pernicious temptation to use them as labourers on the farm, binds down their bodies to the plough-stilts at a time of life when their minds ought to be the more long-sighted object of parental solicitude in fitting them at some suitable school, or well chosen apprenticeship, for whatever sphere of life their genius (and every child has genius of some sort) may indicate; and the neglect of this better economy fills the agricultural districts with grown up children, ready to apply for and honestly assert their qualification to undertake the management of a farm, though removed either by education or capital only a few degrees above their own labourers. It is not their fault. The fault lies in the generations that preceded them; for to lay the fault upon their parents is only to assert that those parents should themselves

* For information on the subject of "ruinous prices," we must refer our readers to the evidence given before Parliamentary Committees.

have been brought up to know better, and this dates the mischief farther back.

Were any one to undertake the management of a cotton *mill* or an iron foundry without adequate funds for the support of the establishment, and the endurance of periods of depressed prices, his ruin, except in a few exceptional cases of rare talent or energy, would be a matter of certain prediction; yet how sadly numerous are the instances in farming where the very payment of the Michaelmas rent has to be made up out of the newly reaped crop, sold as soon as harvested at the depressed prices of a glutted market, and where every operation of the year is performed at the wrong season, for want of the requisite hands to take time by the forelock; thus visiting every disadvantage of price and season upon those who are least able to bear them.

It is idle to prate to a man about super-ordinary improvements, who, for want of funds, is struggling behind in the mere routine operations of the season; or to confuse by the reiteration of scientific terms a mind that has never learnt how to learn. Like the hunted ostrich that buries its head in the sand, and thinks the dogs cannot see it because it cannot see them, the untaught mind is blinked from the acquisition of progressive knowledge by the inherent want of early cultivation of its faculties; and the admirable essays and records of experiments now published in the agricultural works of the day, are least understood by those who most require to be informed of them. Something more simple and elementary than the language of a learned professor is surely required to bring up the rear, composed of so many who, most needing the instruction, have not yet caught the meaning of the terms in which it is presented to them; it is to the supply of this deficiency that we are most anxious to address ourselves.

In directing attention, therefore, to the sciences which bear upon agriculture, the object which was held in view (in the very imperfect enumeration of them into which we were recently led) will be sadly misconstrued by any one who should conceive that it was done with the purpose of exhibiting, much less of exaggerating, the difficulty which their long names seem at first sight to proclaim.

In all arts there are technical terms, which present a formidable barrier to the uninitiated; but every hill seems more insurmountable at a distance; and the traveller in agricultural science, if he be really in earnest, will find, on approaching resolutely these ugly-looking words of many syllables, that after all they are mere conventionalities of language; and that, if he be a really practical cultivator of his land and of his mind, Nature has already taught him much more about them than he was aware of; and that, however ignorant he may have been of the name, he was far from ignorant of the subject. The story of the old man who was startled on hearing that he had been "talking prose" all his life, is precisely in analogy with the surprise manifested of late years by those who heard, for the first time, that chemistry, geology, and vegetable physiology, were in an especial degree matters appertaining to the farmer. But the farmer is not to suppose that he stands alone in this formidable relation to the sciences. There is not a trade that is followed, or an art that is practised, that does not depend upon some one or more of these mysterious-sounding names. The dyer is beholden to chemistry for the knowledge which enables him to mix his colours without confusing their effect or neutralising their virtues, and to fix those colours permanently in the cloth. The tanner acts upon chemical principles in the operation of leather. The cotton-spinner, the watchmaker, the wheelwright, must all understand the principles of mechanics, in the adjustment of matter to the laws of motion. The miner and the well-sinker must obey the laws of geological structure. The gardener and the planter will fail in every attempt that is made in defiance of the truths of vegetable physiology and botany. The jeweller and the lapidary will make the grossest blunders, if entirely ignorant of the facts involved in the science of mineralogy. The pump-maker must consult the natural properties of fluids as revealed in hydraulics and hydrostatics. But *all* these sciences, and many more, belong to the farmer. He deals with mother Nature on a wider scale than all the rest of mankind; and his experiments last the whole year round, and for many years together; and every law of Nature that he transgresses in the least degree, revenges itself upon his pocket; and it is as true physically as it is morally, that, in keeping of them, there is great reward. But it is by practice that science is most effectually taught. It was from practice that the knowledge of the laws of Nature was originally derived; and following this natural course ourselves, we must endeavour to elucidate gradually the principles of agricultural science, by "taking it as it comes" (a little at a time), in the regular operations of the farm. We will begin, then, with the beginning of all good farming, in our wet climate—THE PRINCIPLES OF DRAINING. This will form the subject of a future article.—*C. W. H.*

WHY NOT OURSELVES GROW THAT WHICH WE MANUFACTURE?

I HAVE frequently noticed articles in your Paper from anonymous writers, who no doubt wish as far as possible to promote the happiness of the working classes, by some permanent, because self-acting means, rather than fall back upon the only remedy in law, which involves the separation of families in a union workhouse. I have considered that the annexed paragraph (which I cut out of the *Leeds Mercury* the other week), might be worthy of their attention; and as 1 A. 3 R. 16 P. of land, Irish measure, has been made to produce what gave "constant employment to 217 persons for 12 months," at wages amounting to 2217*l.* 6*s.* 8*d.*, I must request those gentlemen who pride themselves in allowing their rich green valleys to remain scores of years unploughed, and who take delight in "bringing to perfection," at a heavy expense, the unfortunate animals that are annually exhibited at our Smithfield shows. I would ask them to inquire whether they by their practice, or the grower of this Flax-field, do most good for the country, and for the working population. I beg of them to go into a minute calculation of the expenses of feeding to perfection one of those animals. Will the produce of three statute acres do it? Then compare the real value of the animal with the 30*l.* prize and all added, with the result of this Flax-field, and above all, look at the employment it afforded to the working population where it was grown. I do not wish to offer a remark in deprecation of what gentlemen take an innocent pleasure in; but as, in my opinion, prizes should be offered to farmers to produce and bring to perfection what would be most profitable to themselves and the country, if lesser sums should be offered for what is more eye-sweet or fanciful. I am obliged to compare Flax-culture and cattle-feeding, because the one has been overlooked, and the other appears to be the leading subject of prize-lists and competition. I have said so much for the last 12 months on the profits that farmers may derive from Flax-culture, that I shall now call their attention to the results, when the article is manufactured, and the good feeling it is calculated to create between the agricultural and the manufacturing classes of the community. I beg attention to the following:—

"CAMBRICS.—We copy from the *Belfast News Letter* the following paragraph respecting this article of manufacture, which will be interesting to all who wish for the industrial prosperity of Ireland. Our contemporary says:—An improved fabric, made from the best qualities of home-grown Flax, denominated 'the Golden Flax,' has gained the first prizes, both for cambric and cambric handkerchiefs, at the present November meeting of the 'the Flax Improvement Society of Ireland.' We notice this in connection with the following summary of facts, detailed in the valuable work by Dr. Kane, on 'the Industrial Resources of Ireland,' which fully goes to prove the vast importance of this branch of our industry. We find it therein stated, that near to Warringstown, three statute acres of land produced no less a quantity than 100 stones of Flax, value 75*l.*; the produce of this field was sold to an eminent factory in the neighbourhood (the very same that has turned out the present prize webs), for 15*s.* per stone. This Flax in the process of conversion into cambric pocket handkerchiefs, will give constant employment for 12 months to about 217 persons, whose wages amount to 2217*l.* 6*s.* 8*d.* Adding 75*l.* for the Flax, you arrive at a value of 2292*l.* 6*s.* 8*d.*, the elements of which sprung from about 1 A. 3 R. 16 P. of land, Irish measure, and the entire when finished, will yield a very remunerating profit to the manufacturer."

Now, with proof such as this, before the eyes of landowners, that 3 statute acres can be made to pay and employ 217 people for a year, I do think it should arouse a feeling of desire for experiments in this country. If the operatives in one part of the three kingdoms are so alive to to their interests, in the production of this article, why have we not more of it? We make glad the hearts of the French and Belgians, and care nought for the many aching hearts at home. Not only does the demand for fine continental Flax increase, but the prices continue to advance, so that now fine Irish Flax commands a market at enormous prices; in proof of which I shall here relate as I had it the other week from a gentleman in Manchester engaged in Flax spinning:—He told me that 180 stone of fine Flax had been bought in Derry, at 15*s.* per stone, and brought to Tanderagee, and then sold at 20*s.* per stone; and from that to Belfast, and sold again to a firm in Lisburn at 21*s.* 6*d.* per stone. As this is not a solitary instance, I think proper to notice it, because in my opinion there is not only an advantage in Flax growing, over all other crops, that the land will produce if attended to with skill, but the grower has ten times a better chance of gaining a prize than he whose whole time and capital is employed in what is termed "bringing animals to perfection." The Flax grower who knows his business can tell, as he watches the progress of his crop, the extra profit he will have over the same breadth of land sown in Wheat, and this is a certain prize; whilst the cattle feeder must take his chance, depending on the caprice or whim of the appointed judge, who may hand the 30*l.* prize to his next-door neighbour, which he calculated on obtaining, in order to balance the extra expense of extra care and feeding.

In Flax culture there is a wide field for the skilful farmer to employ his capital, time, and extra attention; and he must see that when we grow what we can manufacture, that the operatives are thereby better able to be the consumers of his corn and cattle, and the money only changes hands, and is not transported to another kingdom. I do hope that the above statement may have the effect of drawing attention to what must (as the above proves) be for the real benefit of the agricultural interest.

If cotton could be produced in Lancashire, could it be supposed that landowners and farmers would be so blind to their own interest as not to keep in the country the millions that the Americans draw annually from Manchester. I cannot believe so; for the spinners of cotton themselves would become farmers, sooner than overlook such advantages. Holding these opinions, I cannot but view the position of landowners and farmers and Flax-spinners in the same light; for the latter are at present sending their millions annually to foreign farmers, that English landowners should, by every means, try and keep in this country.—*J. H. Dickson*, 6, *De Beauvoir-square, London, Jan.* 18.

BRIEF NOTICES ON AGRICULTURAL SUBJECTS.

The Vitality of the Seeds of Couch-grass.—Where Couch has been common, depend upon it that clean and fallow land as you may, it will have plenty of the seed still remaining in it to originate a new crop; and the same may be said of Charlock; so that, in cleaning land, we only destroy the present existing weeds, but do not totally stop the originating cause. But from some weeds we have nothing to fear from their seeds, as the Corn-bine or Hop-bine or Bine-weed, which three names I take to mean one thing; and also the Colts-foot weed; and as for the common Thistle that propagates itself by sending out runners from its roots; though in appearance its seeds ripen, I should like to see the person that can raise a bed of plants from its seeds. The only method to destroy these three last kinds of weeds is by cutting them off a little within the ground every time they have grown a few inches high, which may take three or four years time to finish them by thus bleeding them to death; and in a rainy season they will require cutting off about once a month; but for your encouragement in this exterminating pursuit let me tell you, that you will have fewer in number to cut off every time the cutting is repeated, until there be none, and when it is once done, it appears to be a permanent annihilation, as I have proved with the Thistle in two places on Grass-plots 10 years since, and not one Thistle has ever put up its head in those places since; and as to the Corn-bine, a gardener (a neighbour of mine) has thus pursued it, and cut and bled it to death with the hoe. Before he began thus (it was on rich land) it had regularly aimed at smothering over a large number of standard Gooseberry-trees. The Coltsfoot I have never thoroughly pursued to death, but I have lessened and weakened it by repeated ploughings, and I have no doubt but annihilation would be the ultimate result of this practice. I dare assert that no person knows the origin of the three plants, or pests, above mentioned. A few years ago I had a ploughed field which appeared covered all over with Coltsfoot, where none had been before; it first came up in the middle of summer while the field was under fallow, the field lying dormant for about five or six weeks in a very rainy time; this same field was of a clay subsoil, and has been now under cultivation for 30 years only, and never before, that I know of, since Noah's flood.

The Editor says (at p. 426, 1845) that we must loosen the soil on the stubbles after the Charlock or Kodlock has shed its seeds among the previous crop; and do it immediately after harvest, to grow the seed into plants for the slaughter. I wish we could induce them thus to grow; but with this accommodation at this time of the year (with us), none of them will grow; they have too much native "instinct" to be thus cheated and raised up to face a winter. [They have no such foresight on our sandy soils.]

To deepen the Soil.—An easy way to deepen the soil upon most arable lands, is by reversing the ridges, in those cases where the land has been ridged up from 6 to 12 yards wide, and between 2 and 3 feet high for ages, with the subsoil buried undisturbed; now, if the occupier of these lands can make his mind submit while he ploughs the ridges several times downwards, or even until he has made that part the highest that was the lowest, he will find that in afterwards returning the ridges to near their former position, he will have something like an average depth of soil of 12 inches thickness: but in doing this it will be the safest and best to do it gradually, more and more in a course of years (say 10 or 15 years); this method can be adopted without that extreme addition of power required for subsoil operations.

Lice.—These, on either animals or vegetables, are produced from within the animal or plant [This is, we know, a very common, but—a "Leicestershire Farmer" must forgive us for adding—*mistaken* notion.], and not transmitted to them from some other extraneous origin or parent; poverty and sickness is the general state of the animal or plant when they appear (though there are some exceptions where they are found in abundance on fine prosperous animals).

Draining.—When meadows that are constantly mown for hay require draining, this business requires much precaution and care, as they may be over drained or

drained too dry; mowing meadows had much better be rather too wet than too dry; the method to pursue in draining these meadows is to lay one drain into the centre of the meadow, and then stay and observe how far and how much this has effect, before laying any more drains in; and this may take two or three years to prove it. [Here we certainly differ with our correspondent. It has been proved over and over again that *where there is depth enough of soil*, it is impossible to drain too dry.]

Draining Tiles.—In using the open tile, some have found on nearly dead levels, where the water nearly stagnates in the drain, that it is best to lay the tile with its back downwards, and then cover it over with slates or soles.

Wheat-shedding.—Mr. Editor is in the wrong on this subject; will he be willing to be corrected? At p. 613, 1845, in the middle column, he says, "After a rainy season, such as the present has been, the danger of 'shedding' is greater than common;" now the contrary of his words is how the fact stands; and never did I see corn shed less than in the harvest of 1845, and it always has stood thus.

Killing Lice on Cattle.—Whale oil used alone will kill them.—*A Leicestershire Farmer.* (*No.* 1.)

Home Correspondence.

Agricultural Improvement, near Cork.—In passing through this county, a stranger must be at once struck by a uniform neglect of the advantages offered by Nature for the improvement of the soil. Bogs are to be seen on all sides, and, generally speaking, there is every convenience for draining; labour cheap, stones for filling drains plentiful, lime may be had in almost all parts of the county, and with these advantages, coupled with industry, the heaviest crops might be grown on thousands upon thousands of acres, which now would scarcely feed a flock of geese. The land which has been tilled might be made to produce three times as much as it does—as much by proper ploughing as anything else. There are certainly exceptions to this; but wherever land is really well managed, in 19 cases out of 20 it is done by some gentleman-farmer, where appearance is as much his object as profit. The want of any kind of improvement which I allude to is principally among the farmers holding under 30 acres; and so far as my limited experience goes, they are one of the evils under which this country is suffering. Nearly all the men of this class have no leases, and do not know when they may be turned out; and their object always is to keep as little as possible on the land, that the landlord or agent could lay hold of, and having the condition of the land always at low-water mark; so that if turned out, no person would offer a higher rent than they were paying for it. I said the generality of small farmers were an evil, and the principal cause of it is this: when one of them gets a few pounds together, he does not whitewash his cabin, or build a house for his cow or pigs, or try to cultivate any waste land he may have; but he turns on the class a degree lower than himself in wretchedness, and traffics in Potatoes, meal, and pigs; and when provisions are scarce in the country during the summer, he sells to the poor labourer a barrel of Potatoes, or a small pig, for 150 per cent. over the market price, on the consideration of his giving six months' credit. I know this to be a very common practice. The landlords as a class are bad; their agents worse; but the man who causes the most dreadful misery among the lower orders in Ireland is the petty usurer. If a man of this class has a neighbour who cannot buy Oats to sow into his plot of land, the usurer sells it to him for more than double what it would cost in the market, for delaying the payment till harvest. This state of things is very bad, but something must be in a degree the cause of it, and I believe the way land is let in this country is one cause. Land is generally let by proposal, and there is such competition that whoever gets the land is certain to have to pay much over the honest value according to the mode of agriculture adopted at present; however, the rent he promises to pay he must pay, and the only way he can do so is by turning on those below himself. The landlords (most of them absentees), living fully up to their rent-rolls, press their agents, and the agents, in their own defence, must exact every penny from the small farmer. There is another great evil in the letting small farms, such as the class I allude to, viz, the want of proper houses or offices for the farmer to manufacture the produce of his land to the best advantage. An Irishman, taking a farm of 20 to 40 acres, is quite content if he has a cabin on it; such things as a barn, cow-house, cart-house, &c., are never expected. The small farmer has to thrash his corn in the open air, and both quantity and quality are thereby reduced; his pigs are the only animals that come off well, as they always live in the house with himself. If through your agency a spirit of improvement could be aroused, and a profitable system of agriculture adopted, and the landlords made to do the part Providence has assigned to them, employment would be given, the quantity of food increased, and plenty and prosperity would hold the places which misery and want now possess. The resources of this country are immense; but a land blessed by Nature in every way, is in every way neglected by man, and where you might expect (with all its advantages) to see plenty and comfort, you can find nothing but the very reverse. That Ireland possesses great advantages there is no doubt, but how to improve her present condition is another question. "Property has its duties as well as its rights;" and it would be well for this country if a sermon on that text were preached occasionally to most of the owners of her soil; and were they to come forward, and with a liberal hand perform their part, Ireland would soon be, as O'Connell says (and without his aid)—

"First flower of the earth, and first gem of the sea."

—*W. R. J.*

A Plague upon the Allotment System.—A plague upon this cottage system, as you call it; I do not like it by half, after a two years experience. This standing out at work for 12 hours every day, or in winter from light till dark, and then farming and gardening at my leisure hours; leisure hours, indeed! why I have never a moment's leisure. It is true, I can occasionally beg one of my master's leisure hours, who is very good in that respect; but I am so often tempted, or compelled to steal half an hour, or a whole hour into the bargain, I hate myself; I never before was either a beggar or a stealer, therefore my pride is wounded, and my conscience is wounded so deeply, that I fear both of them will bleed to death; and how shall I ever hold up my head after the loss of the two greatest friends that ever man had; they had been my right and left hand supporters ever since I can remember. Another thing which grieves me exceedingly is, that I am compelled to take most scandalous liberties with the Sabbath day: my ox or my ass may not have fallen into a ditch, but my two cows may have got over hedge and ditch into a farmer's pasture, and the visit is returned by his 12 cows into my aftermath; sometimes I find in a morning his six horses in my little field, where they have been feasting all night. Why don't I make good my fences, you will say? Why don't you mend your fences, says the farmer? Oh! and sure look at my scratched face and hands, was I not mending my fences till nearly midnight all last moon? Then, sir, my wife is far more plagued and harassed than I am: what with milking the cows every night and every morning, Sundays as well as Saturdays, serving the pigs and poultry, cleaning out their sties or lodging houses, and working in the garden at her leisure hours. She is wet nurse, dry nurse, nurse maid, housemaid, housekeeper, cook, dairy maid, with all the other extras that a slave can be doomed to; then there is such a continual borrowing and lending with my neighbouring cottagers; it bothers me exceedingly, as every one wants, or seems to want, the same things that I want at the very same time, particularly in haymaking time; here my hay is all spoilt, every thing goes wrong, everything goes wrong.—*An Old Servant, but Young Cottager.* [Is the writer of the above really "An Old Servant, but Young Cottager"? We doubt it.]

Glass Milk Pans.—If the correspondents of the *Agricultural Gazette* will read my observations in the *Gazette* of the 3d January, relative to milk pans, they will see I solicited the powerful aid of the editor in advancing the introduction of glass into the dairy in lieu of lead. The remitted excise duty on glass had given me great hopes that the glass manufacturer would turn his attention to the wants of the dairyman. I am glad to see that my remarks have elicited an inquiry into the matter, and hope dairymen resident within reach of a glass manufactory will awake the energies of the manufacturer to the construction of an utensil so useful. Other avocations deter me from paying that attention to the dairy which its importance demands; but though its theory is too abstruse to be lightly treated upon, some of the readers of the *Agricultural Gazette* may possibly not deem it obtrusive to offer them a hint whereby they may easily ascertain the quality of the milk of their cows, before they condemn them as unprofitable, because the quantity yielded does not come up to the character of "good milkers." Provide a number of half-pint white glass phials, corresponding with the number of cows in dairy: label and number them consecutively 1, 2, 3, &c., and the cows to correspond. Fill each phial with the first milk of the cow bearing the same number; note down the quantity of milk each cow gives. After the milk has stood in the phials about 12 hours, the eye can easily discriminate the amount of cream that each produces, which mark down by sixteenths of inches. Pursue the same plan at the next milking about the middle of the time of milking, and again a third time at the latter end of milking. The quality may easily be ascertained thus. —*Glan Hafren.*——My attention having been drawn to an enquiry in the *Gardeners' Chronicle* on this subject, I beg to inform you that they were imported about two years since, and were of Bohemian manufacture. Their cost, including freight, &c., was under 5*s.* per pan, the duty being then 42*s.* per cwt., each pan weighed upon an average 6 lbs. The merchant who imported them, has lately transferred to myself and partner a portion of his interest in the Belgian glass trade (see Advertisement). I wrote to a gentleman in Suffolk, who had 2 doz. of them; and I forward you an extract from his reply: "The green glass milk pans are in constant use in my dairy, and are very nice cleanly things. My dairymaid thinks if they were a little larger (not deeper) it would be better, but in my opinion that is questionable, the idea of breakage has not been at present realised, not one at present having been disabled for use, viz., two years." The gentleman in question has not mentioned the size of those he had, but I have given instructions to have them made about 24 inches in diameter by 4½ deep. I forwarded a pattern of the most approved form to the manufacturer, and proper care will be taken in annealing the glass, so as to admit of their being scalded in frosty weather.—*William Edwards*, 15, *Southampton-street, Strand.*

White Mustard.—Having a very good opinion of the plant as food for sheep, I send you my experience of it last year, that you may compare it with the testimony of others. The red Clover sown in 1844, having failed very much on my farm in a field of 22 acres, I was induced to give the White Mustard a trial, in order to prepare the ground for Wheat, as my attention had been much directed to it by various periodical publications. Throughout the spring and summer of 1845, I therefore sowed a succession of crops of the White Mustard in this field. I extract the details from my note-book, and they will, I hope, sufficiently answer the questions propounded in your Paper of Jan. 10. On May 5, I ploughed and sowed broadcast about 12 lbs. of seed to an acre, harrowing it in with the lightest possible set of harrows. The seeds made their appearance above-ground on May 12. The plants afterwards grew rapidly, and were ready for folding sheep upon them, June 15; at this time the plants were much in flower, and about 4 feet in height. The ground was not manured, but was, on the contrary, rather poor—the soil gravelly. The rest of the field was sown in a similar manner, but that part which was sown in May, after being fed off with sheep, was sown again with the same seed early in July, and produced a very heavy crop in September, which was again folded with sheep, so leaving the ground in good order for the Wheat which followed in October. I may add that the Wheat plants after the White Mustard are some of the most promising I have this year upon the farm. My sheep thrived so well upon the White Mustard, running by day in some bare pasture, and folded on a fresh piece every night, that I intend to set apart a few acres for the plant again this year. Any further particulars are at your service.—*E. Spencer Trower, Walton-house, near Ware, Herts.*

Garden Farm.—We have a large garden about 3¼ acres of strong clay, well stocked with fruit-trees. We have divided it into seven divisions for cultivating. The produce is intended mostly for horses, cows, and pigs to consume under cover; perhaps you will consider the following rotation, and point out any improvement you see. The trees are so disposed in rows, that the plough will be used except in the 1st, 4th, or 5th years of the course; for the price of labour in this part is so high—15*s.* a week the least wages—that the produce of the above garden does not clear its cost when done by the spade altogether.

Division 1	*Summer.*	*Winter.*
1st year	Early Cabbages, off in July or August	Prepared by the plough for winter Tares.
2nd year	Tares cut green	Swede, white or yellow Turnip
3rd year	Barley and Clover	Wheat or Oats do not answer, because of the birds.
4th year	Clover cut green.....	Winter trench with spade.
5th year	Carrots, Parsnips, Onions	
6th year	Early Peas sown wide ..	Scotch Cabbage between the rows
7th year	Early Potatoes spring planted.	Transplant Swede Turnips from beds sown last month

Thus you will perceive that the same plot having had the above, several crops may be recommenced with early Cabbage, &c, in 1852.—*G. B. S.* [The rotation appears to be a very good one.]

The Food of the Labourers.—The attention of the friends of the poor has been very feelingly directed to various cheap substitutes for their ordinary food, and certainly some suggestions have occasioned much ridicule. Such suggestions seem to prove how difficult it is for those who live in a far different atmosphere to prescribe practical remedies for the daily wants of their poorer brethren. It would be a great happiness to the labourer if the manufacture of his food could be made as profitable as that of his clothing—if he could purchase cheap manufactured nourishing food as easily as cheap manufactured cotton goods. We should then see mills rising for manufacturing and cooking food, and machinery called into action by the capitalist, the employment of which would be of the greatest benefit. My attention has often been directed to this subject, and in a vision of the night, I was visiting one of these manufactories. Around it were cattle stalls, whose contents were fatting for the slaughterhouse. In its interior a steam engine gave motion to the necessary machinery, and supplied the steam by which all sorts of meats were being steamed. This was the first step in the process; the others consisted in the separation of the meat from the bones, in mashing the former, and amalgamating it with vegetables of all descriptions, with Beans, Peas, Barley-meal, and Rice, properly prepared with salt and pepper, &c. The goods thus prepared were packed in air-tight vessels, and were then ready for sale. This was my vision, and I imagined how great would be the benefit to a hard-working labourer to go to a shop and buy a pound of this mixture, over which a certain quantity of boiling water being poured, it would afford a most nourishing meal for himself and family. I certainly have not much faith in dreams, but I think you will agree with me, that if the preparation of wholesome and nourishing food could be thus manufactured at a cheap rate, and become a profitable employment for capital, it would be of the greatest possible advantage to the hard-working industrious labourer.—*C. L.*

Management of Poultry.—In your list of subjects for discussion by Farmers' Clubs, it may perhaps appear somewhat extraordinary that I should pass over so many of importance to agriculture, and fix upon one almost the last, but, in my opinion, not the least, viz., that of poultry. The agriculturist ought to use his

utmost exertions to provide, as far as he possibly can, the manures which can be made on his own farm, and not to trust to those which are to be purchased, when 9 times out of 10 he may be deceived. I have liquid manure-tanks with sloping banks for saturated chaff for Grass-land, liquid manure carts, spouts for conveying the liquid back to the yard when moisture is required, and various other requisites for the benefit of the farmer. But, in my opinion, I have had one great deficiency until the present time. I have heard much of the benefits arising from the use of guano; I have also seen that benefit, and I am led to consider that a manure, almost, if not quite equal, to that of guano, may be provided at home, with little expence, and with the assurance that when we put in our seed, we are trusting to our own honesty, and not to that of others. I am led to confess that I am no chemist; therefore, I must, in this instance, expose my ignorance by stating that I am trusting, as many do, too much to supposition. The guano, we all know, is the dung of birds; we know the pigeon dung has admirable fertilising properties, and the fowl feeds on almost the same food as the pigeon. I am therefore led to consider that immense benefit may be conferred upon a farm by the use of the dung of fowls. We shall increase the industrious and deserving farmers' wives' fund of amusement and profit, and confer a greater benefit upon one farm, by increasing the quantity of fowls, and providing proper accommodation, and by these means collecting the dung, which hitherto has been wasted by being dropped upon the carts and implements in sheds, or the ground. My poultry-house is one of such construction as not only to provide comfort in roosting, but for laying and setting; there is a slide to every division, which is taken from the back and put to the front, to cut off the access of other hens which disturb them during incubation, dissappointing the owner by a very limited supply of chickens. I have books to refer to, and have seen an analysis of the dung of fowls; but am anxious to know the difference, if mixed with salt, to that of guano. Perhaps if this should meet the eye of a man of science, he will confer upon me his opinion by inserting it in this Paper. I have increased my number of fowls this year, and to meet the demand planted a greater quantity of potatoes than usual. The latter are very good, and as I consider they will be wanted for human food this year, I am obliged to curtail my experiment. It is, I am grieved to say, the custom of people to speak of the bad and not of the good; shall I be wrong, do you think, if I state that I suppose this to be the case with the reports of the Potato crop? I have no doubt, however, from my own observation there is a great failure. By cutting off the crown of the Potato previously to cooking, and saving it for seed, much may be provided without waste.—*A Tenant Farmer.*

Necessity of Agricultural Education.—I regret, but am not surprised, to learn from your Leading Article of the 27th inst., that Farmers' Clubs are generally so short-lived. Such societies are, in my opinion, highly desirable; but methinks there is one pre-requisite to their success, which is almost, if not altogether, lost sight of—education. Farmers, as a body, are at present but little disposed for discussional meetings, and are very tardy in adopting anything that wears the garb of novelty. They are, moreover, no accountants, and therefore do not register any experiments they may be induced to make, so as to determine the result with accuracy. This being the case, the good which should result from the societies in question is seldom realised, the interest taken in them consequently abates, until meetings cannot be got, and thus their existence terminates. Education would, if I mistake not, correct all that; indeed, I cannot but consider it as the basis on which every society for the improvement of agriculture should rest, for otherwise we seem to be endeavouring to raise a superstructure without first laying the foundation. We have in this neighbourhood an Agricultural Society, with a library in connection with it, containing many learned and excellent works. Now, I do not suppose that no one will read these books, and that there are no farmers amongst us who are competent to judge of their merits, and to carry out in practice the knowledge which may be derived from them; but of this I am confident, there are comparatively few who will directly receive the least benefit from the library, or care to peruse the books thereby provided. This state of things cannot safely be allowed to continue. Farmers are, I fear, shortly to be thrown upon their own resources, to depend upon their own exertions and skill in husbandry, instead of Acts of Parliament, and knowledge, scientific as well as practical, they must have, to aid them in every operation, or their station in society cannot long be maintained. Of this I have a very strong opinion, and shall, therefore, be truly glad to see a place in your columns devoted to the subject. P.S. It should be our aim, as I think it is our interest, to effect the establishment of agricultural schools, with farms attached, in or near to all the principal market towns in the kingdom, and I have little doubt that an appeal to Government for this purpose would be satisfactorily responded to.—*A Constant Reader.*

Farmers' Clubs.

SUBJECTS FOR DISCUSSION.

7. ON WASTE MANURES.

It is difficult to form a sufficiently high estimate of the national loss from our negligence in this respect.

What do we waste? (1.) Town sewerage. It is generally considered that those crops—Wheat, Barley, &c.—which yield food for *man*, are the most scourging crops we can grow. Now, what would be said of the farmer who would allow all the manure derived from the *less* scourging crops which he grows, such as Turnips, Grass, &c., food for *cattle*, to run wholly and utterly to waste? Whatever might be the blame which he would receive, double its amount must certainly attach to those who waste the similar produce of our grain crops, and of the other farm productions sold as food for man. The waste of town sewerage manure to which we allude is, unquestionably, productive of very great national loss. This is one point for illustration. (We shall take the matter up shortly in another section of the Paper). (2.) Then consider the degree in which the manure made on the farm is generally wasted. The urine of our horses, cattle, and other stock containing matter which possesses a pre-eminently fertilising influence, is in general neglected. The *soluble* matters of our dung-heaps are to a great extent washed out by the rain, and hardly an effort is made to hinder the valuable *volatile* products of their fermentation from being carried off by the air. (3.) The refuse products of many of our manufactures are very generally neglected, though they are often valuable manures. Coal contains in general a considerable quantity of ammonia, a remarkable fertiliser, and it is only lately that this has been to any extent saved. It is driven off, with the other volatile ingredients of the mineral, at our gas-works, where it may be obtained in the so-called *gas-water*, which contains about 8 lbs. of it in every 10 gallons. The waste of our woollen factories—Flax waste—soap-boilers' refuse, &c.—all possess much value in the eye of the intelligent farmer. But, taking this as our criterion, what degree of intelligence amongst our agriculturists is indicated by the shameful statistics of this important subject?

It is needless to refer to any other authority on this subject than the very interesting and valuable little book "On Waste Manures," by Mr. Hannam—a second edition of which has, we understand, lately been published.

How is this Waste to be Avoided?—(1).—Companies are being formed for the collection and sale of town sewage manures, and we shall soon direct attention to their operations. These should be heartily and actively patronised by the intelligent farmer, for on their success depends the period when the wretched policy hitherto pursued on this subject shall cease. (2). Consider the policy and methods of saving liquid manures, and the details of the most economical mode of managing the dungheap. Ample room is here for lengthened discussion upon upon the proper construction of tanks—the use of the water-cart—the relative efficiency of fixers of ammonia—Sulphuric acid—Sulphates of iron and lime—Muriates of lime and soda, charcoal, &c. (3) Consider the actual and market value of the various refuse products of our manufactures. On this head consult C. W. Johnson "On Fertilisers." The "Farmer's Encyclopædia," and Hannam "On Waste Manures," &c.

BROMSGROVE: *Tenant Rights.*—Mr. Wright read a paper on Tenant Right, strongly advocating the necessity of a better security than was ever afforded to tenants at will, or from year to year, for their capital. The club was quite unanimous on the subject, and adopted the following resolution:—"That this meeting considers that where land is held merely on a tenancy from year to year, six months' notice to quit, on the part of the landlord, is much too short; and that, as the tenant upon deteriorating the soil is liable to an action for dilapidations, so, upon having made improvements, they think the tenant should have a remedy against the landlord, in case he should have been compelled to leave before he had time to obtain a return for capital expended."

HARLESTON, NORFOLK, Jan. 14: *Oilcake versus Linseed.—The relative prices at which either is cheaper? and the most economical mode of using the latter?* Resolution:—As this subject was introduced rather to direct attention to the use of Linseed than with a view of obtaining opinions on it, and as the meeting will, it is fully anticipated, have this effect, it is resolved to defer answering the questions proposed by the introducer till further trials (which the Club recommends should be immediately made) shall have given greater authority to the decision. As far, however, as the experience of the members has hitherto gone, it is believed that Linseed will prove a very valuable addition to our fattening food for cattle; forming an excellent medium for consuming our own corn which it is thought should always be mixed with the seed in about the following proportions, three-fifths corn and two-fifths seed. The club considers that corn and seed [*i. e.* we presume Oats, or Peas, &c., and Linseed] thus mixed will be found cheaper than either alone, or than oilcake; but it is inclined to doubt the practice hitherto adopted in this county, of cooking the seed more than the corn, believing that the former is little and the latter largely benefited by it; but whilst giving this strong opinion in favour of cooking the corn where practicable, and thinking that Barley should never be used without, the Club has evidence that ground Beans or Peas mixed with crushed Linseed and given dry, have been used with great success.—For the Club, *R. B. Harvey, Secretary.*

NEWCASTLE-ON-TYNE.—On the 10th inst. a meeting was held in the lecture-room of the Literary and Philosophical Society, for the purpose of adopting rules for the regulation of the Farmers' Club recently formed in this town. G. H. RAMSAY, Esq., in the chair. The rules require that the Society meet once a month for the discussion of agricultural questions, and that a library and museum be formed. No political questions are to be introduced and the committee are to have the power of deciding whether a subject be political or not.

WENLOCK: *Game.*—A resolution of this Club at one of the last year's meetings:—"That looking to the excessive damage sustained by the tenantry of the country by the undue preservation of Game, it is resolved, that a representation to that effect be made to the principal landholders of this neighbourhood, respectfully requesting that they will order the entire destruction of the rabbits, and the partial destruction of the hares on their estates. That whilst coming to this resolution, this Club wishes to express to their landlords their anxiety to preserve the pheasants and partridges to the utmost of their power, being only desirous of destroying that portion of the game and rabbits which they verily believe will in many cases, if suffered to continue, end in the utter ruin of the tenantry. That a copy of the last resolution be circulated among the neighbouring landholders, and advertized in the two Shrewsbury newspapers."

Farm Memoranda.

COMBER, COUNTY DOWN.—The Messrs. Andrews, owners and occupiers of this estate, obtained the Gold Medal of 1844, awarded by the Agricultural Improvement Society of Ireland "to the proprietor or tenant, in Ireland, who should, during the years 1843 and 1844, have thorough drained in the best and most approved manner (upon Mr. Smith, of Deanston's, principles) the greatest quantity of land in his own occupation—not less than 100 acres English statute measure." These gentlemen had been competitors during the previous year, and though unsuccessful, they received from Mr. Smith, of Deanston (upon whose report the Medal was awarded), the praise of having taken the lead of all the other competitors, in applying and most thoroughly following out the Deanston system. The following is Mr. Smith's description of the Comber estate:—"The farm lies well together; the superficial features are hilly, and in some places are steep, with some intervening flats. The whole rests on the grauwacke slate formation; and the immediate subsoil consists chiefly of a clay drift, with gravel stones thickly interspersed, and occasional boulders of considerable size. The flats are chiefly a diluvial deposit from the higher ground, and in some places had been of a marshy and boggy nature. The subsoil is in general of a tenacious nature, and must have been very retentive of surface water before being drained, as was testified by the aspect of those fields on the farm still undrained, as well as by the generally wet appearance of the surface of the adjoining land. The farm had previously been divided into small and irregular enclosures. The whole farm has now been set off in the most systematic order by the Messrs. Andrews, the fields being of a large size, and proportioned to the extent of the farm and laid off to suit, as far as possible, the natural lie of the surface of the ground * * * The Messrs. Andrews have introduced the system, as at Deanston, of leaving no open ditches, and of rearing excellent Thorn fences on the flat, so that the land can be worked up to the fence on both sides. This system has also the advantage of permitting the hedge roots to pass into the fields, so that they find ample nourishment. The making of good roads leading to all parts of the farm has not been neglected. Throughout the whole the improvements have been executed in a very masterly manner; and such a farm so arranged and cultivated forms a most valuable example to the surrounding neighbourhood, and will extend its benefits even to distant parts, from the very liberal manner in which strangers are at all times permitted to go over the ground, whilst a clear and minute statement of the processes followed in the improvement is readily given." In the preliminary report of their operations which the Messrs. Andrews laid before the Agricultural Improvement Society of Ireland, previous to Mr. Smith's inspection, the following passages occur, which we transcribe entire.

"The increased value of the land in consequence of the draining cannot, of course, be accurately ascertained; but in the opinion of the reporters, it is even greater than is generally supposed. The result of their operations has fully realised their utmost anticipations. On the lands drained and subsoiled some years ago, and since cultivated on the true system of green cropping and house feeding, the finest crops have been raised, as stated. In the present year, the Turnips and Potatoes upon the land drained in 1841, and subsoil ploughed in 1842, were excellent. The Potatoes were admitted by the many visitors who came to see them turned out of the ground, to be far superior to any crop in the country this year, and to have been rarely equalled any other year. They were certainly far more than double, and perhaps nearly threefold the crop of 1840, on land of similar quality undrained. It was most gratifying to observe the operation of the causes of the luxuriance of that crop. The Potatoes were planted early in May. Soon after, a week of incessant rain set in; and had the ground not been drained, most of the seed would, most probably, have perished, and the soil would have been rendered unfit for working till the season would have been too far advanced; and being then caked and hardened by the succeeding drought, could not, by any effort, have been brought into the fine tilth, so necessary for the full development of the Potato and the Turnip crops. As it was, the rain having ceased on a Friday, the ground was in the finest order for working on the Monday following, and all the processes of pulverizing, cleaning, and moulding, were executed in the most easy and satisfactory manner. Vegetation was not retarded an hour; and the long succeeding drought, which stunted the crops on all undrained shallow soil, never seemed to affect this in the slightest degree. Again, in raising the Potatoes, a dry night after a wet day was quite sufficient to drain the ground, and fit it for working on the day following; and the Wheat crop was got into the ground in the finest condition.

"The amount of the expenses of all the operations has not been kept distinct from the ordinary labour of the farm, and the other improvements of levelling old fences, filling gripes, planting hedges, and other works, which were necessary to complete the views of the applicants; but the best statement of the expenses of the several drains, which observation from time to time enables reporters to afford, shall be given. They cannot state the cost of the extra deep sinking of the main drains, which was certainly very considerable, on account of its great depth in some places, and the occurrence of a rock in part of its course. Exclusive of cutting and filling, the main drain must have cost per perch of seven yards, as follows:—

For flags and covering stones, and drawing two tons	2s.	6d.
„ Building the side walls, eight tons stones	4	0
„ Mason work and attendance, say	5	0
	11	6

"Thus this main drain being 148 English, or 116 perches Irish, in length, must have cost for building, exclusive of cutting and filling, the sum of 66*l.* at least. This great main drain, however, will carry away the water from between 70 and 80 acres. After heavy rains, a stream of water, 10 inches deep by 14 inches wide, has been measured, issuing from this main. In ordinary weather, it may not exceed 2 inches deep, and after long drought in summer, it has diminished to a very trifling stream, not more than a quarter of an inch deep. The main drain, 59 perches English, or 46 Irish, was much less expensive, both in cutting and building, the sinking being much less, and also the mason work. It may have cost 7*s.* 6*d.* to 8*s.* per perch, independently of cutting and filling. The minor main, yet to be built in the old gripe, having but little to do, may be built of much less dimensions, and at greatly less expense. For cutting the sub-mains and parallel drains, the labourers are paid by contract, at the rate of 3*d.* per perch. The cost of those drains will then be as follows:—

Sub-mains, per 7 yards, cutting	0s.	3d.
One ton of broken stones	0	9
Carting, screening, and filling into drains, and turving	0	5
Tiles, 4 inches diameter at 62*s.* per thousand, common slates for soles, carting, laying, &c.	1	7
Cost per 7 yards	3	0

"The length of sub-mains in 129 acres, being 1,508 English, or 1,185 perches, Irish, at 3*s.* per perch, 177*l.* 15*s.*, or 1*l.* 7*s.* 6*d.* per English acre. The parallel drains—

Cutting, 3*d.* per 7 yards	3*d.*
Half a ton broken stones	4½
Carting, filling, screening, and turving ..	2½
per perch,	10*d.*

Of the parallel drains there are at 20 feet apart 126 English perches, or 99 Irish, in the statute acre. The cost then will be per English acre,—

99 Irish perches, parallel drains, at 10*d.* per perch ..	£4	2*s.*	6*d.*
Proportion of sub-mains	1	7	6
2 ploughs in 8 hours will fill 3½ acres, being per acre.	0	3	0
Total	£5	13	0

"The lowest expense, therefore, that can be stated, exclusive of the main drains, is 5*l.* 13*s.* per English acre, and taking into account casualties, and removing rocks, which sometimes come in the way of the drains, it is feared that it may be raised to 6*l.* Lower estimates than this have been given; but to do the work effectually, in the manner applicants have done, no less sum will be found adequate."

Mr. John Andrews has lately given in the *Dublin Farmers' Gazette*, an account of the mode of farming adopted on this estate. We shall, next week, lay his report on this subject before our readers.

Miscellaneous.

On the use of Linseed.—In Norfolk generally, and in many parts of other counties, the use of Linseed, to fatten bullocks and sheep, is beginning to be understood. Many suppose that they are sufficiently acquainted with its properties; but we have yet much to learn as to the extent of its value, particularly for rearing store stock in combination with box-feeding and summer grazing. The direct advantage is seen in the rapid progress of the cattle—the indirect, in the superiority of the crops where the manure, thus obtained, has been applied. Formerly, through ignorance of management, Linseed, as cattle-food, failed to remunerate, and consequently its use had long been discontinued in this county. But, during the last four years, the demand has been greater than the supply. An incontestible proof of the efficacy of Linseed compounds! Many farm-premises have been metamorphosed through the conversion of sheds into boxes, and the addition of new ones; not by amateur farmers alone, who are too often influenced by plausible theories, but by men of long experience and sound judgment. I subjoin, with much satisfaction, an extract from a letter by Sir C. Burrell, Bart.; and those of many other landowners and tenant-farmers I purpose to embody in my forthcoming work on the cultivation of Flax, the fattening of cattle upon native produce, &c. :—"I cannot lose the opportunity of repeating my entire satisfaction derived from Mr. Warnes's box-feeding system as set forth in his pamphlets, and brought into both summer and winter practice on my farm, the beasts thriving rapidly on the compound mode of crushing Linseed, with Bean, Barley, or other meal boiled and formed into a mass, with which my beasts have thriven more advantageously than others on oil-cake, and at less cost: and, as regards the excellence and flavour of the meat, it is superior, and specially tender and juicy. I have sound grounds for preferring the box-feeding system to every other mode; the food being cheaper, the cattle thriving faster, and the dung made being so much better, that we consider 12 loads thereof equal to 20 loads from oil-cake fed beasts, whether tied up or otherwise.—C. M. Burrell." W. W. Whitmore, Esq., of Dudmanston, Shropshire, is engaged in transforming a barn into a double, and some adjoining bullock-sheds into a single row of boxes, with lofts for provender; all which, communicating with the cooking-house, originally a dairy, form a complete establishment, and at a cost comparatively nominal. This gentleman's plan embraces 40 boxes, capable of containing 50 or 60 bullocks. The Rev. J. C. B. Warren, of Horkesley Hall, has about 50 boxes, arranged and constructed upon principles alike economical. But the most compact establishment that I have yet had the pleasure of inspecting, is that of H. S. Partridge, Esq., of Hockham Hall; comprising, under one roof, accommodation for 14 bullocks, a boiling-house with coppers, and a pump; a Turnip-house and chambers for hay, cutting and Linseed crushing machines. I mention these circumstances to show, that all farm-premises may, by a little consideration and contrivance, be similarly converted, and every farmer in the kingdom be stimulated to adopt a system that will insure profit to himself, rent to his landlord, and employment to his labourers; because it would enable him to double his usual number of cattle, to make two returns of fat bullocks in a year, and to apply to his land an abundance of efficacious manure—a system based upon fundamental principles, depending upon its own resources, requiring neither foreign food, foreign manures, nor chemical preparations. A system, simple in practice, powerful in effect, and applicable to every grade of farmer. A system, more important, if possible, to the breeder than to the grazier, if we may judge from the remarks of the Duke of Buccleuch, at the meeting of the Dumfries Agricultural Association, and from the miserable spectacles that appear in our cattle markets—spectacles at variance both with humanity and judicious management. His Grace animadverted upon the deteriorating effect of keeping cattle upon straw in winter; and advised the adoption of some method that would, at least, retain the condition acquired in the summer, and improve the manure. Linseed meal boiled for a few minutes, and intimately incorporated with straw, will achieve both objects. The allowance, whether much or little, will produce a proportionable effect, such as those only who try the experiment can believe. For instance, Mr. Partridge has 21 score of ewes, to which a peck only is given per day, at the cost of 1*s.* 9*d.*, or a penny per score, including the expense of crushing, boiling, &c. That so small a quantity of Linseed should be divided amongst 420 sheep, must, of course, appear paradoxical, but the following explanation of the means employed will remove doubt:—A peck of Linseed, reduced to fine meal, is stirred into 20 gallons of boiling water. In about 10 minutes, the mucilage being formed, a pailful is poured, by one person, upon two bushels of cut hay thrown into a strong trough, while another mixes it with a fork, and hastens the absorption with a smaller rammer. The like quantity of chaff is next added with the mucilage as before, till the copper is empty. The mass being firmly pressed down, is, after a short time, carried in sacks to the fold, where I had the pleasure of witnessing the avidity with which sheep devour hay, before so ordinary that they refused to eat. As the lambing season advances, and circumstances require, the proportion of Linseed will be increased; a method, that all who are straitened for provender will find it their interest to adopt; remembering that this mixture is alike serviceable to lean cattle and to horses; and that the straw of Peas and the stalks of Beans are second only to hay. A few Swede Turnips, Mangold Wurzel, or Carrots, sliced very small, and added to the water when first put into the copper, will much improve the compound.—*John Warnes, jun., in Bell's Messenger.*

Improvement of British Agriculture.—At a late meeting in West Norfolk, Mr. Hudson, of Castleacre, made the following remarks:—He was able to prove that the farmers had not only kept pace with the increased population, but that they had actually "gone ahead." In 1821 the population of England and Wales was 11,978,875. It had been calculated, and he believed correctly, that on the average each individual would require a quarter of Wheat for his sustenance during the year. Now, taking the ten years previously to 1821, he found that the average quantity of foreign Wheat entered annually for home consumption was 429,076 quarters. If they deducted that number from the population (calculating every person to consume annually one quarter of Wheat), the amount of Wheat produced each year in this country at that time would appear to be 11,549,799 quarters. In 1831 the population had increased to 13,897,187, the average importations of foreign Wheat for the previous 10 years were 534,762 quarters; so that the growth of Wheat in this country might then be taken to average 13,362,425 quarters annually. There was, therefore, an average increased production in the last ten years over the preceding 10 years of 1,812,626 quarters per annum. Again, in 1841 the population was 15,911,757, the average importations of foreign Wheat during the preceding 10 years were 908,118 quarters, and the quantity produced in this country annually might be calculated at 15,003,639 quarters. The total increase in the home production during the period through which his calculation extended was 3,453,840 quarters. He considered, therefore, that he was justified in contradicting the assertion that the farmers had not kept pace in production with the increasing population of the country.

CALENDAR OF OPERATIONS.

JANUARY.

Tillage Operations.—The winter cultivation of the land is highly conducive, indeed almost essential to its fertility. Dr. Daubeny has shown us that there exists in soils an almost inexhaustible store of food for plants, though not in a soluble form; and infertility is generally the consequence, not of the absence of these stores, but of the small portion of them which, at any given time, are in an available or useful condition. Now, in whatever way that somewhat mysterious agent, "atmospheric influence," may act, there is no doubt as to the reality of its effects; it renders matters useful to vegetables soluble in water, and thus capable of being absorbed by its roots, and while water and the carbonic acid and oxygen of the air are doubtless the chemical means it employs, water and air and frost are the agents of disintegration which it puts in action, in order to render the substance of the soil more open to their influence. And it is of importance that we assist these agents by our tillage operations. Dr. Daubeny's researches into this subject appear to lead almost to the same conclusion as that to which Jethro Tull drew attention long ago, that in farming, opening and pulverising (not to speak of cleaning) the soil, is the main point to be attended to.

Land should be naturally or artificially dry, and it should be turned over to the full depth of the active soil. A surface drainage in many cases is advisable as well as an underground; *i. e.* it is well to plough the land in ridges and clean the furrows well out, keeping a channel open in each to hinder any surface lodgement of water which will otherwise sometimes occur on the best drained fields. A good deal of the ease and efficiency of the spring cultivation will depend on the ploughing previous to winter, which the land has received. If done deeply and well when the land was dry, the soil in spring will plough up mellow and friable. Especial attention is needed in the autumn ploughing of land intended for Carrots. For the proper seed time of this crop is so early, that, excepting the lightest soils, it is not good policy to put the plough in in spring, and it is well to apply the manure in autumn, and merely use the cultivator and harrow before sowing in March.

During this month, when the land is sufficiently dry, late or spring Wheat may be sown. We have long been in the habit—not by choice, but necessity—of sowing Wheat as late even as March; the quantity of seed we have used has been about 6 pecks per acre, and we have found it sufficient. It is probable that owing to the late harvest of the past season, and the general excellence of the root crops, the present Wheat sowing may be later than usual. No weather could be better for sowing than that which we enjoyed during some weeks of the past month.

In reference to *the garden farm*, on which we would make a monthly remark, we may merely mention, that as all Wheat should have been sown in November, and all roots harvested before that time, little work remains to be done, excepting digging or forking the stubble, and this ought to have been completed before the frosts set in. It is well to keep some of the work on hand in order to give employment to those who during this season may be looking for work. The autumn digging should be as deep and rough as possible.

Notices to Correspondents.

Agricultural Statistics—*P.*—Great Britain and Ireland:—

	Population.	Average Annual Import of Grain during 10 preceding Years.	Total No. of Acres inclosed during 10 preceding Years.
		Qrs.	Acres.
1821	20,963,666	about 700,000	1,410,940
1831	24,100,876	„ 1,200,000	549,480
1841	26,870,143	„ 1,330,000	102,180

There is no existing information on the produce of the land.

Annual average prices of Wheat.—*To Inquirers*—See the Appendix to the Annual Supplement to Mr. Willich's "Tithe Tables for 1846."

Carrots and Mangold Wurzel.—*Tenant Farmer*—Large crops of both have been grown on land manured with 3 cwt. of Peruvian guano per acre.

Comparative cost of Tillage Operations.—*Inquirer*—Ploughing, say 8*s.*; harrowing, 1*s.* 2*d.*; "cultivating," 2*s.* 6*d.*; horse hoeing between the rows 26 inches wide, 2*s.*

Compost—*A B*—Your compost is made up of materials, the mixture of which will be advantageous. Charcoal-dust is a very useful element in all composts of matters whose decomposition produces ammonia.

Cow-feeding—*A Q*—2 cwt. of hay per week, 8 or 9 cwt. of Swedes per week, probably rather less of Carrots and fully as much of Cabbages, would any of them keep a full-sized cow in condition. 10 or 12 lbs. of hay, and 60 or 70 lbs. of a mixture of Mangold Wurzel and Parsnips would be excellent food for a cow, both in quality, and, *per diem*, quantity.

Damage done by Hunting—*A Hayfarmer* asks how he and his neighbours can obtain redress for the damage they sustain from London hunting parties continually riding and poaching their lands and destroying their best drained meadows? or in what way they may be justified in annoying them.

Feeding Cattle—*Tenant Farmer*—Your cattle are now in good condition,—should you sell them and buy *lean stock* to eat the rest of your Turnips, or keep your *fat stock* on till *they* have finished them? The choice you say is between full-grown lean cattle and full-grown fat cattle. We should imagine that *the latter* would make more beef off a given weight of food than the former; for their present coat of fat meat is a warm jacket to them, and on the well ascertained ground that warmth is an equivalent for food, the latter will require less to keep them fattening than the former. A consideration of market prices and prospects may however reverse our decision; but these points you must determine for yourself. And it depends on local circumstances too whether it may not rather be your interest to buy young stock to consume your Turnips, and sell them out as graziers in spring.

Flax Seed—*F H Martin*—Sow Riga seed. The Orange Globe Mangold Wurzel is the best sort.

Gas Water—*A Subscriber*—It contains 2 to 4 per cent of ammonia; 300 or 400 gallons will therefore be a good dressing per acre; and if you have not the water-cart necessary to its application in a liquid form, you may get a lot of rubbish together to act as a sponge to absorb it, and thus apply it in compost. Dry turf ashes will absorb an amazing quantity of liquid. So will *old* dry spent bark. And of these you must apply so much per acre as shall suffice to absorb 400 gallons of the liquid.

Grass Land—*Inquirer*—The question referred to under this heading last week was: If an acre of meadow, when mown, in June will yield a ton of hay, what would be the value of the Grass, were it not mown, to graze sheep and cattle on? How much beef or mutton would it make? Can any of our correspondents state their experience?

Grass Seeds—*F P B Martin*—What is your soil? For sandy soil Mr. Lawson recommends the following mixture:—Alopecurus pratensis, 1½ lbs.; Dactylis glomerata, 2 lbs.; F. duriuscula, 3 lbs.; Lolium italicum, 3 lbs.; Poa nemoralis, 3 lbs.; Medicago lupulina, 1 lb.; Trifolium repens, 5 lbs.; Avena flavescens, 1½ lbs.; Festuca heterophylla, 1 lb.; F. rubra, 3 lbs.; Lolium perenne, 5 lbs.; Poa pratensis, 1 lb.; Trifolium pratense, 4 lbs.; in all, 34 lbs. per acre.

Grass Seeds for Permanent Pasture on Clay Soil.—*J R*—Sow per acre of Alopecurus pratensis 2 lbs., Dactylis glomerata 5 lbs., Festuca duriuscula 1 lb., F. heterophylla 1 lb., F. loliacea 2 lbs, F. Pratensis 3 lbs.; Lolium perenne 12 lbs., Phleum pratense 3 lbs., Poa trivialis 3 lbs, Medicago lupulina 1 lb., Trifolium pratense perenne 4 lbs., T. repens 5lbs.; in all 42 lbs., with about one bushel of Rye; Carrots may be sown on the flat, *i.e.*, not as Turnips are on the top of ridged drills. We will refer to the subject in our Calendar shortly.

Hauling Manure—*Inquirer*—"The Party" consists of 3 men *filling*, 2 boys (there being 4 carts—1 at the heap, 1 going, 1 in the field, and 1 returning) *loading*, 1 man in the field *dividing*, and two other men in the field *spreading*, and they can altogether fill, carry, divide, and spread 120 *cubic yards* in a day.

Horse Keep—*Inexperience*—Give a bran mash two or three times a week with the Bean straw, and if the latter is, as it should be, cut into chaff, a moderate proportion of hay should be cut with it. *W. C. S.*

Kohl Rabi—*Tenant Farmer*—It is a sort of Cabbage with a swollen stem, and this we on its neck is the valuable part. We should prefer the Swede or Mangold Wurzel. It is hardy.

Loss of Sheep—*Tenant Farmer*—Next week.

Linseed Cake *versus* Guano—*Inquirer*—Did you see the opinion of Mr. Caird on this subject? He *prefers* guano, and has had more experience than we have. The profitableness of buying guano, in certain cases, is unquestionable; that of buying Linseed will always depend upon the feeding properties of the cattle you give it to.

Manure—*Taras*—You propose to sow over your land 1 qr. of bones per acre, acted on by about 6 lbs. of acid. The quantity of bones is sufficient, but you had better increase the quantity of acid, say to 1 cwt., so that for your 3 acres you will need another cwt. of sulphuric acid, besides the quantity you mention. At the same time your success is by no means *certain* on "clay" land. Your damaged Turnip-seed had better be crushed and thrown in among your cattle food. Poultry dung may be thrown on the manure-heap, and incorporated with it. A cart load of it is worth perhaps half a dozen of horse manure.

Pig-drum Threshing Machine—*J. L. Donevalle* asks for information about this machine from any of our Scotch readers who may have used it.

Pigeons—*Tom Pigeon* asks what is the most efficient method of attaching pigeons to their home? Pigeons' dung may be used in compost as a manure. Consider it as 10 or 12 times as strong as good horse manure, and apply it accordingly.

Poor Clover Root—*W. F.*—We should imagine 1 cwt. per acre of nitrate of soda or 1 cwt. of sulphate of ammonia, or what might be better, ½ cwt. of each mixed, would be preferable to superphosphate of lime for your Clover plant. However, if you wish to try it, place a quarter of crushed bones in a heap in a large tub: make a basin-shaped cavity at top and pour into it about 1½ cwt. of sulphuric acid, then mix it carefully up and add 60 or 70 gallons of water, and let it bide for a day or two; then throw the whole of it over on a heap of two cart loads of turf ashes, and mix it carefully over. That compost should suffice for 1 acre, and it will doubtless benefit the succeeding crop.

Potatoes—*C. M. L.*—Potato seed sown now will not produce tubers of sufficient size for consumption in the autumn.

Relative economy of making Veal or Butter—*Inquirer*—We have but very lately been in a position to answer your question. See Home Correspondence next week. 100 galls. of will yield 2*l.* 19*s.* 4*d.* worth of cheese, at 6*d.* per lb.; or 2*l.* 6*s.* 10*d.* worth of butter, at 10*d.*, and poor cheese at 3*d.*, per lb.; or 1*l.* 17*s.* worth of veal.

Specific Gravity of Turnip—*R. C.*—Is the nutritiveness of the Turnip directly in proportion to its specific gravity? Turnips generally are of less specific gravity than water, and therefore on *à priori* grounds (for we have no *experience* to guide us), it is by no means easy, if indeed it be possible, to answer this question. It is quite possible, *according to the data you have supplied*, that the Turnip of greatest specific gravity may contain most water, and that is opposed to the answer in the affirmative, which on the first glance would appear just; but are you sure your statement is accurate; for it is certainly somewhat extraordinary—and if so, would it not be advisable to inquire at the same time into the composition of the specimens as far as the amount of water they respectively contain. We should be very glad to publish your results.

Spring Wheat—*R. W.*—We should recommend the Bellevue Talavera. We cannot speak of our own knowledge about the Yellow Dantzic as spring Wheat.

To Feed Ewes—*Inquirer*—Give them plenty of succulent food. Common Turnips, for instance; and after a week or two, when the lambs may be supposed to be growing well, give the ewes ½ a pint of Peas a-piece daily, increasing it gradually up to ¾ of a pint.

To fill Compost into Carts—*Inquirer*—Compost of ordinary weight may be filled for ¾*d.* a cubic yard.

To Level Ridges—*I.*—Are they very steep and very old? If so, the safest way, though expensive, will be to trench the land by spade *across* the ridge; level the lower spit in digging it, and then throw the top spit forward to cover it. If the ridges are neither very steep nor old, you may do as you propose.

To Spread Manure—*Inquirer*—20 yards of dung may be spread on an acre for *about 9d. or 10d.*

To take charge of Stall-fed and Box-fed Cattle—*Inquirer*—One active man and one active boy will manage 40 head of cattle.

Transmutation of Grain—*A Correspondent*—The idea is not so entirely absurd as not to deserve experiment. Trials of it are now in process, and in due time the result will be given on the horticultural side of this Paper.

Turnip-tops—*G. B. S.*—You will find it difficult to keep them. If placed in a heap they will rot. Perhaps the best plan will be to strew them over a piece of ploughed land, sufficiently thick to hide the ground; if frost comes they will soon rot away; but if it does not, they will probably sprout out afresh, and they may keep for a while. See if you cannot exchange them with a neighbour for some article, such as Swedes or Mangold Wurzel, that *will* keep.

Misc—*Regular Reader*—Your note has arrived, but not its inclosure.

*** Communications reaching town after Wednesday, cannot be answered this same week.

Markets.

SMITHFIELD, Monday, Jan. 26.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	0	to	4	4	Best Downs & Half-breds	4s	10	to 5 2
Best Short Horns	3	8		4	0	Best Long-wools	4	8	5 0
Second quality Beasts	3	0		3	6	Ewes and second quality	4	0	4 6
Calves	4	4		5	8	Pigs	3	8	4 8

Beasts, 2092; Sheep, 12,560; Calves, 73; Pigs, 315.

We have a full supply of Beasts, and the weather continuing unfavourable for slaughtering, late prices are barely maintained. 4*s* 4*d* for the best Scots, and 4*s* for Short-horns, are extreme quotations, and only obtained in comparatively few instances.—The supply of Sheep is remarkably short, and prices are a little advanced to the very best qualities.—Veal trade continues steady.—Pork trade is very heavy.

FRIDAY, Jan. 30.

The supply of Beasts is short, but quite adequate to the demand; we cannot report any advance in price, only that the highest quotations of Monday are more generally obtained.—The supply of Sheep continues to decrease, and there is a consequent rise of fully 2*d* per 8 lbs. on all descriptions.—Veal trade continues steady.—Pork trade is rather better; prices range from 4*s* to 5*s*.

Beasts, 803; Sheep, 1940; Calves, 125; Pigs, 230.

4*l*. West Smithfield.

POTATOES.—Southwark, Waterside, Jan. 26.

The supply since our last report has been very limited by the sailing vessels; notwithstanding, these left off former arrivals, with the supply by the steamboats and railways, have been fully sufficient for the present limited demand, and the trade is languid at the following prices.—York Reds, from 80*s* to 130*s* per ton; ditto Regents, 90*s* to 130*s* per ton; Lincolnshire Kidneys, 90*s*; Scotch Reds, 80*s* to 90*s* per ton. There was one or two fresh cargoes arrived at the close of the week, when 80*s* to 90*s* per ton was asked, but few sales have been effected at the last named, prices. Jersey Blues, 70*s* to 80*s* per ton.

HAY.—Per Load of 36 Trusses.

Smithfield, Jan. 29.

Prime Mead. Hay	80*s*	to	90*s*	New Hay	—*s*	to	—*s*
Infr. New & Rowen	70		75	Clover	95	to	112
				New Clr.	—*s*	to	—*s*
				Straw	70		95

Jonas Cooper, Salesman.

Cumberland Market, Jan. 29.

Prime Mead. Hay	85*s*	to	95*s*	Old Clover	110*s*	to	115*s*
Inferior	70		80	Inferior do.	95		105
New Hay	—		—	New Clover	—		—
				Straw			30*s* to 36*s*

Joshua Banks, Hay Salesman.

Whitechapel, Jan. 30.

Fine Old Hay	80*s*	to	90*s*	Old Clover	—*s*	to	—*s*
Inferior Hay	62		75	New Clover	110		120
New Hay	—		—	Infr.	70		84
				Straw			30*s* to 34*s*

Trade very dull at the above prices.

HOPS, Friday, Jan. 30.

We have no alteration to notice in the Hop market, either as to demand or prices. Sir R. Peel's plans do not appear to give satisfaction to any party, and therefore we do not expect to see any improvement take place until his plans are adopted or rejected.

Patterson & Smith, Hop-Factors.

COVENT GARDEN, Jan. 31.—The market has been pretty well supplied during the week with most articles; but owing to the unfavourable state of the weather, trade has been very dull. Pine-apples are good in quality, and sufficient for the demand. Hothouse Grapes continue to be scarce, but foreign sorts are good, and tolerably plentiful. Good specimens of dessert Apples and Pears are scarce, especially of the latter. Oranges are plentiful, and Nuts of almost all kinds are sufficient to meet the demand. Little alteration has taken place in the prices of vegetables. Asparagus is rather more plentiful, and abundance of good Seakale may be obtained at from 8*d.* to 2*s.* 6*d.* a punnet. The supply of Broccoli, Brussels Sprouts, and other winter Greens, is good; White Broccoli from Cornwall is plentiful, and fetches from 1*s.* to 4*s.* per dozen heads. French Beans have not altered in price since last week, nor has Rhubarb, which is every week becoming more abundant. Celery is excellent in quality, and Potatoes are also, generally speaking, of better quality than they have hitherto been; they are cheaper than they were last week, the very best samples fetching only 7*l.* a ton. It may be mentioned that a few fine-looking samples of new Potatoes have been offered. They were perfectly free from disease, and brought good prices. Chicory continues to be supplied, but there is as yet little demand for it. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Poinsettia pulcherrima, Jasmines, Lily of the Valley, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Cinerarias, Gardenias, and Roses.

FRUITS

Pine Apple, per lb.,	4*s* to 6*s*	Lemons, per dozen,	1*s* to 2*s*
Grapes, Hothouse, per lb.,	2*s* to 4*s*	— per 100,	6*s* to 15*s*
— Spanish, per lb.,	0*s* to 1*s*	Almonds, per peck,	6*s*
— Portugal, p. lb.,	1*s* to 2*s*	Sweet Almonds, per lb.,	2*s* 6*d* to 3*s*
Apples, Dess., per bush.,	4*s* to 10*s*	Filberts, English, p. 100 lbs.,	60*s* to 80*s*
— Kitchen,	2*s* 6*d* to 5*s* 6*d*	Nuts, Cob, per 100 lbs.,	80*s* to 70*s*
Oranges, per dozen,	0*d* to 2*s*	— Barcelona,	80*s*
— per 100,	4*s* to 14*s*	— Brazil,	16*s*
— Seville, per 100,	8*s* to 15*s*	— Spanish,	14*s*
— per dozen,	2*s* to 3*s* 6*d*	Chesnuts, per peck,	4*s* to 8*s*
		Pears, per hf.-sv.,	3*s* to 10*s*

VEGETABLES.

Cabbages, per doz.,	6*d* to 1*s*	Parsnips, per doz.,	3*d* to 1*s*
— red, per doz.,	2*s* to 3*s*	Scorzonera, per bundle,	1*s* to 1*s* 3*d*
Brussels Sprouts, p. hf.-sv.,	1*s* to 1*s* 6*d*	Salsify, do.,	1*s* to 1*s* 6*d*
Savoys, per doz.,	0*d* to 1*s* 3*d*	Onions, per bushel,	1*s* 6*d* to 3*s*
Broccoli, Brown, per bdle.,	6*d* to 1*s* 3*d*	— pickling, per hf.-sv.,	3*s* to 3*s*
— White,	9*d* to 2*s* 6*d*	— Spanish, per doz.,	3*s* to 5*s*
Greens, per doz. bunches,	1*s* 6*d* to 2*s* 6*d*	Shallots, per lb.,	6*d* to 8*d*
French Beans, per 100,	2*s* to 3*s*	Garlic, per lb.,	6*d* to 8*d*
Sorrel, per hf.-sieve,	0*d* to 1*s*	Endive, per score,	6*d* to 1*s*
Potatoes, per ton,	70*s* to 140*s*	Lettuce, per score, Cab.,	4*d* to 6*d*
— per cwt.,	0*s* 6*d* to 0*s*	— Cos,	6*d* to 1*s*
— bushel,	2*s* to 4*s*	Radishes, per 12 heads,	1*s* to 2*s*
— Kidney, per bushel,	3*s* to 4*s*	Mushrooms, per pottle,	2*d* to 1*s* 2*d*
Turnips, per doz.,	1*s* to 2*s*	Small Salads, per punnet,	2*d* to 3*d*
Red Beet, per doz.,	6*d* to 1*s* 6	Fennel, per bunch,	2*d* to 3*d*
Carrots, per doz. bchs.,	2*s* to 3*s*	Savory, per bunch,	4*d* to 6*d*
Horse Radish, per bundle,	1*s* 6*d* to 3*s*	Thyme, per bunch,	4*d*
Seakale, per punnet,	2*d* to 3*s* 6*d*	Watercress, p. 12 sm. bun.	6*d* to 8*d*
Rhubarb, per bundle,	2*d* to 1*s* 6*d*	Parsley, per bunch,	1*d* to 2*d*
Asparagus per bundle,	3*s* to 4*s*	Roots, per bundle,	1*s*
Cucumbers, each,	1*s* to 2*s*	Tarragon, per bunch,	6*d*
Spinach, per sieve,	1*s* to 1*s* 6*d*	Mint, green, per bunch,	6*d* to 9*d*
Leeks, per doz. bunches,	1*s* to 2*s*	Marjoram, per bunch,	4*d*
Celery, per bunch,	6*d* to 1*s* 6*d*	Chervil, per punnet,	2*d* to 3*d*
Cardoons, each,	6*d* to 9*d*		

MARK-LANE, Monday, Jan. 26.

The supply of Wheat from Essex, Kent, and Suffolk, was unusually small this morning, and the condition worse than we have often seen it; the whole was cleared at the currency of this day se'nnight; old and free foreign were rather more inquired after, but cannot be written dearer; bonded is held for more money, but business was limited; 50*s.* is asked for Polish Odessa afloat, and 42*s.* 6*d.* per qr. freight and insurance included, has been realised.—Barley, Beans, and Peas, are unaltered in value.—Sales of Oats continue to be confined to retail purchasers for immediate consumption at late rates.

British, per Imperial Quarter.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	58	66	Red	50	52
—— Norfolk, Lincolnshire, and Yorkshire	50	52	White	52	55
Barley, Malting and distilling 31*s* to 33*s*	Chevalier	33	33	Grind.	27	30
Oats, Lincolnshire and Yorkshire			Polands	23	24	Feed	23	24
—— Northumberland and Scotch				23	25	Potato	24	25
—— Irish				22	24	Potato	24	25
Malt, pale, ship				54	60			
—— Hertford and Essex				60	65			
Rye				34	37			
Beans, Masagan, old and new	38	to	40	Tick	30	42	Harrow	32	44
—— Pigeon, Heligoland	35	to	46	Winds	40	45	Longpod	32	36
Peas, White	38	to	42	Maple	30	32	Grey	32	32

ARRIVALS IN THE RIVER LAST WEEK.

Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English 3058 Sks. — Bris.	9231	5550	2962	498	—	849	544
Irish — — — —	—	—	20	650	—	—	—
Foreign — — 554 —	11171	720	—	570	—	606	—

FRIDAY, Jan. 30.

There has been little English Wheat fresh up for this morning's market; good samples are eagerly sought after at fully Monday's prices, but a large proportion sold on that day has been refused, owing to its wretched condition, and great difficulty is experienced in finding buyers for it; old and free foreign sell readily, and in some instances obtain a slight advance: a few thousand qrs. of bonded changed hands at old prices; Marianople at 50*s.* per qr.—Barley, Beans, and Grey Peas, are unaltered in value; white rather more inquired after.—Business in Oats continue limited, and the tendency of prices is to advance.—A decree admitting the free importation of all kinds of Corn into the Prussian Provinces on the Rhine, has caused an increased demand, at rising prices, in the Dutch markets.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	2860	4280	2940	3180 Sks
Irish	—	—	3570	—
Foreign	4600	2800	3040	—

IMPERIAL AVERAGES.

Dec.	70 per Quarters.	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
—	27	57*s* 11*d*	33*s* 4	22*s* 5	23*s* 0	34*s* 8	35*s* 5	39*s* 10
Jan.	3	58 1	31 11	22 3	23 6	37 9	39 1
—	10	56 3	31 10	21 9	23 11	36 8	38 11
—	17	55 6	31 11	22 3	24 9	36 9	39 3
—	24	55 7	31 3	21 10	27 3	36 1	36 9
6 weeks' Aggreg. Aver.		56 1	32 1	22 5	24 6	37 6	39 4
Duties on Foreign Grain		16 0	6 0	6 0	3 6	5 6	3 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Jan. 24.

Price.	Dec. 20	Dec. 27	Jan. 3	Jan. 10	Jan. 17	Jan. 24
59*s* 4*d*						
— 0						
58 8						
— 4						
57 11						
— 0						
56 8						
— 4						
55 7						
— 4						
— 0						
— 1						

SEEDS, Jan. 30.

Canary	per qr.	48*s*	to	52*s*	Linseed Cakes, Foreign, p. ton	9*l*	to 9*l*
Carraway	per cwt.	48		50	Mustard, White - p. bush.	—*s*	—*s*
Clover, Red, English		—		—	— Superfine	—	—
— Foreign		—		—	— Brown	—	—
— White, English		—		—	Rapeseed, English, per last	28*l*	29*l*
— Foreign		—		—	Rape Cakes - per ton	—	—
Coriander		10		12	Rapeseed, Foreign -	—	—
Hempseed	per qr.	36		38	Tares, Red, winter p. bush.	—	—
Linseed	per qr.	48		48	— Foreign	4	4*s*6*d*
— Baltic		48		48	Trefoil - per cwt.	18	22
— Cakes, Eng. per 1000		11*l*		12*l*	Turnip (too variable for quotation).		

Kingsford and Law.

NURSERY STOCK.—TO BE SOLD BY AUCTION, On Wednesday, Thursday, Friday, and Saturday, the 18th, 19th, 20th, and 21st of February, by Mr. W. Tompsett.

Mr. Hoopar to Sell by Auction the remainder of his stock of NURSERY PLANTS without any reserve. The Plants now offered for sale are 600 Lots unsold at the former sale, which could not be proceeded with in consequence of the unfavourable state of the weather, and consist of Lime Trees, Planes, Elms, Laburnums, Tulip Trees, American and other Oaks, American Walnuts and Maples, Lilacs and other deciduous Shrubs, Silver Firs, Scotch, Spruce, and other Firs, Purple and Common Beech, Laurestines, Portugal Laurels and Portugal Hedges, Common Laurels, Variegated Hollies, and other Evergreen Shrubs, Rhododendrons, Azaleas, and other American Plants, together with 7600 Standard Roses, 900 Dwarf Roses in pots, and 6000 Dwarf Roses in their own roots. A portion of the Roses will be sold on each day of sale, and also a quantity of choice Firs and Pines in pots, and other Plants in pots. Persons planting for immediate effect will find this a good opportunity of procuring Plants of large size at a cheap rate.

For further information, or to see the Plants, enquire at the Nursery, Brenchley, Kent, 3 miles south of the Paddock-wood Station, Dover Railway, or of Mr. W. Tompsett, Auctioneer. East Peckham, Kent.

TO BE LET, EDMONTON NURSERY.—In consequence of the Proprietor being about to retire from the Nursery business, this desirable Nursery is to be let, with immediate occupation. The whole may be taken at a valuation, or by private contract, and accommodation will be given in the terms of payment, if desired.—Apply personally or by letter to Mr. Henchman, at the Nursery, Edmonton, or to Mr. Hugh Low, Clapton Nursery.—Jan. 31.

ON SALE BY PRIVATE TREATY, the undermentioned specimens of choice RHODODENDRONS and other plants:—

			hght. in ft.	diam. in ft.
1	Rhododendron arboreum, true	.. .. ..	9	6
1	,, ,, ...	..	8	3½
1	,, arboreum album ..	.. ..	7	3
1	,, arboreum coccineum	.. ..	6	2½
1	,, ,, ,,	.. ..	5	2½
1	,, ,, ,,	.. ..	4½	2½
1	,, arboreum roseum	.. ..	7	3
1	,, ,, ,,	.. ..	6	3
1	,, arboreum Americanum	.. ..	2½	1½
1	,, angustifolium	.. ..	5	3
1	,, angustum	.. ..	4½	3½
1	,, carneum	.. ..	2½	4
1	,, catawbiense	.. ..	4	3
1	,, caucasicum	.. ..	2½	4
1	,, crassifolium	.. ..	3½	2½
1	,, Curtisii	.. ..	4	3
1	,, eximium	.. ..	3	2
1	,, grandissimum	.. ..	3½	5
1	,, hybridum	.. ..	3	2
1	,, hybridum Smithii	.. ..	5½	3
1	,, grandiflorum	.. ..	3½	3½
1	,, ponticum	.. ..	4	5
1	,, speciosum	.. ..	3½	4
1	alta-clorense	.. ..	3	2½
1	anthopogon	.. ..	1½	1½
1	campanulatum	.. ..	4½	3
1	,,	.. ..	4½	3½
1	conspicuum	.. ..	4	4
1	catawbiense (true)	.. ..	2½	3½
1	caucasicum	.. ..	1	1½
1	,, album	.. ..	3½	4
1	,, pulcherrimum	.. ..	2	3
1	,, stramineum	.. ..	3½	4
1	,, standard	.. ..	6½	2½
1	campanulatum hybridum	.. ..	3	2
1	cinnamomeum	.. ..	5	2½
1	chamæcistus	.. ..	½	1
1	chrysanthum	.. ..	½	½
1	Cunningham's New White	.. ..	4	5
1	lauricum sempervirens	.. ..	5	3
1	eximium	.. ..	4	4
1	giganticum	.. ..	4	5
1	,,	.. ..	5	5
1	glomeratum	.. ..	2½	2½
1	guttatum	.. ..	6	3
1	hyacinthæ flore pleno	.. ..	5	3½
1	maximum longifolium	.. ..	3½	4
1	,, rubrum	.. ..	3½	5
1	magnificum	.. ..	5	5
1	myrtifolium	.. ..	3½	4
1	multimaculatum	.. ..	6	5
1	niraticum	.. ..	3½	5
1	nobleanum	.. ..	4	3
1	,,	.. ..	2½	3
1	oculatum	.. ..	5	5
1	pictum	.. ..	5½	5
1	ponticum album	.. ..	5	5
1	,, coccineum	.. ..	3½	5
1	princeps	.. ..	4	5
1	pulchrum	.. ..	3½	3½
1	pulcherrimum	.. ..	3½	5
1	punctatum	.. ..	4	2½
1	Smithii (true)	.. ..	8	6
1	,, ,,	.. ..	4	4
1	,, album	.. ..	4	4
1	,, album grandiflorum	.. ..	3½	3½
1	,, elegans	.. ..	3	2
1	,, hybridum	.. ..	3½	3½
1	,, superbum	.. ..	7	6
1	strictum	.. ..	5	3
1	Russellianum	.. ..	4	5
1	,,	.. ..	3½	2
1	tigrinum	.. ..	5	3
1	undulatum	.. ..	2½	2½
1	venustum	.. ..	3	3½
1	zeylanicum	.. ..	8	3½
1	Araucaria excelsa	.. ..	9	4
1	,, imbricata	.. ..	5	4
1	Cunninghamia lanceolata	.. ..	7	4
1	Pinus—Abies Douglasii	.. ..	3½	3
1	,, ,, Menziesii	.. ..	6	5
1	,, ,, Morinda	.. ..	5	5
1	,, ,, Smithiana	.. ..	7	5
1	,, Picea Frazeri	.. ..	4	3½
1	,, ,, nobilis (seedling)	.. ..	2½	3
1	,, ,, ,, (worked)	.. ..	2	1½
1	,, ,, Pichta	.. ..	2½	2
1	,, ,, religiosa	.. ..	½	½
1	,, ,, Webbiana	.. ..	5	5
1	,, ,,	.. ..	3	3
1	,, Pinus excelsa	.. ..	5	5
1	,, ,, inops	.. ..	6½	6
1	,, ,, ponderosa	.. ..	7	5
1	,, ,, pungens	.. ..	3½	2½
1	,, ,, speciosa	.. ..	6	5
1	,, ,, Sabiniana	.. ..	10	9
1	,, Cedrus deodara	.. ..	10	10
1	,, ,,	.. ..	10	9

Apply to Mr. George Fennell, Gardener, Ash Grove, Halifax, Yorkshire.

N.B.—Ash Grove is situate one mile from the Elland Station of the Manchester and Leeds Railway.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

PRIZES FOR THE YEAR 1846.

I. STOCK.

PRIZES FOR IMPROVING THE BREED OF CATTLE.: 1846.

SHORT-HORNS.

40*l* To the owner of the best Bull calved previously to the 1st of January, 1844.
15*l* To the owner of the second-best ditto.
20*l* To the owner of the best Bull calved since the 1st of January, 1844, and more than one year old.
15*l* To the owner of the best Cow in milk or in calf.
(In the case of the Cow being in calf, and not in milk, the prize will not be given until she is certified to have produced a calf.)
15*l* To the owner of the best in-calf Heifer, not exceeding three years old.
10*l* To the owner of the best Yearling Heifer.
10*l* To the owner of the best Bull-calf, not exceeding one year old.

HEREFORDS.

40*l* To the owner of the best Bull calved previously to the 1st of January, 1844.
15*l* To the owner of the second-best ditto.
20*l* To the owner of the best Bull calved since the 1st of January, 1844, and not more than one year old.
15*l* To the owner of the best Cow in milk or in calf.
(In the case of the cow being in calf, and not in milk, the prize will not be given until she is certified to have produced a calf.)
15*l* To the owner of the best in-calf Heifer, not exceeding three years old.
10*l* To the owner of the best Yearling Heifer.
10*l* To the owner of the best Bull-calf, not exceeding one year old.

DEVONS.

40*l* To the owner of the best Bull calved previously to the 1st of January, 1844.
15*l* To the owner of the second-best ditto.
20*l* To the owner of the best Bull calved since the 1st of January, 1844, and more than one year old.
15*l* To the owner of the best Cow in milk or in calf.
(In the case of the cow being in calf, and not in milk, the prize will not be given until she is certified to have produced a calf.)
15*l* To the owner of the best in-calf Heifer, not exceeding three years old.
10*l* To the owner of the best Yearling Heifer.
10*l* To the owner of the best Bull-calf, not exceeding one year old.

CATTLE OF ANY BREED:

Not qualified to compete in the foregoing classes.
(Cross-bred Animals will be excluded.)

25*l* To the owner of the best Bull calved previously to the 1st of January, 1844.
10*l* To the owner of the second-best ditto.
15*l* To the owner of the best Bull calved since the 1st of January, 1844, and more than one year old.
15*l* To the owner of the best Cow in milk or in calf.
(In the case of the cow being in calf, and not in milk, the prize will not be given until she is certified to have produced a calf.)
10*l* To the owner of the best in-calf Heifer, not exceeding three years old.
10*l* To the owner of the best Yearling Heifer.

HORSES.

40*l* To the owner of the best Stallion for agricultural purposes, of any age.
15*l* To the owner of the second-best ditto.
15*l* To the owner of the best three years old ditto.
15*l* To the owner of the best two years old ditto.
20*l* To the owner of the best Mare and Foal for agricultural purposes.
10*l* To the owner of the second-best ditto.
10*l* To the owner of the best two years old Filly.
30*l* To the owner of the best Thorough-bred Stallion, which shall have served mares at a price not exceeding three guineas (and with a groom's fee not more than five shillings), in the season of 1846.

SHEEP.

PRIZES FOR IMPROVING THE BREED OF SHEEP. 1846.

LEICESTERS.

40*l* To the owner of the best Shearling Ram.
15*l* To the owner of the second-best ditto.
30*l* To the owner of the best Ram of any other age.
15*l* To the owner of the second-best ditto.
10*l* To the owner of the best pen of five Shearling Ewes.
5*l* To the owner of the second-best ditto.

SOUTH-DOWN SHEEP.

40*l* To the owner of the best Shearling Ram.
15*l* To the owner of the second-best ditto.
30*l* To the owner of the best Ram of any other age.
15*l* To the owner of the second-best ditto.
10*l* To the owner of the best pen of five Shearling Ewes.
5*l* To the owner of the second-best ditto.

LONG-WOOLLED SHEEP.

Not qualified to compete as Leicesters.

40*l* To the owner of the best Shearling Ram.
15*l* To the owner of the second-best ditto.
30*l* To the owner of the best Ram of any other age.
15*l* To the owner of the second-best ditto.
10*l* To the owner of the best pen of five Shearling Ewes.
5*l* To the owner of the second-best ditto.

SHEEP BEST ADAPTED TO A MOUNTAIN DISTRICT.

Not qualified to compete as South-Downs.

20*l* To the owner of the best Ram of any age.
10*l* To the owner of the second-best ditto.
10*l* To the owner of the best pen of five Shearling Ewes.
10*l* To the owner of the best pen of Ewes of any age.

PIGS.

15*l* To the owner of the best Boar of a large breed.
5*l* To the owner of the second-best ditto.
15*l* To the owner of the best Boar of a small breed.
5*l* To the owner of the second-best ditto.
10*l* To the owner of the best breeding Sow of a large breed.
10*l* To the owner of the best breeding Sow of a small breed.
10*l* To the owner of the best pen of three breeding Sow-Pigs, of the same litter, above four and under ten months old.

EXTRA STOCK.

30*l*—For Extra Stock of any kind, not qualified to compete in any of the above classes, Prizes may be apportioned and awarded, by the Yard Committee and Judges, to an amount not exceeding in the whole 80 sovs.

II. Wool.

10*l* To the owner of the best sample of ten fleeces of Long Wool.
10*l* To the owner of the best sample of ten fleeces of Short Wool.
10*l* To the owner of the best sample of ten fleeces of Wool of mixed breed.

III. Implements.

10*l* For the PLOUGH best adapted to heavy land.
10*l* For the PLOUGH best adapted to light land.
15*l* For the best DRILL for general purposes, which shall possess the most approved method of Distributing Compost or other manures in a moist or dry state, quantity being especially considered. N.B.—Other qualities being equal, the preference will be given to the Drill which may be best adapted to cover the manure with soil before the seed is deposited.
10*l* For the best TURNIP DRILL on the flat which shall possess the most approved method of Distributing Compost or other manures in a moist or dry state, quantity being especially considered. N.B.—Other qualities being equal, the preference will be given to the Drill which may be best adapted to cover the manure with soil before the seed is deposited.
10*l* For the best TURNIP DRILL on the ridge, which shall possess the most improved method of Distributing Compost or other manures in a moist or dry state, quantity being especially considered. N.B.—Other qualities being equal, the preference will be given to the Drill which may be best adapted to cover the manure with soil before the seed is deposited.
10*l* For the best SCARIFIER.
10*l* For the best CHAFF CUTTER.
20*l* For the best MACHINE for making Draining Tiles or Pipes for agricultural purposes. Specimens of the Tiles or Pipes to be shown in the Yard; the price at which they have been sold to be taken into consideration, and proof of the working of the Machine to be given to the satisfaction of the Judges.
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IV. Essays and Reports.

I. FARMING OF NORTH WALES.

50*l*, or a Piece of Plate of that value, will be given for the best Report on the Farming of North Wales.

Competitors will be expected to describe the different varieties of soil which prevail in North Wales, and the quality and extent of the waste lands; also the ordinary modes of farming and courses of cropping adopted, according to its various districts; and to state how far any peculiar practices in its husbandry are or are not justified by peculiarities of soil or climate. They will also be expected to state what improvements have been made in the farming of North Wales since the Report of the Rev. Walter Davies in the year 1810; and especially to point out what further improvements ought to be effected, either by better farming on land already cultivated, or by converting land now waste into arable, pasture, or catch-meadow.

N.B. The writers of County Reports are requested, if possible, not to exceed the length of 40 or at most 50 printed pages.

II. FARMING OF WEST RIDING OF YORKSHIRE.

50*l*, or a Piece of Plate of that value will be given for the best Report on the Farming of the West Riding of Yorkshire.

Competitors will be expected to describe the different varieties of soil which prevail in the West Riding of Yorkshire, and the quality and extent of the waste lands; also the ordinary modes of farming and courses of cropping adopted, according to its various districts; and to state how far any peculiar practices in its husbandry are or are not justified by peculiarities of soil or climate. They will also be expected to state what improvements have been made in the farming of the West Riding of Yorkshire since the Report of Robert Brown in the year 1799; and especially to point out what further improvements ought to be effected.

III. FARMING OF CAMBRIDGESHIRE.

50*l*, or a Piece of Plate of that value, will be given for the best Report on the Farming of the County of Cambridge.

Competitors will be expected to describe the different varieties of soil which prevail in the county, the ordinary modes of farming, and courses of cropping adopted accordingly in its various districts; to describe the great works of drainage; and to state how far any peculiar practices in its husbandry are or are not justified by peculiarities of soil or climate. They will also be expected to state what improvements have been made in the farming of Cambridgeshire since the Report of the Rev. W. Gooch in the year 1813; and especially to point out what further improvements ought to be effected, either by better farming on land already cultivated, by improvement of the general drainage, or by taking new land into cultivation.

IV. ON THE ADVANTAGES OR DISADVANTAGES OF BREAKING UP GRASS-LAND.

50*l*, or a Piece of Plate of that value, will be given for the best Report on the Advantages or Disadvantages of Breaking up Grass-land.

Competitors will be expected to state the advantages so arising to the labourer, the farmer, the landlord, and the public, from increase of employment, of profit, of rent, and of food.

Grass-lands must be divided under at least three heads—of downlands, cold pastures, and good meadow or grazing ground.

The mode proposed for breaking up and tilling each kind of Grass-land must be described.

V. ON THE IMPROVEMENT OF THE CONDITION OF THE AGRICULTURAL LABOURER.

30*l*, or a Piece of Plate of that value, will be given for the best Essay on the Improvement of the Condition of the Agricultural Labourer, so far as it may be promoted by private exertion, without legislative enactment.

VI. ON THE BEST METHOD OF KEEPING FARMING ACCOUNTS.

10*l*, or a Piece of Plate of that value, will be given for the best Essay on the Keeping of Farming Accounts.

VII. ON MEASURE-WORK.

20*l*, or a Piece of Plate of that value, will be given for the best account of Measure-work, locally known as Task, Piece, Job, or Grate Work, in its application to Agricultural Labour; detailing the various descriptions of such work to which any system of measure is applicable, the rates usually paid, and the sum usually earned in a given time; and comparing the effects of such payment with those arising from the payment of wages by time, on the direct interest of the employer, and especially on the habits, comforts, and general condition of the employed; the whole deduced, as much as possible, from personal experience; and affording to parties unacquainted with the practice the means of estimating its advantages, and the information necessary for carrying it out.

VIII. PEAT CHARCOAL AS A MANURE FOR TURNIPS OR OTHER CROPS.

20*l*, or a Piece of Plate of that value, will be given for the best Essay on Peat Charcoal as a Manure for Turnips and other Crops.

IX. THE ST. JOHN'S-DAY RYE.

10*l*, or a Piece of Plate of that value, will be given for the best account of the St. John's-day Rye.

Competitors will be required to attend to the following points:—

1 Times of sowing and cutting or feeding off in autumn and spring.
2 Comparison of this variety with the common Rye.
3 Estimated amount of feed.

N.B. The Essays for this prize need not be sent in before the 1st of October, 1846.

Competitors will be required to attend to the following points:—

1 State of bones.
2 Proportion of sulphuric or muriatic acid to a given weight of bones.
3 Proportion of water, if any, mixed with the acid.
4 Mode of mixing the bones with the acid, and of preparing the compost.
5 Effect of various quantities applied in combination or comparison with common bones and other known manures.

X. SUPER-PHOSPHATE OF LIME.

10*l*, or a Piece of Plate of that value, will be given for the best account of the use of Super-phosphate of Lime produced with Acid and Bones, for Manure.

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1 Quality of peat.
2 Mode of making the heaps and burning the charcoal.
3 Quantity produced from a given measure of peat.
4 Quantity applied per acre, and effect, in comparison with peat-ashes, and with some other manure.

N.B. The Essays for this prize need not be sent in before the 1st of December, 1846.

XI. WHITE MUSTARD.

10*l*, or a Piece of Plate of that value, will be given for the best account of the cultivation of White Mustard.

Competitors will be required to attend to the following points:—

1 Quality of land on which sown.
2 Mode and time of sowing, and quantity of seed.
3 Period of maturity, according to the season of the year.
4 Application of crop, whether as green manure or to be fed off.

XII. DRAINAGE OF RUNNING SANDS.

10*l*, or a Piece of Plate of that value, will be given for a description of the best method of draining Running Sands.

XIII. POTATO DISEASE.

50*l*, or a Piece of Plate of that value, will be given by His Grace the Duke of Northumberland, for the best Essay on the remedy for the Potato Disease, and on its treatment in the various stages of planting, growth, and preservation.

Competitors for this prize will be required to furnish information under the following heads:—

1 An account of the growth of the Potato during the last year, with reference to the nature of the season.
2 The nature and cause of the disease.
3 The remedies for the disease; explaining the principles on which the remedy is founded.
4 The treatment of the Potato in planting, both from the tubers and from the seed, and in various stages of its growth.
5 The mode of pitting and preserving potatoes in ordinary seasons, with the principles upon which any improved plan may be founded.

20*l*, or a Piece of Plate of that value, will be given by His Grace the Duke of Northumberland, for the second-best Essay on the same subject.

30*l*, or a Piece of Plate of that value, will be given by His Grace the Duke of Northumberland for the best History of the Disease at the present time affecting the Potato; involving a condensed detail of facts, developed by experiments.

Competitors for this prize will be required to furnish information on the following points:—

1 The year in which the disease first appeared in this or other countries.
2 The History of the disease in the potato in the United Kingdom, and in other parts of the world, with particular reference to authentic returns regarding any peculiarity of season, or seasonal variations.
3 On the methods for retarding the disease.
4. On the methods proposed for extracting the nutritive ingredients of diseased potatoes.

N.B. The Essays for the Duke of Northumberland's prizes need not be sent in before the 1st of June, 1846.

These Essays (with the exception of those in Classes VIII., IX., and XIII.) must be sent to the Secretary, at 12, Hanover-square, London, on or before March 1st, 1846. Contributors of papers are requested to retain copies of their contributions, as the Society cannot be responsible for their return.

RULES OF COMPETITION FOR PRIZE ESSAYS.

1 All information contained in Prize Essays shall be founded on experience or observation, and not on simple reference to books, or other sources.

2 Drawings, specimens, or models, drawn or constructed to a stated scale, shall accompany writings requiring them.

3 All competitors shall inclose their names and addresses in a sealed cover, on which only their motto, and the subject of their Essay, and the number of that subject in the prize-list of the Society, shall be written.

4 The President or Chairman of the Council for the time being, shall open the cover on which the motto designating the Essay to which the prize has been awarded is written, and shall declare the name of the author.

5 The Chairman of the Journal Committee shall alone be empowered to open the motto paper of such Essays, not obtaining the prize, as he may think likely to be useful for the Society's objects, with the view of consulting the writer confidentially as to his willingness to place such paper at the disposal of the Journal Committee.

6 The copyright of all Essays gaining prizes shall belong to the Society, who shall accordingly have the power to publish the whole or any part of such Essays; and the other Essays will be returned on the application of the writers, but the Society do not make themselves responsible for their loss.

7 The Society are not bound to award a prize unless they consider one of the Essays deserving of it.

8 In all reports of experiments the expenses shall be accurately detailed.

9 The imperial weights and measures only are those by which calculations are to be made.

10 No prize shall be given for any Essay which has been already in print.

11 Prizes may be taken in money or plate at the option of the successful candidate.

12 All Essays must be addressed to the Secretary, at the house of the Society.

*** *All Prizes of the Royal Agricultural Society of England are open to general Competition.*

THE ANNUAL COUNTRY MEETING for the Year 1846 will be held in the Northern District (comprised of the Counties of Northumberland, Cumberland, Durham, and Westmoreland, including the town of Berwick-on-Tweed) at NEWCASTLE-ON-TYNE, at such date in the autumn of 1846 as the Council, at their first Meeting of the Session, on the 4th of February next, may finally decide.

Parties intending to become exhibitors at the Newcastle Meeting are requested to apply to the Secretary (12, Hanover-square, London) for copies of the Rules, Regulations, and Conditions of the Show, as well as for the proper printed forms of certificate for entry. The latest date for receiving entries or certificates for Implements is the FIRST OF MAY; and the latest for Stock, &c., the FIRST OF JUNE. In order to prevent disappointment, the greatest attention must be paid to this standing regulation, as the Council have decided that in no case whatever shall any certificate be accepted after those dates respectively.

By order of the Council, JAMES HUDSON, Sec.

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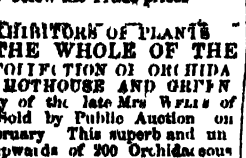
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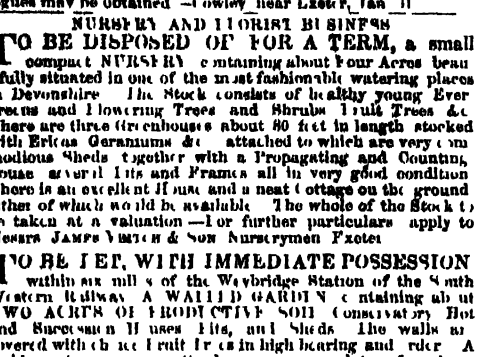
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The Works marked thus (*) have numerous Illustrations

JOHN VAN VOORST, 1, Paternoster row

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 6.—1846.] SATURDAY, FEBRUARY 7. [PRICE 6*d*.

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ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.—Under the Patronage of Her Most Gracious Majesty the QUEEN.—The EXHIBITIONS of the above Society for the Season will take place on the following days:—viz., at the Horns Tavern, Kennington, on WEDNESDAY, 22nd April, 1846, and at the Royal Surrey Zoological Gardens, on THURSDAY, 21st May, WEDNESDAY, 24th June WEDNESDAY, 22d July, and WEDNESDAY, 16th September, 1846

JOHN TAYLOR NEVILL, Secretary.

Ebenezer House, Peckham.

DANECROFT NURSERY, STOWMARKET, SUFFOLK

S. GIRLING'S GENERAL CATALOGUE OF DAHLIAS and other FLORIST'S FLOWERS, can now be had on prepaid application, containing nearly every new Dahlia of the season. A separate Catalogue of ROSES and PANSIES is also ready, and can be had, if required

FINE WHITE SPANISH ONION, ALTRINGHAM CARROT, &c.—Dealers can be supplied with a fine article at moderate prices, by WARNER & WARNER, Seedsmen, 24, Cornhill, London. General Priced Trade Catalogues to be had on application

SUPERIOR NEW EARLY PEA.—WARNER'S "EARLY EMPEROR" Pea, the earliest in cultivation, quite hardy, a good cropper, with fine pods, and most delicious flavour. Height about 2 ft.—5*s*. per quart.—To be had of WARNER and WARNER, Seedsmen, 24, Cornhill, London.

Catalogues containing all the New and Choice Flower and Vegetable Seeds for the Season are now ready, and may be had on application.

See "Harrison's Cabinet" for February

E. BECK informs the Public that the various Articles manufactured by him in Glass for Horticultural purposes, may be seen in use at Worton Cottage, Isleworth, upon application to the gardener (*Sundays excepted.*)

FIRST PRIZE CUCUMBER.—"VICTORY OF BATH."

EDWARD TILEY begs leave to state that in consequence of the repeated applications to him within the last few days, wishing to know if he has any Seeds left of his FIRST PRIZE CUCUMBER—"VICTORY OF BATH," begs leave to state to growers not yet in possession of this superb Cucumber, (which he originally proved itself for the last two years, that he has a few dozen specimens of seed yet left (having sold already upwards of three hundred). Parties desirous of obtaining the above must apply by the 20th, as the season is rapidly advancing.

For additional proof of the above, see this Paper of January 24, 1846, and 31st.—Sold at his general Seed Shop, 16, Pulteney Street, Bath, in packets of 3 seeds, 2*s*. 6*d*., 7 seeds, 5*s*.; packets free.

Testimonials exported from unknown correspondents.

THE PILBY OR FASTOLFF RASPBERRY.
TO THE TRADE.

WILLIAM CRISP has a few Thousands of the above RASPBERRY to offer, in quantities not less than 500; they can be warranted genuine. See history of this RASPBERRY, given by Mr. Rivers, in *Gardeners' Chronicle*, November 26, 1842. The lowest trade price will be given on application.—Direct to WILLIAM CRISP, Filby Gardens, near Yarmouth. Delivered free on board steamers at Yarmouth.

H. LANE & SON'S CINERARIA "SUPERB BLUE" is now ready, and can be Forwarded by Post at 2*s*. each. Strong Blooming Plants in pots at 7*s*. 6*d*. each.—Great Berkhampsteed, Herts, Feb. 7.

VICTORIA NURSERY, YORK.—SEED POTATOES.

J. and H. HARGROVE can now supply sound POTATOES, for immediate planting, of the most esteemed varieties cultivated in this district. As the market at present is fully supplied, to fix prices generally, every information relative thereto given to intending purchasers by return of post.

THE BRILLIANT EARLY POTATOES (a sample of which may be seen at Messrs. JACOB WARNER and Sons, [illegible]), delivered free at any of the [illegible] at 7*s*. 6*d*. per bushel, by Steam Vessels to Hull, Liverpool, Glasgow, Bristol, and [illegible] Vessels to nearly every part in South [illegible]. Also a large assortment of Seedling Forest-trees, [illegible] at very moderate prices.

TO GENTLEMEN AND AMATEUR FLORISTS.

TO BE PARTED WITH.—A few Hundred Roots of that fine flower the RANUNCULUS, at 4*s*. per hundred roots (with names), time of planting, February and March.—Apply, prepaid, to Mr. EVAS, Farnham, Surrey, where may be seen in the blooming season, in Mr. E.'s small collection of fine Pelargoniums, a number of highly impregnated Seedlings for 1846, also his beautiful high-coloured Seedling named "Elisha" (not exhibited), of fine symmetry, may be seen and had of Mr. W. CATLEUGH, Florist, Chelsea

Farnham, Surrey, Feb. 7

SELECT VEGETABLE SEEDS.

WILLIAM E. RENDLE & CO. have much pleasure in announcing to those who are fond of really choice and good vegetables, that they have this year procured a small stock of the following valuable sorts, which are all warranted to grow well, and to be of genuine quality.

A Packet of each will be sent postage free to any part of Great Britain or Ireland for *Ten Shillings*, or a selection of 12 sorts for *Five Shillings*. Any sort separate at *Sixpence* per Packet.

Willcove Broccoli
New Early Walcheren do.
Chappel's Cream do
Legg's Late Dwarf do.
Large Syrian do
Hampton Court do
Potter's Pink do
Walcheren Cauliflower.
Large Asiatic do.
Improved Guernsey Parsnip.
Green Flesh Cabbol Melon.
Ice Cabbage Lettuce.
Drumhead do
Golden Cos do.
Blood Red do
Hampton Court Cabbage do.
London Market do.
Ady's Large Cos do.
Wood's New Frame Radish.
Myatt's superior Curled Parsley
Enfield Matchless do.
Superb Crimson Beet
Imported Brussels Sprouts.
White Spanish Onion.
Green-topped Carrot
Early Matchless Cabbage.
Olive shaped Radish.
Earliest Cornish do
Early Hope do.
Early British Queen do.
London Market do
Early Paignton do
Seymour's White Celery
Lancashire Hero (Red) do.
Walnut flavoured Pink do.
Improved Manchester Cucumber

Complete collection of Seeds suitable for a Kitchen Garden for 1l. 10s., including the above, carriage free, to any place within 250 miles of Plymouth.

ALL OTHER KINDS OF GARDEN SEEDS.

Early orders are desired, as *some of the kinds* are scarce.

A general collection of Garden Seeds can be had on application.

NEW AND SUPERB SEEDLING FUSCHIAS, RAISED 1845

YOUELL & Co. in offering the following six SEEDLING FUCHSIAS, beg to observe they have been selected from upwards of ten thousand Seedlings of last season, many hundreds of which possessed great merit, but feeling it would be more satisfactory to select a few that possessed really distinct and superior character, have induced them to offer with confidence the following They would beg to call particular attention to the one named "SANSPAREIL," which they will guarantee is not surpassed by any light variety yet raised, and will give general satisfaction.

"SANSPAREIL" 10*s*. 6*d* "An elegant flower, light tube and sepals, with purple crimson corolla"—See *Gardeners' Chronicle, Sept. 20th, 1845.*

"A NEW WHITE FUCHSIA.—We have just seen a magnificent white seedling Fuchsia, raised by the Messrs YOUELL. The flower is about 3 inches in length, the tube and sepal white, and resembles 'Venus Victrix,' but is three times its size, and is much more brilliant and fair in colour. It should be called 'Sansparell,' as it is most assuredly one of the most beautiful of its species We quite envy Messrs. YOUELL their prize"—*Editor of the Cambridge Advertiser, Oct 1st, 1845*

The "CONQUEROR," 7*s* 6*d*. Bright vermillion tube and sepals, the latter expanding well and showing a very large corolla of the deepest purple. The *Gardeners' Chronicle* of the 26th of Oct., says, "this is very showy, from its having a very large corolla, with a good contrast in the colours."

"SIR GEORGE MACKENZIE," 7*s*. 6*d*. Tube very large, of bright vermillion, contrasted with pink corolla of the finest form, and will be found a desideratum to any collection—"A rich coloured flower."—*Gardeners' Chronicle, Oct. 20th, 1845*

"LAURA," 5*s*. Delicate bright pink slightly tipped with green, with light rosy purple corolla; this is a very beautiful variety.

"MAGNIFICENT," 5*s*. Extraordinary large flower, smooth in texture, of fine vermilion and dark crimson corolla. A very brilliant variety.

"AGNES," 5*s*. This very pretty variety is of globular form, of bright pink, with very bright rosy purple corolla, and exceedingly striking

The above will be ready for sending out in May next When the set are taken they will be charged 1*l*. 11*s* 6*d*

YOUELL & Co. in submitting their CATALOGUE of FUCHSIAS, for 1846, take the present opportunity of drawing the attention of admirers of the above elegant tribe of Plants to their superb Collection. They have spared no expense in forming a selection of such as are really good, to the exclusion of many that are mere nominal varieties, and they would refer to the numerous testimonials of success which attended their mode of selecting last season, collections for Amateurs, for competition at the various Horticultural Exhibitions throughout the Kingdom.

Their CATALOGUE of FUCHSIAS this season will be found arranged in two divisions, namely, Light and Dark Coloured varieties of various shades, and they flatter themselves that the care observed by excluding very many varieties now out of date, and others that do not possess sufficient merit, that any disappointment on the part of the purchaser will be prevented.

12 Ex. fine Varieties, 10*s*. Selection left to Youell & Co.
12 Ditto ditto 21*s*. Selection left to Purchaser or do.
50 Fine Varieties 40*s*. Selection left to Youell & Co.
50 Extra fine ditto 60*s*. Selection left to Purchaser or do.

Their CATALOGUE for 1846 is just published, containing a list of names of the very best Fuchsias, Verbenas, Select Plants, Camellias, Ericas, Coniferous Plants, Petunias, Cinerarias, Pansies, Chrysanthemums, Antirrhinums, Polyanthus, Herbaceous Plants, Carnations, Picotees, Pinks, &c. &c., which will be forwarded on application by enclosing two postage stamps.

Great Yarmouth Nursery, Feb. 7, 1846.

JOHN STEWART, NURSERY AND SEEDSMAN, DUNDEE, has still a good general stock of Nursery, particularly those noted below, which he offers to the Trade at the following prices:—

SEEDLINGS Per 1000.—	*s*.	*d*.
Alder, 1 year	2	0
Ash, 2 & 3 years	2	0
,, Mountain, 1 & 2 years	2*s*. & 4	0
Beech, 2 years	4	0
Birch, Weeping, 1 year	3	6
Briar, Sweet, 1 year	2	6
Berberis, Common, 1 & 2 years	4*s* & 5	0
,, aquafolia, 1 & 2 years	25*s* & 30	0
Crab Apple, true, 2 yrs	4	6
Chesnut, Spanish, 2 yrs	10	6
Cupressus sempervirens, 1 year	20	0
Cytisus, evergreen, 1 yr.	10	0
Elm, 2 & 3 years	2*s*. & 2	6
Fir, Scotch, 2 years	1	0
,, ,, Highland	1	6
,, ,, Spruce, Norway, 2 & 3 yrs	1*s* 6*d* & 2	0
,, Silver, 2 & 3 years,	7*s*. & 8	0
,, Larch, 1 year	1	0
,, extra	1	6
,, ,, Tyrolese, 1 yr	2	6
Hazel, 1 & 2 years	7*s* & 8	0
Holly, 1 year	4	0
Hornbeam 1 & 2 years,	3*s* 6*d* & 4	6
Juniper, Highland 1 yr	15	0
Laurel, Portugal, 2 yrs	30	0
Laburnum, Scotch 2 yrs	5	0
Ononis rotundifolia, 1 & 2 years	20*s* & 25	0
Oak, English, 1 2, & 3 years,	2*s* 6*d* 3*s*, & 4	0
Mossy-cupped, 1 yr	5	0
,, evergreen, 1 year	35	0
Pear, 1 year	8	0
Plane, or Sycamore, 1 yr	2	6
Pine, Weymouth, 2 & 3 years	4*s* & 5	6
,, Maritana, 1 year	5	0
,, Mugho, 1, 2, & 3 years	5*s*, 6*s*., & 7	0
Pine, Austriaca, 1 year	7	6

SEEDLINGS Per 1000.—	*s*.	*d*.
Thorn or Quick, 1 year,	1*s*. 6*d*, 1*s* 9*d*, & 2	0
,, 2 years	2*s*. 6*d* & 3	0
,, 3 years	5	0
Yew, 3 years, fine	25	0
Whin or Furse, 1 foot	4	0
,, 2 years, 1½ foot	7	0
Broom, common, 1 year, 1½ foot	4	0
Blackthorn or Sloe, 2 years, strong	6	0

TRANSPLANTED.

Briar, Sweet, 1 to 2 feet	12	0
Ash, Mountain, 3 feet	20	0
,, ,, 4 feet	25	0
Elm, 3 to 4 feet	15	0
Fir, Scotch, 2 years seedling & 1 year transp	4	6
Highland Juniper, 1 foot	50	0
Larch, 2 years seedling and 1 year transp., 1 to 1½ foot	8	6
,, 1 year seedling and 2 years transp, 1 to 2 feet	10	6
Privet, evergreen, 1 to 2 feet	15	0
Thorn or Quick, 3 years seedling and 1 year transplanted	9	0
,, 1 year seedling and 2 years transp.	10	0
Willow, Huntingdon, 2 to 3 feet	15	0
,, Norfolk, 2 to 3 ft	15	0
Laurel, Portugal, 2 years seedling, & 1 yr transp	60	0
Arborvita, American, 1½ foot	70	0
Yew, common, 2 years transplanted	70	0
Yew, Irish or upright, 1 foot, 6*s*. per dozen, 1½ foot, 12*s*., 2 feet, 24*s*., 3 feet, 30*s*; 4 feet, 40*s*		

With every other article connected with the Nursery and Seed Trade. Lists can be forwarded upon application.

Dundee, February, 1846.

JOHN CLARKE, of Long Sutton, Lincolnshire, having for the past four years carefully grown a variety of DWARF PEA, presented to him by Mr F Grant, whose family have cultivated it for table more than 60 years, now offers it to the public as one of the most prolific ever known. It is adapted for field culture. Price 15*s* per bushel.

Orders enclosing the amount for quantity required, will be promptly executed.

SHILLING'S EARLY POTATO.—The above POTATO is a Seedling of their own raising, which they have for several years sent out in their own neighbourhood, where it has been highly esteemed; but having a wish to make it more extensively known, they have appointed the undermentioned Seedsmen in London as Agents, of whom they may be had at 4*s*. per peck

It is a particularly healthy variety, very handsome, of middle size, second to none in earliness or produce, and very remarkable for its delicious flavour and nutritious properties. When taken up, they got from 12 Potatoes 13½ ozs. of clean dry flour or starch, not easily distinguished from the foreign Arrow-root, with which it has been compared. They are desirous to call attention to its quality and flavour, and do with confidence recommend it in every other respect.

Agents—Messrs. T. & W. YOELL, 132, Fleet-street, London,
Messrs HURST & M'MULLEN, 4, Leadenhall-street,
Mr KERNAN, 4, Great Russell-st., Covent-garden,
Mr. W. C. FARNES, Seedsman, 128, St. John's-st., West Smithfield, London
Messrs. BATT & RUTLEY, Seedsmen, 419, Strand, London.
J. & S. SHILLING, Nursery and Seedsmen, Northwarnbro', near Odiham, Hants.

MESSRS. J. AND H. BROWN will send the following to any part of the United Kingdom, on receipt of a Post-office order.

	l.	*d*.
Andromeda floribunda, per dozen	12	0
25 New Hardy Ghent Azaleas, one of a sort, named	25	0
25 Hardy American Azaleas, of sorts, do.	25	0
12 Rhododendrons, best hardy sorts, including scarlet, white, and rose-coloured varieties	25	0
Rhododendron pontticum, per doz.	6	0
Chinese Arborvitæ, 2 feet, do.	6	0
25 Hardy American Shrubs, one of a sort	10	6
100 Superior dwarf Roses, on their own roots, named	35	0
50 ,, ,, ,,	20	0
25 ,, ,, ,,	10	6
25 ,, ,, Moss ,,	10	6
Standard Roses, of sorts, per doz.	15	0
Climbing Roses, do., on their own roots, per doz.	9	0
Cloth of Gold do., do. do. each	3	6
Tea-scented Roses, one of a sort, in pots, per doz.	12	0
Devoniensis and Yellow Noisette, per doz.	9	0
Best Sorts of Verbenas and Petunias, strong plants, per doz.	4	0
Fuchsias, including Queen Victoria and Serratifolia, per doz.	21	0
Camellias, of sorts, per doz.	36*s*. to 48	0
Six varieties of new White, Fragrant, Herbaceous Peonies, each	1	6

Flower seeds, 25 packets, 10*s*.; 18 do., 5*s*., of the most approved sorts, sent, postage free. Any preferred species might be specified in the order

Albion Nursery, Bishop Stortington, London.

DAHLIA "EBOR."

JAS. BACKHOUSE & SON, York, intend sending out plants of this fine Yellow Dahlia on the 1st of March next. Price 21s each

To Nurserymen in the Trade, wishing one, a plant will be taken at half price, delivered (carriage free when three or more are ordered

WANTED TO PURCHASE a few FRUITING PINE PLANTS, to be of the following sorts —Enville, Providence, or Montserrat, particularly clean and healthy —Apply, stating the price, carriage free to Liverpool, to C. G., Hillsquare Peel, Isle of Man

C. M. AND R. WEBMACOTT, Gunnersbury, Florists &c., Stuart's Grove Nursery, Portland-road, Chelsea, also at 166, Cheapside (opposite St. Paul's), London, which latter premises (recently occupied by Messrs. T. & C. Lockhart) they respectfully inform their friends and the public they have taken, and beg to announce that their Descriptive Catalogue of Flowers, Vegetables, and Agricultural Seeds for 1846 is now published, and will be forwarded on receiving a pre-paid application.

C. M. & R. W. assure their friends that all Seeds or Bulbs purchased at their establishments will be warranted in excellent condition, and true to name and variety

Country orders will be packed with the greatest care and punctuality.—166, Cheapside opposite St. Paul's.

SEED'S DWARF ITALIAN MARROW PEA

J. AND C. LEE are now sending out the above new PEA this season, and having grown the Stock for the last five years they can strongly recommend it as a distinct and most excellent variety Its habit is exceedingly dwarf and robust; it is a very prolific bearer, and the Pea is equal in size to the largest Marrowfat, and is of most delicious flavour It comes in earlier than any other Marrow It has been grown in the gardens of Chamber, Welbeck, Thoresby, Hanchams, Tottenham-park, and Tedworth, and is highly extolled by the Gardeners of those places In Quart Packets, sealed, price 5s

Nursery, Hammersmith

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, and Others.

ABIES CANADENSIS, or HEMLOCK SPRUCE.

—Thomas Rance, Nurseryman, Bagshot having the largest stock of the above in Europe, of all sizes and in fine condition can with confidence recommend this noble tree to the notice of the Public, and having so large a stock (abt. 200,000 large plants, 3 feet high, besides smaller sizes), can dispose of them at very low prices, also, with a General Nursery Stock He begs to offer at unusually low prices in all sizes, the largest assortment of Kalmia latifolia ever offered to the Public —Prices can be had by letter, and shall be attended to forthwith.

TO CONTRACTORS, THE TRADE, &c.

ARTHUR MASKEW begs to call the attention of the Trade to the annexed list of TREES and SHRUBS, which are of first-rate quality, and, as he trusts, will, from the lowness of price, be found worthy of notice The Norfolk Railway affords great convenience for the cheap and safe transit of plants, the charge to London being at this time at the moderate rate of 27s 6d per ton, and where large quantities are taken, A. M. will deliver them free

				s d		s d	
Blackthorn, 2 yrs, fine	..	..		6 0	to	7 0	p. 1000
Whitethorn, do	..	..		2 6	to	3 6	,,
Turkey or Levent Oaks, do	..	..		7 0	to	8 0	,,
Ash, transplanted	..	..	2 to 4 ft	14 0	to	15 0	,,
,, ,,	..	..	4 to 5 ft	18 0	to	20 0	,,
Beech ,,	..	..	1 to 2 ft	12 0	to	15 0	,,
,, ,,	..	..	2 to 2½ ft.	17 0	to	20 0	,,
Larch ,,	..	..	2 to 3 ft	12 0	to	15 0	,,
,, ,,	..	..	3 to 4 ft.	14 0	to	15 0	,,
Scotch ,,	..	..	1 to 2 ft	12 0	to	20 0	,,
Hazel ,,	..	..	1 to 2 ft	15 0	to	20 0	,,
Oaks ,,	..	..	1 to 2½ ft	12 0	to	20 0	,,
Blackthorn ,,	2 yrs, fine	..		8 0	to	10 0	,,

ORNAMENTAL TREES AND SHRUBS.

Oaks, Turkey or Levant	..	..	5 to 6 ft	25 0	to	35 0	per 100
,, ,, ,,	..	..	6 to 8 ft	35 0	to	45 0	,,
,, ,, ,,	..	..	8 to 10 ft	20 0	to	30 0	,,
Chesnut, Horse	..	..	6 to 8 ft	12 0	to	20 0	,,
,, ,,	..	..	8 to 10 ft.	25 0	to	35 0	,,
Tree Box	..	..	1 to 2 ft	6 0	to	8 0	,,
,,	..	..	2 ft	10 0	to	12 0	,,
Laurels	..	..	1 to 2 ft	5 0	to	6 0	,,
,,	..	..	¾ ft	10 0	to	12 0	,,
,,	..	..	2 to 3 ft	12 0	to	15 0	,,
Standard Thorns	..	..		50 0	to	60 0	,,
,, Roses	..	..				5l. to 8l	,,
Red Cedars	..	..	1 to 2 ft	30 0	to	50 0	,,
,, ,,	..	..	2 to 2½ ft	45 0	to	65 0	,,

A reference is requested from unknown correspondents

Norwich Nursery, Feb 7

SELECT AND CHOICE FLOWER SEEDS, with full directions for sowing, treatment, height, colours, &c.

				s	d
100 varieties choice Annuals, including the most approved sort	..	..	..	15	0
50 ,, ditto	ditto	ditto	..	8	6
40 ,, ditto	ditto	ditto	..	5	6
30 ,, ditto	ditto	ditto	..	4	0
20 ,, best dwarf kinds, in larger packets, suited for filling beds on lawns	..	..	..	7	6
12 ,, ditto	ditto	ditto	..	5	0
20 ,, choice greenhouse Annuals, including Phlox Drummondii, Portulaca, Mimulus, Sedum azureum, Brachycome, Mesembryanthemum tricolor, Mentzelia fragrans, &c	..	..	..	7	6
36 ,, choice greenhouse Perennials, including Calceolaria, Fuchsia, Petunia, Cineraria, Chrysanthemum, &c	..	..	..	10	6
20 ,, choice hardy Biennials and Perennials, including fine Hollyhock, Pansy, Sweet-scented Stock, &c	..	..	..	5	0

The above sent free by post at the prices affixed, or packed, as follows:—

Per packet.	s	d	Per packet.	s	d
Calceolaria, extremely choice flowers	0	6	Mimulus, from choice flowers	0	6
Fuchsia, ditto	1	0	Phlox Drummondii, from 10 first varieties	0	6
Cineraria, ditto	1	0	Ranges, assorted and quite fine	1	0
Gesneriana, ditto	2	6	Gladiolus from splendid spotted hybrids	0	6
Pansy, ditto	1	0			
Antirrhinum, ditto	0	6			
Dahlia, ditto	0	6			

SUPERB SEEDLING RANUNCULUSES.

25 named varieties for 10s., or 12 for 5s., from extensive named and unnamed collections, which I annually choose here exclusively during the time shown previous from many thousands of seedlings raised by my grandfather.

25 best choice named varieties 10s., 12 for 5s 100 for named 40s., 250 for 80s., carr by goods &c.

Any of the above can be sent, prepared in cases, direct to the purchaser, when will be accompanied with [illegible] and brief directions for culture.

Remittances by Banker or Post-office orders from unknown correspondents.

Choice named Ranunculus roots, embracing the best in cultivation, will be sent [illegible]

Rose and Thorn, [illegible] Sudbury, Suffolk.—Feb 7.

RULES AND REGULATIONS OF THE LIMITED GARDENERS' TONTINE SOCIETY

I That the Society do consist of 1000 shares at 5l per share, to be held by Gardeners only, subject to the conditions hereafter named

II That the business of this Society be conducted upon the same principles, and after the same manner, as a Private Establishment, and that the whole be carried on in the names of the Firm of Messrs WEEKS AND DAY, and that the names of Members shall not be made publicly known

III That no person shall be admitted to be a shareholder, but such as are generally considered Practical Gardeners; and no Member shall be allowed to sell any of his shares to any Other than a regular Practical Gardener, he shall not sell them to any Nurserymen, nor shall he sell them to any Gardener without first obtaining the sanction of the Society, that they may approve of the purchaser, and recommend him also as a Member, but shares may be sold upon these conditions, and a Member shall be at full liberty to obtain as much as he can for his shares, but in the event of a Member wishing to sell his shares, and not being able to find a Practical Gardener willing to purchase them, the Society shall be bound to purchase the same, and to give the full value in money of 5l for every share. Any Member holding any number of shares, shall be at liberty to sell or bequeath the same, or any portion of them, to whomsoever he may think proper, whether the person to whom the same may be so devised, be a Male or a Female, whether a Practical Gardener or not, and such person, or any person to whom such shares may descend by right of inheritance, may receive the full benefit of all profits so long as they live, and hold the same shares in their possession, but they shall not have any vote or voice in the management, nor have any thing to do with the Society or business, further than receiving the Dividend on the profits, the same as other shareholders the Stock in Trade shall not be considered as belonging to them, they shall not sell the said shares to any other but a Practical Gardener, subject to the approval of the Society. But should the person so taking or inheriting any shares, be a regular Gardener, then he shall, if approved by the Society be admitted as a Member, and enjoy all its privileges, and be entitled to vote and give his opinion, the same as if he had been an original shareholder, the object of the Society being to keep the control of the Establishment exclusively in the hands of the Gardeners, for whose benefit it is established.

IV Every Member holding one, two, three, or four shares, shall be entitled to one vote, five shares to two votes, ten shares to three votes, fifteen shares to four votes, twenty shares to five votes thirty shares to six votes, forty shares to seven votes, and so on, one vote for every additional ten shares, up to one hundred shares, which will entitle the holder of one hundred shares to thirteen votes, which is the largest number of votes allowed for any one Member That Messrs WEEKS AND DAY shall be considered as one person only, and having taken one hundred shares, shall be allowed the full number of thirteen votes

V That all the Houses, Pits, and Frestions, be built upon the best principle, and that the whole be kept in thorough repair with strict regard to economy

VI That so far as it is found profitable, a general Collection of all the various Tribes of Plants, Flowers, Fruits, &c, be cultivated, and a regular Seed business carried on

VII That in the Employment of Men, Members will have the preference, but the Society will not discharge a Non-Member who suits them to take on a Member nor will they keep a Member longer in their employ than they think proper

VIII That the Society use their best endeavours to procure for Gardeners generally, situations best adapted for the particular ability of the man, and most likely to suit their Employers and that books for that purpose be had, and a general Register kept at the Nursery That the Profession be divided into various Classes, such as Flower Gardeners Forcing Gardeners, Landscape Gardeners, Gardener and Bailiff, Good General Gardeners, Married and Single, with families or without, &c &c, or as many Classes as may be found desirable That any Gardener, whether working in the Nursery or not, whether a Member or not, whether a Customer or not, whether working in any other Nursery or not, shall have the same chance of getting a situation A Gardener on entering his Name in the books shall be at liberty to give a short advertisement of himself, he may enter his Name in which Class he pleases, he shall state where he has lived, as Head or Under Gardener, and how many men he had under him, he shall also authorise the Society to apply for his character, and for the protection of the respectability of the profession, the Society shall use reasonable precaution in endeavouring to find out the true character and abilities of every applicant whose Name is upon their books, and that the Nobility and Gentry be made acquainted, by frequent advertisements in the various Papers, that such a List of Gardeners, classed according to their various abilities, is kept at the Nursery, and that no charge whatever be made to either party

IX That any Member shall be at liberty to suggest any alterations, addition, or improvement in the rules or management of the Society, which suggestions shall be communicated by Letter to the whole of the Shareholders, together with a full report of the affairs of the establishment once in every six months, when every Member shall be at liberty to vote for or against the proposed alteration That votes shall be allowed to be given either in person, by according their name in a book to be kept for that purpose, or by Letter, duly signed and addressed to the Managers.

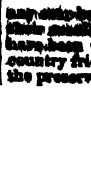
X That books be properly kept with a regular Debtor and Creditor account of all Receipts and Disbursements, which books shall be open to the inspection of the Members at all reasonable times, and that Messrs. WEEKS AND DAY shall be answerable for, and render a full and particular account of the pecuniary transactions of the Society

XI That the accounts be balanced every Christmas, and the profits divided equally between every Shareholder, according to the number of shares each one may hold—so much to each share

XII That Messrs. WEEKS AND DAY do receive as compensation for their trouble 10l per cent. on the profits only, and should there be no profits or dividends annually paid to the Shareholders, the said Messrs. WEEKS AND DAY shall not receive any compensation or remuneration whatever

XIII That the Society act on liberal principles to all parties, never underselling, or in any way offering the slightest opposition, or prejudice, to the other respectable body of Nurserymen or Gardeners; but acting at all times as an upright, honest, Trading and Free Firm, both to employers and employed—ever ready to do good, and advance the condition of Gardeners generally.

COOPER'S PATENT PRESERVED FRUITS have been proved to retain and perfection for family use for [illegible] They are put up in stone ware bottles, of different sizes, fitted with glass An assortment of Raspberries and Currants, Cherries, Greengages, Gooseberries, Damsons, &c., and a moderate quantity [illegible] the cork; these, with the whole particulars of the patent process, and testimonials, are posted to a Report for the purpose of trial, and will be delivered at any part of London free [illegible] or under addressed to the Secretary, [illegible] 7, the upper part of St. Martin's-court, Cranbourn-street, Leicester-square [illegible] commercial [illegible] that will prove their excellence, and the [illegible] and economy of the system, have been [illegible] and respectable personal to country friends, as they [illegible] the preservation of fruit.



PLANTING SEASON.

THE following Specimens of NURSERY STOCK are still in [illegible] Stevens & Son, Bermondsey and Tooley-street, at the prices advertised in the Gardeners' Chronicle of the [illegible] last.

SEEDLINGS.

Ash
Beech
Pinaster
Stone Pine
Oak, English Durmast, 1, 2, and 3 feet
Sycamore, 2 feet
Wilson Come-well, a valuable American species for coppice of hop [illegible]
Larch, 1, 2, and 3 feet
Evergreen Thorns, 1 foot
Holly, Common Black, 2 to 4 ft.
Rhododendron, 1 to 2 inches, 40s. per 1000
,, 2 to 3 ins., 60s. per 1000
,, 3 to 4 ins., 80s. per 1000
,, 12 to 18 ins., 20l. per 100
Clematis Jackmanii, 2s. per dozen
Auriculas (seedlings), 40s p 1000
Perpetual Tree Violet, 30s. per 100

TRANSPLANTED.

Alder, 2 to 4 feet
Ash, 2 to 3 feet
Beech, 2 to 4 feet
Birch, 2 to 4 feet
Elm, 1 to 2 feet
Hazel, 1 to 2 feet
Fir, Scotch, 1 to 4 feet
,, Spruce, 1 to 2 feet
,, Sea Pine, 1 to 2 feet
,, Pinaster, 1 to 2 feet
Poplar, 2 to 4 feet

If ordered in less quantity than the above quantities, the charge will be at retail prices

Waste Lands planted by contract.—Gardeners of experience and ability recommended

RANUNCULUSES, ANEMONES, AURICULAS, CARNATIONS, PICOTEES, GERANIUMS, AND LILIUM LANCIFOLIUM

HGROOM, Clapham Rise, near London, (removed from Walworth.) BY APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY,

Begs to recommend to the attention of the Nobility, Gentry, and Public his extensive assortment of the above FLOWERS, which he can supply of the best quality.

		s.	d.
100 RANUNCULUSES in 100 Superfine sorts, named		2	10
Superfine Mixtures	per 100—10s. 6d. to	1	1
100 ANEMONES, in 100 Superfine sorts, named		2	2
Superfine Mixtures	per 100	0	10
20 AURICULAS, in 20 Superfine sorts, named		2	2
25 pair of CARNATIONS, in 25 ditto	ditto	2	10
Best mixtures	per doz. plants	0	6
25 pair of PICOTEES, in 25 ditto	ditto	2	10
Best mixtures	per doz plants	0	6
20 GERANIUMS, in 20 Superfine sorts ditto		2	10
Good kinds	per doz, from 12s to	0	18
LILIUM LANCIFOLIUM ALBUM, good bulbs, each		0	2
,, FUNGTATUM		0	7
,, SPECIOSUM (true)	from 1l 1s to	2	2

H. GROOM begs to say his Catalogue of GERANIUMS and NEW PLANTS is ready, and will be forwarded by post on application Foreign Orders executed

HERTFORD NURSERIES

E. P. FRANCIS begs to state that he can supply Snow's WINTER WHITE BROCCOLI, which has given such universal satisfaction, in sealed packets 2s. 6d. each, also, Snow's Black Spine Cucumber, 2s. 6d per packet, of 8 seeds.

— Horticultural Prize do., 2s. 6d ,,

— White and Purple Fringed Pinsnds, 1s 6d. per packet.

E P F begs also to recommend a very superior new late White Broccoli, which may safely be relied upon as being the latest of the late and keeping good till Cauliflower comes in, in packets 1s. 6d each Catalogues of Roses may still be obtained upon application.—Feb 7.

NURSERIES, SAWBRIDGEWORTH, HERTS.

THE MONSTROUS GREEN-GAGE PLUM, OR "REINE CLAUDE MONSTREUSE."—In reply to many inquiries, T. RIVERS begs to inform his friends that the above Plum, advertised in the Gardeners' Chronicle of Jan 31, is a large and late variety of the Green-Gage and will bear in any situation favourable to that well-known variety, ripening about 10 days later.

CLARKE AND CO., SEEDSMEN AND FLORISTS, 86, High-street, Borough, respectfully beg to acquaint their Friends and the Public in general, that their collection of GARDEN and FLOWER SEEDS comprises all the New and Best varieties, of genuine quality, and as cheap as any other house in London. Catalogues are now ready, and will be forwarded on application A Collection of Kitchen Garden Seeds, consisting of every article used for culinary purposes, 12s. 6d., a Collection of 48 sorts of best Annual Flower Seeds, do Fine selected Field Seeds, Forest and Fruit Trees, &c. &c

HORTICULTURAL GLASS OF BRITISH MANUFACTURE, at J. WELCH, jun., PHILLIPS, and Co.'s Warehouse, 22, Panton-street, Haymarket — Having made arrangements with the British Manufacturers, they are enabled to offer the above articles in unlimited quantities at the following terms, in squares not exceeding 24 inches long :—

No 0—(equal to Foreign Sheet)	..	..	12d. per foot.
1—averaging from 12 to 16 ps. to the foot			10d. ,,
2 ,,	21 to 28	,,	7d. ,,
3 ,,	32	,,	5d. ,,

J. Welch, jun., having been many years with Mr. Drake, of 8, Jermyn-street, and 315, Oxford-street, and at the time of the closing of Chelsworth Conservatory, has devoted himself to the Horticultural Glazing Department, begs to call the attention of Horticulturists generally to the above prices for Glass, which they undertake to glaze in any part of the United Kingdom

They also beg to recommend for Pits and Garden Lights small size squares, which they offer at the following low prices, packed in 100 feet boxes, not particular to thickness.

Under 6 in. by 3	..	11d per foot
5 in by 4 and ,, 6 in. by 4	..	9d. ,,
6 in by 4 and ,, 8 in. by 7	..	8d ,,

J. W. & Co solicit inspection of their stock of Painted and Ornamental Glass at their Warehouse, as above.—12, Panton-street, Haymarket.

HORTICULTURAL GLASS.—NET CASH PRICES.

In squares under 8 inches by 7 inches	12d. per foot.
Ditto, 9 in. by 8 in., and under 8 in. by 7 in.	9d. ,,
Ditto, 9 in. by 8 in., and under 9 in. by 7 in.	8d. ,,

In Large Sizes up to 40 inches long and quite flat.

No.	per ft.
0—1-16th of an inch thick, or equal to 16 oz. to the foot, 4d.	
1—1-14th ,, ,, ,, ,, 5d.	
2—1-12th ,, ,, ,, ,, 6d.	
3—1-10th ,, ,, ,, ,, 7d.	
4—1-8th ,, ,, ,, ,, 1s.	

The thicknesses most recommended are Nos. 1 and 2, and the [illegible] panes, not [illegible] by 8 inches, 32 in. by 8 in., 24 in. by 8 in.

MORTICULTURAL GLASS.—Messrs. Hall beg to call the attention of [illegible] to the above prices for Glass suitable for [illegible] purposes; and as they are [illegible] a daily [illegible] part of Kent and the Continent, they are [illegible] to execute orders with which they may be favoured.

N.B. Cucumber and Melting Glasses supplied.

THE TRUE FARMING ASSOCIATION.

GREAT YARMOUTH NURSERY.



NORWICH. 1846.

WOODS & CO., Great Yarmouth Nurseries, the parties who first introduced Swedish Turnips to the agricultural world, have always a large stock of the genuine, and can supply the first on the list, and recommend the second; and respecting an article of such fine Cauliflower seed as they can offer the same upon the following terms, guaranteed to be of the same quality as those they have supplied to Messrs. Sutton, Her Majesty the Queen, His Royal Highness Prince Albert, Northumberland, His Grace the Duke of Buccleuch, His Grace the Duke of Marlborough, the Right Hon. Earl Spencer, the Right Hon. the Earl of Liverpool, the Right Hon. the Earl of Egremont, the Lord Bishop of London, Lord Wharncliffe, Lord Bandon, and most of the Nobility, as well as the Horticultural Society of London, the latter having awarded them, in the last two years, five guineas for it.

Packages containing 100 seeds	:	£1	1 0
Do. 50 do.	:	0	12 6
Do. 25 do.	:	0	7 0

Small Canes, 12s. per 100.

A liberal discount will be allowed the Trade when "quantities" are ordered.

For full description of the above, see their advertisement of last week

Great Yarmouth Nursery, Feb. 7.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD & SON have the honour of informing their Friends that they still continue to supply ROSES on the following terms; the selection of sorts being left to themselves. Strong Plants and warranted superior varieties:—

Extra Selection of Standards, on tall stems, 3 to 4 feet, adapted for planting in conspicuous situations .. .. Per Doz. £1 16 0

Per 100.

Superior Standards	Per Doz.	£1	4 0	— 10 0 0
Superb ditto, extra size ..	..	1	10 0	
Fine Dwarfs	..	0	12 0	
Superb ditto	..	0	18 0	
Fine Dwarfs on own roots, in 50 varieties ..			..	2 10 0
Ditto Climbing, 2s. to 12s. per doz.				
Fine Dwarfs on own roots, without names ..				1 10 0

A proportionate number of plants presented with each order, towards defraying the expense of carriage, &c.

W. W. & S.'s descriptive Catalogue of Roses, also Catalogues of Camellias, Greenhouse, and Herbaceous Plants, will be sent *free* on application.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 7, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, Feb 11	{ Microscopical (Anniversary)	:	7 p.m.
	{ Society of Arts	:	8 p.m.
Tuesday, — 17	{ Horticultural	:	2 p.m.
	{ Linnean	:	8 p.m.

The following remarks on the POLMAISE way of HEATING, by Mr. D. B. MEEKE, a most able and intelligent correspondent, are so perfectly in unison with our own views that we cannot do otherwise than adopt them as our own, by putting them in the most prominent place at our command, notwithstanding their too complimentary tone.

"In common with many (may I not say all) of your readers, I have taken much interest in the discussion, now carried on, in the *Chronicle*, on the subject of the Polmaise Mode of Heating.

"Having formerly given much attention to the laws regulating the distribution of caloric, and having also devoted much time to acquire a knowledge of the theory and practice of horticulture, I trust that the remarks I am about to offer will aid you in your kind endeavours to bring stove and greenhouse cultivation within the means of the many; and that the plans which I shall submit to your readers will advance us a step or more towards the complete development of a system, which (to distinguish it from the hot water circulation) I shall venture to call the *simple radio-thermal*.

"In spite of the prognostications of one who is usually a most intelligent correspondent, the Polmaise mode of heating (at least the great principles embodied in it) will eventually triumph over existing plans, not because these are unable to accomplish the object for which they are designed, but because it will attain the same end by cheaper and more simple means. Did not the costly and troublesome composts of the old florist flower growers accomplish the end for which they were employed? and yet, are they not now numbered among 'the things that were.' How many things (even the most ingenious) have gone the same road for the same reason! Is it unlikely that the distribution of caloric by means of hot water should be among the number, when one of its supporters acknowledges that to carry it out on an extensive scale he spent 700*l*? What a Polmaise stove would such a sum have built! The cheapness and simplicity of the radio-thermal system are not only reasons why it should, but why it will succeed. But I augur its success on surer grounds than these.

"When horticulturists first insisted upon a moist atmosphere as essential to the health of plants in high temperatures, the reason they assigned for the combination was, 'that nature taught us so.' When the same intelligent men annulled the practice of high night temperatures, it was on the ground 'that no such things were found in nature.' The general adoption of these views was predicted with confidence. May we not on the same grounds predict success for this eminently natural system? What are its principles?—a separate radiating body, a moist atmosphere, and atmospheric currents. What are the principles on which our earth is warmed, its climates varied, and fitted for the vast productions of vegetable life? Are they not the same; a distant source of radiant heat, moist atmosphere, and atmospheric currents? and if this be so, it is a bold assertion to make, that the principles which Providence employs, are insufficient for our guidance, or that they involve 'a waste of power.'

"Who can point to one instance of waste of power in the kingdoms of Nature? Is it not man who in his ignorance wastes power, by using one more medium for the distribution of caloric than his Maker has found necessary to employ? Let those, then, who advocate the plan now under discussion, remember that they have cheapness and simplicity as their object, and Nature as an example. Let them be prepared for that opposition awaiting all attempts to upset existing systems; but especially for the difficulties which must ever attend the conversion of theory into practice. Was the hot water circulation brought at once to its present state? Was an iron pipe full of water, with one end pushed into the fire, 'a more promising instrument' than a stove, a wet blanket, and a hole in the wall?

"Probably, we have yet every thing to learn—but the principles—the relative size of the heating body, and the space to be heated. The different effects produced by the relative situation and distance of the two; the best means of abstracting the greatest possible amount of calorie, from a given quantity of burning fuel; the best method of radiating the calorie so given off; the extent to which it will be advisable to carry cold currents of air towards the source of heat, and the best plan of heating the currents so carried; the way by which the most perfect system of ventilation, and the complete command of atmospheric humidity are to be obtained; these are some of the points which experience must determine, before this simple radio-thermal system will approach to that perfection with man which it has acquired in the hands of God; and when observation and ingenuity have overcome these difficulties, the end will be attained, viz., with one cheap radiating source of heat, combined with variable quantities of atmospheric moisture, and causing variable atmospheric currents, to produce every temperature, suited to every species of growth,—differing (according as it is more or less removed from the influence of the radiating body) from the hot moist climate of the jungle, to the comparatively dry and genial air of the tropical mountain.

"One word more, and I will cease to occupy space with my remarks; it is to thank you in the name of the many for your zealous endeavours to increase the number of their pleasures, and to thank the inventor of Polmaise for drawing attention to a system which promises to crown your efforts with success, which proposes to accomplish Nature's ends with Nature's means. Let us not dispute who first invented that system which was coeval with the universe, but let us strive who can excel the other in its development, reflecting that where that is attained, 'there is nothing hid from the heat thereof.'"

We hope to be able next week to produce a plan explanatory of the manner in which Mr. MEEKE would apply the Polmaise principle.

We announce with much pleasure that the GARDENERS' BENEVOLENT INSTITUTION continues to thrive. Like all newly-constituted Associations, it has had to suffer from the coldness of friends, the doubts of the unready, and the hostility of enemies. That time is past. Its utility is recognised; the proper application of its funds unquestionable, and its permanence apparently certain. We have only room to offer it our good wishes, and to give the following lists of the subscriptions handed in on the occasion of the last anniversary:—

Secretary's List	£79	10	0
Mr. John Wreath's	45	19	0
Mr. Garraway's	26	6	0
Mr. Gregory's	19	7	0
Mr. Henderson's	11	16	0
Mr. Finder's	5	11	6
Mr. Rupp's	4	14	0
Mr. Veitch's	3	3	0
	£194	14	6

It is curious, and vexatious, to see how little knowledge of the commonest facts of VEGETABLE PHYSIOLOGY persons, otherwise well informed, and careful observers, possess. Of this we have found instances without number in our editorial capacity, and more are occurring daily. The following may be taken as an example. "M. B.," a correspondent at Holywell, sends us an interesting account of certain facts relating to a tree in his possession, which facts he thus describes:—

"The following is a curious instance of continued vitality in a Pear tree under treatment apparently calculated to destroy it. The tree is of the Windsor kind, and had attained a great size without producing much fruit, when, in the spring of 1841, an experiment was tried of cutting away part of the bark, but from some misunderstanding of directions, the whole of the bark was removed from the ground upwards to the height of three feet, and scraped perfectly away, with the exception of what remained in a very small cleft, and which then might be one-third inch or less, and is now not quite three-quarters of an inch thick in the thickest part; the other parts which were denuded of the bark are now externally as dry as seasoned timber. In the autumn of 1841, the tree bore pretty well, and in the following year a good crop, but as the Bear is at best a poor kind, and the tree shaded the garden too much, it was proposed to cut it down; but the owner was recommended first to try the experiment of grafting on it some better varieties: the diameter of the tree at the top of the part which had been deprived of its bark was about 17 inches, and the tree was divided at about five feet high into three branches. One of these, at the height of about eight feet six inches, which was ten inches in diameter, was first cut off, and crown-grafted in the spring of 1844, with six scions of the Easter Beurré, five of which lived, but made very little progress until the second year, and they are now about two feet long; at the same time a small shoot from one of the other branches, about one inch in diameter, was grafted with a scion of the Beurré Rose, which grew very little the first year, but last season bore 10 Pears. In the spring of 1844, another branch was cut off, and crown-grafted with five scions of the Marie Louise, at the height of ten feet, just above the last mentioned small shoot (on which the Beurré Rose was grafted) and the remaining large branch was then cut off close to the trunk; the diameter of the branch at this last grafted part was about nine inches; four of the last-named scions have taken, and have this year made vigorous shoots from one to two feet long."

Having thus stated the case, he expresses surprise that the tree should have lived at all, at the first period after its accident, and enquires whether its continued nourishment can *possibly have been conveyed through the trunk*.

Our correspondent is not aware that nourishment, that is to say sap for the nutrition of branches and leaves, is always carried upwards through the trunk, or wood, of trees, and never through the bark. The wonder therefore was, not that sap should be carried upwards, because the channel of ascent was untouched, but that the elaborated matter should have found its way downwards to sustain the lower part of the tree, and the trunk itself, both which depend for their increase, and indeed vitality, upon the branches above. But here, and in all such instances, we see an instance of the wonderful power which Nature has given to trees for compensating for the effect of wounds by an inversion of the ordinary laws which govern the motion of their fluids. The fact no doubt was that at first the descending sap found its way downwards partly through the narrow strip of bark that was left, and partly through the alburnum or sap wood. And by degrees that strip widened and increased in bulk, till at last after some years it became large enough to re-establish fully the functions which the wound had suspended.

We have a still more remarkable instance before us. In the year 1834 or 1835, a large old Mulberry tree was removed early in the month of September, when in full leaf. It was not pruned: but replanted exactly as it was taken from its bed of earth. For a year or two it languished; and in the winter of 1837 and 1838 apparently died. In the summer of 1838 its bark became loose, and was removed, when it was found that on one side, for the breadth of an inch or two, it adhered firmly to the wood, and on that side of the tree two or three green twigs pushed forth. They, however, were sickly, and perished in the succeeding winter. Nevertheless this narrow strip of bark, which was at least 6 feet long, retained its vitality, and the next season produced a few more shoots less feeble than the last, but still in miserable plight. At the same time the strip of bark took visibly a lateral extension. And thus the tree went on gradually forming branches of a more and more healthy kind, and spreading its living bark sideways, till now, at the time we are writing, a head of branches of some size has been formed, perfect in all their parts, even to the bearing of fruit, and the tree is re-established. That is to say, nineteen-twentieths of it died, but the remaining twentieth struggled onwards and eventually reproduced the tree.

Our unskilful pen may ill describe the phenomenon; but it is most remarkable, and in this respect analogous to the Holywell Pear tree, that a narrow strip of bark sufficed to restore to the tree its energies full and unimpaired.

Many such cases might doubtless be found, all proving that, under peculiar circumstances, plants have the power of re-establishing themselves in a manner

of which no other examples can be found except in the molluscous part of the animal world. A very remarkable instance of the kind occurred some 30 years ago, in the parish of St. Margaret's Ilketshall, in Suffolk. In the year 1812, or thereabouts, an ancient Beefin Apple tree was blown up by the roots in the orchard of Mr. James Harvey, a respectable farmer. The accident occurred in the middle of summer, while the tree was loaded with fruit, which ripened. The tree did not die; on the contrary it continued to survive, although all communication between the torn roots, which were in the air, and the ground was destroyed. The trunk of this Apple tree was kneed, and when it fell over it rested upon the angle of the knee, whence there presently appeared a single root, which forced itself into the earth, and gradually fixed the tree anew to the ground. We examined this tree about the year 1820, when it presented the following appearance.



A

Much had died away; the remainder was sickly and overgrown with Moss; the root at A was as thick as a man's arm; the branches which had survived were forming healthy new wood, and four bushels of fine Beefins were gathered from it. This, be it observed, happened eight years after the old tree had been severed from the soil while in full leaf. What has since happened to it we do not know, but it has always appeared to us a most singular example of vitality in a kind of tree by no means remarkable for bearing transplantation well when old, and should serve, like the other instances above given, to caution gardeners against despairing of success in removing ancient trees, when there is any object to be gained in performing the operation.

The extent to which the Potato Disease has extended its ravages in Holland may be gathered from the following official return published by M. Decaisne in a valuable pamphlet* which has just reached us, in which we have the satisfaction to find that the learned author takes exactly the same view of the probable cause of this disaster as we have done from the first.

	Hectares.	Attacked by the Disease.
North Brabant ...	10,676 ...	10,661
North Holland ...	2,287 ...	1,121
South Holland ...	12,310 ...	10,943
Zeland	4,686 ..	3,743
Friesland	10,816 ...	7,998
Overyssel	7,326 ...	5,461
Limbourg	7,113 ...	2,254

From these data M. Decaisne concludes that two-thirds or perhaps three-fourths of the crop have been affected. France, it appears, has sustained less loss, as might have been anticipated from its more southern latitude; it is calculated that around Paris the loss has not exceeded five or six per cent. of the crop, if some low situations are excluded from the estimate. In Belgium, however, the mischief has been enormous, as in Holland. No such return as that obtained by the Dutch Government has been published; but M. Decaisne's investigations lead him to rate the loss at two-thirds of the crop in some provinces; and he adds that in a great number of cases (*une foule des localités*), the late sorts have been *totally* lost.

Our statistical friends, who occupy themselves with this sort of inquiry, may like to see the following returns of the amount of the Potato crop in Belgium for the years 1843 and 1844. In 1845 the return is unknown.

	1843. Hectolitres.	1844. Hectolitres.
North Brabant ...	2,383,793	1,993,197
Gueldres	2,897,761	2,304,527
South Holland ...	1,681,196	1,536,967
North Holland ...	275,975	533,250
Zeland	809,464	764,868
Utrecht	453,341	344,792
Friesland	2,126,157	1,830,906
Overyssel	1,116,399	1,342,880
Groningen	1,395,247	1,349,528
Drentheim	622,957	650,777
Limbourg	753,850	695,263

The general diminution of the crop in 1844 is stated to have arisen in part from the enormous cultivation in Java of Rice, which the Belgians take from the Dutch; and in part from the increase of the Madder-fields of the former.

THE AMATEUR GARDENER.

Planting the Ranunculus.—The extraordinary mildness of the present winter has been unfavourable to that preparation of the soil for planting which is the result of hard frosts. The Ranunculus bed will want that fine pulverised character which is so favourable to the operations of the gardener, and a few days of dry weather will be indispensably necessary before this root can safely be committed to the soil. As it is desirable that the collection should be planted by the middle of the month, a right state of the earth should be diligently watched for, and embraced as soon as secured. A few days earlier or later will not be of much importance, provided the soil is sufficiently dry to allow of its filling up the interstices of the tubers, and securing that firm, yet porous state so necessary for a healthy vegetation.

The day being dry and fine, you may at once commence your operations by nicely levelling the bed, which should be perfectly flat and not raised in the centre, a practice of which inexperienced gardeners are so fond, and which is so often injurious. As the Ranunculus naturally requires a low marshy soil, it will demand, in its cultivated state, a great deal of moisture, and therefore the bed should be below the level of the garden rather than above it, that drought may be repelled as long as possible, and that artificial watering, when necessary, may be most effective. In levelling, let the surface only be stirred, as some degree of firmness in the subsoil is advantageous to the plant. Have ready the roots in the papers with the names, some neat wooden labels, and a quantity of clean white sand; then, determining to brave the cold wind which may be blowing, and not to be discouraged by the back-ache, proceed to commit to the earth the humble looking tubers, which in four months are to develop so many beauties.

About four inches apart every way is probably the best distance at which the Ranunculus should be planted, and the amateur should therefore regulate the size of his bed by the number of roots in his collection, and dispose them equally all over it. With a cord and a small trowel draw a straight furrow across the bed, beginning in the centre and advancing to the edge with successive furrows, that the planted roots may not be interfered with. Place the roots so that the crowns shall be one inch and a half beneath the surface when the bed is completed, and having thus filled the furrow with tubers four inches apart, drop a little sand on each, sufficient to cover it, and draw the excavated soil over the whole. Make another furrow four inches distant from the first, and proceed as before until that side of the bed is finished. Then operate in the same way with the other side, and the work is done. A slight pressure with the hand should be given to every row as the work proceeds. With regard to the labelling, I have found the following plan the best:—As each root is taken out of the paper, write its name on the painted stick with a strong lead pencil, and place root and label in the furrow together. The stick should be about one inch distant from the root, and must be fixed in rather firmly, as I have found the sinister perambulations or gambols of a cat (oh! name abhorred by the votaries of Flora) sufficient to throw them into confusion. If the writing is always turned the same way, either towards or from the root, all ambiguity or mistake will be avoided.

Although the genial days we sometimes have in February allow the operations of sowing and planting to be carried on with advantage, it often happens that severe and continued frosts set in after the Ranunculus bed is completed, and the hopes of the florist are committed to it. This probable evil must be guarded against; for although the root will sustain a hard frost when it is really rooted, it is very sensitive when that is not the case. If a frost should come, a mat laid upon the bed will avert injurious consequences, or two may be used if the weather is severe. If, in the day time, the sun has power to unbind the soil, the mats may be taken off, and the warm rays admitted; but be sure the mats are replaced at night. If the weather is auspicious, about three weeks will be sufficient for bringing the young shoots to the surface, when further care as to soil will be unnecessary. Any operation must then be attended to of the utmost importance both to the future bloom and the increase of the tuber. When the leaves are about half an inch above the ground, the soil must be firmly pressed round them, so as to fix the tuber firm in the ground. This may be done twice with advantage as the growth proceeds. Lightness of the soil has been very often fatal to the Ranunculus, and must therefore be guarded against in the manner just described.

The manipulations which have been mentioned in this paper are rather laborious, from the long continuance of the stooping posture, and they will probably discourage those who are not thoroughly imbued with a love of flowers. But the resolute amateur will remember that no good results are ever secured without toil, and he will be cheered in his labours by the brilliant prospect before him. Although it is only a luxury, the production of which he contemplates, he may without presumption exclaim—

"Be gracious Heaven! for now laborious man
Has done his part. Ye fostering breezes blow!
Ye softening dews, ye tender showers descend!
And temper all, thou world-reviving sun!"

—*H. B.*

VINES AND VINERIES.

Various methods of pruning Vines have been given in your columns, some of which appear to be more theoretical than practical. Mr. Fleming's plan of leaving a portion of disbudded shoot at the extremity, as a storehouse, may be worthy of farther trial; but after having put it to the test of experiment last season, I could not perceive the least utility in it, to say nothing of the unsightliness of the plan. There is no fruit-tree or bush, grown under glass, with which I am acquainted, that will bear experimenting upon with the same amount of severity as the Vine; for if the wood is well ripened, and the roots in a good condition, the liberal use of the knife can scarcely divert it from fruitfulness.

Now that we have got cheap glass, where there were five houses erected for Vine culture, we may reasonably expect (from the rapid advances in horticulture, and the recreation and pleasure derived from it) that there will be 50. To amateurs about to erect small Vineries for their own pleasure, and in parts of the country where fuel is a consideration, I should recommend good late kinds, whose fruit will hang long after being ripe. The Vines in that case might be allowed to break of their own accord, which would perhaps be in the end of April; and they will then require little artificial heat, except at the time of blooming, and in their last stage of swelling and ripening off, which would be in the end of September or October. After that time fire-heat might be dispensed with gradually, except after very wet weather, or to exclude frost. Should wet weather continue for two or three days together after the Grapes are thoroughly ripe, light no fires during that time; but on the first fine day that occurs afterwards, light your fires in the early part of the day, so as to produce a good brisk heat in your pipes or flues, giving all the air possible, and letting your fires go down at noon. By this means you will be enabled to dispel damp, and to create a dry, yet cool atmosphere, wherein consists the great secret of keeping Grapes late in fine condition.

I would recommend the following kinds, viz, West's Black St. Peter (the best of all late Grapes, from which I am cutting at present for table bunches as plump as when they were just ripe); Black Prince; Black Hamburgh; White Muscadine, and Royal Muscadine; the two last are often confounded as being one variety, but I have proved them to be distinct, the latter being superior both in bunch and berry to the former, and the wood and foliage being darker than those in the White Muscadine, and approaching nearer those of the West's St. Peter. All the above are exceedingly prolific bearers, and when planted in shallow, well-drained borders, and under a uniform system of pruning (with ordinary treatment), they will be found to be freer from shanking, and to require less attention, than many other kinds in cultivation. As to heating small houses, the system in use at Polmaise might answer, allowing the Vines to break naturally of themselves; I certainly, however, agree with Mr. Ayres' remarks (p. 53), that where Grapes are required early, that method will be found defective, more especially where forcing has to be carried on in severe winter weather. A Vine should never be allowed to receive a check after vegetation has commenced, until the fruit and wood are perfectly ripe, and I fear the Polmaise plan would fail to do this, for want of power, in a long winter's forcing.

When I entered my present situation last spring, I found six houses planted with Vines, some of them very old, and the roots I cannot tell where; yet, with attention, I have had a good crop of moderate (some say of good) Grapes. When I had had time to look more carefully around me, I suggested some little alterations, and I am now about to commence making a small additional kitchen garden, against the north wall of which (Grapes being in great request here) I am going to erect a range of Vineries 160 feet in length, 16 feet in width, and 12 ft. 3 in. in height to the upper side of the rafter, glazed with the best British sheet glass, of No. 2 quality, in squares not less than two feet in length, the whole to be divided into four houses of 40 feet each, and to be heated by hot water from two boilers. Air is to be admitted by making every alternate top sash to slide, and at front by upright front sashes two feet six inches in height, which will open outwards. The boilers will be placed in the shed at the back wall, the pipe

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* Histoire de la Maladie des Pommes de terre, en 1845.

will enter the house under the back path, passing round the end, and along the front wall up the other end, and thence returning back the same way to the boiler, so that, when air is admitted by the front sashes, it will enter directly over the flow pipe. It is my intention to have a pipe of an inch bore of either zinc or lead fixed to the wall just over the flow pipe, passing along the front and ends, perforated with small holes, and furnished with a tap, the pipe to be supplied from a cistern at the rear of the houses; by the turning of this cock I shall be able to command a humid atmosphere at pleasure by saturating the pipes and front pathway, which will be four feet below the level of the back path, so that when air is given in front by passing directly over the hot steamed pipes, the effect will be approaching in some measure the mode adopted at Polmaise, with the desirable advantage of having more heat at command. I intend to have three distinct sections of Vines. The first, those for training up the rafters to be planted outside (a favourite method of mine); the second to be planted inside against the front wall of the pit, to be trained up wire rafters exactly under the rafters of the roof, and about two feet three inches below the roof Vines; the length they will be able to run will be about 12 feet, up to the columns that support the roof, or within four feet six inches of the back wall. The third section to be planted against the back wall, so that the Vines in the pit and against the back wall will have an uninterrupted range of border of the whole interior of the houses, with the exception of the front path and ends of each house. The whole of the back pathway will be open trellis-work, of cast iron, so that the roots under it will receive air and water equal to those in the interior of the pit. In the whole I purpose planting upwards of 90 Vines.

Fault has been found with me for recommending heat to the roots by fermenting materials, on account of the unsightliness of the manure, but practice convinces me that without a corresponding degree of heat betwixt root and top, you cannot have good Grapes. I intend to do away, however, with the unsightliness of manures, &c., in my new borders, and to heat them on another plan, which I shall have pleasure in laying before your readers hereafter. Mr. Fleming's mode of heating borders underneath is not to be permanently accomplished.—*James Roberts, gr. to the Duke of Cleveland, Raby Castle.*

NOTES ON ESCULENTS.

In compliance with the wishes expressed by some of your readers, I shall endeavour from time to time to give a few hints on the cultivation of different kinds of vegetables, at the same time pointing out those most suitable for general cultivation, or best fitted for particular purposes, such as the earliest, the hardiest, &c., and of which seeds may be procured at a moderate price.

I may here remark that new varieties of vegetables, like those of fruits, must be judged by a very different standard from that of ornamental plants; for while the sole merit of the latter rests in distinctness of appearance and beauty of blossoms, the former (vegetables and fruits), if they possess distinctness without improvement in quality or productiveness, are undeserving of attention.

These remarks are made by way of introduction, because of the numerous new varieties of vegetables which have been or are now being brought into notice, especially of Peas, Broccoli, Celery, and Cabbage, many of which have such extraordinary descriptions and recommendations that one would be almost inclined to anticipate a revolution in kitchen garden productions, equal to that produced by railroads. I fear, however, that new varieties of Peas are as easily obtained as the Mumford Beans of old were, merely by the aid of a sieve.*

Early Peas.—Few vegetables are more liable to be injured, particularly in wet seasons like the present, or in damp situations, than the early crops of Peas. The vicissitudes of winter very frequently destroy them, although every care and expense may have been bestowed on them, and it is very questionable whether or not there be any advantage in sowing Peas to stand in the open border over winter, when we take into consideration the chances of losing them, and more especially when the same end may be effected with quite as little or less labour, and with much greater certainty of success, by sowing them either in 3-inch pots or in large shallow pans, or in temporary wooden boxes, about the beginning of February, and placing them in any forcing-house, pit, or even cold frame, until they come up, when they must have plenty of light and air in mild weather, to prepare them for the open border; or, if the amateur is desirous of obtaining an early crop in his little garden, and has no means of raising them under glass, he may sow his early crops in pots and place them in his windows for a few weeks, or even in a place shed where there is light. In this way he may forward his crop very much, but care must be taken that the young plants do not become drawn for want of light and air, an evil which may, however, be prevented by removing the pots into the open air on fine days. Peas raised in a forcing-house, or in pits, must be removed to a cold frame directly they are fairly up, giving them plenty of air to harden them, and finally planting them out in the open border about the end of March. In sowing Peas in pots or in shallow boxes, they succeed best on a loamy soil rendered free from lumps, and without any fibre, for if sown in a very rich

* Wooden boxes were the result of the common Windsor Bean, separated by a coarse sieve.

they compost they are liable to grow too rapidly, and consequently, being under cover, to become drawn, and when they come to be moved from the pots or boxes and parted for planting in rows, they are very liable to lose a considerable portion of their roots in consequence of the latter being matted amongst the fibre.

Peas treated thus, and planted out about the end of March, will come into bearing a week or 10 days earlier than if they had stood in the same situation over winter; but planted out crops will not produce so abundantly as those sown in the open border, if the latter survive the winter well.

The best Pea for the first crop in regard to hardiness, earliness, and productiveness, is the true Early Frame, which in seedsmen's lists is also often named Single Blossomed, Double Blossomed, Single Frame, Early Dwarf Frame, Dwarf Nimble, Nimble Tailor, Early French, Dwarf Albany, Pois le plus hâtif, Michaux de Hollande, Pois Baron, Pois Laurent. It will be seen by the numerous names applied to it, not only in England but in France, that it is a much esteemed variety. It grows about 4 feet in height, is rather slender and requires sticking; the pods are rather small, nearly round, and generally contain four or five Peas in each. It is a good bearer, and possesses excellent quality.—*G.*

WEEKLY PRICES OF POTATOES per ton, in *Covent Garden Market*, in 1844, 1845, and 1846.

	1844-5.			1845-6.	
December...	7	50s. to 75s.	December... 6	80s. to 160s.	
	14	50	70	13	80 160
	21	50	70	20	80 160
	28	50	70	27	80 160
Jan.	4	50	80	Jan. 3	80 160
	11	50	80	10	80 160
	18	50	80	17	80 160
	25	50	80	24	80 160
Feb.....	1	50	80	31	70 140
	8	50	80	Feb..... 7	70 160

Also at the waterside, *Southwark*.

December..	16	50s. to 70s.	December..	15	50s. to 120s.
	23	50	70	22	50 120
	30	55	75	29	50 120
Jan.	6	60	80	Jan. 5	50 120
	13	60	80	12	50 120
	20	60	80	19	50 120
	27	55	80	26	50 120
Feb.....	3	55	80	Feb..... 2	50 120

Home Correspondence.

Polmaise System of Heating.—As this system consists in introducing hot air into the apartment by a stove or other means, I beg to suggest the following plan, which appears to be very cheap, most simple, and at the same time most effectual, method of doing this. This would require only a small portion of iron-pipe; the fire-place might be made entirely of bricks, the hot-air pipe passing through the centre; the air as fast as it became heated would ascend into the house, and be as rapidly replaced by the cold air from the passages traversing the house, and from the outlets at each side, into the open air, to be regulated at pleasure.

fig. 1.

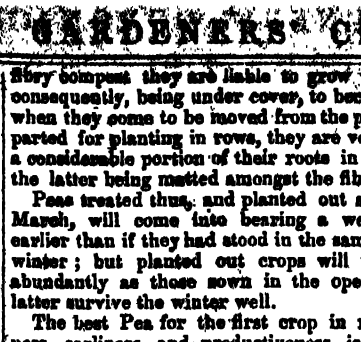


fig. 2.

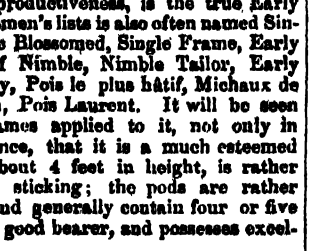


Fig. 1: Ground plan and back wall of a greenhouse.

Fig. 2: Section of a greenhouse, divided in the centre at the fire-place, to show the hot air pipe passing through the fire.

a Air passages to cause a circulation. *b* The pipe ascending through the fire, branching above in the back wall, to give two openings into the house at *c c*, causing a more equal diffusion of heat. *d* Greenhouse. *e* shed. *f* Fire-place divided to show the hot air pipe passing through the fire. *g* The pipe. *h* Chimney. *i* Ash-pit.—*J. and S. S.*

Gardeners' Characters.—In July last Messrs. Knight and Perry sent me a copy of the form to be filled up by gardeners, and which I learn from correspondents in various parts of the country, as well as from verbal conversation, does not meet with the approbation of the profession in general. For my own part, I had long considered something similar to be much required; indeed, quite necessary; and I gave my opinion as such, and that there could still, with advantage, be other little useful items added to the present form; but I am delighted with it as it is, and am fully of opinion that a copy should be placed in the tool-house or other oft-frequented place, in every garden. Young men and others would then have frequent opportunities of observing that their future success or station in life considerably depended on their acquirements and abilities. By such an example possibly many would be stimulated to exercise persevering energy, that would otherwise possibly remain careless, or, indeed, quite unconscious of what they could accomplish. It is truly astonishing what may be effected by timely persevering energy, humility, and self-denial; for my own part, I consider the plan to be the foundation of a grand advance in the art of gardening, and that those nurserymen deserve the hearty thanks of not only every cultivator of the soil, but of all those who take an interest in gardening, not only for their printed form, but for their gardeners' study and lecture-room; for such I beg to return them my own sincere thanks. I can plainly see that it is the right end to commence at, in establishing correct principles, in all matters appertaining to horticulture, which has hitherto, in a great measure, been merely guesswork. Everything will be so simplified and improved, that what little we profess to know at this time will be left behind and forgotten. Besides, this form, in my opinion, has the merit of attempting to reward every man according to his abilities and worth; what can be fairer? and every right-thinking person must see it in this light. Surely Grapes are not expected from Thorns or Figs from Thistles; if men are rewarded for their worthiness, industry, and deserving abilities, what more have we any right to expect? Whether a man has other abilities besides digging, hoeing, sowing, pruning, mowing, and gathering in the fruits of the earth, will in future be easily discovered by those who engage gardeners, and they will of course be paid accordingly. I would advise everybody undertaking to recommend men to situations to adopt similar rules, and such as disapprove of them I would advise to read the Form again carefully and reconsider it; for I cannot help imagining that they must have come to a conclusion without due consideration. Sometimes great and very important light is thrown on matters by a reconsideration.—*James Barnes.*

General Tom Thumb Pelargonium.—As many complaints have been made in the *Chronicle* of flower-seeds being sold for what they are not, I think it right to direct the attention of your subscribers to an advertisement in a late Number, offering "100 Pelargonium seeds saved from Gen. Tom Thumb, for 2s. 6d." Now, as I have cultivated this Pelargonium for the last seven years, and had, I believe, a larger stock of the plant than almost any person in the country, I have no hesitation in asserting that whoever sold the seed to Mr. Waite as saved from the plant in question, was guilty of saying that which was not true. I have long been desirous of raising a young stock from my little favourite, and though I have had hundreds of plants, I never yet obtained a seed that would grow. Indeed, this Pelargonium being a true hybrid between two distinct species, it is like all such plants, a very shy seeder; so shy, that I would willingly give a sovereign for 100 seeds, if I could depend upon their being genuine. Mr. Willson, gr. to Wm. Pigott, Esq., of Dullingham House, Newmarket, who raised the General, never obtained but two seedling plants from it, and a neighbour of mine has one plant at the present time, which are all I have ever heard of, so I have very little faith in the seed offered by Mr. W., who no doubt has been made the dupe of some designing knave.—*W. P. Ayres, Brooklands, Blackheath.*

Preservation of Pelargonium Roots during Winter.—I had dug up the plants from the bed, and had treated them in the same way as Dahlia Roots. I put some light dry sandy mould into a box, and on the surface of it arranged a layer of roots, adding soil and roots in continuation till they were all stored. The box was then removed to a dry place under a greenhouse stage. In the end of February I potted off all that I thought would grow, and placed them in a warm frame where they had plenty of air to harden the young wood. This plan can only be recommended however where room is an object; for young autumn struck plants are preferable for turning out both in regard to appearance and flowering.—*J. F. M'Elroy, Stamford hill.*

Greenhouse Plants that Flower in Winter (see p. 53).—If "Micklewell" has not already in his collection Genista canariensis, Cineraria amelloides, Teucrium fruticans, Acacia armata, Serissa fœtida, Chorozema varium, Alonsoa bicolor, and the old Scarlet Geranium, I would advise him to get them before next winter. With these, and one or two Camellias, Ericas, Cinerarias, and Primulas, I find no difficulty in constantly supplying a drawing-room stand of six flowering plants out of a very small greenhouse.—*J. A., Harraby.*

Cheap Heating Apparatus.—Some 13 years ago, having to produce a large quantity of Moss Roses and other forced flowers, from the first week in February throughout the season, and the regular forcing pits not being adequate for this purpose, I was obliged to use as adjuncts the Melon and Cucumber pits and boxes, and adopted very successfully the following cheap mode of heating. Four (three-light) frames were placed together in a line, and at one end was fixed a common ironing stove (from the laundry), this was surrounded with brick work, leaving a cavity of 10 inches as a hot air chamber, having an aperture in front, secured by a frame and slide, to regulate the fire. In the brick-work were two pieces of 4-inch iron pipe, communicating with the frame, one sufficiently high to allow the heated air to escape into the frame, the other as a return, entering the hot air chamber rather below the level of the fire; three small iron rods, fixed six inches apart (by ribs), were secured to the high or flow pipe, and were carried through all the frames along the back, returning in front, and joining the low or return pipe, they exhibited the shape of a triangle, thus ▽, and were suspended from the rafters with pieces of wire;

thump three iron rods so placed were crammed in some rough thick woollen material, which formed an excellent medium for circulating heated air throughout the frames; the necessary moisture was kept up by suspending bottles of water from which threads of worsted soaked the heated woollen flue. Pinks, Carnations, Hyacinths, and a great variety of choice flowers, were grown to great perfection by this contrivance. I had a large pit for forcing flowers, which was heated by a smoke flue, but so badly contrived that the utmost vigilance was required to prevent the tan near the furnace from catching fire. To this I erected a hot air chamber, and introduced iron rods, 1½-inch in the angle, covering them with woollen material, and the advantages were everything I could expect or desire. The second season my exertions were applauded, and I had permission to build a more commodious house; had I continued the above contrivance, I intended to economise fuel by having the chimney of the ironing stove made in a corkscrew fashion. If the spot is exposed, earth may be thrown round the brickwork, and the stove may be covered with *Moss*, and a few stones to render it ornamental. I should have mentioned that, by the use of a plug, I could admit fresh air at pleasure through my woollen conductors.—*H. B.*

Large Holly.—The following are the dimensions of a common Holly which is growing in the plantations here, and is the largest that ever came under my notice:—The girth, at 2 feet from the ground, is 7 feet 6 inches. This tree was much damaged by the hurricane in January, 1839, and again by a storm of wind in 1842; it branched off with two leaders at about 4 feet from the ground; both of these were blown off, and left a mere stump about 3 feet high, which is now growing again vigorously.—*J. L. Snow, Swinton-park*

Autumn Broccoli.—I beg to add my testimony to that of Mr. Whiting, p. 37, as to the great excellence of "Snow's superb Broccoli;" with a close compact head it combines a beautiful white colour, and through November and December is almost equal to a Cauliflower in June, and must supersede all the older varieties of autumn Broccoli.—*J. Spencer.*

The Season.—This has indeed been a most extraordinary season, and one in which an observing cultivator has had much opportunity of discovering useful principles, and of increasing his store of knowledge. Although the Potato crop was last year greatly injured, no autumn or winter during my remembrance has been so productive in abundance of good vegetables, and in articles, too, that are not usual at this season. Here we have never been without good Cauliflowers, White Broccoli, in variety; Globe Artichokes have been in season, and have been growing all winter, and I have observed to-day that all the strongest suckers of these have started into fruit, many heads being now fit for table. The winter Savoys, Coleworts, Brussels Sprouts, and Kales, in variety, are all run, and many are in full bloom. I have had already a quantity cut down with the reaping-hook. Early Peas, Beans, and other articles have the appearance of having been forced in a structure, deficient of light and air. As to Peaches, Nectarines, and Apricots, they are already in bloom; Pears, Cherries, and some varieties of Plums are nearly opening their blossom-buds; but what is more extraordinary, a long south border of early Ash-leaf Kidney Potatoes, planted on the 31st of October last, are up in full row, and are from 2 to 6 inches in height; they have never received any protection; we have given them a good deep hoeing to-day, and they look as even and as strong, both in stem and foliage, as if it were the first week in May; not a blemish, or the least sign of the late prevailing disease is apparent in them, although the tubers were all more or less affected in July last. Some people may say of what utility can a piece of Potatoes be, or what chance can they have to produce a crop which are in full row in the open garden in the last week in January? but I have made up my mind to turn them to a useful account. I shall in the first place take up a quantity with balls of earth attached to their roots, and transplant them on slight hotbeds, hooped over and covered with mats, Fern, Furze, evergreen boughs, or any other materials I can lay my hands on, and to plant the border again. I shall allow a portion, however, to remain where they are, and will mulch the surface with dry Fern, refuse straw, leaves, Heath, or other materials, earthing up the stems with dry dusty earth, old dry mushroom-bed refuse, &c., that I always keep in hoard for purposes of this kind. As I above observed something is to be learned from such weather, for I have other pieces of autumn-planted Potatoes, though on a different system, from the very same seed tubers, not one of which has yet appeared above-ground, and which on examination, were found to be only just pushing their shoots from a quarter of an inch to 1 inch in length; this is easy to be accounted for. These then are the results of the unusual mildness of the last three months of autumn and winter. In the first months of the year with us there was not the slightest frost, not even a white morning frost, and this is more than we could say of any months during the whole of 1845, not even excepting June, July, and August. As to flowers in Bloom there is here, in the open ground, an unusual quantity for this season of year; many varieties of hybrid scarlet Rhododendrons are in full bloom in masses, and are truly beautiful; we must, however, it is true, be on the alert, with preparations in readiness for any sudden change or emergency—for such we may be in daily expectation; but how favourable has Providence been to the peasant in alleviating his wants after the injury done to the Potato crop, by an abundant supply of other vegetables! fearful in other months, and through the favourableness of the season less fuel is requisite than when piercing cold prevails; and in this locality more people are in employment than has been known for many years—indeed there seems scarcely anybody out of work that is able and willing to labour. —*James Barnes, Bicton, near Sidmouth, Devon.*

Fuchsia Challenge.—There are two nurserymen advertising to show their seedling Fuchsia against each other for ten guineas. It will give me pleasure to hear that the stakes are deposited at the *Gardeners' Chronicle* office. Until I find that they are deposited somewhere, I for one shall consider it merely a novel mode of puffing their productions. Deposit the money. Judges, place, time, &c., can all be arranged at leisure. Say at once the July Show of the Horticultural Society; each party to appoint a judge, and they a third: their judgment final.—*Veritas.* [The match could not come off in the Society's Garden, as a part of the official business of the day.]

Salvia fulgens.—I beg to send you a specimen of Salvia fulgens, from a plant which has been flowering for the last two months in the open air, two miles from Arbroath. It was removed from the garden in November, to the wall of a cottage, which sheltered it from the north and east.—*E L, Jan. 27.*

Autumn-Planting Potatoes.—I cannot imagine that deep planting can be made to answer under any circumstances, or for any description of plants; and hence I am persuaded, so far as my experience goes, that the plan of planting Potatoes in autumn, will never be generally successful: in certain localities, where the climate is mild and the soil dry and light, they may survive the winter; but in cold heavy lands it will never answer. I have tried the experiment here, and although the sets were lumed when planted, they were nearly all destroyed by insects during the winter. I have ever found by experience, that Potatoes, like fruit, trees, &c., do not answer so well when planted deep; eight or ten inches is a great depth for a Potato to shoot through; I have invariably found that I obtained the best crop by planting about 3 or 4 inches deep, and then earthing up as they grow; which is easily done by leaving the ground in ridges higher than where they are planted. I have also another great objection to autumn planting Potatoes, which is, in regard to the manure; thus, I think, must be weakened and deprived of much of its value, by laying in the ground all the winter; I have never found any benefit to be derived from applying a stimulant to any plant while in a dormant state, and indeed, I doubt not, the experience of many will bear me out in asserting that such a course is a great waste of manure; for a proof, let any one observe the difference between a piece of Grass land manured in the autumn, and another piece just as growth commences in spring; the latter will grow much faster, and the herbage of the latter plot be of a much darker colour than that of the former, which, to my mind, is a conclusive fact that the nutriment in the latter case is administered at the time most required by Nature, and that in the other case, it is little better than waste. While speaking of manures, I may add that I find no stimulant so beneficial as guano when applied in a liquid form. I find it of greater service, and more lasting in its effects, when given in a diluted state than when applied genuine, or mixed with dry soil. I would advise all gardeners never to apply it except in a liquid state; and they will certainly derive much greater advantages from its use.—*J. L. Snow, Swinton Park.*

Storing Diseased Potatoes.—On the 27th of November last I received some Potatoes (Shaws) all more or less diseased, 12 of which I put into a basket, and covered over to the depth of an inch with Daniell and Co.'s white manure, the remainder I put into another basket without anything; the latter, in from 14 to 25 days, became so rotten, that I threw them away; those I placed in the white manure I examined for the first time this morning (19th Jan.), and to my great satisfaction I found every Potato apparently in the same state as when first stored; I have cut through several of them, and find that each distinctly shows the diseased parts, which appear to have been arrested by coming in contact with the white manure; the other part of the Potato is perfectly sound, and fit for the use of cattle.—*Jas. F. Cannell, Castle-street, Liverpool.*

Societies.

SOCIETY OF ARTS.

At a late meeting, a paper was read by Mr. H. Pape, on the new patent oil integument or skin of paint, by which great facility is afforded for interior or exterior decoration. The author, after pointing out the various inconveniences which the public experience in having the painting, graining, and oil decorations done on the premises, proceeded to show some of the advantages which he obtains by substituting a prepared skin of paint for the ordinary common painting. These advantages are very apparent in the decoration of ceilings, or in the execution of any kind of flat ornamental work, whether it be imitations of woods, marbles, lettering in gold or colours, on walls or wood-work, as it is only necessary that the dimensions of the parts to be ornamented should be previously taken, and the work can be completed at the artist's shop or study. He next proceeded to describe the process of manufacture, remarking that the skins at present made are 12 feet by 3 feet, that being found the most convenient size; but they can be made of any dimensions. A sheet of fine elephant, or any other paper, rather larger than the skin required is taken, and the surface on one side only is prepared with a mixture of gum arabic, treacle, and water, upon which, when dry, a coat of paint, made with boiled oil and white-lead in the ordinary way, is applied; when that is dry the operation is repeated till the skin is of the required thickness, but two coats are found to be sufficient for general use. To separate the skin from the paper it is laid on a clean board with the painted side downwards; the paper is then wetted at the back with clean water, and after it has stood a few minutes the paint may be removed without any difficulty or the least fear of its tearing away. The same paper may be painted 30 or 40 times, but must always be prepared as described above. The paint, when removed, is carefully wiped with a sponge, and then dried with a wash-leather to remove any portion of the preparation which adheres to it. The skin is then folded and put away till such time as it may be required for use. The mode of fixing the skin is to rub down the surface to which it is to be attached, and when thoroughly clean it is gone over with boiled oil and gold size—a smear is sufficient; the skin is then laid on with a soft cloth, as in the ordinary paper hanging. Several beautiful specimens were exhibited.

LINNÆAN SOCIETY.

February 3.—The Baron of Norwich in the chair. A paper was read from the late William Griffith, Esq., on a new genus of plants belonging to the natural order Anacardiaceæ. The author proposed to call it *Swintonia*, after George Swinton, Esq., late secretary to the Bengal Government. The species described was Swintonia floribunda. This plant was found on the Tenasserim coast, and the following species of Anacardiaceæ were observed in the same district. Mangifera indica, M. sylvatica, M. oppositifolia, Anacardium occidentale, Syndesmis elegans, Melanorrhœa glabra, M. heptata, Holigarna longifolia. A second paper was read from the same author, being a description of a new genus belonging to the natural order Ternstromiaceæ, called Erythrochiton, the species described E. Wallichianum. A description also was read of a new species of Hansiovia, H. pubescens. The papers were illustrated by drawings of the plants described.

Reviews.

A Treatise on the True Nature and Cause of the present destructive Disease of Potatoes, with the Means of Cure. By George Weightman. 24mo. Simpkin. The author has discovered that the Potato murrain is caused by "the dampness of the excrements, and consumption of the Potato by a small insect of the spider tribe." Therefore to destroy the insect is to destroy the disease. Hot water will kill the insect; therefore hot water is the sure for the disease. Nothing can be clearer—that is, to the author and his friends. Poor people!

Fruits and Farinaceæ the Proper Food of Man. By John Smith.

It is only a short time since that our attention was called to a work advocating an exclusively animal diet for man, as alone adapted to develop all the powers of his body and mind. We have now before us a volume asserting the exclusive right of the vegetable kingdom to feed mankind. Between such conflicting statements it might seem at first sight difficult to decide, but on a close examination of the books alluded to they will be found to be written by persons, although evidently in good faith, not adapted by their profession or education to give an opinion on these subjects at all. The work, however, of Mr. Smith exhibits great labour and industry, and is written in an earnest spirit and with a desire to do good. His attention was first drawn to this subject by the question, "Is man justified in slaughtering animals for his food; seeing that by means of a beautifully-organised structure, they are rendered exquisitely sensible both of pleasure and pain?" This question, we imagine, can only arise out of a morbid feeling which mistakes the design of the whole animal creation. On glancing at the teeming ocean, and the earth "instinct with life," we find the whole a scene of "slaughter;" one animal life being sacrificed for the sake of another, and this through every stage of the animated series till we arrive at man, who forms no exception to the general law, but slaughters the lower animals in order that his own higher existence may be continued. If, then, Providence has seen fit, not only to justify, but to create animals to "slaughter" one another for their benefit, surely there can be no abstract ground on which the practice can be denied to man. Mr. Smith, however, mentally answered the answer to this question, that if man could "be preserved, his health and strength maintained, his pleasure and happiness continued or rendered more pure and satisfactory, and the period of his existence ascertained or prolonged by a diet of which the flesh of animals forms no part, that would neither violate any benevolence question that humid circulates that are perpetrated in order to pamper the perverted appetites of man." Having given this answer previous to any investigation of the subject, it is not to be wondered at that his labours terminated in confirming him in his preconceived notions. The work is divided into four parts, in each of which the discussion of the following questions is:—

"1. What is the original food of man? 2. Is he so wonderfully constructed, that climate and locality alone determine on what substances he shall feed? Or

digestive organization, like that of other animals, manifest a special adaptation to one specific kind of food, but with an extensive range of adaptability to the greatest variety of animal and vegetable productions? 5. What is the best food of man; or, what diet do science and experience point out, as best calculated for promoting health, happiness, and longevity? 6. What seems designed to be hereafter the universal diet of mankind?"

In answer to the first question he endeavours to argue from Scripture, tradition, and poetry the fact that man in his primitive state partook only of a vegetable diet. It seems, however, to us that all arguments derived from the earliest records of our race, are against him. The first man and woman are represented as being clothed with skins, and their second son is a keeper of sheep. That the slaughter of animals was afflicted and intended by these facts, there can, we think, be little doubt; and that sheep were not kept for food, it would be certainly difficult to prove. The author, however, lays stress on the fact, that this was after the fall, and hints that meat is the forbidden food of which man partook. But, surely, if the obscure evidence of the Bible with regard to the food of our first parents is to be admitted, the fact that meat was allowed under the Jewish dispensation—that Peter, in the New Testament, was commanded to "arise, slay, and eat"—and that the Saviour himself partook of, and wrought miracles to supply an animal diet, ought to be allowed as evidence that, as far as that book is concerned, the flesh of animals is not an improper diet of man. Another argument advanced by the author is, that man could not eat flesh till he could cook it:—"Instead, therefore, of vainly searching further for the date of the discovery, it may suffice to observe, that until the element of fire was possessed by man, it would be impossible for him to relish the flesh of other animals, particularly if fruits and farinaceous articles of diet were within his reach; and, I believe, no instance can be adduced of any nation, however savage, feeding upon raw flesh, where fruits, farinaceous roots, and corn could be procured. Have we not here, then, another strong argument in favour of the frugivorous diet of man, during the first period of his existence?" This does not prove that man is not the better for an animal diet. The same argument would go to prove the unnaturalness of steam-engines.

In the second part of the work the author gives an answer to the second question. In opposition to the views of most physiologists and comparative anatomists, he decides that the structure of the teeth, jaws, stomach, and intestinal tube, proves that man is not omnivorous, but a vegetable feeder. He makes here, however, a distinction between animals feeding on herbs (herbivorous) and those feeding on fruits, seeds, &c. (frugivorous); to the latter class of which he maintains that man belongs. We think that a candid examination of the evidence he has brought forward in this part of his work would lead to the conclusion that man is both a vegetable and flesh feeder. The structure of the bicuspid and molar teeth (between that of the herbivora and carnivora), the characters of the movements of the jaw (adapted both for grinding and cutting), and the nature of the stomach and intestinal tube, all lead to this conclusion. But even admitting that man has a structure that would enable him to live on fruits and seeds as a monkey, he is not in circumstances to lead the life of a monkey. Throughout this part of his argument the author never once alludes to the change of habit, and even nature, that may have taken place in man, as a progressive being, in the course of sixty centuries. He takes it for granted that what is good for man in a state of nature is good for him in his present highly civilised state. We need not point out that such an argument would equally tell against all the comforts and luxuries of civilisation, and if acted on would lay the axe at the root of commerce, and reduce mankind to a hopeless barbarism.

The third part of the book is devoted to the consideration of the best food of man. Although the author has read a great deal, and very carefully, he only selects that evidence which is in his own favour, and rejects that which is opposed to him. Thus, he discredits the conclusions of Liebig, Mulder, Dumas, Boussingault, and other modern chemists, with regard to the uses of the carbonaceous and nitrogenous secretions, and referred to in an article in the *Gardeners' Chronicle* of December 13th. We have there given a sketch of the views of these chemists, in which it will be found stated that the carbonaceous secretions, as sugar, starch, oil, &c., are consumed in the system for the purpose of maintaining animal heat, and that they do not remain in the system forming parts of the fabric of the body. Mr. Smith, however, in order the more effectually to recommend a diet of starch, sugar, &c., objects to this statement of the French and German chemists, and suggests that these substances become nitrogenised by union with the nitrogen of the atmosphere.

"Dr. Bostock observes, that it is probable the blood, as it passes through the lungs, both absorbs and exhales nitrogen;—the proportion which these operations bear to each other being very variable, and depending upon certain states of the system, or upon the operation of external agents. The discrepancy in the results obtained by different experimenters upon this point, is also explained by M. Edwards in a similar way. He supposes that in certain circumstances the absorption of nitrogen is most active;—in others, the exhalation. These circumstances are probably dependent on the condition of the blood with respect to this necessary element; the absorption being greatest when the food and the alimentary organs have not supplied it in sufficient quantity for the requirements of the system. Absorption and exhalation of this gas seem also to take place by the skin; and Dr. Pereira has suggested that the ammonia of the atmosphere may furnish nitrogen to the system; but there has been no experimental proof of this. The evidence already adduced is so much in favour of the opinion that the nitrogen contained in the tissues of man and the Herbivora, may be obtained independently of food, that there is scarcely any room for doubt on the subject; it may be considered an established fact; and in our investigations respecting human diet, it is of great importance that we should never lose sight of it."

Further on he endeavours to explain away the force of Magendie's experiments on dogs fed with sugar, starch, &c., which all perished as a consequence of a non-azotised aliment. He does not bring forward a particle of evidence to prove that the nitrogen which unquestionably exists in the body, ever enters into a combination with any of the tissues. It is, however, a well-established fact that nitrogen compounds are formed in plants, and that through these compounds the nitrogen-tissues of the animals may be formed. The nitrogen compounds when supplied from an animal body are not less efficacious, and much more digestible than those obtained from meat vegetables, and it is on this fact that the advantage in all, and the positive necessity in some cases, of a flesh diet depends.

We have not space to pursue Mr. Smith through the remaining chapters of his work. He endeavours to prove that the vegetable eating nations are the healthiest, wisest, and happiest; that vegetable feeders in this and other countries of Europe live to a great age, and that a host of diseases, more especially gout, rheumatism, and consumption, arise from eating meat. His examples are certainly unfortunate amongst the vegetable eating nations—the Hindoos and the Irish are quoted. The first the most pusillanimous and indolent people in the world, and the last the most wretched. He might, we think, were he not prejudiced, have seen in his own countrymen an illustration of what a due admixture of an animal and vegetable diet will effect for man, and the instances he gives of those who have lived on a purely vegetable diet are far from being examples of the wisdom, virtue, and longevity of the race to which they belong. The men, in fact, who have influenced the destinies of their kind have apparently seldom been vegetable feeders. Amongst the instances of longevity on fruits and farinacea, we do not find the names of Parr or Jenkins, and we have ourselves known centenarians who partook of meat with their daily food. With regard to the flesh of animals producing disease, the evidence from our poor houses, prisons, schools, and the public service, contradict this statement altogether, and the evidence of the most intelligent and disinterested of the medical profession is directly opposed to the views taken by the author.

[We regret to be obliged to put on record our opinion that the author has expended much labour on a mistaken view of an important subject. His own constitution may enable him to bear up against the lowering effects of a vegetable diet; but he will probably be the means of inducing many to try it, to the injury of their health and the endangering their lives. We are therefore compelled by our duty to the public to enter our protest against the doctrines inculcated in Mr. Smith's book, and to warn all whom it concerns that such views are much worse than "absurd."

Miscellaneous.

Destruction of Insects: Meyer's Composition.—A composition for destroying cockroaches and other insects was sent to the Garden by Mr. G. H. Meyer, its inventor. The substance in every respect resembled pounded gum arabic. It was, according to the directions of Mr. Meyer, laid down at night in dry places which the insects frequented, and taken up in the morning. It is impossible to say whether or not any insects tasted it. When exposed to a humid atmosphere, it became like gum; moths, beetles, woodlice, ants, &c. &c., were found to live for days in a phial beside it. The experiment was a failure. *Heremau's Dilutium.*—A small phial containing a liquid (Vegetable Dilutium) for destroying mealy bug and other insects, having been sent to the Garden by Mr. S. Hereman, its inventor, the following trials were made with it. According to his directions, the liquid was applied to the plants with a camel-hair brush, and when thus dressed they were well syringed with pure water. The plants on which it was tried were Berberis tanuifolia, Olea fragrans, Epidendrum cochleatum, and Mammillaria gracilis. In a few days after its application Mammillaria gracilis died, and all the other plants were more or less injured. In every case the mealy bug was killed, and also many of the white scale, but apparently none of their eggs, as they appeared as numerous as ever in a few weeks afterwards.—*Journal of the Horticultural Society.*

CALENDAR OF OPERATIONS.

(For the ensuing Week.)

The Red Spider.—This pest in gardening is assuredly not so commonly met with now as it was 20 years ago. And why? Not because any recipe has become of general and systematic application, but that a much greater humidity of atmosphere is maintained in our hothouses than in former days. Humidity alone is not however sufficient at all times to keep the spider entirely under; and I beg to remind the readers of the *Chronicle* that sulphur rightly applied in conjunction with atmospheric moisture, is perfectly efficient to that end. Apply it three times a year on an under pipe, and on the least heated portion of a flue, thick as paint, and worked up with soft soap water to make it adhere for some time. Do this in February, in May, and again in August—and maintain a wholesome amount of atmospheric moisture—not a sudden steam, but a slow, yet permanent supply, and I will engage that the spider will be rendered perfectly harmless. Do not however apply it on any surface that is so warm at times as to produce inconvenience to the hand when grasping it: this is a simple but safe rule.

CONSERVATORIES, STOVES, &c.

Conservatory.—Still pursue steadily the directions with regard to temperature, &c., laid down in previous Calendars. Slight advances in heat may be made on bright days, but if cloudy skies intervene, revert immediately to decreased temperature, and let humidity proceed in the same ratio. Climbers may be looked over in this structure, and if an early display of their beauties is required, some of the irregular wood may be pruned away forthwith. Passifloras and others may receive this treatment; but permanent plants, as Acacias, &c., will of course point out of themselves an exception. Those who are growers of the families of Epacris, Correas, Leschenaultia, Polygala, &c., &c., will soon enjoy a rich treat in these charming tribes. Frequent introductions, and frequent removals, are the order of the day here, and of course a constant interchange in all the other plant-house departments. Camellias require at this time abundance of water; keep a sharp eye to Ericas, Epacrises, &c., that are pot-bound—some of these will require liberal watering. *Stove and Orchidaceous House.*—Let all increase of heat take place on bright days, chiefly early in the afternoon; and then accompanied with a somewhat moist air. Get a batch of Gloxinias re-potted, and placed in bottom heat, using heath soil, loam, charcoal, and sand, for compost, in a fibrous state. Stove climbers on trellises, in pots or tubs, that require to be shifted soon, should be cut in previously, to free fresh buds preparatory to disrooting or shifting. Attend to the shifting of the Amaryllis tribe where requisite; as soon as they show signs of growth, let them be introduced to this structure, and give a trifling degree of water, increasing it gradually as the leaves unfold. Orchids commencing growth should be immediately attended to; keep them at the warmest end of the house, and beware of drip lodging in the young bud. Some of the large specimens of such as Stanhopea, Gongora, Catasetum, &c., that require shifting, and that have become very dry, had better be immersed in tepid water for an hour, a day or two previous to shifting. *Mixed Greenhouse.*—The winter has been so favourable for house plants, in requiring so little fuel, that those who have been duly impressed with the importance of avoiding strong fires in plant-houses, will find their account in the superior health of their stock. Increase warmth on sunny afternoons for a couple of hours; but let the thermometer sink again at night to 45° or 50°. See that all insects are eradicated before the growing season commences; and clean or sponge away all fungus or dirt of any kind from the leaves of plants. Remember that all extraneous matter is very prejudicial to the welfare of plants; thorough cleanliness holds equally good with plants as with animals. Keep all stock neatly tied up; dress climbers. Tropæolums growing should be constantly attended to. Shift some forward Pelargoniums into their final pots, and stake them out if intended for specimens of high cultivation; remove weak or crowded shoots, and secure a thorough circulation of air, without draught, to this house, at all times. No structure requires this more than the mixed greenhouse. *Forcing Pit.*—Keep the bottom heat up to 80°, and increase the atmospheric heat to 80° likewise, for a couple of hours on sunny afternoons, with occasionally a slight syringing at such periods. If the pit has a hot-water pipe or flue in it, great pains must be taken to secure moisture to the air, without plenty of which many things must prove a failure. If there are two pipes, a flow and return, which is, of course, generally the case, the bottom pipe should rest in a cemented trough, deep enough to enable the water to cover the pipe, when necessary, and from 6 to 9 inches wide. Water, less or more, should be at all times kept in the trench, at least from this period forward. *Cold Pits or Frames.*—A calculation should be immediately made as to how far the inmates of these structures will be able to supply the masses in the pleasure-ground. No doubt that frost or damp has reduced the numbers of some kinds. Strong plants, or pots of stores, which had become well established in the autumn, of Verbenas, Fuchsias, Petunias, Heliotropes, Salvias, Calceolarias, &c. &c., should be removed forthwith to some of the houses or pits at work, to enjoy, if possible, a moderate bottom-heat, watering them with liquid manure. These will quickly furnish abundance of early cuttings, which should be slipped off, and propagated instantly, losing not a moment. Water sparingly here at present, not using any if the plants keep healthy without it."

KITCHEN GARDEN FORCING.

Pinery.—Proceed steadily; if pits are at liberty, and duly provided with a permanent bottom-heat of 90°, it would be a very good plan to shift a few all portion of the stock into their final pots; in the expectation of their producing either very late or very early fruit. Where a constant succession is required I take it for granted that the final removal into the

fruiting-pots should take place successively also; as there is no doubt that this influences in a considerable degree the period of fruiting. The young stock, too, that have thoroughly filled their pots, at least a portion of them, *might have a liberal shift, provided, as above stated, that pit-room is at hand.* Like many of the Orchids, an early growth, with a long summer before them, is important. In all potting, use sound loamy turf, the newer and the rougher the better; when the soil is properly constituted, the water will steal instantly away, precisely in the spot where it falls without puddling the surface. *Vinery.*—Proceed as before recommended; lessen the atmospheric moisture when the Vines are in blossom, and dispense altogether with syringing for a while; allow plenty of day heat with a lively circulation of air. *Peach-house.*—As last week; continue to make slow advances in heat on bright days. *Cherries, Figs, &c.*—Little can be added at present, but bear in mind the cautions about heat and moisture so often repeated. *Cucumbers and Melons.*—Make a successional sowing or two of each of these for fear of disappointment. Any surplus strong plants of the early sowings may be planted in large pots or boxes, and placed in a light part of any warm structure; 70° of heat and abundance of atmospheric moisture, night and day, are the indispensable conditions. All glass frames or pits at work must be kept washed and thoroughly clean: the importance of this, in early forcing can never be overrated. Hang mats or other covering upon rails free from dirt. Keep at all times plenty of leaves and dung well blended, and in a state of high fermentation, ready for new beds, linings, &c.; a portion should be mixed once a week at this period.

KITCHEN GARDEN AND ORCHARD.

Sow Tomatoes in heat directly; also Sweet Basil, Sweet Marjoram, &c.; get your hand-glasses up immediately for Cauliflowers in pots; enrich the stations very much, adding fresh loam also if at hand. Turn out four strong plants from the pots—one in each angle; they should be well soaked with liquid manure previously. Get Seakale and Rhubarb for next year's forcing planted immediately on rich ground, trenched; throw a hillock of old tan, ashes, or sand, round each crown to coax them on through the vicissitudes of the weather in February and March. Plant Box edgings where requisite, and thoroughly drain any portion of the garden which exhibits the least appearance of stagnation. Where water is apt to stand on the surface, through the puddling properties of heavy rains, try to improve the texture, by a dressing of sand, ashes, lime rubbish, charcoal dust, &c. &c. Plant Horse-radish, if not done; trench it deep in, placing manure at the bottom of the trench. *Orchard.*—Get all planting finished as soon as possible, and stake and mulch. Remember to drain thoroughly. Nowhere is this advice more necessary than in the orchard, although Apples and Pears are fond of adhesive soils, they will never prove profitable where water is allowed to accumulate. Examine all old or overborne trees; many trees of this character may be soon renovated by applying manure to the extremities of their roots; as also by good top dressings, which should always be applied the moment the leaf begins to fall, in early autumn. Thin pruning is also of great use to Apples which are rather "free setters;" the same is also of great service to the Nonpareil class, to enable them to perfect both fruit and wood.

FLOWER-GARDEN AND SHRUBBERIES.

Continue to make the necessary preparations for clumps or masses, by sweetening or renewing the soil. Plant out things of biennial character, in masses, where requisite; in borders the re-arrangement of perennials had better stand over until the latter begin to bud in March. Lose no time in finishing the planting of trees or shrubs.

COTTAGERS' GARDENS.

Sowing.—A few Broad Beans may be put in and a few Peas, if not done before; and do not forget a sprinkling of Radish amongst the early Carrots; in fact, with most broadcast crops a sprinkling of Radish or Lettuce may be put in through the spring. The Thousand-headed Cabbage is one of the most valuable greens for the cottager with which I am acquainted. I saw a crop of an acre or more, a few days since, and the quantity and earliness of them was truly surprising. The proprietor assured me that it was quite as hardy as Kale. His maxim is to have two or three seed beds; say one in February, another in March, and a third in April. From these he fills every inch of spare ground through the summer, which is not wanted for other crops. The greater proportion of these plants would weigh from 12 to 20 lbs. Hardy shrubs of all kinds may now be increased by suckers or cuttings, and trees or shrubs removed where necessary. A little Spinach may be sown, likewise Mustard or Cress in a warm corner. Plant out a few Red Cabbages for pickling.

FORESTING.

Little more need be added I presume about coppices, making new plantations, &c., as much of this business will have been already accomplished or in progress. In the Nursery, year-old seedlings of Quick, Larch, &c. may be drawn where strong, and transplanted to raise the beds. Make good preparations for sowing the finest seeds; trench and manure well and let the ground be well broken. If possible have some charred refuse at hand, and either cover with it, or work it into the surface. Seeds of forest trees answer exceedingly well after vegetable crops, if not too overgrown. Potatoes excepted; those left in the ground are a great plague to the young seeds. Plash or otherwise dress hedges, or make new ones.

State of the Weather at Chiswick during the week ending Feb. 7, 1846, as observed at the Horticultural Garden, Chiswick.

Jan.	Mean's Acc.	Barometer. Max.	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain.
Frid. 30	3	29.919	29.863	52	40	47.5	S.W.	
Sat. 31	4	29.975	29.856	55	44	49.5	S.W.	
Feb.								
Sun. 1	5	29.834	29.830	51	39	45.0	N.W.	.15
Mon. 2	6	29.918	29.834	48	35	41.5	N.W.	
Tues. 3	☽	29.864	29.821	46	30	43.5	S.W.	.01
Wed. 4	8	30.035	29.866	49	36	42.5	W.	.01
Thurs. 5	9	29.823	29.744	48	30	39.5	N.W.	
Average		29.918	29.804	51.0	37.6	44.2		.34

Jan. 30—Densely overcast throughout.
31—Partially overcast, with thin hazy flying clouds; windy at night
Feb. 1—Fine throughout; very heavy rain at night
2—Cloudy; exceedingly fine; partially overcast
3—Overcast; fine; densely overcast at night
4—Clear; very fine; partially overcast; heavy rain at night
5—Clearing; very fine; overcast.
Mean temperature of the week 7 deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Feb. 14, 1846.

Feb.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 9	42.8	34.5	40.1	12	0.67 in.	1	3	2	—	4	7	2	1
Mon. 9	44.1	32.3	39.7	6	0.39	—	2	1	2	1	8	6	2
Tues. 10	44.4	33.3	38.8	8	0.28	2	3	1	2	4	5	1	1
Wed. 11	44.2	32.1	38.2	11	0.34	3	2	1	—	3	6	3	2
Thur. 12	46.0	31.3	38.6	10	0.28	2	2	—	1	2	7	2	2
Fri. 13	43.4	32.2	38.2	9	0.30	1	2	1	1	3	3	2	2
Sat. 14	46.9	31.4	38.6	8	0.30	—	1	2	1	4	6	0	1

The highest temperature during the above period occurred on the 10th, 1821—therm. 65°; and the lowest on the 11th, 1845—therm. 8° below 0.

Notices to Correspondents.

BEES—*J W H*—In bad seasons and in some localities bees may not collect more honey than they want themselves, indeed sometimes not enough; but in good seasons with plenty of pasturage they have some to spare, which may be obtained from capes or small hives placed on the top of common hives. The additional room ought to be given to old stocks about the middle of April or 1st of May, according to the season: but if they repeat swarming little honey can be expected from them. In general, strong early swarms produce the most honey, and the capes ought to be on a little before the hives are filled with combs. When this plan fails it is because the hives are weak, not from any evil effects it has upon the bees. The Grecian or bar-hive is good for general use; it may be made by placing bars across an inverted common hive, having the top cut off for a bottom. In fixing the bars, let them correspond as near as possible with the arrangement of combs in a deserted hive. (See p. 104, 1845.) A good square wooden box, about 10½in. in the clear, with a pane of glass in each side, will suit your purpose, the light being excluded by small doors, or by a moveable thin box or case being placed over the hive, which must be sheltered from the weather. In order that a portion of the honey may be extracted, a bell glass may be placed on the top, or bars at the top as specified will answer the same purpose. But if you prefer destroying your bees and taking the whole produce, you may consult Wighton's book on bees with advantage on that subject. *W.*

CEMENTS—Try the Portland cement sold by Messrs. White & Sons, of Millbank-street; the best of all cements for hydraulic purposes.

GLASS—*An Old Correspondent* must excuse us. We really cannot interfere any further. The glass he has sent is of very superior quality, and such as a good price must be paid for. We repeat that good foreign glass, sold in the boxes as imported, may be had at 4½d. a foot, or even as low as 3½d. if the Belgian glass is taken. Of course a higher price must be paid for small quantities or for picked samples. He should write to the various advertisers.

GLAZING—*F S A*—Grey glass will do very well, unless you want to force plants, or to keep them growing during winter. In that case we cannot recommend it.

GLYCINE SINENSIS—*G S*—It is better to give this a south-east or eastern exposure than a south-wall, for on the latter the flowers remain a much shorter time in perfection, and their colour is also liable to be injured by the sun. Plant now in tolerably rich soil.‡

HEATING—*J P*—Of course you have not succeeded. The inner wall intercepts all the heat. Pigeon-hole that to the bottom, and you will gain your point. The meaning of Mangold Wurzel is not what you suppose, as has been fully explained in our volume for 1844, p. 188.——*E Z Z*—Polmaise may be applied at the end, as well as the back of a house. Wait a little, however, till the best kind of stove is settled. That is important.

HOT-WATER PIPES—*Luser*—Macintosh's patent washers are really washers—that is to say, flat and circular, with the centre cut out.

INSECTS—*A Z*—We should rather attribute the spots on your Carnation leaves to a damp atmosphere than to any ingredient in the covering of the frame, but this is a subject well deserving of your attention. *R.*——*R W*—It is the larva of some fly, which will only feed upon decomposing vegetable substances. If you can rear the flies from them, we will tell you their names. *R.*——*M D*—Please to favour us with specimens of the nut, and we will direct you how to proceed. *R.*——*Gooseberry Caterpillars*—There are several sorts, those which are the offspring of Abraxas Grossulariata (*Gard. Chron.* i., 515), may be shaken off and destroyed; but the worst pest, the larvæ of a saw-fly, called Nematus trimaculatus (*G. C.* i., 548), are not so easily disposed of. It is this confounding of different species which often leads parties to condemn the best modes of extirpation. *R.*——*P M*—In all probability the gnats were bred from some Boletus peculiar to the Birch-tree. *R.*——*Caterpillars on Peaches and Nectarines*—The eggs deposited in rings on the branches do not produce the maggots which live in the leaves and spin them together, but are laid by the Lackey Moth (*Gard. Chron.* iii., 244). The caterpillars often infest Apple-trees, and do considerable damage. *R.*

MAGNOLIA GRANDIFLORA—*G S*—You may plant your Magnolias now; a south wall is preferred for them. The objection to an east wall is, that the leaves are apt to be cut by the dry cold N. E. winds of spring; and that in a wet summer like that of last year the wood will not ripen so fully as on a south exposure. It is not necessary to mat them up if near London or to the south of it. They like a good loam.‡

MANURE—*J G*—We can hardly suppose the contents of the tank to require dilution. Try it upon some worthless thing in the first instance.——*H G B*—You cannot separate salt from guano. We doubt whether your suspicion is well founded—it ought not to be.

NAMES OF PLANTS—*A B*—Your root is English Mercury, or Wild Spinach; the Chenopodium Bonus-Henricus. Plant it on a rubbish heap, and gather the leaves while young and tender.——*John Moore*—Certainly, Lælia acuminata; we have not received any previous note.——*A K*—Those who wish for "very accurate answers" should furnish examinable specimens. Ferns without fructification, or very young specimens, are not so. We cannot undertake to name other kinds of Cryptogams.

ONCIDIUM—*Henry*—As a general rule, Dendrobiums require quick heat and moisture, Oncidiums the same heat but less moisture, and Cattleyas less of both. But these rules are not of universal application. For instance, the treatment required for O. Carthagenense would kill O. tigrinum; Cattleya Forbesii will thrive where C. Skinneri will die; and in like manner Dendrobium pulchellum demands an amount of heat and moisture which are unnecessary, and indeed injurious to *D. aureum*. You should study the climate of the countries and localities from which the species come, if you wish for a sure guide. Copper wire baskets, placed between the forks of your Oak-tree, will, doubtless, answer for either Cattleyas or Zygopetalums, inasmuch as the peat in them may be renewed at pleasure. Your apparatus for supplying a humid atmosphere is very suitable; it will be sufficient in winter, but in summer, when the plants are in a vigorous state, they will require to be syringed every day. Rough sand, washed quite clean, will answer your purpose.‡

PACKING SEEDS, &c.—*J Greenfield*—Whitethorn-seeds to be sent to the United States may be packed in canvas bags, in which they may be transmitted with success, provided they are thoroughly dried previous to being packed. In order the better to insure this, some bury the haws in the ground till the outer coat is rotted off, and then taking them up and washing them, thoroughly dry them in the sun; this is, however, perhaps unnecessary, only in the former case they will require more drying. As to plants, they will travel well enough packed in the usual nursery fashion, or in old flour-casks, which would possibly be the safest as well as the cheapest plan. They may be sent in November or December, and they may as well be shortened as not. ‡

PEARS—*Inquirer*—Of the varieties you mention, Van Mon's Léon le Clerc, Excellente de Coloma, Aston Town, Flemish Beauty, King Edward's, are autumn Pears. The Green Chisel is a small early summer Pear. The Beurré Spence, and Brown Ashton are not distinctly known; perhaps the former is the Beurré Diel, and the latter the Aston Town. The Soldat-Laboureur is quite new in this country. You may dispense with the Epine d'Hiver and Virgouleuse. The remainder are good late varieties.

POLMAISE HEATING—We have so many letters on this subject, that we must entreat our correspondents to bear in mind two things—firstly, that there is no object in publishing in other words what has been published in substance already; and secondly, that nobody pretends that hot-water apparatus is objectionable or inefficient; when, therefore, *J. W., G. P.*, &c., attack the advocates of the plan for proposing the Polmaise as a better method of heating than hot water, they are fighting shadows. It is brought forward as a much cheaper method, quite as good for some purposes. It is in that point of view that we press it on the attention of the public; and its adversaries will ere long find their mistake.

ROSES—*L F*—The following are suitable for pot culture, viz., Belle Allemande, Augustine Marget, Caroline, Paulins Plantier, Reine Carmine, Elisa Sauvage, Bougère, Comte de Paris, Charles Duval, Devoniensis, Bourbon Queen, and General Allard. ‡

STOVES—*Jean Baptiste's* note is forwarded to M. B.

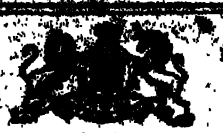
VINE BORDERS—*G E*—Your border will be too dry in summer, the surface being so much curved, unless you keep it ridged during that season so as to prevent the water from running off. Instead of straw, better lay tough sward over your bottom drainage.‡

MISC—*Paul Pry*—All Arnott's stoves are liable to explode, if coal is used, unless they are well managed; you should employ coke. The self-adjusting thermometer is useless. If you add back sashes, you will certainly improve your house. Your proposed ventilators would do good, but perhaps not enough. Can't you warm your air in its passage into the house? Buddlea Lindleyana is as hardy as a Fuchsia. All plants are benefited by liquid manure of one sort or other judiciously applied—even Heaths themselves; but many will bear only a very little. No rules can be advantageously given for such operations, you *must* have experience. We will see about the peat: There! we are out of breath.——*W T*—We are unacquainted with Willison's Tom Thumb Rose. The possessors must advertise it, we cannot.——*No Gardener*—1 and 2, scarlet Verbenas and Lobelia ramosa; 3, Polargoniums; 4 and 5, a Fuchsia in the centre of each, surrounded by miscellaneous fancy flowers of a dwarfer habit. You are misinformed; they are not stone but composition, and the best that are made.——*Eddivo*—The most appropriate evergreen tree for a grave is the Cypress; both the upright and the horizontal will live in your climate, the latter is the handsomest. A Deodar would also be a very proper tree, as it is held sacred in its own country, and its weeping branches will always droop over the ashes of the departed.——*J R C K*—It is useless to steep seeds in any thing yet devised; a guano steep does no good whatever.——*G S H*—It is a great length certainly; 24 feet 7 inches is a long way for a plant to travel; but the journey has been made by the creeping stem, and not by a root; there is scarcely a root on your specimen. You see how careful Nature is to hold fast the drifting sands, and to confine them as barriers to the ocean.——*Kitty*—The broadest-leaved Poplar is the Ontario.——*Alethro*—When Laurel leaves become white, the plant that bears them is unhealthy; the appearance is most common in cold undrained land.——Will *Mr. Merchant* oblige Mr. Malleson by sending him his address, which is lost.——*T D W*—Moss should not be allowed to accumulate on Apricot trees, nor on any kind of fruit-tree. Now is a good time to dig in manure above the roots of such fruit-trees as require it, and to the extent of the extremities of the roots. An account of the results of your autumn-planted diseased Potato sets will be very acceptable.‖——*Horticola*—It is not advisable to graft very early and late sorts of Pears on the same tree, nor strong and weak growers; but you may graft, as you propose, the Marie Louise and the Jargonelle; under the circumstances you mention, you cannot do better. If the surface of the road which is over the roots be made firm, the tree will thrive notwithstanding, provided you adopt such means as will ensure sufficient moisture for the roots in summer. The natural habit of the Currant is that of a shrub, and if you force it to assume the form of a standard tree, the growth will be weakened, and the fruit smaller, of course.‡——*W H A*—If you will refer to our volume for 1844 (pp. 72, 120, 568, and 856), you will find select lists of Cape Heaths, which will possibly answer your purpose.‡——*A Scottish Subscriber*—At an elevation of 800 feet above the level of the sea, scarcely any kind of Pear or Apple will succeed. You may try against a wall a few summer or early autumn varieties, such as the Early Red Margaret, Oslin, Wormsley Pippin, Red Quarrenden Apples; and the Summer Franc-Real, Jargonelle, Aston Town, and Flemish Beauty.——*Tippoo Saib*—Now is a good time to take off grafts. Of transparent Apples there are several kinds, all, we believe, of Russian origin. They require a very warm summer to become transparent.——*A Z*—Filberts are root-pruned by merely digging down around them and severing the large coarse roots; it may be done now.——*J K*—Bean-stalks may be used with propriety, as bottoming for a hotbed.‖

SEEDLING FLOWERS.

CHRYSANTHEMUM—*Lepton*—Your seedling is an extremely pretty variety, the petals being neatly striped between the white ground and crimson tips, with a dash of mauve; this, gives the flower a very lively appearance.——*J S*—The fly not sufficient quantity in your seedling to make it desirable to send out.——*S. a Subscriber*—There is no legislative enactment either in the form or colour of your house; it is very common.

CLARK'S METALLIC HOTHOUSE WORKS.



55, LIONEL-STREET, BIRMINGHAM.

Proprietor, Mr. THOMAS CLARK.

Superintendent of the Works, Mr. JOHN JONES.

IN returning his grateful thanks to the Nobility, Gentry, and Public at large, for their liberal patronage of the above Establishment during a period of nearly 30 years, Mr. CLARK begs to state that the recent reduction of the duty on Glass, enables him to offer his METALLIC HOT and GREENHOUSES at a greatly reduced price. These Houses are glazed with British Sheet Glass, in panes of from 24 to 30 inches in length, and of such thickness as to preclude all danger of accidental breakage, whilst that which arises from the action of frost (frequently amounting to 25 per cent. per annum), is effectually prevented by the peculiar mode of glazing adopted. As a sample of his Metallic Hothouses, in which all the most recent improvements are happily combined, Mr. CLARK refers with pride and satisfaction to the magnificent range erected by him in the new Royal Gardens at Frogmore, which is admitted by all competent judges to be the most complete and perfect of its kind in the world.

The Agricultural Gazette.

SATURDAY, FEBRUARY 7, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, Feb. 11—Agricultural Society of England.
Thursday, — 12—Agricultural Imp. Soc. of Ireland.
Wednesday, — 18—Agricultural Society of England.
Thursday, — 19—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.—Bath—Gondhurst—Newry.

FARMERS' CLUBS.

Feb. 2—Hereford — Great Oakley—Woolcott—W. Market—Circencester — Tenford — Eamhurster —Selby	Feb. 11—Marleston — 12—Grove Ferry — 13—Tavistock — St. Germains—Chelmsford — Halesworth — Wadebridge
— 10—Dorking—St. Peter's—Wotton Basset — Romford Hundred—Framlingham	— 14—Probus—Winchcomb—Swansea
— 11—Battlesea and Sorking	— 16—Botley

IN the retrospective view of the experiences of late years which we ventured upon at the opening of this, we endeavoured to point attention to two leading features in the history of past AGRICULTURAL PRACTICE, as having tended to retard improvement. One, we stated, was obvious, and of common remark, viz., the disproportionate application of capital to this, as compared with the other great objects of enterprise around us: the second we pointed to as a deeper seated, and less generally noticed evil, viz., that "the Farmer's attention has been hitherto called rather to *the price that he could obtain for a given quantity than the amount that he could grow upon a given space.*"

Postponing the first of these considerations, we request the attention of our readers to the second. Having detected the pickpocket, we now proceed to try him. The charge against this offender, this same "Price" is, that whereas the whole attention and energies of the farmer should have been directed to the true and legitimate object of his trade, namely, the *production* of corn of the best quality, and the greatest quantity, and with the utmost economy,—this fickle, deceiving, changeable rogue, this artful dodger, has captivated and drawn away his the said farmer's mind and attention from his real business and best interests, and like a true Jack o'Lantern as he is, now shining up aloft, now sunk in the slough of despond, has dragged John Bull "through mud and mire, through brake and briar" in a vain, visionary, and ruinous pursuit, that has disappointed himself, and made him ridiculous to others. Like the dog in the fable, in snapping at the shadow he has dropped the substance. But we do not blame *him*. We blame those who directed, or rather *distracted his attention to it*, and who ought to have known better. The object of trade is profit: and PROFIT DOES NOT DEPEND UPON PRICE. The greatest fortunes that have ever been made in business have been made by the application of invention and capital with the object of *lowering the price* by economy of production, and thereby increasing the demand by increasing the consumption. Look at the Cotton-trade. When did the Peels and the Arkwrights make their gigantic fortunes? When they lowered the price by cheapening the production, and got 20 customers for one by lowering the price! But "this does not apply to agriculture." How so? Is not agriculture a trade? Are not the plough and the soil together the machine that makes corn? And does not the application of capital in draining your field enable you to produce a better article, and in greater quantity, upon the same space, and with less labour, and therefore more economy? Does it not, therefore, enable you to *sell it cheaper*, and when it is cheaper will not the half-fed poor be able to buy more of it? The application of capital has a *natural tendency* to lower prices by economising production, but so infinitely more numerous are the poor than the rich, that the instant you lower your price you have an incalculable increase of customers, which tends again to keep it up by the more extended demand, and you find that it is better to turn 50 pence than one shilling, and that you get more profits with a low price than you did with a high one. "I can't afford to sell corn under 7*s.* a bushel," you say. Can't you? Is your farm all drained? "No; but I could drain five or six pounds an acre to drain it." And how much more would it then grow per acre with the same labour? "Why, perhaps eight or ten bushels." Well, then, there's the price of eight or ten bushels to set against the interest of five or six pounds. "But I have not got the capital to drain it with!" Have you not? Why, then, *you have hired a mill that you can't work!* and the more you try to raise your prices artificially in order to cure that evil, the fewer and less able your customers will be, and the worse your business will become? "But my landlord speaks differently; he, like me, wishes for high prices." Does he? Then he is under A GREAT MISTAKE! for lower prices would bring you more profit, and you could afford to pay him a *higher rent*. High prices are as unfavourable to the landlord's rent as they are to the tenant's profit. Every application of capital that enables you to grow more produce per acre at the same expence, increases the value of the land to rent, while it lowers the price of the produce. There's a paradox for you! Present it to your landlord with my compliments, and if he asks you whether your informant was not "some cotton-twisting, political-economy-mongering spinning-jenny," tell him no! he was a farmer and a landlord, whose whole income is from his land, as was that of his ancestors before him. But while you are about it, comfort his astonishment by the assurance that while capital, and every advance in agricultural science, tend to lower price by increasing agreable produce, the rapid increase of population tends to keep up prices by increasing the demand, and the farmer and landlord will gain at both ends; for price, *so supported, does* increase profit: but in no other way. Tell him that if restrictive duties on importation prevent lower prices from *coming in at the door*, the substituted competition at home *brings them in at the window*; but with this disadvantage, that do what you will you cannot relieve your glut from *this* source, when, as in 1834 and 1835, you get one. If prices *will* get lower one way or the other, is it not safer to *open a road out* as well as inwards, and give to the advancing powers of the British plough-share all that Britons want, "a fair field and no favour?" to challenge all the world to a ploughing-match, and beat them on their own ground, Great as our home demand already is, we are rapidly overtaking it: we are approaching that condition when we must *increase our business* whether we like it or no! Tell him, moreover, that the English demand is already so powerful, that it influences the price current at Dantzic, Königsberg, Hamburgh, Stettin, Odessa, and every port in the world that has still corn left for importing nations, *which are yearly increasing, while the exporting ones are diminishing*. That so vast is the influence of the British demand, that for every shilling that they could affect our prices they would affect their own from five to ten. That with an unfettered trade England will become the corn-mart, as she is already the money-mart of the world; and her agriculture, no longer a sliding, uncertain trade, will at once assume its true character as a *great business* and *a safe investment for capital*, by which, as we have beaten them in every other art, we shall beat them in our agriculture, which, though now "in its infancy, bids fair to attain a stature that shall vindicate its place among the rapid and gigantic growths that modern times have seen in other arts, and exemplify the scientific and economic truths that their progress has established," and tell him *not to be in a panic*, for in a very few years he will see and understand all this as clearly as it is seen by his humble adviser—

C. W. H.

IN 1842 the aggregate expenditure of the Midland's Railway Companies was nearly 220,000*l.* on a revenue of about 440,000*l.* In 1845, under Mr. HUDSON'S amalgamation of those companies, the expenditure has been 207,000*l.*, and the revenue 625,000*l.* The dividend, which was formerly 2*l.*, is now 6*l.* 12*s.* 9*d.* Acting, we suppose, on the supposition that what is true in this respect of the rail is true of the road, Sir ROBERT PEEL proposes to take THE MANAGEMENT OF HIGHWAYS out of the hands of the local authorities, at the same time rendering compulsory those district amalgamations which, under the existing law, are now only voluntary. From the instances, which he adduced, where advantage had been taken of the permission in the law alluded to, it appears that an original expenditure of 6*d.* to 9*d.* in the pound for surveying and repairing the roads, was, under the centralised system afterwards in force, reduced to from 1½*d.* to 3*d.* in the pound; the money in the former case being in effect thrown away, while the work now is being done in the best manner.

Now, this statement we have to acknowledge is somewhat irrelevant to our present purpose (it is not our object at present to consider the policy of Sir Robert's proposal); but we make it simply to introduce a few remarks on a subject which, as it will soon be considered in Parliament, is likely also to attract no inconsiderable attention from the public. We wish to direct attention, not to the most economical method of *applying* the funds provided by law for the maintenance of roads (whether turnpike roads or highways), but to the most advantageous, the least injurious method of *collecting* them. And we beg to lay before our readers a work from which all our information on this subject has been obtained, viz.—"Road Reform; a Plan for Abolishing Turnpike Tolls and Statute-labour Assessments, and for providing the Funds necessary for maintaining the Public Roads, by an Annual Rate to be levied on Horses."* The calculations and proposals in this book have merely local bearings; they are all the more definite and intelligible on that account; they are confined to a statement of the income and expenditure, under existing circumstances, of the Road Trusts constituted under certain Acts of Parliament for Fife and Kinross-shires; with estimates and illustrations of the same, under the alterations which are proposed. Half of the book is taken up with the historical and statistical matter necessary to establish the data on which the author's reasonings are afterwards founded; and the latter part of it is occupied with the plan of Road Reform which Mr. PAGAN has proposed, and we have no doubt that those even who are not *technically* interested in the subject of it will agree with us in considering it both interesting and instructive. In place of the present toll system, from the produce of which a very large sum has to be deducted for expenses of collection, &c., and the present system of levying rates upon land, &c., which involves the injustice of laying the entire burden of repairing highways upon the agricultural interest, at the same time that they are equally chargeable with the rest of the community for the support and maintenance of turnpike roads—in place of these methods, Mr. PAGAN proposes such a tax upon horses in the several districts as shall suffice not only to pay the annual expense of maintaining the roads of all kinds, but also to provide a sinking fund for the payment of existing debts. The sum required in Fife and Kinross-shire is estimated at 18,055*l.* 16*s.* 8*d.*; to provide this sum it is proposed to levy 30*s.* annually on each horse, by which, as there are 12,000 horses in those counties, the sum of 18,000*l.* will be obtained, and to make up the rest by a similar tax of less amount on other draught animals, as well as by the rental derivable from the toll-houses and steelyards, which will then no longer be required for their former purposes. The advantages of this method of raising funds for maintaining roads are very numerous. Mr. PAGAN has most thoroughly exhausted that branch of his subject; we had no idea till we had read his book how very many injurious bearings the present system has on industry generally. Mr. PAGAN'S plan of road reform involves the placing roads of all kinds under the same management and surveyorship; it will greatly facilitate the execution of such a measure as Sir R. PEEL proposes to enact for the centralisation of road management; it will do away with that inequality by which, under the present system, parties having few horses may be chargable to a higher amount for the maintenance of the roads than those who use many. It will immensely diminish the expenses of coaching, and, in a corresponding degree, of course, it will facilitate intercommunication between villages and small towns.† To use the enthusiastic language of our author, "The abolition of tolls would cause infinitely more driving; more driving infers more horses; more horses infer an increased demand for hay and corn. At present we are in an artificial condition. The toll-gates bound the drives of many, whether for business or pleasure. Once remove them—once throw the roads open, and we shall see public and private vehicles of every description flying over the length and breadth of the land."

Mr. PAGAN enlarges upon this subject at great length, and points out in most interesting detail the very injurious influences exerted on agricultural and all other industry by the present system of road management. But we have not room to follow him further. We strongly advise our readers to study his volume for themselves; and we also hope that it will engage the attention of those before whom the present system will shortly be laid with a view

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* By William Pagan, writer, Blackwood & Sons, Edinburgh. 8vo, pp. 236.—We must mention that Mr. Sayer, of Kingston, had the merit of backing a somewhat similar proposal some years ago. See p. 548, *Ag. Gazette*, 1844.

† The expense of a two-horse coach per stage, paying two tolls, is 6*l.* 9*s.* per annum.

to its receiving those amendments which may be considered advisable.

It may interest our readers to know that Mr. Pagan does not leave the promulgation of his plans to the unassisted influence of his book, powerful as the statements it contains undoubtedly are, but he has personally, and, to a certain extent, successfully, urged them at county meetings in Fife and the neighbouring shires. We see from the *Dundee Courier* that he lately laid his plans before "the Commissioners of Supply and the Justices of the Peace for the county of Forfar," supporting them by reference to the road statistics of that county; and they were very favourably received, and the thanks of the meeting was conveyed to him, the chairman at the same time expressing his sincere pleasure at finding such unanimous approval of a plan which he firmly expected at no distant day to see put in operation over the whole country.

DEEP DRAINING IN STIFF CLAYS.

Tiptree-hall Farm.

As there still exists amongst agriculturists a strong doubt whether water will percolate through cold putty-like clays, I will, for the benefit of the community at large, communicate the results of my draining operations during the past year. I have drained 33 acres of some land I rent adjoining my own, finding it unprofitable to farm such soil in its undrained state. The draining cost me 3*l.* per acre, including pipes and every expense, as follows:—Digging drain, placing pipe, and filling in, 6*d.* per rod of 5½ yards; cost of pipes, of 1 inch bore and 13 inches long, 15*s.* per 1000.

The drains are placed 33 feet asunder. We begin to cut as low as the ditch or outfall will permit, and work into the rising ground until we reach FIVE FEET in depth from the surface; the pipes are butted against each other—no stones or bushes placed over them—nothing but the clay is returned into the drain. I have several times examined these drains after rains during the last three months, and find they run admirably, like so many tea-pots—leaving the surface dry enough for us to plough, trench plough or subsoil, which we have been doing the last five weeks, in preparation for Beans. The soil is a very strong brown brick earth, varying occasionally to a yellow colour, with much iron in it. I should strongly recommend those who are doubtful about the best and cheapest mode of draining strong clays, to inspect the drains on my Tiptree-hall Farm, which they are quite welcome to do at any time, and so satisfy their minds. The question of getting the water through dense soils is a vital one to the interests of agriculture. The difference in the Wheat crop this year, between the drained and undrained land on my farm, is fully one quarter of Wheat per acre and one load of straw, being more than the whole cost of the drainage.

It is amusing to hear the doubts, arguments, and disbeliefs of the majority of agriculturists, when they see a small pipe the size of one's thumb placed at no great a depth as five feet in such a soil, whilst others cannot imagine that an inch pipe is large enough to carry the water. I have never yet, however, seen them run more than half full, although possibly when, in the course of years, the soil becomes, as it will, more friable, water must have a freer access to them. We have the authority of Mr. Josiah Parkes, whose calculations cannot be controverted, that one-inch pipes at 33 feet apart, and four feet deep, will carry off all the water that does fall from the heavens on a given space in a given time. I consider the disbelief as to the possibility of draining heavy lands a great misfortune and cause to our country. If there are 24 millions of acres cropped annually with corn, and 12 millions of that land require draining, I am quite sure the increased quantity of corn in a cold wet season would be 12 million quarters (I mean of Wheat, Beans, Oats, and Barley), and on Grass lands in proportion.

There is something very absurd in the assumption that clays are impervious to water; such opinions will not bear the test of reason. How often one hears "Oh! but water can't get through my soil;" well, then, if water cannot get in, how does it get wet? Perhaps the same person will tell you that he has built a wall or shed of clay damps well dried, and that it requires all his ingenuity to keep the water from getting into it, by thatching, tarring, and a brick foundation. It is true clay already saturated with water will hold water on the surface like a basin, for a very good reason, that it is already full of water and cannot take in any more; but once provide the means of escape under clay, with alternate dry and wet days, and it would puzzle a conjuror to keep the water from sinking through it. If any man doubts it, let him dig an under-ground cellar in clay, and see if he can keep the water from coming in, even though well bricked.

Tapping the land when full of water is, after all, like tapping a cask—the liquor runs out at the bottom, and the cask dries at the top. The deeper the drain or tap, the greater the pressure from above. As the liquor flows the air must follow. If you doubt it, consider that no liquor can flow out of a cask if you keep in the vent peg and prevent the air entering. Independent of the capillary reasons why deep drains act best (as explained in my 18th letter), we must consider that the deeper the drain the more steep the incline; and we all know that water will rush quicker down a steep hill than a gentle slope. Those who consider 1-inch pipes too small would find how soon such a pipe running constantly would empty a large pond. Of course, where springs are to be drained, the size of the pipe must be regulated by the quantity of water. It is well known in sewerage, that small drains, if not too small, will keep themselves clear better than larger ones; and as to expense, why, it must be bad policy to use large pipes and large cuttings, where small ones will answer better—no rats or vermin can enter 1-inch pipes. It is lamentably painful to contemplate the condition of our heavy undrained lands during a wet winter. Look at them now, filled with water to the surface, consequently unable to receive or appropriate that best of manures, the heavenly rain. Every hasty or continuous shower scours the surface, driving down the furrows in turbid and wasteful streams, the very essence of the soil—those finely comminuted, disintegrated, and valuable particles, which the farmer has, with so much perseverance and costly labour, exposed to the vivifying and advantageous action of atmospheric alternations. But let us carry our perspective to the months of March, April, and May. Is the prospect less dismal and distressing? No! the blessed sun shines on the sodden and saturated soil; but it is dead and impervious to its invigorating rays. The imprisoned water having no escape downwards, can only be released as steam by evaporation, carrying with it the heat that should warm the soil, and leaving behind a death-like coldness, which is well attested by the sickly and yellow plants. Poor things, many die, leaving their hardier companions to struggle on in hopes that a parching summer may do that naturally by gaping cracks, which man is too poor, too niggardly, too ignorant, or too prejudiced, to effect by cheap and profitable drainage.—*J. Mechi*, 4, *Leadenhall-street*.

ON THICK AND THIN SOWING.

Much has been said and written, particularly of late years, on the many and great advantages of thin sowing. There is more zeal than discretion in this. The practice is too indiscriminately recommended; and I read with much interest the two articles at pp. 58 and 59, stating very fairly and judiciously the *per contra* side of the question. I am no advocate for throwing away seed; but I am a decided enemy to saving seed, at the expense of the crop; and this was certainly done in Mr. Frazer's case (p. 58), and I have no doubt in many other cases, if we could come at them. The practice is a dangerous one—penny wise and pound foolish.

The truth is, that a plant like Wheat, exposed so long to so many depredators, both above and under the ground, demands an extra quantity of seed, to provide against these and other contingencies of soil, season, climate, and the like. Some ought to be allowed for wire-worms; some for crows, larks, and other birds; and not a little, in but too many cases, for the game. Soil and season too ought to have a material effect on the proportion of seed sown. Strong, cold lands, should, if possible, be sown before Michaelmas—6 or 7 pecks an acre then (dibbled) will be fully equal to 2 bushels, or 2½ bushels after; but into November, 3 bushels will not be too much, especially on light warm lands: for the poorer the soil, the heavier ought to be the seed. On such soil the plants will not tiller; and, I am inclined to think, if tillering could be prevented on all soils, the better for the crop.

The late Mr. Coke effectually settled this question, so far as the light lands of Norfolk were concerned. He never drilled less than 4 bushels of Wheat an acre, at 9 inch intervals, and that for a long series of years, and on many hundreds of acres annually. All who remember the quality of the Holkham crops can attest the wisdom of the practice. The mode of depositing the seed, has, or ought to have much to do with the quantity. And here, I confess myself somewhat at issue with Mr. Evanor, who seems to regard dibbling as synonymous with thin sowing. It is no such thing; for though I believe a thin seed may undoubtedly be got in better and more regularly by the dibble than by any other method, it is well to bear in mind that there may be, and is, thick dibbling, as well as thin. For instance, on kind working land, early in the season, I would, if possible, get the droppers to put but two, or at most three grains in a hole; but as the season advanced, I would prefer double this quantity; and for the reasons already given. But setting aside the period of sowing, experience proves that there is a something connected with the process of dibbling, which is more congenial to the Wheat plant than either drilling or broadcasting. The advantages are two fold. 1. Regularity of depth. 2. Solidity of bottom. The more the seed furrow is trodden, and the less it is broken the better. My experience on a scale of from 50 to 100 acres of Wheat annually leads me to classify the three modes I have mentioned, in the following order:—

1. *Dibbled.*—For levelness of crop, weight of grain, and small proportion of dross.

2. *Drilled.*—Not so level either in its growth or quality of grain, with more dross.

3. *Broadcast.*—Far inferior, in every respect, to the preceding. No one in Norfolk resorts to this plan who has a shilling in his pocket to hire dibblers or a drill.

Another serious evil attending a thin plant of Wheat, though seldom advanced to by thin sowers, is its extreme tendancy to mildew; I have such a dread of this worst of farm scourges, that I would sow thick to prevent mildew, to which let me add, good solid treading, no matter how sown. The efficacy of this latter any one can prove by experiment, however small, even in a garden: sow a few rows of Wheat in drills, tread well one half of the patch across the rows, and leave the other half untrodden; if there is any mildew, it will not be on the trodden part. I say nothing of the advantage of a full crop on the score of cleanliness; the land will produce something, and if not corn, weeds. The smut described by Mr. Fraser in affecting one, and one only, of his experiments, has nothing whatever to do with either the time, the mode of sowing, or the amount of seed sown: it is solely dependent on the efficiency or inefficiency of the operation of cleansing and preparing the seed Wheat; I speak not at random, but from long and careful investigation of the subject; the disease may be produced by any one who chooses to take the trouble, or it may be prevented on the same terms. I will engage to produce a clean crop with five pecks, and a smutty one with five bushels, of seed an acre, or *vice versa*. Reverting to our main subject, I am far from denying the fact that great crops have occasionally been raised from a very small quantity of seed, and that if I have a new sort of grain given me, however infinite the amount, I should undoubtedly divide it in garden ground, in single grains, and at comparatively wide intervals. But what has that to do with my general field crop? I have it immediately under my own eye in a small space of ground, and if half the plants fill, I can, by transplanting, bring them together so as to fill up the blanks. I did so last year in the case of some "Britain's Defiance" Barley kindly sent me by Mr. Briggs, of Swinstead. I planted in the way I have mentioned upwards of 160 grains; from some cause or other, to me unknown, only 80 plants survived to form the crop; had this been field instead of garden culture, I should not have had anything like so many, and where then would have been the sense of saving the seed? Having stated what I consider to be the relative merits of the three methods of sowing in general use for Wheat, I may be allowed to add that, as a general rule, six or seven pecks an acre, well dibbled, are equal to eight or nine drilled, and to 10 or more sown broadcast. I shall only add, in conclusion, that these remarks apply principally to Wheat, and not to Barley, in which crop I readily admit that a thin seed may not only be applied without so much risk, but occasionally with advantage. However, this must greatly depend on the fineness of the tilth, and other considerations of season, climate, &c., not necessary to go into here.—*Samuel Tayler, Whittington, Stoke-ferry, Norfolk.*

Home Correspondence.

Superphosphate of Lime.—Should you think the following experiments in Turnip culture likely to be of use to your readers, I have the permission of Mr. Edward Strouts, of Kingsdown, near Sittingbourne, the experimenter, to request you will publish them:—

On own Acres.

No. 1.	55 bush. of sprats, at 6*d.*, 2*l.* 1*s.* 3*d.*; 4 cwt. superphosphate of lime, 1*l.* 10*s.*	£3 11 3
2.	55 bush. of sprats	2 1 3
3.	5 cwt. of superphosphate of lime	1 17 6
4.	55 bush. of sprats and 4 cwt. of superphosphate of lime	3 11 3
5.	55 bush. of sprats	2 1 3
6.	55 do. do. 2*l.* 1*s.* 3*d.*; and 25 loads of dung, 3*l.* 2*s.* 6*d.*	5 3 9
7.	The same.	

Winner sub Acris.

		tons.	cwt.	lbs.
No. 1.	Cream Globe	20	7	96
2.	" "	13	0	80
3.	" "	23	2	96
4.	Purple Short Top Swedes	21	7	16
5.	" "	14	10	32
6.	Skirving's Swedes	22	16	64
7.	Purple Short Top	18	15	80

This shows that sprats and superphosphate of lime (No. 4), at the cost of 3*l.* 11*s.* 3*d.* per acre, beat sprats and dung at the cost of 5*l.* 3*s.* 9*d.* per acre, by upwards of 2 tons, at a reduction in expense of 1*l.* 12*s.* 6*d.* And that the superphosphate of lime (No. 3), at the cost of 1*l.* 17*s.* 6*d.* per acre, beat sprats only (No. 2), at the cost of 2*l.* 1*s.* 3*d.* per acre, by near 3 cwt., besides the saving in expense and saving in carriage. The heaviest weight, 23 tons, was obtained from the acre of Skirving's improved Swedes, with dung and sprats; but I am confident if these Turnips had had the No. 4 mixture that the result in favour of the superphosphate of lime would have been still more decided than with the Purple Short-top; for we have no Swede Turnip grown in this part of Kent that equals Skirving's in weight. Mr. Strouts had also a most excellent piece of white and green Globe of near 20 acres, grown with sprats and superphosphate of lime, in the same proportions as in Nos. 1 and 4; but these were not weighed; had they been, I think the effect of the superphosphate would have been more marked than with the Swedes.—*J. W. Tyldon, Mitsted.*—P. S. My own experiments last year with superphosphate of lime are equally decided and favourable; but feeling so satisfied as to its value from my previous Turnip crop, I did not attempt to weigh any. [Our readers will see at page 51 a paragraph in reference to the experiments on superphosphate of lime to which Sir J. W. Tyldon Bart. alludes.]

How to Remove a Bad Taste from Milk.—I keep at present two milch cows, both of which should calve about April, and, consequently, they are now giving very much milk; about six weeks ago, the milk which had stood for cream was found to have both a bad taste and smell, and as, at that time, they were allowed to go out during the day a little into a meadow to which I had applied a dressing of Liebig's Guano manure, my man was of opinion that this had affected the milk; I did not think this could be the case, but as there was very little picking for them in the meadow, and by trampling they were mostly doing harm, and as; also, prejudice is not very readily overcome, I discerned that they should be kept up for the new-laid

and yard. The milk, however, was still bad, and so Liebig was held exempt from blame; I then inquired whether the cows exhibited any symptoms of illness, but was informed not; and the blame was then laid on some hay which I had directed to be salted at the time of sticking; this, again, I was satisfied could not be the cause, or the practice would not be recommended as it is by the scientific agriculturists: I then directed the milk of the two cows to be kept separate, and found the milk of one only to have a bad taste, and that the one which gave the most. I noticed this cow particularly myself, and could perceive no signs of illness (this was about three weeks after the bad taste of the milk had been first perceived), but as medical attendants generally prescribe for any little disorder that the bowels should be opened, I prescribed for the cow 1 lb. of Epsom salts with a little ginger powdered; the milk, however, did not improve, and a few days afterwards (having a great objection to call in the regular cow leech) I requested a neighbouring farmer, who kept near a score of cows, to look at her; he did so, and could perceive nothing wrong, but thought to check any tendency to premature labour, as the cow was in pretty good condition, it might be well to take a little blood, and being accustomed to bleed his own cattle, at my request he bled her. This still not proving a cure, in a few days afterwards I ordered her a pint of Linseed oil, but after all my efforts the milk was still bad. Having understood, however, that the bad taste in milk from cows fed on Turnips (of which, however, my cows had not tasted) might be removed by the application of nitre, and finding also from Youatt's "Treatise on Cattle," that nitre was a safe and valuable cooling medicine, I thought, before calling in professional assistance, I would make another trial; I therefore directed that she should have a dose of half an ounce administered for two successive days, after the first of which her milk had scarcely any perceptible disagreeable taste, and after the second was as good as any milk needs to be. Now, had this cow been in a large dairy, this would never have been found out; the milk might, perhaps, have been found to have a slightly disagreeable taste, but probably no further notice would have been taken of it. My principal object is to suggest that where there is any perceptible disagreeable taste in either milk or butter which the farmer cannot readily account for, he should, by keeping the milk of each cow separate for one milking, ascertain whether or not his whole dairy produce is tainted by one cow. I have written at some length, but possibly some amateur like myself may think not altogether to no purpose, and I shall be glad if some of your more experienced readers shall think it worth while to account for the disagreeable taste to which I have alluded, or inform me what better I can do, should there be a return thereof. My cows are fed on hay, crushed Oats, and brewers' grains.—*G. B. C., Manchester.*

Comparative Estimate of the several Applications of Milk.—Allow me to call your attention to the following extracts from Mr. Morton's report of a Gloucestershire Vale Farm, in a work published some years ago, by the Society for the Diffusion of Useful Knowledge. He says:—"In feeding calves for the butcher, it generally takes seven weeks to feed them to about a cwt. each: and they consume the following quantity of milk in the seven weeks:—About 10 gallons the first week, 16 the second, 20 the third, 24 the fourth, 27 the fifth, 30 the sixth, and 32 the seventh; so that it takes 159, or say 160 gallons of milk, to produce 112 lbs. of veal. The average money value of the various modes of converting milk into a marketable commodity will stand thus:—

	£.	s.	d.	£.	s.	d.
160 gallons of Milk produce 112 lbs. of Cheese, at 6d. per lb.	2	16	0			
And 3 lbs. of Whey Butter, at 8d. per lb. ..	0	3	4			
				2	19	4
160 gallons of Milk yield 24 lbs. of Butter, at 10d. per lb.	1	0	0			
And of poor Cheese 76 lbs. at 3d. per lb. ..	0	19	6			
				2	6	10
160 gallons of Milk produce 112 lbs. of Veal, at 1½d. per lb.	3	16	0			
But Calves newly dropped are worth (deduct)	0	10	0			
Value of 160 gallons of Milk to make Veal	3	0	0			
Therefore 160 gallons of Milk to make Veal are worth				1	17	0

Thus making cheese is more profitable than making either butter or veal."—*M. S.*

Bones and Sulphuric Acid.—As the time has arrived when every farmer is making arrangement to procure sufficient manure for his Turnip crop, I have taken the liberty to send you the result of an experiment with bones and acid which I was induced to make from reading Mr. Hannam's valuable paper in the "Royal Agricultural Journal," and frequent recommendations in the *Agr. Gazette*. I divided a field of 3 acres into three equal parts, to be sowed with spring Turnips. The first acre was drilled with 4 bushels of bones, dissolved with 54 lbs. of sulphuric acid; the acid (diluted with about four times its weight of water) and bones were put into a tub together, where they remained three days; they were then mixed with a sufficient quantity of ashes, to render them in a state to drill. On the second acre, 32 cwt. of African guano were used, mixed with ashes equal in quantity to those drilled with the bones and ashes. On the third, 16 bushels of bones were applied, without any ashes. Six drills, without any manure whatever, were left through out the field for the sake of comparison. The different parts were all drilled the same day with the same sort of seed, and the field is of uniform quality. The Turnips, with bones and acid, took the lead, and were fit to hoe 10 days before any of the others; before they had been up a fortnight you could distinctly see the difference, to a drill, at a considerable distance. Where the guano was used, the Turnips were the second best; were more forward, and looked better than those manured with bones alone. The six drills without any manure completely failed. The bones and acid maintained their superiority during the summer, and produced by much the best crop (I regret they were not weighed), the guano the second, and bones alone the third. What is the cost of each sort of manure per acre?

	£.	s.	d.	£.	s.	d.
16 bushels of bones, at 2s. 6d. per bush.				2	0	0
32 cwt. guano, at 9s. per cwt.	11	12	0			
Ashes	0	4	6			
				1	16	0
54 lbs. acid, at 1¾d. per lb.	0	6	9			
4 bushels of bones, at 2s. 6d. per bush.	0	10	0			
Ashes and extra labour	0	5	6			
				1	1	9

The bones and acid will, therefore, cost 18*s.* 3*d.*, and the guano 4*s.*, less than the bones alone. Such a saving is not to be overlooked, but is not to be compared with the advantage of starting the Turnip into such an early vigorous growth that defies the attacks of the flies; to say nothing of the extra crop produced. Where farm-yard manure and guano have been tried, the guano has produced the best Turnips; in this case, the carting of the dung to the field has been more expensive than the guano.—*J. T. U.* [We shall be very glad indeed to have reports of your experiments.]

Influence of Electricity on Vegetation.—The question whether electricity has really any effect on the growth of plants can only be decided by a series of careful and accurate experiments. Every person, therefore, who can offer a fact upon the subject will aid in the curious and interesting inquiry, from which many have been repelled by the unphilosophical methods employed and the hasty deductions incautiously and inaccurately announced. Having paid some attention to the statements made respecting certain experiments, I tried several myself during the past year. When the Potatoes I exhibited at the Royal Institution in May last in pots, one treated with a galvanic circuit of a plate of copper and zinc, were taken up, the produce of the galvanised tuber was ten ounces in weight, and of a similar one not galvanised, five ounces. They were weighed at Chiswick by Mr. Edward Solly.* Having expressed an opinion that the mode recommended by Mr. Forster would be found of no avail, I determined to try that and another method. I surrounded a plot of Potatoes with the wires as he directed, and found no difference whatever in them from others adjacent, at the period of taking them up. At the same time, I erected two poles about 20 feet high in another part of the same garden, across which I stretched a copper wire 1-16th of an inch in thickness, carefully insulating the poles by covering them with a cap, lacquering their tops with a solution of sealing wax in naphtha, and glass tubes passing through the poles, into which the wire was inserted. From this cross wire I suffered four or five other wires to hang perpendicularly with several branching wires at the extremity of each, descending within about two feet of the ground. A row of similar Potatoes was planted in the same soil, and left entirely to themselves. On taking them up at the end of the autumn, the produce of those under the wires was about double that of the others, and while the latter contained only one pound and a half of really sound tubers, the disease having caught them to a great extent, the former gave 16 pounds weight perfectly sound and healthy. I am aware that this is merely a single fact, that no hasty inference can be deduced from it, and I only state it to persuade others to similar trial, which I intend to repeat myself. It is also fair to say that I know of the experiment being tried on cereal plants in the like way, and there was no visible result, except a very slight one in one case. I may, perhaps, be permitted to mention the apparent effects of a few experiments with galvanic batteries. On June 3rd, I sowed two pots of Mustard seed, in one I placed the terminal wires of two cells of Smee's battery. It came up much sooner than the other pot of seed, and grew with far greater vigour. In June, also, I placed a Pumpkin-seed in a pot between a single circuit of zinc and copper. It was far inferior to a similar seed in growth and development sown in the ordinary way, and came to nothing. On June 3 a similar application made a great apparent difference in a cutting of a Pelargonium, giving it, as it seemed, a vigorous growth in comparison with a similar cutting with no application. The same day I treated a Kidney Bean in like manner; the advantage over the other planted for the comparison was most striking; the former was in rough leaf before those of the other unfolded. In my own garden, and in that of a neighbour, the single circuit of copper and zinc seemed greatly to affect, by comparison, a row of Peas. On July 4, I placed the terminal wires of a large cell of a Daniell's battery at the extremity of the young shoot of a Pelargonium. It withered and died in five days. The same experiment was tried upon a Balsam a few days before; it withered and fell in 24 hours; in 48 hours it looked as if it had been scorched by a fire. I made likewise several other experiments, and with the exception of one Melon plant, which flowered before any flower-buds were visible on two others in the same frame, there is no result. It would, therefore, be in vain, till further investigation has been made, to speculate on the causes which produced those appearances which I have described. I simply state them for the information of persons curious on this interesting

* Two similar pots left in Norfolk gave, galvanised, 17 oz.; ungalvanised, 16½ oz.; scarcely to be called a result.

matter, and while I deprecate every hasty conclusion, I would venture to observe that a hasty abandonment of research on a question so worthy of it is at least equally to be regretted. If I had only tried a few experiments, I might have seen nothing to mention, and concluded with others that electricity had no effect; but while many that I did try gave no indication of any result, those I have described, for some reason or other, seemingly connected with the application of electricity, ensued in the manner stated.—*Edwin Sidney, Esq., near Norwich.*

Wheats differ in their nutritive Quality.—It is with much pleasure I observe in a Leading Article of your *Gazette* your anxiety to direct the attention of farmers and the public to that most important subject the composition and relative nutritiveness of the different varieties of Wheat used in the manufacture of bread. To the consumer, and more especially to the poorer classes, this is a subject of money value of no small importance, and one on which too much pains cannot be bestowed to convince the public of the great loss they sustain in purchasing bread made from those varieties of Wheat which contain but a small per centage of the nitrogenous constituents, and which, when they pass through the baker's hands, are often still more deteriorated by adulteration with Rice or Potatoes, to say nothing of alum, copper, and other noxious ingredients used for the purpose of improving the appearance of inferior and damaged samples. That a loaf possessing all the external characteristics of bread of the first quality, *i. e.* lightness of texture, good flavour, and not to be distinguished from one made with the best wheaten flour, may be made without its containing one particle of nutriment (nitrogenous matter), I am convinced, having seen and partaken of such bread; and I have no doubt it would have found a ready sale if offered to the public as best bread. But my object is to direct your attention to that portion of the subject included under cultivation, *i. e.*, the action of manures on the composition of the grain, and which, if I recollect right, Sir G. Mackenzie did not notice in his papers published in your *Gazette* a few weeks since. Mr. Hyett was the first person to call the attention of agriculturists to the action of nitrate of soda, when used as a top dressing, in increasing the nitrogenous constituents of the Wheat crop (Agr. Journal, vol. 2), from analyses which I made for him in 1840 of the crops grown with and without the nitrate. The effect of the nitrates was subsequently examined by Dr. Daubeny, and published in his lectures, and by M. Liebig, now Baron Liebig, both of whom confirmed the fact. From that time I have felt much interest in the subject, and have made many analyses of Wheats grown with different manures under the same circumstances, and should feel a pleasure in co-operating with any person in fairly investigating the subject, which, from the analyses now lying before me, I feel confident would lead to important results.—*A. Gyde, Painswick.*

How do Phosphates of Lime Rendered Available as Food for Plants?—In order to render the answer to this question intelligible to "P. V.," and your readers, it must be borne in mind that there are three salts formed by the union of phosphoric acid and a base, all of which are called phosphates. We will illustrate this in the salts of lime. One equivalent of phosphoric acid, and one equivalent of the oxide of calcium, form a protophosphate, commonly called a superphosphate of lime, which is quite soluble in water. One equivalent of phosphoric acid and two or three equivalents of the oxide of lime form respectively the di-phosphate and tri-phosphate of that earth, which are insoluble, or nearly so, in water. Now, as a matter of course, it is the insoluble salt, which chemists say "remains in the soil inert and useless for the purpose of vegetation till rendered soluble by exposure to atmospheric influence." It is quite true that the action of carbonic acid will convert the insoluble into a soluble salt. Sulphuric acid will do so much more quickly and effectually; but it is not, as "P. V." assumes, by dissolving the salt that these acids act, but simply by combining with a portion of the bases of the di or tri-salt, and converting it into the neutral proto or superphosphate. It is true that the carbonic acid in the atmosphere acts upon the phosphate exposed to its influence, and it is thus that the increased fertilising property is given to bone-dust by the addition of sulphuric acid.—*C. R. Bree, Stowmarket.*

Mr. Wortley's Essay on Fork Husbandry.—Having read your late review of Mr. Wortley's prize essay, I have been induced to procure the pamphlet, which I have perused with much interest. I am now desirous of adopting the plan advocated by Mr. W., but find the description of the fork employed by that gentleman not sufficiently minute to enable me to procure one precisely similar. Could you oblige me (or would Mr. Wortley, through your pages, favour me) with such a full description of the fork "introduced into Mr. W.'s neighbourhood by R. W. Baker, Esq., of Cottesmore," as may enable any maker of agricultural implements to fabricate a counterfeit.—*Subsoil.*

Thistles from Seed.—"A Leicestershire Farmer" says he should like to see the person that can raise a bed of plants from the seed of Thistles. If he will visit Suffolk, I can introduce him to the man, (I enclose my address,) a workman of mine, who had no difficulty three or four years ago in obtaining a bed of very strong and healthy ones in my garden. I saw them in their early and more advanced stages. He tells me he thinks about half the seed he put in vegetated.—*S. T.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A monthly council was held at the Society's house in Hanover Square, on Wednesday last, the 4th of Feb.; present, the Right Hon. Lord Portman, president, in the chair, Earl Grey, R. Archbold, M.P., Thos. Raymond Barker, Esq., J. R. Barker, Esq., S. Bennett, Esq., H. Blanshard, Esq., W. R. Browne, Esq., F. Burke, Esq., Col. Challoner, F. C. Cherry, Esq., Sir T. Drake, Bart., A. E. Fuller, Esq. M.P., H. Gibbs, Esq., C. Hillyard, Esq., W. Fisher Hobbs, Esq., John Hudson, Esq., G. Kimberley, Esq., J. Kinder, Esq., C. Pocock, Esq., F. Pym, Esq., Professor Sewell, W. Shaw, Esq., J. V. Shelley, Esq., Geo. Turner, Esq., T. Turner, Esq., T. R. Tweed, Esq., H. Wilson, Esq., and W. B. Wingate, Esq.

The following new members were elected:

Pugh, William, Coalport, Ironbridge, Salop
Chapman, Charles, Exton, Stamford, Lincolnshire
Ormston, Robert, Newcastle-on-Tyne
Glover, William, Northumberland-street, Newcastle-on-Tyne
Anderson, William, Bent House, South Shields, Durham
Grenfell, Charles Pascoe, 38, Belgrave square
Wollen, Joseph Wedmore, Cross, Somersetshire
Buller, James Wentworth, Downes, Exeter, Devon
Keen, Thomas, Croydon, Surrey
Machin, John Veasey, Gateford Hill, Worksop, Notts
Knipe, J., Eccleston street south, Belgrave square
Reeks, James, Standen, Hungerford, Berks
Coxe, Lieut. James (27th Foot), Newton Lodge, Hungerford, Berks
La Beaume, M., 11, Argyll-street, London
Curties, Rev. Thos. Chandler, Linton Vicarage, Bromyard, Hereford
Merrick, J., Windsor, Berkshire

The names of 26 candidates for election at the next meeting were then read.

Finances.—Mr. Raymond Barker presented to the council the report of the Finance Committee, from which it appeared that the amount of capital invested in the public funds stood at 8,200*l.*, with a current cash balance in the hands of the bankers of 1,695*l.* The council confirmed the recommendation of the Finance Committee, that 1,200*l.* stock should be sold out of the funded property of the Society for the purpose of removing the temporary inconvenience occasioned by the excess of the expenditure over the receipts at the Shrewsbury meeting chargeable on the funds of the Society, and which at that time had amounted to 1,600*l.* independently of the 1,000*l.* contributed by the town of Shrewsbury towards the expences of the meeting.—On the motion of Mr. H. Gibbs, the various financial returns (of which a detailed statement was given in our last report) required in his notice of motion, of the 3d of December last, were ordered to be laid quarterly on the table.—On the motion of Colonel Challoner, a statement of the ordinary income of the Society for the past year, apart from income arising from the payment of arrears of subscription, should also be prepared. The council ordered further that a list of all members in arrear of subscription should lie constantly on the council table for public inspection.

Newcastle Meeting.—The President having laid before the council a communication from Sir Matthew White Ridley, Bart., Chairman of the Newcastle Local Committee, on the subject of the date of the meeting, it was unanimously decided by the council that the annual county meeting of 1846, for the Northern District (comprising the counties of Northumberland, Cumberland, Durham, and Westmoreland, and the town of Berwick-on-Tweed) should be held at Newcastle-on-Tyne in the week commencing on the 13th of July next; the principal day of the show, and that of the pavilion dinner, being Thursday the 16th of that month.

A letter having been read from Mr. Frere, in reference to railway accommodation and conveyance to the place of meeting, the Secretary was directed to enter into communication with the various railway companies, and the Newcastle local committee, on the subject, and to report the result of his enquiries to the council at heir next monthly meeting.

The following communications were received:—A letter from Mr. Pusey, M.P., to the President, announcing the preparation of a report by the Analysis Committee, on the best course to be pursued in the present state of the inquiry respecting the Ashes of Plants. Letters and Specimens of Draining Tiles, addressed to the Duke of Richmond, by Mr. Johnson, of Northampton. A recommendation from Mr. Thompson, of Moat Hall, that the county of York should form one of the districts for the country meetings of the Society. A suggestion from Mr. Martin, of Kingston House, Dorchester, that engravings should be published of the prize implements of the Society. A printed report from Mr. Dean, of the Proceedings of the Land Agents' Society. A letter from Dr. Dewhurst, offering to deliver lectures before the Society. Plans from Mr. Harrison, of Devizes, of Cattle Sheds, Manure Tanks, &c. Papers from Mr. Dickson, on the Cultivation of Flax. An offer from Mr. Stothard, Medal Engraver to the Queen, of unappropriated medal dies for a royal medal. An offer of services from Mr. S. Curtis, of New South Wales, in reference to the promotion of the objects of the Society. And an intimation from Dr. Calvert, that if the arrangement should be approved by the Council, he would willingly communicate, in a Lecture to the members at the ensuing Newcastle Meeting, the result of his inquiries and practical trials on the subject of the best Grasses for cultivation.

The Council then adjourned to Wednesday next, the 11th of February.

Farmers' Clubs.

SUBJECTS FOR DISCUSSION.

8. ADVANTAGES AND DISADVANTAGES OF RAILROADS TO AGRICULTURE.

See Report of the meeting of land agents and land valuers in the *Mark Lane Express* of Dec. 29, 1845.

Consider that from 1500 to 2000 acres are swallowed up by every 100 miles of railroad; our increasing population can ill spare so large an absorption of corn-growing land. Consider also, how the employment of so much capital in this way takes out of the money market those means which might be more profitably spent in draining land, or in other agricultural improvements: and consider that the maintenance of the present turnpike roads will be thrown on the parishes through which they pass, if a diminished traffic upon them should reduce their tolls below their expenses.

But, consider again: (1.) Will railroads diminish the number of horses? If so, the lands which formerly grew Oats for *them* may now grow Wheat for man. Consider (2) that railroads require great numbers of men for their construction, who are well paid, and who spend at least five-sixths of their wages on our farm produce. (3.) That they employ a permanently tenfold larger number of men than the lands they occupy would require under ordinary cultivation. (4.) That their rateable value is so high as greatly to reduce the parish rates of the lands in their neighbourhood. (5.) That they are, in effect, equivalent to the bringing of good markets nearer producing districts. And above all (6), that the cheap, easy, and rapid travelling which they offer will destroy that isolation under which the farmer has hitherto suffered, and by which, more than in any other way, the progress of agricultural improvement has been hindered.

But the discussion may turn upon local considerations; and the question may be—"What effect will railroads have on the agriculture of *this district?*" and local peculiarities must then be considered. And let them be discussed in the spirit of the debate which took place at Harleston, Norfolk, on the 14th of May, 1845. See 8th Annual Report of Harleston Farmers' Club.

St. Peter's: *Tenants' Rights.*—Mr. Smeed said he had been requested to introduce to the attentive consideration of the Club the subject of Tenants' rights. It had been discussed at length at the Farmers' Club House, London; the report of which discussion had been forwarded to him, with the request of the Secretary of that Society that the subject might be considered here. The President of this Club had also requested him (Mr. Smeed) to introduce the subject to this meeting, which he would therefore do without further apology. 1st. He presumed the meeting would be fully agreed in his first statement, viz.—That every possible arrangement should be made to secure good farming. Rents could not be kept up without it: the heavy expences of the tenant could be met under no other system; the increasing population of the country rendered it necessary; and this alone could secure the full employment of the agricultural poor. 2d. It was not likely that the capital and skill of the agriculturist, and the capabilities of the soil, would be fully developed unless due attention was paid to the relative position of landlord and tenant. Indeed he thought it should be forcibly felt by all classes engaged in agriculture that their interests are mutual; that they rise or fall together. 3d. He was of opinion rents are in but few cases too high under circumstances over which landlords or tenants have any control. In some cases he thought them too high under existing circumstances over which they have control; but in very many might they be raised, and yet the tenant would be encouraged and benefited if these circumstances were altered. 4th. He believed security of possession to be most important to every occupier of land. Improvement in the condition of the soil is to the farmer what improved machinery is to the manufacturer; nor can there exist proper inducements to the necessary outlay in either case, unless a fair chance is given of obtaining adequate remuneration. A farmer, under any circumstances, risks his outlay; and he has many dangers and difficulties to contend with to felt and unknown to mercantile men, but uncertainty of tenure places him at once in circumstances infinitely disadvantageous. It will be sure to operate on every reasonable mind in the manifestation of a parsimony, incompatible with the best interests of the landlord, the labourer, and the country. On these grounds leases are desirable. 5th. If farms are taken on a yearly tenure, there should be given two years notice to quit, and care should be taken, in the agreement, that the landlord is not left with a starved farm, nor the servant without remuneration. 6th. He thought that a tenant leaving should stand on quite as good terms as the in-coming tenant, and he knew of no better plan to secure the interests of both these, and those of the landlord, than the following:—(1.) That the out-going tenant be paid for all work done on the land after his last harvest. (2.) That all straw, fodder, and manure found on the farm at Michaelmas be taken at its full value. (3.) That half the value of manures applied the preceding year be paid to the out-going tenant. (4.) That all buildings erected by the tenant, or purchased by him of his predecessor, be taken by his successor. (5.) That the real value of these items be fixed by fair arbitration.—7th. He thought the effects of this and similar meetings, would be of more importance if they brought the subject before the parties immediately concerned, than if they promoted any legislative interference. Judicious, voluntary arrangements between landlords and tenants would do more good than Acts of Parliament. Still something was needed to meet cases where persons found in possession of farms, are not protected by any sort of agreement with their landlords about the treatment they are to receive on quitting, but are left to the "custom of the country." A legal standard of appeal would be exceedingly useful under such circumstances. Now, the tenant must take just what the landlord pleases to give him, or enter on a contest to which he is quite unequal, and the very ground on which he stands is as unstable as a floating iceberg. He hoped gentlemen would speak freely on the subject this evening, but would recommend to wait till the London Farmers' Club had collected the information it was seeking, and they felt themselves in possession of more light, before they proceeded to petition Parliament on the subject.—Mr. W. Manser, the President of the Club, said, "I quite agree in all that has been said by Mr. Smeed. I think the greatest obstacle to good farming is the non-employment of capital, arising principally from uncertainty of tenure; and if any means can be devised to overcome this, so that the tenant farmer can feel secure that he shall be reimbursed for every judicious outlay of capital on quitting the farm, it will be a great boon, not only to tenants, but to landlords, and the country generally. In my opinion the out-going tenant is entitled to compensation for any increased value that his system of cultivation may have given the farm he has occupied. Were he secure of obtaining this, I feel confident the intrinsic value of landed estates would rapidly increase. I think there are many things that the out-going tenant ought to be paid for by the landlord, which ought not to be charged to the incoming tenant in any other way than by an increase of rent. For, in very many cases, if the tenant (who may be an industrious, practical, and persevering man) has a large sum to pay on entering the farm, he may be so crippled in circumstances as to be unable to improve the estate, and yet (in justice) he could not object to pay increased rent for the benefit received. This plan would give accommodation to many tenants, and also prove a good investment for landlords—increasing the real value of their estates, while it improved their rent roll. For the advantage of all parties I would recommend that such a per centage should be paid (whatever the extent of the lease might be) as would wipe off both principal and interest by the end of the term. Then the tenant on leaving would, in justice, be paid by the landlord for all work done for the benefit of his successor, and for all unexhausted improvements, as Mr. Smeed has stated. But above all, the full value should be paid for straw, fodder, and manure; and every inducement should be given to secure good farming to the end of the lease."—A long discussion ensued, at the close of which it was proposed by Mr. J. C. Bennett, seconded by Mr. N. Bradley, and carried unanimously—"That, as the opinion of this Club is fully embodied and expressed in what has been delivered by Mr. Smeed and Mr. Manser, the secretary be requested to forward their speeches to the secretary of the London Farmers' Club, as explanatory of their views on the subject."

Maidstone.—The following are the resolutions of this Club as embodied in its report for the past year:—"That it is desirable to drill Swede Turnips about the middle of May, in high exposed situations, and about the middle of June, in low warm situations; white rounds a month later; that Mangold Wurzel should be dibbled in 30 inches apart, from the middle of April to the middle of May." It was mentioned by a member whose land was subject to fly, that he had with success drilled in alternate rows of white rounds between the Swedes, to protect the latter from the fly, which had always attacked the white rounds first. *June.*—"That in the opinion of the members, the way to make the best meadow hay is to cut early, and to expose as little as possible to dew; as soon after mowing as practicable, to put it into very small cocks, opening the same the following day, again putting it into cocks of a larger size before any dew falls; and pursuing the same course until ready to carry. A cheaper, but not so desirable, yet very common mode practised, is to allow the Grass to remain unbroken in the swathe, turning it once or twice a day, until nearly ready to carry, when it is shook abroad in the forenoon of the day intended for carrying, and taken up in the afternoon, taking care to finish before any dew falls. If the whole is shaken and cannot be carried before next day, it should be put up in secure cocks. Seed hay should not be shaken out, but should be turned in the swathe until ready to carry; but if too large a crop to admit of the hay being made in the morning it may be slightly opened in the swathe. Tare hay is very difficult to make good; it is best to open the swathe in a fine day, and care should be taken to allow it to remain exposed as little as possible. Sufficient hands should be at command to put all into cock every night, or at the approach of rain. It is desirable to cause hay of all descriptions to heat in the stack as little as possible." *July.*—"That it had been found desirable to cut Wheat before it becomes sickle-eared, and other grain rather green. That if men can be got to bag Wheat well, it is best to bag; the next best plan is to mow; but both bagging and mowing must be done well, or dirt will get into the sample from the stalks which are torn up by the roots. That corn should always be made up in small sheaves. That when winter thrashing is required, Wheat thrashed after having been kept in a barn, is generally better than that kept in stack, but that for summer-thrashing the sample is rather improved by being stacked. In that month, the members of the Club having reported last year on the state of the farm of Mr. Hewitt Davis, received a general invitation from that gentleman to inspect his crops just before harvest. About 20 of the members availed themselves of the invitation on the 8th of July, and again inspected Mr. Davis's crops. In August, Mr. Davis accepted the invitation of the Club to pay them a return visit; but Mr. Davis's engagements only permitted his attendance at the monthly discussion. The subject originally arranged for discussion was—Improvements in farm buildings: but the

attendance of Mr. Davis induced many members, who had not visited his farms, to wish for some further particulars from him on his system, and particularly on that portion of it which refers to sowing a diminished quantity of seed. Mr. Davis, consequently, entered into an elaborate exposition on his system and its advantages, which led to many inquiries and to some animated discussion. At the conclusion, the following resolution was unanimously adopted:—Resolved, "That every friend of agricultural improvement and national prosperity ought to try the system recommended by Mr. Hewitt Davis, if only on a small scale; and that the thanks of the club be presented to that gentleman, for the urbanity with which he has received its deputations, and the pains he has taken this evening to explain every part of his system." *September*.—Resolved, "That having re-discussed Mr. Davis's system, after hearing that gentleman's explanation, it is still deemed highly desirable for every farmer, who can drill early and cultivate in any way approaching Mr. Davis's system, to try at least a portion of his land, with a diminished quantity of seed, and to report the result to the club. The club do not recommend, however, farmers on undrained land, to try it to any very great extent." At the *December* meeting, the secretary read several extracts from the minutes of evidence of the "select committee of the House of Lords appointed to inquire into the expediency of a legislative enactment being introduced to enable the possessors of entailed estates to charge such estates with a sum, to be limited, for the purpose of draining and otherwise permanently improving the same." A large majority of the witnesses preferred draining at least 4 feet deep; and concurred in the opinion that the superfluous water first fills the large cracks of the earth from the surface, and then rises from below, thus chilling the plant, and generally reducing the temperature of the soil. An interesting discussion ensued, in which some members, who had been accustomed to very tenacious clays, gave their opinion, as the result of their experience, that the water very seldom got so deep as four feet; and that on some very tenacious clays it was preferable to drain about 30 inches deep, leaving the drains only half the distance apart of deep drains.

Farm Memoranda.

Comber, County Down.—We last week described the operations of draining, &c., which have resulted in the permanent improvement of this estate, and we will now transcribe for the benefit of our readers the very interesting report lately given in the Dublin *Farmers' Gazette*, by Mr. Andrews, of the mode of cultivation which he adopts. He says:—"The rotation we have hitherto pursued on our large farm, is the five course. First, green crop, half Potatoes and half Turnips, the former in the succeeding rotation taking the place occupied by the latter in the previous. Second, Wheat on all land cleared by March, being nearly the entire, as we then store the remaining Turnips, the whole sown down with Clover and Grass. Third, Clover and Grass for green feeding and hay. Fourth, pasture. Fifth, Oats. We are much dissatisfied with this rotation, as the year of pasture makes no adequate return, and greatly diminishes the average annual produce; but we have been unable to change it till our draining and other improvements shall be completed, the soil under pasture being in the best state for draining. I know many good practical agriculturists entertain the opinion that a year under pasture is necessary; but I have never been satisfied with the reasons assigned, and I know the best scientific professors are of opinion, that a well arranged rotation, with frequent and adequate dressings of manure, will render unnecessary the great loss of produce and the great waste of manure inseparable from a year of pasturage, in a five course rotation. Nor are we without experience to support that opinion. My brothers and I have three distinct farms, one of 9 Cunningham acres, one of 21 Cunningham acres, and our large farm of nearly 400 statute acres. That of 21 acres has been cultivated for above 20 years under the four course shift, the same as the five described, with the exception of the year of pasturage, and its productiveness has not diminished one whit from the maximum to which it was brought in the first few years, except in Clover, which occurring every fourth year has certainly become so precarious, that Italian Rye Grass is now mainly relied upon. The Potatoes and Turnips occurring but once in eight years are productive to the highest degree, and Wheat and Oats, on the average of years, produce the enormous return of very nearly 30 cwt. to the Cunningham acre. In one year, 40 cwt. of Oats were derived, and in an extreme year 35 cwt. of Wheat to the Cunningham acre. On this farm the produce of manure from exclusive house feeding is very great, and the manure is aided by a mixture of peat earth, lime being given every fourth year with the green crop, in the proportion of 20 barrels or 60 bushels of unslaked lime to the Cunningham acre. The soil is on the clay slate of the grau-wacké formation. The small farm of 9 acres is placed under a rotation designed to exhibit the maintenance of the largest possible stock of black cattle, fed entirely in the house, and also to test the effects of a very lengthened rotation, including every crop for which the soil is adapted which can be made useful and profitable. It is in 10 divisions. The rotation is the following:—1st year, Potatoes; 2d, Wheat; 3d, Beans on two-thirds, Cabbages on one-third; 4th, Wheat; 5th, Turnips; 6th, Wheat, sown in February or March, with Red Clover and Italian Rye-Grass at the same time, from which several advantages arise;* 7th, Clover and Italian Rye-Grass for green-feeding and hay; 8th, Oats; 9th, Flax; 10th, Rape, Vetches, and transplanted Turnips, two entire crops in the year.† Under this rotation, five black cattle are kept in summer, and six in winter—one being an ox, which performs all the drawing, aided in the ploughing by another ox or horse, as on the plan of neighbouring, so common and proper with small farmers. Two pigs are also kept, and a large number of fowl for supply of my own family. The course of feeding is as follows:—About the third week of April the Rape sown in August after Flax on one-half of the division, is ready. It is sown broadcast, at three times, from the earliest day possible after the Flax is pulled, to the last day of the month, and it supplies the cattle till nearly the 1st of June. In the latter part of May the Rape is mixed with Rye, sown in Sept. on one-fourth of the ground intended for Turnips—the Aberdeen and Globe being sown on that portion, and Swedes on the other three-fourths. After the Rape and Rye, Clover and Italian Rye-grass form the supply till about the third week of June, when the portion unused, generally three-fourths of the entire, is cut for hay. By the third week of June, winter Vetches sown in October upon part of the remaining half of the Flax ground, is in full flower, and beginning to pod; and followed by spring Vetches, sown in February or March on the other part of that portion, supplies food till nearly the first of August. The second cutting of Clover then comes into use, and almost the entire of this cutting is consumed green, mixed with a portion of dry Wheat-straw. When it is finished earlier or later in September, according to the season, Vetches sown upon the Rape ground at different times from the middle of May till nearly the middle of June succeed, and are aided by early imperial Cabbages, which are planted alternately with flat Dutch, the removal of which permits the flat Dutch to increase till they are wanted in October and November.

A partial third cutting of Clover (liquid manure being applied after each), and in some seasons a cutting of the young Clover sown with the Wheat (which is cut off high above the Clover), with Cabbages, have never failed to carry on the cattle to the middle of November, when Turnips and other winter feeding, consisting of Bean haulm and Rye-grass hay, with some straw cut into Chaff and boiled with an addition of bruised Flax seed and bolls (all such being saved), and a portion of Bean meal, form the dependence of the stock till the return of Rape in April. One entire tenth of the farm is thus in Turnips, and also the half of a tenth under winter and early spring Vetches, on which Globes are sown till the middle of July, and Swedes transplanted from that time till the 1st August with plants taken from a portion of the field sown with Swedes, and left with a double supply of plants at the time of singling. All the Beans are used for the cattle, being given in meal with their drink during summer, and boiled with the food in winter. The manuring of this land is by light dressings of solid and liquid manure each alternate year—20 barrels of lime the Cunningham acre being given with Potatoes and Turnips, strewed in flour upon the drills after the crops are planted and sown.

The success of this course is so far all I could wish. The number of cattle kept is equal to almost any well-proved attempt I have met with. Every crop is abundant. I have this year threshed only my Potato-land Wheat. It yielded 32½ cwt.—from a Scotch boll 240 lbs. of Hopetoun, in the proportion of 28½ cwt. per Cunningham acre. Many think the attempt to raise Wheat thrice in ten years will fail. Considering that analysis has proved that Wheat extracts even less than Oats from the soil, I am resolved to work out the experiment. I only now regret, that in the arrangement of this small farm I did not lay out a small paddock of half an acre in permanent Grass for "playground" for the cattle, and I mean to remedy that defect.

By the result of our experience on those small farms, we are emboldened to determine on giving up pasturage on our large farm, at the commencement of the rotation following the completion of our thorough-draining and subsoil ploughing, and we have designed the following:—1st, Potatoes; 2nd, Wheat; 3rd, Beans; 4th, Wheat; 5th, Turnips; 6th, Wheat; 7th, Clover; 8th, Oats. One field of about 20 acres, now in permanent pasture, will so remain for young cattle, and an occasional "playground" for others. Vetches and Rape will be raised in the proportion that may be found useful, on the division allotted to Beans. Time will show whether the abandonment of pasturage will realise theoretic expectations. I can see no necessity for the waste and loss incurred by pasturage. Land requires rest from producing the same crop too frequently. Obviate that evil by a lengthened and varied rotation, and supply the food of the crops in frequent and suitable dressings, and I have no fear of the result. You have dragged me into this subject, and you must bear the infliction of my prolix communication.

I had almost forgotten to state, that on our large farm we have ascertained, upon the weigh-bridge, the produce of an entire field of Cup Potatoes, as taken from the ground in one year, at nearly 14, and in another at 15½ tons per Cunningham acre. Our Swedish Turnips would, I am persuaded, reach 40 tons this year. Wheat and Oats have produced, on the large scale, from 25 to 30 cwt. per Cunningham acre. This produce is fully 25 per cent. increased from the best of the "good old times."—*John Andrews.*

* The advantages of sowing Clover and Grass-seeds in the early spring, at the same time as Wheat-seed, are the following:—Turnip land then sown is well consolidated, and will be rendered more so by succeeding spring rains, and that solidity may be increased by rolling. If sown at a later season with Barley, such consolidation, so useful to Clover, cannot be so well secured. The Clover plant, when sown with Wheat thus early, has time to attain size and strength before the Wheat can shade it, and the shading by spring-sown Wheat is less than by any other crop, for the seed stem, when it begins to run, proceeds rapidly, with less flag than any other cereal, and is, throughout, comparatively open in the bottom. It is owing to these advantages, as I conceive, that I have succeeded much better with Clover under this system than formerly.

† By taking the year after Flax for Rape, Vetches, &c., two entire crops of green-feeding are secured in full perfection within the year; thus, half the field in Rape, in three sowings, say 10th, 20th, and 30th August, succeeded by late spring Vetches, sown from about the middle of May till nearly the middle of June; the other half in winter and early sown spring Vetches, succeeded by Globe and transplanted Swedish Turnips.

Reviews.

The Muck Manual. By Frederick Falkner. J. Murray, Albemarle-street.

A new edition of a well known and highly esteemed little book. Its present form and contents are the result of a careful revision of the former work, and a glossary explanatory of the names and hard words which have been used in the volume is appended to it. It is written in a very simple and pleasing style, and contains, we believe, all on the subject of manures that a farmer really needs to know. We extract from the preface the following passage in which the author after apologising for the humble title he has adopted for his book thus recommends its perusal.

"To descend, however, from this lofty strain into which our apology has betrayed us, let us seriously recommend you if you belong to the honourable fraternity of the most ancient of all professions, as we have been all along presuming, to make a few scratches on this lowly and too much neglected heap of all sorts of despised things, and we have no doubt but you will soon rake up, like the cock in the fable, jewels of great value, which you, more happy than he, will know how to estimate and apply to most excellent and profitable uses."

The Horse's Foot, and how to keep it sound. With Illustrations. By William Mills, Esq. Longman, Brown, Green, and Longman.

A beautifully got up work, excellently and fully illustrated by capital lithographic drawings. It treats of the anatomy of the foot—the practice of shoeing, and the proper stable management of the horse, with especial reference to the treatment of the foot. Mr. Mills has written a very useful essay, and one which should be read by every gentleman owning a horse.

Miscellaneous.

Analysis of Experiments with Super-phosphate of Lime and other Manures.—The Right Hon. T. Pemberton Leigh, having instructed one of his tenants, Mr. Stroute, of Kingsdown, Kent, to try some experiments with different manures,—on the 22d November, 1843, Mr. Stroute set out six acres and sowed them with Wheat, having dressed one of them (No. 1) with 30 loads of farmyard dung, costing 4*l.* 10*s.* On the 19th March, 1844, he used the following top-dressings on four of the unmanured acres (still leaving one unmanured); No. 2 with 3 cwt. 2 qrs. 18 lbs. of Peruvian guano, costing 2*l.* 4*s.*; No. 3 with 5 cwt. of rape-dust, costing 1*l.* 12*s.* 6*d.*; No. 4 with 6 cwt. 2 qrs. of urate, costing 1*l.* 12*s.* 6*d.*; No. 5 with 6 cwt. 1 qr. 4 lbs. of super-phosphate of lime, costing 2*l.* 4*s.* 9*d.* Last year these plots were again sown with Oats. The following Table will show the comparative results, which were mentioned by Mr. Leigh at the dinner of the Lenham Association. We have calculated the increase of crop from the lowest manured acre, and the saving in cost by deducting the cost of each manure from that of the highest, namely farmyard dung.

Wheat.	Produce. bu.	gal.	Straw. lbs.	Increase. bu.	gal.	Saving. £	s.	d.
Dung	40	6	2376	2	2	..		
Guano	40	6	2196	2	2	2	6	0
Rape	38	3	1872	0	0	2	17	6
Urate	38	5	2028	0	2	2	17	6
Super-phosp. of Lime	53	5	2949	15	2	2	5	3
Oats.								
Dung	56	4	3086					
Guano	56	7	2878					
Rape	55	2	2701					
Urate	56	5	2848					
Super-phosp. of Lime	56	0	2828					

It must be observed that the saving estimated here must be spread over the whole course. The above is a very important experiment, and entitles, not only Mr. Leigh for incurring the expense, but also Mr. Stroute for carrying it out, to the gratitude of agriculturists. Mr. Stroute has also tried other experiments with the super-phosphate on Turnips and Swedes. The result was:—

Manure per acre.	Turnips. Tns.	cwt.	lbs.	Swedes. Tns.	cwt.	lbs.	Cost. £	s.	d.
55 bshls. Sprats and 4 cwt. super-phos. Lime	16	7	96	21	7	16	3	3	9
55 bshls. Sprats	13	0	80	14	19	32	2	1	3
5 cwt. super-phos. Lime	13	2	96	..			1	16	6

—*Maidstone Gazette.*

Indian Corn.—I have grown Indian corn for five successive years, raised it in the end of February in a hothouse, transferred it to a greenhouse to harden it in April, and planted strong young plants in a sheltered spot (south aspect) in the open air at the beginning of May, but have not succeeded in perfecting the seed; the ears full sized, but as you say, it wants a greater degree of heat, say from 80 and upwards by day, and

not lower than 70 at night to swell the seed and bring it to perfection. The variability of our climate, and the long continuance of the easterly winds in spring, precludes all idea of ever introducing Indian corn into our fields as agricultural produce, returning a remuneration to the farmer; even with artificial raising, the after risk is too great to undertake its culture.—*John E. Rolls, jun., in the Farmers' Journal.*

Theory of Manuring.—It is at present a matter in dispute, whether animal and vegetable substances should be placed on the land while undergoing decay, or after their decay is complete; whether the ammonia and other products of decomposition which, during decay, escape into the air, be useful or not to the crops if placed upon the land? The decision of this question is of the greatest importance to the farmer, as it would teach him the best and most economical method of employing the manure of his yards, and probably show him whence he may draw a supply independent of foreign importation. An element, which chemists call nitrogen, is found to be a constant and necessary part of Wheat and other grain, and, indeed, of almost every crop. The inquiry for men of science is, whence do plants derive it? If this were ascertained, it would be of great advantage to the farmer, as they could at once tell him many things which he would like to know, respecting manures, and which would be of far more value, because universally true, than the experience of any man, since the most extensive experience is, after all, only partial and limited.—*Proposal for establishing a College of Chemistry.*

A Table, showing the Weight of a Bushel and Quarter of Grain, and the Value of the Quarter according to its weight, varying from ½d. to 3d. per lb.; also the value of a cwt. after the same rate per lb.

1	2	3	4	5	6	7	8	9	10	11	12	13
Weight per bushel	Weight per Quarter in stones of 14 lbs.	Price per lb.	Price per lb.	Price per lb.	Price per lb.	Price per lb.	Price per lb.	Price per lb.	Price per lb.	Price per lb.	Price per lb.	Price per lb.
		½	¾	1d	1½	1⅝	1¾	1⅞	1¾	1¾	1¾	2d.
lbs	st lb	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
39	21 10	1 8	2 2	2 8	3 2	3 8	3 11	4 1	4 4	4 7	5 0	5 4
39	22 4	1 9	2 3	2 9	3 3	3 9	3 11	4 2	4 5	4 8	5 1	5 6
40	22 12	1 9	2 3	2 9	3 3	3 9	3 11	4 2	4 5	4 8	5 1	5 6
41	23 6	1 9	2 3	2 11	3 4	3 10	3 11	4 3	4 7	4 11	5 4	5 8
42	24 0	1 9	2 4	2 11	3 4	3 10	3 11	4 3	4 7	4 11	5 4	5 8
43	24 8	1 9	2 5	2 11	3 4	3 10	3 11	4 3	4 7	4 11	5 4	5 8
44	25 2	1 10	2 5	2 11	3 5	3 10	3 11	4 3	4 7	4 11	5 4	5 8
45	25 10	1 10	2 6	3 0	3 6	3 11	3 11	4 3	4 8	4 11	5 4	5 8
46	26 4	1 10	2 6	3 0	3 6	3 11	4 0	4 4	4 8	4 11	5 4	5 8
47	26 12	1 10	2 7	3 1	3 7	3 11	4 0	4 4	4 8	4 11	5 4	5 8
48	27 6	1 11	2 7	3 2	3 7	4 0	4 0	4 4	4 8	4 11	5 4	5 8
49	28 0	1 11	2 8	3 2	3 8	4 0	4 1	4 5	4 9	4 11	5 4	5 8
50	28 8	1 11	2 8	3 3	3 8	4 0	4 1	4 5	4 9	4 11	5 4	5 8
51	29 2	1 11	2 8	3 3	3 8	4 1	4 1	4 5	4 9	4 11	5 4	5 8
52	29 10	1 11	2 9	3 3	3 9	4 1	4 2	4 5	4 9	4 11	5 4	5 8
53	30 4	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
54	30 12	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
55	31 6	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
56	32 0	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
57	32 8	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
58	33 2	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
59	33 10	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
60	34 4	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
61	34 12	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
62	35 6	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
63	36 0	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
64	36 8	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
65	37 2	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
66	37 10	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
67	38 4	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
68	38 12	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
69	39 6	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
70	40 0	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
71	40 8	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
72	41 2	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
73	41 10	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
74	42 4	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
75	42 12	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
76	43 6	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
77	44 0	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
78	44 8	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
79	45 2	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
80	45 10	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
81	46 4	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
82	46 12	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
83	47 6	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
84	48 0	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
85	48 8	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
86	49 2	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
87	49 10	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
88	50 4	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
89	50 12	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
90	51 6	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
91	52 0	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
92	52 8	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
93	53 2	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
94	53 10	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
95	54 4	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
96	54 12	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
97	55 6	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
98	56 0	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
99	56 8	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
100	57 2	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
101	57 10	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
102	58 4	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
103	58 12	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
104	59 6	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
105	60 0	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
106	60 8	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
107	61 2	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
108	61 10	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
109	62 4	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
110	62 12	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
111	63 6	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8
112	64 0	1 11	2 9	3 4	3 9	4 2	4 2	4 5	4 9	4 11	5 4	5 8

CALENDAR OF OPERATIONS.

FEBRUARY.

The chief points for attention during the month of February are—the management of live stock and manure, the manuring of Grass lands, the sowing of Tares, Beans, and Oats, preparation of the land intended for Carrots, Parsnips, &c. Besides this, too, the Market Operations of this month are generally of importance. Both sheep and cattle that have been feeding all winter will be getting on towards readiness for the butcher.

Management of Live Stock.—The following extracts which have been already published in this *Gazette*, are far more instructive on this point than any statements founded merely on our own experience. The first is descriptive of the method of rearing calves in the Gloucestershire dairy districts. "The calf is removed from the cow at six or eight days old, provided the dam be a cow, and not a heifer; but if a heifer the calf is allowed to remain about a fortnight, as the calf renders her easier to milk afterwards. At about a week old, calves are allowed each two quarts of milk twice a day. Nothing else is given till they are about two months old, except hay, which they generally eat well at a very early age, say three weeks. After two months old they consume a good quantity of hay, and then we reduce the two quarts of milk to one, and add two quarts of water, which makes a mixture of three quarts, as of course they require more to drink when they eat so much hay. At about 10 weeks old they are turned to Grass, and the milk is entirely discontinued by degrees. It is not desirable that the heifer should suckle her first calf except for the limited period just mentioned; she should be made quiet for milking as soon as possible, and this object is defeated by allowing the calf to suck." Our second extract on the same branch of the subject shall be taken from a paper by Mr. Wilson in the Transactions of the Highland Society "On Rearing Cattle with a view to Early Maturity." It describes the practice prevalent in Berwickshire. "It is desirable to have all the cows to calve between February 1 and April 1. If earlier, they will get almost dry ere the Grass comes, and calves later than this will scarcely be fit for sale with the rest of the lot. When a calf is dropped it is immediately removed from its dam, rubbed dry with a coarse cloth or wisp of straw, and then placed in a crib in the calf house among dry straw, where it receives a portion of its own mother's first milk. For a fortnight new milk is the only food suitable for it, and of this it should receive a liberal allowance twice a day; but means should after this be used to get it to eat linseed cake and sliced Swedish Turnips; and the readiest way to do so is to put a bit of cake into its mouth immediately after getting the milk, as it will then suck greedily at anything it can get hold of. By repeating this a few times, and placing a few pieces in its trough it will usually take to this food freely, and whenever this is the case it should have as much as it can take, so that its allowance of milk may be diminished to meet the necessities of the younger calves which are coming in succession. This is of the greater importance that it is always most desirable to avoid mixing anything with their milk by way of helping the quantity. When a substitute must be resorted to, oatmeal porridge, mixed with the new milk, is perhaps the best. The sour smell invariably found in the calf-house when porridge or jelly of any kind is mixed with the milk, is proof sufficient that indigestion is the consequence. An egg put into each calf's allowance, and mixed with the milk by stirring with the hand, is a good help and never does harm; but, with this exception, it is best to give milk warm and unadulterated, however small the quantity, and along with this dry farinaceous food—Turnips and hay *ad lib.* If more liquid be needed, a pail with water may be put within their reach, as this does not produce the bad effects of mixed milk. Indeed, it is best to keep as closely as possible to the natural arrangement according to which the calf takes its suck at first frequently, and then at longer intervals, as it becomes able to eat of the same food as its dam. The diet of the cows at this season is a matter of some consequence. Swedish Turnips yield the richest milk, but it is too scanty, and calves fed on it are liable to inflammatory attacks. Globe Turnips should, therefore, form their principal food during the spring months. Care should also have been taken that they do not get too low in condition in the autumn and winter, and for this end it is well to put them dry at least three months before calving. Some may think this long; but on a breeding farm milk is of little value at this season. The cows, when dry, are kept at less expense, and by this period of rest their constitution is invigorated, greater justice done to the fœtus now rapidly advancing to maturity, and so much more milk obtained after calving, when it is really valuable." We postpone the rest of Mr. Wilson's statement till later in the spring, when it will be more seasonable.

Notices to Correspondents.

CEMENTS—*X X X* asks if a good deal flour once used as a granary will answer for a melting room in the stages for the growth of the Corn, and will it be advisable to glaze it over with marine glue, or cover it over with any, and what cheap cements?

FOOD FOR HORSES—*R V S*—By all means: Oat chaff from the winnowing machine may be given to horses. You may plant Potatoes at the usual time of Bean sowing, only a little deeper than usual. We shall adopt the practice extensively this year, and will detail the process at the proper time.

GAS LIQUOR—*J J.* asks for the experience of any one of our readers on this manure. He will find all we know about it under this section, in a back Number of this year's Papers.

GUANO—*J O*—Apply 3 cwt. of Peruvian, or 4 cwt. of African, per acre; and if your water cart will deliver 400 gallons of water per acre, just mix that quantity of guano with that quantity of water.

HAND DIBBLE—*Aleph*—We do not know Newberry's hand dibble; but we should not consider any single hand-dibble enough for the corn planting on a farm of 70 acres.

HEMP—*C M S*—It is cultivated in some parts of Dorsetshire. We shall make further inquiries.

LICE ON SHEEP—*Tenant Farmer*—If you use arsenic take care that it is not applied too strong. An ounce of arsenic will be sufficient for six or eight quarts of water. Higg's composition for dipping sheep is a safer application, applied freely from a ladle or other vessel. You can get 4 lbs. of the composition for 2*s.* 6*d.*, by applying at 15, Crawford-street, Portman-square. *W. C. S.*

LINSEED—*A B C*—The value of the meal may be gathered from the analysis at p. 10 (1845), *Ag. Gazette*. The oil remains in the meal.

SOW AND PIGS—*J L*—Give her Oatmeal, that is better than Linseed in this case, and whey in abundance, and Potatoes.—We should mix the spoil with the leaves before applying it.—You had better, under the circumstances, either sow a thin seeding of Barley with your Grass seeds, or one bushel of Rye per acre.

SUPERPHOSPHATE OF LIME—*M Y*—You will see further reference to this subject in another column, and we will shortly publish a statement by Mr. Pusey, who has written on it in the current Number of the "Agricultural Society's Journal." You will see this manure mentioned in our advertising columns.

TASTE OF BUTTER—*Alethro* asks why nitre used in making butter destroys the bad taste which Turnips given to the cows will occasion. (See Home Correspondence on this subject). Can any one answer this question? Turnips steamed before being given, we imagine would not be so likely to confer a bad taste.

TO DOMICILE PIGEONS—*For T Pigeon*—Feed them at home in their house with Tares, Vetches, Peas, or small Beans. You may tie the feathers of one wing if the place is strange to them. *C C C.*

TO MEASURE MANURE—*N Tremerner*—Our cart will contain on an average, 1¼ cubic yards of manure each. *A. c.* 180 cubic yards are equal to 100 loads. You must ascertain what yours hold by a day's observation, and then calculate accordingly.

*** Communications reaching town after Wednesday, cannot be answered the same week.

Markets.

SMITHFIELD, MONDAY, Feb. 2.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4	to	4	8	Best Downs & Half-breds	5	2 to 5 6
Best Short Horns	3	10	4	2	Best Long-wools	4	10 5 2
Second quality Beasts	3	8	3	8	Ewes and second quality	4	4 4 8
Calves	4	8	5	0	Pigs	3	8 3 0

Beasts, 2450; Sheep, 12,000; Calves, 61; Pigs, 210.

The supply of Beasts is very short to-day, and we have a consequent advance in price. Everything is readily disposed of, and in some instances rather above our highest quotations has been obtained for choice qualities.—Sheep are remarkably coarse and dear.—Good Veal is coarse and dear.—Pork trade is better.

FRIDAY, Feb. 6.

We have rather a full market of Beasts to-day—we notice a very large proportion are foreign, several of which were intended for last Monday, but arrived too late. The trade for Beef has received a considerable check, and it is with difficulty the best Scots, &c., make 4*s.* 4*d.*, and Short-horns 4*s.*; other qualities suffer in the proportion, but almost everything is sold—although the supply of Mutton has considerably increased, it is sold fully as dear as on Monday. Some of the choicest Downs have made 5*s.* 8*d.*, and the most selling Long-wools 5*s.* 4*d.*—Good Veal continues very dear; a choice calf is making very nearly 6*d.*—Pork 4*s.* to 5*s.*

Beasts, 952; Sheep, 5290; Calves, 121; Pigs, 295.

4*l.* West Smithfield.

POTATOES—SOUTHWARK, WATERSIDE, Feb. 2.

The supply to this market since this day se'nnight has been very liberal from the northern districts, but in consequence of the long prevailing bad and stormy weather, heavy arrivals were considerably damaged. But the trade being here, most of the best kinds went off pretty freely, but the inferior samples of every description were a complete drug. Prices ruled as follows:—York Reds, from 6*s.* to 10*s.* per ton; ditto Regents, from 5*s.* to 7*s.*; a few very superior samples realised 10*s.* per ton, but inferior samples of Regents were hardly unsaleable, changing as low prices. A good many rooms have, therefore, been withdrawn: Kidney Reds, 5*s.* to 6*s.* per ton; the last named prices may be considered nominal; Jersey Blues, 7*s.* to 8*s.* per ton; Mountain Reds and Whites, 7*s.* to 9*s.*

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Feb. 6.

Prime Meadow Hay	80s	to	85s	Prime Old Clover	—s to —s
Inferior Meadow & Rowen	60	to	75	Clover	90 to 112
New Hay	—	to	—	New Clover	— to —
				New Hay	72 84

JAMES GARDER, Hay Salesman.

CUMBERLAND MARKET, Feb. 6.

Prime Meadow Hay	80s	to	85s	Old Clover	110s to 112s	Straw	28s to 30s
Inferior ditto	70	to	—	Inferior ditto	90 to 100		
New Hay	—	to	—	New Clover	— to —		

JAMES GARDER, Hay Salesman.

WHITECHAPEL, Feb. 6.

Fine Old Hay	90s	to	95s	Old Clover	100s to 110s		
Inferior Hay	70	to	75	Inferior ditto	80 to 90	Straw	30s to 32s
New Hay	—	to	—	New Clover	— to —		

COVENT-GARDEN, Feb. 7.—In consequence of the extreme mildness of the weather the market has been generally speaking, well supplied, especially with vegetables; trade, however, is far from being brisk. No alteration has taken place in the price of Pine-apples since our last report. Very few hothouse Grapes are to be met with; but foreign sorts are excellent in quality, and although not very plentiful, are sufficient for the demand. Good samples of the Easter Beurré and Beurré Rance Pears may be met with. Apples consist of Nonpareils and the Newtown Pippin, the best specimens of the former bringing from 7*s.* to 21*s.* a bushel. Little alteration has taken place in the prices of vegetables. Asparagus, considering the season, is good and plentiful, and abundance of good Sealkale may be obtained at last week's prices. The supply of Broccoli, Brussels Sprouts, and other winter Greens, is good; White Broccoli from Cornwall is plentiful, and fetches from 1*s.* to 4*s.* per dozen heads. French Beans have not altered in price since last week, nor has Rhubarb, which is good in quality and sufficient for the demand. Celery is excellent. In regard to Potatoes, the very best samples still continue to bring 8*l.* a ton, and even in some instances more money; but, in consequence of the abundance of other vegetables, sales for the second-rate samples, which constitute by far the greater proportion of the supply, can hardly be made at all, and when they are effected, prices are considerably reduced. Chicory still continues to be supplied, but there is as yet little demand for it. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Poinsettia pulcherrima, Jasmines, Lily of the Valley, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Cineraria, Gardenias, and Roses.

FRUITS			
Pine Apple, per lb., 4*s.* to 6*s.*		Lemons, per dozen, 1*s.* to 2*s.*	
Grapes, Hothouse, per lb., 2*s.* to 3*s.*		— per 100, 6*s.* to 10*s.*	
— Spanish, per lb., 1*s.* to 1*s.*		Almonds, per peck, 6*s.*	
— Portugal, per lb., 1*s.* to 2*s.*		French Almonds, per lb., 2*s.* 6*d.* to 3*s.*	
Apples, Dess., per bush., 4*s.* to 10*s.*		Filberts, English, p. 100 lbs., 30*s.* to 35*s.*	
— Kitchen, 2*s.* to 7*s.* 6*d.*		Nuts, Cob, per 100 lbs., 60*s.* to 70*s.*	
Oranges, per dozen, 2*d.* to 3*s.*		— Barcelona, 35*s.*	
— per 100, 4*s.* to 14*s.*		— Brazil, 40*s.*	
— per chest, 12*s.* to 16*s.*		— Spanish, 14*s.*	
— per basket, 3*s.* to 4*s.* 6*d.*		Chestnuts, per peck, 2*s.* to 3*s.*	
		Pears, per bush., 6*s.* to 12*s.*	

VEGETABLES			
Cabbages, per doz., 6*d.* to 1*s.*		Parsnips, per doz., 6*d.* to 1*s.*	
— red, per doz., 2*s.* to 3*s.*		Asparagus, per bundle, 1*s.* to 1*s.* 6*d.*	
Brussels Sprouts, per half-sieve, 1*s.* to 1*s.* 6*d.*		Celery, per bundle, 1*s.* to 1*s.* 6*d.*	
Savoys, per doz., 6*d.* to 1*s.* 6*d.*		Onions, per bushel, 4*s.* 6*d.* to 5*s.*	
Broccoli, Brown, per bdle., 6*d.* to 1*s.* 6*d.*		— pickling, per half-sv., 2*s.* to 3*s.*	
— White, 2*s.* to 3*s.* 6*d.*		— Spanish, per doz., 2*s.* to 3*s.*	
Greens, per doz. bunches, 1*s.* 6*d.* to 3*s.*		Shallots, per lb., 6*d.* to 8*d.*	
French Beans, per 100, 2*s.* to 3*s.*		Garlic, per lb., 6*d.* to 8*d.*	
Lentil, per half-sieve, 3*d.* to 1*s.*		Sage, per score, 3*d.* to 6*d.*	
Potatoes, per ton, 70*s.* to 160*s.*		Lettuce, per score, Cab., 4*d.* to 6*d.*	
— cwt., 2*s.* to 3*s.*		— Cos, 6*d.* to 1*s.*	
— bushel, 5*d.* 6*d.* to 6*s.*		Radishes, per 12 bunches, 1*s.* to 2*s.*	
— Kidney, per bushel, 6*s.* to 8*s.*		Mushrooms, per pottle, 6*d.* to 1*s.* 6*d.*	
Turnips, per doz. bchs., 1*s.* to 2*s.*		Small Salads, per punnet, 2*d.* to 3*d.*	
Red Beet, per doz., 6*d.* to 1*s.* 6*d.*		Fennel, per bunch, 2*d.* to 3*d.*	
Carrots, per doz. bchs., 2*s.* to 3*s.*		Savory, per bunch, 4*d.* to 6*d.*	
Horse Radish, per bundle, 1*s.* 6*d.* to 2*s.*		Thyme, per bunch, 4*d.*	
Sealkale, per punnet, 3*d.* to 5*s.*		Watercress, p. 12 sm. bun., 6*d.* to 8*d.*	
Rhubarb, per bundle, 6*d.* to 1*s.* 6*d.*		Parsley, per bunch, 1*d.* to 2*d.*	
Asparagus per bundle, 3*s.* to 5*s.*		— Roots, per bundle, 1*s.*	
Cucumbers, each, 1*s.* to 2*s.*		Tarragon, per bunch, 6*d.*	
Spinach, per sieve, 1*s.* to 1*s.* 6*d.*		Mint, green, per bunch, 3*d.* to 4*d.*	
Leeks, per doz. bunches, 1*s.* to 2*s.*		Marjoram, per bunch, 4*d.*	
Celery, per bunch, 3*d.* to 4*d.*		Chervil, per punnet, 3*d.* to 4*d.*	
Cardoons, each, 6*d.* to 8*d.*			

HOPS, FRIDAY, Feb. 6.

The market continues in the same unsettled state as last week, and no doubt will remain so until after Sir R. Peel's plans are disposed of.

PATTESON & SMITH, Hop Factors.

MARK-LANE, MONDAY, Feb. 2.

The supply of English Wheat this morning by land carriage samples was moderate, good dry qualities command an advance of 1*s.* to 2*s.* per quarter, but we cannot note any improvement in damp or out of condition samples. Free Foreign sells readily at late prices. Bonded is inquired after by consumers, but we did not hear of any sales worth noticing. Barley is 1*s.* per qr. cheaper. Beans and Grey Peas are a dull sale; White rather more in demand. The Oat trade is heavy, and having a fair arrival of English with a few Irish, the former have declined 6*d.* per quarter.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	58	66	Red	60	62
— Norfolk, Lincolnshire, and Yorkshire	50	63	White	60	63
Barley, Malting and distilling 32*s.* to 36*s.* Chevalier	33	37	Grind.	27	29
Oats, Lincolnshire and Yorkshire	23	24	Feed	22	24
— Northumberland and Scotch	23	26	Potato	24	26
— Irish	22	23	Feed	22	23
Malt, pale, ship	54	60	Potato	24	28
— Hertford and Essex	50	56			
Rye	34	37			
Beans, Mazagan, old and new	36 to 40	Tick	30	42	Harrow 32 44
— Pigeon, Maltgoland	35 to 40	Winds	40	42	Longpod 32 36
Peas, White	38 to 42	Maple	30	39	Grey 32 32

ARRIVALS IN THE RIVER LAST WEEK.

	Wheat.	Barl.	Malt.	Oats.	Rye.	Beans.	Peas
English 4705 Sks. — Bris.	6180	9015	9825	15617	75	7077	950
Irish — — —	—	—	21	6120	—	—	—
Foreign — — 9440 —	2900	2900	—	7750	—	2327	1090

FRIDAY, Feb. 6.

There were a few samples of English Wheat fresh up for this morning's market, the sale of which was barely so good as on Monday; old and Free Foreign were similarly affected, owing to the Minister's intention of allowing Bonded Grain to pay the duty under the new scale after the passing of the first resolution, subject to the usual guarantee; the same cause has given rise to a slightly increased inquiry for bonded Wheat, and in some instances rather enhanced terms were obtained, but business was not extensive. Barley of all sorts is fully 1*s.* per qr. cheaper. Beans and Peas are unaltered in value. The Oat trade is heavy and a turn lower.

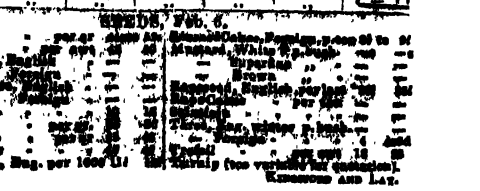
ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	4180	10740	3200	4600 Sks.
Irish	—	—	2000	—
Foreign	7150	320	10070	—

IMPERIAL AVERAGES.

Dec.	27 per Quarter.	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Jan.	3	56 1	33 11	23 7	33 4	37 9	39 1
—	10	56 2	33 10	23 6	33 1	38 3	38 11
—	17	56 3	34 11	23 9	34 6	38 7	38 8
—	24	56 7	34 11	23 8	34 6	38 7	38 8
—	31	55 7	34 7	23 10	37 3	38 7	38 8
Feb.	7	54 9	34 5	23 8	36 7	38 7	38 8
6 weeks' Aggrs. Aver.		55 6	34 10	23 8	34 1	38 10	38 9
Duties on Foreign Grain		17 0	7 0	6 0	5 6	6 6	6 6

Diagram showing the fluctuations in the price of Corn as the average of the six weeks ending Saturday, Jan. 31.



SEEDS, Feb. 6.

Canary	—	per qr.	—	Linseed	Calcutta, Foreign, p. cwt.	60	to 64
Carraway	—	per cwt.	42	46	Mustard, White & Brown	—	—
Cloverd, Red, Essex	—	—	—	—	— Superfine	—	—
— White, Dutch	—	—	—	—	— Second	—	—
— Scotch	—	—	—	—	Rapeseed, English, new	—	—
— French

NURSERY STOCK.—TO BE SOLD BY AUCTION, On Wednesday, Thursday, Friday, and Saturday, the 18th, 19th, 20th, and 21st of February, by Mr. W. TOMPSETT.

MR. TOMPSETT has received directions from Mr. Hookes to Sell by Auction the remainder of his stock of NURSERY PLANTS without any reserve. The Plants now offered for sale are 600 Lots unsold at the former sale, which could not be proceeded with in consequence of the unfavourable state of the weather, and consist of Lime Trees, Planes, Elms, Laburnums, Tulip Trees, American and other Oaks, American Walnuts and Maples, Juliacs and other deciduous Shrubs, Silver Firs, Scotch, Spruce, and other Firs, Purple and Common Beech, Laurustinus, Portugal Laurels and Portugal Hedges, Cephalonian Laurels, Variegated Hollies, and other Evergreen Shrubs, Rhododendrons, Azaleas, and other American Plants, together with 7000 Standard Roses, 900 Dwarf Roses in pots, and 3000 Dwarf Roses in their own roots. A portion of the Roses will be sold on each day of sale, and also a quantity of choice Firs and Pines in pots, and other Plants in pots. Persons planting for immediate effect will find this a good opportunity of procuring Plants of large size at a cheap rate.

For further information, or to see the Plants, enquire at the Nursery, Branchley, Kent, 3 miles south of the Paddock-wood Station, Dover Railway, or of Mr. W. TOMPSETT, Auctioneer, East Peckham, Kent.

SALE OF NURSERY STOCK,

At the Arboretum, Queen's Elms, Old Brompton (one mile from Hyde-park-corner) owing to the land being required for other purposes.

D. A. RAMSAY begs to inform Noblemen, Gentlemen, and the Trade, that a large portion of his Stock, consisting of a large assortment of ornamental Forest Trees, Evergreens, American Plants, Roses, &c., will be sold by Auction during the present Month, prior to which private Purchases may be made 25 per cent. below the Trade prices.

N.B.—Approved Bills taken.

PLANTING SEASON.—TO NOBLEMEN, GENTLEMEN, BUILDERS, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Wm. DENNIS, to submit to PUBLIC COMPETITION, on MONDAY, 24th FEBRUARY, and following day, at 11 o'clock, on the Premises opposite to Cremorne House, King's-road, Chelsea, in consequence of the Ground being immediately required for extensive Horticultural Erections, a portion of the valuable NURSERY STOCK, comprising Dwarf, Standard, and Pillar Roses in choice varieties; Dwarf and Standard Lilac and Guelder Roses; a quantity of the finest fruit-bearing Mulberry Trees in the Kingdom; fine Prize Gooseberries, in collection. About 20,000 Aucuba Japonica in all sizes; Yuccas, Pæonias, Irises, &c. &c.

TO NURSERYMEN, SEEDSMEN, BUILDERS, & OTHERS

TO BE DISPOSED OF, most desirable NURSERY GROUNDS, situate within half an hour's ride from either of the Bridges, containing about 3 acres of Land, in a very high state of cultivation, and in the midst of a populous and wealthy neighbourhood. There are a Cottage, Greenhouse, Pit, and Seed Shop, on the premises. The above are held under a Lease, of which 30 years are unexpired. The Valuation of the Stock, &c., will not exceed 150l.—For further particulars apply to A. B., Mr. Sanderson's Chop-house, Angel-court, Throgmorton-street, City.

TO BE LET, WITH IMMEDIATE POSSESSION within six miles of the Weybridge Station of the South Western Railway, A WALLED GARDEN, containing about TWO ACRES OF PRODUCTIVE SOIL, Conservatory, Hot and Succession Houses, Pits, and Sheds. The walls are covered with choice Fruit Trees in high bearing and order. A residence for a superior Gardener—accommodation for a journeyman. The implements may be taken at a valuation by the tenant.

For particulars apply to Mr. Wm. Keye, steward, Ockham Park, Ripley, Surrey.

TO BE LET, EDMONTON NURSERY.—In consequence of the Proprietor being about to retire from the Nursery business, this desirable Nursery is to be let, with immediate occupation. The whole may be taken at a valuation, or by private contract, and accommodation will be given in the terms of payment, if desired.—Apply personally or by letter to Mr. HENCHMAN, at the Nursery, Edmonton, or to Mr. Hugh Low, Clapton Nursery.—Feb. 7.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Gardens and other purposes.—R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

per gross.	per gross.	per gross.
8 in. by 4 .. 6s.	8 by 5 .. 12s.	9 by 7 .. 18s.
9 in. by 4½ .. 9s.	8 by 6 .. 14s.	10 by 8 .. 26s.

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists, apply to R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square, London.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 26, Castle-street East, Oxford-street. For Ready Money only.

FOREIGN SHEET GLASS AND GLASS TILES.

C. JARVIS continuing to import large quantities of the above articles, in quality and substance hitherto unequalled, can offer them to purchasers at a lower price than any other house in the trade, for ready money only, at his old established WINDOW GLASS WAREHOUSE, 26, Great Castle-street, a few doors from Regent-street, where orders, forwarded with reference, meet with prompt attention. Every other description of WINDOW GLASS equally low in price.

SEEDS.—CORNER OF HALF-MOON-STREET,

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND."

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

CUCUMBER AND MELON BOXES AND LIGHTS.—One Hundred 1, 2, and 3-Light Boxes and Lights of all sizes ready for immediate use. Warranted best materials, packed and sent to all parts of the kingdom; 2-light Boxes and Lights from 4l. 4s.; Garden Lights of every description. Conservatories, Green and Hot-houses made and fixed in all parts of the kingdom. Reference given to the Nobility, Gentry, and the Trade, in most of the counties in England.

JAMES WATTS, Hothouse Builder, Claremont-place, Old Kent-road, London.

ON SALE BY PRIVATE TREATY, the undermentioned specimens of choice RHODODENDRONS and other plants:—

		light. in ft.	diam. in ft.
1	Rhododendron arboreum, true	9	6
1	,, ,, ...	8	5½
1	,, arboreum alivum	7	3
1	,, arboreum coccineum	6	2½
1	,, ,, ...	5	3½
1	,, ,, ...	4½	3½
1	,, arboreum roseum	7	3
1	,, ,, ...	6	3
1	,, arboreum Americanum	2½	1½
1	,, ,, angustifolium	5	3
1	,, ,, anguatum	4½	3½
1	,, ,, carneum	2½	4
1	,, ,, catawbiense	4	3
1	,, ,, caucasicum	3½	4
1	,, ,, crassifolium	3½	2½
1	,, ,, Curtisii	4	3
1	,, ,, eximium	3	2
1	,, ,, grandissimum	3½	5
1	,, ,, hybridum	3	2
1	,, ,, hybridum Smithii	5½	3
1	,, ,, grandiflorum	3½	3½
1	,, ,, ponticum	4	5
1	,, ,, speciosum	3½	4
1	,, alta-clerense	3	3½
1	,, anthopogon	1½	1½
1	,, campanulatum	4½	3
1	,, ,, ...	4½	3½
1	,, conspicuum	4	4
1	,, catawbiense (true)	2½	3½
1	,, caucasicum	1	1½
1	,, ,, album	3½	4
1	,, ,, pulcherrimum	2	3
1	,, ,, stramineum	3½	4
1	,, ,, standard	3½	3½
1	,, campanulatum hybridum	3	3
1	,, cinnamomeum	3	3½
1	,, elumaeiatus	½	1
1	,, chrysanthum	½	½
1	,, Cunningham's New White	4	5
1	,, laurioum sempervirens	5	3
1	,, eximium	4	4
1	,, gigantioum	4	5
1	,, ...	5	5
1	,, glomeratum	3½	2½
1	,, guttatum	6	3
1	,, hyacinthæflore pleno	5	3½
1	,, maximum longifolium	3½	4
1	,, ,, rubrum	3½	5
1	,, magnificum	5	5
1	,, myrtifolium	3½	4
1	,, multinaculatum	6	5
1	,, niveatum	3½	5
1	,, nobleanum	4	3
1	,, ...	2½	3
1	,, oculatum	5	5
1	,, plotum	5½	5
1	,, ponticum album	5	5
1	,, ,, coccineum	3½	5
1	,, princeps	4	5
1	,, pulchrum	3½	3½
1	,, pulcherrimum	3½	5
1	,, punctatum	4	3½
1	,, Smithii (true)	8	6
1	,, ,, ...	4	4
1	,, ,, album	4	6
1	,, ,, album grandiflorum	3½	3½
1	,, ,, elegans	3	3
1	,, ,, hybridum	3½	3½
1	,, ,, superbum	7	6
1	,, strictum	6	3
1	,, Russellianum	1	5
1	,, ...	3½	2
1	,, tigrinum	5	3
1	,, undulatum	2½	3½
1	,, venustum	3	3½
1	,, zeylanicum	3	3½
1	Araucaria excelsa	9	4
1	,, imbricata	5	4
1	Cunninghamia lanceolata	7	4
1	Pinus—Abies Douglasii	3½	3
1	,, ,, Menziesii	6	5
1	,, ,, Morinda	5	5
1	,, ,, Smithiana	7	5
1	,, Picea Fraseri	4	3½
1	,, ,, nobilis (seedling)	2½	3
1	,, ,, ,, (worked)	2	1½
1	,, ,, Pichta	2½	2
1	,, ,, religiosa	2	2
1	,, ,, Webbiana	5	5
1	,, ,, ...	3	3
1	,, Pinus excelsa	5	5
1	,, ,, inops	6½	6
1	,, ,, ponderosa	7	5
1	,, ,, pungens	3½	2½
1	,, ,, speciosa	6	5
1	,, ,, Sabiniana	10	9
1	,, Cedrus deodara	10	10
1	,, ,, ...	10	9

Also, a fine collection of CAMELLIAS, comprising about 200 varieties; and 100 imported specimens of MEXICAN and SOUTH AMERICAN CACTI.

Apply to Mr. GEORGE FARNELL, Gardener, Ash Grove, Halifax, Yorkshire.

N.B.—Ash Grove is situate one mile from the Elland Station of the Manchester and Leeds Railway.

POLMAISE HEATING.

MESSRS. G. & J. HADEN beg to inform the Readers of the *Gardeners' Chronicle* that the apparatus at POLMAISE was erected by them. Also, that they are prepared to give plans and estimates to any gentleman requiring similar apparatus.—Trowbridge, Feb. 7.

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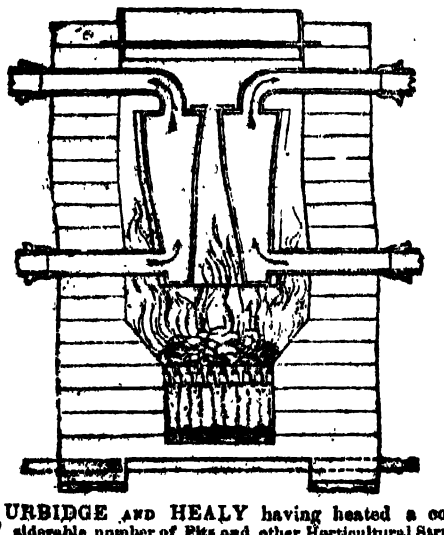
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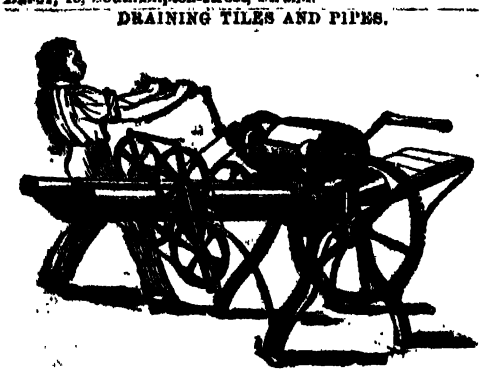
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A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 7.—1846.] SATURDAY, FEBRUARY 14. [PRICE 6*d*.

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Massachusetts almanac	103	*a*	
Melon growing without bottom heat	100	*c*	
Nests	100	*c*	
Orchids, remarks on	104	*c*	
Packing glass	101	*b*	
Paris winter gardens	102	*b*	
Parsnip	103	*a*	
Phosphate of lime as food of plants	103	*a*	
Pine growing, Hamilton's	101	*b*	
— at Hiram	109	*a*	
Pigs, to fatten	103	*a*	
Plants, greenhouse	104	*b*	
— necessity of ventilation for	99	*a*	
— phosphate of lime as food of	103	*a*	
Polmaise heating	100	*c*	
Potatoes, prices of	106	*b*	
Shadbower	101	*a*	
Soals, to kill	101	*b*	
Soap, aphis killed by	101	*b*	
Spade husbandry	103	*b*	
Sutton Waldron farms, noticed	109	*a*	
Trees, old vitality of	101	*c*	
— to keep from wind-waving	101	*b*	
Turnips on an acre	110	*a*	
United Gardeners' Soc.	104	*a*	
Vegetable, Shadbower	101	*a*	
Ventilation, necessity of	99	*a*	
Wheat, analysis of	110	*b*	
— large produce of	109	*a*	
— smut in	107	*b*	
Wheats, best to grow, 107 *a*,	108	*c*	

GARDENERS' SOIREE.—At a meeting of deputations from various Mutual Instruction Societies, held on the 11th inst. at the Mechanics' Institute, Gould Square (near the London Terminus of the Blackwall Railway), it was unanimously resolved that a SOIREE consisting of Gardeners and those interested in their advancement, will be held on Tuesday, 24th inst., at the above place, for the purpose of promoting unanimity and demonstrating the advantages of such Associations.

Mr. R. Fish, from being one of the principal originators of those Societies, is invited to preside.

Tickets 1*s*. each; to be had from the Secretary of each Society, viz., Mr. SHERWOOD, Stoke Newington, Mr. CAIE, West London; Mr. M'EWEN, Regent's-park; Mr. MANDERS, Exotic Nursery; Mr. KEMP, Royal Philanthropic; Mr. PLUMRIDGE, Long Ditton; Mr. FRY, West Kent.

The Chair to be taken at 7 o'clock.

SEED POTATOES FREE FROM DISEASE.—The following superior Early and Late Seed Potatoes to be had at WARNER & WARNER'S, free from disease, producing a good succession in the following order:—

American Early Round	.. .. ..	1st
Chinese Round	.. .. ..	2d
Martin's Isle of Wight	.. .. ..	3d
Lancashire Early Round	.. .. ..	4th
Early Ashleaf Kidney	.. .. ..	
Chalmore Kidney	.. ..	More suitable
Haigh's Kidney	.. ..	for general crop.

Prices may be had on application.—28, Cornhill, London.



WAITE'S "QUEEN OF DWARF" PEA.—This is a Variety that cannot be too extensively introduced to the notice of the Horticultural world, it being distinct from any that has been introduced to the public. Its habit is quite distinct from all others; being not more than one foot in height—and covered with pods. The Pea is twice the size of any other Dwarf Pea in cultivation, and excelling by three-fold in produce; has been grown at the Royal Gardens, at Frogmore, and approved of there as a new variety, and also at her Majesty's table, for its superior flavour. Price 5*s*. per quart. The usual discount to the Trade.

GERANIUM SEED, warranted saved from GENERAL TOM THUMB, in packets, 100 seeds, 2*s*. 6*d*. each.

All kinds of Garden Seeds, 20 per cent. lower than any house in the Trade.—4, Eyre-street Hill, Hatton Garden, Feb. 14.

DAHLIAS AND PANSIES.

CHARLES TURNER'S descriptive CATALOGUE of the above popular flowers is now ready, and can be had on application.

C. T. recommends the following new Pansies, which, as show flowers, are indispensable:—Collison's Juno, 5*s*.; ditto Perseus, 5*s*.; ditto Vulcan, 5*s*.; Turner's Cartactacus, 5*s*.; ditto Optimus, 5*s*., ditto Dido, 2*s*. 6*d*.

Good Show Flowers.—C. Turner's selection, 12*s*. per dozen; extra fine ditto, 18*s*. ditto, free by post, on receipt of a remittance.—Chalvey, Windsor, Feb. 14.

SEASIDE PLANTING.—BLACK SALLOW.

JAMES GRIGOR, NURSERYMAN, Norwich, begs to inform Proprietors and others connected with maritime situations, that he has just been awarded the Gold Medal of the Highland and Agricultural Society for the best practical mode of planting within the influence of the sea. The complete success of the plan, as seen along the cliffs of the German Ocean, in the parishes of Runton and Trimingham, has been chiefly accomplished by the use of the NORFOLK BLACK SALLOW, which grows so freely by the sea-side that specimens of it may be seen from 9 to 16 ft. in circumference. Sets are now offered as follow:—25 for 5*s*.; 50 for 8*s*.; or 100 for 10*s*., package included; and in larger quantities at a reduced price.

J. G. continues to supply the TRUE HIGHLAND PEAS, so strongly recommended by the Duke of Newcastle, Wentworth, this Journal, and others, as formerly advertised.—Norwich, Jan. 14.

MARTYNIA FRAGRANS.

W. E. RENDLE AND CO., have a few hundred Seeds of MARTYNIA FRAGRANS, which they can spare to the Trade.—Plymouth, Feb. 14, 1846.

THE TRUE FASTOLFF RASPBERRY.

GREAT YARMOUTH NURSERY. NORFOLK, 1846.

YOUELL & CO., being the parties who first introduced to the notice of the Horticultural world the above truly excellent Raspberry, unequalled for the size of its fruit and richness of flavour, and possessing an extensive Stock of fine Canes, beg to offer the same upon the following terms, guaranteed to be of the same quality as those they had the honour of supplying Her Most Gracious Majesty the Queen, His Grace the Duke of Northumberland, His Grace the Duke of Rutland, His Grace the Duke of Marlborough, the Earl of Harrington, the Earl of Liverpool, the Earl of Abergavenny, the Earl of Egremont, the Lord Bishop of London, Lord Viscount Lorton, Lord Sondes, and most of the Nobility, as well as the Horticultural Society of London, the latter having awarded YOUELL & Co. two prizes for it.

Packages containing 100 canes			.	£1	4 0
Do.	do.	50	do. . .	0	13 0
Do.	do.	25	do. . .	0	7 0

Small Canes, 12*s*. per 100.

A liberal discount will be allowed the Trade when "quantities" are ordered.

For full description of the above see their advertisement of Jan. 17.

Thirty packets of new and choice Flower Seeds, per post, free, for 6*s*.

Their CATOLOGUE for 1846 is just published, containing a list of prices of the very best Fuchsias, Verbenas, Select Plants, Camellias, Ericas, Coniferous Plants, Petunias, Cinerarias, Pansies, Chrysanthemums, Antirrhinums, Polyanthus, Herbaceous Plants, Carnations, Picotees, Pinks, &c. &c., which will be forwarded on application by enclosing two postage stamps.

Great Yarmouth Nursery, Feb. 14.

WM. JACKSON AND CO., NURSERYMEN, take this opportunity of tendering their best thanks to their numerous customers, and to assure them that every care and attention will continue to be paid to their commands; they have much pleasure in stating to their friends in Ireland and America, that arrangements have been made for the immediate dispatch of all goods from Liverpool, to which place in future they will pay the carriage. They beg to offer the following valuable articles, selections from their general Stock, which are greatly recommended:—

	s.	*d*.
100 Hollyhocks, proved showy vars., transplanted, 3 years old	40	0
100 Showy and select Herbaceous Plants, in 50 named sorts, 2 each	25	0
100 Do. newest and best Herbaceous Plants, in 100 named sorts, 1 each	40	0
18 distinct and splendid Paeonias, including the double Albiflorus, and all the finest single varieties	21	0
100 Dwarf Roses (on own roots) in 25 named sorts	20	0
100 do. do. in 50 named fine vars.	30	0
100 do. do. in 100 very fine prize do.	50	0
25 Standard Roses, in 25 varieties	30	0
12 splendid and very best Ghent Azaleas, 2½ feet high, large bushy plants, on own roots, to produce immediate effect	30*s*. to 36	0
12 Rhododendrons, the following splendid hardy species and varieties—R. nivaticum, giganteum, venustum, ponticum album, magnolifolium, pallida, Nobleanum, Caucasicum album, Jacksonii, Smithii aureum, campanulatum, Smithii tigrinum, large bushy plants, to produce immediate effect	84	0
12 Rhododendrons, common hardy sorts, from 6*s*. to	12	0
12 Camellias, in 12 distinct showy species and vars., 1 to 1½ foot, strong, healthy, bushy plants, 30*s*. to	36	0
Cinerarias, Jackson's Seedlings, the collection of 10 varieties, strong blooming plants, including their celebrated Lady Prudhoe and Countess of Zetland	42	0

Cineraria Seed, saved from the above, 2*s*. 6*d*. per packet; Tropæolum Jarrattii *major*, 2*s*. 6*d*. per packet; Calceolaria Seed, 2*s*. 6*d*. per packet; with a general stock of Flower and Garden Seeds of the most approved sorts, at very reasonable prices. Greenhouse and Stove Plants in great variety. Goods securely packed and delivered free on the Railway; plants presented to compensate for long carriage. A reference from unknown correspondents is respectfully solicited.—Cross-lanes Nursery, Bedale, Yorkshire, Feb. 14.

NURSERY STOCK, WESTERHAM, KENT.

JOHN CATTELL begs respectfully to inform the Public that he intends clearing the STOCK off several acres of his Nursery Grounds this spring, abounding in large and handsome Spruce, Scotch, Silver, Weymouth Pine, and Balm of Gilead Firs; also Beech, Birch, Horse Chesnut, Limes, Elms, English and Turkey Oaks, Poplars, Sycamores, Grafted and Common Thorns, Walnuts, Yews, Portugal and Common Laurels, Hollies, Lilacs, Laburnums, Guelder Rose, Barberries Common and Evergreen, Tree Box, Privet, Briar, Early and Late Dutch Honeysuckles, Deutzia scabra, and Dwarf Roses; several quarters of Fruit Trees, including quantities of Gooseberries and Currants; also 2 and 3 years Seedling Quick, 2 years Seedling Beech, Oak, and Spanish Chesnut.

Parties requiring quantities of the above may be supplied on very advantageous terms, and such as will be well worth the attention of the Trade.

A very excellent stock of Delphinium Barlowii and grandiflorum maximum, strong plants, and Pentstemon speciosum and Morinn longiflora, in pots. General Catalogues of J. C.'s usual extensive stock are now ready, of Trees, Shrubs, &c.; also of Agricultural, Vegetable, and Flower Seeds.

J. C., in tendering his grateful thanks to his numerous Friends and Customers, ventures to assure them, that every variety of his Stock, both in his Nurseries and Seed-saving departments, continue to be attended to with all necessary care.—Westerham, Feb. 14.

BLACKTHORN OR SLOE QUICK.—50,000 of the above, 2 years Seedling, from drills, 1 to 2½ feet, fine and clean. For price and sample apply to THOS. RIVERS, Sawbridgeworth, Herts.—Feb. 14.

AURICULAS, POLYANTHUSES, PINKS, CARNATIONS, AND PICOTEES.

JOHN SLATER, Florist, Cheetham-hill, near Manchester, respectfully calls the attention of the admirers of the above-named Florists' Flowers to his large, healthy, and select collection, which he is selling at moderate prices. Catalogues of which may be had on prepaid application. 12 varieties of Show Auriculas for 18*s*.; 20 pairs of 20 varieties of Show Carnations and Picotees 20*s*., package included.

N.B. Nurserymen and others wanting from 100 to 500 pairs of Carnations and Picotees will be supplied at very low prices.

JESSOP'S NURSERY, CHELTENHAM, Established in 1815, from its extensive connections offers peculiar advantages to Noblemen and Gentlemen requiring Gardeners, Foresters, or Farm-Bailiffs of established skill and reputation.

All communications promptly attended to.

SUPERIOR NEW EARLY PEA.—WARNER'S "EARLY EMPEROR" Pea, the earliest in cultivation, quite hardy, a good cropper, with fine pods, and most delicious flavour. Height about 2 ft.—5*s*. per quart.—To be had of WARNER and WARNER, Seedsmen, 28, Cornhill, London.

Catalogues containing all the New and Choice Flower and Vegetable Seeds for the Season are now ready, and may be had on application.

See "Harrison's Cabinet" for February.

FINE WHITE SPANISH ONION, ALTRINGHAM CARROT, &c.—Dealers can be supplied with a fine article at moderate prices, by WARNER & WARNER, SEEDSMEN, 28, Cornhill, London. General Priced Trade Catalogues to be had on application.

FINE NEW PANSY—"DR. WOLFF."

JAMES BACKHOUSE AND SON, NURSERYMEN, &c. York, have now plants of the above new and striking PANSY ready for delivery, at 5*s*. each. Dr. LINDLEY'S opinion of this flower in the *Gardeners' Chronicle*, p. 232, 1845, is as follows:—"Your Seedling (Dr. Wolff) is a flower of good form and substance, rather novel in appearance, with fine eye, ground colour rich and bright yellow, and the rest of the flower of a rich bronzy purple." An allowance to the Trade.

156, CHEAPSIDE (OPPOSITE ST. PAUL'S), LONDON, AND AT STUART'S-GROVE, FULHAM-ROAD, CHELSEA.

WESTMACOTT AND CO. respectfully inform their Friends and the Public that their Descriptive Catalogue of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS (including a miscellaneous collection of Bulbs, Plants, new and superb Roses, &c.) is now published, and will be forwarded on receiving a pre-paid application; it is also attached to the February Numbers of the following publications:—"Paxton's Magazine of Botany," "The Horticultural Magazine, and Gardener and Practical Florist," and "Harrison's Floricultural Cabinet." The following selections are worthy of general cultivation:—

Per packet—*s.d.*		Per packet—*s.d.*	
Brachycoma iberidifolia	1 0	Mathiola (stock) German	0 6
Campanula strieta	0 6	Nemophila discoidalis	0 6
—— tracheloides	0 6	Phlox Drummondii	1 0
Cintonia pulchella	1 0	Primula sinensis, mixed	1 0
Convolvulus minor (new dark)	0 6	Rhodanthe Manglesii	0 6
Fuchsia, from finest varieties	1 0	Schizanthus Hookerii	0 6
Lisianthus Russellianus, very fine, with printed directions	1 6	Schizopetalon Walkerii	0 6
Martynia fragrans	1 0	Thunbergia chrysops, fine plants, each	1 6
Mesembryanthemum tricolor	0 6	Venseria ocnlata	0 6
		Viola tricolor (Pansy) extra	1 6
		Zinnia, mixed, German	1 0

Cuthill's Black Spine Cucumber, per packet .. 1*s*. 0*d*.
Peas, Improved Dwarf Marrow (true) per quart .. 1 6
" Charlwood's Early Surprise (true) " .. 3 6
" Girling's Early Dancroft " .. 5 0
" Waite's Queen of the Dwarfs " .. 5 0

W. & Co. have great pleasure in offering a New Seedling Potato, "Early Superb," which will be found fit for table earlier than the Ash-leaf Kidney, will bear a much heavier crop, and keeps in exquisite flavour till the following spring. Price 3*s*. 6*d*. per peck.

156, Cheapside, (opposite St. Paul's), February 14.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD & SON have the honour of informing their Friends that they still continue to supply ROSES on the following terms; the selection of sorts being left to themselves.—Strong Plants and warranted superior varieties:—

Extra superior selected Standards on tall stout stocks, from 5 to 6 feet, adapted for planting in conspicuous situations	Per Doz.	£1	16 0
		Per 100,	
Superior Standards	Per Doz. £1	4 0 —	10 0 0
Superb ditto, extra fine	1	10 0	
Fine Dwarfs	0	12 0	
Superb ditto	0	18 0	
Fine Dwarfs on own roots, in 50 varieties		2	10 0
Ditto Climbing, 9*s*. to 12*s*. per doz.			
Ditto Dwarfs on own roots, without names		1	10 0

A proportionate number of plants presented with each order, towards defraying the expense of carriage, &c.

W. W. & Son's descriptive Catalogue of Roses; also Catalogues of Carnations, Cucumbers, and Herbaceous Plants, will be sent free on application.

DANECROFT NURSERY, STOWMARKET, SUFFOLK.

S. GIRLING'S GENERAL CATALOGUE OF DAHLIAS and other FLORIST'S FLOWERS, can now be had on prepaid application, containing nearly every new Dahlia of the season. A separate Catalogue of ROSES and PANSIES is also ready, and can be had, if required.

HERTFORD NURSERIES.

R. P. FRANCIS begs to state that he can supply Snow's WINTER WHITE BROCCOLI, which has given such universal satisfaction, in sealed packets 2s/6d. each; also, Baker's Black Spine Cucumber, 2s. 6d. per packet, of 3 seeds.

— Horticultural Prize do., 2s. 6d. ,, ,,

— White and Purple Fringed Primula, 1s. 6d. per packet.

R. P. F. begs also to recommend a very superior new late White Broccoli, which may safely be relied upon as being the latest of the late, and keeping good till Cauliflower comes in; in packets 2s. 6d. each. Catalogues of Roses may still be obtained upon application.—Feb. 14.

LEE'S DWARF ITALIAN MARROW PEA.

J. AND C. LEE are now sending out the above new PEA this season, and having grown the Stock for the last five years they can strongly recommend it as a distinct and most excellent variety. Its habit is exceedingly dwarf and robust; it is a very prolific bearer, and the Pea is equal in size to the largest Marrowfat, and is of most delicious flavour. It comes in earlier than any other Marrow. It has been grown in the gardens of Clumber, Welbeck, Thoresby, Nuneham, Tottenham-park, and Todworth, and is highly extolled by the Gardeners of these places. In Quart Packets, sealed, price 5s.

Nursery, Hammersmith.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, and Others

ABIES CANADENSIS, or HEMLOCK SPRUCE.—GEORGE BAKER, Nurseryman, Bagshot, having the largest stock of the above in Europe, of all sizes and in fine condition, can with confidence recommend this noble tree to the notice of the Public, and having so large a stock (viz. 200,000 large plants, 3 feet high, besides smaller sizes), can dispose of them at very low prices; also, with a General Nursery Stock. He begs to offer at unusually low prices, in all sizes, the largest assortment of Kalmia latifolia ever offered to the Public.—Prices can be had by letter, and shall be attended to forthwith.

TO CONTRACTORS, THE TRADE, &c.

ARTHUR MACKIE begs to call the attention of the Trade to the annexed List of TREES and SHRUBS, which are of first-rate quality, and, as he trusts, will, from the lowness of price, be found worthy of notice. The Norfolk Railway affords great convenience for the cheap and safe transit of plants, the charge to London being at this time at the moderate rate of 27s. 6d. per ton; and where large quantities are taken, A. M. will deliver them free.

			s. d.	s. d.	
Blackthorn, 2 yrs, fine	..	..	6 0	to 7 0	p. 1000
Whitethorn, do.	..	..	2 6	to 3 6	,,
Turkey or Levant Oaks, do.	..	..	7 0	to 8 6	,,
Ash, transplanted	..	.. 2 to 4 ft	14 0	to 15 0	,,
,, ,,	..	.. 4 to 5 ft.	18 0	to 20 0	,,
Beech ,,	..	.. 1 to 2 ft.	12 0	to 15 0	,,
,, ,,	..	.. 2 to 2½ ft.	17 6	to 20 0	,,
Larch ,,	..	.. 2 to 3 ft.	12 0	to 15 0	,,
,, ,,	..	.. 3 to 4 ft.	14 0	to 18 0	,,
Scotch ,,	..	.. 1 to 2 ft.	15 0	to 20 0	,,
Hazel ,,	..	.. 1 to 2 ft.	15 0	to 20 0	,,
Oaks ,,	..	.. 1 to 2½ ft.	18 0	to 25 0	,,
Blackthorn ,,	2 yrs, fine	..	8 0	to 10 0	,,

ORNAMENTAL TREES AND SHRUBS.

Oaks, Turkey or Levant	.. 5 to 6 ft.	25 0	to 35 0	per 100
,, ,, ,,	.. 6 to 8 ft.	35 0	to 45 0	,,
,, ,, ,,	.. 8 to 10 ft.	50 0	to 60 0	,,
Chesnut, Horse ..	.. 6 to 8 ft.	16 0	to 20 0	,,
,, ,, ..	.. 8 to 10 ft.	25 0	to 35 0	,,
Tree Box ..	.. 1 to 2 ft.	6 0	to 8 0	,,
,, ..	.. 2 ft.	10 0	to 12 0	,,
Laurels ..	.. 1 to 2 ft.	5 0	to 8 0	,,
,, ..	.. 2 ft.	10 0	to 12 0	,,
,, ..	.. 2 to 3 ft.	12 0	to 15 0	,,
Standard Thorns	..	50 0	to 60 0	,,
,, Roses ..	..	*M.*	to *G.*	,,
Red Cedars ..	.. 1 to 2 ft.	20 0	to 30 0	,,
,, ..	.. 2 to 2½ ft.	45 0	to 55 0	,,

A reference is requested from unknown correspondents.

Norwich Nursery, Feb. 14.

VICTORIA NURSERY, CORK.—SEED POTATOES.

J. and H. HAYCROFT can now supply sound POTATOES, fit for immediate planting, of the most esteemed varieties cultivated in this district. As the market at present is too fluctuating to fix prices generally, every information shall be given to intended purchasers by return of post.

Fine ASH-LEAVED KIDNEY POTATOES (a sample of which may be seen at Messrs. JACOB WRENCH and SONS, Seed Merchants, London-bridge), delivered free at any of the undermentioned ports, at 7s. 6d. per bushel, by Steam Vessels weekly to London, Liverpool, Glasgow, Bristol, and Plymouth; and by Sailing Vessels to nearly every port in South Wales. N.B.—A large assortment of Seedling Forest-trees, also delivered free at very moderate prices.

TO PLANTERS, &c.—NURSERY STOCK ON SALE.

THE undersigned beg to inform the Public that the lease of a small field, about 3 acres, a part of their extensive Nursery Grounds having expired, and being required by the proprietor in May next, they are under the necessity of clearing the NURSERY STOCK thereon, most of which is young, healthy, and of good quality, which they will dispose of on the very lowest terms. Prices and further information may be had on application. JANSON AND FINNEY,

Gateshead Nursery, near Newcastle-upon-Tyne; Successors to the late William Falla and Co.

Asparagus plants, 3 years old	Arborvitæ, Chinese, 1 to 2½ ft.
Currant Bushes, black and red	——— American, 1½ foot
Cherries of sorts, dwarfs	Box, dwarf, for edging
Peaches and Nectarines — trained, dwarf, & standards	Box tree of sorts, 1 to 2½ feet
Ash, common, 3, 4, to 5 feet	Broom, Butcher's, 2 sorts
——— Mountain, 2 years old, 6 to 12 inches	Cedar, red, 9 to 18 inches
Horse Chestnut, 2 years old, 6 to 12 inches	Currant, scarlet flowering
Elm, Wych, 2, 3, and 4 feet	Holly, Hedgehog, of sorts, 1 ft.
Poplar, Black Italian, 3 to 4 feet	Juniper, English, 1 foot
Sycamore, 2 to 3 feet	Lilacs of sorts, 2 to 4 feet
Acacia, common, 3 feet	Laurestinus, 2 to 3 feet
Alaternus of sorts, 1½ foot	Laurel, Portugal, 2 to 3 feet
	Maple, Norway, 4 to 5 feet
	Periwinkles of sorts
	Syringa, dwarf, 1 foot
	Walnuts, 2 feet

N.B.—Steamboats sail every week to London and Hull.

REGENERATION OF THE POTATO.—SEED saved in the most careful manner from the Berry of the earliest and best kinds, without disease, can be had in Packets. No. 1, containing 13,000 Seed, which will be sufficient to produce Plants for more than 30 square perches of Land, 7 yards to the perch. No. 2, containing more than 6000 Seed, will have sufficient plants for more than 15 perches. Application by Post-office Order on Baldinglass, for No. 1 Packet, 10s. 6d.; No. 2 Packet, 5s. 6d., payable to Mr. MOSES NEILL, Steward, Belleville, Stratford, County Wicklow. Each Packet will be forwarded, post paid, and registered as a money letter, to prevent the chance of miscarriage. Printed directions will be forwarded with each Packet, as to sowing and after-culture. Persons applying are requested to make their address legible.

"We have been favoured with a package of Potato Seeds from the parties offering the above for Sale, whose respectability we can vouch for, and think it remarkably well saved."—*Editor Farmer's Gazette.*

TRAPŒOLUM AZUREUM.

MESSRS. VEITCH AND SON have to offer imported TUBERS of the above beautiful Plant, warranted true. Strong extra Tubers, 21s. Second size, 10s. 6d. each. The usual discount to the trade. Post-office order or reference required from unknown correspondents.—Exeter, Feb. 14.

FUCHSIA CHALLENGE.

J. HALLY, NURSERYMAN and FLORIST, Blackheath, challenges his Fuchsia (the Empress), against any seedling variety of Fuchsia raised in 1845, for beauty of flower, combined with habit of growth, for 5l. To be decided at one of the London exhibitions for 1846. J. H.'s money is deposited in the hands of Messrs. Hurst and M'Millen, of No. 6, Leadenhall-street. The challenge to be accepted, and money deposited in the hands of the above firm, or any other respectable house in London, by 1st March. None except those making good the deposit will be considered as taking up the challenge. J. H.'s challenge is open to any number of competitors.

NEW FUCHSIA.

NEWBERRY'S "DELICATA."—Warranted the best White FUCHSIA grown; with every good quality of Venus Victrix, from three to four times its size. Tube, pure white, without forcing; corolla, fine purple; sepals, well expanded, and its habit good. See Dr. Lindley's opinion (October 18, 1845) in answer to "N. R." Mr. Glenny says it is an exceedingly pretty flower, one of the best coming out, and is placed by him, in his Almanac, in his "select list of good Fuchsias." On application to the raiser, reference can be made to some of the best Fuchsia growers in the neighbourhood, who saw it in bloom. Plants to be sent out in May at 10s. 6d. each. —Upwey Nursery, near Dorchester, February 14.

THE FUCHSIA CHALLENGE.—A Challenge having been given by Mr. Hally, and accepted by Mr. Miller, to show their Seedling Fuchsias for 5l. a side, Messrs. LANE & SONS have a SEEDLING FUCHSIA named "MRS. LANE," which they will show at the same time for 5l. The conditions to be, to show at either of the Exhibitions of the ensuing season of the Horticultural or Royal Botanic Society; the best flower of the three to be entitled to the stakes; either party neglecting or declining to produce his or their respective flower at the time appointed, to forfeit 5l. in addition to, and to go with, the stakes. Messrs. LANE & SON beg to disclaim the most remote idea of PUFFING their Seedling by this means, their object being solely to test the qualifications of productions about which so much time and talent have been expended.

Nurseries, Great Berkhampstead, Feb. 14.

FLOWER SEEDS.

ARTHUR MACKIE begs to announce that his DESCRIPTIVE LIST OF FLOWER SEEDS is now ready, and can be had upon application. For the convenience of the purchaser A. M. has enclosed them in printed envelopes, and he trusts that the information which will be found thereon will be both interesting and instructive.

The annexed is subjoined as a specimen of the plan he has adopted:—

SCHIZANTHUS RETUSUS.

Blunt-petalled Schizanthus.

Diandria Monogynia. Nat. Ord - Scrophulariaceæ.

Half-hardy biennial. Height, 2 to 3 feet.

Flowers, crimson and orange. June to October.

A native of the Andes of Mendoza. Introduced 1831.

Deriv.—(*schizo*, to cut; and *anthos*, a flower; from the irregular form of the corolla.)

For the convenience of purchasers at a distance the above will be forwarded free *through the post.*

Norwich Nursery, and No. 10, Exchange-street.

JOSEPH HARRISON, NURSERYMAN, of Downham, in Norfolk, and Richmond, near London, very respectfully solicits the attention of the readers to his Catalogue of FLOWER, KITCHEN GARDEN, AND AGRICULTURAL SEEDS, which contains every kind new and valuable. Copies will be forwarded to applicants. J. H. has to offer the following VERY SUPERB kinds of GERMAN FLOWER SEEDS, &c., and which can be transmitted by post.

24	splendid varieties of German Asters	.....	5	0
12	ditto	ditto ditto	3	6
16	ditto	ditto ditto dwarf....	4	0
12	ditto	ditto dwarf double Larkspur....	4	0
36	ditto	ditto German Stocks	6	0
12	ditto	ditto ditto	2	6
12	ditto	ditto ditto wall-leaved	4	0
8	ditto	ditto Zinnias	3	6
6	ditto	ditto Wallflowers	1	6
16	ditto	ditto double Balsams	5	0
6	ditto	ditto Cockscombs	2	6
6	ditto	ditto Poppies	1	6
12	ditto	ditto Hollyhocks	3	0
100	ditto	ditto Annuals	8	0

Together with every other kind of Flower Seeds, at 3d. per pckt.

J. H.'s very extensive Catalogue of DAHLIAS, FUCHSIAS, PANSIES, CINERARIAS, HERBACEOUS PLANTS, &c., is also ready, and will be forwarded at request.

THE FLORICULTURAL CABINET and FLORIST'S MAGAZINE, conducted by J. HARRISON, is published monthly, price 6d., and may be had by order of any bookseller. The work contains a plate of coloured figures of the newest and best Flowers, with 24 pages of letter-press on the Culture of Flowers, &c. The February Number contains 76 pages additional of advertised Lists of Flower Seeds, &c. Vol. XIII., for 1845, bound in cloth, is now ready, price 7s. 6d.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS AND CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

HORTICULTURAL GLASS OF BRITISH MANUFACTURE, at J. WELCH, jun., PHILLIPS, and Co.'s Warehouse, 12, Panton-street, Haymarket. — Having made arrangements with a British Manufacturer, they are enabled to offer the above article in unlimited quantities at the following terms, in Squares not exceeding 40 inches long:—

No. 0—(equal to Foreign Sheet)	..	4½*d.* per foot.
1—averaging from 16 to 18 oz. to the foot		5½*d.* ,,
2 ,,	21 to 23 ,,	7*d.* ,,
3 ,,	32 ,,	1*s.* ,,

J. WELCH, jun., having been many years with Mr. Drake, of 8, Jermyn-street, and 315, Oxford-street, and at the time of the glazing of Chatsworth Conservatory, has devoted himself to the Horticultural Glazing Department, begs to call the attention of Horticulturists generally to the above prices for Glass, which they undertake to glaze in any part of the United Kingdom.

They also beg to recommend for Pits and Garden Lights small size squares, which they offer at the following low prices, packed in 100 feet boxes, not particular to thickness.:—

Under 5 in. by 3	..	1½*d.* per foot.
5 in. by 3 and ,, 6 in. by 4	..	2*d.* ,,
6 in. by 4 and ,, 9 in. by 7	..	3*d.* ,,

J. W. & Co. solicit inspection of their stock of Stained and Ornamental Glass at their Warehouse, as above.—12, Panton-street, Haymarket.

SUPERIOR NEW BAKING PEAR.—The Sussex Monster Pear being a new variety, and a most abundant bearer, producing fruit to the weight of 2 lbs. or 3 lbs. each, which keeps well during the months of February and March, is of excellent flavour, and can be recommended as a first-rate kind. Specimens of the fruit may now be seen at WARNER and WARNER'S, Seedsmen, 28, Cornhill, London, of whom fine Trees can be had at 10s. 6d. each.

NEW DARK-EYED VERBENA.

WILLER'S LIST, containing a description of the above beautiful and uncommon Seedling Verbena, and his choice Seedling Fuchsias, Petunias, Antirrhinums, &c., can be had by application. All who grow the above plants should have this List.—Providence Nursery, Ramsgate.

JAMES DICKSON AND SONS beg to intimate that they have just published a Selected List of the Newest and most Approved Varieties of FLORISTS' and other FLOWERS, for the present season, which only contains such plants as would prove really desirable additions to out or in-door collections. Their Catalogue of DAHLIAS and PANSIES will appear early in March. Extensive assortments of Farm, Garden, and Flower Seeds from the most genuine Stocks.—Edinburgh, 32, Hanover-street, Feb. 1846.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

per gross.	per gross.	per gross.
6 in. by 4 .. 6*s.*	8 by 5 .. 13*s.*	9 by 7 .. 18*s.*
7 in. by 4½ .. 9*s.*	8 by 6 .. 14*s.*	10 by 8 .. 26*s.*

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists, apply to R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square, London.

FOREIGN SHEET GLASS AND GLASS TILES.

C. JARVIS having just imported a large quantity of the above articles, in quality and substance hitherto unequalled, can offer them at a lower price than any other house in the trade, for ready money only, at his old established WINDOW GLASS WAREHOUSE, 88, Great Castle-street, a few doors from Regent-street, where orders, forwarded with reference, meet with prompt attention. Every other description of WINDOW GLASS equally low in price.

POLMAISE HEATING.

MESSRS. G. & J. HADEN beg to inform the Readers of the *Gardeners' Chronicle* that the apparatus at POLMAISE was erected by them. Also, that they are prepared to give plans and estimates to any gentleman requiring similar apparatus.—Trowbridge, Feb. 14.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

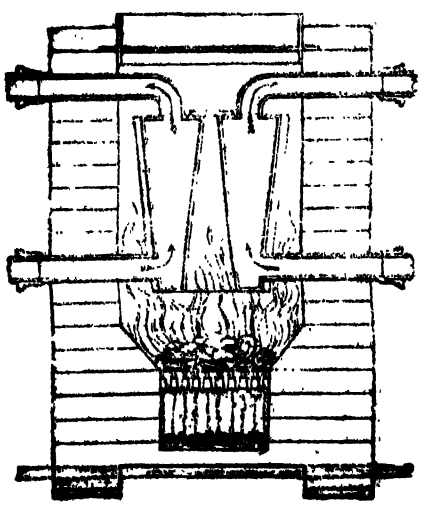
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures; for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by Bramwell and Healy's peculiar Tank Apparatus, with the absolute certainty of producing the desired results. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—136, Fleet-street, London.

PLANTING SEASON.

THE following descriptions of NURSERY STOCK may still be had of W. Rogers & Son, Nurserymen and Contracting Planters, Southampton, at the prices advertised in the *Gardeners' Chronicle* on the 15th November last:—

SEEDLING.

Ash
Beech
Pinaster
Stone Pine
Oak, English Durmast (Sessiliflora), the largest and most valued species
Sea Pine.

TRANSPLANTED.

Alder, 2 to 4 feet
Ash, 1 to 2 feet
Beech, 2 to 4 feet
Birch, 2 to 4 feet
Elm, 1 to 2 feet
Hazel, 1 to 2 feet
Fir, Scotch, 1 to 4 feet
,, Spruce, 1 to 2 feet
,, Sea Pine, 1 to 2 feet
,, Pinaster, 1 to 2 feet
Poplar, 2 to 4 feet
Oak, English Durmast, 1, 2, and 3 feet
Sycamore, 2 feet
Willow Come-well, a valuable American species for coppice or hop-poles, 1 foot
Laurel, 1, 2, and 3 feet
Evergreen Privet, 1 foot
Elder, common Black, 2 to 4 ft.
Rhododendron, 1 to 2 inches, 30*s.* per 1000
,, 3 to 4 ins., 60*s.* per 1000
,, 5 to 6 ins., 80*s.* per 1000
,, 12 to 18 ins., 20*s.* to 30*s.* per 100
Clematis Azuron grandiflora, 9*s.* per dozen
Arbutus (seedlings), 40*s.* p. 1000
Perpetual Tree Violet, 50*s.* per 100

If ordered in less quantity than the above quotations, the charge will be at retail prices.

Waste Lands planted by contract.—Gardeners of experience and ability recommended.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 14, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Tuesday, Feb. 17	{ Horticultural { Linnean	. . . .	2 P.M. 8 P.M.
Wednesday, — 18	—Society of Arts	. . . .	8 P.M.
Saturday, — 21	—Royal Botanic	. . . .	4 P.M.

THE competition among the growers of CALCEOLARIAS does not appear to be now carried on with its old spirit, and those who have visited the metropolitan exhibitions for the last two or three seasons, must have been disappointed at not finding it occupying a more prominent situation at such shows. The flower in itself is gay and attractive, a profuse bloomer, and a general favourite; it also embraces now a variety and beauty once unknown; we therefore hope to see the competition revived, and a station for it maintained next in order to the Pelargonium.

It may be alleged that sufficient encouragement is not given to its production: and that the prizes offered for it are becoming by degrees more beautifully small. But we contend that the prizes diminish because the spirit of competitors flags; and because they cease to produce anything worthy of a higher standing. We therefore venture upon a few hints to exhibitors for their better guidance.

The sorts exhibited should represent the chief improvements which are to be found among the modern flowers; they should be judiciously selected from different classes. There should be the minute spotted sorts with delicate grounds; those with a large patch of velvety colour in front surrounded by yellow, white, or buff colour; the large spotted flowers, which have lately occupied the attention of growers, and which are infinitely varied and beautiful; and more especially the stripes. Such a combination of attractive features would form a collection that would compel attention from the most indifferent spectator.

For the production of the striped Calceolarias we are entirely indebted to the skill and perseverence of Mr. PLANT, Nurseryman, Cheadle. As they are at present little known, we may as well state that the colour of these varieties is distributed in clear and well defined stripes of purple, crimson, or brown upon white, yellow, and buff grounds. These beautiful markings begin round the opening of the flower, and gradually increase in breadth towards the sides, much in the way of a Carnation. Charming as they already are they will, doubtless, become much improved; for we entertain no doubt that so practised a grower as Mr. PLANT will soon throw some fresh blood into them now that he has once hit upon the means of producing them.—*H.*

MOST gardeners believe that VENTILATION is as necessary an operation in glass houses as in dwelling rooms; but they are far from agreeing as to the time when, or the manner in which, or the extent to which, it should be employed. Some say that it is necessary in order to dry a place when it is damp; others that flowers will not set without it; and some that it makes Grapes keep. Nor are gardeners to be blamed for entertaining opinions thus crude and ill-digested; they have naturally looked to physiologists for the science of the thing, and physiologists have told them nothing. It is true that they have stated that ventilation assists the sap to rise, and have even discovered that it removes deleterious emanations, and moreover lowers temperature; but that is all. And we freely confess that there is more reason on the side of the practical men than of the philosophers. However both are agreed that ventilation is important from whatever cause; and that is something.

If a man should doubt that fact, let him put a Vine into an air-tight damp Vinery, and leave it exposed to the sun and its own powers of growth and see what will become of it. At first it will push vigorously, but its vigour gradually diminishes; then on a sudden all the eyes break into laterals, more puny than the first; these produce a second brood of yet weaker laterals, and thus the growth proceeds; till at last, growth stopping from utter exhaustion of the physical powers of the Vine, the extremities rot away, and a few months reduce the highest vigour to the lowest debility.

Try the same experiment with a hardy plant in a Ward's case. Exactly the same result, *mutatis mutandis*, is obtained. Absence of ventilation produces first debility, and then death.

In the invaluable collection of scientific papers, by Mr. ANDREW KNIGHT, collected into a volume, after his death, we find it stated at p. 224, that change of air is (to plants) to a very limited extent necessary or beneficial. But this opinion is opposed to every other part of Mr. KNIGHT's experience, and was probably a hasty expression; for in other instances he loses no opportunity of contradicting it. Thus, in an account of a curvilinear Vinery he attributes the inferior quality of Queen-pines grown in it to "the want of efficient ventilation;" and he proceeds to state how he remedied the evil by an improved mode of ventilation.

"In my house, with a curvilinear roof, I acquired the power of almost wholly preventing any change of air whatever; and I exercised that power too extensively, after the fruit was shown, and particularly after a part of it had nearly acquired maturity. In the last spring I adopted a mode of ventilation, from which I expected to derive all the advantages of change of air, without materially lowering the temperature of the house; and the success of it has greatly exceeded the expectations I had entertained. I shall best be able to show the advantages of this mode of ventilation, by giving a slight sketch of the form of a section of my house, in which D marks the position of cylindrical passages of nearly two inches diameter through the front wall. Through these, which are placed 18 inches distant from each other, along the whole front wall of the house, the air, whenever the weather is warm, is suffered to enter freely, and its entrance is at other times more or less obstructed in proportion to its coldness; but it is never wholly excluded, except during the nights in very severe weather. The passages through the front wall are placed at just such a distance from the ground, as will occasion them to direct the air, which enters, either into contact with, or to pass closely over, the heated covers of the flue. It consequently becomes heated, and is impelled amongst the Pine-apple plants, which stand in rows behind each other, each row of plants being so far elevated above that before as to place every plant at nearly an equal distance from the glass roof. A thermometer was placed at H, being equally distant from each end of the house, and I had the satisfaction to observe, that the temperature of that part of the house in which the thermometer stood was raised between two and three degrees, when the external air was at 40°. This effect was, I conclude, produced by the heated air being impelled into the body of the house amongst the plants, instead of being permitted to rise, as it had previously done, and to come instantly into contact with the roof; and by suspending light bodies amongst the plants, I ascertained that the previously confined air was thus constantly kept in a state of rapid motion. The air is suffered to escape through passages of four inches wide and two inches and a half high, at E, which passages are placed at the same equal distances as those in the front wall, and, like those, are opened or closed as circumstances require. The trouble of opening or closing such passages, after substances of proper form are prepared and suspended for the purpose, is very small, much less, I think, than that of moving the lights of any house of ordinary construction; and the effect of the kind of ventilation obtained upon the growth of my plants and fruit, is everything I wish it to be." For the plan referred to see *Physiological Papers*, t. 7.

This paper is dated October 1822; but he had long before demonstrated the indispensable necessity of motion to plants. In a paper communicated to the Royal Society, April 21, 1803, we find the following remarks:—

"The effects of motion on the circulation of the sap, and the consequent formation of wood, I was able to ascertain by the following expedient. Early in the spring of 1801 I selected a number of young seedling Apple-trees, whose stems were about an inch in diameter, and whose height, between the roots and first branches, was between 6 and 7 feet. These trees stood about 8 feet from each other; and, of course, a free passage for the wind to act on each tree was afforded. By means of stakes and bandages of hay, not so tightly bound as to impede the progress of any fluid within the trees, I nearly deprived the roots and lower parts of the stems of several trees of all motion, to the height of 3 feet from the ground, leaving the upper parts of the stems and branches in their natural state. In the succeeding summer, much new wood accumulated in the parts which were kept in motion by the wind; but the lower parts of the stems and roots increased very little in size. Removing the bandages from one of these trees in the following winter, I fixed a stake in the ground, about 10 feet distant from the tree, on the east side of it; and I attached the tree to the stake, at the height of 6 feet by means of a slender pole about 12 feet long; thus leaving the tree at liberty to move towards the north and south, or more properly, in the segment of a circle of which the pole formed a radius; but in no other direction. Thus circumstanced, the diameter of the tree from north to south, in that part of its stem which was most exercised by the wind, exceeded that in the opposite direction in the following autumn, in the proportion of 13 to 11."

"When a tree is wholly deprived of motion, by being trained to a wall, or when a large tree has been deprived of its branches, to be regrafted, it often becomes unhealthy, and not unfrequently perishes, apparently owing to the stagnation of the descending sap, under the rigid cincture of the lifeless external bark."

We omit a portion of this communication, in which the supposed reason of the phenomenon is explained, because we doubt its soundness. The facts, however, are indisputable.

Mr. KNIGHT therefore proved experimentally that motion is essential to the well-being of plants. In other words, he showed that what is daily happening before our eyes is not accomplished in vain. But why should we suppose that it is? What right have we to imagine that the breeze, the storm and the hurricane even, are phenomena caused by the Almighty for no sufficient reason? that such disturbances of the elements are incidents either harmless or destructive, but of no moment in the economy of the universe? that the world would be as well, nay better, without them? Do we not, on the contrary, know that every part of the system of the universe is dependent on some other part? that there is not an evil, of whatever magnitude, which has not its counterpoise? and that, regarded as a whole, each natural phenomenon is of indispensable necessity to the free operation of others? In fact, it is an axiom in gardening, that we approach perfection in proportion to our exact imitation of the means which Nature takes to attain her ends. Every great failure has arisen from our not being able to read the book spread open before us; every advance has been caused by partial interpretations of the mysterious truths which it explains. All the phases of air-heating, of air-damping, of lighting, of potting, of training, are but so many examples of this. And all our present deficiencies will, by degrees, disappear under a more correct appreciation of natural truths.

As the matter now stands, we heat well, we build well, we light well, we damp well, but we do nothing to keep the air in motion. That is the object next to be looked to with anxiety; for we may depend upon its being one of the cardinal points of successful cultivation. How, indeed, can we imagine that the eternal shifting of the air, and fluctuation of temperature, and variation of moisture, to which Nature exposes plants all over the world, are unimportant to them, and may be dispensed with, without prejudice to their health. It is *in part* on account of the efficiency in this respect of the Polmaise, or radio-thermal, mode of heating, that we have thought it desirable to bring it under the notice of the public; and we propose in next week's Paper to inquire wherefore motion, independently of its being a constant phenomenon in Nature, is so indispensible to the health of plants.

CULTIVATION OF GINGER.

Now that so much improvement has been made in structures for horticultural purposes, and that bottom-heat may be obtained by means of air or vapour-heated chambers, it may be well to introduce the cultivation of those tropical esculents for culinary purposes which hitherto have only been grown as objects of curiosity in our stoves, and amongst which Ginger deserves a place.

In cultivating the common Ginger, the most essential requisites are heat and moisture; therefore, about the beginning of March, procure some of the dormant roots and divide them into pieces, with a single bud or eye to each; pot them in small 3-inch pots in soil composed of light sandy loam and well-decomposed cow-dung, in equal proportions; then place the pots either in a Cucumber-pit or other forcing-house, where they can be freely supplied with moisture, after the plants commence growing, and where the temperature is never below 60°. By the end of April or beginning of May, the plants will be ready for either transferring into large

shallow boxes, or into the soil, in a pit heated underneath on the chamber system.

In potting or planting out the young plants, the soil employed should be a mixture of fresh sandy loam and well-rotted dung, to which may be added a little leaf-mould and fine sand, if the loam is in any way tenacious. If planted in a pit they will require not less than 3 feet between the surface of the soil and the glass, for the tops to grow in.

The roots do not require a deep soil, but plenty of surface room, and succeed best in large shallow boxes, from 6 to 9 inches in depth, or if planted in a pit 9 inches of soil will be quite sufficiently deep for them.

In planting out, they should have plenty of room, and require to be placed 1 foot apart each way if the plants are strong when planted. An abundance of moisture is required, and a good bottom-heat, with very little fresh air all the summer; but in very bright sunshine they should be shaded. By the middle of September the roots will be fit for use, and if properly attended to during the summer, will weigh from 4 to 5 oz. each. If they are left in the ground until October they get fibry and tough, and are unfit for use as a preserve. When sufficient roots are taken out of the ground for preserving, and other culinary purposes, the remainder should be left undisturbed and gradually dried by withholding moisture from them, still, however, continuing the bottom-heat until the plants have become dormant; afterwards they must be kept quite free from frost and damp, and may be preserved through the winter by either allowing them to remain in the dry soil, or by placing the roots in dry sand until the following March, when they must again be potted according to the directions already given.

In this way a constant supply of fresh Ginger for preserving may be obtained every year, without much trouble or expence.—*G. G.*

PINE CULTURE AT BICTON.

I observe at page 721, 1845, that Mr. Hamilton seems to imagine that we were retrograding in Pine culture, because an account was given of a score of Queen Pines cut in June last which averaged little more than 5 lbs. each, though by all accounts there was not another score at that time to be obtained in the country equal to them. Perhaps it was forgotten what kind of a season we had to contend with previous to the production of those fruit; to be sure there was a few exhibited in London in autumn of similar weight, but then we were producing Queen Pines full one-third heavier. Subjoined is a faithful account of a dozen tolerable Queens that were cut here since that time, in each of which, although much admired, I could discover faults, however, and see abundant room for further improvement, which, ere long, I imagine I shall accomplish, but even then it will only be the stepping-stone to still further improvement. I shall not rest satisfied with Mr. H. should I live to obtain a 10 lb. Queen from a single plant, much less from a stool of suckers, and although it may be imagined by some that we belong to the old school, perhaps on some future day we may have an opportunity of divulging principles, regarding which the public will be at liberty to judge for themselves.

Some say that if ever Queen Pines have been produced of the weights mentioned, it was by mere chance, with old plants of immense size, abundance of material, and with convenient structures for growing them in; and that one plant will occupy the room and time that half a dozen 3 lb. Queens could be produced in. Now, with such persons, I should be most happy to balance accounts, because they have attempted to cultivate Pines for a great number of years, and have never once produced anything near equal to mine, and because their neighbours and friends have never done so either, they speak against my system; and, through cherishing ill feeling, the march of improvement is much retarded. What I have written and done respecting these matters has been done with a view to stimulate the young gardener to commence his career where we of the old school leave off, and not to let him imagine that further improvement is not to be made, for there will be ample room for that to the end of time. It is astonishing what may be accomplished by persevering energy and self-denial. I do not find half the difficulty in producing, in half the time, a Queen Pine of 6 lbs. weight now, that I did 20 years ago in raising one of 3 lbs., and at less expence and trouble in every respect; but, although this matter is so much simplified during that short time, I can still observe ample encouragement for increased perseverance, and imagine that, sooner or later, all other matters relating to horticulture must be improved and simplified in the same ratio. I do not profess to produce Pines, or pay more attention to them, than I do to other matters. I am fond of all the productions of nature, and I cultivate everything, from the Mushroom to the Musa, upon one principle and with equal interest.

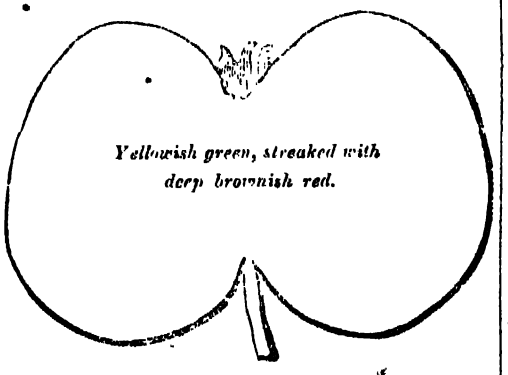
Your correspondent, "S. N. V.," seems to cherish the opinion that a superfluity of labour, or hands, and proper utensils, &c., will secure success, but a long practice, and partiality to the cultivation of the soil, with close observation, has pointed out to me that such is not the case. For, in my time, I have observed men with apparently every necessary whereby they could have excelled, through being a little deficient of something not so readily cultivated as criticism, they have never been able to excel, or even strike a balance with sometimes a humble neighbour, who has not apparently half the opportunities and conveniences. Such has always been the state of matters, and so, there is good reason for apprehending, they will continue to the end of time.

The following are the weights of the dozen Queen Pines above alluded to, which were cut here not long since. They were respectively—6 lbs. 4 oz., 6 lbs. 10 oz., 6 lbs. 8 oz., 7 lbs. 2 oz., 6 lbs. 8 oz., 6 lbs. 4 oz., 7 lbs. 4 oz., 6 lbs. 2 oz., 6 lbs. 10 oz., 6 lbs. 4 oz., 6 lbs. 8 oz., 6 lbs. 5 oz. The crowns of these fruit were very small, averaging not more than 2 inches in height, and did not weigh, united, more than 8 oz., if so much. The fruit averaged in circumference from 17 to 20 inches, and in height from 10 to 14¼ inches; the number of pips was from 8 to 17. I produced one Queen this season, only 8 pips in depth, which weighed 6 lbs. 5 oz.; am I not then justified in supposing that we may ere long see a Queen of 10 lbs. weight from some of those long shows of 14 or 16 pips in depth, swelled out in proportion to one of only 6 lbs. 5 oz. What is to prevent it? Resting quite contented, however, because my father, brother, or neighbour, has never produced this, will not effect the object in view. No, we must look onward, and I may repeat that there is ample space for improvement. I have produced many things that have been admired, and I, too, have been pleased with them; but never yet have I produced an article in which I could not observe ample room for further improvement. If any body should happen to produce in this country a dozen Queen Pine-apples this year, surpassing those above-mentioned, I shall be happy to go and see them, which would truly be a treat to me, and very gratifying. Although some may think that enough has been said on this subject, I am of opinion Pine growing never required a greater stimulus than at the present time.—*James Barnes, Bicton Gardens.*

THE COURT-PENDU PLAT APPLE.

Synonymes.—Court-pendu, Court-pendu Extra, Court-pendu Plat Rougeatre, Court-pendu Rond Gros, Court-pendu Rond très Gros, Court-pendu Rond Rougeatre, Court-pendu Rose, Court-pendu Musqué, Court-pendu Rouge Musqué, Coriandu Rose, Reinette Court-pendu Rouge, Court-pendu Rosaar, Der Rothe Kurzstiel, Rode Korpendu, Pomme de Berlin, Wellaton Pippin, Princesse Noble Zoete, Garnons.

This is very different from the Court-pendu described by Duhamel, and formerly cultivated in this country, which was comparatively a worthless sort. This, on the contrary, is one of the very best late keeping varieties. It is particularly well adapted for dwarf training, and it has, moreover, the property of blossoming late, and hence it frequently escapes late spring frosts, which cut off the blossoms of other varieties. It appears to be much cultivated in Holland and Belgium, it having been obtained from various localities in these countries under many of the above synonymes.



Yellowish green, streaked with deep brownish red.

The accompanying outline represents a fruit of only medium size. The flesh is yellowish, firm, very rich, and sugary. The period of its perfection for use ranges from December till April. The tree is of dwarf habit, and an excellent bearer. It has frequently been observed to exhibit scarcely any symptoms of vegetation when others have been in flower. From this peculiarity and consequent escape from late spring frosts, it has been termed in some places where these are of frequent occurrence, the *Wise Apple*. Shoots, reddish brown, but towards the extremities almost entirely covered with gray pubescence; buds, flat, and completely covered with down. Leaves, middle-sized, ovate, concave. Flowers, before unfolding, of a bright crimson, rather small; petals, ovate.

In many places, only very dwarf Apple-trees can be admitted. This can be kept as dwarf as a Gooseberry or Currant tree—especially if grafted on the Paradise stock, and if proper attention be paid to summer pruning, of which, however, comparatively little will be required—but care must be taken to expose the fruit in good time, by preventing the growth of shoots that would otherwise shade it.—*R. T.*

Weekly Prices of Potatoes per ton, in *Covent Garden Market*, in 1844, 1845, and 1846.

	1844-5.			1845-6.	
December. 14	50s.	to 70s.	December...13	80s.	to 160s.
21	50	70	20	80	160
28	50	70	27	80	160
Jan. 4	50	80	Jan. 3	80	160
11	50	80	10	80	160
18	50	80	17	80	160
25	50	80	24	80	160
Feb..... 1	50	80	31	70	140
8	50	80	Feb..... 7	70	160
15	50	80	14	70	160

Also at the wateside, *Southwark*.

December..23	50s.	to 70s.	December..22	50s.	to 120s.
30	55	75	29	50	120
Jan. 6	60	80	Jan. 5	50	120
13	60	80	12	50	120
20	60	80	19	50	120
27	55	80	26	50	120
Feb..... 3	55	80	Feb..... 2	50	120
10	55	80	9	50	120

Home Correspondence.

Polmaise Heating.—I think a little consideration will convince you that your correspondent (Mr. Meeke) is in an error in supposing that radiant heat is employed in the Polmaise system. The current of warm air which enters the house cannot be warmed by the heat which radiates from the stove, for air is so very transparent that any heat which radiated from the sides of the stove would pass through it without imparting any sensible warmth, as we see that sunshine passes through glass without heating it anything like to the degree to which it heats an opaque body. The fact is, that the current of air which enters the house is heated by contact with the sides of the stove, and does not differ in its nature from air heated by an ordinary flue. I am afraid so many pretensions are put forth in favour of this system that great disappointment will ensue. To have a fair chance of obtaining the benefits which it is really capable of affording, those who try it should bear in mind that the moment the warm air enters the house it rises to the top, begins to be cooled by the cold glass, and escapes at every open lap and cranny of the woodwork, while the cold external air constantly tries to enter the lower part of the house to supply the air-drains. If the circulation is not quick or the house too open, or the space from the hot air entrance to the cold air drain too great, the air will be will be quite cooled before it reaches this drain, and all that part of the house will be too cold. For these reasons the stove should never be placed at the end of a long pit, nor should Arnott's stove be used, nor any stove in which only a slow combustion is maintained, as the draft must then be small and the circulation of the air in the house slow. It was from neglect of these considerations that Mr. Penn's system frequently failed—a system which I have found answer most excellently in narrow houses, and which I think would have kept a longer hold of public favour, at least in places where expense was no object, had not too much been claimed for it at first.—*J. C.*

Melon Growing without Bottom-heat (*see p. 20.*)—I beg to inform "Theta," (p. 70), that I used every means in my power to induce a moist atmosphere up to the moment the fruit began to change colour, taking care however to give but very little water to the roots. In my opinion great humidity of atmosphere is indispensable to insure success, according to the plan I have detailed. It is one thing to have a Melon-plant trained over a bed of moist fermenting material, and it is quite another thing for that plant to be trained to trellis like Vines (its really natural way), meeting every ray of light at nearly right angles. As to liquid manure I used the drainage of the dunghill, with a very little nitrate of soda added—say one pound to 12 gallons of water, which appeared to greatly promote the growth of the plant, and gave zest to the fruit. Now, as to the plants having bottom-heat, I cannot see how it was possible for the soil of the border to be very sensibly affected by the pipes, seeing that the latter were nearly five feet distant from where the Melons were planted, and raised more than a foot above the soil. We all know that heated air ascends, and with the pipes thus elevated I cannot see how they could be said to give bottom-heat to the plants in the border. However, be that as it may, what I contend for is, that Melons can be produced as good in quality, in greater abundance, and at a tithe of the trouble and expense by the system detailed in my former communication than they can by the use of fermenting material, tanks, &c., or any other contrivance for producing bottom-heat in the common acceptation of the term. In reply to "P. S." I may mention that it was "dung-beds" that I considered to be little better than a nuisance, and not the use of dung in any other department of gardening. I wish, however, both "Theta" and "P. S." to understand that I will not again reply to any question arising out of this subject unless they give their proper names and addresses.—*J. Walker, Viceregal Gardens, Dublin.*

Fruits and Farinacea the Proper Food of Man (*see p. 86*).—Allow me to suggest with reference to your review of Mr. Smith's book, that possibly both Mr. S. and yourself have at the moment of writing overlooked a passage of the Bible, to which book you both appeal—Genesis, chap. ix. 2, 3. To my mind this passage settles the question at once between your review and his book, as far as the evidence of the Bible is concerned; and so far also leaves you both in the right. As far as the question of "original food" is concerned, contrast this passage with Genesis, chap. i. 29, 30, and it will, I think, appear that the permission to use animal food was first given to Noah; the giving it at all to him would lead one to infer that it was a new thing. If Adam had had it, why renew it in the peculiar terms of Genesis ix. 3, the words of which read like a studied contrast to Genesis i. 29. The keeping of sheep by Abel, the clothing of Adam and Eve in the skins, are generally looked upon not as evidence that the animals were used for food, but that the doctrine of sacrifice for sin had been revealed: were it not revealed, how came Abel's

sacrifice to be better than Cain's? Hebrews ix. 22, and Hebrews xi. 4, suggest the argument, which is pursued on the ground that animal food was not used till the permission was given to Noah. As regards Mr. Smith's position, that the original food of man was not "animal," this passage goes, I think, to justify him. As regards your own, that the Bible allows the use of animal food, and did so from very early times, this passage is conclusive, if you are content to date from Noah instead of from Adam. I cannot but agree with your own view of the whole subject, but it struck me on reading, that possibly this passage, certainly an important one, had been overlooked.—*C. E. C.*——On reading the review above alluded to, it occurred to me that a few ideas, the result of an examination of former disquisitions on the early portions of the Mosaic narrative, might not be without their use. While generally agreeing with the opinion of the reviewer, I cannot think that he has dealt altogether judiciously with the author's argument from Scripture. I therefore venture to make the following remarks, premising that I know nothing of the work in question beyond what your columns contain. Of the 29th verse of the 1st chapter of Genesis, a learned Hebrew scholar (Kennicott, if my memory does not deceive me,) gives this interpretation, viz., that on man was bestowed every kind of vegetable substance upon earth as a possession, and every "fruit-tree for meat." And the curse afterwards pronounced on Adam, "In the sweat of thy brow shalt thou eat bread," will perhaps in some minds tend to confirm the view of his having lived on fruits only before the fall. But to most persons, I imagine the words of the sacred writer will appear to signify more properly that which Mr. Smith suggests, that man should be frugivorous, eating besides fruits all seeds or grain; the word "herb" in contradistinction to "Grass" denoting the matured produce. This is the explanation adopted by the editor of the "Pictorial Bible" (Mr. Kitto), whose note I will here subjoin:—He says, "Plants and fruits only being specified as the articles of sustenance allowed to man, it is considered by many commentators that animal food was not permitted until after the flood, when we find it granted to Noah under certain restrictions. There is no difficulty in supposing animal food not in use in primitive times; for it can hardly be said to be so, generally speaking, in Asia at the present day. Many do not eat flesh meat more than two or three times in the year." May not the 14th verse of the 104th Psalm be considered as a kind of scriptural comment on the 29th and 30th verses of the 1st chapter of Genesis? So far then I am inclined to go with Mr. Smith concerning the food of man in his primitive state. And I would suggest whether the use of a vegetable diet may not have conduced to that length of days for which the antediluvian race was so remarkable? This kind of diet requires a much longer preparation in digestion than animal, and on the principle of "slow and sure," I am disposed to think that the former would impart a more enduring power to the frame than the latter, supposing of course that there were nothing unfavourable in external circumstances. I am not sufficiently acquainted with zoology to be able to say how far such a theory would be borne out by the relative age at which the animal and vegetable feeders in the animal kingdom respectively arrive. But however this may be, there are assuredly indications enough in the early history of the Bible to show, that whatever was the case in the beginning, animal food has long been a proper food for mankind. I would draw attention to the 9th chapter of Genesis, verse 2 to 4, where a direction is explicitly given to Noah and his descendants to live on animals equally with vegetables, excepting only the blood, which has continued to be forbidden by the law of Moses to the Jews, and by the decree of the mother church in Jerusalem, to Christians likewise. Whence, to come to a conclusion, I would say, that before the flood-gates of Heaven had been opened, when as yet, probably there was no rain, and the air would consequently be much drier than it has been since, farinaceous and other like food may have sufficed for human nourishment, and helped perhaps to longevity; but from the time of the deluge the less healthy atmosphere has made a more stimulating diet necessary, especially in such climates as ours, to resist the action of damp on the lungs. Two words more, and I have done. With respect to the conformation of our teeth, I cannot think there can be any doubt of their being frugivorous rather than carnivorous. Surely they are more like the monkey's than the cat's, and (if I am not mistaken) exactly as certain species of the former tribe approach the carnivorous habits of the latter, so do their teeth assume more of the canine, and less of the true molar structure. And as to what the reviewer observes of the skins, which (be it observed) were given, and after the fall for the first time, to our first parents to clothe them, it has from of old been understood to imply the institution of sacrifices for the purpose of foreshowing the shedding of that blood, without which there could not be remission of sin—though it is not impossible certainly that what was permitted to Noah, the disobedient race of men before him may have done without permission, choosing to indulge themselves by feeding on those animals which they had been taught to slay for another purpose.—*S. Warnford.* [We insert these two letters, but we cannot carry the subject further.]

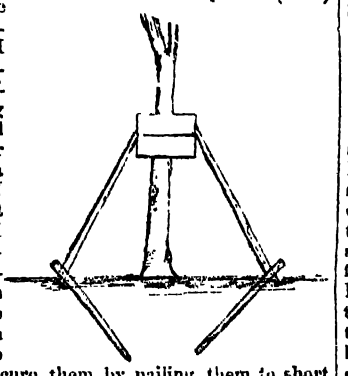
"*A New Vegetable or Rhuflower.*"—The article headed thus (p. 5) recalled to my mind an attempt which I made about six or seven years ago to bring into notice that part of the Rhubarb plant which he recommends. I had parts of it cooked, and found that many worse things are made ready in a gentleman's kitchen; but I also learned that cooks have their prejudices against new things as well as other people, and set their faces against what they call innovations in the way of their profession. I also sent a communication respecting it to the Caledonian Horticultural Society, recommending it as a substitute for Broccoli in years of scarcity, but whether it was ever tried by anybody afterwards I never learned. It will be found upon trial that some varieties of Rhubarb produce better heads than others, and, if not taken in time, will be somewhat tough when cooked; but taking it when it is tender, and carefully boiled and served up with hot butter, it will be found both a palatable and wholesome dish; but, perhaps, the manner of cooking it should be left to those of the culinary department. Mr. Forsyth's notice of it, through the medium of the *Gardeners' Chronicle*, will, no doubt, give it a publicity which it never had before, and the season will soon approach when it may be tested, and if it should receive a verdict in its favour, no doubt improved varieties will soon make their appearance, and as it is a vegetable that can be depended upon for a crop, for its growth is hardy, and being a perennial little trouble will be required in its cultivation, it may soon be used by the poor man as well as by the rich.—*Peter Mackenzie.*

The Hamiltonian System of Pine-growing.—In answer to Mr. Reid's inquiry respecting this system of Pine-growing, I beg to state that I am decidedly in favour of it. The fruit swells better, the labour is less, and the return quicker. The following is a list of Pines cut here from suckers, with the date when cut:—

		lbs.	oz.	
1844, July 10..	Montserrat	4	10	Second Fruit.
1845, Nov. 6..	do.	5	4	Third do.
1844, Sept. 26..	do.	5	14	Second do.
1846, Jan. 2..	do.	4	12	Third do.
1844, Oct. 2..	Jamaica	5	12	Second do.
1845, Nov. 3..	do.	5	2	Third do.
,, Oct. 17..	Montserrat	4	7	Second do.
,, ,, 27..	do.	4	10	Do. do.
,, Nov. 3..	do.	4	8	Do. do
,, ,, 17..	do.	4	4	Do. do.
,, ,, 27..	do., twin	4	2	Do. do.
,, Dec. 2..	do.	4	6	Do. do.
,, ,, 4..	do., twin	4	2	Do. do
,, ,, 19..	do.	4	2	Do. do.

I would advise Mr. Reid, and Pine-growers generally who do not grow their fruit upon the sucker system, to read Mr. Hamilton's little work, and try to make the most of the mother plant.—*John Jennings, Knowsley.*

To keep Trees from Wind-waving.—I was much pleased with the plan recommended at p. 874 (1845) for securing single trees in pleasure-grounds, and as I had previously experienced much difficulty in securing some Poplars I had planted two or three years ago in a marshy situation, I resolved to adopt it; in doing so, I have, I think, discovered an improvement which is to make the side supports rest on the surface of the ground, and to secure them by nailing them to short stumps driven in an opposite direction in the manner represented in the woodcut. This, I find, secures them much more firmly than in the plan recommended at p. 874. The stumps I have used are of Oak, 2 feet in length, cleft out of old posts, and they will therefore be more lasting and quite as economical. I have found three supports to be quite sufficient.—*F. H. S.*



Packing Glass.—Permit me to give your readers in the country who intend becoming purchasers of propagation or striking glasses, a few words of advice regarding the same. It is said that there is no experience like that which is bought, and I, accordingly, wish to give others the benefit of what I have paid for. Being in want of a few glasses of the above description, I sent a friend who resides in town to the shop of a dealer who advertises in your columns, where he ordered a dozen and a half to be sent to me (some 70 miles in the country). They did come accordingly, but so shamefully packed, that out of the 18, only 11 were whole. I sent my friend with this information to the shop, to see if he could obtain others, or get an allowance for those broken, when he met with a decided refusal, and was told that the railway company ought to make the loss good. This would have been very true if the glasses had been broken by their neglect, but as I took them out of the basket myself, I could see that the damage was occasioned by the careless packing; some of them, thin glass too, being placed close to the side of the basket without any hay intervening. Now, what I wish to say by way of advice is, that country purchasers should, when they buy, have a guarantee from the seller that they shall be delivered in a sound state. This would cause the packing to be done with more care, and save the buyer from loss.—*J. W. W.*

Destruction of Aphis, Scale, &c.—For the destruction of these I have for some years used a simple lather of yellow soap, laying it on with an old camel's-hair shaving-brush. This I have found to be very effective without damaging the plants.—*J. W. W.*

Russian Stoves.—In reply to the request respecting these, it seems necessary to say that the fuel burnt in them is wood, in general young Birch trees from 2 to 5 inches in diameter, cut into lengths of an archine (28 inches English). The fire-place is necessarily made large enough to contain billets of this length both ways. The furnace door is usually from 9 to 12 inches square; it is double, that is—two doors at an inch apart, one within the other, both of them opening together on the same hinges, and having an opening in them of an inch to 3 inches diameter, with register slides to close them at pleasure. The chimney, at 4 or 5 feet from the floor, has a door into it 8 or 9 inches wide, and 6 inches high, on a level with the bottom of which is placed the apparatus for closing the chimney. This apparatus consists of a circular trough of iron, two or three inches deep, fitted nearly to the brim with sand, and having within it a ledge near the bottom for receiving a flat cover; a second cover is made with a rim downwards, which rim is of a proper diameter to be pressed into the middle of the sand in the trough. The foundation is a platform of brick, rising some inches from the floor. The simplest Russian stoves are nothing more than a hollow for receiving the wood, with a hollow space above up to near the chimney door. The Lejauba is a flat stove, about 2 feet high, and 6, 9, 10, or more feet long, the breadth of a large couch, and is a favourite seat for women. More complicated stoves have flues, either horizontal or perpendicular, to receive the flame, and retain heat from the furnace before the passage of the smoke into the chimney. These flues vary according to the situation and form of the stove, and the skill of the constructor. Often where the same stove is to heat two rooms, the wall between them is formed first of the furnace part of the stove, then by two or three horizontal flues one above the other over it. When foul, the soot takes fire, and burns out without mischief. The upper part of the chimney is cleaned by passing from the top of the chimney a brush attached to a heavy billet. The heat given out from these stoves depends much on the fire-lighter. He begins by peeling off some of the birch bark, which he places in the middle of the furnace, then carefully places the wood round the bark, so that air may have a free passage between every log; he sets fire to the pile, leaving the door open. As the wood is consumed and begins to fall, he draws together the unburnt portions near to the door, and collects the hot embers into a heap behind, then shuts the door, admitting only a small quantity of air by the register. When the wood is all consumed, he shuts the chimney, and closes the register, his great object being to cause the fuel to burn out rapidly, and so as to form the greatest possible quantity of embers. The thickness of the outer case of the stove is about 6 or 8 inches, or more if the quantity of fuel be very great. It is this mass of heated brickwork, and the hot embers confined within it, that furnishes heat for 24 hours, keeping the apartments at a temperature of 60° to 72° Fahrenheit. The above mode of closing the chimney is in every respect superior to any register I happen to have seen in England; but it is evident that the Russian stove is not suited for coal. A Lejauka was, however, successfully constructed some years ago for heating a school-room; the fire was made in the adjoining room, where it heated a cast-iron oven in the usual way; when the smoke of first lighting was over, the flue was opened to the Lejauka, where the hot air passed in horizontal flues, till the fuel became completely red hot; the whole was then shut up with a Russian chimney closer; the fuel burnt was cinders from other fires; there was then no coke, but coke or anthracite coal would make excellent fuel. In the severest weather the room heated by this Lejauka was uniformly warm and comfortable. In the south of Sweden, stoves are of a similar construction, only smaller, and of course the wood is cut into shorter lengths and split. If required, I shall be happy to give any further information as far as I am able.—*M. B.*

Vitality of Old Trees.—The interesting notices on this head (p. 83) have brought to my recollection a striking fact of the same kind, pointed out to me by Sir Joseph Banks, in 1815, when I spent some days at Reevesby Abbey, his seat in Lincolnshire, which fully confirms your caution to gardeners "against despairing of success in removing ancient trees when there is any object to be gained in performing the operation." Directing my attention to a row of pollard Lime trees with trunks upwards of a foot in diameter, and with very vigorous bushy heads, Sir Joseph continued to the following effect:—"The pollard Limes you see there, formerly grew in a distant field, whence it was necessary to remove them. Directions were given to cut them down, after first displacing the earth just round the bottom of the trunks, so as to allow of applying the axe to the main roots and stems of the trees, without much disturbing the surrounding turf, and without making holes of more than a small size, and easily filled up again with earth. After being thus felled, their tops were sawn off, leaving the trunks, then a foot in diameter, ten to twelve feet long, which were intended to be sold to a wood-dealer. It occurred to me, however, from having so often observed felled trees push out leaves, that these trunks, though so thick, and without either roots or heads, might possibly vegetate, and to try the experiment, I ordered them to be planted where you now see them growing so vigorously." I afterwards inspected these trees more closely; they exhibited every sign of healthy vegetation, and if, instead of allowing all the shoots from the head to remain, they had been by degrees cut off to one leading shoot, it was clear that these pollards might have had given to them the natural form and character of the Lime-tree, the different thickness of the old and new stems being concealed by allowing a

few twigs to grow round the point of junction. This fact, and the constant practice in Belgium and Holland of planting in public walks trees with the stems of three or four inches diameter, from which the heads are wholly cut off, and then turning one of the young shoots to form a new head, might furnish a useful hint for improving our own practice in planting single trees in our parks, where, from their slender trunks and large heads, they seldom, in spite of the pains employed in staking them, make a satisfactory progress.—*W. Spence.*

Parrots.—Has any attempt been made to introduce parrots to the woods of this country during the summer season. I have at present a large green parrot; it was brought from Demerara, and has had already some strange adventures, both by sea and land. It has lived with me several years, and appears to be both healthy and hardy, and thrives well upon common fare. It has escaped several times to the woods, but not much inclined to fly far away; but it will not allow itself to be taken easily, and it is seldom done without bloodshed. Perhaps some of your readers could say whether such birds would live in gardens or woods in this country.—*Peter Mackenzie.*

United Practical Gardeners' Society for Mutual Instruction.—This society held its first meeting on Monday last, under most encouraging circumstances, their being upwards of 40 practical gardeners elected. The object of the society is mutual instruction, derived by discussing subjects relating to horticulture, every Monday evening, when members subscribe one penny per week (1s. entrance) for the purchase of newspapers and periodicals, and for the relief of distressed gardeners. The committee hope to have the assistance of gardeners residing at a distance, by forwarding any communications that may be interesting, and calculated to carry out the views of the Society.—*E. F. Fairbairn, Sec.*

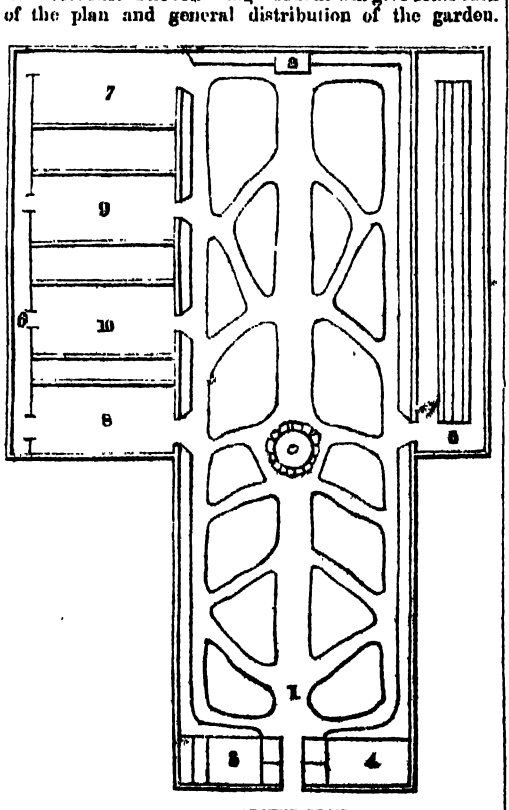
The Blue Wood Anemone.—Turning over the pages of an authoress, whose name has become immortalised in connection with the poetry of flowers,* I met with lines on the Blue Anemone, in which it is designated the "Flower of the Soul." Probably the species alluded to is the blue Wood Anemone (A. appennina), which is one of the most interesting of our spring flowers. The symbolic meaning would, however, to an ordinary observer, be scarcely recognised apart from a knowledge of the character and habit of the plant. It is of low and carpet-like habit, unfolding its close and compact leaves a few inches above the ground, like a protecting canopy over the germs of beauty which lie couched beneath, but which, when matured, appear above them, expanding with the early sunbeam, and closing with its declining ray. As a native of shady places (which its name implies), its delicate structure at first sight appears unfavourable to its preservation, but Nature has endued it with favourable conditions for artificial exposure. Its dwarfness is a security from the effects of wind, and its ample foliage, expanding the upper surface to the light, secures a uniform elevation, and supports the numerous slender flower stems which emerge from beneath it, and further preserves from harm the beauty of the flowers, which, more than most others, are "born to blush unseen;" the leaves are clothed with silk-like hairs, which act as conductors of water, and thus, by limiting the amount of absorption, preserve the plant from the accumulated pressure of atmospheric moisture, which falls from the trees by which it is often surrounded, and within whose shade it luxuriates. Partial shade appears essential to its perfect growth, and a bright and genial atmosphere for the expansion of its bloom. The only difference it assumes, when removed from its native localities to more exposed situations, is a less luxuriant habit; hence it is extremely beautiful in early spring, when grown *en masse* in flower beds bordered with A. nemorosa pleno (double white Wood Anemone). Its azure blue blossoms would also contrast well with the snowy whiteness of Iberis sempervirens and I. saxatilis (Perennial Candytufts); and it would be still more valuable as a relief to the dense masses of the vivid yellow Alpine Wallflower (Cheiranthus alpinus). The poetess's spiritual comparison of the reflected colours of the firmament upon its flowers—their quick contraction, or "shrinking" before the gathering storm, the "passing breeze" and the "vernal shower"—and anon, their bright and joyous expansion on the return of sunnier skies, are not less true than figurative, and emblematic of the soul shrinking under the vicissitudes of life, or the reverses of hope.—*W. Wood, Pine Apple Place.*

Transmutation of Corn.—There being nothing satisfactory known about the transmutation of corn, I beg to offer the result of my own experience in the matter, during the spring of 1844. I sowed about two rods with Wheat by the old and good plan of dibbling in the seed. My object was to have it late, in order to attract the pick-houses from my green Peas, which I find to be an excellent plan. When those birds are kept in bounds they are of much service in gardens, their diet being chiefly that of insects; but when that food fails they must have something else. Though they are fond of green Peas, still they prefer corn or Sunflower heads to pick. The spring mentioned being dry, my Wheat did not vegetate till late, and consequently did not come into ear in the autumn, presenting the appearance of rank Grass, which I mowed down twice, and the greater part of the crop survived the winter. The first heads were Rye and Barley, but the crop in general was Wheat, as true as in another crop near it, treated in the usual way. As I only sowed the latter, it is natural to inquire how came the mixture of grain in my crop? As I hinted the ground, other seed could not be brought in the manure; if dropped by birds or mice or by any other means, it was singular for it to grow exactly in the rows where I had set the Wheat, which it did; and perhaps what was more curious still, neither the Rye nor Barley came into ear the previous season, both being much earlier than Wheat. This fact appears to go far in favour of the doctrine of the transmutation of corn, —*J. Wighton.*

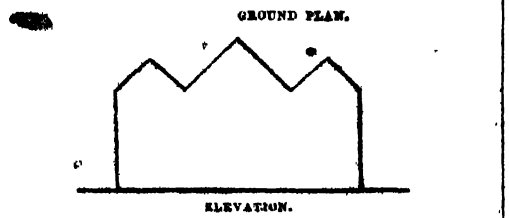
* Mrs. Hemans.

Foreign Correspondence.

Paris Winter Garden.—Feb. 1846.—For the last two or three years rumour with her thousand tongues has been busily occupied with the project of a winter garden upon a grand scale in the most fashionable promenade of Paris, the Champs Elysées; all sorts of reports were current respecting the wealth of the founders, the magnitude of the undertaking, and the choice collection of plants with which it was to be embellished. The Jardin d'hiver of Lémichez, together with private nurseries, and the Marchées des Fleurs were to be superseded, and the whole Parisian and provincial trade concentrated in the new floral temple; even the fame of Chatsworth was to be forgotten in the splendour of the Champs Elysées; not only were the most beautiful flowering plants to be congregated from all parts of the globe, but charming floral nymphs were to be in attendance with the most odoriferous bouquets; in fact, nothing was to be omitted that could captivate the *beau monde* of Paris; as to the projectors of this fortunate speculation, not even a premium of 30 or 50 per cent. would be sufficient to induce them to part with shares. Such were some of the dreams of its partisans, who had already forgotten the fate of a somewhat similar establishment on the Boulevard Mont Parnasse, which proposed to furnish not only Paris but London and Brussels with cut flowers. All conjecture is now set at rest, for the new Jardin d'hiver has within the last week been opened to the public, and no pains spared to make it known; every part of Paris is placarded with large bills, and advertisements in the George Róbins style are in all the daily papers; it is said that one thousand persons were admitted on the first day, and five hundred last Sunday. This certainly is no bad commencement, considering that the admission is 1 franc each person. The situation is, perhaps, the very best that could be chosen, being in the grand avenue of the Champs Elysées, about half way between the Place de la Concorde and the Etoile; no doubt it will be a fashionable rendezvous for a season; after that *nous verrons*. The following woodcut will give some idea of the plan and general distribution of the garden.



GROUND PLAN.



ELEVATION.

Scale—10 feet to a centimetre.

Reference to Plan.—1, Ground plan of the garden; 2, Reading-table and stool; 3, Salon des bouquets; 4, Bureau; 5, Camellia-house; 6, Rhododendron-house; 7, Pelargonium, &c., house; 8, Fuchsias, &c., house; 9, Stove; 10, Propagation-house.

The *coup d'œil* upon entering is by no means imposing, and not at all equal to what I had been led to expect; the wood-work is too heavy, and the elevation too low; the principal building is about 100 or 120 feet long by 50 wide, with a triple span roof about 15 or 18 feet high; the centre is supported by four rows of square wooden pillars; the garden is laid out in what is here called the English style, the borders being thickly planted with greenhouse and half-hardy shrubs, such as Camellias, Rhododendrons, Azaleas, Ericas, Magnolias, Fuchsias, Epacris, Mimosas, Choriszemas, Coreas, Oranges, Kennedyas, Pimeleas, Veronicas, Clematis, Daphnes, Abutilons, some Palms, Strelitzias, &c. The edgings are Laurestinus, Ericas, Azaleas, Daphnes, &c. The pillars are decorated with rustic baskets containing plants in flower, and from the roof are suspended fancy pots with drooping plants, such as Russellia juncea, &c. In the centre of the grand *allée* is a rockwork basin and fountain; against the side walls are stages for Camellias, Geraniums, and flowering plants; the lower end is ornamented with large looking glasses, and there is a reading-table, with newspapers, &c. for idlers. The side buildings are devoted to propagation and stock; at the left hand entrance is a room for the making up and sale of bouquets, which according to the prospectus may be chosen from the plants in the garden. No expense appears to have been spared to procure large plants, of which there are some fine specimens of Rhododendrons, Azaleas, Correæs, and Camellias; indeed, three plants of this last are said to have cost 10,000 francs (about 400*l.*) Such is the Winter-garden of the Champs Elysées, from which so much was expected; will it answer? that is the general question among horticulturists. One glance is enough to show that its *cheval de bataille* must be a retail flower-trade, and that only; as a wholesale nursery it cannot for a moment compete with others in the neighbourhood, for it does not even possess within itself means to produce sufficient stock for home consumption, and must trust to the public markets for at least nine-tenths of its flowering plants and bouquets. Under such circumstances can it ever pay the expenses of rent and management, which may be calculated at 15,000 or 16,000 francs (600*l.*) a year; to say nothing of the outlay for buildings and plants. The speculation was originally set on foot as a "Joint-stock Nursery," and is at present the entire property of three or four capitalists, who have the power of putting shares into the market whenever, and at whatever price they please.

Societies.

BOTANICAL SOCIETY OF LONDON.

Feb. 6.—The Vice President in the chair. Donations to the library were announced from the Dublin Natural History Society, the Liverpool Literary and Philosophical Society, and Dr. Martius. British plants had been received from Professor Balfour, Mr. R. Embleton, and Mr. J. T. Mackay; and foreign plants from Dr. Dickenson, and Mr. T. C. Hunt, Her Majesty's Consul at St. Michael's, Azores. The collection sent by the latter gentleman consists of between two and three thousand specimens collected in the Azores. The following plants were exhibited:—Vaccinium macrocarpum (Ait); discovered by Dr. Bidwell in Soughton Bog, near Mold, Flintshire, in August 1845. Cerastium strictum (Linn.); discovered by Mr. Andrews in Great Arran Isle, Galway, Ireland, in August, 1845. Poa Balfourii (Parn.), collected on Ben Voirlich, near the head of Loch Lomond, Scotland, by Professor Balfour. Cerastium holosteoides (Fries); collected by John Storey, Esq., on the banks of the Tyne. N. B. This example has the glabrous surface of holosteoides, but scarcely differs from C. triviale in the character of its inflorescence: it is thus a connecting link between them. Trifolium Bocconi and Molinerii, and "Orobanche amethystea!" collected by the Rev. W. S. Hore, as recorded in the "Phytologist" for August 1845. Primula veris, and varieties; a series of 14 specimens to show the transition from P. veris to P. vulgaris; being some of the plants raised from the seeds of P. vulgaris var. intermedia, as recorded by Mr. Hewett Watson in the "Phytologist" for July last. Read "An Outline of the Flora of the neighbourhood of Godalming in the county of Surrey, with brief notices of the Geological Features and general aspect of the District," by J. D. Salmon, Esq., Corresponding Member of the Society.

INSTITUTE OF BRITISH ARCHITECTS.

Jan. 26.—A letter was read from Herr Zanth (honorary and corresponding member of the Institute), at Stutgard, descriptive of a Casino, now nearly completed from his designs and under his superintendence, for the King of Wirtemburg. The structure—named, after the royal owner, "Wilhelma,"—is of stone, in the Moresque style, the courses of the masonry being coloured white, yellow, and red violet, and covered with copper, partly gilt. It is situated in a winter garden, in the midst of four conservatories, with portiéoes, steps, terraces, and parterres;—it consists of a vestibule, an Oriental court, with a fountain, a picture-gallery, a divan, a saloon, an eating-room and appurtenances, a sleeping and dressing-room, and a bath with an arched roof, decorated with pendants. The conservatories and portiéoes are of cast-iron, very slender, and richly ornamented;—in the same taste, the conservatories are divided into two aisles, containing various rare flowers, and abut against two pavilions, surmounted by glazed octangular cupolas, for tropical plants;—the entire extent is about 350 feet; at the end of the conservatories the portiéoes commence, which form the enclosure of a flower-garden, for the private use of the king.

New Garden Plants.

11. Mastacanthus sinensis. *Endlicher.* Chinese Beardwort. *Greenhouse Perennial.* (Verbenas:) China.

This is an autumn-flowering herbaceous plant, growing from one and a half to two feet high, and forming neat little bushy tufts. It is, in a gardening point of view, of some importance; because it furnishes an abundance of rich violet blossoms at a season when that colour, never abundant, is peculiarly rare in gardens. It has been received from Mr. Fortune, who sent it from China to the Horticultural Society, in whose garden it flowered in October last. It grows wild in the neighbourhood of Canton, and Mr. Fortune found it in Chusan, and at Koo-lung, too. It was originally described by Loureiro under the name of Barbula sinensis, in allusion to the beard or fringe which terminates one of the lobes of the corolla. The name Barbula being, however, universally applied to a genus of Mosses, that of Mastacanthus has been substituted by Professor Endlicher: we presume from the Greek μαστὸς, a moustache. The plant belongs to the order of Verbenes, to which it is usually regarded as being of dubious affinity. And certainly it exhibits some peculiarities of structure which justify the doubts that have been entertained about it; for its ovary is distinctly one-celled, with two double placentæ turning aside, and bearing single ovules hanging down from their upper part. That is to say, the two carpels, of which the ovary of a Verbena is usually composed, instead of uniting in the middle, and so dividing its cavity into two or more cells, are not able to touch. It is a greenhouse plant, which appears to grow freely in a mixture of rough sandy loam and peat, and like other soft woody plants requires plenty of pot-room. During summer an ample supply of water should be given to its root, and it may be syringed overhead once or twice a day; but in consequence of its flowering in autumn, syringing should be discontinued as soon as the flower-buds are formed, otherwise they will be liable to damp off. In winter very little water is required; nor is it necessary to apply fire-heat, except to keep off frost. It strikes freely from cuttings of young wood under ordinary treatment.—*Botanical Register*, 1846, *t.* 2.

Garden Memoranda.

Bicton, near Sidmouth, Devon.—Having recently made a tour into Devon and Cornwall, on my return I paid the gardens at Bicton a visit, and having read much respecting Mr. Barnes's skill in the culture of the Pine apple, &c., I expected to find things well done; but unless I had seen, I could scarcely have believed everything to be in such excellent condition. I have never seen such magnificent Pine plants; they are of an enormous size, and, if I understood Mr. Barnes, not exceeding 18 months' growth. I am aware that there are many gardeners who have doubts respecting Queen Pines ever attaining the weights of 8 lbs. 5 oz., 8 lbs. 3 oz., 8 lbs. 1 oz., 8 lbs., and many above 7 lbs.; but this was effected by Mr. Barnes last summer. Facts are stubborn things, and I would recommend disbelievers to pay Mr. Barnes a visit in May, when I imagine they will find Queen Pines still larger than any of those above mentioned. Mr. Barnes himself thinks that he shall have Queens 10 lbs. weight before the end of next summer, and even if he has them 12 lbs. I shall not be surprised after what I have seen, for his plants are now showing fruit of great strength. The whole place is in masterly keeping in every department. The Pinetum contains most of the known species of Pinus, which are growing freely; the trees are, however, rather too thick for mature growth, and are planted at equal distances or nearly so, presenting an appearance somewhat like that of the Devonshire orchards. I observed a very nice specimen of Araucaria imbricata, but not equal to the splendid trees at Dropmore. The tree at Bicton has a cone now formed which will be full grown by the end of the summer. The Arboretum contains specimens of nearly every hardy tree and shrub. The mild season, added to the usually favourable climate of Devon, has caused the crops in the kitchen garden to look beautifully, and many of the hybrid Rhododendrons in the pleasure ground were in full bloom.—*Philip Frost.*

Miscellaneous.

Receipts for using the Flour of Indian Corn or Maize.—To make Griddle Cakes.—Best way to make them is to use milk altogether, instead of water—two eggs, yellow and white, to be allowed for a pint of corn meal—the milk to be a little warmed, and the whole to be well beat up with a spoon or ladle. There must be milk enough used to make the whole so liquid as that it will pour out of the saucepan on the griddle—one spoonful of wheat flour, and lard (pure butter still better) the size of a walnut. *The Griddle.*—Much nicety is to be observed in the preparation of the griddle, which, as must be well known, is a flat round iron concern standing on three legs, and of any size—it must be made not very hot, because then it would burn the cakes, and it must be well cleaned and greased while warm, that it may be perfectly smooth, so that the cakes may be easily turned, that they may be done brown (not burnt) on both sides—to promote their turning easily, is the object of adding the wheaten flour. Be it remembered that the dough, or rather the batter, as above directed, must be well beat up and prepared directly before being cooked—though it might set an hour—this is mentioned to prevent its being supposed that it, like some other bread, would bear to be mixed over-night. The cakes are usually poured on until they spread on the griddle to the size of the bottom of a breakfast plate. You will think this recipe rather prolix, but it is my way in all such cases to be very exact. Better be too particular than to omit any essential item.—*J. S. S. Egg Pone.*—3 eggs to a quart of meal—no wheat flour—to be made also with milk—water would make it heavy—a spoonful of butter, all well beat together and made up of a consistence thicker than the cakes,—too thick to pour out—but just thick enough to require to be taken up with a spoon—may be baked like the cakes, immediately after being mixed—must be baked in a tin pan, which must be placed in a dutch oven, not too hot at first, but the fire under it to be increased. The object is to have it begin to bake at the bottom, when it will rise in the process of baking, become brown on the top, and when put on the table and cut, resemble what we call pound cake. If your friend will exactly follow these directions, and then eat his cakes, or his egg pone, hot, with good fresh butter, he will find that Indian corn bread is fit for other persons as well as pigs to eat, the assertion of a corn-law member of parliament to the contrary, notwithstanding. Divers other preparations of corn and corn meal might be given. For instance "hominy and ash-cakes," which a certain George Washington had cooked for his own eating till the day of his death. P.S. Salt, of course, add as usual, in both cases.—*J. S. S. Indian Meal Breakfast Cakes.*—Pour boiling water into a quart of corn meal, stir it until it is wet; then add two well beaten eggs, and milk enough to make it a thick batter: measure a small tea spoonful of dry salteratus, and dissolve it into some warm water, and put it into the batter with a small quantity of salt; butter square tin pans, fill them two-thirds full, and bake in a quick oven; when done, cut it in squares, and serve hot. *Indian Muffins.*—Pour boiling water into a quart of corn meal, stir it well, let it be a thick batter; when it is cooled a little, add to it a table spoonful of yeast, two eggs well beaten, and a tea spoonful of salt; set it in a warm place to rise for two hours; then butter square tin pans, two-thirds fill them, and bake in a quick oven, when done serve hot or cut in squares, or bake as wheat muffins. *Corn Bread.*—1 quart milk, 1 lb. Indian meal, 2 eggs, small lumps of butter, a little salteratus—bake in a flat pan. *Artificial Oysters.*—1 pint grated green corn, 1 egg, 1 table spoonful wheat flour, 1 spoonful butter—Fry them brown. *Baked Indian Pudding.*—1 quart milk boiled, stir in 7 spoons meal while it is boiling hot, mix it quite thin; when it is moderately warm, add molasses, a little ginger and salt—4 eggs, a lump of butter the size of an egg. *Corn Pudding.*—Take 4 ears of green corn, boil them until half done, cut off the corn as fine as convenient, mix it with two spoonsful of wheat flour, 1 pint sweet milk, salt and pepper to season - bake it well. *Green Corn Cake.*—Mix 1 pint grated corn with three table spoonsful milk, 1 tea-cup wheat flour, ½ cup melted butter, 1 egg, 1 spoonful salt, ½ spoonful pepper. Drop this mixture into hot butter by the spoonful, let them fry 8 or 10 minutes. *Boiled Indian Pudding.*—1 tea-cup of molasses, a piece of suet the size of two eggs chopped fine, 8 spoonsful of meal, scald the meal with boiling water or milk, mix it quite thin, when it is nearly cold add 4 eggs well beaten. It requires three hours boiling in a strong cloth. *Indian Gruel.*—To 1 quart of boiling water, stir in 2 table spoonsful of Indian meal, mixed with a little cold water, boil 15 or 20 minutes—a little salt. *Johnny Cake* is prepared from the corn meal scalded, and the dough rolled or pressed out to half an inch in thickness, is cooked one side at a time in front of the fire after being put on a board, sheet of tin, a plate or any material of suitable shape. *Ash-Cake* is prepared from the corn dough made as above, and is cooked as follows, make a bed by scraping away the ashes on all sides, roll the dough after being made into form between two cabbage leaves, place it in the bed and cover up with the previously removed ashes and embers, a little practice will determine the length of time requisite for cooking. The process resembles that of roasting potatoes. *Common Pones.* are prepared from the corn dough made into oblong pieces about three inches thick, and baked in a covered bake-kettle with fire above and below. *Corn Dodgers* are made of the corn dough, in balls about the size of an egg and are boiled in the pot as an adjunct to "Bacon and Greens." *Shovey* is made from the dough cut in slices, and fried with a piece of fat bacon. *Snappers* are prepared from the corn meal scalded, and after being made into a thin batter with eggs and milk, are baked on a griddle. *Corn Cup-Cake.*—Take two cups of corn meal, and one of wheat flour, or in that proportion; make them into a thin batter with milk and eggs, and cook them on a griddle. *Washington's Breakfast Bread* is prepared from the corn dough made up with eggs, milk, and a little sugar, to be baked in a tin pan as an ordinary pan loaf. *Hoe Cake* is prepared by wetting up corn meal with boiling water; is made into a cake and cooked in front of the fire, on a board or plate. It was originally put on a hoe, whence its name. This resembles the Johnny Cake. *Indian Mush.*—This is made in different ways; but the easiest mode is that which resembles the making of starch or Arrow Root. Thus—put five pints of water over the fire in a pot or skillet, then take one pound of Indian meal, well sifted from the bran, and mix with a little cold water, so as to make a thick batter, add salt. As soon as the water boils add the batter; stir it well, and keep it stirred and boiling for at least twenty minutes. It should be about the consistence of hasty pudding, porridge, or stir-about, and may indeed be made in the same way. Take it up and eat it with milk, butter, sugar, or treacle. In this form it can easily be made and distributed to the poor from soup houses. Benevolent individuals, too, might prepare the mush in their own kitchens, and give it to the hungry and destitute. This is the most manageable and convenient of all the preparations of maize; it is used daily in a large number of American families, and considered a most wholesome diet. What is not used at one meal, is cut into slices and fried or heated upon the gridiron at the next meal, and eaten with butter or treacle. It is proper to state, that many of these receipts are differently prepared in different parts of the country; but in selecting the above, I believe I have chosen the most popular forms in use. A proper seasoning with salt is necessary in all cases. The meal should be carefully sifted from the bran; and the bran after being scalded is excellent food for pigs and poultry. Of the different receipts given above, the most easily prepared are the mush, the Johnny and hoe-cakes, and the ash-cake. The latter can be cooked with great facility in the turf fires common in Ireland. In all cases the article must be well and thoroughly cooked, or it will not be nutritious or digestible.—*Bartlett on Maize.*

Botanic Garden, Calcutta.—The German papers state that Dr. Wallich was to have quitted the Botanic Garden, Calcutta, in the end of January, and that Drs. Falconer, Royle, and Wight, with Mr. Edgworth, are candidates for his office. We believe we may state with confidence that the only part of the statement which is true is that Dr. Wallich has tendered his resignation, but that it has been done in an informal manner, and that, consequently, no means have been as yet taken to appoint his successor.

CALENDAR OF OPERATIONS.

(For the ensuing Week.)

Various are the means employed to produce atmospheric moisture in hothouses, and many of them are, in my opinion, inefficient, and also inconvenient. I am persuaded that a sudden hot steam is at all times inimical to the well being of vegetation in general; and no wonder. Such a steam is frequently produced by dish covers, on the hotter parts of pipes or flues, or by pouring water on, or syringing, very hot surfaces; and although I am a great advocate for much atmospheric moisture in general, I must protest against such plans. I am of opinion that what is wanted in general is, such a character of air as will guarantee the leaves of the plants from any tendency to desiccation, especially during the day; whilst at night there should be even a slight deposit of moisture condensed on the leaves; some few cases, such as conservatories, &c., excepted. All floors to houses should be grated, and, if convenient, a body of porous material should be placed beneath, in large lumps; perhaps masses of coke or charcoal would answer the purpose; water frequently poured thereon would yield a wholesome vapour at all times, although in a slow ratio. In addition to this, I would for most purposes have the return pipe in a cemented brick trench, with a supply of water at one end, and a ready escape by plug or tap at the other. *Conservatory.*—This structure now should be full of interest, and ought, where much attention is paid to flowers, to be as full of beauty as at any period of the whole year. Any Camellias done blooming should, if possible, be removed forthwith to some of the houses at work; a moist atmosphere, a temperature averaging 65°, and a canvas shading overhead, are the requisites in order to cause them to produce wood freely, and large leaves; the shading must by no means be neglected. The leaves of my Camellias by this treatment are larger than in most other establishments, and so healthy that they are nearly black; I use abundance of liquid manure. The flowers of this structure should have a thorough dressing at this period, cutting away weak and decayed wood, and shortening back shoots (to furnish back wood) previous to the growing season. *Stove and Orchidaceous House.*—Some little increase of temperature may now take place here, and that chiefly, as I before observed, in the afternoon, by shutting up early, and using plenty of moisture, taking care to thoroughly dry the foliage previously by a free circulation of air. As a sort of compromise between the eastern and western Orchids, a thermometer averaging 65° by day, and 60 max. at night, may suffice, allowing it to range to 70° or 75° on sunny afternoons by closing the house early. Look over the fastenings of those on blocks, or in baskets; renew the wires where necessary. Fasten a little fresh material on those not to be shifted, but beware of burying the buds on the eve of germination; apply baits for snails and cockroaches most assiduously, and attend closely to the extirpation of all scale. Examine and shift where necessary stove plants in general, and cut back some of the kinds after flowering to produce cuttings. *Mixed Greenhouse.*—It is somewhat difficult to give directions in a successful way for houses of this character. Plants of all climes will occasionally obtain a place here, and as no special treatment in regard to temperature may be long indulged in with impunity, as to the plants from tropical climes, a compromise of some kind must continually take place. As a principle, therefore, of frequent and somewhat harmless application, I would advise a rather free increase of heat on sunny days, early in the afternoon, for a few hours, sinking at night to the old point, or nearly so. In this structure there will frequently be found Ericas, Pelargoniums, New Holland plants, bulbs, &c., and even Orchids. I would, therefore, advise a division of these families; let the Orchids, bulbs, and plants of hot

climes occupy the hottest end, with little air; and the Ericas, &c., the other, with a much freer circulation; the Pelargoniums may stand midway.

KITCHEN GARDEN FORCING.

Pineries.—As a somewhat general shift will take place during this month, I may, perhaps, be permitted to offer a little advice about soils, &c. It is quite certain that first-rate Pines have been grown in various soils, as well as by various systems—so called. No system, however, can dispense with thorough drainage on the one hand, and plenty of atmospheric moisture on the other. It is rather singular that our French neighbours should have arrived at the same end by peat as we have done by loam. Our best Pine-growers, however, adhere in general to the latter, and, I think, with sufficient reason. What is wanted in these days, as an improvement, is not a new soil, but a new texture. Few people, in my opinion, use turf so fresh as they may and ought to do. Mechanical texture, therefore, it would appear is the great desideratum, and this texture may be obtained in perfection in fresh loamy turf; lumps of charcoal, and rough boiled bone waste, will add to its porosity, as also to its quality; and those, when combined, will be quickly permeable to the atmosphere. The turf should be housed in September in a dry state, and should be chopped into squares, or small masses, when dry. As drainage to those in pots, I would recommend in addition to, and covering a drainage of very open crocks, rough bone and charcoal mixed; on this, a layer of fresh turf in lumps, and then the ball of the shifted Pine. *Early Vinery.*—Kinds that are difficult setters should be impregnated artificially, choosing the middle of the day for the operation; those swelling should be thinned in the berry the moment the latter can be well distinguished. Many waste the substance of their trees by deferring this important operation. Follow up close stopping of all superfluous wood, leaving some well-placed shoots, likely to be permanent ones, to ramble occasionally; if they should be below the proper strength, provide plenty of atmospheric moisture, and do not be afraid to indulge in a considerable increase of temperature on the afternoons of bright days. In houses, breaking for a succession crop, take care to observe the same principles as laid down for the early house, viz., slow breaking, and abundance of moisture in the air. *Peach-houses.*—Proceed with steadiness; if the fruit is swelling off, syringing must be again resumed, and should be performed twice a day, viz., in the morning about 7 o'clock, and in the afternoon about 3 o'clock. Shut up early in the afternoon, and do not be afraid to allow the thermometer to range to 75° on such occasions, if by solar heat; sinking through the night to 50° or 55°. *Cherries, Figs, &c.*—Advance steadily. Ventilate freely, if without draft. Moisture, &c., as before. *Cucumbers and Melons.*—Take care to stop and peg down regularly those Cucumbers sufficiently forward in dung beds. Water frequently between the hills, and round the sides of the frame; as also the linings occasionally, in order to prevent them from "burning," as it is technically termed. The soiling-over is better done in a progressive way, as too great a body of cold soil applied at once seriously impedes the heat for a while. Ensure a temperature of 70° night and day, allowing a rise of 5° in the day if possible, and rising to 85° or even 90° during sunshine. Keep air without draft, day and night, if possible, although I hold it to be a good practice to close them thoroughly, from two in the afternoon until six on sunny days, sprinkling the frame a little at closing; during this short period they will be found to have made most substantial growth, as well as rapid advances towards fructification. *Melons.*—Keep up successional sowings—indeed, in my opinion, a great portion of the summer's stock might be sown and got forward without delay, provided the proper means are taken to keep them free from severe checks, both at top and bottom. To this end, only one plant should occupy a pot, say a 6-inch pot, and the soil should be entirely stiff turfy loam, for if any vegetable matter be blended, it, by making the soil too light, will soon cause the plant to suffer through drought. Melon plants of some age will be found to both show fruit and to "set" better than young and gross plants. *Strawberries.*—Keep those in bloom near the glass, with abundance of air; use liquid manure, and thin the fruit by the scissors where too thick. *Kidney Beans.*—Stop the first shoot, and if started as they ought to be, four in a 5-inch pot, let them remain in such until the second buds begin to push, then remove them instantly into a much larger pot. Let the soil be two parts sound turfy loam, one part half rotten manure, and one part coarse leaf soil, adding plenty of charcoal with a thorough drainage, and using liquid manure.

FLOWER-GARDEN AND SHRUBBERIES.

As before observed, see that all planting is completed forthwith. Improve as much as possible all outlines Plant fresh masses or groups where necessary, and introduce specimen plants where fitting opportunities offer. Much mischief is done by planting single specimens in recesses; these should be carefully preserved as a general rule, to give deep shadows and to throw the prominent features into bold relief.

FLORISTS' FLOWERS.

If severe weather continues, every available means must be adopted to protect Tulips, Auriculas, &c. We would, however, be perfectly understood that we do not advise smothering them; air must be given to all plants in frames whenever opportunity occurs. Should the sun shine brightly after a severe frost, keep the mats and coverings on, at the same time tilting the lights. It will be requisite to put small quantities of fresh bran under tiles in Auricula frames, the tiles being raised from the ground at the corners by small pebbles; on these the pots may be placed, so that no room may be lost by these most effective slug traps. As prevention is better than cure, we would advise amateurs to clear their frames of these vermin by this simple plan. At this season mice are apt to be very mischievous amongst Polyanthuses, when kept in frames, by eating the hearts of the plants; when detected, a small quantity of phosphoric poison will prove their *quietus*. When the weather is sufficiently fine, lose no time in planting Ranunculuses. These beautiful flowers delight in a cool subsoil; we have grown them in splendid style on a layer of *fresh cow manure*, placed about 18 inches below the roots, the bed being filled up with turfy maiden loam and sand. Seed may now be sown in pans or boxes, the compost of decayed leaves and sand having been previously well watered the night before, on this the seed may be scattered rather thickly, pressing gently on the surface; cover very slightly: we seldom cover with anything but fresh Moss, which is gradually removed as the seeds strike root. It will soon be time to put Carnations and Picotees in their blooming pots. If a proper quantity of compost is not prepared, lose no time in mixing it, at the same time keeping a vigilant look out for all injurious insects, &c. Do not let a frosty day pass without giving it a turn over; the trouble will be amply repaid by the excellent state of the soil. Dahlia roots may continue to be put into gentle heat.

KITCHEN GARDEN AND ORCHARD.

See to the due preparation of ground for crops in general, but beware of carrying on these operations when the soil is in a wet state—better be a fortnight too late with any given crop. I am of opinion that, where kitchen gardens are composed of light sandy soil, that it is better dug or trenched some weeks before it is wanted for some crops; I would instance more especially Broad Beans—these like a firm hold of the soil.

COTTAGERS' GARDENS.

A most important crop for the Cottager is the Parsnip; yet it is difficult to persuade them to adopt its cultivation. It is excellent food combined with Potatoes; all sorts of stock will eat it, and it will even make the cottager a little wholesome wine. It will grow on any soil, and is perhaps less liable to blight or other mischances than any other vegetable. The best way to keep it in winter is to spread over the crowns in November, the manure that is intended for the next crop, and to trench them out as wanted, leaving the soil in ridges. The ground for these should be trenched, the manure in the bottom, and the seed sown directly in drills about 15 inches apart.

FORESTING.

See that the soil is in due order for seed-sowing, which may be deferred a little while longer. Bring all thinning and pruning matters to a close, and look over young plantations betimes, to prevent competing leaders; this will save much axe and saw work in future years. Cut over all young Oaks that are stunted, and thin out the contending suckers from those cut over in former years.

State of the Weather near London, for the week ending Feb. 12, 1846, as observed at the Horticultural Garden, Chiswick.

Feb.	Moon's Age.	Barometer. Max	Min.	Thermometer. Max	Min.	Mean.	Wind.	Rain.
Frid. 6	10	29 968	29.837	50	38	41.5	W.	
Sat. 7	11	29 982	29.818	52	31	41.5	W.	.03
Sun. 8	12	30 056	29.979	40	29	37.5	W.	.04
Mon. 9	13	30.189	30.153	46	29	38.5	N.E.	
Tues. 10	14	30 311	30.317	41	24	32.5	N.E	
Wed. 11	○	30 173	30.070	44	25	34.5	N.W.	
Thurs. 12	16	30 158	30.124	45	36	40.5	W.	
Average		30.114	30.054	46.1	28.8	37 5		.19

Feb. 6—Clear; very fine; overcast
7—Overcast and windy; showery; very clear at night
8—Clear; partially clouded; clear, with sharp frost
9—Frosty; partially clouded and cold; clear and frosty
10—Frosty; cloudy and cold; partially overcast
11—Sharp frost; fine; frosty at night
12—Foggy, cloudy and fine; overcast.
Mean temperature of the week 1½ deg. below the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Feb 21, 1846.

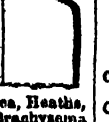
Feb.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 15	45.5	32 9	39.2	8	0.18 in.	1	2	2	—	3	6	4	2
Mon. 16	45 5	30.8	38.6	3	0.05	2	3	1	2	—	6	5	1
Tues 17	46 9	29.8	38 1	9	0 32	3	—	2	2	2	1	7	1
Wed. 18	47.6	29.4	38.5	9	0.30	3	1	2	1	2	2	8	1
Thur. 19	48.1	29 3	38.7	9	0.64	4	—	3	4	1	5	2	1
Fri. 20	47 9	31.4	39 3	11	0.51	1	3	2	4	2	2	5	1
Sat. 21	45.2	30.7	37.4	11	0.30	2	5	2	5	—	2	6	—

The highest temperature during the above period occurred on the 20th and 21st, 1841—therm. 58°; and the lowest on the 18th, 1845—therm. 16°.

Notices to Correspondents.

Books—*O P*—There is no such book as you mention. Pereira's "Materia Medica," is the nearest approach to it.

Edging—*R O S*—The best edging for your walks is North's tiles, made at Wordsley, near Stourbridge; they are far better than a live edging. The annexed cut shows the section of one.



Greenhouse Plants—*Paul Pry*—Greenhouse plants requiring to be grown in peat mould are numerous. 9/10 out of every 20 of the magnificent specimens annually shown at Chiswick, are grown exclusively in sandy peat mould. The following do best in peat, viz.:—The different kinds of Azalea, Heaths, Epactises, Chorozema varium, Correas speciosa, Brachysema platyptera, Eriostemon buxifolium, Helichrysum proliferum and humilis, Hovea Celsi and pungens, Eutaxia myrtifolia, Tumelea spectabilis and decussata, Leschenaultia formosa, Boronia anemonefolia, Hardenbergia monophylla and macrophylla, Kennedya Marryattæ, Polygala speciosa, Hibbertia perfoliata, Gardoquia Hookeri, Bossiæa linophylla, and Witsenia corymbosa.‖

Heating—*Rewertus*—Gas is a bad agent for heating a greenhouse: you cannot have a worse, that is if it is allowed to burn in the inside of the house itself.——*L*—Your letter was not printed for the following reasons:—In the first place, it was a mere eulogium, and of so remarkable a kind that our readers would have taken it for a puff oblique, as we did. Secondly, you did not state in what respect it is better than, or different from, an Arnott well constructed and well managed. Everything you stated applies perfectly to the last. Thirdly, your communication was anonymous; so that we had no guarantee of its being trustworthy.——*Ignotus*—Lay hot water 4-inch pipes in the bottom of your range of Melon-pits. Over them a flooring of slate for the support of the soil. Let the slates be laid close, but leave a 3-inch cavity all along the front for the ascent of the heat from the chamber below, in which the pipes should be not less than 3 inches below the slates, 6 inches if depth will permit; and the flow-pipe should be within 3 inches of the front wall. Leave a few openings at the back, communicating with the chamber, for the purpose of causing a circulation, and thus preventing too great an accumulation of bottom-heat. If you keep the soil sufficiently moist you will generally have, by evaporation from it, a sufficiently moist atmosphere; if you wish to make sure, have tanks instead of pipes, with openings in the covers that may be closed or not, as may be found requisite. You can thus have moisture at command; as also gradations of temperature in the respective divisions by means of stop-cocks.‖——*Alpha and J A T*—We should wish to think upon your letters a little before they are answered, and therefore defer a reply till next week.

Insects—*Sir R Schomburgk*—The insect attacking the Cocoa-nut trees appears to be an Aleyrodes, which shall be made the subject of an essay very shortly. *R.*

Names of Plants—*H P J*—Capsicum cerasiforme.——*Willis*—A. Maderense is the garden name of the Madeira form of A. marinum.——*Beginner*—Irish and common Yew, Arbor-vitæ, and Davallia canariensis or Hare's-foot Fern. Specimens of plants are dried by being placed in brown-paper and pressed between two boards.‡

Orchids—*Henry*—Mr. Lyons's book is the best. There is also a paper on the subject in the "Horticultural Transactions," and many scattered notices are to be found in the "Botanical Register," and elsewhere. In this newspaper you will find many communications from Mr. Bateman and others. The cultivator must read these things and remember them. You must not wonder at plants from the same country requiring very different treatment. Orchids grow in the tropics at all elevations, between the level of the sea and 14,000 feet of altitude; and therefore they will require a great diversity of climate.——*Henry*—The cause of your Oncidium damping off was this—it was an old bulb which had previously produced another; then, by having its rhizome cut so short, all communication was at once stopped between it and those from whence it derived its support. The bulb had in a manner become exhausted, and in all probability would have never produced another bud, even had it been allowed to remain on the parent plant. Pseudo bulbs are also very liable to damp off if they receive a twist or bruise in packing. This will probably account for some of your plants dying soon after you had received them.§

Polmaise—*B G*—Yes; the laps should be close. The lights should be moveable; for although all the usual objects of ventilation are effected without them, yet it will be desirable to have the power of moving them for the sake of cooling the house and for other reasons. We advise you to read all that will be said of radio-thermal heating before you actually apply it to practice. Many excellent suggestions are making weekly.

Trees—*J W*—You may plant the following on a steep slope for the purpose of fixing the loose soil, viz:—Betula alba, Carpinus betulus, Fagus sylvatica, Sea Buckthorn, Pinus sylvestris and austriaca, Pyrus aria and aucuparia, Larix europæa, and Acer Pseudo-Platanus.¶

Misc.—*W M*—The distribution of seeds is now about to commence.——*Banks of Dowron*—Nothing preserves wooden fences from decay better than coal tar. But they will last a long time if left without any paint whatever. We have now before us pales which must have been up for 30 years at least, and they will last some years longer, with a little repair. If they are either tarred or painted, they should have been first dried by exposure to all the sun of a warm summer.——*Powers*—1 and 4, Sow your seeds in March; 2, In peat and loam; 3, Place the pots in a warm Cucumber frame; 5, Camellias are propagated by cuttings, grafts, inarching, and even leaves; 6, They must be bought unless some friend will give them to you; 7, A Black Hamburgh or White Muscadine Vine; 8, We do not recommend tradesmen; 9, A plant one year from the eye, or a one year old layer will do; 10, 12, As soon as the wood gets firm; 11, July or August; 13, Mackintosh's "Greenhouse and Hothouse Cultivator."——*T S P*—We have not the Number, but you may possibly procure it by offering an advanced price for it.——*Sub*—Graft variegated Hollies about the middle of March on strong stocks of the common Holly. The height from the ground entirely depends on whether the plants are for tall or dwarf trees. If for standards, graft six feet from the ground, if for dwarf bushes, two feet will be sufficient. Sow the seeds of Alstroemerias now in pots, filled with rich, light, sandy loam and leaf mould, and place them in a Cucumber or Melon frame, or in any other structure where there is a moderately moist heat.¶——*Gloucestershire*—As you have no greenhouse, of the Tropæolums you mention, pentaphyllum and canariense are only suitable for you. The former is quite hardy, and will bloom till late in the season; the latter is an annual. Both are pretty. Tricolorum and Jarrattii are too delicate to succeed well out of doors.‡——*Inquirer*—Box edgings may be made in April, and old ones may be dressed in the same month.‡——*R Q*—Your old Vines which have been carefully taken up and replanted with good roots, may be allowed to bear a *few* bunches this year. For the cultivation of Chicory see our volume for 1844, pp. 293, 294, and 317, &c. In preparing it, cut the roots into squares, the size of dice, kiln dry and roast them. No doubt a common grain kiln would answer for drying them on.‡——*Clericus Hibernicus*—If you will refer to our volume for last year, p. 787, you will find the information you seek in a notice of Messrs. Chandler's Nursery of Vauxhall.‡——*N W*—Weeping Ashes are better grafted in March. We refer you to the nearest painter for information about varnish; if he gives you good advice, he will tell you that the best is none at all.——*J P*—Your question is not susceptible of an answer. We could point out a place admirably kept, where 30 acres of garden and pleasure-ground, some miles of walks, and endless mowing, are kept in order by 6 labourers; and we could also name another where 25 do the same work much worse; everything depends upon the chief gardener, his master, and the quality of the men.——*Cepa sub sepe*—We cannot waste time upon bubble schemes. If the natural good sense of the public will not guard it against such palpable absurdities, the public is not to be guarded by good advice.

SEEDLING FLOWERS.

Camellia—*W B*—Your seedling is nothing more than a variety of the single white.*

Cineraria—*W B*—Your specimen is a good sized and well formed flower, of a bright crimson colour.*——*J K*—Your Cineraria was directed to Turnham-green and not to the office of this newspaper, and therefore it was spoiled before it was found.

Pansies—*W M*—Flowers require to be packed in something damp, to preserve their freshness. It was impossible to form any opinion of your specimen, as it arrived in a dried and shrivelled state.*

. As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

ROYAL AGRICULTURAL COLLEGE.—FARM BUILDINGS.—A Premium of 10*l.* will be given for the Design (with an estimate), which shall be approved by the Council, of a FARM-HOUSE AND BUILDINGS OF STONE AND BLUE SLATE, including all Fittings, except Machinery, to be erected on the College Farm. They should include every requisite for an Arable and Stock Farm for 400 Acres. The outlay not to exceed 2000*l.* Stone on the spot. To be sent to the Secretary, carriage paid, on or before the 10th of March.

By direction of the Council,

Cirencester, Feb. 14, 1846. ROBT. J. BROWN, *Hon. Sec.*

The Agricultural Gazette.

SATURDAY, FEBRUARY 14, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Feb. 18—Agricultural Society of England.
THURSDAY, — 19—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, — 25—Agricultural Society of England.
THURSDAY, — 26—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.—Llandovery—Shropham and Gallcross.

FARMERS' CLUBS.

Feb. 16—Botley	Feb. 25—Newton
— 20—Shadwell	— 26—Otterv St. Mary
— 23—Wellington	— 27—Rhins of Galloway
— 24—Nairnshire	— 28—Hereford

IN a wet climate like that of the British Islands, and where the general average of the soil is rather disposed to the tenacious character than otherwise, it is hardly possible, in an agricultural point of view, to over estimate the importance of the SUBJECT OF DRAINAGE. The change which it produces on the very constitution of the soil, when thoroughly performed, is so striking even to the ordinary observer, and the results, not only upon the future crops, but upon the texture of the soil itself for easier and cheaper cultivation, and upon the whole future rotation and economy of the farming system, are so great, that it honestly deserves the character it has pretty generally obtained, of being the foundation of good farming. But, like every other art which has acquired its celebrity by the slow process of individual experiment, rather than from any one generally understood and established theory, it has for many years remained, and still is, the subject of great variety of opinion. Clay soils are, of course, the ordinary arena of its practice (for we are not speaking of that description of drainage whose object is the relief of land springs, which forms quite a different subject, wholly unconnected, though frequently confounded, with the drainage of clay soils, which are not generally liable to them), and as the clays differ in character, though not so much as is apt to be locally imagined, there is, of course, considerable diversity of belief on many points of practice. But this is neither surprising, nor, upon a broad view of the question, to be regretted; for there is no knowledge so correct or so valuable as that which is derived from the compared and combined reports of many experimentalists. And, besides this, diversity of opinion is, in truth, an involuntary tribute paid by mankind to the intrinsic importance of anything which is the subject of it: indeed, we shall find that the more important any question is, the wider varieties of opinion there are respecting it, and the longer it is before they are set at rest. As an instance of this, we may remark that though there are few subjects of more importance to mankind than commerce on the one hand, and agriculture on the other, yet after all the ages upon ages during which we have ploughed the sea with the one and the land with the other, the most perfect model of a ship or of a plough is at this very day equally matter of conjecture and enquiry. And we must not be surprised at this. True principles, upon any subject, are of slow and difficult growth, but, when once established, they last for ever. It is so in religion, which is our most important subject as moral beings: it is so in politics, which are our most important subject as social beings: and it is so in commerce and in agriculture, which are probably our most important subjects as industrial beings. And that it should be so in that branch of agriculture which we are now considering; that the subject of drainage should have given rise to such diversity of opinion, and to practices so irreconcilable with each other, we may regard as a good omen, in as far as it affords proof that the subject is one of even more importance than is, perhaps, generally suspected. Indeed, differences of opinion, so far from being an evil, are the source of good, for they occasion discussion, and discussion in the long run leads invariably to the extinction of error, and the establishment of true principles: and where the outlay of capital is considerable in the pursuance of a proposed system, these become of almost national importance. Where stagnation of surface water exists, the farmer is beaten at every point, and delayed, if not absolutely frustrated, in every operation of the year. His capital is wasted, his labour misapplied, his hopes thwarted, and his calculations made erroneous.

It is as useless to manure a field that does not drain as to feed a stomach that cannot digest. If the digestive powers are languid or diseased, that which should be food becomes poison; and this is, in fact, what occurs upon an undrained field. The mud and sludge and morass of winter become baked to brick in the summer, and all the ploughing and harrowing and manuring in the world will never get crops out of such materials as these. We must cure the patient first; we must get rid of the dropsical disease, and give a new constitution, before we can hope that even the best food will have its proper effect. But there is a great deal of land, requiring draining, that may not exhibit the worst symptoms of its need. It has been calculated that two-thirds of all the land in this kingdom require to be drained before their full capacity for production can be brought out, or even ascertained. And though it is to our moist climate that we owe our green pastures and verdant meadows, such as the traveller through almost any other country in Europe will look for in vain, yet it also brings with it the necessity of aiding by artificial means the descent of the rain water wherever (in consequence of too stiff and retentive a subsoil, or too flat a surface) it would otherwise, in the winter months, lie so long upon the land as to do harm instead of good. It is not that a great deal more rain falls in the winter than in the summer months, for on an average of years from 1818 to 1843, more rain fell in the month of July than in any winter month; but it is that evaporation acts so much more powerfully and rapidly in summer, that the absorbing and percolating powers of the soil are in that season less called into action, while, in the winter months, these become the only means of escape.

Drainage, then, is the remedy; but it it is a very expensive operation; the price varying from 5*l.* to 10*l.* an acre, and in many cases it has exceeded the previous value of the fee simple of the land. We may, therefore, well make the most patient and guarded inquiries upon the subject before we begin, as to how it can be done in a manner at once the cheapest and the most effectual. The more economically it can be performed, of course, the greater will be the profit: but it is one of those things to which the old maxim eminently applies, that "what is worth doing at all is worth doing well;" and no prudent agriculturist will think a sovereign well saved that leaves a single drain less effectual in any part of the field. When once done, it ought to be done for ever. No period of time should terminate the efficacy of a well-laid drain; and it may be added, that no ordinary period of time can be said to terminate the constantly-progressive improvements which, for reasons that will hereafter appear, the soil must derive from the new constitution that it thus obtains. Still regard must be had to expense; and if it be true, as often remarked, that "the man who shows us how to grow two blades of Grass where but one grew before is a benefactor to the community," so will he be who shows us how to drain an acre of land effectually for less than it could be drained for a year ago. Every improvement, for instance, in the manufacture of tiles, which reduces their cost, is a virtual addition to the value of all those lands which require only drainage to make them capable of the highest cultivation.

Now, in order to arrive at the best method of performance, the first point is to obtain a distinct notion of the object that we have in view, and to understand the true nature of the advantages we hope for. What is the object of drainage?—the common idea, and the too general answer would be, "to get rid of the surface-water—to lay the land dry." Strange as it may sound, we will venture to assert that no idea can be more mistaken, or has tended to more erroneous practice than this. In the drainage of a road, or the roof of a house, the object is certainly to get rid of the surface-water: the drainage desired in agriculture may be almost the very reverse of this. It is not to "get rid of" the rain-water; but *to apply it to its proper use.* There does not fall one drop of rain too much; it is the land, not the rain that is in fault; or rather, neither the rain nor the land; but the cultivator. Throughout nature we shall find that there are *various degrees of perfection*; were it not so there would be nothing left for man to do; but he is too important an agent in the wise economy of nature to be left idle; and if his intelligence and labour be demanded on the one hand, so is he, on the other, supplied in every instance with *patterns* to follow, abundant suggestions to direct, and motives to stimulate his exertions. The pattern in this instance is to be looked for in those soils where the drainage is *naturally perfect.* How does the rain act upon those soils? It falls, not upon a round-backed ridge, but upon a level or nearly level surface; it descends gradually and almost perpendicularly through the soil into the subsoil; here it is not arrested, but continues descending more slowly into the earth, and disappears.

But we must delay for a week our further remarks on this interesting subject.—*C. W. H.*

A FEW PASSAGES FROM A FEN LABOURER'S ACCOUNT OF HIS OWN LIFE.

[EVEN though the matter were argued by farmers on purely selfish grounds, the conclusion would yet be unavoidable that one feature of a perfect agriculture will be an educated and well-paid body of labourers. This may in the main be an effect, and follow in the train of the application of capital to land; but in this, as in other cases, if the effect can be otherwise attained, it will help forward the operation of those causes which generally precede it. And it may, perhaps, assist in the good cause—to know the real condition of the labourer under present circumstances; the following, we believe, is a fair representation of it, so far as the fens of Lincolnshire and Cambridgeshire are concerned.]

"I was born in a water-mill, which drained a farm of 400 acres in the Cambridgeshire fens, and the first sounds I remember to have heard were the rattling of the wooden wheels, the hum of the sails in the wind, and the dashing of the water amongst the ladles. My father lived in the mill, and had also a rood of land adjoining it rent free, for attending to the sluices, and superintending the machinery. Although rather uncomfortable in external appearance, it was a very good house, for the floors were high, the roof good, and the sides being well boarded and tarred prevented the entrance of wind and rain. My father dug a ditch, and threw the earth up all round his little field, so that he contrived to drain it thoroughly when other fields were partly under water. My first employment was along with my mother and a brother and sister, in this inclosure, where we grew Potatoes, and a few other vegetables. I never went to school, but we were all taught to read and write a little by my father, who was always reckoned a good scholar. The nearest school was at a village three miles distant, where an old man and his wife taught boys and girls for 4*d.* a week. This school was therefore quite useless for us, for besides the money, which we could not afford, the roads were so bad that we were unable to get to the village in the winter, even the high turnpike-road which came within half a mile of us was for many weeks covered with water—posts were set up to mark the course of the road, and all travellers had to proceed by boats. I worked with my father for the farmer who owned the mill; in summer I had to weed corn, pick Couch, and tend pigs on the fallowed land to eat up roots of weeds, and in the winter I was employed in the yards feeding stock and getting straw for bedding into the yards and hovels. But when I got to be 13 or 14, I worked the teams, harrowing or rolling, and sometimes I drove carts and waggons; and when I was out of work, I used to dig turf, or go fishing. From my first day's work, I never earned less than 6*d.* a day, and 9*d.* a day was my regular wages when I used to work a team."

"I laboured on the same farm until I was six-and-twenty, and then being married I removed from my old home (the mill) to a village about five miles distant. Up to this time the whole country was often more or less overflowed; the farmers grew scarcely any Wheat, and the crops were generally very bad. I had worked a good deal at cleaning out the old drains and digging new ones, and used to pare a great quantity of turf. This turf, when dry, I carried round the country to sell for firing. When in work I never earned less than 9*s.* a week, and often received 11*s.* or 12*s.* . . . . ."

"Of late years there has been much more labour done on the fen farms, in consequence of claying. I have had much work lately in digging trenches and spreading the clay upon the land, and as the farming and the crops have so much improved, there is a vast deal more for the poor man to do. Harvest time now finds plenty of Wheat for us to cut, and the crops have been often so heavy that I have had from 11*s.* to 18*s.* an acre for reaping. I live now in a neat whitewashed cottage, with a piece of ground for a garden to grow Potatoes in. I have a wife and four children to maintain out of 12*s.* or sometimes 10*s.* 6*d.* a week, earned by myself, and 3*s.* by my eldest boy. My wife and a younger boy and girl go to work occasionally, either weeding or thrashing. It costs me 7*s.* or 8*s.* a week for bread. I get a few pounds of pork or mutton, and still have a little remaining for tea, sugar, butter, candles, firing, clothing, and laying by for rent. Whenever my children are not tending pigs, or scaring crows, or doing an odd day's work, I send them to a day school for 3*d.* each a week. There is no free school within many miles of us, so that I am obliged to spare this money out of my wages. Although I am pretty constantly at work, there are hundreds that are paid off immediately after every harvest. They are then obliged to wander about from farm to farm seeking employment. Occasionally they are set to work at a 'chance job,' such as thrashing, drain digging, or any improvements which the farmer may be making. Often this winter life of idleness leads to poaching, for hares and partridges, though not in great plenty, are to be had. Thus my family are provided for, and I can get a comfortable living: the extra money I gain in harvest generally gives me enough to pay the doctor's bill, buy clothes, and keep away from the union or the jail. I live without relief from the parish except a trifle when I am ill myself. In the winter I find it the hardest to get a living—the wages drop—the weather is cold—we can scarcely obtain food enough, and rarely have covering enough for our bodies or our beds, or firing enough to warm us. But should sickness come, then we are in great distress. All are, like myself, situated thus. I am not yet so bad as to be afraid, like some, to meet my family; and should life and health be spared me I can yet earn an honest livelihood, and I pray that sickness

or death may not enter in to take my earnings from my family before they are able to shift for themselves."

Such are a few brief observations made by a labourer on his own history, and we may learn from his narrative several means which might prove useful in bettering the condition and augmenting the comforts of these men. If the allotment system were more generally established in the fens, much good might be accomplished. Hands, when unemployed by the farmers, would find work in cultivating their own little farms, and the mere means of usefully employing their spare time would alone be a very great benefit. It would keep them out of mischief, and from quarrelling, poaching, thieving; it would keep them more from the ale-house, and the consequent pestilence of bad companions. They would be "tenant farmers;" they would possess the means of getting property of their own; and they would not be altogether dependent upon the fluctuating and uncertain patronage of their superiors. An independence of spirit thus implanted in their breasts would inevitably lead them to look with more firmness and resolution upon distress, should it arrive. If then, by rightly employing their time, and by gaining produce of their own, labourers may be raised to a much better condition of both mind and body, ought not the means to be more extensively—should they not be universally adopted? The successful working of the system has been proved—the regular payment of the rents, and the improved character and condition of the tenants, has refuted all objections, and we trust that ere long fen-labourers may have their hearts cheered, their families more amply supplied, their comforts increased, and their future prospects brightened by the lights of success and encouragement which this mode of benefiting them will shed around them.

More benefit clubs might be introduced. Societies instituted for the maintenance of members during sickness have done a great amount of good. If more of these were established, the fen-labourer, by paying from sixpence to one shilling a month, might have a fund to rely upon for sustenance in the time of illness. Clothing-clubs might be set on foot in the towns and villages. The payment of weekly subscriptions during the summer season—a time when labour is plentiful and the wages high—would enable each member to receive a supply of clothes at the commencement of the winter—a time when work is hardly to be found and wages are reduced. Another improvement of a most important character is the better education of the fen-labourers' children. There may be many schools already in constant activity, and many boys and girls are, no doubt, deriving great advantage from their instruction, but still numbers of these children are not taught. Many there are that are compelled to work all day for their bread, and are thus necessarily kept away from school. Now, for such, evening teaching might be set on foot. Many schools have been formed for this purpose in different places, and the payment of 2*d.* a week has been found to answer the master's purpose very well. Many labourers could afford this, and a school of 20 or 30 pupils might be made up in many of the villages. The children, after working hard all the day, and then walking perhaps 2½ or 3 miles over a soft spongy soil which lets them sink (light though they be) 3 or 4 inches deep at every step, must be tolerably fatigued; but still they might meet in the school-room for an hour in the evening, because little bodily exertion would be required of them.*

Improvements in drainage and cultivation are going forward so rapidly in the fens, that scarcity of work for the labourer is now the exception. Good management becomes more prevalent, the knowledge of farming progresses, and more tillage is found necessary. We trust, then, that in proportion as the capabilities and productiveness of the soil are increased, as the crops become more abundant and the profits augmented—the means of bodily, mental, and moral improvement for the labourer will increase also.—*I. A. C.*

ON THE STATE OF HUSBANDRY IN LOWER BRITTANY,

WITH INCIDENTAL OBSERVATIONS ON THE CONDITION OF THE FARMING POPULATION THERE, COMPARED WITH THE SOCIAL STATE OF THE ANALOGOUS CLASSES IN IRELAND.

By Martin Doyle.

My remarks shall be limited to the departments of Finistere, the Côtes du Nord, and Morbihan, which constitute the part of western France distinguished as Basse Bretagne; for in those parts are to be traced more especially the natural features which characterise that large proportion of the people of Ireland who have descended also from the Celtic race.

In pursuing the observations which may suggest themselves to me, I have no intention of entering into any minute and separate analysis of those interesting districts, though they possess distinctive traits; but mean rather to treat them as one province, after a very few necessary preliminaries respecting their individual peculiarities.

Finistère, which is bounded on the north-west and south by the ocean, is the least of those three in superficial extent; yet it contains 353 square leagues, and is exceeded in size only by 20 (the Côtes du Nord and Morbihan inclusive), out of the 86 departments of France. It is subdivided into five *arrondissements*, of which that of Brest is the most important. Those of Quimper and Quimperlé being the most picturesque; the scenery indeed about the town of Quimpèrlé, which is at the confluence of the rivers Elle and Isole, and surrounded by woods, is of extreme beauty.

It is indeed rare to find such a spot, and while we contemplate its natural beauties, the antiquary has his attention arrested by the frequent monumental ruins of antiquity. The port of Brest is as beautiful and commodious for shipping as can be imagined—a very spacious harbour, with one safe and not too extensive entrance, with two fine branches of water, one running up to Chateaulin and the other to Landernau, while from this noble basin diverges a long deep creek which forms the inner port both commercial and naval. It may indeed with truth be said that human art could never have planned so perfect a roadstead and port as Providence has bestowed upon France in this splendid harbour. The climate there, as at Quimper and L'Orient, is very moist and relaxing, very similar to that in the south-west of Ireland.

The geological formations in Finistère are considerably varied (as is the case throughout lower Britany); but granite, with more or less proportions of mica or felspar in its combination, abounds towards the coasts, and blocks of this primitive rock are grouped in many places, and remarkably so at Pontaven in Quimpèrlé, where Menhirs and Dolmens astonish the traveller (who for the first time meets with those druidical antiquities), by their magnitude and durability. There they are—the perpetual memorials of idol homage "to the unknown God," while of the worshippers themselves no traces exist in the land.

This division is traversed by two chains of hills, called the Black Mountains and the Mountains of Arkés; the first are more southerly and of far greater extent, reaching from within a few miles of Chateaulin, on the east coast (through the Côtes du Nord), into Normandy on the west; the other range, commencing to the northward of this range, in the latitude of Brest, inclines from east to west also. This range is of granite; the other being composed of quartz in the higher parts; both chains ramify considerably, and vary in elevation from between 200 and 300 to 1000 feet at the culminating point; they are generally flat on the summit, which is covered with heath and other coarse vegetation, with peat bogs and swamps interspersed. The rural parts of the *arrondissement* of Chateaulin, which lies between those two chains of hills, is very thinly inhabited; the farm-houses and cabins are "few and far between," and the physical condition of the people, like that of their climate (exposed, as it is, to malaria from fens and blighting blasts), is miserable in the extreme, while their moral reputation is indifferent. Were it not that the lead mines at Poullaouen and Huelgoat (which are the most productive and considerable in France, and employ upwards of 800 persons) afford them the means of subsistence, the population would be in a very depressed state. The necessity of depending solely upon the land for support does not exist there, consequently the peasantry are far less energetic and skilful in their efforts at agricultural improvement than they would probably otherwise become; yet industry and skill might easily render the hill-sides, and even the moors which crown them, productive at least of nutritious herbage, for sheep and small black cattle, and, by a necessary reaction increase the general resources of the people.

Besides its lead mines, Finistère possesses zinc and bismuth, and slate and marble quarries, but is without limestone, except at Brest, where the stone is burnt. There is, however, some shell-marl at Morlaix, and one or two other places; for building purposes limestone is brought to Morlaix from Coutances, and thence carried to the interior. The sea-weed and calcareous sands, upon the coasts of the three departments, constitute a valuable supply of manure, which gives to those maritime places, in particular where the soil is naturally deep and loamy, immense advantage over the interior, where the soil is light and hungry, and without any fertilising substances at hand to supply its wants, and correct its natural deficiencies.

The Côtes du Nord lies to the east of Finistére, stretching a little more northward, where it is bounded by the ocean, or canal of La Manche, as French geographers designate that portion of the sea; it is divided into five *arrondissements* (but that of Dinan and a small part of St. Brieuc are not properly in Basse Bretagne), and contains 377 square leagues.

The chain of the Menez, which is a portion of the Black Mountains, on their continuous course from the coast of Finistére, crosses this department, branching throughout the whole of the southern side, which contains but one *arrondissement*, the remaining four being on the sea side of the hills, and presents at its highest point an elevation exceeding 1000 feet. This ridge is in some points scarped like a castellated wall; in other parts the rounded summits decline in undulations at intervals, into valleys which are beautifully wooded. The neighbourhood of Carhaix is remarkably well timbered, and the same may be stated of the vicinity of Chateauneuf, near the northern side of the mountains. Yet though the whole country would supply remunerating employment in draining swampy land and reclaiming the *landes*, very little is done in either respect; the scattered peasantry having no desire to cultivate more land than is absolutely necessary for their support, nor energy enough to encounter the labour or outlay requisite for bringing the wild land into a state of productiveness. This *departement* altogether has little champagne land of much extent, but many productive and sheltered vales intersected by streams. The mountainous districts are but slowly if at all improving, and the interior, after receding three or four leagues from the coast, is comparatively wild. There is much soft and sylvan beauty up the rivers of Treguier and Lanyon (where many Celtic monuments are found), intervening between high granite cliffs and bristling rocks, which in some spots of the coast, and numerous islands, testify at some unknown period from the main land, attest the ocean's force.

The salt works, conducted in a very rough and primitive manner on the marshes which the tide overflows, give much employment to the natives, who, like many of their toiling brethren of Ireland, have to contend with dark and dropping skies, and cold moist winds in spring and winter; the summer climate is, however, more steadily fine than that of Ireland, and the autumnal months of September and October on the coasts of Brittany are usually delightful. The fisheries, especially for sardines, are considerable on the whole line of coast, and the number of hands employed in the taking of sardines alone, from the vicinity of Brest southward, is estimated at 4400. There are some fine rivers navigable more or less into the interior, and two canals, one of which connects Brest with Nantes, passing through Morbihan. Limestone is imported from Coutance to St. Brieux for building purposes; for manure there are in the communes of Harmoye and Castravers beds of shell marl, the only calcareous substance in the whole of central Brittany.

The quantity of lead and iron in this *departement* are trifling, and if other articles of export and import were not more considerable, the barge trade on those canals would slumber soundly.

Morbihan (which derives its name from the gulf of the same name*) is not entirely in lower Brittany, two of its four *arrondissements* being in the upper province, it is bounded on the northern side by the Côtes du Nord, by the Atlantic and part of the department of Loire Inférieure on the south, by Ille and Vitaine on the east, and by Finistére on the west; it contains 360 square leagues, the surface generally inclines from the north side, where it is hilly, to the south, improving in the qualities of its soil as it approaches the sea, where the fertile plains of argillaceous soil compensate for the unproductiveness of remoter portions: this department is very mountainous to the east and north-east of its principal town, Vannes, the city of the ancient Venetæ. This district, on the whole, is very uneven in surface, and varies, like the other two *departements*, in the qualities of its soil, and one-half of its superficial extent is said to be under wood and water, *landes* and marshes.

The population here are still distinguished as Bretons and Gallos (who speak a variety of dialects), the latter being the descendants of the original Gauls, who, more or less, have mixed with the later emigration of Celt from Britain; the former have a decided superiority in intelligence and industry; the others, on the contrary, being proverbially fond of drinking, stupid, idle, obstinate, and so dirty in their habits that the cutaneous disease which politeness forbids me to name in English is there called "la galle," as, *par excellence*, the malady of the Gallois or Gallos; though they suffer also from the malaria arising from their marshes, which occasions intermitting fevers. Both these tribes, however, are hospitable, and the Gallos of the seaside are exceptions to the more general character just given of them.

The port of L'Orient is in this department, and the Bay of Quiberon where the English landed in 1746, but unsuccessfully, and where an army of unfortunate Royalist emigrants landed in 1745 under a misconceived expectation of support from our country, and miserably perished in unequal conflict on the sandy plains, with the large island of Belleisle, remarkable in French history, render this part of the province in some measure classic ground.

(To be continued.)

* To recommend these invaluable institutions, Sunday schools may be deemed superfluous, but they cannot be too highly prized.

* The words Morbihan in the Celtic tongue mean little sea.

ON THE UTILITY OF FARMERS' CLUBS.

[The following remarks by Mr. G. H. Ramsay in illustration of this subject were made in the course of an address to the lately established club at Newcastle-on-Tyne]:—

The formation of any new institution requires steady perseverance and systematic attention from its members, particularly those persons who are selected by the general body to carry out its measures. It is also necessary that each member should interest himself in its prosperity, in order that, additions being made to its members, we may acquire additional funds, which will be one of the main-springs of our success. We should on every occasion, and at all times, carry on our discussions with calmness, good feeling, and kind gentlemanly demeanour, to one another, so that every one may have a fair and impartial hearing on every subject under discussion, and strict adherence should be given to our rules. If such elements are brought together in our case, I have not the slightest doubt of the success of this Club, or of its accomplishing every purpose in contemplation, viz. to diffuse a practical knowledge of the science of agriculture. Our secretary has already informed you what progress the Club has made both as to the number of our members† and the flattering reception the institution has met with; what books and papers the committee has ordered; and the liberal encouragement to us by the enlightened body under whose roof we now sit. A room more fitted for a club-room than this could scarcely have been met with, and for it we are indebted to the liberality of the committee

† We have nearly 100 members.

of the Literary and Philosophical Society of this town. These beginnings are most favourable towards carrying out the usefulness of our Club.

My purpose is to show that agricultural knowledge, as indeed knowledge of all other kinds, is more likely to be gained by persons meeting together to discuss different subjects, under well regulated rules, than when they accidentally meet and exchange ideas in a cursory manner. Take an instance—the next subject for discussion which will be brought forward by my friend Mr. Robson, will here meet with an investigation very different to what it would receive in a mere passing conversation, and I have no doubt it will cause many of you to look over the best authors upon the subject, and it will perhaps cause you to ask yourselves—Do I properly understand the practice of draining? Have I already followed the best methods? have I done it well and cheap? It will make you ask yourself—Am I following the best means of tilling the land after being drained? or do I require to change my plans? Am I following the most profitable system of cropping? Am I sowing the proper quantities of seed? or applying the manures which will produce the largest return for my capital? Am I, making such improvements as will keep pace with the increasing demand for all kinds of farm produce? These and many other ideas will and must occur to you, and to every intelligent mind. And how are you most likely to obtain satisfactory answers to their questions. Why, all you have to do is to originate a discussion on the subject at the club, and listen to the recommendation of your brother members, who may have proved the best practice, or who may have ascertained the received theory. These are advantages which clubs possess over many other methods of gaining information. And not only will the *advantage* of this intercommunication be the bond of our union, but the *pleasure* also—i.e. if I am any judge of what every one feels as a member of a useful society, as having gained intelligence, or as having added to the comforts or intelligence of others. I fearlessly add that farmers are free from the fault of withholding or keeping back the results of their experience from others; there is no narrow-minded jealousy in carrying on their business.

Now, I believe that agricultural improvement, in breeding stock and growing corn has made rapid strides. In 1815, one million and a quarter of money was expended in guano alone, and for many years previous to that large sums of money had been expended on bone and other manures, yet I think much remains to be done. And I believe that with deep ploughing, changing of seed, manuring oftener with proper fertilisers, improved methods of feeding all domestic animals, all aided by science, and more particularly chemical science, a knowledge of which is to be diffused by Farmers' Clubs, will eventually make our country the garden of the world.

What affords more pleasure than the business of the farm? and what is more likely to entice men of capital than a profitable investment in a line of life where pleasure as well as profit are to be obtained? To gain those advantages let us unite and endeavour to make our Club the instrument by which to obtain them; let us act in concert, and then I have no doubt of our Society becoming of great utility in diffusing agricultural knowledge.—*William Glover, Hon. Sec.*

Home Correspondence.

The Best Wheats.—It affords me much gratification to see the article in the last *Gazette* from Mr. Gyde. I did not make any remarks on the effects of manures on the constituents of Wheat, being desirous to establish the previous facts, that the constituents of Wheat differ in their proportions in different varieties, and that those which contain the largest proportion of nutritive matter are not the best adapted for the ordinary process of baking. What are the best Wheats cannot be known but by means of analysis; and that the patent process of baking secures to the consumer the largest amount of nutriment, is also a fact I wished to establish; and in a short time I shall be able to communicate some further information on that subject. To ascertain what are the varieties of Wheat containing the largest proportion of nutritive matter, is the first object. When we have found some of these, or even one, suitable to our climate, then we may endeavour, by means of manures, to increase the proportion of nutritive matter. But it will surely be best to begin with those which, under ordinary circumstances, exhibit the highest qualities. Mr. Gyde would confer a great favour on agriculturists by communicating the results of his analyses. I think it was formerly stated that all the Wheats, the analyses of which I published, grew together under precisely the same circumstances of soil and climate. Unless that has been the case, comparative analyses are of little use in ascertaining the best variety. Such comparisons could be best made on an experimental farm, well conducted at the expense of a public body, or the Government; or, if the Editor of the *Gazette* were to devote a small portion of his farm to this object, a good deal might be effected.—*G. S. Mackenzie.*

Fowls' Dung and Guano.—"A Tenant Farmer" inquires, in your last Number (p. 76), the chemical difference between fowls' dung, salted, and guano. Agreeing in containing the powerful urinary matters, in a solid form, which are voided liquid by cattle, they still differ in relation to the food from which they are excreted. The seafowl living mostly on fish its excrement is rich in phosphate of lime; whilst the barn-yard fowl, feeding chiefly on seeds, its dung contains this important ingredient in much smaller proportion. By fermenting his fowl dung, however, with one-fourth its weight each of fine bone dust and salt, till the bone is tender, he may obtain a near imitation of Peruvian guano, not inferior in fertilising power; and by mixing in an equal weight, to the whole, of coal ashes, to promote fermentation, and twice as much damp peat, soda, or sawdust, to retain the ammonia as generated, it will economise his material, and give a mixture not too strong for drilling with seed. A quantity of gypsum, equal in weight to the fowls' dung, will be, for most purposes, a further improvement; say—

Fowls' dung	.. 1 cwt.	Coal ashes	.. 1½ cwt.
Salt and bone dust, each	.. 0½ ,,	Peat, &c.	.. 3 ,,
		Gypsum	.. 1 ,,

—*J. P.*

Smut in Wheat.—Some time back I observed the subject of smut mentioned in your *Gazette*, and I was in hopes it would have been taken up and thoroughly discussed. May I take the liberty to request you to insert my experience and experiments with smut, and my questions thereupon, trusting it may be the means of exciting useful information. Several years ago, I began to be a Wheat grower on a very rich alluvial soil much embounded with hedges and hedgerow Elm timber. At my commencement I first planted Beans and had usually a good crop, which I followed with a single ploughing, sowing broadcast about 2 bushels per acre, Cone Wheat; to my mortification and loss, it was frequently thrown prostrate on the ground, and consequently it yielded very inferior corn and generally very smutty. Finding this slovenly way not answering, I tried other preparatory crops, such as Potatoes and Peas, which, being well cleaned during the time of growth, produced a fine seed-bed; and, instead of sowing broadcast, I drilled (without ploughing) in rows 9 inches apart, about 4 pecks. From this mode I had much improvement; still my crop was smutty. Visiting the Cotswold Hills, I was told if I sowed year-old seed I should be free from smut; but here I was disappointed, though not to the usual extent. I then began experimenting, and I tried two years old seed—still, smut. I have sown seed which was clean, both of my own produce and foreign, enveloped in smut, and I have had clean produce therefrom, and I have sown the seed without enveloping, and I have had it smutty, and *vice versa*. I have used blue and green vitriol; sometimes I have been fortunate and sometimes otherwise. Now, then, comes the question, What is smut? In sowing smut-balls with seed Wheat, how do they affect the crop only at the maturing of the seed? And how is it that in various instances we find only two or three grains smutty in an ear? Is smut a fungus? are the sporules annuals? and, if so, may they not germinate and perfect in the corn in store, and may they not again and again fructify? or may not smut be produced by inferior seed corn, confined situation, badly drained bottom, or by some atmospheric action?—*C.*

Town Sewerage.—In your *Agricultural Gazette*, for Jan. 31 (p. 76), you make the following communication: "Companies are being formed for the collection and sale of town-sewerage manures, and we shall soon direct attention to their operations." Permit me to thank you, as a favour, for this notice. A greater boon can hardly be offered us, if only the said companies will deal with the public honestly, and not mix up ingredients in their composts, which can do nothing but cause disappointment. I am myself at the expense of drawing from a neighbouring town (I call it neighbouring, because my nearest, although 10 miles distant) many hundred tons of manure, at a greater cost than the amount of my yearly rent; and should hail with great satisfaction the prospect of being enabled to procure, in a concentrated form, a fertilising material which could be relied on as to genuineness, to save me some of this never-ending expense. Night-soil, desiccated, would, I should suppose, answer the best to both the vendor and the consumer. And there can be no doubt but that any company who would sell at such a price as farmers could use extensively an article of that description, and *bona fide* none but that, would soon become known to the public, through your pages, and other channels, and secure a trade that would neither fail them, nor be unremunerative. With a view of keeping this subject alive, and under public observation, I ask the favour of your introducing the above remarks into your columns.—*W. P. L.*

Price of Labour, and Means of Employing it.—Having failed in persuading any individual to respond to my questions relative to the amount of wages paid to agricultural labourers in the rural districts during the years 1844 and 1845, I must make use of the materials I have at hand to show that my picture of the distress existing amongst farm labourers was not overdrawn. I am far from wishing to exaggerate the poverty of my fellow creatures, but when I know that the wants of the working man might be alleviated, not only without injuring the farmer, but with a positive benefit accruing from the increased employment of the indigent but willing population, I cannot refrain from raising my humble voice in attempting to point out the error under which tenants act in refusing to make use of the sinews of man as a means of more thoroughly tilling the soil, and producing a greater weight of food for general consumption. To prove my statement as to the low point to which wages had fallen, I will refer to the words of the labourers at the Goatacre meeting, a more satisfactory proof to some of your readers than merely speaking from my own knowledge of facts; however, I must add that I can bring forward similar cases from other counties. The statements there made are not singular instances of the depressed condition of the labour market, but are too common in most of the counties in England. [There is a very singular variety in the wages of farm labourers in different districts. We know of districts where 8*s.* per week is now the full wages of an able-bodied man; and of others, again, in which that same man would receive 12*s.* to 15*s.* weekly. A good deal depends on the neighbourhood of a good market for labour, such as, at present, South Wales and other manufacturing districts are.] Now the question to ask and answer is this: Can any means be adopted to obviate the mischief and hardships complained of? With confidence it may be replied, yes. Let us avail ourselves of the opportunity offered in a redundant population, and apply the means, supplicating at our very doors, in carrying out the improved cultivation of land, and turn useless capital into a remunerating market, for labour is the capital of the labourer, which he is compelled to lay up from his isolated position, and the door of speculation being shut against him. It cannot be the dread of grain being too cheap that prevents the employment of additional labour, because the extra quantity of food produced would far outbalance the reduction of price, besides providing for the comfortable subsistence of our neighbours, which is of far more consequence, both in a moral and religious point of view, than the aggrandizement of one man. Keeping farm roads in repair is an essential piece of economy rarely attended to; it should be recollected that a heavy draught causes a waste of strength, in proportion to the exertion necessary to move the load at a certain pace, and the horse requires a greater weight of food to supply sinew, bone, and muscle, to compensate for the loss sustained in pulling the cart over an uneven track; thus a bad road is more expensive than a good one. The waste of time and money laid out in restoring harness, carts, &c., with the extra subsistence for animals, would more than meet the expences of keeping the roads in order, besides saving the horses from the chance of illness from being over-worked and over-heated.—*Falcon.*

Condition of Labourers' Cottages.—The spread of those evils which the working classes unhappily too much indulge in are, in a great measure, ascribed to their uncomfortable dwelling at home. In my own county, that of Berkshire, Mr. Parker, in Mr. Chadwick's "Sanatory Report," observes that "the floors of the cottages are laid with red tiles called 'flats,' or with bricks of a remarkably porous quality, and as each of these tiles or bricks will absorb half a pint of water, so do they become the means by which vapour is generated. The cleanly housewife, who prides her elf upon the neat and fresh appearance of her cottage, pours several pails of water upon the floor, and when she has completed her task with the besom, she proceeds to remove with a mop or flannel so much of the water as the bricks have not absorbed. After having cleansed the cottage, the fire is usually made up to prepare the evening meal, and vapour is created by the action of the heat on the saturated floor. Thus the means adopted to purify the apartment are equally as injurious to the health of the inmates as the filth and dirt, frequently too abundant in the cottages of labouring persons." In the adjoining county, Buckinghamshire, Mr. Parker observes the construction of the cottages is frequently unwholesome. He says "the improper materials of which cottages are here built, and their defective construction, are also the frequent cause of the serious indisposition of the inmates. Next to good drainage and thorough ventilation, the foundation of a cottage is the most important consideration." A gentleman who has observed attentively the condition of the dwellings of our labourers, prefers the Irish mud cottages to many of them! At length Lord Lincoln's Bill contemplates taking a step in the right direction.—*H.*

Savings' Banks Improve the Condition of the Labourer.—It has been remarked by an able writer, that of all the plans devised for bettering the condition of the labouring classes not one has so successfully promoted that object as the establishment of savings' banks; an assertion which long observation and past acquaintance with these institutions enable me to confirm. These excellent economic institutions have created a habit of forethought and economy, a frame of mind disposed to regard a future and substantial benefit rather than a momentary gratification. Let us illustrate this:—it is too well known that many of the evils with which a rural population is surrounded proceed chiefly from habits of sloth and intemperance, which produce improvident habits and lead to want and misery, thus casting a burden on the inhabitants of the district. A penny will buy a pennyworth of beer, and a man may spend it daily without thinking himself the worse for it; but as every penny saved tends to give a man the habit of saving pennies, so every penny spent in beer tends to cause him to spend more. Suppose, however, the penny only saved one year: will he squander this at the alehouse or in idle dissipation after resisting the temptation through the year? Besides, after five years' savings at the rate of a penny a day, the accumulation would enable a man to emigrate where he might, by persevering industry, acquire enough to purchase a piece of land, and, if blessed with moderate length of life, he might be the cultivator of his own estate. But besides the cultivation of a disposition to save, he would be secured from want in old age, when too many end their days in misery, a burden on their parish. I have before me "A Friendly Address to the Prudent and Industrious on the Advantages of Savings' Banks," dis-

tributed by a savings' bank in an extensive agricultural district, that of Buckingham, wherein the agricultural population are especially invited to become depositors. It observes, "But the great mass of poor persons in the country are day labourers in husbandry, and to them particularly the savings' banks hold out advantages they cannot have anywhere else, and frequent instances of money being stolen from cottages shew that they often can and do save, and they would do it more frequently, if they knew what to do, safely and unobserved, with their money when they had got it. It cannot be expected that married men with young families can do much, but as a young unmarried man earns as much, and needs not so much by a great deal, he therefore has some to spare every week if he pleases, and by putting this into the savings' bank he would, in a reasonable time, have saved him enough to enable him to marry with the hope of never allowing any one belonging to him to become a burthen to others." As a proof of the regard which some of the agricultural body have for savings' banks, the Alford Agricultural Society recently awarded two prizes to two female servants of good character, under forty years of age, never having been housekeepers, who had been the longest and most regular depositors in a savings' bank. It is satisfactory to know that our agricultural labourers comprise a large portion of the depositors in savings' banks, but they require to be more generally known to be appreciated. They deserve more the countenance of those who possess any influence over the classes of persons for whose benefit they are more especially intended. Industry and economy are the fruits of small savings. A cottager having a garden, a cow, or pig, is more likely to be an industrious member of society than his improvident and slothful neighbour, who has nothing which he can call his own. The impressions produced on the minds of the peasantry by affording them the means of acquiring property are great: the cottager, in every instance, has been more industrious, the wife a better manager, and the children raised in condition. I would strongly impress on the working classes how much happiness they may derive by small savings, and would urge others to follow my example, for it is by their condition that the real prosperity of the country should be estimated.—*J. H.*

How is Phosphate of Lime rendered available as Food for Plants? is an inquiry made by your correspondent "P. Y." at page 43, who believes the term "atmospheric influences" used by modern agricultural chemists, to be equivalent to the phrase "occult quality," used by ancient philosophers, and that, to the former of these terms, modern chemists attribute changes which they are unable to produce in their own laboratories. To enter into a description of the changes which the components of the soil and manure undergo when exposed for a season to the action of the atmosphere, would occupy too much space devoted to correspondents, but with reference to the one constituent, phosphate of lime, which "P. Y." considers "one of the most insoluble substances in nature," I would remind him that phosphate of lime exists in the urine of man and most of our domestic animals, held in solution by carbonic acid. That by "atmospheric influences," *i. e.* the action of the oxygen of the air on the carbon of the decaying vegetable matter in the soil, carbonic acid is generated, which acid is in a great measure dissolved in the water in the soil, and it gives that sparkling appearance and agreeable taste to good spring water, when compared with rain water, or water that has been deprived of its carbonic acid by boiling. The carbonic acid thus held in solution acts on and dissolves the phosphate of lime contained in the soil, and in this state of solution it is absorbed by the spongioles of the roots of plants. That phosphate of lime, as I have above stated, is soluble in water holding carbonic acid in solution, and that this fact can be distinctly proved in the laboratory of the chemist, or "P. Y.'s" own drawing-room, if he will make the experiment, I think will no longer be questioned, if the experiment be made in the following manner:—If to a solution of bone earth in muriatic acid, liquor of ammonia be added, the solution will become milky, and a white powder will fall, which is the earth of bones in an extremely minute state of division. If this powder be washed by repeated effusions of pure water, and be afterwards well shaken with water which is saturated with carbonic acid, or through which a current of this gas is made to pass, a sensible portion of the phosphate will be found to be taken up by the water. This will appear on decanting the solution and evaporating it to dryness, when a quantity of the white powder will remain behind. The mean of 10 experiments made in this way gave 30 grains as the quantity taken up by an imperial gallon of water. What takes place in this way in our hands, happens also in the soil. Not only does that which enters the root bear with it a portion of this compound where it exists in the soil, but the superabundant water also which sinks through to the drains, carries with it to the rivers in its course a still larger quantity of this soluble compound, and thus gradually diminishes that supply of phosphate which either exists naturally in the soil, or has been added as a manure by the agriculturist.—*Alfred Gyde, Painswick.*

To Fatten Pigs.—Having seen in the *Agricultural Gazette* several articles on the different methods of fattening pigs, I trust you will pardon my giving you an account of my own experience in this matter, and requesting you to give it publicity, for I feel assured that there cannot be a better or a cheaper mode, and one that might be adopted with greater advantage to the cottager. My pigs are fed once in the day with wash from the house, into which a very small quantity of pollard is mixed; and three times a day with Parsnips. These last are given in the same state as they are drawn from the earth; neither washed nor cut up, thereby saving much labour. I calculate that the produce of 2¼ rods is quite sufficient for the fattening of one pig. The last animal killed weighed 24 stone 5 lbs., and was about 9 to 10 months old. The pork was declared by all to be excellent, well tasted, very tender, and delicate, although not quite so rich as the meat of pigs fattened in the usual manner.—*S****.*

British Agriculture.—The question may be raised whether we make the greatest use of our knowledge of the art which circumstances permit. Are all our fields well cultivated? Are all made to yield the greatest amount of food? The shortest excursion through any agricultural district at once reveals the fact, that we have much progress to effect before farming can approach perfection; and so very apparent is this fact in many districts, that the question recurs to the mind whether the first principles in agriculture generally form the basis of our practice. The answer of the Scottish peasant of the last generation in reply to an enquiry respecting his acquaintance with farming, and the rules he would follow, might be of use to some of the cultivators of the present period, if they would adhere to the grand first principles as propounded by him. "I know how to make dirty land clean; how to make wet land dry; how to make lean land fat; which is all a farmer need know." Nor was the old man very far wrong; for if the farmers of the present time would but fully and energetically carry out his agricultural code, the appearance of a considerable portion of our fair isle would be very different, and the produce very much greater than is now the case. In some districts the cultivation is wretchedly bad; the tendency of the farm management is, in fact, suicidal, and the rational observer doubts whether such occupiers can be the best judges, even in their own affairs. Acres upon acres still suffering from superfluous moisture during winter, and drought in summer, fields found full of Couch, Thistles and Dock permitted to luxuriate, land covered with a "beautiful bloom" of Charlock, land often ploughed out to a state of complete exhaustion; surely much produce which might be raised under a better system is lost to the community under circumstances such as these. With the improvements that have recently been made in the implements of agriculture, and the facilities we have for enriching our land, there can be little doubt that our soil might be made to nearly double its return, if it were but carefully and judiciously managed. One of our most esteemed writers has remarked that the greatest misfortune of a country is an indigent tenantry, as their necessities prevent them from making any improvements, and certainly such a condition of the occupier is a great impediment in the way of a better system of cultivation than that usually prevailing—is an effectual barrier against permanent prosperity. But fortunately this is not the condition of the majority of our farmers. Is it from want of energy or from lack of knowledge that the lands of many are dirty, wet, and lean? If so, the subject, although merely practical, may not inappropriately be placed before them.—*J. Birdett, Writtle.*

Account of One Acre of Land at Aldwinkle, All Saints, near Thrapstone, Northamptonshire, cultivated with Spade Husbandry; by Thomas French.—This land was an allotment of enclosure in 1772, and remained in the same state, as Grass, from that time, until about 13 years ago. It was then ploughed up; nature of soil, good rich light loam. The first year, 1833-4, it was dug up all over two spits deep. Every year since, one spit deep, generally by himself and his son. When a labourer was hired to help, he considerered a fair day's work by a good man, not scamped, at 8 poles a day; wages from 1*s.* 8*d.* to 2*s.* per day, and two pints of beer; after the rate of about 40*s.* per acre. Eight poles per day ÷ 160 = 20 days work. 1833-4—Journal of cropping after 1st year, dug all over two spits deep; planted with Potatoes; 2d year (1 spit deep), Mangold Wurzel; 3d year (1 spit deep), Cabbage; 4th year (1 spit deep), Barley; 5th year (1 spit deep), Peas; the last six years successively with Wheat; 6, 7, 8, three first years, Britannia Wheat, Old Brownhammer, Golden Drop; 9, 10, 11, three next years, with Bristol Red; always 1 spit deep. The average of the Wheat crops carefully taken was 6 qrs. 4 bushels. One or two years the produce was 8 qrs. The seed Wheat was always drilled in rows 9 inches apart, and 4 inches apart in each row. Seed used about 3 pecks, instead of 8 usually sowed by drills in the neighbourhood; saving of seed thereby, about 5 pecks, equal to about 7*s.* 6*d.* Never dressed the land with manure, except occasionally a small patch which seemed deficient. 1845: This year's produce was only 6 qrs., although it appeared the largest, stoutest, and finest straw he ever had, and from the strong and healthy appearance he expected full 8 qrs.; but it was much beaten down and laid, and on 2 or 3 rods on which he had used manure the yield was the least.

Dissolved Bones.—One of your correspondents asks whether sulphuric acid and bones form a useful manure for Grass lands; for his information I state that in both the last two years I have sown small plots of Grass with bones digested in acid mixed with ashes, and never perceived any advantages resulting from the application. Without attempting to explain the cause why superphosphate of lime, which is so very efficacious in the production of Turnips, should have failed upon [*my*] Grass Land, a result entirely at variance with our expectations, I will merely state that as a manure for Grass it is [according to *my* experience] of comparatively trifling value, and is not to be recommended.—*J. Birdett Writtle.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held at the Society's House, in Hanover-square, on Wednesday last, the 11th of February, present: Thomas Raymond Barker, Esq., in the chair; B. Almack, Esq., T. B. Browne, Esq., Rev. T. C. Browne, F. Burke, Esq., F. C. Cherry, Esq., C. Cure, Esq., W. Cuthbertson, Esq., G. P. Fearnhead, Esq., A. Fraser, Esq., A. E. Fuller, Esq., M.P.; H. Gibbs, Esq., W. Leveson Gower, Esq., W. G. Hayter, Esq., M.P.; E. Hussey, Esq., J. Kinder, Esq., Sir Robert Price, Bart., M.P.; Prof. Sewell, Sir Richard Simeon, Bart., S. Solly, Esq., T. Thomas, Esq., T. R. Tweed, Esq., and J. L. Wight, Esq. David Jones, Esq., of Glanbrane Park, Llandovery, Carmarthenshire, was elected a Governor, and the following gentlemen Members of the Society:—

Ferrabee, John, Phœnix Iron Works, Stroud, Gloucestersh.
Newman, Sir Robert William, Bart., Mamhead, Exeter.
Clelland, Major-General, Walton-upon-Thames.
Bell, Matthew, M.P., Wolsington, Newcastle-on-Tyne.
Cuthbert, William, jun., Beaufront, Hexham, Northumb.
Cookson, William, Benwell Lodge, Newcastle-on-Tyne.
Arundale, Charles, Seaton Burn Farm, Newcastle-on-Tyne.
Overend, Wilson (J.P.), Sheffield.
Butland, William, Cliff Cottage, Langharne, Camarthen.
Wynne, William W. E., Mount Sion, Oswestry, Salop.
Angeworth, William, The Hoy, Bridgenorth, Salop.
Hutton, Rev. Henry, Rectory, Filleigh, South Molton, Devon.
Miles, Charles, 93, Great Russell-street.
Jones, John, Pant-y-Corred, Brecknockshire.
Walker, William, Wilsic, Doncaster, Yorkshire.
Williams, Evan, Rhaynador, Radnorshire.
Lee, Edward, Stockfield Hall, Newcastle-on-Tyne.
Stevens, J. Curson Moore, 2, Harcourt-buildings, Temple.
Muggeridge, Henry, St. Andrew's-hill, City.
Pattison, Jacob, Witham, Essex.
Read, George, Easton Hall, Norwich.
Grey, the Hon. Capt., F.W., R.N., Howick, Northumberland.
Onslow, Rev. Charles, Church-Knowle, Wareham, Dorset.
Gibson, George, Kendal, Westmoreland.
Jones, John, Blannose Villa, Llandovery, Carmarthenshire.

The names of 11 candidates for election at the next meeting were then read.

The following communications were received:—

1. A letter from Mr. Rodwell to Lord Portman, the President of the Society, containing his further results in the cultivation of the varieties of Italian Rye-Grass.

1. A statement from Mr. Shepherd, of Shaw End, near Kendal, of the extensive depredations committed by rats in that part of the country, and of the means taken for their destruction.

3. An offer from Mr. Brayley, one of the librarians of the London Institution, to deliver lectures before the Society, on the origin and the natural history of clay; or more generally, if required, on the process and results of the disintegration of rocks, as connected with the production of soil: the subjects to be treated in reference to the geology, mineralogy, and mineralogical chemistry of the arts and of agriculture, and illustrated by specimens, maps, diagrams, drawings, and numerical tables, as well as elucidated by the exhibition of such direct experiments as the topics investigated may require.

4. A letter from Mr. Bullen, Secretary to the Royal Agricultural Improvement Society of Ireland, transmitting the prize sheets of that Society for the ensuing year, and calling the attention of the members to the prizes placed at the disposal of the Council of that body by his Excellency Lord Heytesbury, for the encouragement of thorough-draining in Ireland.

5. A recommendation from Sir P. Micklethwaite, Bart., that it should be suggested to railway companies to remove two spits of the top surface of the land on which the superstructure is to be placed, for agricultural purposes.

6. Mr. Turner communicated his plan of forming a new and economical manure.

The Council then adjourned to Wednesday next, the 18th of February.

Farmers' Clubs.

SUBJECTS FOR DISCUSSION.

9. WHAT ARE THE BEST WHEATS TO GROW?

See *Agricultural Gazette* 1844 and 1845, and "Journal of the English Agricultural Society," vols. 1 and 2. The reader will find in those works reports of numerous experiments on the relative productiveness of various varieties; we do not state any details here.

The main point for consideration is, what are to be our guides to a correct answer to this question? The English Agricultural Society offers an annual premium* for the best Wheats—samples are accordingly exhibited—the judge examines them, and selects two for experiment; and if on trial of these in various parts of the country either of them is found to be more productive than the standard varieties of those localities, then it receives the prize. But is this method likely to determine the best Wheats? What is to guide the judge in selecting two samples for trial out of the 20 exhibited? Mere external examination has been over and over again proved utterly inefficient. And what is to guide the experimenter, when reporting on the trials, in selecting the best of the varieties grown? Mere bulk or weight of produce ought not to be the criterion—the gross weight of *food* per acre which they have respectively yielded *is* the only thing by which they ought to judge. And who is to tell them of this? Wheats differ most exceedingly in their nutritiveness, and there is no external appearance which indicates their composition; it is not necessarily the heaviest, plumpest, whitest, driest Wheat which contains most food. Positively, if we take as our criterion (and it is the only true one) the quantity of *food* which

* We do not see it, however, in their advertisement of prizes for the ensuing year.

different sorts of grain yield per acre, no information exists which can guide us in selecting the best. And this is an extraordinary confession at this late period of agricultural history. We are at enormous expense in improving our means, and pointing out the best of them, for converting into beef the food which our vegetables supply. And is it not of at least equal consequence that pains be taken to improve our means and to indicate the best of them for converting into Wheat the food which our soils supply? It is of the very first importance that farmers should be able to select the best varieties of seed, but really there is no information to guide him. There is some but what Sir G. Mackenzie has given us. We referred to this subject some weeks ago, and hope to have the assistance of our correspondents in keeping it before our readers. If Farmers' Clubs would carefully consider the matter they would find their interest in bringing it under the attention of our great national Agricultural Societies, to whom we naturally look for assistance in a case of such importance, and so completely uninvestigated—one on which information is so much to be desired, but so expensive to obtain.

We refer all secretaries who may wish to bring this subject forward, to "Brief remarks on some subjects connected with the choice of Wheat for Seed," a pamphlet by Sir G. S. Mackenzie, Bart. Simpkin and Marshall.

GUERNSEY: *Extraordinary Produce of Wheat.*—At the exhibition of the Royal Society of Agriculture, which took place on the 19th ult., Mr. Blondel, of the *Fric Bâton*, exhibited a sample of Wheat from one of his fields, the produce of which was at the rate of 9½ imperial quarters per English acre! Believing that there is no example on record of a similar quantity of Wheat per acre having been obtained, and being desirous of learning the circumstances under which this extraordinary produce had been grown, we applied to Mr. Blondel for information on this subject, and in consequence received from him the following note:—"The field on which the Wheat was grown was let by me, in 1839, for five years, having then been 15 years in Lucerne. My tenant ploughed it up; but he neglected it so much during the whole term of the lease, that he barely obtained from it sufficient to pay the rent; and many persons who were not aware of the nature of the soil, seeing the badness of the crops, declared the land worthless. When, however, on the expiration of the lease, in 1844, I obtained repossession of the field, I was determined to show that it was owing to the want of manure and proper management, and not to the quality of the soil, that it was unproductive. A part of the field being wet, I drained it; and then, manuring it well with sea-weed, sea-weed ashes, and stable-dung, I sowed it with Parsnips and Potatoes, of both of which I had a good crop. In the autumn of the same year I again manured a *vergée*, or Guernsey acre, of this field, partly with sea-weed ashes and partly with guano, and sowed it with 70 lbs. Guernsey weight, or 77 lbs. English, of red Wheat; and the crop yielded as follows: 535 sheaves, which gave 2675 lbs. of straw, and 1626 lbs. of grain, equal to 9 quarters and 2⅜ bushels. The land is a stiff heavy loam.—*John Blondel, Fric Bâton.*" In reference to the figures in the above statement, it is to be observed that 102 lbs. Guernsey are equal to 112 lbs. English; and that the Guernsey quarter bears the same proportion to the imperial as the Guernsey acre does to the English; consequently the above produce of 9½ Guernsey quarters to the *vergée* or acre, is equivalent to 9½ imperial quarters to the English acre. We may here mention that, at the exhibition samples of Wheat were produced from fields which had yielded at the rate of 8, 7, and 6 qrs. per acre.—*Guernsey Star.*

Farm Memoranda.

SUTTON WALDRON: THE FARMS OF THE REV. A. HUXTABLE.—[We take the following notes of a visit to these farms from the *Sherborne Journal.*]—Public attention having been much excited during the last few months by the frequent mention at agricultural dinners of the name of the Rev. A. Huxtable; and the advice to visit his farms at Sutton having been again and again reiterated by gentlemen who had seen them, we considered that a familiar description of those farms, together with an account of the new modes and systems adopted by Mr. Huxtable, would be very acceptable to our readers, and accordingly, the rev. gentleman having given a very kind and ready invitation, in reply to an intimation of our wishes, we proceeded on the 5th instant to fulfil the visit of which we now proceed to give an account. Mr. Huxtable occupies two farms—the Hill Farm and the Vale Farm—the former being upon chalk, the latter on clay, and lying at a distance of three miles from each other. The Hill Farm of 135 acres was taken about two years since, when to the larger portion (about 60 acres being fair average down land) might well be applied the forcible language of the Hon. and Rev. S. G. Osborne—"The rabbits had the fee simple, and with all their subsoiling and top-dressing could not make it productive." In fact, it was then a portion of the most barren land in Cranborne Chase. It principally consisted of down of the poorest character, encumbered with stunted coppice wood, furze, and brambles, a portion of which is still left as a sample; and, in addition, was situated on such steep acclivities that it appeared well worth the whole price of the crops that could be grown there to plant and gather them. Certainly, if anything can heighten the pleasing reflections with which Mr. Huxtable must regard the results of his labours, it is the sight of the land which he has cultivated, but which in the onset would have frightened many less enterprising farmers than himself. The soil was so scanty, that here and there the substratum of chalk peeped through the green sward like the limbs of a beggar through his ragged garments, and where there was soil it was not more than 2½ inches thick. Mr. Huxtable's first step was to grub up the roots and burn the surface, and then sow the coppice land half with Peas and half with Rape. The Peas were carted away, and the Rape fed off by sheep; but it is rather remarkable, that by the application of 2 cwt. of guano to the land on which Peas had been grown, it was rendered more productive for Wheat than the land fed off by the sheep—a fact which may surprise those of our readers who pin their faith to the virtues of fold manure. The land was then set to Wheat, and produced a fair average; of the remainder, about 50 acres were sown with Swedes. On part of this farm are 5 acres of extremely barren land, called by Mr. Huxtable "his experimental hill." On this land were grown the Swede Turnips of which an account was given at the Sturminster and Blandford dinners. We walked over it, and were as much surprised at the enormous dimensions of the Turnips, as at the stony, barren-looking soil on which they grew. From this land 21 tons of Swedes per acre have been obtained, and in proof of Mr. Huxtable's assertion that he could grow a crop in a hole cut in a table, we may mention that we saw some of his finest Turnips growing in a hedge-furrow from whence the little quantity of soil originally found had been thrown to form a bank. Thus on flints and chalk (for those were all that could be observed) were grown a sample of Turnips that might challenge the produce of the richest lands in the county. These Turnips are the staple food used for the stock on the farm, and which, as they are treated in a somewhat different manner than usual, deserve a special notice. The sheep and oxen are fattened in sheds thickly thatched, the windward side being stopped up with turf, and the other penned with hurdles—through which sufficient air penetrates. The sheep sheds are very simple erections put together by the labourers on the farm. The following description of them was given by the rev. gentleman himself in a letter to J. W. Childers, Esq., M.P., contained in the "Journal of the Royal Agricultural Society," vol. vi., part. 1.:—"A couple of Fir-poles, 12 feet long, are nailed together at the top; their extremities, at a distance of 15 feet, are driven into the ground; another couple, 10 ft. distant, are united with this, and held firm by a ridge-pole nailed into and lying between the tops of the Fir-poles. Side pieces are nailed parallel to the ridge-pole, and small Hazel-wood is interlaced so as to support the thatch, which a labourer ties on with tar-twine. The thatch in front and behind reaches to about three feet from the ground; behind, a bank of turf is raised to meet the thatch; the front is guarded by a hurdle, moveable at pleasure, to allow the sheep to go into the court, which is of the same size as the shed. It is important that both ends of the shed should be protected with bavins only, which will secure a free ventilation yet keep out rain. My sheds about 50 feet long (not charging the straw), cost about 41*s.* each. These sheds are covered with one-inch boards, separated (each strip from the other), by ¾ inch intervals. The cost of the timber and mode of preparing the floor were as follows:—White Pine-timber was used for its cheapness, being 1*s.* 3*d.* the cube foot, which would therefore give 11 one-inch boards. On account of the particular width of the logs which I bought, the board was sawn into pieces seven inches broad and one inch thick. These, for economy, are hand-sawn into three parts, and are nailed upon joists at a distance of ¾-inch. By this plan nearly one-third of timber is saved; so that each sheep, requiring 9 feet of space, lies actually on 6 feet of one-inch board. The cost of timber for joists, nails, and carpenter's work, raises the total expense of placing the sheep on boards to 1*s.* 4*d.* per head." We may remark that these sheds have since been considerably improved by the addition of a gangway in the middle, along which a man passes to feed the sheep without (as before), being obliged to get into their pens and disturb them. The animals stand entirely on rafters placed about an inch apart, and thus allowing an aperture through which the dung and urine pass. Under these rafters is a small pit containing sawdust or burnt earth, burnt clay, ashes, or any other porous material which absorbs the salts of the manure. These pits are calculated to hold as much manure as will accumulate in three months—the time given for fattening—when the sheep are sold off and the pits emptied. The beasts stand only partly on these rafters, their fore feet resting upon sand or sawdust (in the absence of sawdust Mr. Huxtable recommends chopped straw). As these animals are, unlike the sheep, fastened to their mangers, it is not necessary that their floors should be entirely of wood. The sheep are kept in pens, and in one shed, 70 feet long, and 15 wide, we noticed six score, all looking fat, healthy, and remarkably clean. The superiority of this plan of keeping stock consists, first in the cleanliness of the animal; and secondly, in the preservation of the manure without the slightest waste of any of those essentials, whether solid or liquid, which escape in the usual method of fattening stock. The manure, after removal, is taken to caves scooped out of the chalk, being about 50 feet long, 9 wide, and 9 deep, and thatched over; here it is mixed with dry clay or ashes, and left until required to drill with green crops, or to sow broadcast with corn. The various liquid matters that accumulate on a farm, (excepting those that have been already mentioned,) are conveyed to a large tank under ground, from whence they are pumped up when required. Our readers may recollect a reference made at Sturminster to the value of dead horses reduced with sulphuric acid as manure. We were not fortunate enough to visit the farms at a time when this process was going on, but we witnessed something that will astonish the incredulous still more, viz., the dissolving of rats for the same purpose. All the vermin caught on the farm are thrown into sulphuric acid, by which they are soon converted into a manure as valuable as bone dust. Thus, on an improved system of farming, the very pests and scourges of the farmer may be converted to his advantage. The principal food of the beasts, as we have mentioned, is sliced Swedes, but bruised Linseed steeped for 24 hours in cold water, then boiled and poured over chopped straw, with Barley or Pea-meal is daily given them. The mows and ricks in the yard are raised above the ground by brick pillars, and the earth being dug out between, space is thus afforded for waggons, carts, dry manure, &c. Under one of those mows, of not unusual dimensions, we saw two waggons and a cart, and under another a large quantity of ashes. Besides economising the ground of a homestead by this contrivance the cost of a waggon-house is altogether avoided, whilst the contents of the rick are preserved from the ravages of vermin. The barn-doors, instead of turning upon hinges, are drawn back upon iron slides, by which arrangement the effect of the wind, which is here sometimes very high, is greatly checked. The Vale Farm, of 95 acres, of which 4 acres are coppice, was a poor dairy farm when taken by Mr. Huxtable. Here are a number of cattle-sheds, similar to those at the Hill Farm, and several pig-houses, wherein these animals run about on sawdust, which plan renders the contrivances in the sheep and beast floors unnecessary. There is also, as at the other farm, a steaming apparatus, having attached two coppers, into each of which is fitted another copper. The steam is circulated round the inner copper, raising the water in it to a boiling heat; and, by a simple contrivance, the steam can be immediately drawn off from one to the other of these coppers; so that as soon as Linseed has been boiled in one, the steaming of Potatoes, or any other article, can be immediately commenced in the other. In these utensils Linseed, Potatoes, and chopped Swedes, are prepared. In 1844, Mr. Huxtable detailed at Sturminster the results of experiments in pickling Carrots and Mangold Wurzel tops. The Carrot-top experiment has answered perfectly, but subsequent trials have proved the failure of the Mangold Wurzel. Mr. H.'s opinion is, that in air and water-tight caves the system would answer perfectly; but he considers that the most economical use of these tops is their consumption, whilst green, by milch cows and breeding ewes, to both of which the large quantity of phosphates the tops contain is eminently serviceable. By the horse power which drives the thrashing-machine, a hand attached to a drum cylinder is set in motion, and by this no less than three other machines are worked, viz., a chaff-cutter, a Bean-crusher, and a linseed-crusher (on Earl Ducie's principle). These drop their produce through pockets into proper receptacles in the floor below. This farm, when taken by Mr. Huxtable, was, with the exception of 10 arable acres and a five acre coppice, wholly pasture—undrained—and let at only 80*l.* per year. It has been thoroughly drained by tile drains, put in 3 feet deep, and placed a perch and a half apart down the furrows, on Mr. Smith, of Deanston's plan. By the aid of this, and the home-manufactured manures, an average crop of Swedes has been grown even after two crops of Clover had been fed off the same year. The present stock maintained on the 230 acres of land consist of 31 fatting beasts, 400 fatting sheep, 240 breeding ewes, and 50 pigs. These are the numbers of stock at present kept on the farms, but Mr. H. calculates that the supply of roots now existing would carry nearly double the quantity, which are to be provided as soon as the necessary buildings are completed. As a proof that their novel mode of feeding do not deteriorate their quality, it may be mentioned that a pen of 10 wethers, purchased at Wilton fair, at 36*s.* a head, and kept in sheds for 11 weeks were sold to the butcher on the day of our visit at 56*s.* It would be an act of ingratitude to omit to acknowledge the kind and hospitable reception we received—the perfect openness with which every thing was shown, and the readiness and courtesy with which the required information was given.

Reviews.

The Edinburgh New Philosophical Journal. No. 79. Longmans.

WE just notice the current Number of this valuable periodical for the purpose of referring to one paper in it—that by Dr. Fyfe on what has been called Electro-Culture. The crop subjected to experiment was Cabbages, and both Dr. Forster's mode of conducting it was adopted and that method which has also been very generally tried of subjecting the plants to the action of a galvanic current. The land was garden ground, and the method of estimating the progress of the plants was the somewhat ingenious and very fair one of letting the gardener, in ignorance of all the experiments which were proceeding, cut the Cabbages for the use of the house as they successively ripened. The following is the record of his proceedings:—27th June, Cabbages cut from 6, 7, 8 (within the section acted on); 30th, 1 cut from 3 (without); 8th July, many within the quadrangle not so far forward as those of 3; cut 2 plants from 3 (without). At this time the gardener who prepared the ground and put in the plants, and who was not aware how the wire was situated, was requested to inspect the plants, and to report as to their condition. His report bears that many in 3 (without) were farther forward, and better Cabbages than many of those in the rows from 4 to 9 (within)—

off of them being early Yorks and planted at the same time; that of the rows 10, 11, 12—the plants in 12 (without) decidedly the best; these being late Yorks, and that 2 of 12, the only ones ready, ought to be cut. 14th July, 1 in 10 (within), cut; 15th July, 2 in 11 (without), cut. We quite agree with Dr. Fyfe in gathering from these results the conclusion that the wire embracing the plants had no influence in promoting vegetation. But besides Dr. Forster's plan of *Electro-Culture*, Dr. Fyfe tried the influence of a current of galvanic electricity on growing plants, and he gives in full detail the history of sundry Peas, Beans, Onions, Potatoes, and Cresses, certain parts being galvanised, and others left untouched; but "no difference," "no difference," "no difference" is the uniform report of their relative appearance. After acknowledging the utter failure of all these attempts to influence the growth of plants by natural or artificial currents of electricity, Dr. Fyfe says, "It must not, however, from this be supposed that I have come to the conclusion that electricity is of no avail in promoting vegetation." All that the uniform results of the extensive experiments on this subject, which during the past year have been tried, proclaims is, our ignorance of any method of controlling or directing its agency.

We take the liberty of adding to the above the following short account of the experiments of Mr. Torr, of Riby, Lincolnshire, as lately described by Mr. Pearsall to the Hull Literary and Philosophical Society:—"The uniform tenor of all the experiments was disappointment and failure. Mr. Torr was the only one who offered his results with accuracy and figures; he had carefully measured the ground, and similar areas electrified and non-electrified, and after the utmost diligence he had obtained *one peck per acre* of Barley in favour of the electro-culture, instead of the increase announced by Dr. Forster of 13 quarters of Barley having been had, while non-electrified portions yielded 5 quarters, and the statement made by that gentleman, that 'any mortal having ground, seed, and firmness of purpose, had the power of equalling this result.' [*Agricultural Gazette*, May 31.]" And we may further append, as another illustration of the uniform experience on this subject, the following statement by "A Fireside Farmer," in a late Number of the *Dublin Farmer's Gazette*, of the

Results of Experiments in Electro Culture, by Charles Charnock, Esq., Holmefield House, Ferry-bridge, Yorkshire.

Each is the mean produce of an acre of land. Each experiment was tried in two ways—one with an insulated portion of an exact acre, and the other of one-half of an acre.

Description of Soil.	Kind of crop, &c.	Common culture.	Electro culture
Magnesian lime-stone; my own farm.	Barley after Turnips; eaten on by sheep.	bsh. st. pk. 40 0 1	bsh. st. pk. 40 1 0½
Strong land, on magnesian lime-stone	Wheat after fallow; manured	36 1 0	35 1 1½
Do., do., coal measures.	Oats after pastured seeds.	63 1 1½	63 0 0½
Old red sandstone.	Barley after Turnips, pulled, but Rape-dusted.	44 1 1½	44 0 1
Red sandstone	Do. do., eaten on by sheep.	43 1 0	43 1 1
Gravelly soil, on magnesian lime-stone.	Barley, do., do...	36 1 0	36 0 0½
Peaty soil	Oats	56 1 1½	57 0 0½
		322 0 1½	320 1 1½

A loss of 1 bushel and 1 stack of corn, besides the expense of labour, wires, poles, &c. on seven acres of land.

Miscellaneous.

Table showing the quantity of Turnips that can be grown on an Acre.—Col. 1 is the distance between the drills; 2, distance between plants in rows; 3, average distance between plants broadcast; 4, space each plant occupies, or square inches on which they grow; 5, number of Turnips per acre; 6, average weight of each Turnip; 7, weight per acre, if the average weight of the Turnips were only 1 lb. each; 8, weight of crop per acre.

1	2	3	4	5	6	7	8
		10½	108	58080	1	25 16 0	25 18 0
27	8	14½	216	29030	2	12 19 0	25 18 0
27	12	18	324	19360	3	8 12 3	25 18 0
27	16	20½	432	14520	4	6 9 2	25 18 0
27	20	23	540	11616	5	5 3 2	25 18 0
27	24	25½	648	9680	6	4 6 2	25 18 0
27	28	27½	756	8297	7	3 14 0	25 18 0
27	32	29	864	7260	8	3 4 3	25 18 0
36	27	31	972	6452	9	2 17 2	25 18 0
36	36	33	1080	5808	10	2 11 3	25 18 0
36	33	34½	1188	5280	11	2 7 0	25 18 0
36	36	36	1296	4840	12	2 3 1	25 18 0

CALENDAR OF OPERATIONS.

FEBRUARY.

Cultivation of the Bean.—This plant, when cultivated in rows, 20 to 26 inches apart, and therefore allowing of the cultivation of the land during its growth, is a fallow crop, *i. e.* it tends to clean the land, and to lay it open to "atmospheric influence." And where it is grown that its produce may be consumed on the farm, it may be considered in every respect as a fallow or restorative crop, and may be allowed to take the same place in the rotation as the Turnip or any other green crop. When, however, it is grown for the *sale* of its produce, excepting on those lands which are peculiarly adapted for it, it should take the place of a corn or scourging crop in the rotation.

The soil which the Bean prefers is a stiffish loam. There are many ways of cultivating the plant, but the best plan is either to drill or to dibble it, about 8 bushels per acre being required. The following is one method:—Manure the land in drills 26 inches wide, the seed having been previously sown in them by a hand barrow for the purpose; then split the ridges by a double mould board plough, and thus cover up the seed and manure together. Before the plants are up, harrow these raised drills down, and horse-hoe and cultivate with plough, &c. the intervals between them, as various times during the growth of the crop; after a while the fine tender weeds will probably require to earth up the plants. In some districts Beans are sown with a hand-barrow every third furrow as the land is being ploughed, and the plants accordingly come up in rows 27 to 30 inches apart. Beans are often hoed in a single operation some 4 weeks after sowing. The seed is planted across the ridges in rows about 9 inches apart; the labourer in the act of making each dibble with his hoe fills the one already made, in which he has previously scattered a quantity of soot. Beans are sometimes dibbled; either the unharrowed furrow slice is used as the labourer's guide, and two or three Beans are put into each of the dibble holes, which are made in alternate furrows, or, what is better, the land is first harrowed down, and a double line is used, the cords of which are 10 inches apart, and the labourer facing them manages both rows at once. He makes in succession about 4 holes in the near line and places a seed in them, and after doing the same on the far line, he moves sideways up the rows and repeats the operation. The holes are filled in by a subsequent harrowing. Two to three bushels of seed are thus used, and about 5*s.* per acre are paid for it.

The Mazagan, Longpod, and Heligoland Beans are among the rarer sorts cultivated in fields; the most common kinds are the Horn and Tick Bean; the latter being the more prolific and superior in quality, and the former the more hardy.

Notices to Correspondents.

Rural Chemistry, by Edward Solly, Esq., F.R.S.—A new edition, with additions, is reprinting, and will shortly be ready

Agricultural Book-keeping—*J A, Berwickshire*—There is nothing in the adjective "Agricultural" which can alter the principles of ordinary book-keeping, when they are carried out by the farmer; unless, indeed, it be supposed to render the application of those principles as simple as is consistent with their nature. The Stowponey Farmers' Club recommend "The Farmers' Account Book," by J. Antony. Wait till we see what the prize offered by the English Agricultural Society shall produce.

Agricultural School—*H C, Liverpool*—We do not know the Chichester School—if, indeed, there be one. Have you applied to the parties at Cirencester? They will, we imagine, best answer your purpose.

Analysis of Beans and Peas—*Reverlens.*

	Peas.	Field Beans.
Water	12.0	15.6
Husk	8.6	10.
Legumine, Albumen, &c.	26.4	11.7
Starch	43.6	50.1
Sugar	2.	8.2
Gum, &c.	4.	
Oil and fat	1.2	?
Salts and loss	2.0	4.4
	..	:

Their ashes, which reside chiefly in the husk, consist in 1000 parts, as follows, of—

	Field Beans.		Field Peas.	
	Seed.	Straw.	Seed.	Straw.
Potash	4.15	16.56	8.1	2.35
Soda	8.16	0.50	7.39	—
Lime	1.05	6.24	.58	27.3
Magnesia	1.58	2.09	1.36	3.42
Alumina	.84	.10	.2	.6
Oxide of Iron	—	.07	.1	.2
Oxide of Manganese ..	—	.05	—	.07
Silica	1.36	2.2	4.1	9.96
Sulphuric Acid ..	.89	.34	0.53	3.37
Phosphoric Acid ..	2.92	2.26	1.	2.4
Chlorine	.41	.80	.38	.04
	21.36	31.21	24.64	49.71

Analysis of Wheat—*Reperlens*—Bran contains from 6 to 8 per cent. of ash; but of what that ash consists we do not know. Wheat consists, per cent., of about 9 of water, 12 of gluten, 68 of starch, 5 of sugar, 4 of gum, and 2 of bran. 1000 parts, according to Sprengel, leave of ash 11.7 in the grain, and 35.2 in the straw; consisting, as follows, of

	Grain.	Straw.
Potash	2.25	.2
Soda	2.4	.29
Lime	0.96	2.4
Magnesia	0.9	.92
Alumina	0.26	.9
Silica	4.	28.7
Sulphuric acid ..	.5	.37
Phosphoric acid ..	.4	1.7
Chlorine	.1	.3
	11.77	35.47

Barley Sowing on Land Fed off by Sheep—*A Sub*—You need not put the plough in at all. Just give it a double time (one across the other) of the Finlayson harrow, and then sow. If you plough, do it as shallow as possible.

Carrots—*C F M*—We have grown Carrots for many years. Sow the white Belgian Carrot seed, 5 lbs. per acre (mixed with 2 bushels of sand or ashes), by means of a Suffolk drill, in rows 18 inches apart, on the flat surface of a finely-cultivated, but *hard rolled* field. *That* will hinder the seed being sown too deep. If the land is full of Chickweed, &c., sow some Oats in the drill—they will spring up before the Carrots, and pointing out where the rows come, will enable you to hoe the land with safety earlier. Apply 10 cwt. per acre of Messrs. Rendle's burnt sea-weed. We recommend this, not from personal experience, but because we know sea-weed is found to answer well in East Lothian for this crop.

Drainage of Clay Land—*Banbury*—We should not in the least fear making the main drains 3 feet 6 inches deep, and the parallel drains 3 feet. Did you read what Mr. Mechi said last week?

Flooded Land—*Tyro*—If your land is drained, then when the water shall have subsided, the frost will so benefit it, that you may plant your Potatoes with the spade without any previous digging or harrowing of the land; that, at any rate, is our opinion.

Grass Seeds—*Cutmicnsis*—We would take out Avena elatior from your list, and add Festuca duriuscula, 3 lbs.; Lolium Italicum, 3 lbs.; Trifolium pratense, 4 lbs.; Poa nemoralis, 4 lbs. That will make the quantity 33 lbs. per acre.

Guano—*A Constant Reader*—You may depend upon 3 cwt. of Peruvian guano or 4 cwt. of Ichaboe guano, sown broadcast in April, to produce a good crop of anything you choose to grow that year.

Hemp—*C M S*—Not long ago it used to be cultivated near Bridport, Dorsetshire; also in the parish of Compton, between Sherborne and Yeovil.

Ichaboe Guano—*W J*—Sow 4 cwt. per acre the day before sowing your Oats, and give the land a double turn of the harrow after sowing the manure broadcast.

Lice in Cattle—*W J*—Rub train oil well into their skins.

Limseed—*T B*—It is imported at a duty of one per cent., and has been so for some years.

Machine for Broadcasting Manure—*A Subscriber* will easily obtain such a machine upon application to any first-rate agricultural machine maker, and if he wishes to know the address of any of these, let him consult the prize lists of the English Agricultural Society. We cannot name.

Peas in Drains—*P P B*—Many thanks for your instructive suggestions.

Skirrets—*Sandy Bottom*—A soil will deserve this name in vain unless you can dig a hole or trench, because the earth must be spoken to as you dropped it.

Swale Pasture—*Agricola*—Still feeding or box feeding will answer well under ordinary circumstances, as we doubt not the experience of many farmers, English as well as others, will prove. You may, by selecting good animals, and attending to them carefully, make 2*s.* a week on each of them, feeding on Swedes and chaff-straw cut into chaff; *i. e.*, you may thus make about 8*s.* or 10*s.* a ton of your Swedes. The best essay on the subject is by Mr. G. Dobie, in the Journal of the English Agricultural Society.

Sundries—*Inquirer*—You may convert your Wheat into quarters by assuming 60 to 62 lbs. as the ordinary weight of the imperial bushel. Pigs will do better on the Barley-meal boiled. Maize gives a very fair sort of meal. We should prefer 6 lbs. of Barley-meal to 8 lbs. of Maize. To make cattle-boxes, select an east and west wall about 6 feet high, and on the south side of it, at a distance of 9 feet from one another, and 10 feet from the wall, plant large poles of about 6 inches through, and let their tops be on a level with that of the wall; then mortice on to them cross poles of 10 feet long whose ends rest on the wall and on the uprights; then nail on, along the tops of the posts some Larch poles, so as to keep all stiff; place a few bundles of Thorns over them, and pile a lot of straw stubble over all as a roof. You have then a shed which you may divide into boxes by means of a few Larch poles and nails, and place a crib for food in each, and litter them well down, and they will be ready for their tenants at an expense of labour not exceeding 8*s.* or 10*s.* per beast. A calf will not pay for sucking its dam; it should be removed as soon as possible, and fed on other things besides milk, as soon as it will take to them. At the same time this is not invariably the case; *e. g.*, we have known a (short-horn bull) calf suck *two* cows, and at a year old sell at such a price as amply to repay expense. We do not know where April Wheat is to be had; we would rather sow Barley then than trust to any variety of Wheat, whatever its character for early maturity. Our varieties of Oat do not differ as respects the choice of soil; they all like a deep sandy loam. *White-washing* in-doors will tend to preserve timber. We do not know the Champion Potato. Salt will not cure the wire-worm; 2 cwt. of salt per acre will be 1-19000th part in weight of the soil, and can that have any poisonous effect upon insects? Salt is a fertiliser on inland soils; sow 2 cwt. per acre in April. We would apply *three* cwt. of Peruvian guano per acre. Sow in April, whether the crop is up or not. If the farmer builds, he expects to derive his own as well a landlord's profit; if a landlord builds, he can only expect his own profit. Is that a satisfactory vindication of our former remark on this subject? Such a Wheat-presser as you describe will be usefully applied on most corn crops, whether it will destroy the wire-worm or not. Effects in agriculture are very difficult to affiliate with accuracy; and whatever be the testimony to the value of rollers and crushers as destroyers of the wire-worm, we shall be sceptical on that point till our own experience has convinced us. About white Carrots see above.

Thanet Farmers' Club—*T H*—We shall be very glad to have your report.

The Corn-Laws.—We have received a letter signed "Q E D." complaining of the political tendency of a leader published last week with the signature "C. W. H." Our correspondent is of opinion that such a leading article is a departure from our professions of not interfering with political questions, which professions, however, "he is bound to say we have very fairly on the whole adhered to." And he regards it as "diametrically opposed to the feelings and opinions of the great bulk of our readers." We do not admit the justice of his complaint; for "C. W. H." has not treated the subject in its political aspect; he has only addressed himself to the alarms of farmers regarding what is to happen provided the Corn-laws are repealed. He does not advocate their repeal; he does not oppose it. He is absolutely neuter, as we always are. What he has done, and as we think with great skill, is this—he has attacked an agricultural prejudice, the most fatal of all to the true interests of farmers, that high prices and profits necessarily go together. This delusion exists we believe nowhere now except among the agricultural body; everybody else has found out their mistake. We are old enough to remember the time when a drunken farmer would propose as a toast, "a bloody war and a wet harvest;" by which he really meant nothing more than high prices. But what was the consequence of "bloody wars and wet harvests" to the farmers of this country, except utter ruin? Have we already forgotten the year 1816? We express no opinion about the Corn-laws, either one way or the other; that is a question which landlords and manufacturers, the chief disputants in the present instance, must arrange with each other. Nor is it to be assumed that the question of high prices is inseparable from the Corn-law argument; for such laws do not of themselves produce high prices, as the last two years sufficiently proved. We repeat it; the subject of prices has in our eyes no political, no local application; we regard it merely as an abstract question, intimately connected with the welfare of the farmer and the productiveness of his land; and in no other light.

The Price of Land—*J R*—It will, of course, in the long run, *ceteris paribus*, depend on the profits of farming. We fear nothing. But we can only discuss the details of the farming business; we cannot inquire into the influence on it of legislative enactments.

*** Communications reaching town after Wednesday, cannot be answered the same week.

Markets.

SMITHFIELD, Monday, Feb. 9.—Per stone of 8 lbs.

Best Scots, Herefords, &c	4s 0 to 4s 4	Best Downs & Half-breds	4s 0 to 4s 4
Best Short Horns	3 8 4 0	Best Long-wools	4 0 4 4
Second quality Beasts	3 8 3 8	Ewes and second quality	4 0 4 0
Calves	4 0 4 6	Pigs	4 0 5 0

Beasts, 2108; Sheep, 12,960; Calves, 53; Pigs, 260.

We have an increased supply of Beasts, and although there is a good attendance of buyers the prices are lower; our highest quotations are, however, readily obtained for the choicest qualities.—Sheep continue scarce, the number is rather increased, and the trade hardly so good, yet prices continue very high.—Good Veal is scarce and dear; our top quotations has been exceeded in some instances for choicest qualities.—Pork trade is brisk.

FRIDAY, Feb. 13.

The supply of Beef to day is quite adequate to the demand. Trade is heavy, and prices somewhat lower; 4*s* 4*d* is with difficulty obtained for the best Scots, &c., and 4*s* for the best Short-horns; inferior qualities are unsaleable at a reduction of 2*d* per 8 lbs. on Monday's quotations.—The supply of Mutton is quite as good as of late. The best Downs maintain their price, 4*s* 4*d* being currently obtained; but in other qualities lower rates are submitted to, there being a reduction of fully 2*d* per 8 lbs. A large proportion of the supply consists of Ewes and second-rate, which are a heavy sale at nearly 4*d* per 8 lbs. lower.—Veal and Pork continue as dear.

Beasts, 729; Sheep, 8067; Calves, 122; Pigs, 310.

At West Smithfield.

POTATOES.—Southwark, Watherton, Feb. 9.

This market has been glutted with Potatoes during the past week. The last week of fair wind brought from the northern districts vessel that had only been loaded six or eight days with these that had been loaded four or five weeks, and some of these on the middle hatchways were considerably damaged in sailing home. On the 4th great failing in the prices of some samples increased, the demand and there was considerable business done at the following quotations:—York Reds, 60s to 120s per ton; ditto Rappits, 60s to 110s per ton; Scotch Reds, 50s to 70s per ton; inferior fresh samples, 70s to 75s per ton; Jersey Blues, 70s to 80s per ton; Montrose Reds, 70s to 80s.

HOPS, Friday, Feb. 13.

The market continues almost the same as last week, with a limited inquiry, particularly for the finest coloured Hops, which were seldom or ever so scarce at this time of the year.

Patterson & Smith, Hop-Factors.

COVENT GARDEN, FEBRUARY 14.—Notwithstanding the sudden change in the weather the market has been tolerably well supplied with both fruit and vegetables, and trade has been pretty brisk. Pine-apples remain nearly the same as they were last week, as do also Grapes; and the same may be said of Apples and Pears. Indeed, little alteration has taken place in anything since our last report. Oranges, though scarce, are sufficient for the demand; but the majority of them being of inferior quality, first-rate specimens bring good prices. Nuts, of all kinds are sufficient for the demand. Among Vegetables, Asparagus is somewhat scarcer than it was last week, and consequently rather dearer. French Beans are also on the rise. Seakale and Rhubarb remain the same; the latter is cheaper if anything. The supply of Broccoli, Brussels Sprouts, and other winter Greens, is good. Large white Broccoli, from Cornwall, is plentiful, and fetches from 1s. to 3s. per dozen heads. Excellent Celery may be obtained at last week's prices. Potatoes, of the best quality, still continue to meet with a ready sale at 8l. a ton, but second-rate samples can scarcely be sold at any price. Chicory still continues to be supplied, but in consequence of Endive being cheap and plentiful, there is hardly any demand for it. Lettuces, and other Salading, are good and plentiful. Out Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Poinsettia pulcherrima, Jasmines, Lily of the Valley, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Rhododendrons, Cinerarias, Gardenias, and Roses.

FRUITS

Pine Apple, per lb., 4s to 6s	Lemons, per dozen, 1s to 2s
Grapes, Hothouse, per lb., 3s to 6s	— per 100, 6s to 18s
— Spanish, per lb., 2d to 1s	Almonds, per peck, 4s
— Portugal, p. lb., 1s to 4s	Sweet Almonds, per lb., 2s 6d to 3s
Apples, Dess., per bush., 7s to 12s.	Filberts, English, p. 100 lbs., 45s to 55s
— Kitchen, 3s to 7s 6d	Nuts, Cob, per 100 lbs., 50s to 70s
Oranges, per dozen, 1s to 2s 6d	— Barcelona, 20s
— per 100, 4s to 10s	— Brazil, 10s
— Seville, per 100, 8s to 16s	— Spanish, 14s
— per dozen, 2s to 2s 6d	Chesnuts, per peck, 4s to 8s
	Pears, per bf.-sv., 6s to 12s

VEGETABLES.

Cabbages, per doz., 6d to 1s	Parsnips, per doz., 3d to 1s
— red, per doz., 2s to 3s	Scorzonera, per bundle, 1s to 1s 3d
Brussels Sprouts, p. bf.-sv., 1s to 1s 6d	Salsify, do., 1s to 1s 6d
Savoys, per doz., 6d to 1s 6d	Onions, per bushel, 1s 6d to 3s
Broccoli, Brown, per bale, 6d to 1s 3d	— pickling, per bf.-sv., 3s to 3s
— White, 9d to 2s 6d	— Spanish, per doz., 2s to 5s
Greens, per doz. bunches, 1s 6d to 3s	Shallots, per lb., 6d to 0.1
French Beans, per 100, 2s 6d to 3s 6d	Garlic, per lb., 6d to 8d
Sorrel, per bf.-sieve, 6d to 1s	Endive, per score, 6d to 1s 6d
Potatoes, per ton, 70s to 100s	Lettuce, per score, Cab., 4d to 6d
— cwt., 3s to 4s	— — Cos, 6d to 1s
— bushel, 2s 6d to 4s	Radishes, per 12 bunds, 1s to 2s
— Kidney, per bushel, 3s to 4s	Mushrooms, per pottle, 6d to 1s
Turnips, per doz. bs. 1s to 2s	Small Salads, per punnet, 2d to 3d
Red Beet, per doz., 1s 6d to 2s 6d	Fennel, per bunch, 2d to 3d
Carrots, per doz. bchs., 2s to 3s	Savory, per bunch, 2d to 6d
Horse Radish, per bundle, 1s 6d to 3s	Thyme, per bunch, 2d
Seakale, per punnet, 6d to 1s	Watercress, p. 12 sm. bun. 6d to 9d
Rhubarb, per bundle, 6d to 1s 3d	Parsley, per bunch, 1d to 3d
Asparagus per bundle, 3s to 8s	— Roots, per bundle, 1s
Cucumbers, each, 2s to 3s	Tarragon, per bunch, 6d
Spinach, per sieve, 1s to 1s 6d	Mint, green, per bunch, 6d to 9d
Leeks, per doz. bunches, 1s to 2s	Marjoram, per bunch, 6d
Celery, per bunch, 6d to 1s 6d	Chervil, per punnet, 2d to 3d
Onions, each, 6d to 9d	

HAY,—Per Load of 36 Trusses.

SMITHFIELD, Feb. 12.

Prime Mead. Hay	80 to 90s	New Hay	—s to —s	New Clr.	—s to —s
Infr. New & Rowen do.	60	Clover	80 to 110	Straw	32 to 36

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Feb. 12.

Prime Mead. Hay	90 to 95s	Old Clover	110s to 115s		
Inferior	70 84	Inferior do.	98 105	Straw	32s to 36s
New Hay	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Feb. 13.

Fine Old Hay	85 to 90s	Old Clover	105s to 120s		
Interior Hay	65 75	Infr. do.	80 90	Straw	30s to 36s
New Hay	— —	New Clover	— —		

WOOL.—BRITISH, FRIDAY, Feb. 13.

Our market continues quiet. Prices are nominal.

JAMES FERRIS, Wool-Broker.

MARK-LANE, MONDAY, Feb. 9.

The supply of English Wheat from Essex, Kent, and Suffolk, was moderate this morning; dry samples, being very scarce, sold readily on fully the terms of this day se'nnight; others were difficult to quit, but we observe no alteration in their value; old and free Foreign are much wanted, but the high prices at which they are held cause the sales to be quite in retail; with the exception of a parcel or two of bonded to millers at late prices, there was little doing.—Barley is a heavy sale at 1s. to 2s. per quarter decline.—Beans move off slowly, and Peas of all sorts are 1s. cheaper.—Oats, in consequence of large arrivals, are difficult of disposal, at a reduction of 6d. to 1s. per quarter.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	White	56	66	Red	50	62
—— Norfolk, Lincolnshire, and Yorkshire		50	62	White	50	62
Barley, Malting and distilling 30s to 32s	Chevalier	28	35	Grind.	25	27
Oats Lincolnshire and Yorkshire	Polands	22	24	Feed	22	24
—— Northumberland and Scotch	Feed	23	25	Potato	24	28
—— Irish	Feed	22	25	Potato	24	28
Malt, pale, ship		64	69			
—— Hertford and Essex		60	62			
Rye		34	37			
Beans, Mazagan, old and new	38 to 40	Tick	30	42	Harrow	38	44
—— Pigeon, Hollgoland	35 to 40	Winds	40	42	Longpod	42	46
Peas, White	38 to 41	Maple	38	38	Grey	32	34

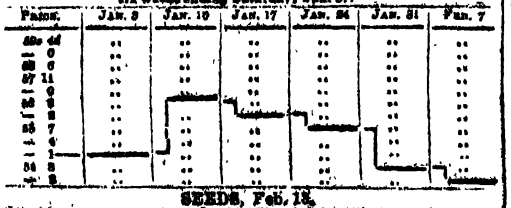
FRIDAY, Feb. 13.

The few samples of English Wheat fresh up during the week have been disposed of at Monday's prices, but the trade is without animation; free Foreign meets a slow retail demand only; in bonded there is a slight inquiry for Polish Odessa for export at 46s. per qr., and we believe a small sale or two have been made at this price; also Rostock to millers for paying duty at 51s. per qr.—Barley is much neglected, and very difficult of disposal.—Beans and Peas are unaltered in value.—In Oats the business has been quite of a retail character, and late prices are barely maintained.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Jan. 8 per Quarter.	55s 1d	31s 11d	22s 3d	35s 6d	37s 0d	36s 1d
— 10 . . .	56 3	32 10	21 9	35 11	36 8	35 11
— 17 . . .	55 2	31 11	22 3	34 9	36 9	35 8
— 24 . . .	55 7	31 3	21 10	37 5	36 1	36 0
— 31 . . .	54 9	31 3	21 10	32 0	35 6	35 5
Feb. 7 . . .	54 5	30 10	21 7	31 3	34 9	34 6
6 weeks' Aggreg. Aver.	55 4	31 7	22s 11	34 6	36 5	35 6
Duties on Foreign Grain	17 0	7 8	6 0	9 6	6 6	6 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Jan. 31.



SEEDS, Feb. 13.

Canary . . per qr.	40s to 50s	Linseed, Baltic, Foreign, p. ton	41 to 42		
Carraway . per cwt.	40 50	Mustard, White . p. bush.	— —		
Clover, Red, English	80 90	— Superfine	— —		
— — Foreign	60 70	— Brown . .	— —		
— White, English	84 94	Rapeseed, English, per last	20l 22l		
— — Foreign	68 72	Rape Cake . . per ton	— —		
Coriander . .	10 16	Tares, old . .	— —		
Rapeseed . . per qr.	42 43	Tares, New, winter p. bush.	— —		
Linseed . . per qr.	42 43	— Foreign . .	4 6		
— Baltic . .	42 43	Turnip (not variable for exemption)			
— Odessa, Reg. per 1600 lbs.	42l 43l				

EDWARDS AND LOW.

NURSERY STOCK.—TO BE SOLD BY AUCTION, On Wednesday, Thursday, Friday, and Saturday, the 18th, 19th, 20th, and 21st of February, by Mr. W. TOMPSETT.

MR. TOMPSETT has received directions from Mr. UPOKEN to Sell by Auction the remainder of his stock of NURSERY PLANTS without any reserve. The Plants now offered for sale are 600 Lots unsold at the former sale, which could not be proceeded with in consequence of the unfavourable state of the weather, and consist of Lime Trees, Planes, Elms, Laburnums, Tulip Trees, American and other Oaks, American Walnuts and Maples, Lilacs and other deciduous Shrubs, Silver Firs, Scotch, Spruce, and other Firs, Purple and Common Beech, Laurustines, Portugal Laurels and Portugal Hedges, Common Laurels, Variegated Hollies, and other Evergreen Shrubs, Rhododendrons, Azaleas, and other American Plants, together with 7000 Standard Roses, 900 Dwarf Roses in pots, and 6000 Dwarf Roses in their own roots. A portion of the Roses will be sold on each day of sale, and also a quantity of choice Firs and Pines in pots, and other Plants in pots. Persons planting for immediate effect will find this a good opportunity of procuring Plants of large size at a cheap rate.

For further information, or to see the Plants, enquire at the Nursery, Brenchley, Kent, 3 miles south of the Paddock-wood Station, Dover Railway, or of Mr. W. TOMPSETT, Auctioneer, East Peckham, Kent.

TO NOBLEMEN, GENTLEMEN, THE TRADE, & OTHERS. Sale of NURSERY STOCK at the Arboretum, Queen's Elms, Fulham-road, one mile from Hyde-park-corner, owing to the ground being required for other purposes.

MR. KIRKE will Sell by Auction, on the above Premises, on the 26th February, 1846, and following days, at 11 for 12 o'clock each day, by order of the proprietor, A STOCK comprising several Thousands of Laurel, Aucuba, Box-Holly, Rhododendron, Spruce Fir, Privet, Yew, Arbor vitæ, Robiniæ hispida and others, Cytisus of sorts, Spartiums of sorts, Lilac, double-blossomed Peach and Cherry, Almond, Thorns of sorts, Weeping Ash of sorts, Weeping Willow, Weeping and other varieties of Lime and Laburnum, Poplar, Acacia, Quick, a choice collection of Roses, 17 bedded Moss Roses, Sweetbriar, Ivies, Pyrus japonica, &c. May be viewed three days prior to the sale and Catalogues to be had on the Premises; of Mr. Charlwood, Seedsman, Covent garden; Messrs. Westmacott, Seedsmen, 156, Cheapside; and at the offices of the Auctioneer, 19, Brompton-row, Brompton.

N.B.—Prior to the 21st of February, private purchases can be made 25 per cent. below the trade prices.

POSTPONEMENT OF SALE.

The day of the Sale will be given in the next Number.

PLANTING SEASON.—TO NOBLEMEN, GENTLEMEN, BUILDERS, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Wm. DENNIS, to submit to PUBLIC COMPETITION, on the Premises, opposite to Cremorne House, King's-road, Chelsea, in consequence of the Ground being immediately required for extensive Horticultural Erections, a portion of the valuable NURSERY STOCK, comprising Dwarf, Standard, and Pillar Roses in choice varieties; Dwarf and Standard Lilac and Guelder Roses; a quantity of the finest fruit-bearing Mulberry Trees in the Kingdom, fine Prize Gooseberries, in collection. About 20,000 Aucuba Japonicas in all sizes; Yuccas, Paeonies, Irises, &c. &c

TO BE LET, WITH IMMEDIATE POSSESSION, within six miles of the Weybridge Station of the South Western Railway, A WALLED GARDEN, containing about TWO ACRES OF PRODUCTIVE SOIL, Conservatory, Hot and Succession Houses, Pits, and Sheds. The walls are covered with choice Fruit Trees in high bearing and order. A residence for a superior Gardener—accommodation for a journeyman. The implements may be taken at a valuation by the tenant.

For particulars apply to Mr Wm. Keys, steward, Ockham Park, Ripley, Surrey.

TO BE LET, EDMONTON NURSERY.—In consequence of the Proprietor being about to retire from the Nursery business, this desirable Nursery is to be let, with immediate occupation. The whole may be taken at a valuation, or by private contract, and accommodation will be given in the terms of payment, if desired.—Apply personally or by letter to Mr. HENCHMAN, at the Nursery, Edmonton, or to Mr HUGH LOW, Clapton Nursery.—Feb. 14.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and price at 180, Fleet-street.

DECEPTION AND FRAUD.

THE STOMACH AND ENEMA PUMPS, invented by J. READ, were sanctioned and approved by the Royal College of Physicians and Surgeons in London, and by the most eminent members of the profession in this kingdom, on the continents of Europe, India, and America (vide "New York Medical and Physical Journal," and the life of Sir Astley Cooper). This distinguished patronage induce some unprincipled adventurers to palm upon the public base imitations of Read's Patent Instruments, which has come to his knowledge from the number of paltry instruments which are daily sent to him from all parts of the kingdom, and frequently from India, for repair; but as some protection against this fraud, J. R. has instructions from the Hon. East India Company to place their mark, in future, on all his instruments sent to their residencies. But in vain may an humble mechanician attempt to defend himself against such wholesale fraud, when Enema fountain reservoirs, with the incumbrance of chains, stop-cocks, &c., are boldly and falsely advertised as "Read's Patent Pumps," which have no such incumbrances, and which are manufactured only by himself, at 35, Regent-circus, Piccadilly, where they may be seen and proved.—N.B. None are genuine except stamped with the words, "Read's Patent."

A PERFECT SUBSTITUTE FOR SILVER.—The most effective imitation is in the Spoons and Forks, that have a body of real Silver plated over the British Plate. So accurate and durable are these, that 20 years' wear would not show that they were not real Silver, and they do not cost one quarter the price. The fact is, the interest of the money that would be paid for real Silver will buy these things oftener than they are wanted. Prices of British Plate covered with real Silver—Table Spoons per dozen, 3l. 5s.; Dessert Spoons ditto, 2l. 7s.; Tea Spoons ditto, 1l. 8s.; Table Forks ditto, 3l.; Dessert Forks ditto, 2l. 5s.; Sugar Tongs per pair, 5s.; Sauce Ladles each, 6s.; Gravy Spoons each, 10s.; Soup Ladles each, 18s.; Fish Knives each, 1l. They are manufactured exclusively for MECHI, 4, Leadenhall-street, near the India House. The money will be returned to any purchaser who disapproves them. A very large assortment of plated Fruit and Dessert Knives, real Sheffield plated goods, Table Cutlery, small Cutlery, and other matters connected with housekeeping, of which Catalogues may be had gratis.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

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Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

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BRITISH GUANO, equal in quality to Peruvian, at 9l. per ton. Pamphlets gratis on 6 Stamps being forwarded, being amount charged for postage. Agent for DINGLE'S HAND SEED DIBBLE.

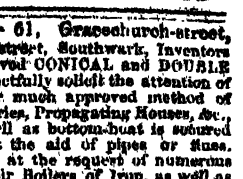
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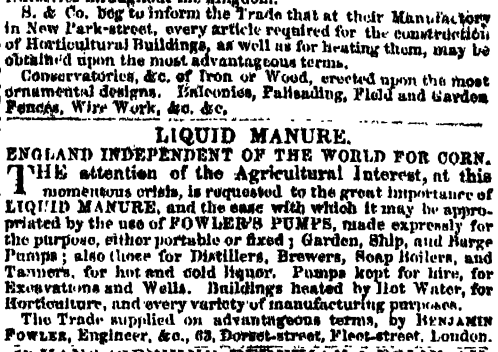


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PRACTICAL INSTRUCTIONS FOR ITS FORMATION AND CULTURE, ILLUSTRATED BY 24 WOODCUTS.

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These Letters are published without any profit, to stimulate agricultural improvement.

*** Letters 17 to 22 will appear shortly.

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JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

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GEORGE BARNES, Pruning and Budding-knife Maker (warranted good), 68, Campo-lane, Sheffield, begs to call the attention of the public to the above new and desirable article, manufactured by him. Sent free to any part of the Kingdom on receipt of 33 Penny Stamps, or Post-office Order for 2s. 6d.

Sold by most of the Nursery and Seedsmen in London and vicinity, at their retail price.

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WANTED TO RENT, a good FAMILY HOUSE, with an extent of Sporting attached. It is required by a gentlemen who would treat the place with the same care as if his own.—Direct to Messrs. HEDGER, Land Agents, 10, New Bond-street, opposite the Clarendon.

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Printed by WILLIAM SOMERVILLE of No. 6, York-place, Pentonville, and Frederick Mullett Evans of No. 7, Kingsland-terrace, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington-street, in the parish of St. Paul, Covent Garden, in the said county.—Advertisements and Communications are to be addressed to the Editor.—Saturday, February 14, 1846.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 8.—1846.] SATURDAY, FEBRUARY 21. [PRICE 6*d*.

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WILLIAM JACKSON and CO., NURSERYMEN, beg to refer the readers of the *Gardeners' Chronicle* to their advertisement of the 14th inst., of the above, all of which they possess in the finest possible condition. A large Stock of trained and untrained Fruit-trees, prices of which may be had on application.—Cross Lanes Nursery, Bedale, Yorks, Feb. 21.

CARNATIONS AND PICOTEES.

MESSRS. NORMAN continue to supply a few pairs from their most select collection of show varieties grown. Also, some fine yellow-ground Picotees. Catalogues can be had on prepaid application.—Bull Fields, Woolwich.

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American Early Round	1st
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PANSIES, &c.

JOHN SCHOFIELD, in submitting his descriptive Catalogue of PANSIES, DAHLIAS, FUCHSIAS, &c., begs to observe that most of the best new and old varieties will be found at the lowest price His seedling Pansy, "PRESIDENT," together with several other choice seedlings, are indispensable to all good collections For particulars see List. Show Pansies, by name, from 6*s*. to 12*s*. per dozen A few packets of seed, carefully selected, 2*s*. 6*d* to 5*s*. per packet. The Catalogue and Seed sent post free on application

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FUCHSIA CHALLENGE.

J. HALLY, NURSERYMAN and FLORIST, Blackheath, challenges his Fuchsia (the EMPRESS), against any seedling variety of Fuchsia raised in 1845, for beauty of flower, combined with habit of growth, for 5*l*. To be decided at one of the London exhibitions for 1846. J. H.'s money is deposited in the hands of Messrs Hurst and M'Mullen, of No. 6, Leadenhall-street. The challenge to be accepted, and money deposited in the hands of the above firm, or any other respectable house in London, by 1st March. None except those making good the deposit will be considered as taking up the challenge. J. H.'s challenge is open to any number of competitors.

FUCHSIA CHALLENGE.—Seeing that several Nurserymen have taken a novel course (I hope not puffing) of displaying the merits of their FUCHSIAS, I beg to announce I shall be happy to show one of my Seedlings at the next June show, held at the Horticultural Society's Gardens, upon the same terms as stated by Messrs. Lane, but half of the stakes to be given to the Gardeners' Benevolent Institution and I will also show my Three Seedlings against any Three sent out this year by any individual 6*l*. to 4*l*. for the benefit of the same Charity. The money is deposited at Messrs Hay, Anderson, and Sangster's, Newington Butts.

Bower Nursery, Maidstone. W. J. EPPS.

NEW SPRING CATALOGUE.

Woodlands Nursery, Mayfield, Uckfield, Sussex.

WM. WOOD AND SON have now ready for immediate distribution, a new and much enlarged CATALOGUE OF GREENHOUSE, STOVE, AND HERBACEOUS PLANTS; Camellias, Fuchsias, Verbenas, Petunias, Cinerarias, Chrysanthemums, and other plants suitable for bedding. To which is added, a choice selection of Roses, Conifers, Shrubs, and Climbers, cultivated in pots.

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BLACKTHORN OR SLOE QUICK.—50,000 of the above, 2 years Seedling, from drills, 1 to 2½ feet, fine and clean. For price and sample, apply to THOS. RIVERS, Sawbridgeworth, Herts.—Feb 21

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DAHLIAS AND PANSIES

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GOOD SHOW FLOWERS—C. TURNER'S selection, 12*s* per dozen, extra fine ditto, 18*s* ditto, free by post, on receipt of a remittance.—Cheshey, Windsor, Feb 14

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NEW DARK-EYED VERBENA.

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SUPERB SEEDLING FUCHSIAS.

W. J. EPPS, F.H.S., begs to inform the admirers of this flower that he purposes sending out the following distinct FUCHSIAS, feeling confident they cannot fail to give the highest satisfaction —

LADY JULIA.—This flower is of a beautiful waxy white, tube and sepals slightly tipped with green corolla vivid crimson, habit good, and has merited the following high opinions —

Gardeners' Gazette, July 19 — J W — The white is very pretty and the contrast striking, even the green tips seem almost ornamental, instead of a blemish"

Gardeners' Chronicle, August 9.—"J W T—The variety No. 1, with white tube and sepals with rosy crimson corolla, is a handsome variety, and one of the best of its class we have seen." 10*s* 6*d*. per plant.

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Gardeners' Chronicle, Nov. 1—"W. J. E.—Your Seedling is a handsome variety. Light tube slightly striped with pink, sepals expanding freely, disclosing a fine rosy crimson corolla The flower is fine in texture, and will rank with the best of the light varieties."

Gardeners' Gazette, Oct 25.—"Mr Epps's Fuchsia.—Rich scarlet corolla; pale—nearly white sepals, very striking, and, if the habit be good, a pretty accompaniment to 'Nymph' and 'Queen of Beauties.'" 10*s*. 6*d*. per plant

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Gardeners' Chronicle, Sept. 6.—"W K—A very pretty light variety, having a fine crimson purple corolla." 10*s*. 6*d*. per plant.

The set 3*l*. 7*s*. The usual discount to the Trade where three of each are taken.

All orders from unknown correspondents to be accompanied with a remittance.—Bower Nursery, Maidstone, Feb. 21.

SELECTION OF CHOICE FLOWER SEEDS.

WILLIAM E. RENDLE & CO. have a small Stock of the following choice Flower Seeds. Many of the sorts, such as MARTYNIA FRAGRANS, PHLOX DRUMMONDII and others of equal value, have been saved under the inspection of their Foreman, the Seed, therefore, can be warranted to be quite new, and correct to name

SCALE OF PRICES, SENT POSTAGE FREE

50 Choice Flower Seeds, including the following		for	12*s*.
30	do.	do.	8*s*.
20	do.	do.	6*s*.

Brachycome iberidifolia.	Rhodanthe Manglesii.
Clintonia pulchella.	Phlox Drummondii.
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Didiscus cæruleus	Lobelia erinus.
Eucharidium grandiflorum	Mesembryanthemum tricolor
* Nemophila discoidalis.	Nemesia florabunda.
Podotheca capitata	Schizanthus retusus
Schizopetalon Walkerii.	Viscaria oculata.
Finest German Asters	Finest German Stock.

A useful Chart has just been published, giving the height, colour, and mode of raising the principal sorts of Flower Seeds, *gratis*, with each order A General Catalogue can be had on application A remittance is not required from known Correspondents, or those who give reference in London.

Union-road Nursery Plymouth Feb. 21

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GREAT YARMOUTH NURSERY. NORFOLK, 1846.

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Do.	do. 25 do.	0	7 0

Small Canes, 12*s*. per 100.

A liberal discount will be allowed the Trade when "quantities" are ordered.

For full description of the above see their advertisement of Jan 17.

Thirty packets of new and choice Flower Seeds, per post, free, for 5*s*.

Great Yarmouth Nursery, Feb. 21.

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C. HART, FLORIST, &c., Guildford, Surrey, begs to announce, that on Tuesday, March 10th, he intends sending out the undermamed very splendid PANSIES Early orders alone will secure plants, as the stock is limited

CONSOLATION—A very splendid lilac purple, with a beautiful white eye—very novel. Its form is perfect, making a circle, of fine texture, quite smooth on the edges It received a Certificate of Merit at the Royal South London Floricultural Society in May last. Dr Lindley's opinion, *Gardeners' Chronicle*, p 342—"C H—No 10, very beautiful."

BRONZE UNIQUE.—Very beautiful bronze upper petals belted with the same, rich yellow ground, of fine form and substance. Dr. Lindley's opinion, p 440, 1845 "Bronze Unique contains good substance and other good qualities"

Price 10*s*. 6*d*. the pair, for Cash. Sent free by post

COLLECTIONS—FINE NAMED FLOWERS.

20 Superb Show Flowers		£1	0 0
20 Fine	do do.	0	15 0
20 Good	do do	0	10 0
20 Border varieties		0	6 0

Good Plants of Conquering Hero, Baroness Wenman Prospero, Ariadne, Ne Plus Ultra, Model of Perfection &c., at moderate prices

Spring Catalogues of Pansies and other Plants may now be obtained.

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J. and H. HAYCROFT can now supply sound POTATOES, fit for immediate planting, of the most esteemed varieties cultivated in this district As the market at present is too fluctuating to fix prices generally, every information shall be given to intended purchasers by return of post.

Fine ASH-LEAVED KIDNEY POTATOES (a sample of which may be seen at Messrs JACOB WARNER and SONS, Seed Merchants, London-bridge), delivered free at any of the undermentioned ports, at 7*s* 6*d* per bushel, by Steam Vessels weekly to London, Liverpool, Glasgow, Bristol, and Plymouth, and by Sailing Vessels to nearly every port in South Wales. N.B.—A large assortment of Seedling Forest-trees, also delivered free at very moderate prices.

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TYSO AND SON, Florists, Wallingford, Berks, beg to offer assortments of the best quality as under —

	£	*s*	*d*.
Ranunculuses, 100 splendid named varieties .. 60*s* to	5	0	0
Do 100 fine mixed .. .. 8*s*., 15*s*., to	1	0	0
Anemones, 50 fine double varieties .. . 15*s* to	1	10	0
Carnations and Picotees, 25 show flowers .. 40*s* to	1	0	0

TYSO AND SON can supply most of the choice Ranunculuses recommended in the *Chronicle* and in the "Floricultural Cabinet" for January last Seed 5*s* and 10*s* per paper

New Potato, the "Chalmore Kidney," 2*s* per gallon, also the entire stock of 20 Seedlings raised from it, 1*l*

Descriptive Priced Catalogues on application, enclosing two postage labels.

NEW AND SUPERB WHITE FUCHSIA "SANDAPAREIL," 10s. 6d. per plant.

YOUELL and CO. beg to call the attention of Growers of FUCHSIAS to the above Seedling, which they still maintain is not surpassed by any light variety yet raised, and will give general satisfaction, and refer to the following remarks upon it —

"A correct representation of it may be seen at the Nursery."

"An elegant flower, tight tube and petals, with pure satin-rose corolla."—See *Gardeners' Chronicle*, April 26th, 1845.

"A NEW WHITE FUCHSIA.—We have here seen a magnificent white seedling Fuchsia, raised by Mr. Mount, Topsham. The flower is about 3 inches in length, the tube and sepal white, and resembles 'Venus Victrix,' but in three times its size, and is much more brilliant and fair in colour It should be called Sandapareil,' as it is most assuredly one of the most beautiful of its species. We highly envy Messrs. Youell their prize."—*Editor of the Cambridge Advertiser*, Dec 1st, 1845

Their 3 other New Seedlings (for particulars of which see their Advertisement of the 17th inst) will be ready for sending out with the Above in the early part of May, and when the set is taken, will be charged 1l. 11s. 6d.

Their CATALOGUE of FUCHSIAS this season will be found arranged in two divisions, namely, Light and Dark Coloured varieties of various shades, and they flatter themselves that the care observed by exhibiting very many varieties now out of date, and others that do not possess sufficient merit, that any disappointment to Purchasers of the purchaser will be prevented

12 for nine Varieties, 12s Selection left to Youell & Co.
12 Distinct ditto 21s. Selection left to Purchaser to do
50 Fine Varieties 40s. Selection left to Youell & Co.
50 Extra fine ditto. 60s. Selection left to Purchaser to do.

Their CATALOGUE for 1846 is just published, containing a list of prices of the very best Fuchsias, Verbenas, Select Plants, Camellias, Ericas, Coniferous Plants Petunias, Cinerarias Pansies, Chrysanthemums, Antirrhinums, Polyanthus, Herbaceous Plants Carnations, Picotees Pinks, &c, &c, which will be forwarded on application by inclosing two postage stamps

YOUELL AND CO. beg to offer the following good and desirable plants to the notice of their Friends and Amateurs, feeling assured from their well known mode of executing all orders, that those favouring them with their commands will receive none but articles of the very best quality

Superb new heavy edged PURPLE PICOTEE, "BURROUGHES'S PRESIDENT," 18s. per pair. For particulars, see *Gard Chron* of 11th Oct

Also "BURROUGHES'S DUKE OF NEWCASTLE," the best light-edged Purple Picotee, 18s per pair

CARNATIONS AND PICOTEES.

			£	s	d
12 pairs extra fine and very superior first-class Show Flowers, by name			2	10	0
25	ditto	ditto ditto	5	0	0
12	ditto	Fine Show Flowers ditto	1	12	0
25	ditto	ditto ditto	3	0	0

Extra fine Show Pinks, by name, per dozen pair, 12s.

SELECT VERBENAS.

Could be raised 1845

YOUELL and CO in offering the following new and fine Seedling VERBENAS, beg leave to observe that the "Seedling varieties" sent out by them the three past seasons, have given such universal satisfaction, that they consider any further remarks upon them unnecessary It is sufficient to state that they are positive fine and superior varieties, and cannot fail of giving satisfaction to every grower of this beautiful tribe. They also possess the requisite and valuable properties of being vessel scented and producing fine shaped and exceedingly large flowers

NEW DARK — A beautiful pink, with conspicuous yellow eye, large and of fine form 5s

* GRANDISSIMA Creamy white, dimmensely large, very fragrant and a valuable addition—5s

* HEBERA —Pale lilac, with a conspicuous yellow eye very sweet scented fine form, and very distinct variety 3s. 6d

* HYMENE A beautiful salmon colour, very large, fine form, and fragrant—5s 6d

* CHLOE —A fine bright puce with yellow eye, a very beautiful variety—3s 6d.

* AURORA — Lilac bright rose, large and sweet-scented, of good form (very desirable)—3s. 6d.

* AUBURN A rich dark claret, with light eye, large, and sweet scented 3s 6d

The above will be ready per post free, or otherwise, as the first week of May at the set

12 fine varieties	6s per dozen,
12 Extra ditto	10s. "
PANSIES, 12 fine varieties	12s. "
" 12 Extra ditto, very superior, first-rate show flowers	18s. "
PETUNIAS, 12 ditto	9s. "
CINERARIAS, 12 ditto	12s to 18s. "

ERICAS, fine and free-flowering sorts, by name, 9s, 12s, and 18s per dozen

HERBACEOUS PLANTS fine sorts, 6s to 9s. per dozen.

RIBES SANGUINEUM FLORE PLENO, 10s 6d. per plant.

MYATT'S "BRITISH QUEEN," STRAWBERRY, 5s. per 100.

"PRINCESS ALICE MAUDE," 10s 6d "

YOUELL'S CELEBRATED TODOLSE RHUBARB, fine transparent pink, the best for forcing, 12s. per dozen. Roots placed in a cellar or closet now will be fit for cutting in a month.

The finest DOUBLE ANEMONES, 1s per lb.

The finest Mixed RANUNCULUSES, all from named flowers, 12s per 100.

* * Foreign Orders carefully executed so as to ensure safe transmission.

RAIL Steam Ships to London three times a week; to Hull, once a week; and per rail to London every night hours.

Great Yarmouth Nursery, Feb. 21.

H. GROOM, CLAPHAM RISE, NEAR LONDON, (Removed from Whitworth.) By Appointment FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY

Begs to recommend to the attention of the Nobility, Gentry, and Public his extensive assortment of the above FLOWERS, which he can supply of the finest quality.

£ s. d.

200 RANUNCULUSES in [illegible] varieties, named 2 0 0
Superbe Mixture, per 100—7s 6d—10 1 0
400 ANEMONES, in [illegible] varieties, named 2 2 0
Superbe Mixture, per 100 0 10 0
50 AURICULAS, in [illegible] varieties, named 2 2 0
Good va. in ditto, per dozen, planted 2 10 0
25 pots of CARNATIONS, in [illegible], named 2 10 0
Best mixtures, per doz planted 0 6 0
25 pair of PICOTEES, in [illegible], named 2 10 0
Best mixtures per doz. planted 0 6 0
25 GERANIUMS, in 25 Superbe sorts, named 2 10 0
Good kinds per doz., from 1s. to 0 12 0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each 0 2 6
" PUNCTATUM " 0 7 6
" SPECIOSUM (true) " from 1l. 1s. to 3 3 0

H. Groom begs to say the Catalogue of GERANIUMS and NEW PLANTS is ready, and will be forwarded by post on application. Foreign Orders executed

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HORTICULTURAL EXHIBITION.

E. SIMMONS informs the public that her EXHIBITION, for which she was awarded a Certificate of Merit at the Horticultural Society's Meeting on the 13th, may be had, price 2l. 2s. Fashionable Orders on London.

36, Coleman-street, City.

HURST and M'MULLEN, Seedsmen and Florists, 4, Leadenhall-street, beg to inform their Friends and the Public, that their LIST OF NEW ANNOUNCEMENTS FROM SEEDS will appear by Harrison's "Floriculture" Calendar for March. Among many specials worthy of notice will be found the following

	Per packet.—s. d.
Brachycome iberidifolia, new white, from Messrs. Veitch and Son, Exeter	1 0
Do do new lilac	1 0
Nemophila striata, new and beautiful, raised by Mr Turner, Chalvey	1 0
Hibiscus, saved from the very best flowers, by Thompson, Widnall, Day, and others	2 0
Lisianthus Russellianus, with Cuthill's Treatise	1 6
Lisianthus glaucifolius	1 0
Primula sinensis, in 4 beautiful varieties	1 0
Schizanthus retusus superbus	1 0
Imported Carnation and Picotee	1 0
Anagallis, several very choice varieties	1 0
Calceolaria, new gold striped, very splendid	2 6
Do. very fine mixed	1 0
Phlox Drummondii, new white	2 6
Do do. Wood's scarlet	1 0

Auricula, Polyanthus, Pink, Verbenas, Cockscombe, Balsam, Geranium, Dahlia, &c. &c., all saved from the very best kinds in cultivation

The following Collections of Imported STOCKS, ASTERS, &c. &c., they earnestly recommend as being certain to give (as they have done in past seasons) universal satisfaction —

	Per collection —s. d.
Imported German Stocks in 16 splendid varieties	6 0
Do. do do in 20 do	8 6
Do. do Asters in 24 do	5 0
Do do do. in 15 do	3 6
Hollyhocks (very choice) in 12 named varieties	1 0
Larkspurs (German) in 12 splendid do.	1 6
Balsams, 12 beautiful double varieties	5 0
Imported Zinnia elegans, 8 fine varieties	1 0
Verbenas, 8 choice kinds	1 0
Wallflowers, 8 imported varieties	3 0
Scabious German, 8 do	2 0
Poppies, 16 splendid do.	3 6

CHOICE VEGETABLE SEEDS

	Per Quart—s. d.
Peas, Prince Albert, earliest known	1 6
" Shilling's Grotto	1 0
" Queen of the Fleurs	5 0
" Lee's Dwarf Italian Marrow	5 0
" Royal Green Marrow	2 6
" Hurlstone's Prince of Wales	2 0
" Dancer's Monastery	2 6
" Bishop Champion (splendid new Pea)	1 6
" Improved Waterloo Marrow	1 0
" Flack's Victory	1 0
" Victoria (new branching)	1 0
" Ward's Incomparable, (much admired)	2 6
" Cormack's British Queen (superb late Pea)	2 6
" Lyne's new wrinkled Marrow (very prolific)	1 0
" Knight's Dwarf Green Marrow	1 0
Beans: New Monstrous Windsor Beans, very superior	0 9
" Wonder Long Pod Beans	0 8
" Marshall's Early Green Prolific	0 8
" New Dwarf Kidney, "long podded"	1 6

	Per Packet—s. d.
Broccoli, Matchless, new superb white, 6d. to	1 0
" Walcheren Superb 6d. to	1 0
" Garnett's splendid Early Whites, 6d to	1 0
" Chappell's Cream, 6d. to	1 0
" Lake's Superb New White, 6d. to	1 0
" Dancer's Pink Cape 6d. to	1 0
" New White Victoria, late, 6d to	1 0
" Willcove 6d. to	1 0
" New Purple Syrian 6d. to	1 0
" Hewden's Purple Sprouting 6d. to	1 0
Brussels Sprouts, true imported	0 6
Cours tronchonnais, delicious Winter Vegetable	0 6
Borecole, fine Canadian	0 6
Beet White's new Blush	0 6
" Cattell's Superb Blood red	0 6
Cauliflower: Walcheren (true and splendid) 6d. to	1 0
" Fine Early London 6d. to	1 0
" Fine autumn, 6d. to	1 0
Cabbage New Ice Cos 6d. to	1 0
" Pumpkin Green Cob (true) 6d. to	1 0
" Addy's Sun Cooker, red	1 0
" Wood's Early Battle Cos (requires no tying) 6d. to	1 0
" Matchless Sugar-loaf, true	1 0
" Fulcrum Cabbage, 6d. to	1 0
" New Central Hollander, 6d. to	1 0
" New Cannon Ball, 6d. to	1 0
Cabbage: Matthew's New Queen 6d. to	1 0
" Wheeler's Imperial Hollander 6d. to	1 0
" Holborn Prince Albert 6d. to	1 0
" Early Sugar-loaf 6d. to	1 0

	Per Packet —s. d.
Cabbage " Early Dwarf Nonsuch	0 6
" Atkin's Matchless	0 6
" Sedon's Early Bleinheim	0 6
" Berkshire Champion	0 6
" May's Superb Red	0 6
" Early Hope (Improved)	0 6
" Cattell's New Green Celeworf, or Collard	0 6
Carrot Hurst and Co's Improved Altringham	0 6
" New German Horn	0 6
" James's New Scarlet	0 6
" Scarlet Stadley	0 6
Parsley Myatt's splendid new Gamishing	0 6
Onion New White Globe	0 6
" True Silver-skinned Pickling	0 6
" Large White Portugal	0 6
" Large Madeira	0 6
Celery, Seymour's superb White	0 6
" Jobling's superb Flat White	0 6
" Jones's Matchless Red	0 6
" Manchester Red	0 6
" Barnes's splendid White	0 6
" Barnes's splendid Red	0 6
Radish Wood's Fairy transparent Short Top	0 6
" New French Olive shaped	0 6
Turnip May's Early Nonsuch	0 6
" Early Snowball	0 6
" New Green-top Stone	0 6
" Yellow Malta, extra fine	0 6
Spinach Hurst's Round	0 6
Strawberry Alpine Red and White	0 6
Squash, four newly-imported edible varieties	0 6
New Short-jointed Vegetable Marrow	0 6
Scandia Bulbosa, a Turnip-rooted Chervil	0 6

SUPERIOR FRAME CUCUMBERS

Elphinstone's Prince Albert	1 0
Warwickshire Hero	1 0
Spinalis Imperial	1 0
Lance's Victory of England	1 0
Cherry's Gallick	1 0
Victory of Suffolk	1 0
Cattell's New Black Spine	1 0
Improved Blue Gourse	1 0
Baldie's Black Spine	1 0
Man of Kent	1 0
Wendsely celebrated	1 0
Black Spine	1 0
Smethwood fine Ridge	1 0
Gastrodier	0 6
Wendle fine Ridge Cucumber	0 6

MELONS.

Cabul	1 0
Scarborough	1 0
Hamilton	1 0
Cantaloupe	1 0
Green Cantaloupe	1 0
White Cantaloupe	1 0
Williams's fine Scarlet	1 0
Netted Scarlet Rock	1 0
Cattell's Musk Green Flesh	1 0
Melon Green Flesh	1 0

And many other excellent Varieties.

Messrs. and M'Murray's Advertisement unshipped.

GRATWICK'S GIANT ASPARAGUS, 2s per pkt.
GIANT CORNISH CELERY, 2s. per pkt.
GIANT RED ORANGE CARROT, 2s. per pkt.
GIANT ORANGE FIELD CARROT, 2s. per pkt.
GIANT ORANGE FIELD CARROT, 2s. per pkt.
GIANT RED ORANGE

FOR SALE.

MESSRS. VEITCH and SON have to announce upwards of Fruiting and Ornamental FINE PLANTS, principally GOOSEN. They are strong, well established, healthy plants, and well adapted for...

The conveyance of goods by the Great Western Railway is now so moderate that Messrs. Veitch & Son would agree for a small extra charge to deliver them carriage free at the station on the above line.—Exeter, Feb. 21.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 21, 1846.

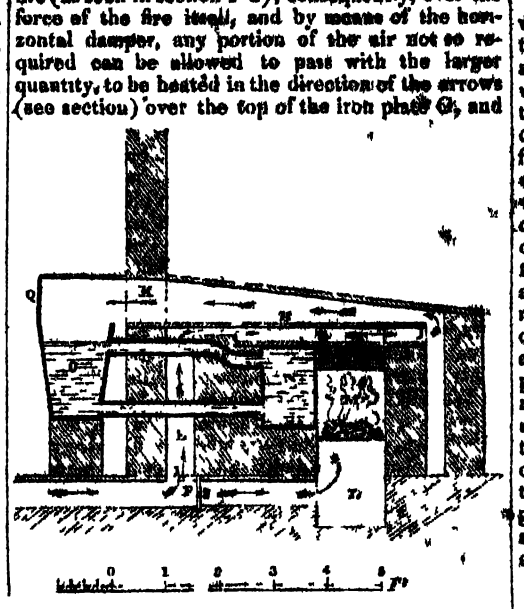
SUBSCRIPTION FOR THE TWO FOLLOWING WEEKS.

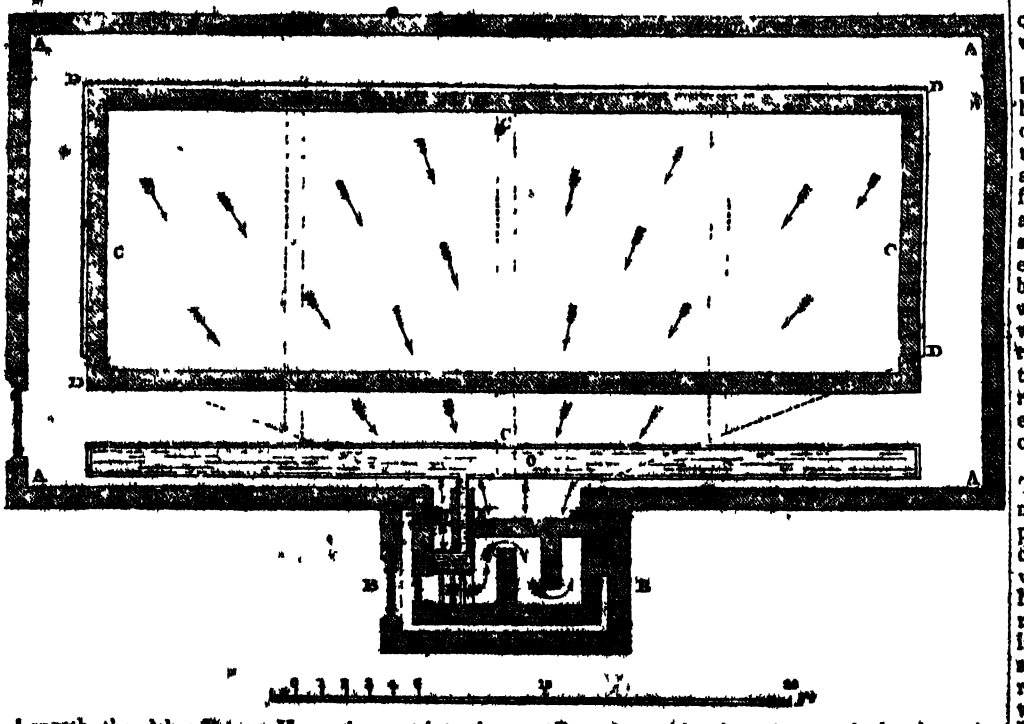
Wednesday, Feb. 25—Society of Arts . . . . 8 P.M.
Monday, March 2—Horticultural . . . . 12 ½ P.M.
Tuesday, " 3—Horticultural . . . . 6 P.M.
" " Linnean . . . . 8 P.M.
Friday, " 6—Botanical . . . . 8 P.M.

We have now the pleasure of laying before our readers Mr. Mezar's plans for Bolmaine Heating, in his own words:—

"I now proceed to lay before your readers my plans for heating a stove-house, on simple radio-thermal principles. Before, however, doing so, may I be pardoned if I ask for them the most attentive consideration of all classes of your readers, from those who have expended (may I not say needlessly?) their thousands, to produce stove temperatures, and those who have long wished in vain for such horticultural luxuries; from the learned who can understand their principles, and the unlearned who can only comprehend the plans; and I ask this, not because I am vain enough to think that they will practically accomplish in the best possible manner all that can be desired; not because they develope to its full extent the system for which I am contending; but because I believe they will to a certain extent attain the desired end, and because they embody the only natural (and as I shall with your permission in another paper prove), the most philosophical principles, by which atmospheric heat and moisture are to be distributed.

"Let the outer shaded lines A represent the walls of a span-roof stove-house, and B those of a hot chamber, the sides and roof of which it will be well to line with some non-conducting material (probably asphalte roofing); let the second shaded lines





beneath the slab of stone H, passing out into the chamber at I, and thence back into the stove-house at the opening K. Let L be the ash-pit (the door of which must fit accurately); M the fire-place (its supply-door also fitting so as to prevent the ingress of any air from without); N the boiler, with flow and return pipes into the trough O; the stone slab H extends over the fire-place, forming the roof both of the fire and flue, so that the smoke passes beneath it, through the flue, in the direction of the curved arrows (see plan), into the chimney P, also to be furnished with a damper outside the hot chamber; the iron plate will instantly conduct and radiate the heat supplied by the burning fuel, and this will be at, incessantly borne away by the ceaseless currents flowing onwards from beneath the floor of the house; the water through O is to be furnished with a stream, constantly flowing and over the brick opening, so that the escape of the heat into the house will not only take place, but be increased over a considerable portion of the surface of the water in the trough.

"Does not this plan, then, embody the principles for which I am contending? does it not provide for a full communication of the caloric evolved by the burning fuel to the atmosphere, by means of a rapidly conducting body? does it not provide for its radiation? does it not secure a full and free distribution of the caloric so communicated and radiated, by availing itself of the property which all gaseous bodies so powerfully possess of distributing caloric by the movements of their particles, in other words, by atmospheric currents? does it not provide for an hygrometric condition of the atmosphere proportionate to its temperature; the air and the water deriving their heat from the same source, while the moisture, if desirable, can be lessened by many simple mechanical contrivances, such as steaming the floor from the boiler or diminishing the surface supplied? does it not insure too a full deposition of dew, by the saturation of the heated atmosphere when that atmosphere cools? But I am writing upon these philosophical grounds, on which I shall shortly call upon your readers to reject all hot-water apparatus for heating purposes.

"With regard to ventilation, I am not unmindful of its importance, and though I have not shown the mode by which I propose to effect it, for fear of complicating the plans, their adaptation to it is most easy. Thus, it will be remembered, the roof of the flue is formed of an iron plate; if the floor of the flue were formed of the same material, and beneath this a space were left, communicating at the end towards the chimney with the external air, and at the other opening into the hot chamber, it is evident that the fresh air will rush from without beneath the plate, become warmed, and mixing with the other heated air in the chamber, will be carried into the house; the quantity supplied can be regulated by a damper at the external opening.

"One word as to expense; this of course will much depend on the taste and means of the party erecting it; though, perhaps, I should agree with Mr. Annan, that the most durable way in these matters is the cheapest: the floor of the house forming the cold-air drain, three wooden dampers for the regulation of cold air, an iron one for the chimney, two slabs of cast iron (if my system of ventilation is adopted), a simple boiler, with 3 or 4 feet of pipe, a tub with a ball-cock as a supply cistern, a wooden trough, a slab of stone, the bricks of the stove, and a few fire-bricks to line the side of the furnace, are all that necessity requires; their actual expense any one can ascertain; their expense relatively to hot-water apparatus I shall leave to be calculated by those who have erected such things, and who, I hope, are by this time beginning to compare their cost and their worth. If I have not made myself intelligible, I shall be most happy to give any further explanations to any persons anxious to try the plan, or any modifications of it, who will communicate with me, my only desire being to see this system carried out. And nothing will afford me greater pleasure than to see my own plans superseded by others formed on the same principles, but excelling in their development."

Two inventions were produced at the meeting of the Horticultural Society last Tuesday, to which we must direct the attention of our readers.

The first was a contrivance by Mr. Fay, of Blackheath, for examining the roots of plants in very large pots. It is not possible to take the "ball" out of such pots by the usual process of inverting them, and allowing the ball to drop, because they are too heavy. Mr. Fay meets the difficulty by the following contrivance. A pot is made with a moveable bottom, concave on the upper side like a saucer. When the ball of such a pot is to be examined, the latter is placed upon a heavy wooden block cut into a cylindrical form, which forces upwards the moveable bottom, and carries the ball with it without the slightest disturbance. After the roots have been examined, the pot is lifted upwards till the ball is replaced, and the wooden cylinder is removed. This little apparatus is simple and effectual, and will be of service to the growers of specimen plants for exhibition.

The other invention is of much more importance. The value of hygrometers, that is to say of instruments capable of indicating the amount of moisture present in the air, is now well known to all gardeners. Such an instrument is, indeed, as much wanted as a thermometer, but we have hitherto had nothing fit for ordinary use. Daniell's hygrometer and the wet-bulb thermometer, the only two instruments now generally used, are entirely unsuited to garden purposes, indeed, it is impossible to read off the indications of Daniell's hygrometer without much experience in the use of the instrument. Mr. Simmons has contrived a hygrometer which appears to embrace every point required in gardening, and which is free from the objections just mentioned. He avails himself of the property which wood is well known to possess, of expanding in a moist, and contracting in a dry, atmosphere. By adapting a thin slip of Mahogany, cut across the grain, to an index made to traverse a dial plate like that of a watch, he is able to show, with considerable exactness, the amount of moisture in the air. To effect this, the dial is divided off into degrees, over which the index passes; when the air is dry, the wood contracts and pulls the index hand in one direction, when it is damp it expands, and pushes it in the opposite. The greatest amount of atmospheric dryness forms one extreme of the scale, and that of wetness the other: between these two points the index is incessantly moving, as the state of the atmosphere varies.

We have had one of these instruments under examination for some time, and we are able to speak of it in the highest terms. It is so sensitive, that

mere breathing upon it sets it in action, and it has the great merit of indicating at all times by its index hand exactly what the state of the air may be. We regard it as the very best instrument that has been introduced into notice for a long time, so far as practical gardening is concerned. It may not be, and probably is not, fit for very strict scientific purposes, but it is amply sufficient for every object of horticulture.

In the official report on the Potato Crop, by the late Irish commission, dated Nov. 7, 1845 (see p. 767, 1845), is the following paragraph. "It has also been ascertained by actual experiments that Potatoes, though diseased, will grow and produce *apparently* healthy plants." Nevertheless, the commissioners thought it imprudent to recommend the employment of such Potatoes, "except by way of experiment;" thinking, no doubt, that the evidence in their favour was inconclusive. We greatly regret to state that the event has justified their caution. We are now in a condition to announce positively that although diseased Potatoes will produce plants which for a few weeks appear to be healthy, yet that they will not remain so, and that DISEASED SETS WILL PERPETUATE DISEASE.

It was stated at the meeting of the Horticultural Society, on Tuesday last, that it had been for some time rumoured that the new Potato crop was again attacked in forcing-houses by the old disease; that these rumours had become so frequent as to cause strict inquiry to be made into their truth; and that the result of that inquiry was *a confirmation of the reports alluded to*. Potatoes were produced from Mr. Barnes, gardener to Lady Rolle, at Bicton, in which the disease had manifested itself in a manner not to be mistaken; first, by the appearance of a brown gangrene on the haulm underground and in the neighbourhood of the old tuber, and next by rotting blotches on the leaves. These Potatoes had been planted in the autumn In the month of January "they were as strongly and evenly above-ground as I ever saw a field of Potatoes in May," are Mr. Barnes's words. The disease was, remarked upon taking up a portion for transplanting to a hotbed for forcing. Of the samples produced to the meeting of the Horticultural Society, one, and much the worst, was the produce of "rather badly affected tubers;" in these the whole of the under-ground haulm was already gangrened, and brittle. Another sample, from tubers *supposed to have been sound*, also manifested the symptoms in putrifying blotches on the leaves, accompanied by the under-ground gangrene.

In addition to this Devonshire evidence, it was mentioned that plants in the Garden of the Horticultural Society, examined the previous afternoon, were found in the same state, the under-ground haulm having already begun to decay in blotches. It was added that these plants were also obtained from diseased tubers, planted for the express purpose of watching the progress of growth. No trace of fungi could in their instance be discovered on the decaying spaces after the most careful examination of some hours' duration; but a white mouldiness had manifested itself on the stems sent up from Bicton.

But this is not all. Upon examining more carefully the young Potatoes formed by the diseased sets, we found still further evidence of latent mischief Some of Mr. Barnes's Potatoes had formed tubers and roots without haulm or foliage; they were what are called in Cornwall "Bobbin joans." In one of these the brown colour on the walls of the cells, the earliest symptom of disease, was already appearing in numerous minute places, *in the very centre* of the young Potato [this Potato became black after 24 hours' exposure to air]; others were decaying on the surface, and one of them *had already rotted away*. We now, therefore, warn the public that DISEASED SETS WILL PRODUCE A DISEASED CROP. Not a shadow of doubt remains upon that point.

But unfortunately this intricate question is not settled by such an announcement. On the contrary a far more serious consideration remains behind. Can we regard the sound (?) Potatoes saved from the diseased fields of last year as fit for seed? It may be rash to venture upon any prediction concerning so wholly unknown a subject; but nevertheless the interests involved in this question are so mighty that we must be content to bear the reproaches which may be poured upon us if we hazard an opinion which the result may not confirm. We venture then to declare thus early that GREAT DOUBTS EXIST AS TO THE FITNESS FOR SEED OF APPARENTLY SOUND POTATOES FROM DISEASED DISTRICTS. That the remaining Potatoes of last year's crop are in an unusual condition is certain; they are more excitable; they will sprout much quicker than is customary; at this early period Potatoes are found in a state of advanced growth when the pits are opened; and this has taken place much beyond what can be ascribed to the peculiar mildness of the season. In fact, the old tubers of last autumn began to grow in a few weeks after they became ripe or what seemed so; an event unknown in previous Potato culture. Why this is we know not; nor shall we embarrass ourselves with enquiring whether it is owing to this or that chemical peculiarity. It may be very true that the Potatoes have formed unstable *cusein* instead of stable *albumen*; or some other explanation may be more correct. For us it is enough to know that the *vitality of the Potato is affected*. The living principle is changed; of that no doubt can exist; and such being the case it is much to be feared that the disease of last year will continue to appear until, or except where, the original constitution of the Potato is recovered.

But we would not sound a note of alarm upon mere speculations. We grieve to announce that we have now before us evidence that confirms the view we have ventured to take. Among the Bicton Potatoes above alluded to was one which the most practised eye would, we think, have pronounced sound; its skin was clear, its texture uniformly pale yellow, with no tendency to change colour when exposed to the air, and its surface had not a blemish, with the exception of a small very narrow short streak on one side, which seemed to have been the scratch of a fork. This Potato pushed vigorously; its main stem is half an inch in diameter; it must have shown all the symptoms of the most robust health; and yet gangrene has attacked the haulm just above the tuber, and the usual blotchings have appeared upon the leaves. This Potato plant is unequivocally diseased.

We will suppose that some trace of disease could have been found in this Potato, by cutting it into thin slices, though we have failed to discover them by that process. Admitting this, yet it is perfectly clear that if healthy Potatoes can only be discovered by such a process, THE CROP OF NEXT SEASON IS DOOMED wherever sets from diseased fields are employed.

We therefore warn the country, in the most emphatic language that words are capable of conveying, to think well of what is coming; to plant no Potatoes to which suspicion attaches; and, if sets from uninfected districts cannot be procured, to crop their land with something else. There can now be no doubt that in the absence of such precautions *there is no security for the Potato crop of* 1846.

[Since writing the above we have received confirmation of our worst fears. Mr. Errington, gr. to Sir Philip Egerton, at Oulton, in Cheshire, writes that in a garden near him "the Early Kidney Potatoes in frames *are totally destroyed*." He adds that he "saw the frames last week, and the stems have mortified from the leaves downwards, *exactly as they did in the open fields* last September."

Mr. James Cuthill, of Camberwell, informs us that Mr. Haie, a market-gardener at Ware, in Hertfordshire, has had his early Potatoes attacked with last year's disease; that "*half his crop*, amounting to about 40 lights, *is gone*;" that the plants "were looking well, and about 8 inches high, and *all at once* they were attacked." Mr Haie, florist, Stockwell, saw these Potatoes, and authorises Mr. Cuthill to say so; the owner was dusting them with lime.

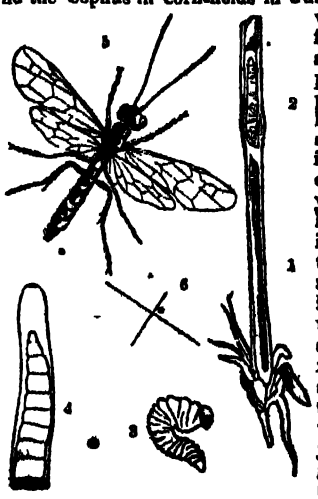
We have received a sample of Potatoes from Mr. Milburn, of Thorpfield, near Thirsk, just taken out of the pits, and "quite sound as far as he can judge," in which indeed there is not the smallest outward sign of decay, and yet we find every one marked with the disease upon cutting into them. We are also informed that the forced Potatoes at Col. Wyndham's, at Petworth, have proved to be diseased, although great care was taken in picking out what appeared to be sound sets. Of this last case, however, we have no certain knowledge as yet.]

The unexpected revival of the Potato question compels us to defer the continuation of our remarks upon the effects on plants of air in rapid motion.

ENTOMOLOGY.

Cephus Pygmæus (*the Corn Saw-fly*).—When attention is once called to a neglected subject, it is almost incredible what light is soon thrown upon it. The economy of this insect was unknown in England a few years back, but the French naturalists and agriculturists lately recorded their researches, and its history had scarcely been published in the "Journal of the Royal Agricultural Society," when a gentleman at Cranford discovered portions of his Wheat crop infested by the Cephus. He found that some straws readily broke off towards the ground; and about the middle of last August he showed me several which he had slit open (Fig. 1) with the larvæ and their cases in them, about an inch and a half from the root, and just above a knot was a larva lying straight within a thin silky film (Fig. 2), with some dung below it, and a farinaceous substance resembling dry paste above it. "It soon made its way out, from being disturbed, and laid in the curved position shown at Fig. 2. It was yellower than represented by M. Guerin, more wrinkled, the head was not so brown, but that might be owing to its not being quite matured, and there were four fleshy protuberances, the analogues of abdominal feet, which were very distinct when the animal was irritated: pectoral feet it had none.

It appears that Wheat crops are not commonly attacked by the Cephus in France, but Rye is sometimes so extensively affected, that a field appears at harvest time as if it had been traversed by sportsmen and dogs in every direction. The infested plants may be readily detected a week or two before harvest by the whitened and straight ears being elevated above the others, and appearing perfectly matured, forming a striking contrast with the surrounding green crop, the ears of which are full and drooping, whilst the others are either empty, or contain only a few shrivelled horny grains. The maggots inhabiting the straws live through the winter in a fine transparent case of the closest texture, and in all probability impervious to the air; they have been observed transformed into the pupa state at the end of March: these have hatched the beginning of April; but oftener at the end of May, before the Rye and Wheat are in flower, but I usually find the Cephus in corn-fields in June, and in the first week of July the females only are abundant. After pairing, this sex pierces the stalk below the first knot, and deposits an egg in the interior, or else later in the year the eggs are laid upon the stem immediately below the ear. The young maggot lives on the interior of the tender straw; it subsequently perforates the knot and passes higher up, sometimes traversing all the joints. When full grown it returns, and arriving at the base of the straw, it cuts it down level with the ground at the time of harvest. It then enters the stump of the Rye a little below the soil, where it closes its tunnel with a stopper of sawdust and excrement, encloses itself in a transparent cocoon a great deal larger than itself (fig. 4), and there remains for eight months.* The straws being cut circularly on the inside by the maggot which is furnished with strong jaws, they die, and are readily broken off by the wind, so that the fly when it hatches can, without any difficulty, make its escape



Cephus pygmæus is of a shining black colour; it has prominent eyes, and three ocelli on the crown; the antennæ are rather long, slender, slightly clavate, and composed of 21 joints; the mouth, in the male, including the powerful jaws, is bright yellow, a spot on the nose and the inner margin of the eyes are of the same colour; the abdomen is sessile, rather long, slender, and slightly compressed, at the base is a yellow membrane, there are yellow spots on the sides of the first and second segments, and a dot on the back of the latter, the third and fifth segments have broad yellow margins, the sixth has a narrow one, forming spots on the sides and back, and the apex is yellow; the wings are transparent and iridescent, with many cells, the costa and stigma are yellowish-brown, and all the nervures are fine and brown; the legs are bright yellow, including the coxæ and trochanters, but they, as well as the thighs, have black stripes on the outside; the hinder tibiæ are spurred at the apex, with another pair of spurs below the middle; they are brown on the outside, as well as the 5-jointed tarsi; the claws are bifid with little pulvilli between them (fig. 5, the cross lines showing the natural dimensions). The female is larger, the palpi and sides of the jaws only are yellow; the abdomen is rather stouter and shorter, the yellow spots on the two basal joints are either very minute or obliterated, the margin of the 6th is less apparent, and the bands are more of a sulphur colour; the apex is sloped off obliquely, and receives a black ovipositor, which is but slightly exposed; the wings are rather smoky; the legs are ochreous, the coxæ, trochanters, and thighs black, excepting the extremity of the latter above; the hinder tibiæ are brown outside, and the four posterior tarsi are of the same colour.

These flies resort to flowers in corn-fields, Grass in woods, and Umbelliferæ and Compositæ on banks and roadsides. The straws containing the larvæ may be detected after harvest by a little attention, the short pieces of stubble being cut very horizontally by them. They undoubtedly cause some mischief, as the ears of the infested stems are either sterile, or contain only a small number of shrivelled grains. Burning the stubble seems to be the best means of extirpating the Cephus, but there is an Ichneumon named Pachymerus cal-

* Vide M. Dugalgneau's and M. Herpert's Memoirs.

trate which keepsit in check by depositing eggs in the maggots of the Cephus, which hatch and live upon them.†—*Ruricola.*

WINTER FLOWERS.

Stenorhynchus speciosus.—An old terrestrial orchid from the West Indies; but much neglected. This plant will class in point of cultivation with the Bletias, Neottias, &c., and requires no very particular treatment, excepting a warm and moist atmosphere. It blossoms naturally under the above treatment in January, and very freely. The flowers are scarlet or rather a very lively brick red. Like many of these plants, it should not be too much divided, but allowed to increase into stout plants, which will throw up six or eight spikes of bloo soms each. It continues in blossom for two months, makes considerable display, and is worthy the attention of every one desirous of handsome flowers of easy cultivation in the dead of winter.

Eranthemum pulchellum.—Blues amongst forced flowers are rare; therefore, this plant is very desirable. Struck from cuttings in the early part of February, and highly cultivated, they will make nice bushes by the early part of August, when they should be removed from the stove to the cool greenhouse, to check further excitement to growth. Introduced to a lively temperature of from 65° to 70° in the early part of November, and if possible to bottom-heat, they will blossom beautifully through December and January; when, if cut down, disrooted, and carried through the same routine as the cuttings, they will make better bushes still by the autumn following—having more flowers in proportion to the foliage. These plants delight in abundance of moisture at the root, and are better kept in pans of water when in flower. Soil should be strong loam, peat, and leaf-mould.

Poinsettia pulcherrima.—This noble stove-shrub, although insignificant in the true flower, has such a surprising scarlet bract, that it makes under high cultivation, an extraordinary display. Few persons, however, can find room for it grown to six or eight feet in height. The best way is to dwarf it, by cutting in the old plants severely late in the spring—say about April. They will produce cuttings in a month after, which slipped off, struck, and placed under high cultivation, with bottom-heat, will make nice plants of two feet high by November; at which period, if they have been kept in a light house, they will begin to blossom. Under this mode of cultivation it will be well to put three cuttings in a 5-inch pot, and these may have one shift into a 7-inch pot, about the early part of August. They will thus make a greater display, and will not need topping to make them bushy, which would scarcely be prudent with such late grown plants. Soil should be strong loam, peat, and manure, with a little sharp sand.

Billbergia iridifolia.—A native of Rio, and of rather modern introduction, is scarcely second to the Poinsettia in display, whilst in point of elegance it is the admiration of everybody. It wants very similar treatment to the terrestrial orchids, in fact, good Pine-apple treatment will just suit it. Like many other plants for forcing, early growth is a material point; this secured, a withdrawal from the high excitement of the stove to a greenhouse in July or August serves to concentrate the energies of the plant for flowering.

Euphorbia jacquiniflora.—This most beautiful winter flower is, indeed, indispensable to every collection; its cultivation is not difficult, although it is somewhat difficult to get the plants into a bushy state. The two or three year old plants make the best bushes, and cuttings struck from these, when they "break" in February will make nice plants for a small shelf by the ensuing autumn Mr. Beaton has recommended turning them on their sides in the course of their cultivation, to encourage the emission of shoots from the lower part of the stem, and a good plan it is. However, if a lively and powerful action of root, through well constituted and porous soil and bottom heat, be ensured, they will, with "stopping," break many shoots. If there are plenty of cuttings to be had, I should recommend putting three in a small pot, which should receive only one shift afterwards, they will thus make more effect than single plants Soil should be sandy heath, leaf soil, and loam, all in a lumpy state, to which add plenty of small charcoal, pounded crocks, and sharp sand, with the pot one third filled with drainage.

Mignonette.—Everybody's favourite, and is easily grown, provided good frame or pit room can be secured for it. Two sowings, the one about the first week in August, and the other three weeks later, will furnish plants for both autumn and spring. They may be sown in a small bed, and, when compact plants, may be transferred to 3 inch pots, putting five or six in each pot. They require much care on their removal, and must be placed in a close and moist atmosphere for a week; in fact they should receive cutting treatment. They enjoy abundance of light; no soil or plan will flower them in perfection unless they are near the glass A back shelf in a pit, or a frame made up specially for them with the glass thoroughly washed, and the pots placed on, or rather plunged in, ashes, is the best situation for them.

It is necessary, in order to make the plants thick and stout, to pinch the terminal bud of each off when they are thoroughly rooted in the pots, and not before. Air must be given abundantly at all times possible. They must be well secured against severe frosts by plenty of covering, and kept somewhat dry at the root during the dark months of November, and December. The soil may be, two parts of turfy loam, and the third equal parts manure and leaf soil, to which I add coarse sand and and charcoal siftings.

Cymbidium sinense and ensifolium.—Two Chinese terrestrial orchids, which although somewhat inconspicuous as to the colour of the flower, are nevertheless elegant when closely examined, and of delightful fragrance; the C. sinense is particularly so. The scent of the latter is equal to the best summer Mignonette. The only thing to lament is the slowness of its increase, as could a large stock of it be obtained, in large and luxuriant masses, it would be invaluable; and having run through their summer's growth, might be housed in a moderate greenhouse, and introduced in succession through the whole of the winter. The treatment is similar to that of terrestrial orchids. Squares of peat and lumps of charcoal suit them well, the pot being extremely well drained.

In concluding the subject of Winter Flowers for the present, I beg to say that a vast number of other plants possess capabilities for this purpose, some of which I annex in the following list, and hope thereby to draw the attention of others to the subject. Let me not be understood, however, as favouring the idea that any gardener, be he ever so clever, can hope to succeed with all these things at once, under a mixed system of glass. No; where a thorough succession of winter flowers is desired, special structures must be provided for the purpose, and they must have unremitting attention; in fact, they must form a distinct branch of gardening by themselves.

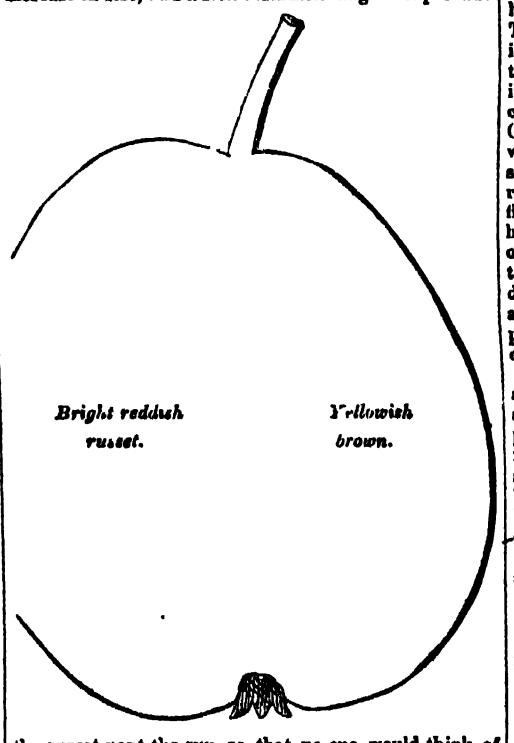
Miscellaneous List.

Liliums	Crocuses	Cornelian Cherry
Amaryllises	Scillas	Honeysuckles
Hedychiums	Hellebores	Heaths
Pancratiums	Orangos	Correas
Leschenaultias	Oldenlandias	Epacrises
Lilacs	Choroszmas	Pultenæas
Syringas	Wallflowers	Coronillas
Pelargoniums	Anemones	Cypripediums
Euphorbias	Calceolarias	Polygalas
Bletias	Dianthus	Luculia
Mezereon	Gardenia	*R. Errington, Oulton.*
Hepaticas	Chimonanthus	

THE FLEMISH BEAUTY PEAR.

Synonymes.—La Belle de Flandres, Brilliant, Imperatrice de France, Josephine (of some), Bouche Nouvelle, Bose Sire, Bosch, Fondante du Bois (of some).

It is very probable that this Flemish variety is in the possession of many who may not be aware of the state in which it ought to be gathered in order to render it melting, sugary, and exceedingly delicious. If allowed to hang till it readily parts by merely raising it up, without pulling, it is good for nothing. Thus allowed to remain after the time it ought to be gathered, it will increase in size, and a rich vermilion tinge will pervade



the russet next the sun, so that no one would think of gathering whilst such apparent improvement was going on; but it will not become melting if treated with such forbearance, and the flesh acquires a disagreeable Anise perfume. The discovery of this peculiarity of requiring to be gathered unusually early was accidental. Some fruit was blown down when the crimson tinge was only just commencing to be formed, and when the stalk would not separate from the spur without some degree of violence; these proved excellent, and the portion left on the tree became the reverse.

The accompanying representation is only a medium sized fruit from a standard. The flesh is yellowish white, melting, very sweet and rich. In perfection in the end of September and in October. Tree spreading, shoots long, rather slender, clear purplish brown, with numerous white dots; buds prominent. Leaves middle sized, ovate, tapering, pointed, flat, slightly serrated; petioles long and slender; stipules linear. Flowers middle-sized, expanding early; petals obovate.

The tree bears well as a standard; and as the fruit in good situations must be taken from the tree, as it were, prematurely, it would probably ripen on the northern aspects of walls, and in situations where most other kinds cannot attain the degree of maturity they require.—*R. T.*

THE AMATEUR GARDENER.

Planting.—Reader, did you ever see a tender mother soothe a child to sleep, and afterwards lay it down to rest? The operation, to uninstructed eyes, may appear very simple, scarcely demanding a thought, but it is really one of great skill and difficulty to perform properly. The babe must be so held as to render every motion as pleasing as possible; the tones of the voice must be gentle and soothing; and, in consigning the little one to its bed, all the mechanism of the arms of the nurse must be exercised to prevent any jarring or rough motions disturbing its slumbers. An experienced mother can tell at a glance whether the infant is rightly put to bed, and from the mode in which the duty is performed, can predict the length or shortness of its repose. We mistake greatly when we imagine duties are easily discharged because they are common, and have common things for their subjects; for matters of every-day occurrence, and which seem to be perfectly easy, often demand a long apprenticeship for their efficient performance.

The familiar illustration just noticed has often occurred to me when engaged in planting, or when contemplating the right or wrong methods in which this important part of gardening is carried on. An experienced eye can tell whether a proper degree of repose (so to speak) is given to a plant when committed to the earth, and from the way in which this is done, can predict the future destiny of the shrub or tree. Yet to the unthinking what is apparently more easy! To dig a hole, and thrust the roots into it; and afterwards to tread down the loosened soil, is, with many, the whole theory and practice of planting. The result of this ignorance is visible in the great majority of gardens. Many productions die; others can only maintain a slow and sickly growth. Fruit trees canker, and ornamental shrubs continue dwarfish and dwindling, more from improper planting than any other cause. Soils, of course, have considerable influence, but planting has much more; and when the amateur cannot command the former of the exact kind, he may, in a great measure, surmount the inconvenience by skilful planting.

Let two men purchase two collections of Rose-trees of precisely the same varieties, age, and general character, and plant them in the same soil and aspect, and yet the results may be as different as possible, leading at first sight to the conclusion that the unfortunate grower had been imposed upon in the quality of his plants. The Rosary of one will be rapid in its growth, making, in some cases, shoots four or five feet long in a season; the flowers will be numerous and fine, and the foliage indicative of robust health;—while the collection of his companion will be in all respects the reverse of this. On examination, the cause of this marked difference will be found to be the different modes of planting pursued. The trees of the disappointed grower were hurried into holes just dug *pro re nata*, and as hurriedly filled up; while his more successful rival had trenched his ground previous to planting, and arranged the fibres of the roots as carefully as a mother would compose the limbs of the little one to sleep. Neither plenty of dung, nor repeated applications of liquid manure, can atone for the first and radical offence; an entire replanting is the only method of attempting a reform, and even that may come too late.

The principles of correct planting in the open ground are the same as those which regulate pot culture, allowance being made for the altered circumstances of the plants. Indeed, good planting is even more necessary for plants in pots, since they are so artificially situated, and have so little chance of being liberated from the bad management of man, by any kind intervention of Nature. A tree may possibly get on, in spite of the want of skill in the planter, because the soil being favourable, the roots may escape from their pent-up position, and abundant rains may re-dispose the clods so unceremoniously thrown upon them. But let a plant be once badly potted, and its chance of flourishing is gone indeed. The pot presents an impassible barrier to the roots, and the water applied only makes the mould more compact, and less capable of fulfilling its office. There is also this difference between planting in the open air and in pots: in the one case the thing only requires to be done once, while in the other the operation must often be renewed. Yet how constantly is this particular forgotten by amateurs who are really fond of flowers, whose collections are sickly because the pots are full of labyrinths of roots, which in hopeless continuity perform pilgrimages around the walls of their prison, seeking a loophole for escape. Turn the mass out of the pot and how curious is the spectacle! The soil by some strange process is gone, and in its place there is a coil of vegetable fibre, which, in some cases, has travelled six times round the pot in search of fresh nutriment. In such cases these efforts of nature are useless, and the spongioles find that they

"——drag at each remove a lengthening chain"

In two successive papers I propose to expound familiarly the best mode of proceeding in planting in the open air and in pots. In the meantime let me give a word of advice on the necessity of acting on philosophical, or, if you please, physiological, principles, in all gardening operations. Nature works by rule, as surely as the expert artisan or mechanic, and our wisdom

† Royal Agr. Jour.; v. 6, p. 136.

consists in finding out her methods of procedure, and then humbly imitating them. By a long course of experience, if guided by a habit of observation, every man will in time become skilful; but there is a more compendious method by which much time will be saved, and that is, by reading the results of the observations of others. I would recommend to every amateur to study well Lindley's "Theory of Horticulture." I owe much of the pleasure and success I have found in gardening to the perusal of that book, and no one can be ignorant of its principles and hope to be a successful horticulturist. The labour of years will be superseded by becoming acquainted in this easy manner with the discoveries of others, and with the great laws of vegetable growth which the collation of those discoveries has brought to light. A man may indeed be a great reader, and yet not a practical gardener; but a judicious application to books will always shorten our labour and make our failures fewer. The reason why a certain mode of planting and potting is more efficient than others, it is very desirable to know on many accounts, and a man must either discover the theory by extensive research or learn it from others. Most persons will prefer the latter method, and Dr. Lindley's book will prove a safe guide. By the way, would not a cheap edition of this valuable work be of great service, and meet with an extensive circulation?—*H. B.*

A LIST OF STOVE PLANTS

That will produce a succession of bloom throughout the year:—

JANUARY.

Centradenia rosea, rose.
Rivina humilis, scarlet fruit.
Pilcairnia staminea, scarlet.
Eranthemum nervosum, blue.
Clerodendron fragrans, white.
Begonia incarnata, pink.

FEBRUARY.

Inga pulcherrima, scarlet.
Begonia manicata, rose.
Eranthemum pulchellum, blue.
Vriesia psittacina, yellow.
Pavonia hermaefna, crimson.
Euphorbia splendens, scarlet.

MARCH.

Combretum purpureum, pur-
Osbeckia chinensis, rose. [ple.
Gardenia Stanleyana, mottled white.
Franciscea latifolia, blue.
,, hydrangeæformis, blue.
Heliconia brasiliensis, yellow.

APRIL.

Ixora rosea, rose.
Hippeastrum aulicum, red.
Gesnera discolor, crimson.
Porphyrocoma lanceolata, pur-
Begonia coccinea, scarlet. [ple.
Clerodendron hastatum, pink.

MAY.

Mussænda frondosa, yellow.
Gesnera Douglasii, purple spotted.
Isotoma longiflorum, white.
Achimenes longiflora, violet.
,, grandiflora, rose.
Tabernæmontana coronaria, white.

JUNE.

Gesnera Sutton, scarlet.
Gloxinia maxima, blue.
Clerodendron infortunatum, scarlet.
Allamanda cathartica, yellow.
Portlandia grandiflora, white.
Erythrina Crista-galli, scarlet.

JULY.

Ixora grandiflora, scarlet.
Gardenia florida, white.
Ruellia longifolia, blue.
Hibiscus Manihot, yellow.
Rondeletia speciosa, deep orange.
Dipladenia crassinoda, rose.

AUGUST.

Pentas carnea, blush.
Chirita zeylanica, violet.
Manettia cordifolia, scarlet.
Ixora coccata, orange.
Murraya exotica, white.
Columnea scandens, scarlet.

SEPTEMBER.

Æschynanthus grandiflorus, scarlet.
Justicia carnea, blush.
Gesnera elongata, scarlet.
Gussmania tricolor, gr. & scarl.
Echites stellaris, blush.
Clerodendron fallax, scarlet.

OCTOBER.

Passiflora racemosa, scarlet.
Gesnera zebrina, red & yellow.
Aphelandra cristata, scarlet.
Jamesne flava, yellow.
Franciscea Hopeana, blue.
Manettia bicolor, red.

NOVEMBER.

Pitcairnia flammea, scarlet.
Begonia semperflorens, white.
Epiphyllum truncatum, crimsn
Physianthus auriculatus, yellow
Pleroma lienthamianum, blue.
Aphelandra aurantiaca, orange

DECEMBER.

Goldfussia anisophylla, blue.
Euphorbia fulgens, scarlet.
Aristolochia gigas, brown and buff.
Eranthemum strictum, blue.
Dysophylla stellata, violet.
Ipomœa cymosa, white.

—

WEEKLY PRICES OF POTATOES per ton, in *Covent Garden Market*, in 1845, and 1846.

1845.			1846.		
Jan. 18	50*s.* to 80*s.*		Jan. 17	80*s.* to 160*s.*	
25	50	80	24	80	160
Feb..... 1	50	80	31	70	140
8	50	80	Feb..... 7	70	160
15	50	80	14	70	160
22	50	80	21	70	160

Also at the waterside, *Southwark*.

Jan. 20	60*s.* to 80*s.*		Jan. 19	50*s.* to 120*s*	
27	55	80	26	50	120
Feb..... 3	55	80	Feb..... 2	50	120
10	55	80	9	50	120
17	55	80	16	50	120

Home Correspondence.

Polmaise Plan of Heating.—I have no doubt whatever that the opinions you have expressed in favour of this plan will eventually be more than realized. I believe that it is capable of more extensive application, and on a larger scale, than most persons imagine; that it will be far more economical, quite as manageable, and a better means of producing a more genial and natural atmosphere than is effected by some of the modes of heating now in use. The days we live in are so fertile in invention that it is too much for any one to say that the accomplishment of any particular object is an impossibility; that which may appear so to-day, is no longer so to-morrow, and no one can tell what ideas may exist, or be excited into existence in the minds of others, to upset any preconceived notions of our own as to the possibility or impossibility of effecting the completion of any plan for this purpose. Had it not been for your early discernment of its merits, and the fostering care bestowed upon it, this Polmaise plan, which promises to be so useful and cheap a one, had been well nigh smothered in its birth. It appears to me, however, that the plan may be considerably improved upon, that it may be rendered more extensively useful, and, applicable to large structures as it is to small ones. How this is to be effected I will endeavour to show. I would propose that the warm air, radiating from the exterior of the furnace, and collected in an air chamber, be conveyed through woollen tubes made of flannel; these tubes to be placed in such a position as would be found most desirable for warming the atmosphere of the house; but here a difficulty occurs, how is the air to be made to circulate through these flannel tubes. I think it may be accomplished in this way—when the furnace is constructed the chimney should be so built as to afford the means of producing an ascending column of hot air through air-flues carried up betwixt the smoke flue and exterior wall of the chimney shaft, either by a circular flue within a square one, or by two square ones, the angle of the inner one being set opposite to the sides of the outer one; the space between the two, on either plan, will form the ascending hot-air flues. Now, we will suppose that the ends of the flannel tubes, whether there be one or more of them, are made to terminate in a well constructed brick flue built under the floor of the house; this flue is carried on to the lower end of the ascending hot-air flue, into which it is securely built. The effect of such an arrangement as this will be to cause a circulation of warm air through the flannel tubes, and the velocity of this circulation will depend upon that of the rarified air in the ascending hot-air flues.—so far the principle of the plan is, I think, sound enough in theory to warrant me in saying it will effect the object I had in view; namely, the circulation of warm air through flannel tubes in any direction that may be required. There are some apparent, but, I believe, no real difficulties in this plan; none, at least, but such as may be overcome by a little perseverance. It may be said that air will be drawn into the tubes from the atmosphere of the house, but this cannot be the case, because the air passing through the tubes being of higher temperature, and, therefore, specifically lighter, will have a constant tendency to rise and force its way through the meshes of the flannel. The temperature of the house will be regulated by that of the air passing through it; there will be no difficulty on this point where there is a well constructed furnace. Air in motion over a hot surface will be much more quickly heated than when at rest. In a quiescent state it is nearly a non-conductor of heat, and does not move until it expands by increase of temperature, and hence the difficulty of conveying it through flues placed in an horizontal position; but if we can effect a motion through the flannel tubes in the manner I have described, there is no reason why it should not be as efficient a carrier of heat as water. The making of the tubes would be a very simple affair, any gardener's wife could manage this; there might be some little difficulty at first about the most suitable kind of flannel for the purpose, but this would soon be got over. Then there is the way in which these tubes are to be supported; this is another very easy matter, nothing more being required than an iron ring with a foot to it of any required length, this might be let into a block of wood or stone, secured to the wall or made fast upon the floor of the house or pit; any whitesmith could make these rings. There is another point which is not so easily settled, and that is, the diameter of the tubes, but in all probability they will have to be of greater size than in iron pipes. I am inclined to think that the sectional area of the brick air-flue (under the floor of the house) which should be a very dry one, might be half that of the tubes entering into it, and twice that of the ascending hot air. I have taken this as a rule because there is a datum for it in the density of air compared with its temperature; what the exact proportion ought to be I cannot tell, but the temperature of the air at the several places referred to would go far to settle the question; perhaps some of your correspondents who may be proficients in such calculations, will take the trouble to enlighten us upon this part of the subject; it would greatly facilitate the means of arriving at something like the true dimensions of the air tubes.—*Henry Liddel, Beverley-road, Hull.*

Potatoes.—My Ash-leaved Kidney Potatoes I had removed from the ground before their tops decayed last summer, and placed in the Vinery to dry. None were decayed, and since not one has decayed.—*Alpha.*

Gooseberry Caterpillar.—A friend of mine whose garden suffered much from the ravages of this insect, tried soot and various other recipes for their extermination, but without any success. Being recommended to try a decoction of Foxglove leaves, applied either with a syringe or from the rose of a watering-can, he did so very successfully. Whenever they make their appearance a good sprinkling with the decoction speedily makes them disappear.—*W. S. Shadwell.*

The Mole Cricket.—This is perhaps the largest and most curious insect that Britain produces; it differs from the majority of crickets in not passing through the larva and pupa state to complete its growth; its first appearance is like the last, except the wings, which grow as the insect increases in size. When this king of crickets is creeping, he is not unlike a very small lobster, or locust, but with extended wings which open and close like a fan under two parchment-like cases, which give it a singular appearance. His two strong fore-paws, or feet, are similar to those of his namesake, the mole; by these he burrows in the earth, and from a wrong opinion of his gnawing the roots of plants, he is looked upon by gardeners as an enemy. But the habits of this, like those of the rest of crickets, from its being nocturnal in its movements, are not well understood. It is to be met with, however, in wet boggy places, and only perhaps in local districts. During last summer I had six of them from a friend, one of which was an old one, nearly 2 inches in length, of a dirty brown colour; the transparent wings when closed covered the back and abdomen, and extended beyond it, resembling a tail. Two others were smaller and their wings just forming; the rest were about the size of small grasshoppers, of a soft whitish colour. I kept them in a box half-full of soil, covered with a pane of glass, which precaution was unnecessary, for I found that they could not even creep up the sides of the box, though they had strength enough in their fore paws to bore into hard soil, nay, even to open one's finger and thumb when pressed hard between them. I gave my pets roots of various plants, but they refused to eat them, and being at a loss for a supply of their proper food, they began to eat one another; then I offered them larva or grubs, which they speedily devoured, by sucking out the whole of the substance, leaving only the skins. I managed to keep my crickets about three months, but they were always very shy, seldom appearing above-ground during the day; nor did I ever hear them utter the least sound like their noisy smaller brethren in the chimney corner. The old one never attempted to fly, indeed the weight of its body rendered it unfit for much flight. Some assert that this insect only flies at pairing time, but this seems to be only conjecture, as well as the notion that it is amphibious. Though my crickets swam well, yet they could not dive, but held up their heads and seemed anxious to quit the water, a good sign they had no affinity with aquatic insects. Those insects, instead of being injurious to plants are, in fact, the reverse, subsisting solely on grubs injurious to vegetation.—*J. Wighton, Norwich.*

Pelargoniums.—Last September, conceiving the possibility of continuing or fixing, as it were, that state of growth, which I may call summer border luxuriance, in Pelargoniums, I took up two plants of the very pretty variegated Oak-leaved Pelargonium from a border edging out of doors. Each plant had two or three roots, contorted, snake-like, and fibreless. They were potted in very sandy compost, with a large admixture of charcoal, taken into an intermediate moist stove, and for a fortnight incessantly syringed. They scarcely lost a leaf, have never ceased growing since, shooting from every axil, and wearing still their free autumnal luxuriance, would scarcely be recognised as the same straggling untidy plants usually seen hiding the pot with their large leaves and thick depressed frondage.—*Micklewell.*

Double Brompton Stocks.—Last summer among other difficult things, such as Cactus-fruits, and Cucumber tendrils, I struck a number of Double Brompton Stocks under a Ward's case in a compost of which one-half was charcoal. They were a long while striking, but all rooted finally; all sized cuttings rooted equally well, and could not now be distinguished from seedlings.—*Micklewell.*

Impositions: The Sussex Monster Pear.—Observing a Pear advertised under this name, I looked in at 26, Cornhill, and found it to be as I suspected, an old friend under a new name, viz., Uvedale's St. Germain; the specimens are of a fair size only, and very high coloured. Plants can be bought in any nursery at 1*s.* 6*d.* each; now, 9*s.* is rather too much to pay for a new name, for these plants, I observe, are 10*s.* 6*d.* each. The advertisers have doubtless been imposed upon.—*A Looker-on.*

Fire Mortar.—In constructing the stove with bricks, you will find it well to recommend them to be laid in strong loam, mixed with a small quantity of good lime, where the fire acts; this is far more durable than mortar, and is frequently used for arches of brick-kiln furnaces and malt-kilns.—*Alpha.*

Transmutation of Corn.—Having read in last week's Paper Mr. Wighton's remarks and experience on this subject, I beg to add the following, which may perhaps tend to further experiments on this interesting phenomenon. In the year 1827, I was at Lucerne, in the canton of that name. In strolling by a field which had been cropped with Wheat (then in full ear), I was surprised to see amongst it a grain to which I was a stranger. The ears resembled Barley in shape, but more tapering and slender, whilst the grain was very similar to Rye, but somewhat thinner; the stems or stalks, however, were those of Wheat. On plucking up a few, I discovered that the different ears all proceeded from the same root! I brought some of these specimens to England, which I submitted to the inspection of an extensive and practical agriculturist in Kent, who assured me he had seen the same transmutation on poor soils (badly cultivated) in this country. In corroboration of the system, I beg to copy an article from the *Gardeners' Chron.*, which I find in "Explanations" of the author of "Vestiges of the History of Creation," page 111, as follows:—"At the request," says this learned person, "of the Marquis of Bristol, the Rev. Lord Arthur Hervey, in the year 1843, sowed a handful of Oats, treated them in the manner recommended by continually stopping the flowering stems, and the produce in 1844 has been, for the most part, ears of a very slender Barley, having much the appearance of Rye, with a little Wheat, and some Oats."—*C. Wayth, Bursted House, Maidstone.*

Calceolarias.—I beg to differ from the opinion expressed in the Leading Article of last week respecting the exhibition of these beautiful flowers. I have repeatedly urged their value as objects of display, and suggested to the Exhibition Committee the offering such prizes as would induce competition of high order.

Is it likely that the L.S. Medal, as first prize, will do so? I am satisfied the G.B. for 12 distinct varieties in 11-inch pots, would place this Exhibition more upon a par with that of Pelargoniums, which has greatly advanced under the liberality of the Horticultural Society, and which, I think, will be finer than ever in the coming season. I have been in days past a successful exhibitor of Calceolarias, and if my suggestion be adopted in a future year, I will place a sum of money at the disposal of my gardener with which to obtain the finest varieties and best plants, and so lend a hand to restore them to the place I consider they ought to occupy at our Chiswick fêtes.—*Veritas.*

The Holly.—The poet Southey asks the question:

O reader! hast thou ever stood to see
The Holly tree?

The most of the readers of the *Chronicle*, I will be bound to say, would answer yes. Well, says the Poet,

Below a circling fence its leaves are seen
Wrinkled and keen;
No grazing cattle through their prickly round
Can reach to wound.
But as they grow where nothing is to fear,
Smooth and unarmed the pointless leaves appear.

Having read the poetry many years ago, and seen it quoted in botanical works, I thought it must be true, but in order to test the truth of the statement I lately examined a number of Holly trees and looked for the "Circling fence wrinkled and keen," and found in some cases the leaves hanging to the ground as "smooth and unarmed" as those of the common Laurel, and I looked again, "Where nothing is to fear," even although the Cameleopard had been browsing in the neighbourhood, and found them "wrinkled and keen," and other trees had their leaves wrinkled and smooth both within and beyond the reach of "grazing cattle." There can be little fault found when he says

I love to view these things with curious eyes
And moralise;
And in the wisdom of the Holly tree
Can emblems see.

But when he begins to overstrain his subject, it is time that we should examine things and judge for ourselves, and however well such sayings may do in the writings of poets, I think the scientific botanist should use them sparingly.—*P. Mackenzie.*

Societies.

HORTICULTURAL SOCIETY.

Feb. 17.—R. W. Barchard, Esq., in the chair. The Duke of Cleveland, Capt. F. Brandreth, and Mr. C. Lawson, jun., of Edinburgh, were elected Fellows, and the following Home Corresponding Members:—Mr. W. P. Ayres, Mr. J. Barnes, Mr. W. B. Booth, Mr. J. Brown, Mr. D. Cameron, Mr. A. Campbell, Mr. T. Corbett, Mr. J. Duncan, Mr. J. Falconer, Mr. R. Fish, Mr. D. Ferguson, Mr. G. Fleming, Mr. A. Forsyth, Mr. J. Green, Mr. J. Henderson, Mr. E. Law, Mr. A. Scott, Mr. J. Spencer, Mr. G. Vinden, Mr. R. Wilson, Mr. J. B. Whiting, Mr. J. M'Nab, jun., and Mr. R. Reid. Of Plants, Mr. Robertson, gr. to Mrs. Lawrence, exhibited three magnificent specimens of Dendrobiums, two of nobile, and one of Wallichii. Of the former one measured about 5 feet across and 4 feet in height, and the others were nearly of equal size. Along with these were two small plants of Cœlogyne Cummingii and trinervis. A Knightian medal was awarded for the Dendrobiums.—From Mr. W. P. Ayres, gr. to J. Cook, Esq., of Brooklands, was the finest specimen of Erica hiemalis, for its age, possibly ever exhibited. It was about 3 feet in height and nearly the same in diameter, and thickly studded with blossoms down to the pot. It was mentioned to have been *two* years ago a plant only about 6 inches in height, growing in a 5-inch pot. In February, 1844, it was potted into an 11-inch pot in a mixture of Shirley and Wimbledon peat, with a liberal admixture of Reigate sand and charcoal in large pieces, intermixed with small pebbles. Until it started into free growth it was kept in a moist and rather warm atmosphere; but during the summer it was grown in a pit having free ventilation, and occasional shading in bright sunshine. On dull days and dewy evenings the lights were removed entirely, and during September and October it was fully exposed to the sun. Having grown very freely it showed but little disposition to bloom, and the few flowers that were produced were removed as soon as they appeared. In February, 1845, it was removed into an 18-inch pot, in which it was exhibited, and during that season was grown in the greenhouse; placing it in the open air, however, on all favourable occasions, and watering it occasionally with a weak solution of soot and guano in a clear state. A Banksian Medal was awarded.—Mr. Redding, gr. to Mrs. Marryat, sent a fine Dendrobium nobile, Odontoglossum cordatum, a Guatemala species; a seedling Rhododendron, and a species of Aspidistra with curious green and brown flowers just peeping above the soil. A certificate was awarded for the Dendrobium.—Messrs. Henderson, of Pine-apple Place, sent a little Cœlogyne, an Oncidium, Hoitzia coccinea, a gay plant with bright red tubular blossoms, a species of Hoyea, the old but useful Acacia oxycedrus, and a good plant of Phalus Wallichii, with pale green and orange flowers, for which a certificate was awarded. Cut blooms of seedling Camellias came from Mr. Hally, of Blackheath; and Mr. Ivery, of Peckham, sent four seedling Cinerarias, named Brilliant, Perfection, Fairy Queen, and Colossus. From Mr. J. D. Parks, of Dartford, was a seedling Carnea and Cineraria. Specimens of young Potatoes came from Mr. Barnes, of Bicton, exhibiting the same calamity from which they suffered last year. Of Fruit, Mr. Fleming, gr. to the Duke of Sutherland, at Trentham, sent two Pine-apples, the Antigua Queen, and an Enville, each weighing 3 lbs. 1 oz. Concerning these it was said that the plants had been grown in perforated pots, a plan which Mr. Fleming considers excellent, as it admits of growing the suckers on the old stools, according to the Hamiltonian system, getting over the objection that the plants cannot be taken out of the pit, after they are once planted, without injuring them. When a fruit is wanted to be kept for some time after it is ripe, the plant is taken into the fruit room, and after the fruit is cut, is returned to its place without any material injury to the stool and its sucker, and the roots in the perforated pots soon emit fresh fibres into the material surrounding the pots. The Antigua Queen was stated to be an excellent winter Pine; along with these Mr. Fleming sent samples of Black Hamburgh Grapes, in order to show that good Grapes with skilful management may be obtained by the first week in February. The crop was mentioned to be equal to that of last year, viz., 120 bunches to nine rafters. With these were last year's bunches of the white Tokay, rather shrivelled. A Banksian Medal was awarded for the Grapes.—Mr. Toy, gr. to Col. Challoner, sent specimens of Red Muscadel, and West's St. Peter's Grape, the former somewhat shrivelled and passing into the condition of raisins. Finally, J. Gadesden, Esq., produced a fine specimen of a February Cucumber.—Of miscellaneous objects, Mr. Fry, gr., Lee Park, Blackheath, sent a model illustrative of an improved system of shifting large plants from one pot or tub to another. A Certificate was awarded for a very excellent new Hygrometer, for the purpose of indicating the amount of humidity present in the atmosphere of hothouses; it was shown by the inventor, Mr. Simmons, of Coleman-street, City.—From the Garden of the Society were Epidendrum Stamfordianum, a species remarkable for its fragrance; Oncidium Cavendishii, having a strong spike of yellow flowers; Spiranthes cernua; three species of Begonia; Inga pulcherrima, with numerous gaudy tassels of long silky stamens; Selago distans, a neat winter flowering plant, a Cineraria, a Cape Heath, and Primula denticulata, a hardy Himalayan species, which flowers early in spring, and which, when potted and placed in the greenhouse, where its beauty is unimpaired by the weather, is very ornamental for a long time at this season. Cuttings of the following fruit trees were distributed to such Fellows as wished to receive them, viz.—The Royale Hative Plum, a very early variety, rich and sugary, and as large as an Orleans; it deserves a wall, but bears and ripens well as a standard; requiring, however, to be well guarded from wasps, which prefer it even to the Greengage; the Early Purple Guigne, a fine early sort; Werder's Early Heart Cherry, a Prussian variety, earlier than the May Duke, and about the size of a Blackheart, but better in quality; and Knight's Monarch Pear. It was stated by order of the Council, that in future the wives of Fellows would be admitted to the garden and house exhibitions without orders, upon signing their names in the book provided for the purpose, and that the issue of tickets for the garden exhibition, at 3*s.* 6*d.* each, will be discontinued after the second meeting in April.

LINNÆAN SOCIETY.

Tuesday, Feb. 17.—E. Forster, Esq., in the chair. Dr. Kelaart and Major Cautley were elected Fellows. J. S. Ralph, Esq., read a paper on the axial and abaxial position of carpels. After referring to the fact of Leguminosæ and Rosaceæ, Scrophulariaceæ, and Gentianaceæ, being distinguished by the relation of their carpels to the axis, he pointed out that this distinction existed generally in the vegetable kingdom, and might be applied to all forms of fruits, except those which were solitary and terminal. He divided fruits on this basis into four groups, two definite, and two indefinite. To the first group belonged Scrophulariaceæ, in which the carpels were placed axial and abaxial; to the second, Gentianaceæ, in which the carpels were placed right and left of the axis; to the third, Rosaceæ, in which the odd carpel was axial; and to the fourth, Leguminosæ, in which the odd carpel was abaxial. Of genera and orders with carpels axial, the author recorded the following Umbelliferæ, Sambucus, several Ranunculaceæ, Lychnis, Silene, Philadelphus, some Malvaceæ, Sterculia, &c. Those with abaxial carpels, Leguminosæ, Œnothera, probably Labiatæ, Scrophulariaceæ, Boraginaceæ, Ericaceæ, &c. The author recommended that in all illustrations of genera, diagrammatic representation of the position of the carpels should be given. A paper was read from Dr. Buott, descriptive of several new species of Carex. Mr. N. B. Ward exhibited specimens of Chondrus crispus in three states, from difference of locality. 1. In the water; 2, washed by the waves of the sea; and 3, out of the reach of the water. The first had its fronds finely divided; the second, less; whilst the last were perfectly flat. Dr. Kelaart presented 70 species of plants from Spain. Captain Sheppard presented pods of Port Royal Senna (Cassia obovata), from Jamaica. J. S. Ralph, Esq., presented specimens of the fruit of Butea frondosa. Drs. Streeter and Ogden, who were elected at the last meeting, signed the obligation, and were admitted this evening.

CALENDAR OF OPERATIONS.

(For the ensuing Week.)

CONSERVATORIES, STOVE, &c.

Composts.—This title was given in former days to certain empirical mixtures, which were supposed to contain amazing virtues. These are, however, now generally repudiated, and their place is taken by turfy soils, which are found by experience to be far more susceptible of atmospheric influence, as also sufficiently rich for general purposes. Everybody who aims at high cultivation should have a potting shed, in which the soils should be kept for immediate use, in a mellow but not dry state. The moment they become dry, they should be removed to a general mixture in some open shed, and kept for purposes which will be described hereafter. Much depends on the state of soils at potting time, also on the state in which they are collected and housed. September, in my opinion, is the most eligible time to collect them, for various reasons; they should on no account be collected or moved in a wet state, the drier the better, and they should be piled up in sharp and narrow ridges to prevent rains from entering. *Conservatory.*—Dispense with fires here as much as possible; a temperature of 55° by day and 44° by night will be sufficient for general purposes. Do not allow the heat to increase much by sunshine. There is as much skill displayed in retarding certain flowers as in hastening their flowering in the first instance; and to this end a canvass screen, of a thin character, should always be at hand to throw on the roof during the mid-day hours of very bright days. *Stove and Orchidaceous-house.*—Continue repotting such Orchids as need that operation. Stanhopeas, Acroperas, Dendrobiums, &c., suspended in baskets or on blocks, will now either require syringing occasionally, or watering by some means. Many of these will have received little water since the end of October, and will have become excessively dry. Blocks may occasionally be soaked for a few minutes overhead, in tepid water; also baskets if very dry. If syringing is resorted to, choose a bright sunny day for the purpose, and batter them well early in the morning. On such occasions keep a brisk fire and give air freely until the afternoon, for fear of the moisture lodging on the unfolding bud, which, in some cases, would prove fatal. Some of the winter flowering stove-plants, as Geissomeria, Eranthemum, Plumbago, Justicia, &c., &c., now exhausted, should be cut back a little, and left to "break" awhile, when they may be disrooted, and placed in smaller pots; these will make large and early specimens for next autumn; whilst cuttings from them, struck immediately they break, will furnish succession plants of a smaller size, for dressing front shelves. The temperature should now be allowed to rise freely on bright days in the early part of the afternoon—remembering that a rise by means of solar heat alone can do no harm for a few hours, even at this period, provided it does not exceed 80°. *Mixed Greenhouse.*—Be sure to sow a little Cineraria and Chinese Primrose seed as soon as you can; this, with another good sowing in April, will furnish a supply through the next autumn and winter, if high cultivation be carried out. Keep an eye on the directions for stove plants. Many of the processes described under that head will be necessary here. Attend to your ornamental trellis plants, they should be always in high dress, and to accomplish this daily attention is necessary. Forcing bulbs, as Hyacinths, Narcissi, &c., should, after blossoming, have their leaves tied up, and should be transferred to a cold frame, and, when the most severe weather has passed away, they should be turned out of their pots to feed in prepared beds. Clerodendrons may now be disrooted, and potted in smaller pots in a fibrous soil, and started in a mild bottom-heat. *Forcing Pit.*—Continue to increase atmospheric heat and moisture at fitting periods. Attend to things for succession; watch the worm in the bud of Moss Roses; fumigate for thrips, &c., and see that the plants are duly watered with tepid liquid manure. *Cold Pits or Frames.*—Some little water will now be required here. Give plenty of air—all night in safe weather; and propagate stock for bedding out.

KITCHEN GARDEN FORCING.

Pineries.—Although I have said much about the spring shifting of Pines in previous Calendars, let no inexperienced person imagine that Pines are obliged to be shifted at this period. In former days the roots were either parboiled or swamped; and then a real reason existed for disrooting and repotting. The general stock of Pines which have been wintered in a proper manner will be as well left until they have filled their pots with fresh white fibres; then you may shift them. They will, however, require a renewed bottom heat; 85° must now be secured for them, and they should have a watering with warm liquid manure. *Vineries.*—In thinning your bunches, take care not to overload the Vines; those who do this will find their fruit inferior both in flavour and colour to that from Vines fairly cropped. I find by a note from Mr. Fleming, that he has again succeeded, to his entire satisfaction, in getting good forced Grapes in the early part of February. It is now, I think, quite clear, that with improved principles of forcing, and (above all) root management, not only Grapes—but good, ripe, and well coloured hothouse Grapes, may be secured all the year round by those who are willing to secure all the points necessary to carry out such views. *Peach-house.*—Attend well to disbudding; make up your mind to remove every superfluous shoot; but be sure to do this slowly. If your trees are over luxuriant, pinch the point out of every gross shoot as soon as it is 3 or 4 inches in length. By a due attention to this, the winter pruner's business will be almost reduced to a sinecure. *Mushrooms.*—Spring beds should be made forthwith; those will produce until the early part of June; after which they will not be good until September. A little more moisture may be allowed to the dung at this period; the evaporations

of March are very considerable, as compared with those of October and November. *Cucumbers and Melons.*—Secure by linings a permanent day heat of 70° with air, and a night heat of 65° min. with a little air also, if possible. Follow up successional crops as opportunities occur; and before placing the frames on the bed, stove them thoroughly with sulphur. I am inclined to think that the thrips and spider deposit their eggs in the crannies of the frames year after year.

FLOWER-GARDEN AND SHRUBBERIES.

Attend well to thorough cleanliness, hoe through or otherwise dress all margins or beds where Crocuses, Anemones, Snowdrops, Primulas, and other spring flowers are peeping. Plant out Hollyhocks directly. This noble flower is well deserving of general cultivation. Its bold and pointed form stands out in fine relief in masses of flat-headed shrubs.

FLORISTS' FLOWERS.

Tulips.—It occasionally happens from disease and other causes that a Tulip does not make its appearance above-ground with the rest. A careful examination should immediately take place, removing the soil till you come to the top of the bulb, when it may be found (as we have this week experienced with a very valuable but delicate variety), that the outer sheath or leaf is wholly decayed and rotten. In this case, after removing the diseased parts, do not return the soil, but allow the bulb to have free exposure to the air, covering only from rain or frost with a hand-glass. Owing to the comparative absence of frost, and the hitherto singularly mild spring, collections appear to be but little troubled with canker. When this occurs, and the plants are fairly above-ground, cut away the parts with a sharp penknife. Shelter the beds from prevailing and cutting winds, which are more detrimental than slight frosts. *Ranunculuses.*—The weather has been particularly favourable for planting, which should now be proceeded with as speedily as possible. Give seedlings in pans all the sun, shading only from heavy rain or frost. *Polyanthuses* are, generally speaking, blooming profusely. As seedlings come into bloom, remove all that are inferior in shape, lacing, or colour. Should any fine-formed flower, with other good properties, come pin-eyed, it would be worth while to fertilise such variety, as its progeny are not obliged, all of them, to be pin-eyed also, as I have lately seen some very promising flowers spring from a flower of this description. *Carnations and Picotees.*—Amateurs have hardly been able to do wrong this season, and stocks are looking well throughout the country. Continue the directions previously given, and keep the plants free from green-fly, which, this spring, is especially abundant. Plant out in beds, with all the soil possible, seedlings for blooming. *Auriculas*, if not previously top-dressed, should be attended to immediately.

KITCHEN GARDEN AND ORCHARD.

Everything is now up and stirring here; vegetation is moving quickly, but the intelligent gardener's mind is moving with even greater rapidity. A proper rotation of crops having been secured, the next best advice is to watch the fluctuations of the weather, and endeavour to do all planting and sowing whilst the ground is in a mellow state. Sow some early Parsley, a sprinkling of early Cabbages, Dutch Turnip, Onions for drawing young, Normandy Cress, successional Peas and Beans, and a little early Celery in boxes on a slight heat. If your early spring-sown Cauliflowers and Lettuces are forward enough, get them pricked out. Continue to plant out winter Cauliflower plants in rich and sheltered spots; and get winter Lettuces out in a similar way. Warm slopes, artificially prepared, high manuring, and, where at hand, old lights or mats on hoops, are the grand essentials. *Orcharding and Fruit Trees in General.*—Bring up arrears forthwith; make sure of thorough draining. Plant high, both at bottom and top. Get nailing finished, provide against all insects, and protect as far as possible all opening blossoms.

COTTAGERS' GARDENS.

Trenching vacant ground in preference to digging should at all times be practised by the cottager if time permit. He should endeavour to get the whole of his garden trenched over once in the course of three years at the farthest. He should go to the very bottom of the surface soil, taking care not to bring up the subsoil; this should be loosened with a fork deeply, and left in its place. Let the crops follow in a judicious rotation, a scourging crop following a light one, or occasionally a short fallow, in the case of no immediate demand for the ground. Sow Peas, Beans, and Radishes if not already done, also Horn Carrots for an early bed, and the main crop of Parsnips on trenched ground. If Strawberries are required they may be planted now. Keen's Seedling is the best, with a few of the British Queen, and Elton. Plant Box or other edgings, and also biennials from seed-beds.

FORESTING.

Lose no time in proceeding with planting in general; this is an excellent spring for such operations. Get the coppices well cleared of the underwood, cutting close. Large timber may still be felled, using much care in the operation. Get out all stock from the seed-beds, that must be removed this season; and get forest seeds of all kinds into the beds as soon as the latter are prepared, and in proper weather. Follow up all hedge operations. November is, however, the best time for this. Early pruning produces strong wood.

State of the Weather near London, for the week ending Feb. 19, 1846, as observed at the Horticultural Garden, Chiswick.

Feb.	Moon's Age.	Barometer: Max.	Barometer: Min.	Thermometer: Max.	Thermometer: Min.	Thermometer: Mean.	Wind.	Rain.
Frid. 13	17	30.127	30.078	48	37	39.5	W.	
Sat. 14	18	30.183	30.116	46	34	39.0	N.W.	
Sun. 15	19	30.260	30.199	50	31	40.5	W.	
Mon. 16	20	30.196	30.122	46	41	44.5	N.W.	
Tues. 17	21	30.177	30.010	47	39	43.0	W.	
Wed. 18	22	30.005	29.976	48	39	43.5	W.	
Thurs. 19	☾	30.061	29.993	46	39	42.5	S.W.	
Average		30.146	30.069	47.4	34.3	40.8		.00

Feb. 13—Densely clouded throughout
14—Fine; cloudy and fine; densely overcast at night
15—Sharp frost; cloudy and fine; densely overcast
16—Overcast throughout
17—Overcast; fine; densely overcast at night
18—Overcast and fine; densely overcast
19—Uniformly overcast; hazy; overcast.
Mean temperature of the week 3½ deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Feb. 28, 1846,

Feb.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 22	45.0	32.7	39.3	9	0.79 in.	2	4	2	—	1	5	4	—
Mon. 23	41.0	34.9	37.9	8	0.44	2	2	3	1	1	7	2	2
Tues. 24	46.6	34.0	40.4	10	0.39	—	2	4	2	4	—	5	3
Wed. 25	47.7	33.6	40.7	11	0.36	1	3	3	—	5	4	3	1
Thur. 26	47.2	31.0	41.1	12	0.66	1	2	4	1	3	2	3	2
Fri. 27	47.5	34.7	41.1	11	0.40	1	4	2	—	4	3	3	1
Sat. 28	48.5	34.6	42.0	8	0.34	—	3	3	—	2	2	3	5

The highest temperature during the above period occurred on the 27th, 1834—therm. 60°; and the lowest on the 24th and 25th, 1827—therm. 20°.

Notices to Correspondents.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each copy. An index has been added to this present edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

Books—*R A*—Rivers's "Amateur's Guide;" his Catalogues, and those of Messrs. Francis, Paul, Lane, and Wood, will give you all the information that can be had. Perhaps Sweet's "Greenhouse Cultivator" may answer your purpose; but there is no good book on the exact subject of your inquiry.——*J F S*—You might, perhaps, find a purchaser by an advertisement. We fear it will be difficult to procure one by any other means. The price you ask is quite moderate; and if we did not possess the work we would buy it ourselves.—*J Brookam*—We cannot give publishers' lists and prices of books; that would come under the range of an advertisement. For a cheap book, suitable for a cottage bee-keeper, apply to some bookseller for "Payne's Apiarian Guide," or "Wighton on Bees." *W.*——*A Burnett*—Mr. Masters, Aldersgate-street, City.‡

Conservatory Climbers—*H P J*—Tacsonia mollissima, Hardenbergia monophylla, H. digitata, Kennedya Marryattæ, Tecoma jasminoides, Dolichos lignosus, will possibly suit you.

Grass Seeds—*Sub*—The month of March is the best season for sowing Grass; but almost any season that is not dry will do between March and September. The best kinds of Grass for a lawn are Crested Dogstail, Meadow Poa and Meadow Fescue, with a little white Clover.

Guano—*H P J*—For Pelargoniums, &c., mix 1 lb. of guano in 6 gallons of water, and let it remain till it becomes quite clear before using it. The same guano may be used again in the same way.‡

Heating—*R O H*—We quite expect that the Polmaise mode of heating will be perfectly suited to your case; and you will probably think so too when you have heard all the explanations that may be expected concerning it. If you cannot wait for information then use 4-inch iron pipes and hot water. The lights should form an angle between 35° and 40°. Let the front lights open by all means. Use for glazing, panes 9 or 10 inches wide and 30 or 36 inches long; in this respect be guided by your sashes and by the price of the glass, which you had better buy in the boxes as imported, and cut to the most advantage with your own people.——*Alpha*—We know your Vinery very well; and there can be no difficulty about heating it by the Polmaise plan: before, however, you actually set about it, just see what Mr. Meeke says. His plan, of which the details will be fully given, will show you, better than any description, the principle of the method and the most philosophical way of carrying it out. As to the estimate you speak of, it is absurd. Your conservatory might, perhaps, be dealt with in a similar way; unless a couple of Mr. Rivers' Arnotts, neatly built, would be better. We fear there is no help for the sparrows in such a neighbourhood as yours. Won't a malkin keep them off? or pieces of glass tied to string? If not, we fear you must go to—*nux vomica* and Wheat.——*J A T*—There is no difficulty in heating your range of houses by one boiler. Build it at D; carry wooden or other tanks through A and B B; and a close iron trough through C. Connect the latter with both the flow and return pipes of the tanks. Then by means of little sluice gates, or some such contrivance as that of Mr. Beck, mentioned at p. 804 for 1843; cut off A from B B, and the latter from C. If this is done you can work A by shutting down the sluices; or A and BB by opening the first sluice, or the whole line by opening the other sluice. You will then have at all times most heat at A, next at B B, and least at C. Such seems to us the best course to follow; but you should regard these observations as hints rather than absolute directions.——*Jean Baptiste*—We have sent your letter to M. B., but we do not know whether plans can be had.——*M W K*—Will you look at the plan of a pit given at p. 116 for 1845. If that does not meet your wishes, be so good as repeat your question.

Holly Hedges—*W T*—These may be cut back at different seasons without injuring them if the operation is judiciously performed. In your case this a portion now, another in two months' time, and the remainder in the month of November next. If you cut your fence back all at once it is sure to injure the plants as well as make the hedge unsightly and naked.¶

Insects—*M R W*—It is the caterpillar of the goat moth (Cossus ligniperda) which is injuring your trees. We fear there is no better remedy than to search for the moths the end of June and beginning of July, when they may be found sticking to the trunk of the trees they were bred from. You will find a figure of the moth, and its history, in Curtis's Brit. Ent., fol. and pl. 60. *R.*——*As Worth*—It is the larva of a Telephorus, which is said to be carnivorous, and is usually found at the roots of Grass, or running over foot-paths early in the year. May it not be feeding upon some kind of small worms that are injuring the corn? *R.*——*H B T*—Please to send us some of the wire-worms, and you shall have the necessary information. *R.*

Manures—*G M*—Dissolve your guano in cow's urine rather than water, at the rate of 1 lb. to 4 gallons. If you will employ water, then 2 lbs. to 4 gallons will not be too much.——*A G R*—We have never heard of bones and sulphuric acid being used for Hyacinths. The fitness of the manure for this purpose can only be determined by experiment. Perhaps you will inform us of the result. It must be used extremely weak.——*Rusticus*—The statement about guano being a good manure for Conifers was not ours, but a correspondent's. We never saw it so applied, and should have feared that its effects would be injurious. If it is used to these plants, it must be much diluted, and, we presume, given in very small quantities at a time.

Names of Fruits—*J Barnes*—1, 2, 4, Tunnelow's Seedling; 3, Rhode Island Greening; 5, Beurré Rance; 6, Nonpareil; 7, probably Court of Wick.‖——*D C*—Not known.‖——*Woodview*—Royal Russet.‖——*S Simpson*—Uvedale's St. Germain.‖

Names of Plants—*A Devonian*—Iris tuberosa.

Orchids—*Orchis*—We admit that it would be a difficult thing for many to follow the advice we give to one of our correspondents to study the climate from which Orchids come, in order to determine whether they should be grown in a hot—an intermediate—or a cool house; but we have no present means of removing the obstacle. At the same time, as the cultivation of such plants can only be attempted by the rich, they can have no difficulty in obtaining the works alluded to by us in last week's Paper (p. 104).——*Henry*—The decaying pseudo-bulbs are better removed; they should be cut off with a very sharp knife.

Pears—*J S*—For a succession, in addition to those you have, plant the Glout Morceau, Thompson's Passe Colmar, Knight's Monarch, Jean de Witte, Ne Plus Meuris, Easter Beurré, and Beurré Rance. With regard to obtaining them correct, any nurserymman can, surely, warrant those principal kinds.‖——*J P W*—The six last named will suit you.‖

Pentstemons—*A B*—The handsomest for your purpose are ovatus and speciosus, both bright blue; and digitalis and latifolius, which are white.¶

Pine-apples—*J W S*—If you do not intend to plant out over your tank, the sooner the plants receive their final shift the better, observing to have at hand plenty of fresh turfy soil, and to be very particular in securing efficient drainage. Water with large shifts is seldom needed, and you must beware of giving too much until the pots are full of roots. Burnt turf of strong soil may be mixed with the compost to the extent of about half the bulk of the latter: 12 or 13-inch pots will answer well. Your night temperature of 55° may now be raised to 60°. Watch our Calendar of Operations, from which you may learn much on these points.‡

Planting—*Almus*—The common Alder will not succeed in thin dry hilly land; but the "Turkey" Alder will. You may get that of any nurseryman.——*Quæstor*—The cause of your Scotch Firs dying off could only be ascertained by personal inspection; perhaps the land is springy. The insects *follow* the disease; and will not appear if trees are healthy. You cannot prevent their attacking decaying timber, or trees whose bark is dying. The Ivy has nothing to do with the mischief. Depend upon this, that the soil is in fault, whatever the nature of the fault may be.

Potatoes—*M K*—We believe there is no danger in replanting Potato land with the same crop, even although that of last year was diseased. But read our Leading Article of to-day. We had less disease last year on stiff adhesive clay than when the land was in good tilth and friable. We fear it will be difficult to procure Ginger in the trade. It is most likely to be found in some old-fashioned places, or in Botanic Gardens; the article on it was written at the request of an esteemed correspondent.

Prepayments—*C C*—We have no power to assist you. You complain that A requires prepayment for his goods, and that when he receives it he refuses to acknowledge it. That is very discreditable to him no doubt; and we would not deal with such a man; but as to the system of prepayment itself, we do not see what there is objectionable in it. Of course, it is liable to abuse, like all other things; and surely the system of *post*-payment is not exempt from cause of complaint. It is clear that when a buyer and seller deal at a distance, one or the other must trust. If A, the buyer, trusts B, the seller, with his money, he incurs the risk of B.'s cheating him; on the other hand, if B, the seller, trusts A, the buyer with his goods, he equally runs the risk of never being paid. The question is who is to run the risk, A or B? and that is what we cannot pretend to decide.

Schemes—*D R*—Since you ask for advice, we must tell you to have nothing to do with schemes which you cannot by any possibility control or understand. We are aware that gardeners are not alive to all the devices of ingenious projectors; and therefore we caution them to take care of their money when they have got it, and not, to throw their hard-earned savings after a Will-o'-the-wisp.

Vines—*Ignotum*—You will obtain a stronger shoot by grafting or inarching the wood of last season, than you would by waiting till the young shoots are firm enough for joining. The Cannon Hall Muscat will succeed grafted on the Black Hamburgh.‖

Woodlice—*T*—A toad or two kept in your frames will thin their numbers; and large quantities may also be caught by placing two boards over each other, between which they crawl as morning approaches, to conceal themselves. Tiles laid over Cabbage-leaves form good traps.‡

Misc—*F X* had better insert a short advertisement in the Paper. The cost will be 4*s.*——1*s.* will be given for No. 14, 1842; and No. 34, 1845.——*J F*—Any respectable seedsman can procure you the Broccoli you ask for if he chooses to take the trouble. We cannot recommend one seedsman more than another.——*Apis*—We cannot recommend the tallies. They are too brittle, and possess no advantage over painted sticks. We have seen a bushel of [illegible] thrown away as useless.——*W Welsh*—Fruit trees from 12 to 18 in. (we have no such size as 10 to 18 in. in this country) should, according to the custom of the trade, vary between those sizes; some may be as little as 12 and others as much as 18. It is, however, unfair and untradesmanlike in a nurseryman to supply you with any disproportionate quantity of the smallest size. We fear, however, a dispute can only be settled by lawyers, unless an arbitration is agreed to, which would be the fairest course. You cannot send them back after having kept them so long, unless you have from the first protested against their quality; and even then we presume the *law* of the matter is doubtful.——*M N*—A note to the Secretary, 21, Regent-street, will procure you the required information.——*A Subscriber*—The Royale Hâtive Plum. Plant your Crimson China Roses in a compost of loam mixed with a little cow-dung.‡——*Micklewell*—We are unacquainted with your Egyptian Beans. Erica hiemalis, Willmoreana, and Lamberti roses are three pretty Heaths that will bloom in a greenhouse in winter.‡——*Woodend*—The advertisement contains nearly all that is known of the Reine Claude Monstreuse de Bavay Plum. It is like a large Greengage and said to be very excellent. It has never fruited in this country. The Brown Beurré is variable as regards flavour, but invariably melting and buttery. At all events the one you describe as resembling your York Tan Gloves must be something else; and so must that be which you have for the Nanny Apple.‖——*A W*—For a list of select Dahlias consult the report of the September meeting of the South London Floricultural Society, p. 642. Lists of Pinks, Carnations, &c. have been given at pp. 708 and 724 of the same year (1845); and a list of Roses was given at p. 6[illegible] the current volume. We do not recommend dealers, you should consult our advertising columns.‡——*H E*—You will find directions for raising Potatoes from seed in our last year's volume, pp. 260 and 820.‡——*R D*—Scheuchzeria is sounded Shikeseria.——*Nonplus*—By the middle of August you can obtain crops of Peas, Beans, Onions, Early Carrots, and Potatoes, Cabbages, French Beans, and Spinach. You will see in the Calendar of Operations when to sow and plant these things. Plant your Kidney Potatoes without rubbing off the sprouts; place the dung under them.‖

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

IMPROVED DIBBLING MACHINE.

JOHN WEATHERSTONE begs to inform the Agricultural Public that his PATENT HORSE DIBBLING MACHINE is now ready, whereby the greatest regularity may be insured in the deposition of all Seeds. A team of four horses will be found sufficient power to draw one of the largest size.

Price of Machine, with six rows..... £35
" eight rows..... 40
" ten rows..... 45

Applications for further particulars may be made to Mr. JOHN WEATHERSTONE, Cassington, near Oxford; or to Messrs. GILL and WARD, High-street, Oxford.—Agents wanted in all parts of country.

The Agricultural Gazette.

SATURDAY, FEBRUARY 21, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, Feb. 25—Agricultural Society of England.
Thursday, — 26—Agricultural Imp. Soc. of Ireland.
Wednesday, Mar. 4 { Agricultural Society of England. Highland and Agricultural Society.
Thursday, — 5—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.

Llandovery—Banffshire—Holderness—Shropham and Guilteross.

FARMERS' CLUBS.

Feb. 23—Wallington
— 24—Nairnshire
— 25—Newton
— 26—Otery St. Mary
— 27—Stair of Galloway
— 28—Hereford
Mar. 2—Moreton Hampstead — Darlington—St. Columb—Newark—Markethill—Banchory
— 3—St. Quivox—Jedburgh
Mar. 3—Watford
— 4—Monmouth
— 5—Hawick—Abergavenny
— 6—Debenham — Hadleigh — Clayden—St. Ansell—Lichfield
— 7—Northampton — Melrose — Durham — Carlton-on-Trent —Cardiff—Collumpton

We have often of late directed attention to the establishment and support of FARMERS'-CLUBS as among the most efficient means of exciting and diffusing an interest in the cause of agricultural improvement; but we have hitherto argued for them more on account of their obvious tendencies to those ends than on the ground of any definite facts or history in their favour. Let us, however, adduce a specific instance of the good which such societies are capable of doing; and it shall be one of an association which by the energy and perseverance of its members has laid not only its own district but the agricultural interest generally under great obligations.

We lately asked: WHERE ARE THE SCHOOLS FOR FARMERS' SONS? Now, even though we overlook the Professorship in the Edinburgh University, and the many agricultural schools in Ireland, yet this question shall not be altogether without a satisfactory answer; and for this we have to thank the Fairford and Cirencester Farmers' Club, or, rather, Mr. BROWN, the member of that society, by whom they were urged and led in the course which they adopted.

On the 14th of November, 1842, Mr. R. J. BROWN, of Cirencester, in Gloucestershire, read before that society an address on the advantages of a specific education for agricultural pursuits, in which, after pointing out the importance of, the subject, and the consequently *shameful* fact that this country is distinguished among all others by her neglect of it, he urged the propriety of establishing a public institution in their own neighbourhood where agriculture might be taught, and he concluded thus:—"It has been suggested that such an institution should originate with the Agricultural Society, or with Government. We shall find that the practical way is to do our own business ourselves. We shall thus have an institution adapted to our wants. No one situation will do for all England. We hope of every district—the vales, the chalk, the red sand, &c.—that each will have its college. If one large establishment was reared, we may fear that it would be a failure; anything rather than the substantial practical institution that will turn out—not the finical gentleman, afraid of soiling his hands—but intelligent, active, hardy young men—who will maintain the substantial honest character of the English yeoman, combined with all that modern science and advancement, and careful training and moral and religious culture can do, to elevate them to the station in the country that they ought to fill. We are each of us the centre of some little circle. Let us advance the cause by advocating it amongst those we know; and, with God's blessing, we may hope that, ere long, the cry for the efficient practical education of the rising generation of farmers will be so loud and general, that all difficulties will disappear, and we shall have the happiness of seeing an agricultural college on the Cotswold Hills—a model, we trust, for many others in the land." A committee of the Club was formed for the purpose of inquiring further into the feasibility of Mr. BROWN'S proposal; it met on the 19th of December, and drew up an address on the subject to the landowners and tenants of the neighbourhood. This address was circulated in the beginning of 1843; by April of that year the movement had experienced such an accession of strength that a provisional committee, comprising many of the leading men of the district, was appointed, and a prospectus was proposed; in May the draft of it was agreed to—it was entitled "The Prospectus of an Agricultural College, or an Example Farm, in the Oolite District, including the country commonly called the Cotswold-hills, extending from Bath to Chipping Camden; also including a great part of Oxfordshire and North Wiltshire, part of Berkshire, &c." A capital of 12,000*l.* was proposed to be raised by proprietary shares of 30*l.* each, the control and government of the whole scheme was to rest in the shareholders, whose rights and responsibilities should be defined by a deed of settlement; in the same month, however, it was reported, by a committee appointed to consider the subject of responsibility, that it could only be provided against by charter or act of Parliament. At this time a committee was appointed to wait on the noblemen and gentlemen of the district and solicit support, and to attend and address the agricultural meetings of that year at Stow, Lechlade, Farringdon, Devizes, Chippenham, Wotton Basset, Tetbury, Gloucester, Malmesbury, Bath, &c.; the country was also divided into districts, and one or more members appointed to canvass each. In January, 1844, it was decided to hold a public meeting on this subject, and it was held at Cirencester on the 22d of April; the report of the Cirencester Farmers' Club was there read, and resolutions founded upon it were moved by Earl DUCIE and others: that the proposed institution was expedient, and that a committee of gentlemen be appointed to determine on the best plan of it, and on the best method of carrying the design into effect. It was at this stage in the proceedings, therefore, that the Farmers' Club dropped their direction, and handed the scheme over (as was most proper, considering the general interest it had now excited) to a body more fairly representing the district whose aid was required. It was now determined to apply for a charter through Earl BATHURST; and also to look out for a site, which was done by public advertisement. In June the committee received the offer of a farm on a 48-years' lease from Earl BATHURST, and of 2000*l.* towards the buildings, interest on which at 3½ p. cent. was to be added to the rent. They were also informed by his lordship that probably a charter would be granted; a general meeting was therefore called and held on the 1st of July, at which a company was formed, its trustees named, and its government agreed upon. On the 4th, a deputation was appointed to call a meeting during the Southampton Show of the English Agricultural Society, and to attend the same. This meeting was held on Wednesday the 24th, and it was attended by the Duke of RICHMOND, Mr. PUSEY, and other influential men, and resolutions were adopted, approving of the scheme. Previously to this, Earl DUCIE, who had taken an active and effective part in the early meetings, canvassed in company with the secretary, and obtained the support of a number of influential noblemen and gentlemen then in London. During these various steps a share list had gradually formed, which enabled the committee to commence in earnest. In September, a head master was advertised for; on the 19th of that month, plans for the college buildings were advertised for; in November, a draft of charter and deed of settlement was produced; in December, Mr. SCALES, of Norfolk, was chosen head master; in January, 1845, the plans of Messrs. DAWKES and HAMILTON were selected, and, with some alterations, fixed on as suitable for the college; on the 17th of March, Mr. WAY was chosen professor of chemistry; the contract to build the college was entered into with Mr. BRIDGES, of Cirencester, his being the lowest tender, and on the 2nd of April he commenced work under the contract; on the 7th of May the royal charter, granted by the Queen on the 27th of March, was produced; it establishes the existing company into a body politic and corporate, under the name of "The Agricultural College," and grants a common seal, and ample powers and immunities; in June Mr. TOWNSEND was chosen professor of engineering and natural philosophy*; in August, Mr. WOODWARD was chosen professor of natural history and geology, and Mr. ROBINSON as veterinary professor; a house in Cirencester was also provided for the reception of students, until the college should be ready for them, and it was opened on the 15th of September, and in the course of a week, about 20 entered.

The first term closed on the 19th of December; the students had received the introductory and preliminary course of lectures on chemistry, geology, and natural history; also very practical and valuable ones on the diseases and structure of animals; they were also accompanied by the Professors on weekly botanical and geological excursions, and the whole has given great satisfaction.

Thus has fairly and successfully commenced the useful labours of "The Royal Agricultural College;" doubtless to the intense satisfaction of Mr. BROWN, who may so justly look upon the establishment of this Institution as his own handiwork. We heartily wish the Institution all the success he can desire; its prospects of success are fair; about 500 shares of 30*l.* each have been taken; a large number of names are on the admission roll; arrangements are being made for the reception of out-students in the town house who may attend the lectures and witness the farm operations. Materials for a library and museum are gradually accumulating, and we have no doubt that when the thing is fully known, gifts suitable for these departments will flow in upon them. Great interest is being excited, and visitors begin to flock—all are highly pleased with the beauty, solidity, situation, and convenience of the new buildings which were opened for the reception of students on the first week of this month, affording the perhaps unprecedented fact of a large public building built and occupied within the year.

We have entered into rather a long detail of the steps taken in this the first effort to found a College worthy of the great agricultural body, both because they most instructively illustrate what the perseverance of an individual may accomplish, and also because they indicate the proper course to be adopted in future efforts of a similar kind. Such efforts, however, must not be hastily entered upon—the ground for attempting the establishment of similar institutions should be the success of this, and its inability to receive the students who offer. Of course there will be ample room ultimately for many agricultural establishments of a similar kind, but the present demand for the means of such an education as they will afford, must be estimated by the overflow of students at Cirencester. The institution there is no local school; its establishment is known all over the country, and its present pospectus is addressed to all everywhere who desire the advantages it offers. The position of its directors became gradually different from that which they at first assumed. Experience taught them that they could not establish a complete institution for the intended purpose by confining themselves to two or three counties; it justly appeared to them essential to success that all the arrangements should be of the most perfect kind; and while the expenses necessarily incurred required that they should obtain a greater number of supporters, the charter which they obtained conferred on them that national character which justified them in seeking that support at a distance. We say, therefore, that the overflow of students here is the only safe index of the necessity for further institutions of a similar kind. No doubt such institutions will before long be numerous, and we heartily say—the sooner the better—but agriculturists must first be convinced by the usefulness of this one, of the advantage of a specific education for the members of their profession.

* In August, 1844, the council received the afflicting intelligence of Mr. Townsend's death.

MANAGEMENT OF MANURE IN BELGIUM.

[Taken from the "Quarterly Journal of Agriculture."]

THE next subject of which we speak is the manures of Flanders; and some conception of the importance of this subject may be formed, when we mention that it regulates, not only the whole, but every individual part of the management of a Flemish farm. The first object and great aim of a Flemish farmer is to make or get manure; and, to carry this into effect, nothing that can contribute in the least to increasing a dunghill is thrown away. He cultivates food for cattle, and ties them up all the year round, that he may not lose any of the manure. He sows Rape, and allows it to blossom and ripen, that he may obtain the seed for manure. His ashes-cart and urine-barrels traverse every street in a town, every by-way in the country, to collect this important necessary for his farm. It is in their management here that the farmers of Belgium excel those of every other country, and are thus enabled to extract more from the land than any other body of farmers. They set up, in short, to the true old adage that "Muck is the mither o' the meal kist." The principal manures used are farmyard dung, urine, or liquid manure, Rape-cake, and ashes. Minerals are seldom, if ever, used, and bones are almost unknown. I alluded before to the comparatively great number of animals kept by the Flemish farmers on their few acres. This they do principally for making manure to enable them to carry out their system of farming. On a farm of 63 acres, 3 horses, and 15 milch cows, and several heifers for supplying the stock, were kept throughout the year, besides six cows and a few calves were fattened yearly. In another, of 77 acres' extent, 4 horses and 20 cows, with a requisite number of heifers, were kept, besides from 20 to 30 calves were fattened off yearly; and in a third, of 88 acres, 5 horses and 20 cows, besides heifers and calves, were kept. These farms were all arable, and were situated in one of the finest districts in Belgium. Mostly every crop receives some of this farmyard dung, which is always well rotted before being applied. One of the peculiarities of the Flemish system is, the extensive and various uses they make of the urine from the animals kept on their farms. Every

one has heard of the urine tanks of Flanders, which are to be found all over the country, at home, and in the fields. They are built in a most substantial manner, and so far under-ground, that when they are covered in, the farmer is enabled to cultivate the soil over them. Contracts are generally entered into between the farmers and those in towns who have much of this at command, such as brewers, distillers, &c., who fatten animals from the refuse of their works. 2*l.* is commonly given for the urine of one animal for a year. The farmer, at stated periods, conveys, by means of barrel-carts, what is collected in towns to his subterraneous receptacles at the corners of his fields, to be ready for the seed-time. The crop to which it is principally applied is Flax; and then they dissolve in it Rape-cake, which renders it a most powerful manure. After the Flax-seed has been sown and covered in, and rolled, so that the surface is made quite smooth, they proceed to apply this mixture. It is applied in the following manner:—Five men are employed altogether, two to pump, two to scatter it, and one to drive it. A rectangular piece of ground, 30 yards in breadth, is measured off across the ridges; this is sub-divided into six portions of five yards each. The field was laid off in ridges of 10 yards. Six wooden vessels are filled and placed in the middle of a ridge at the distance of 5 yards from one another, so that the contents of each vessel, which is about the size of a Potato firlot, is the allowance for every 50 square yards. There is nothing in which they manifest such economy as in the saving of this material, which they prize as a most valuable assistant to their labours. Rape-cake, besides being applied as mentioned above, with the liquid-manure, is also used in a dry state. The Rape is cultivated principally as a manure, and is used extensively where the cropping is very severe. Ashes are never used but as a top-dressing to Clover; but the traffic which is carried on in them, between Holland and Belgium, is sufficient to form a distinct trade with a certain class of merchants in Belgium. The farmers in Belgium set a high value on them, and place so much dependance on them for the success of their Clover-crop, that (I understand, from what I have read) there is a current saying among them, that "He who buys ashes for his Clover-crop, pays nothing; but he that does it not, pays double." It is really surprising that this manure, which has been proved to be so efficacious by a class of experienced farmers like the Flemish, has never been tried, or at least sufficiently tested, in Scotland. I believe some were imported in the beginning of this year by Messrs. John Mitchell and Co., in Leith; but I am not aware that they have met with the reception we would anticipate from the well-known successful results of their application in Belgium. There is nothing so much wanted at present, in the agriculture of Scotland, as a good lasting top-dressing for Clover. The failures in this crop have been frequent of late, and the effects of nitrate of soda last only with the crop to which it is applied, while and disappointments have been experienced in the use of gypsum. But before recommending an extensive use of this material, I would suggest a few comparative trials to be made with it, gypsum, soot, and other substances; for if the failure of gypsum arose from there being a supply of it already in the soil sufficient for the growth of the plant, an application of Dutch ashes might be attended with a similar result, as the great proportion of the ingredients of the ashes are salts of lime, with the useful addition, however, of some salts of soda. Some attribute their great effects in Belgium to the lime which they contain, as few of the soils there have any amount of lime in their composition. They are applied in different quantities to the soil, from 10 to 30 bushels an imperial acre.—*P. Mc L.*

AN EXPERIMENT IN AGRICULTURE.

One or two of my agricultural friends have, at my suggestion, engaged to try the following experiment, with the view of testing the truth of the opinion countenanced, as it would appear, by some of the later publications of Baron Liebig—that manures are only serviceable to the crop by supplying it with the inorganic materials which it requires, and not by the ammonia disengaged by organic matter undergoing decomposition.

As, however, the results of one or two experiments only can hardly be regarded as conclusive with reference to a question of this kind, I am desirous of making known more generally the nature of the experiment, in the hope of inducing some few of your numerous readers to undertake it likewise; not disputing, indeed, that it might be possible to arrive at the same result by other modes of proceeding, but conceiving that by the one suggested all danger of altering the mechanical condition of the manure in question is avoided, and therefore that any difference in the effect produced upon the crop might be attributed with greater confidence to the presence of ammonia in the one sample of manure, and its absence from the other.

Experiment.—Select three equal plots of ground, all requiring manure, and in a proper state to receive any crop containing much nitrogen, such as the Cereals, Beans, Peas, &c. Let the first of these plots remain unmanured, and weigh out an equal amount of fresh stable-dung to spread upon the two others. Let one of these quantities be preserved as much as possible from evaporation, and the liquid portions be carefully retained, either by means of a cistern calculated to receive the drainings, or by preserving the whole upon a water-tight floor. Let the corresponding quantity be likewise spread upon a floor calculated to prevent the drainings from being carried off, but evaporation from it promoted by frequent turning, and afterwards by a certain degree of heat, such as that produced by tan or fermenting dung. When it appears desiccated, mix with it a little quicklime, and if any ammoniacal smell is emitted, continue to add more until the smell goes off. Whatever be the quantity of quicklime added to this second heap, let an equivalent amount of powdered chalk, or of quicklime rendered mild by exposure to the air, be mixed with the first portion. By this arrangement you will have two portions of manure containing exactly equal quantities of fixed inorganic ingredients, but the one destitute of the ammoniacal salts which the other will contain. The point to be determined therefore is, will any difference occur in the quality and amount of the crop produced by the first and by the second portion of the manure so treated? all the excess beyond the amount obtained from the unmanured plot being regarded as due to the action of the manure.—*C. D.* [We should be glad to hear from any of our correspondents who may be disposed to try this experiment. The subject of it is of great importance. We hope that it will be extensively tried.]

ON THE STATE OF HUSBANDRY IN LOWER BRITTANY,

WITH INCIDENTAL OBSERVATIONS ON THE CONDITION OF THE FARMING POPULATION THERE, COMPARED WITH THE SOCIAL STATE OF THE ANALOGOUS CLASSES IN IRELAND.

By Martin Doyle.

(*Continued from page 106.*)

The soil of Basse Bretagne is so varied that plants of Norway and of the south of Europe are indigenous to it, and the *landes*, though very poor, are generally capable of improvement, and in some places are in progress of being reclaimed. I shall briefly describe their natural state, and the modes of bringing them into culture.

The upper soil of those moors is a shallow bed of vegetable detritus and silicious sand; the subsoil is either argyl or rotten schistus, with a thin layer of silex between it and the surface soil, called pritprat, which frequently contains oxide of iron. In summer, when there is a very rapid evaporation of moisture, the soil becomes too dry; in winter the opposite excess renders it unfavourable for culture. The vegetable matter on the surface is Heath (Erica vulgaris), and Rushes (Silex europæus). These moors are often held by the peasantry in common, for wild pastures, and therefore somewhat as in the case of land held under joint-tenancies in Ireland, or in leases in fundale; there are occasional impediments to inclosing and cultivating by individuals; more generally, however, these tracts are at the disposal either of the class of larger proprietors, or of the inferior class of landowners, who possess portions of them under the same titles by which they hold their homestead fields, namely, by purchase at or subsequent to the period of the Revolution, when the property of the land proprietary of the kingdom was brought in such numerous cases to the hammer of the State auctioneer, from those who, by their adherence to republicanism, contrived to maintain possession of their estates.

As the occupancy of land is now a subject of much discussion in Ireland, I shall advert to the ancient customs of landlord and tenant in Basse Bretagne; and also inquire into the results which have followed there from the changes made at the period of the French Revolution.*

It is a remarkable circumstance that the form of tenure termed *Domaine Congèable*, founded on the most rational and equitable principles, and adapted to a high state of civilisation, was originated in the fourth or fifth century in that ancient province, where alone it became established in practice, according to the reports of celebrated jurists; this form of lease was introduced after the last emigrations of the Britons from England to the mountains and forests of Cornouaille, and the other parts of the province in question, where they found a people of the same race, language, and habits. The lords of the soil, who, after the devastations of the Romans, then had but thinly-inhabited tracts of forest or partially-cleared land, gave every encouragement to the refugees, who obtained from them equitable and mutually advantageous terms of tenure.

The following conditions were agreed upon:—The seigneur or landowner was to receive a yearly rent, in proportion to the actual value of the land, in its uncultivated state, with this important clause: That the labour and capital of the tenant (indispensable to the improvement of the land, and which were to be advanced by him), with all expenditure for buildings, orchards, inclosures, &c., should become his own property, or that of his heirs; so that the landowner bound himself to allow the tenant, at the termination of their connexion, the full value of his expenditure; in default of which the lease continued in force, under the original conditions, the landowner being always required to give six months' notice (before Michaelmas) to the tenant, of his intention of resuming possession, and of his readiness to pay the just demands of the latter. The other party had the right of disposing as he pleased of his claims for indemnity for buildings, &c., provided they were kept in such a state of repair as gave security for the rent.

I may advert to the striking accordance between the principle of that old Breton law and the report of the commissioners appointed to inquire into the occupation of land in Ireland. "Although it is certainly desirable that the fair remuneration to which a tenant is entitled for his outlay of capital or of labour in permanent improvements should be secured to him by voluntary agreement, rather than by compulsion of law; yet, on a review of all the evidence furnished to us upon the subject, we believe that some legislative measure will be found necessary, in order to give efficacy to such agreements, as well as to provide for those cases which can not be settled by private arrangement."

"We earnestly hope that the legislature will be disposed to entertain a bill of this nature, and to pass it into a law with as little delay as is consistent with a full discussion of its principle and details. We are convinced that in the present state of feelings in Ireland, no single measure can be better calculated to allay discontent, and to promote substantial improvement throughout the country. In some cases the existence of such a law will incline the landlord to expend his own capital in making permanent improvements. In others he may be called upon on the eviction or retirement of tenants to provide the amount for which their claims may be established under the Act."

This defect, however, attended the Breton law—the award was made according to the amount of expenditure, without reference to the real value of the improvements made; but this could be remedied by a stringent clause, requiring the landlord's assent to the tenant's expenditure, or some special agreement guarding against the unreasonable demands of the latter.—The principle of the law was decidedly good, but through the inadvertence of the landowner, or the pliability of his disposition, the tenant sometimes contrived, by gradually adding to the extent of his buildings, fences, &c., to run up a bill of costs in the end disproportioned to the pecuniary means of the seigneur, and to the value of the property at the time. The latter, however, in such cases generally renewed his engagement with the former occupier, taking care for the future to be more regardful of his own interests. Ultimately, no doubt, he derived remunerating advantage, from the increased value of his farm, and the greater security he obtained for the rent.

In 1791, an Act of the Legislative Assembly was passed (on the avowed principle of giving equal rights), to enable the tenant to demand his *congé*, or cancellation of the lease, with compensation in full for his expenditure in permanent improvements whenever he pleased—a power which, by tacit understanding, the tenantry had not previously claimed (though admitted in theory), because they were seldom if ever disposed to leave their farms. In the following year, when the madness of the Republican legislature was uncontrolled by respect for the rights of property, and while the fiend of liberty and equality sought to grind into dust the aristocracy of the land, another Act was passed which declared the occupying tenantry of estates throughout France rent free! But this state of anarchy and spoliation was corrected in 1795, by an act of legislation, which confirmed to those landowners, whose estates had escaped confiscation, and to all the purchasers of forfeited property, the first rights of ownership; and, in fact, re-adopted the principle of the law of 1791, which had secured to the tenant (according to the old Breton usage) the privilege of claiming compensation (but requiring the previous consent of the landlord) to the outlay of the tenant, and also established to the former the right of resuming the possession, which he had before the republican era.

The Breton landlords, however, were dissatisfied with the retrospective operation of the new law; for, in giving to the tenant the power of claiming payment in full of his demands for building, &c., at six months' notice, under penalty of forfeiture of the land to him by the landlord in case of non-payment, a boon was conferred upon the tenant which he had not previously possessed, unless by special agreement; and the landlords have, in consequence, generally adopted the modern usage throughout France, which is to give leases for seven or nine years, with written agreements either to allow or not for farm-buildings, &c.

In some parts of lower Brittany it is the practice to lease the farms (on those short terms), as in other countries in a primitive state of agriculture, on shares; the landlord finding the capital, and the tenant the labour. Nothing, however, can be more opposed to their ancient mode of occupancy than the nine years' lease; but we easily find, in the social system of modern France, sufficient causes for inducing both parties to enter into short terms of tenure, among which is foremost the law which gives to children equal rights of inheritance, and therefore occasions frequent transfers of property.

Now, the social condition of Ireland, as nearly as possible, demands an approximation to perpetuity of tenure, and the old Breton law, which practically involved this, appears to be a good model for the object in question, without depriving the landlord of the contingent advantages which he might derive should his property rise in intrinsic value. It should not be forgotten that the tendency of land in Ireland will be to rise in value (even if left in a neglected state) from the constant increase of population, and progressing skill in agriculture, with the concomitant development of industrial resources; the right of a proprietor and his heirs to profit accordingly, even though the benefits be remote and contingent, should not be lost sight of.

(*To be continued.*)

* Here, as elsewhere, I have freely availed myself of the work of M. Bonavenire, entitled "Finistère in 1836," where my personal observation has been insufficient.

Home Correspondence.

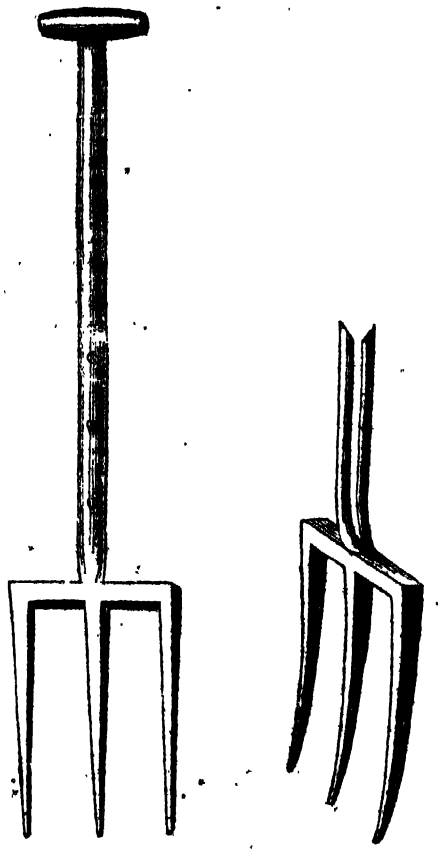
(*Guano and Superphosphate of Lime as Manure.*—There have recently been several communications in

your Journal on the use of superphosphate of lime as a manure. That it is a highly valuable one I have already tested by my own experience, though for Turnips I do not consider it so efficacious as guano. Last year I tried it side by side with guano, as a top-dressing for Wheat, and the effect produced was as nearly alike as possible; both answered well. For Swedes, on the contrary, the result was very different. I set apart 3 acres in a field of similar quality, and divided them into three equal portions: on the first I used 4 cwt. of the best Ichaboe guano; on the second 5 cwt. of superphosphate of lime; and on the third 5 cwt. of Boast's inorganic manure. Each lot was mixed with 10 bushels of ashes, and drilled below the seed. During the first six weeks, the two latter kept ahead, when the guano portion overtook them, and very soon far surpassed them in growth. There is now an excellent crop upon all three pieces, but in the guano acre the Swedes are immensely large, and much superior to the superphosphate—in the proportion of at least five to four, whilst the *latter* is perceptibly better than Boast's inorganic. My own opinion is, that Turnips require a considerable portion of nitrogenous manure applied directly to the soil in the form of some ammoniacal compound, and I would therefore recommend the use of equal parts of guano and superphosphate as a dressing for Turnips; though I myself prefer, in addition to a little guano, a mixture of partially decomposed bones, like that which I alluded to in my last letter; in which, by-the-bye, I omitted to state that I covered the whole mixture with a layer of common salt, which after a short time became thoroughly consolidated by the internal heat of the heap, and thus with the previous layers of gypsum and dry ashes prevented the escape of the gases, which had been let free during the decomposition of the bones.—*J. M. Paine, Farnham.*

On Draining Stiff Clay.—I have seen some statements of late of the comparatively small cost of draining heavy clay land; which, however correct as applying to some peculiar conditions of soil, are in my humble opinion calculated generally to mislead. Mr. Mechi, to whom the agricultural public is under many obligations for zealous and disinterested exertions, in the *Agricultural Gazette* of February 7th, informs us in an article on "Deep Draining Stiff Clays," that he has drained 33 acres at a cost of 3*l.* an acre; the drains 5 feet deep, 33 feet asunder, and the whole expense of digging, placing the pipes, and filling in, not exceeding 6*d.* per rod. The drainage, it would appear, had proved effectual. Now I do not mean for a moment to impugn the correctness of this statement. Mr. Mechi's character, judging from his writings, is too frank and generous to admit the shadow of a suspicion to rest on his veracity. I would, however, respectfully ask Mr. M. whether the soil in which these draining operations have been performed fairly comes under the designation of a "stiff clay?" I presume that it does not, since he denominates it a brick earth, strongly impregnated with iron. The cost of making drains, it is unnecessary to say, is materially affected by the nature and composition of the subsoil. From my own experience, now of some years standing, in draining adhesive clays, and the pretty extensive observations which I have made on the practice of others, I have been led to form a different conclusion to that of your correspondent, not only as to the cost, but as to the depth and distance of draining the heavier soils. I have never found drains, whatever their depth, so wide apart as 33 feet to be effectual in a subsoil of adhesive clay, so as to secure a perfect uniform dryness throughout the entire area of the field; which is of course the great object of thorough draining. Again, I have never yet seen 5 feet drains made for 6*d.* a rod, nor do I believe that they can be so made generally on any soil so as to secure good workmanship and fair wages. The quantity of earth taken from a 5-feet drain is very great, and the labour of only filling in is considerable. I question whether those who talk and write about this cheap draining have any very definite notion how greatly the labour is increased in proportion to the depth. A good way of learning this problem practically is to dig out and fill in a few rods of deep drain one's-self. I can say from experience that it would be found in all cases very laborious, and in wet cold weather extremely unpleasant, and not unattended with considerable risk to health. A good drainer, I have always maintained, ought to earn at least half-a-crown a day. It was formerly the practice in the Weald of Kent not to drain more than from 20 to 30 inches deep on clay soils, at a cost for labour of 4*d.* per rod. Of late, draining has been done considerably cheaper, and with satisfactory results. The usual cost of cutting and filling in drains in this district may be stated as follows:—Drains 3 feet deep, from 4*d.* to 5*d.*; 4 feet, from 6*d.* to 7*d.*; 5 feet, from 8*d.* to 9*d.* per rod. Of course this price varies according to the composition of the subsoil, but the above may be taken as a sort of average. I prefer, on soils resting upon a thick, uniform substratum of heavy clay, to cut the drains from 3 to 3½ feet deep, and place them from 14 to 18, or, at most, 20 feet asunder. I find this method secures a more uniform drainage than going deeper and wider apart. A drain has two duties to perform: 1st, to "draw" water, as it is termed; 2nd, to convey it away in the speediest manner to the nearest outlet. On much of the land lying on the London, Weald, and Oxford clays, water will not readily "draw" more than 8 or 10 feet; so that if it gravitates equally towards both sides of the drain, it follows that such drains ought not to be more than 16, or, at most, 20 feet asunder. In subsoils alternating with several thin beds of varying strata, such as frequently occur on the Hastings sand formation, deeper draining is to be recommended. My practice in such cases is to descend till an adhesive stratum is reached, say 5 or 6 feet, in this case the drains may be safely put wider apart. I have observed this winter several Hop gardens resting on a clay subsoil, where perfect drainage is so necessary, which have been drained 4 feet deep in every fourth alley, that is 24 feet apart, which, however, plainly indicate that to secure uniform dryness, just double the quanty of drains is required; and I have yet to learn that in such soils deeper drains would materially alter the case. There appears to be, in the present day, a disposition to push even sound principles to an injurious extreme, and to make draining merely cheap, while the chief object should be to render it effective. All saving apart from this latter consideration is a false economy. I have just been calculating the cost of some draining which I completed a few days since. It is as follows:—5 feet deep, for labour, 9½*d.*; 4 feet, 7½*d.*; 3½ feet, 5½*d.* per rod of 16½ feet. The subsoil alternates with clay, hard sand, and both light and stiff loam. There were but few stones, but some of the sand required the pick-axe, and in some places the clay was so compressed that it was difficult to dig. At these rates the best workmen averaged only 2*s.* 3*d.* a day. The drains were laid with pipes 1½ inch diameter, cost 16*s.* a thousand, from 16 to 21 feet apart. It would much assist the cause of agricultural improvement, if practical men in different parts of the kingdom would communicate fully their experience in draining, in the columns of the *Agricultural Gazette.*—*G. Buckland, Benenden, Kent.*

[We hope the suggestion with which our respected correspondent concludes will not be allowed to drop.]

Forking.—I believe "Subsoil" will find both a drawing and description of the fork which he wishes to use in the *Agricultural Gazette* of the 13th Dec., 1845.



[We here republish the woodcut referred to.] The blacksmith in an adjoining village manufactures them for this neighbourhood, and I consider he has made a considerable improvement in them. There are three tines, which, instead of leaving square, he gives a sharp edge to the back of, and this gives a facility to its use on land that is at all sharp or stony. The lower end of the tines must be well steeled, and the handle longer and much stronger than that of a Potato-fork. If the information I refer to is not sufficient, I shall be very happy to communicate anything further that "Subsoil" may wish to know.—*Edward Wortley, Ridlington, Uppingham.*

White Turnips.—The following statement may be interesting to some of your readers. On the 4th of last November, Mr. V. (a land surveyor resident here) and myself, at the request of Mr. Middleton, weighed the Turnips off one rod of land on his farm at Blackwater, in the parish of Great Witchingham, Norfolk. We saw the Turnips pulled, and properly topped and tailed. There were 105 Turnips, which weighed 40 stones, 9lbs., being at the rate of 40 tons, 12½ cwt. per acre. The rows were 27 inches apart. The whole field, between 11 and 12 acres, appeared equally good. Some other parties made similar experiments on other parts of the field, and found the weight to be generally much the same as we did. This farm came into the possession and occupation of its present spirited proprietor five or six years since. It was then in a wretched condition in every respect. When the last tenant was told by one of his old neighbours of the present improved appearance of the farm, and particularly of this excellent crop of Turnips, he was very incredulous: but when told which field produced it, he amazingly said—"Why that was the worst piece of land on the whole farm!" There can be no doubt but that a similar judicious application of capital would produce results in many other instances equally surprising to the same sort of people.—*W. H.*

Artificial Egg Hatching.—In reply to the query in your Paper of the 10th ult., the heat required for hatching poultry artificially is 96° Fahr.; in this degree of heat, never rising or falling more than a degree or two, a brood of upwards of 70 chickens was hatched above 60 years ago in London. Excess of heat is more injurious than a temporary diminution of it; but the greatest difficulty in artificial hatching is the due regulation of evaporation from the egg. I may tell you that I speak from experience, having had the management when a girl of an apparatus for hatching eggs of different birds—the common fowl, ducks, pea-fowl, guinea-fowl. We regulated the evaporation according as it appeared needful, on breaking an egg daily.—*M. B.*

Particulars of an Experiment on Swedish Turnips at Sydenham, Devon, 1845.—The seed was Skirving's, drilled at 27 inches interval. The manure placed in the rows, and the seed sown over it, with about 14 Winchester bushels of mixed wood and coal ashes per acre, drilled in with the seed. The soil a strong loam.

	Manure.	Price.	Produce with Tops.	Produce without Tops.
		£ s. d.	Tns. cwt. qrs. lbs.	Tns. cwt. qrs. lbs.
No. 1. One Statute Acre	Three qrs. of bones mixed with one cart-load of road-scrapings.	3 15 0	20 13 0 16	20 6 0 16
No. 2. Ditto	One qr. of bones, 160 lbs. of sulphuric acid in 10 gallons of water mixed with dry mould and lime rubbish.	2 5 10	28 0 0 0	28 0 0 0
No. 3. Ditto	26 cart-loads of good yard dung.	say 3 0 0	28 0 0 0	28 0 0 0

The sulphuric acid used with No. 2 was bought at the retail price of 2½*d.* per lb. (More than double the wholesale price.) The price of the bones 35*s.* per quarter. Two yards were measured in each acre, taken without selection in different parts.

Observations.—No. 1 sown 26th May. No. 2 sown 28th May. No. 3 sown 29th May. June 10th.—No. 1 well up, slightly touched by fly. No. 2 up and very fine with longer stalk. No. 3 not so well up. June 27th.—No. 1 not fit to hoe. No. 2, fit, but too wet. No. 3 not fit to hoe. June 30th.—No. 1 partly hoed. No. 2 hoed. No. 3 not fit to hoe. July 1st.—No. 1 the remainder hoed. No. 2 still the strongest. No. 3 hoed. July 14th and 15th.—No. 1 hoed a second time. No. 2 ditto. July 16th.—No. 3 hoed a second time, gaining on 1 and 2. July 23d.—No. 3 is now better than 1 and 2. No. 3 continued the strongest plants till the end of September or October, when a change in the leaf became apparent. No. 3 became more pale and sickly in the tops, so much so as to be plainly seen at a distance. There are more decayed Turnips in No. 3 than in the other two.—*I. H. Tremayne, Heligan.*

Aftermath Hay.—Professor Johnston, in his lectures on "Agricultural Chemistry," page 770, edition of 1844, gives a table by Boussingault, showing that aftermath hay contains a much larger proportion of nitrogen, for a given weight, than the first crop of hay of the season, and that, consequently, it is much more nutritious. This may be true in the feeding of stock, the muscular fibre of an animal requiring nitrogenised food for its support and increase, and my own experience proves that cattle may be kept in good condition, when fed on that alone, but whether better than with first crop hay, I am unable to say; as fodder for horses, however, there is a decided preference to be given to the first crop; horses in work, their allowance of provender being the same, rising or sinking in condition, just as they are supplied with hay of the first or second crop, when, by analogy, we should expect just the reverse. In the case of milch cows, too (although I have heard of practical men who objected to aftermath as fodder for horses, yet give it the preference as food for milch cows), I have proved that as the hay is changed from the first to the second crop of the season, both from the same land, the milk falls off in quantity, and *vice versa*. I do not wish to be understood as underrating the labours and researches of chemists; I estimate them very highly. My object is to induce practical men to make careful observations of the relative nutritiveness of different kinds of food; and I have no doubt, if the results do in some cases differ from what might be expected from the tables given by the experimental chemist, he, calling physiology to his

aid, will be enabled to account satisfactorily for any seeming discrepancy.—*G. B. C., Manchester.*

Glass Milk Pans.—I may state in answer to some inquiries lately made in the *Chronicle*, that I have for the last six months used glass milk pans in my dairy. I have twelve in constant use, and although they stand on slate shelves only one has been broken; and that was cracked the first day the pans were washed, owing to the dairyman putting it into boiling water. My pans are about 4½ inches deep, and 18 inches wide at the top shelving to 9 inches wide at the bottom. In my opinion they are infinitely preferable to any other sort of milk-pan, as they are so easily and speedily cleaned, being merely rinsed in warm or cold water, and being made of clear flint glass, the smallest speck of dust is immediately perceived. Apsley Pellatt, of the Falcon Glass Works, on the Surrey side of Blackfriars Bridge, was the maker, and the price 4*s.* 6*d.* each; but as this was the price prior to the reduction of the duty on glass, I doubt not that they may now be had cheaper.—*Tyro.*

To Salt Pork.—Boil together over a gentle fire 6 lbs. of common salt, 2 lbs. of powdered loaf sugar, 3 oz. of saltpetre, and 3 gallons of pure spring water; skim it while boiling, and when cold pour it over the meat, every part of which must be covered with brine. Small pork will be sufficiently cured in four or five days; hams intended for drying, in two weeks, unless they are very large. Before putting the meat into the brine, press out any blood, then wash and wipe it clean. This pickle may be used two or three times, if fresh boiled up, and a small addition of the ingredients be added.—*J. M'Intosh.*

Salting Pork.—"D. M." begs to inform "An Old Subscriber" that the reason the pork was laid down hot is because it takes the salt more readily. A bushel of salt was used, and from 10 to 12 lbs. of sugar. The hogs weighed about 40 stone, taken as an average. No meat was laid down—only the fat sides of the hogs. If, when the tub was quite filled, after waiting a week or ten days, it was found that the salt did not begin to melt, which was sometimes the case if the salt had been very dry and the atmosphere also, then two or three quarts of warm water were sprinkled over, to moisten the salt and to cause it to brine. "D. M." cannot tell what was the specific gravity of the brine, but it must have been as strong as possible, far stronger than the old housewife's test of good brine, namely an egg's swimming in it, because it was the melted salt and sugar, with the moisture that exuded from the pork, and with sometimes the addition of the small quantity of water mentioned. "D. M." sees that "Curly Tail" is in despair about the effectually curing his hogs, on account of their weight. If the above mode will answer for bacon as well as pork, "D. M." assures "Curly Tail" that he need be in no fear as to the result. The bacon will be thoroughly salted.—*Jan.* 7.

Berkshire Pigs.—Berkshire is proverbial for its breed of pigs, and as the present season is a fit time for rearing them, a few remarks on the qualities and extraordinary dimensions of this peculiar breed may be interesting to some of your readers. Of the advantages or disadvantages attending the breeding and feeding of swine, it is not my intention now to speak, as local circumstances must, in a great measure, determine that question. The Berkshire breed, which is reckoned one of the best in England, is perhaps more celebrated for its fine qualities than its dimensions, although, as we have hinted, these are often considerable. One of the Berkshire breed killed is reported to have measured from the nose to the end of the tail, 3 yards, 8 inches, and to have stood 4½ feet in height: its weight when killed was 86 stones, 11 lbs. avoirdupoise, according to the old stone of 14 lbs., the weight being 1215 lbs. Another instance I know of: one reared in this county, and recently killed, was found to weigh 38 score. Examples of the Berkshire breed were given at the late Smithfield show, which were highly praised, and successful in competing with other breeds. Size, however, is of minor importance, and since the introduction of the Chinese race, which has tended to the improvement of our own breeds, we less frequently hear of instances of enormous magnitude than formerly. The most common weight of the Berkshire breed is from 12 to 15 score, although many fattened at two years old weigh 20 score when killed, and some even more. Two primary qualities are, that the bone is small, and they fatten at an early age on little food. The true Berkshire breed is known to be black, with white spots, but some are quite white; their snouts are short, jowls thick, and ears erect. A mixed breed, by crossing the Berkshire with the Chinese breed, possesses improved qualities, though susceptible of cold for want of hair. Excellent, however, as the flesh of the Chinese hog is, and of the breeds crossed with it preference is given, by competent judges of its qualities, to some of our native improved breeds, as yielding what is most essential, the best bacon: of these, the breed of this, as well as that of other counties, is highly esteemed.—*H., Berkshire.*

Ploughing Flat Furrow in Kent.—If this means turning the next furrow completely down into the place where the previous furrow was taken up from, and laid the downside upwards, leaving the surface completely flat all over the ploughed land, it is more than we can do in our county. Perhaps a Kent farmer will tell us how. I have been told by a person somewhat acquainted with Kentish farming, that they plough much deeper in Kent than we do here. Of the Kentish turn-rest plough, the most of us are in ignorance; we should be glad to see a plain description of it, and its use and purpose. *Draining.*—Mr. Mechi's sponge (at p. 661, 1845) is an excellent illustration of deep draining *versus* shallow, and it is as true as it is excellent. *Deep Cultivation.*—Mr. Hewitt Davis is a cultivator that is worthy of imitation. I have been gently testing and proving his methods of deep cultivation, and thin sowing, on various soils for the last 20 years, and have become more and more convinced of their utility and profit; so that I am gradually adopting his system. *Smut, or Bunt, or Pepper-brand in Wheat.*—Were I to write upon this, it would only be a verbatim statement of that of Mr. David's, at a meeting of the Cardiff Farmers' Club in 1842 (reported in the *Ag. Gazette*, p. 661); for his account is exactly in accordance with my own observation, practice, and experience, for the last 30 years. In addition I have to say, that, in curing the disease in the seed, common salt alone has no effect; and that I am induced to believe that, where smut has abounded, the disease remains in the fields and in the manure; and that caustics are the best remedy to apply to the seed corn.—*A Leicestershire Farmer; No. I.*

Deep Draining on Stiff Clays: Tiptree-hall Farm.—Under the above head Mr. Mechi having lately kindly favoured the readers of the *Agricultural Gazette* with an account of his deep draining on the land he rents, would further oblige a constant reader by stating through the same medium the average depth of the drains, the nature of the subsoil, and what wages the labourers earned at 6*d.* a perch of 5½ yards, and whether the draining pipes were delivered in the field at 15*s.* per 1000, and if not, how far they had to be carted; also, whether any main drains were required, and their cost as compared with the common drains. An answer to these inquiries would oblige—*A Constant Reader.*

Malt Floor.—"X. X. X.," who inquires about making malt on a boarded floor of a granary, will find a ground floor much more suitable, and it should be constructed in the following manner:—Cover the floor with fine gravel made as level and as solid as possible; over this place a coat of cement (the kind not material, if fresh), which should be mixed with finely sifted road sand in a fair proportion. This will make a floor as durable as stone, but care must be taken that it is placed on the gravel before the cement is set, as they term it; much of the cement used becomes useless by being laid on by unskilful hands. Your correspondent may make his malt on a boarded floor, but the plan I have mentioned is far preferable. Some cover the floors with large slates jointed with cement. The making of malt might be greatly improved, but for the restrictive nature of the laws.—*Alpha.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held at the Society's House in Hanover-square, on Wednesday last, the 18th of February; present: His Grace the Duke of Richmond, in the chair; B. Almack; G. T. Raymond Barker, Esq.; T. H. Bateman, Esq.; S. Bencraft, Esq.; W. R. Browne, Esq.; F. Burke, Esq.; H. Burr, Esq.; Dr. Calvert; F. C. Cherry, Esq.; W. Cuthbertson, Esq.; A. E. Fuller, Esq., M.P.; H. Gibbs, Esq.; B. T. B. Gibbs, Esq.; W. Fisher Hobbs, Esq.; J. Kinder, Esq.; O. Ogilvie, Esq.; John Reed, Esq.; Prof. Sewell; W. Shaw, Esq.; W. R. C. Stansfield, Esq., M.P.; T. P. Stone, Esq.; T. Turner, Esq.; and T. R. Tweed, Esq.

William Marshall, Esq., M.P., of Patterdale Hall, near Carlisle, was elected a Governor, and the following gentlemen Members of the Society:—

Cargey, George, Sandon Hall Farm, Stone, Staffordshire
Farhall, Richard, Billingshurst, Sussex
Easton, Abel, Strathfieldsaye, Hartfordbridge, Hants
Craig, J., Quatt, Bridgnorth, Salop
Timings, Richard, Warton, Bromyard, Hereford
Thompson, Andrew, Woodford, Kettering, Northampton
Wright, John, Chipping-Ongar, Essex
Ferguson, Daniel, Northallerton, Yorkshire
Mackworth, Sir Digby, Bart., Glanusk, Caerleon, Monmouth
Loscombe, Francis, Goodworth, Chatford, Andover, Hants
Smith, William, Burton, Belford, Northumberland.

Country Meetings.—Mr. Mason, Town Clerk of Doncaster, addressed a communication to the Council, soliciting, on the part of the corporation of that borough, that one of the country meetings of the Society may be held at Doncaster, at some future time, when the new succession of districts throughout England and Wales, for the holding of the Society's country meetings after 1847 (when the present schedule ends) shall have been determined upon.—The Council ordered that the Rotation of Districts' Committee should be summoned to meet on Monday, the 2nd of March.

Prize Barley.—Earl Spencer transmitted his Report of the cultivation of the Barley selected by the Judges at the Southampton Meeting for trial along with the local varieties commonly grown in the neighbourhood of the respective parties appointed by the Council to undertake the task of instituting such trial. This report was reserved for consideration until the other communications on the same subject have been received.

Potato Disease.—Mr. Browne submitted to the inspection of the meeting some specimens of diseased Potatoes, and stated that he had taken them from a heap which had lain together for upwards of two months without any increase of the disease.—The Duke of Richmond drew the attention of the meeting to an ingenious plan which was practised in American families, by cutting off the stem end containing the eye of the Potato, and employing the remainder for culinary purposes. The portion thus cut off was thrown into a vessel containing lime and charcoal, for the purpose of preserving it for seed. His Grace also stated that, not having found the Potatoes of the north of Scotland affected by the disease, he had secured a supply for introduction into the county of Sussex as seed for his future crops. His Grace further stated that the Duke of Portland having made many experiments relative to the disease in Potatoes, he would take an early opportunity of requesting him to favour the Council with a report of his results.—An interesting discussion then took place, in which Mr. Raymond Barker, Mr. Stansfield, M.P., Mr. Fuller, M.P., and Dr. Calvert, detailed the results of their respective experience of the Potato disease.

Conditions of Draught.—Mr. Bencraft having submitted to the Council a detailed explanation of the principles on which his hames and new saddle were constructed, and of the beneficial results which had attended their trial under various circumstances, an interesting discussion ensued, in which the Chairman, Mr. Fisher Hobbs, Mr. Turner (President of the College of Veterinary Surgeons), and Mr. Cherry (Principal Veterinary Surgeon to the Army), stated to the Council the result of their experience respectively, on the subject of draught and harnessing. Mr. Cherry also presented to the Society (in reference to papers on the subject of one-horse carts in the last part of the Journal of the Society), copies of his various published, as well as privately printed works, on the best mode of constructing a cart for hospital service, and of transporting by vehicles, or on the backs of animals, the personal baggage of the army.

Mr. Gloyen, Secretary of the Newcastle-upon-Tyne Farmers' Club, transmitted a copy of the regulations of that institution.

The Council then adjourned to Wednesday next, the 25th instant.

MARKET-HILL AGRICULTURAL SOCIETY.

At the late annual meeting of this Society the proceedings were of the usually interesting character, but we regret our inability to find room for a full report of them. We shall shortly give in another section of the paper some of the statements of judges regarding the competing farms; and we shall now extract from the *Newry Telegraph* the following report of Mr. Blacker's speech on the occasion, in which some interesting details are given of the doings of this Society:—

Mr. Blacker, after some preliminary remarks said—I shall proceed, as on former occasions, to make some remarks explanatory of the progress of that agricultural improvement in this vicinity, in which all present are so much interested, and which our noble president, in particular, has taken so much pains and gone to such expense to promote. In doing this I confess I feel under considerable embarrassment; for I can conceive, by a very uncalled-for comparison made at a late agricultural meeting in a neighbouring county, that the speaker wished to insinuate that too much had been said at these meetings of what improvements were going on in the neighbourhood; whilst, on the other hand, I have fallen under the censure of the editor of the *Farmers' Gazette* (Dublin), who, in commenting upon our last meeting, complained that no particulars were given by which the public could form any correct judgment of the actual state of things. I cannot take blame to myself in regard to the first charge, because, in everything I have ever said or written, I have endeavoured to keep the public in mind that the declarations here made, came from the premium-men, and must not be taken as descriptive of the Gosford estate generally. I have never said more than that the advancement in agriculture, though not so great as one could wish, was yet great enough to induce further perseverance in ourselves, and afford, also, encouragement to others, to follow our example—which latter will appear from the occasional letters I receive from different agriculturists to whose appointment I have been accessory (some of which, as well as letters from the owners of the properties, will hereafter be published). I will only add in this respect that I should be truly glad that not only the district in question, but every other district in Ireland had got the start of us, as stated, though upon what data I cannot imagine, however mortified I might be at our falling behind. As to the remark in the *Farmers' Gazette*, conceiving it my duty to attend to the observations of the press, I have thought the most satisfactory course for me to steer would be to state certain data in regard to which there could be no mistake, and leave every one to draw their own conclusions. In pursuance of this determination, I beg to mention, that besides what the higher classes of the tenants may have provided for themselves, there has been lent out this last year, on the Gosford and Drumbanagher estates, 42 bushels of Turnip seed, which as the practice of dibbling the seed is pretty extensively pursued, I consider equal to sow about 800 acres. There have also been given out 180 cwt., or 9 tons weight of red Clover seed, being equal to about 1450 acres, besides a considerable quantity of Vetches and Italian Rye-Grass—say 138 bushels of Vetches, and 512 bushels of Grass seed—but which being generally provided by the tenants themselves, would give an erroneous idea of the extent of their cultivation. I have already alluded to the extent levelling of ditches has been carried. It may also be interesting to know

the quantity of guano that has been lent out, in which respect I am rather mortified to say there have only been 85 tons, and I cannot help alluding in strong terms to the folly of those who have let their land lie in pasture, or perhaps a second grain crop, when by taking a load of guano they might have got a crop of Turnips worth 25*l.* to 30*l.* per acre at the market price of 10*d.* to 1*s.* per cwt. I trust they will have more sense this year, if it is to be had; of which I am by no means certain; and would recommend those who think of using it to lose no time in securing it. There have likewise been lent out 3888 barrels of lime, besides large quantities bought by the tenants for themselves. Besides what I have already stated, there is another matter which will be considered very important, which I think it desirable to mention. A good many years ago, before the plan of appointing an agriculturist was thought of, at the time a new survey was making of the Gosford estate, I desired the surveyor to take an account of all the stock upon the property, and I have within these last few months had a similar account taken for the sake of comparison, and I find there has been an increase of 47 horses, 224 cows, 290 heifers and calves, 449 pigs, and 33 sheep on the Gosford estate; and if I had had the same means of comparing the increase upon the Graham estate, purchased by his lordship since then, I am certain the sum total would have been one half more; and in a townland of Colonel Close's, where a similar account had been taken, the result—say 36 cows, 43 head of heifers and calves, 14 pigs, and a reduction of 9 horses—is equally favourable. I fear I may weary you with these statistics, but there is one other matter to which I would wish particularly to draw your attention, because it bears upon one of the most interesting subjects of description of the present day, viz., the improvement of the condition of the working population of the United Kingdom. To illustrate the effect of the appointment of an agriculturist, I have made a list of 10 small farmers, occupying 98 acres 3 roods 20 poles of land, English measure, or about 6 Irish acres each, and the following is the account of the stock and number of souls supported thereon, the one half of the land being under Flax or grain crops:—

Stock on Ten Farms, containing 98 Acres, 3 Roods, 28 Perches, on Lord Gosford's Estate.

No.	Names.	Contents of Farm.	No. of persons on each farm.	Stock on farms. Horses.	Cows.	Heifers.	Sheep.	Pigs.	Rent of Farm.
		A. R. P.							£ s. d.
1	Jacob Albin	9 0 33	7		4			2	11 1 8
2	S. Lowden	8 2 20	7		2	1		2	10 7 9
3	J. Gilliland	8 3 9	7		3			2	11 9 1
4	Jas. Beatty	9 1 32	6		3			2	11 18 10
5	P. O'Hagan	8 2 10	5		4			2	17 3 0
6	H. Ringland	9 2 0	4	1	4	1	2	2	11 5 6
7	J. M'Clinchy	10 2 14	4	1	3			2	11 16 6
8	R. M'Clinchy	10 3 17	6	1	2			2	12 7 2
9	J. Bradford	10 3 30	8		3			4	12 0 6
10	J. Ralston	12 1 15	6	1	4			6	12 0 8
	Total	98 3 20	60	4	32	2	2	26	121 12 8

Now, if you compare this with the stock, crop, and number of souls subsisting upon one of the large farms either in England, Scotland, or the great grazing farms in the west of Ireland, it will be impossible not to be struck with the difference; for, according to this proportion upon 98 acres, a farm of 1000 acres English ought to have above 40 horses, above 320 head of cattle, 20 heifers, above 260 pigs, and above 30 sheep; above 600 souls, besides 500 acres of sown crops. Now the stock that these small farmers are possessed of, show that they are by no means in penury. I have chosen those who are living along the road side, and if any one has the curiosity to visit them to-morrow, I shall have a jaunting-car ready at Mr. Ringland's, at Gosford-gate, to take them to their houses. No one, I expect, will conceive he is to meet with any great appearance of wealth—it is up-hill work to amass riches from a few acres of land, paying a fair rent, and rearing a young family—but I believe every one of them will be found in a thriving condition. Most people will be of opinion, this stock alone, on 98A 3R. 20P., is greater than what the same quantity and quality of land would feed if allowed to go out of cultivation, without calculating that the value of the corn, Flax, Potatoes, and Turnips would be lost, and 60 human beings would be turned adrift, the consequences of which would be well worthy the attention of those who argue in favour of withdrawing agricultural protection. This is not to be understood as advocating that all the lands in the United Kingdom should be cut into 10 acre farms, but I do advocate such a gradation as might render it possible for the cottier, small farmer, or labourer gradually to rise in the world, as in all other trades, and which they might do by sobriety and industry, and which many are now doing in this neighbourhood. This satisfactory result is owing to the industry of the people, for there are many who from want of exertion, and from refusing to follow the directions of the agriculturist, present a very different appearance. I therefore think, gentlemen, you will all readily join me in drinking to the health and happiness of the improving tenants on the Gosford and Drumbanagher estates, and that they may long continue to enjoy the fruits of their industry. "Success to the industrious and improving tenants on the estates of the Earl of Gosford and Colonel Close." Lord Gosford returned thanks for his own tenants, and expressed his great satisfaction at seeing the successful exertions some were making.

Farmers' Clubs.

SUBJECTS FOR DISCUSSION.

10. MEANS OF IMPROVING THE CONDITION OF THE LABOURING CLASSES.

We can but enumerate some of the subjects which properly claim consideration under this head. Among them are—education, savings' banks, benefit societies, the allotment system, emigration, temperance societies, high farming, various systems of paying the labourer, cottage accommodation, labour rates, the policy of having farms of various sizes, the steps as it were in a ladder up which an industrious man may mount in the scale of society, &c. &c.

The following are works which should be studied:—Dr. Chalmers' "Political Economy, and Civil Polity of a Nation"; Forster's "Popular Ignorance"; 1st vol. "Quarterly Journal of Agriculture," Art. "Emigration"; "North British Review," August, 1845, Art. "Savings' Banks," and "Colonisation," and "the Allotment System"; "An Appeal to the Editors of the *Times* Newspaper on behalf of the Working Classes," by two lay members of the Church; Hatchard, pp. 79, 8vo. "On increasing the demand for Agricultural Labour," by C. W. Johnson, Esq.; Ridgway. "How to improve the Condition of the Labouring Classes" by E. D. Davenport, Esq.; Ridgway. "Hints on Agricultural Economy as the antidote to Agricultural Distress," by O. O. Roberts. "Suggestions towards an Enquiry into the present Condition of the Labouring Classes," by Rev. J. S. Henslow; J. W. Parker, West Strand. "An Address to Landlords on the advantages to be expected from the general establishment of a Spade Tenantry, &c." by Rev. J. S. Henslow; R. Groombridge and Sons. "Letters" in the *Bury Post*, by Professor Henslow, September and October, 1844. Prize Essay of the East Suffolk Agricultural Society on providing employment for the labourers during winter; R. Groom, Framlingham. "Strictures on the reply of the Poor-law Commissioners to the enquiry of Lord Althorp, on the subject of Labour Rates," by J. M. Paine; Nicholas and Sons, Borough, Farnham. "On the beneficial Employment of the surplus Labouring Classes," by James Dean; J. Rogerson, Norfolk-street, Strand. "Hints for the Amelioration of the Moral Condition of a Village Population," by Hon. and Rev. S. G. Osborne; Hatchard. "Reports of the Committee of the Cottage Improvement Society for Northumberland"; Whittaker and Co. *Artisan* Paper, July 1, 1845, &c.

HARLESTONE: *The operation of Machinery as affected by the Poor-laws.—Feb.* 11.—Resolved, that it is the opinion of this Club that the increase of machinery has in the manufacturing districts greatly increased manual labour, but that the use of agricultural machinery is at present quite in its infancy. The Club states, however, with great satisfaction, that, so far as its experience goes, in every case where it has been applied to land the capital thus saved has been as freely employed in manual labour of a more profitable kind. This result, however, cannot always be expected under the existing law of settlement, which necessarily impedes that change of employment required by the immediate operation of all machinery—the superseding of manual labour. This Club, therefore, in expressing a decided opinion in favour of the increased application of machinery to agriculture, adds that it should be accompanied by free labour, to be secured by the total abolition of the law of settlement.—For the Club, *R. B. Harvey, Secretary.*

WRENTHAM.—*The best method of eradicating Moss from Pastures.*—This subject was considered with reference to two descriptions of Grass land, on which Moss was more commonly prevalent, from heavy land pastures, and low spongy meadows, effected by springs. With reference to the former, it was observed by a member, who had had much experience in laying down lands to Grass, that nothing conduces more to the growth of Moss on such soils than a superabundance of moisture, consequently without previous thorough draining, (when necessary,) and subsequent manuring, the laying down poor wet lands, in the expectation of obtaining good pastures, free from Moss, will end only in disappointment. This would also apply to all Grass lands when there is an excess of moisture, and it has been generally found, that recently laid down lands, if not, by this means, previously brought into a good state of cultivation, are the more likely to become Mossy from the slow progress which the Grasses make at an early stage. In a system which had been pursued on a portion of Mossy pasture land by way of experiment, much benefit had apparently resulted from folding, or rather by closely feeding upon the land with sheep during the month of April. The part thus treated looked to disadvantage for a considerable time afterwards, but there is now an excellent herbage of red suckling and other Grasses, without Moss, and in this respect presenting a striking contrast to the other part, not subjected to a similar treatment. The opinion expressed for feeding or folding upon Mossy lands at this period in the spring, was, that if exposed to frost afterwards, it would tend materially to weaken as well as retard the growth of the Grasses; but if later, or after the frosty season is over, as there is not then the probability of the young herbage receiving a check from that cause, the sooner would the Grasses recover. It may also be observed, that (to a certain extent) in proportion to the wetness of the land at the time of this close-feeding, the more effectually will it tend to an eradication of the Moss. On low meadows infested with Moss much good had been effected by dressing them with a mixture of lime or salt, or afterwards being frequently harrowed. In the case of the former description of Grass land (if recently laid down) harrowing was not particularly recommended, as by that process much of the tender Grass would be torn up, thus not unlikely producing more injury than good. The following resolution was recorded:—"In order to eradicate Moss from all descriptions of pasture land where it exists, it appears to this meeting that the application of heavy manure will tend most to effect that object; but in the absence of a sufficiency of this material, sand, saturated with the drainings of the yards or steadings has proved beneficial. On poor heavy lands, or others affected by springs previous thorough draining is a most essential proceeding, while the treading, as well as folding them with sheep or cattle early in the spring, has resulted in an improvement of the pasture, or the disappearance of Moss. For low meadow lands similarly affected, a covering of salt or lime is recommended as having been applied with success, the land being afterwards subjected to repeated harrowings."

Farm Memoranda.

MR. GOWEN'S FARM, NEAR PHILADELPHIA.—Of course the most profitable system of agriculture to be adopted in most parts of America is very different from what it is in districts like many in our own country, where hands are plentiful and land dear. The *extensive* system is the one for adoption there in contradistinction to the *intensive* which is applicable here. Low rents and dear labour are entirely opposed to high farming. Where, however, as near towns, these may not exist, "high farming" is the best policy; and with this word of explanation we shall extract the following particulars from the "British American Cultivator," a well-conducted Canadian journal. They relate to what, we presume, is a rare case in America—to one, at any rate, which is only paralleled on land in the immediate neighbourhood of good markets:—

"The farm is located near Philadelphia, and now contains about 100 acres, exclusive of wood-land. Mr. Gowen took possession of it in 1834, at which time it is represented to have been in a very worn down and poor condition, from the neglect and bad management of previous owners. Mr. Gowen took away the old fences, made a new division of the farm, and fenced with stone wall and hedges of the Osage Orange, drained and filled up ravines and gullies. The land is now brought into a high state of cultivation, producing 100 bushels of corn, 400 bushels of Potatoes, 30 bushels of Wheat, &c., to the acre. He at first bought manure from the city, but after three or four years' experience, he gave up the plan, and has since made enough on his own premises, excepting light dressing. To do this he has been obliged to increase his stock of animals. 'To maintain my stock,' he says, 'and bring my land to a high state of cultivation, by the most efficient and economical practice, has been a leading object; and to accomplish this, required no ordinary management on such a farm. The stock in cattle has ranged for years, from 40 to 50 head, in addition to the necessary horses, with a large stock of swine for breeding and fattening; and these I have fed from the produce of the farm, except the purchasing occasionally of some straw, and supplies of mill feed for the horses and swine, and some meadow hay for the cattle, selling frequently its equivalent in Timothy. During the same period I have sold hundreds of bushels of Rye, some Wheat, and on an average 400 bushels of Potatoes annually, with some 300 or 400 bushels of Carrots, besides providing for the family. But the chief income was derived from the cattle. My expenditures during the whole period could not be otherwise than large; as I could not put up so much stone fence, and picket fence, as incloses my farm without incurring a heavy outlay; but I view these improvements as cheap in the end. It may be safely inferred, that there is not at this day any farm of the same extent in this part of the country, that can so easily be worked, or will require so little expense for a series of years in keeping the fences in order, especially when the hedges are taken into account. I am also of opinion, taking in view the condition of the soil, as to depth and richness, as well as its being entirely free of stones and other impediments, that I can make it produce as much as any farm of its size in any part of the country, for a series of years, and at as small an expense.

"'The secret of keeping so large a stock on so little land, consists in my practice of partial soiling, and green crops, whereby I make some four or five acres do the work of 30 acres, in the 'slow and easy way.' From May to August, my cattle are confined to one or two fields, most commonly one, to which they are driven, more for exercise in the cooler parts of the day, than for pasture; they being fed in the stables early in the morning, at noon, and at night, with food cut for them from a lot adjoining the barn-yard. The food is generally of Lucerne, Orchard Grass and Clover, Oats and corn. The patches from which the corn and Oats are cut, are always sowed with Turnips in August. No one can credit, unless he has had proper experience in the matter, the quantity of food that one acre of Lucerne, one of rich Orchard Grass and Clover, and one of Oats and corn, afford from May till August, nor can he estimate the great saving in manure, much less the comparatively good health of the cattle, from not being exposed on the naked fields, under a fervid sun, toiling all day in search of food. This practice allows me to crop almost the whole of the land, and to make some 120 to 150 tons of hay annually. In the fall, from August till November, the cattle have the whole range of the mowed lands, as I do not cut second crop Grass for hay. Then for winter feed, I have always an acre of Sugar Beet, half an acre of Sugar Parsnips; half an acre or more of Carrots, for my horses; and generally from three to four acres of Turnips. I report to the committee on crops this season, over 100 tons of these roots. In 1843, I gathered from one acre, 1078 bushels Sugar Beets, 60 lbs. to the bushel; Carrots at the rate of 687 bushels; Sugar Parsnips, 868 bushels. This year 972 bushels Sugar Beets; 970 bushels Carrots; 700 bushels Sugar Parsnip; and from three and a half acres, 2500 bushels of Turnips, sowed with Timothy seed.

"'The farm buildings consist of three substantial stone

barns, one 70 feet by 33, another 50 by 26, and another hipped roof with cupola, 57 by 25, besides a large open-shoot stable and hay house, stable high of stone, 60 feet by 30—the lower floors of all these are made of broken stone and lime, punched, being vermin proof. There are also, a corn crib capable of holding 1200 bushels of corn, one barrack, ample hog-pens, and sheds for carts and waggons. The barn buildings have been filled this fall to their utmost limit, except the corn crib. A substantial stone wall encloses the principal manure heap; the drainings from this heap are led into a place of deposit, in which are received also a drain that runs under ground from the kitchen, as well as drainings from the pig-pens, and the washings from all the yards. These drainings form an important item in the supply of manure to my land; it is a saving which I cannot estimate at less than 200 dollars a-year. This liquid by a simple process is applied to the patches of roots, &c., and to this may be ascribed my great success in raising such crops. Of improved cattle, my first effort was with the celebrated "Dairy Maid," still owned by me. Her first calf, Leander, by Whitaker's Prince of Northumberland, was reared and kept by me, for breeding. Dairy Maid's calvers since, exclusive of Leander, have already sold for more than 300 dollars. It would be curious to trace her profit at this day, by stating an account of her first cost, her keep, and that of her son Leander; crediting her by sales of her own calves and grand calves; deducting for the portion of the capital which was invested in the dams that produced the grand calves. To do this, would extend this paper to an unusual length—suffice it to say, that Dairy Maid has long since paid for herself, and that those who laughed at me for giving 340 dollars for one cow, may turn this statement over in their minds, and think, whether since 1838 any investment of theirs, to the same amount, in any other branch of husbandry, has paid so well. But there is a satisfaction beyond that of the pocket, and that is, that Dairy Maid's breed will be of infinite service to the country. Her calves and grand calves are pretty well scattered already—and I make no doubt, that wherever found they will demonstrate the high character of the parent stock. My sales for the last two years, exclusive of Dairy Maid's calves, amount to over 2000 dollars. The stock now on hand is about 40 head, principally Durhams. The butter sold for the last two years exceeds 750 dollars; this is a respectable item, when the calves that were reared, and the supply for my family, are taken into view. From early fall to spring, the butter averaged 70 lbs. per week—the quality highly appreciated both abroad and at home.

"In the hog line I have been quite successful, at least in bringing the animal by judicious crossing to great perfection. I fatted off my old Lincoln and Berkshire Boars, and my Hampshire and Chester county sows last month; they weighed from 400 to 450 lbs., sold for 86 dollars 24 cents. Have sold the last two years of pigs, designed for breeding, 150 dollars. Bacon, lard, &c., over 120 dollars, besides having on hand 14 fine young barrows, last fall's pigs, now ready for slaughter, which will weigh from 250 to 300 lbs. each, value 150 dollars. The stock on hand consists of one fine boar of Lincoln, Hampshire, and Berkshire breed; one brood sow of Berkshire breed, 12 shoats and seven pigs."

CALENDAR OF OPERATIONS.

FEBRUARY.

Spring Wheat should now be sown wherever the land is dry enough to bear the drill. More seed is required per acre at this season than in autumn, as the plants do not tiller so much; 7 or 8 pecks will suffice in most cases. The Talavera has perhaps the highest reputation among varieties of spring Wheat.

Parsnips should be sown as soon as possible. The land should have been ploughed deeply and manured in autumn; it should now be cultivated or scarified, and well harrowed and brought to a fine tilth; it should then be rolled with a heavy roller, and the seed may then be drilled. Set the drill to sow two bushels in rows 18 inches apart; mix 5 lbs. of seed with 2 bush., of sand, or, if the land be inclined to run to small weeds, with 1½ bush. of sand and a peck of Oats; and sow without weights on the coulter-levers. The seed will thus be placed very shallow in the ground, and should be immediately hush-harrowed in; the Oats will spring up first, and indicate where the rows of Parsnips will appear, and thus the land may be hoed wherever it shall require it without fear of injuring the young plants. The Parsnip is a good crop to sow under a system of "double culture;" let the ground be prepared as just described; fill one half the drill with Beans and the other with with Parsnips, and let two seed drills, 18 inches apart, be sown from each, and let there be 3 feet between the adjoining rows of Parsnips and of Beans; the coulter levers which are sowing the Beans must be weighted heavily. Sow in rows north and south; the plants will spring up in couples of Beans and Parsnips, at intervals alternately of 3 feet and 15 inches; the 3 feet interval may be deeply cultivated, and 18 inch interval can only be hand hoed; the rows of Beans being north and south will not keep those of Parsnips in perpetual shade. At harvest four or six rows of Beans may be stooked together so that there will be plenty of room for carts to cross the land without injuring the Parsnips; this mode of culture is, we think, more likely to yield well than if half the land were sown wholly to the one crop, and half wholly to the other. The Parsnip and the Bean both affect the same sort of soil—a deep adhesive loam.

The Land for Oats and Barley should now receive the attention of the farmer; the Clover lays which have been ploughed in preparation for the former crop should be harrowed down in readiness for the seed, which may be sown in the latter end of this month and commencement of the next: the Turnip lands which are intended for Barley, and whose crop has been fed off by sheep folded on the land, may be scarified up and down and across, and then harrowed and water furrowed, to lie to till the end of next month; or they may receive a light ploughing in preparation for the Barley seed, which may be sown towards the end of next month. It is well to "pickle" both Oats and Barley, just as Wheat is pickled for seed; the former crops is especially liable to smut, and this is doubtless simply because Oats are hardly ever "pickled" for seed. Dissolve half a pound of sulphate of copper (blue vitriol), and pour the solution over a sack of Oats, and turn it over rapidly, so that every grain shall be wetted; it will dry in about an hour and be ready for seed, whilst with doubtless not be so liable to that 10 or 20 per cent. of loss from smut which we have often noticed among Oats at harvest time.

Notices to Correspondents.

RURAL CHEMISTRY, by Edward Solly, Esq., F.R.S., 6th new edition, with additions, is reprinting, and will shortly be ready.

BRICK DRAINING PIPES—*J J*—You may get them at Gloucester for 12s. per 1000 feet. You had better put the drains 3 feet deep at 25 feet apart. *Mr. Mechi states his experience as to the depth, and we can say nothing against it.*

BROADCASTING MACHINE—*A Subscriber*—If you wish to sow but a small quantity you may either drill it on the land and then harrow the land across the drills, or you may mix it unsparingly in three or four cart-loads of earth and spread it with a shovel out of the cart. *We have no doubt you may obtain a broadcasting machine, and if you will favour us with your address we will help you to find it.*

CHICORY—*A Subscriber*—Can any one give us his experience of Messrs. Attwood's block tin churn?

CLOVER—*L P*—If your land is dry, you may turn your ewes and lambs on now, without doing harm.

CULTIVATION OF NEWLY BROKEN-UP GRASS LAND—*T M S*—Your mode of planting Beans will doubtless answer very well: three bushels per acre of garden Beans (such as the Long-pods, which will answer your purpose better than the Windsor), will be required; or two bushels of a small round Bean, such as the Bedfordshire. *We have no experience in the cultivation of Canary*; but, perhaps some of our readers will tell you if it is advisable to sow Chief among the Beans for a crop in the next year; if your land is in good order, you may have 40 bushels per acre of Beans. The names of most Potatoes are so entirely local, that we give them will probably fail in guiding you. In our neighbourhood the Matchless (White Round), Ambridge Kidney (White Kidney), Long Keepers and Evergreens (Red Rounds), are the staff-and-all varieties; they are of good quality and yield well. You had better not try the growth of Flax till another year, when your land will be brought more thoroughly into cultivation; it is a plant which likes a rich loamy soil, such as most of our alluvial soils are. It is of no use sowing seeds now only for the ensuing year, as you propose drawing some winter-preparatory to breaking the Grass up. Do we understand you aright?

DAIRY MANAGEMENT—*T S*—Give your cow half a cwt. of mixed White Carrots and Mangold Wurzel in the morning; straw-chaff *ad. lib.* in forenoon, with hot salt-water thrown over it; about ½ cwt. of mixed Carrots, &c., at noon, and then an oil-cake, weighing about 2 lbs.; straw-chaff *ad. lib.* in the afternoon, and ½ of a cwt. of mixed Carrots, &c., at night; and if she does not yield good milk in abundance it is not the fault of her food.

FIXATION OF AMMONIA—*Constant Reader*—The results of Professor Henslow's experiments were published in our columns last year, in a tabular form, about the month of October.

GYPSUM—*Barlocks*—It may or may not be useful on the soils you mention—that depends in great measure upon whether or not those soils already contain it. You had better mix 2 cwt. of guano with an equal weight of gypsum, and sow that per acre broadcast.

HORN SHAVINGS—*T S*—They will answer equally well with bones for solution in sulphuric acid. You may dibble Oats if you choose, and if your seed be good, you may sow it by means of Bentall's seed dropper, in holes 6 inches by 9 inches apart.

LINSEED—*M P*—Next week.

MANGOLD WURZEL—*Alpha*—The advantage of planting these and other green crops, as Turnips, on the ridge, consists in one's ability to horse-hoe the land in the earlier stages of the crop's growth, without any risk of burying the young plants.

MARKET REPORTS—*Tenant Farmer*—Thanks for the hint, which may hereafter be adopted; but, for the present, we cannot alter our arrangements.

POULTRY—*E C D* asks for the cause and remedy of a disease that has been prevalent among her fowls for the last two years. They are attacked with a sort of cramp, and their legs and claws become quite distorted; many die soon after they are seized with it, others live some time afterwards, but they never recover entirely. They live upon a dry sandy soil, and have plenty of space to move about in.

ROAD MAKING—*A C H*—It will be necessary to make a bed for the road—say 12 feet wide and 10 inches deep—then you might lay down Thorns across, and cover this with 3 or 4 inches thick of clay burnt in large lumps and broken, and with, lastly, 5 or 6 inches of your gravel, you would have a good road.

ROOKS—*To Readers*—I have a number of Ash and Sycamore trees, which were about ten years ago the residence of a numerous company of rooks; but by continued shooting at and otherwise annoying them, they were completely banished from them. Can any one put me in possession of a plan which has proved successful in other cases to induce them to return and take possession of the old rookery? *R. W.*

SHEEP-FEEDING—*A Subscriber*—The Linseed mixed with the Oats will be decidedly preferable to the bran. The latter no doubt is nutritious to a certain extent, but not nearly so much so as the Linseed.

SUPERPHOSPHATE OF LIME—*J B Wiseman*—The common earth of bones contains a phosphate of lime consisting of 48½ of phosphoric acid, and 51½ of lime. Digest this earth of bones in dilute sulphuric acid, and the solution will contain an acid phosphate of lime, which is soluble in water, and contains 71½ per cent. of phosphoric acid, and 28½ of lime. See "Johnstone's Lectures," p. 392.

TALAVERA WHEAT—*L L D*—That as well as any other well-established sort is a pure variety; nevertheless the sample you have sent is a mixed Wheat; that, however, only proves that it contains seeds of other varieties as well as of the Talavera.

WARTS ON HORSES—*W S*—Cut them off, and mildly sear the surface with a hot iron.

WHITE PEAS—*T W L*—You cannot have a better sort than the common Early Charlton.

Markets.

SMITHFIELD, MONDAY, Feb. 16.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	3s 8d	to 4s 0d	Best Holstein Half-breds	3s 6d	to 3s 8d
Best Short Horns	3 6	3 8	Best Scots	3 10	3 6
Second quality Beasts	3 2	3 4	Ewes and second quality	3 4	3 6
Calves	4 8	5 2	Pigs	3 8	3 8

Beasts, 2222; Sheep, 16,260; Calves, 68; Pigs, 220.

The supply of Beasts is but moderate, and the attendance of buyers numerous, consequently trade is brisk at no small advance on the late quotations. Sheep are in demand remarkably short, and the best qualities are readily disposed of at late quotations.—Veal trade is about the same.—Pork trade is rather worse.

FRIDAY, Feb. 20.

The supply of Beasts is short, notwithstanding, owing to a bad trade in the cattle markets during the week. The best Scots sold about as 4d, and Short horns at 3d. Second quality rule dull. Several remain unsold.—There are only a few Sheep in the market to-day, and are sold rather as dear.—Veal trade is heavy for most; a good Calf makes about 5s 4d.—Pork trade is very dull; also Hide Porkers make fully 3s, but other qualities are lower.

Beasts, 2282; Sheep, 1960; Calves, 132; Pigs, 270.

POTATOES.—COVENTRY, WATERSIDE, Feb. 19.

"In consequence of the continuance of the severe weather, which has been accompanied nearly the whole week from the northern quarters, and this, with the late set of severe weather, and until within the last few days, the first two or three days of the week, and consequently business done, the supply coming up proceeding, that the first market evening, but at the close the demand was improved, and the sale of the whole quantity was nearly completed. Fresh Potatoes, 60 to 70 per ton; Kidneys, 80 to 90 per ton; Blues Regents, 90 to 100 per ton; Scotch Whites, 70 to 80 per ton; Scotch Reds, 70 to 80 per ton; Jersey Blues, 70 per ton; Jersey Whites, 70 per ton; Jersey Kidneys, 70 per ton; Jersey Reds, 70 per ton; Jersey Regents

NURSERY STOCK.

TO GENTLEMEN, NURSERYMEN, FLORISTS, & OTHERS.

MR. J. ELLIOTT will sell by Auction, at the Clapton Nursery, Battersea-fields, on Monday, Feb. 23, 1846, at 11 for 12 o'clock (removed from the country for convenience of Sale), a Splendid Collection of Standard, half Standard, and Dwarf Roses of the newest and most approved sorts; large Limes and Laburnums, and Laurels; Laurustinus in pots, striped and Green Box, Honeysuckles, Irish Yews in pots, variegated Hollies, Spruce, and Scotch Firs, Scarlet Thorns, Persian Lilacs, Clematis Flammula, Jasmines in pots, large Arbutus in pots, Standard and Dwarf Ribes, Rhododendrons, Paeonia odorata, fine Dahlias by name, Carnations and Picotees by name, Aims Boleyne and other Pinks; Pansies, &c. Some parcels of flower-seeds of sorts. Capital broad-wheel Waggon and strong Cart. The whole to be sold without reserve.

Catalogues to be had at the principal Seed-shops in London; Mr. Gaines', Covent Garden; at the place of Sale; and of the Auctioneer, Putney, Surrey.

PLANTING SEASON.—TO NOBLEMEN, GENTLEMEN, BUILDERS, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. William Emmes, to submit to Public Competition, on the Premises, opposite to Cremorne House, King's-road, Chelsea, on Monday, March 9, and following day, at Eleven o'clock, in consequence of the ground being immediately required for extensive Horticultural Erections, a portion of the valuable NURSERY STOCK, comprising Dwarf, Standard, and Pillar Roses in choice varieties, Dwarf and Standard Lilac, and Guelder Rose; a quantity of the finest fruit-bearing Mulberry Trees in the Kingdom; fine Prize Gooseberries, in collection. About 20,000 Aucuba Japonicas in all sizes; Vines, Pinasse, Irises, &c. &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition at the Auction Mart, Bartholomew-lane, on Tuesday, March 3rd, and following day, at 12 o'clock, about Two Thousand fine Standard ROSES, consisting of Hybrids, Perpetuals, Noisettes, Bourbons, Chinas, &c. Also, a superb collection of DAHLIAS, in dry roots, &c. May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE & MORRIS will submit to public competition, at the Auction Mart, Bartholomew-lane, on Friday, February 27, at 12 o'clock, about TWO HUNDRED DOUBLE CAMELLIAS, from two to five feet, consisting of all the approved varieties; the whole beautifully furnished with bloom-buds. Also a splendid assortment of Standard and Dwarf Roses, fine hybrid Rhododendrons and Azaleas, choice Dahlias in dry roots, &c. May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers.—American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, THE TRADE, & OTHERS.

Sale of NURSERY STOCK at the Arboretum, Queen's Elms, Fulham-road, one mile from Hyde-park-corner, owing to the ground being required for other purposes.

MR. KIRKE will Sell by Auction, on the above Premises, on the 26th February, 1846, and following days, at 11 for 12 o'clock each day, by order of the proprietor, A STOCK comprising several Thousands of Laurel, Aucuba, Box, Holly, Rhododendron, Spruce Fir, Privet, Yew, Arborvitæ, Robinia hispida and others, Cytisus of sorts, Spartiums of sorts, Lilac, double-blossomed Peach and Cherry, Almond, Thorns of sorts, Weeping Ash of sorts, Weeping Willow, Weeping and other varieties of Lime and Laburnum, Poplar, Acacia, Quick, a choice collection of Roses, 1-year budded Moss Roses, Sweetbriar, Ivies, Pyrus japonica, &c. May be viewed three days prior to the sale, and Catalogues to be had on the Premises; of Mr. Chaselwood, Seedsman, Covent-garden; Messrs. Westmacott, Seedsmen, 106, Cheapside; and at the offices of the Auctioneer, 19, Brompton-row, Brompton.

TO BE LET, WITH IMMEDIATE POSSESSION, within six miles of the Weybridge Station of the South Western Railway, A WALLED GARDEN, containing about TWO ACRES OF PRODUCTIVE SOIL, Conservatory, Hot and Succession Houses, Pits, and Sheds. The walls are covered with choice Fruit Trees in high bearing and order. A residence for a superior Gardener—accommodation for a journeyman. The implements may be taken at a valuation by the tenant.

For particulars apply to Mr. Wm. Keye, steward, Ockham Park, Ripley, Surrey.

TO CONTRACTORS, THE TRADE, &c.

ARTHUR MACKIE begs to call the attention of the Trade to the annexed List of TREES and SHRUBS, which are of first-rate quality, and, as he trusts, will, from the lowness of price, be found worthy of notice. The Norfolk Railway affords great convenience for the cheap and safe transit of plants, the charge to London being at this time at the moderate rate of 37s. 6d. per ton; and where large quantities are taken, A. M. will deliver them free.

			s. d.	s. d.	
Blackthorn	2 yrs, fine	..	5 0	to 7 0	p. 7000
Whitethorn	do.	..	2 5	to 3 6	,,
Turkey or Levant Oaks	do.	..	7 0	to 8 0	,,
Ash, transplanted	..	.. 2 to 4 ft.	14 0	to 15 0	,,
,,	,,	.. 4 to 5 ft.	18 0	to 20 0	,,
Beech	,,	.. 1 to 2 ft.	18 0	to 25 0	,,
,,	,,	.. 2 to 3½ ft.	17 6	to 20 0	,,
Larch	,,	.. 3 to 4 ft.	14 0	to 18 0	,,
Scotch	,,	.. 1 to 2 ft.	15 0	to 30 0	,,
Hazel	,,	.. 1 to 2 ft.	15 0	to 20 0	,,
Oaks	,,	.. 1 to 2½ ft.	18 0	to 25 0	,,
Blackthorn	2 yrs, fine	..	5 0	to 10 0	,,

ORNAMENTAL TREES AND SHRUBS.

Oaks, Turkey or Levant	.. 5 to 6 ft.	25 0	to 35 0	per 100
,, ,, ,,	.. 6 to 8 ft.	35 0	to 45 0	,,
,, ,, ,,	.. 8 to 10 ft.	50 0	to 60 0	,,
Chesnut, Horse	.. .. .. 6 to 8 ft.	12 0	to 20 0	,,
,, ,,	.. .. .. 8 to 10 ft.	25 0	to 35 0	,,
Tree Box	.. .. .. 1 to 2 ft.	6 0	to 8 0	,,
,,	.. .. .. 2 ft.	10 0	to 12 0	,,
Laurels	.. .. .. 1 to 2 ft.	5 0	to 8 0	,,
,,	.. .. .. 2 ft.	10 0	to 15 0	,,
Standard Thorns	.. ..	35 0	to 40 0	,,
,, Roses	.. .. ..	2l.	to 4l.	,,
Red Cedars	.. .. .. 1 to 2 ft.	22 0	to 30 0	,,
,,	.. .. .. 2 to 2½ ft.	45 0	to 55 0	,,

A reference is requested from unknown correspondents.

Norwich Nursery, Feb. 21.

TO THE NOBILITY, GENTRY, NURSERYMEN, IRONMONGERS, AND OTHERS.

LINGHAM BROTHERS, 172, Little Hampton-street, Birmingham, sole Manufacturers of the IMPROVED MINORIFORM or Lattice for Garden Fencing, Flower Pots, &c. Engravings of the same, with prices attached, sent per Post to all parts of the Kingdom, on application as above.

Sole Agents for London, G. and J. Dixon, Horticultural Implement Warehouse, 33, King William-st., London Bridge.

KENSINGTON NURSERIES, LONDON, AND AT THE READING NURSERIES, BERKSHIRE, LATE WM. SWALLOW.

RICHARD FORREST AND CO. beg most respectfully to direct public attention to their very superior collection of FRUIT TREES of every description at these establishments, and also their ORNAMENTAL TREES, SHRUBS, STANDARD and DWARF ROSES, &c. The grounds of the Reading branch being those of the late William Swallow, with some other fresh land, are extremely well situated, and well adapted to the growth of all kinds of Fruit Trees, as well as all other Trees and Shrubs, and a very full and select assortment has been introduced there from the Kensington Nurseries.

R. F. & Co. invite Gentlemen to make their selection in these grounds, where the plants may be had in a state of health and vigour, instead of being exposed in the open street week after week, till every spark of life has fled, as practised in some market towns to the great disappointment of those who plant them afterwards; the unfortunate plants, it would appear, are exposed to sell, not to grow. The grounds at Reading having several thousand feet of excellent new walls round them, the whole of the very superior collection of the Flemish Pears have been introduced with all the select Stone Fruits, as fruit bearing specimen plants correctly named, and the greatest care will be taken to maintain a system of correctness in this respect. The selection of Horticultural and Agricultural Seeds has been made with the greatest care, both as to kind and quality, and the very extraordinary success of last year in the Reading district, as well as the flattering satisfaction expressed by their numerous customers, cannot fail in stimulating R. F. & Co. to the most active exertions to maintain this satisfactory position, by supplying nothing but the most genuine articles at the most reasonable prices possible. Garden implements of every description may be had, and all other articles equal to any Seed or Nursery establishment in London. To those whose garden establishments are of moderate size, packets from 6d. each upwards may be obtained of all the new and rare Vegetable Seeds, Walcheren Cauliflowers, Broccolies, Lettuces, &c. They have still some healthy plants of Statice macrophylla for sale, from 12 to 15 inches high; and, if taken in numbers, at reasonable prices. Fuchsia serratifolia, a general collection of Camellias, and all other Greenhouse Plants, Hybrid Rhododendrons, with a very fine collection of Pines.

Shop, 45, Market-place; Grounds, Bath-road, Russell-street, and Oxford-road; Warehouse, Russell-street, Reading. Catalogues on application. Late William Swallow.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, and Others.

ABIES CANADENSIS, or HEMLOCK SPRUCE.—George Baker, Nurseryman, Bagshot, having the largest stock of the above in Europe, of all sizes and in fine condition, can with confidence recommend this noble tree to the notice of the Public, and having so large a stock (viz. 200,000 large plants, 3 feet high, besides smaller sizes), can dispose of them at very low prices; also, with a General Nursery Stock. He begs to offer at unusually low prices, in all sizes, the largest assortment of Retinis latifolia ever offered to the Public.—Prices can be had by letter, and shall be attended to forthwith.

AURICULAS, POLYANTHUSES, PINKS, CARNATIONS, AND PICOTEES.

JOHN SLATER, Florist, Cheetham-hill, near Manchester, respectfully calls the attention of the admirers of the above-named Florists' Flowers to his large, healthy, and select collection, which he is selling at moderate prices; Catalogues of which may be had on prepaid application. 12 varieties of Show Auriculas for 18s.; 20 pairs of 20 varieties of Show Carnations and Picotees 20s., package included.

N.B. Nurserymen and others wanting from 100 to 500 pairs of Carnations and Picotees will be supplied at very low prices.

SELECT AND CHOICE FLOWER SEEDS, with full directions for sowing, treatment, height, colours, &c.

	s.	d.
100 varieties choice Annuals, including the most approved new	15	0
50 vars. ditto ditto ditto ..	8	6
36 vars. ditto ditto ditto ..	5	6
20 vars. ditto ditto ditto ..	4	0
20 vars. best dwarf kinds, in larger packets, suited for filling beds on lawns	7	6
12 vars. ditto ditto ditto ..	3	0
20 vars. choice greenhouse Annuals, including Phlox Drummondii, Portulaca, Rhodanthe, Sedum azureum, Brachycome, Mesembryanthemum tricolor, Martynia fragrans, &c. ..	7	6
20 vars. choice greenhouse Perennials, including Calceolaria, Fuchsia, Petunia, Cineraria, Cherozemma, &c.	10	6
20 vars. choice hardy Biennials and Perennials, including fine Hollyhock, Pansy, Emperor Stock, &c.	5	0

The above sent free by post at the prices affixed, or packets, as follows:—

Per packet.	s.	d.	Per packet.	s.	d.
Calceolaria, carefully saved from choice flowers	0	6	Petunia, from choice flowers	1	0
Fuchsia, ditto	1	0	Phlox Drummondii, from 20 fine varieties	0	6
Cineraria, ditto	1	0	Ditto, scarlet and crimson	1	0
Geranium, ditto	2	6	Gladiolus, from splendid summer hybrids	0	6
Pansy, ditto	1	0			
Antirrhinum, ditto	0	6			
Dahlia, ditto	0	6			

Remittances in florins or Post-office orders from unknown correspondents.

Catalogues of Flower and Vegetable Seeds, embracing the best for cultivation, will be sent pre-paid to applicants.

Rose and Bryan, Seed and Horticultural Establishment, Sudbury, Suffolk.—Feb. 28.

KNIGHT'S CELEBRATED "ISPAHAN" MELON.

R. GLENDINNING begs most respectfully to direct the attention of Melon Growers to the description of this most superior variety, as advertised in the *Gardeners' Chronicle* and *Gardeners' Journal*, January 10th; and also of his genuine BEECHWOOD MELON, presented to him by Sir John S. Seligman, Bart.

Knight's "Ispahan" Melon, 10s. 6d. per packet of 6 seeds.
Beechwood ,, 5s. 0d. ,, of 12 seeds.

To be had also genuine of Messrs. Chrimes & Son's, Seedsmen, 9, Mansion House-street, London.

Chiswick Nursery, near London, Feb. 21.

FINE GAME.—PARTRIDGES.

WANTED TO PURCHASE, 50 Pairs of Well-fed Young LIVE TAME PARTRIDGES.—Apply to Williams and Sons, Liverpool, stating Price.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.,

By Special Appointment, the SEEDSMEN to the ROYAL AGRICULTURAL SOCIETY OF ENGLAND,

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, and the last Fifty Years.

Prized Lists of Agricultural Seeds are always ready, and may be had on application.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible prices, for Cash.—250, Oxford-street, near Hyde-park.

FOREIGN SHEET GLASS AND GLASS TILES.

C. JARVIS having just imported a large quantity of the above articles, in quality and substance hitherto unequalled, can offer them at a lower price than any other house in the trade, for ready money only, at his old established WINDOW GLASS WAREHOUSE, 38, Great Castle-street, a few doors from Regent-street, where orders, forwarded with reference, meet with prompt attention. Every other description of WINDOW GLASS equally low in price.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at P. Emmes's, 28, Castle-street East, Oxford-street. For Ready Money only.

HORTICULTURAL GLASS.—NET CASH PRICES.

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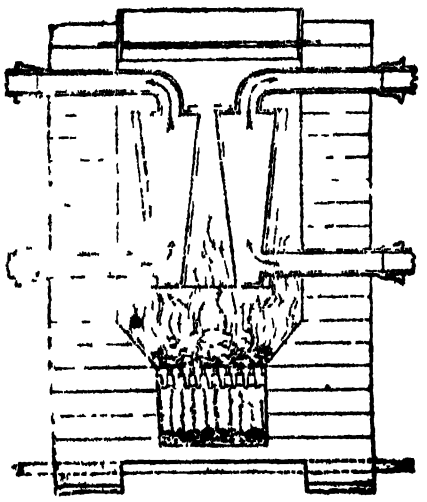
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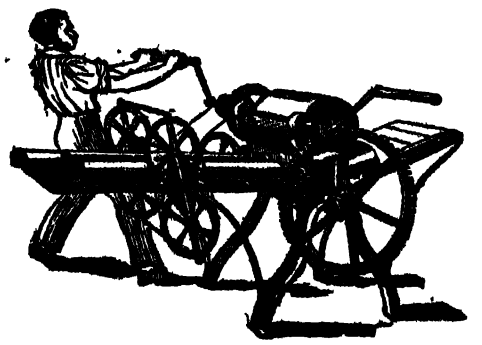
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 9.—1846.] SATURDAY, FEBRUARY 28. [Price 6*d*.

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ABIES CANADENSIS, or HEMLOCK SPRUCE.—George Baker, Nurseryman, Bagshot, having the largest stock of the above in Europe, of all sizes and in fine condition, can with confidence recommend this noble tree to the notice of the Public, and having so large a stock (viz. 200,000 large plants, 3 feet high, besides smaller sizes), can dispose of them at very low prices; also, with a General Nursery Stock. He begs to offer at unusually low prices, in all sizes, the largest assortment of Kalmia latifolia ever offered to the Public.—Prices can be had by letter, and shall be attended to forthwith.

DAHLIAS.

J. KEYNES, Florist, Salisbury, respectfully announces, that his Select CATALOGUE of all the leading DAHLIAS is now ready, and will be sent on application. J. Keynes's splendid Seedling SIR EDMUND ANTROBUS—the most perfect Dahlia ever raised—with Edwards's Queen Mary, and Dodd's Enterprise, will be indispensable in all collections. Also Cook's Queen of the Fairies, and Dodd's Punch, two beautiful fancy flowers, with all the approved varieties in cultivation. Plants the first week in May.

Salisbury, February 28.

HERTFORD NURSERIES.

E. P. FRANCIS begs to state that he can supply WINTER WHITE BROCCOLI, which has given such universal satisfaction, in sealed packets 2*s*. 6*d*. each; also, Snow's New Spine Cucumber, 2*s*. 6*d*. per packet, of 8 seeds.

— Horticultural Prize do., 2*s*. 6*d*.

— White and Purple Fringed Primula, 1*s*. 6*d*. per packet

E. P. F. begs also to recommend a very superior new late White Broccoli, which may safely be relied upon as being the latest of the late, and keeping good till Cauliflower comes in; in packets 2*s*. 6*d*. each. Or the whole of the above for 10*s*.

Catalogues of Roses may still be obtained upon application.

E. P. F. can supply from 100,000 to 200,000 good two and three-year old Quicks. For price and sample apply at the Nursery.

SEED POTATOES FREE FROM DISEASE.—The following superior Early and Late Seed Potatoes to be had at Warner & Warner's, free from disease, producing a good succession in the following order:—

American Early Round	1st	
Chinese Round	2d	
Martin's Isle of Wight	3d	
Lancashire Early Round	4th	
Early Ash-leaf Kidney		
Chalmore Kidney	More suitable	
Haigh's Kidney	for general crop.	

Prices may be had on application.—28, Cornhill, London.

SPLENDID NEW WHITE FUCHSIA.

WILLIAM JACKSON and Co., Nurserymen, beg to announce their intention of sending out their Seedling FUCHSIA, MRS. FREDERICK MILBANK (late Nonpareil), next month. The flowers of this handsome variety are between three and four inches in length; tube and sepals white, the latter distinctly tipped with green; corolla, fine rich purple, which opens well. The plant is a robust grower of graceful habit, and a most profuse bloomer. For Dr Lindley's remarks, see *Gardeners' Chronicle*, 29th Nov., page 804, "Seedling Flowers.—W. J. & Co." Price 10*s*. 6*d*. each, the usual discount to the Trade.

W. J. & Co. can recommend this Fuchsia with the greatest confidence, as being suitable to compete at Floricultural Exhibitions.

All goods delivered free on the Railway.

A reference or remittance from unknown correspondents is respectfully solicited.

Cross Lanes Nursery, Bedale, Yorkshire, Feb. 28.

TO CONTRACTORS, THE TRADE, &c.

ARTHUR MACKIE begs to call the attention of the Trade to the annexed List of TREES and SHRUBS, which are of first-rate quality, and, as he trusts, will, from the lowness of price, be found worthy of notice. The Norfolk Railway affords great convenience for the cheap and safe transit of plants, the charge to London being at this time at the moderate rate of 27*s*. 6*d*. per ton; and where large quantities are taken, A. M. will deliver them free.

			s. d.	*s. d.*	
Blackthorn, 2 yrs, fine			6 0 to 7 0	p. 1000	
Whitethorn, do.			2 6 to 3 6		,,
Turkey or Levant Oaks, do.			7 0 to 8 0		,,
Ash, transplanted		2 to 4 ft.	14 0 to 15 0		,,
,, ,,		4 to 5 ft.	18 0 to 20 0		,,
Beech ,,		1 to 2 ft.	18 0 to 25 0		,,
,, ,,		2 to 2½ ft.	17 6 to 20 0		,,
Larch ,,		3 to 4 ft.	14 0 to 18 0		,,
Scotch ,,		1 to 2 ft.	15 0 to 20 0		,,
Hazel ,,		1 to 2 ft.	15 0 to 20 0		,,
Oaks ,,		1 to 2½ ft.	18 0 to 25 0		,,
Blackthorn ,,	2 yrs, fine		8 0 to 10 0		,,
ORNAMENTAL TREES AND SHRUBS.					
Oaks, Turkey or Levant		5 to 6 ft.	25 0 to 35 0	per 100	
,, ,, ,,		6 to 8 ft.	35 0 to 45 0		,,
,, ,, ,,		8 to 10 ft.	50 0 to 60 0		,,
Chesnut, Horse		6 to 8 ft.	16 0 to 20 0		,,
,, ,,		8 to 10 ft.	25 0 to 35 0		,,
Tree Box		1 to 2 ft.	6 0 to 8 0		,,
,,		2 ft.	10 0 to 12 0		,,
Laurels		1 to 2 ft.	5 0 to 8 0		,,
,,		2 ft.	10 0 to 12 0		,,
,,		2 to 3 ft.	12 0 to 15 0		,,
Standard Thorns			50 0 to 60 0		,,
,, Roses			5*l*. to 6*l*.		,,
Red Cedars		1 to 2 ft.	20 0 to 30 0		,,
,, ,,		2 to 2½ ft.	45 0 to 55 0		,,

A reference is requested from unknown correspondents.

Norwich Nursery, Feb. 21.

POTATOES FOR PLANTING.

F. CHATWIN, Plumstead, Woolwich, begs leave to inform his friends that he will be enabled, by his numerous connections all over the United Kingdom and on the Continent, to supply, with only few exceptions, the numerous varieties of POTATOES enumerated in his Catalogue* perfectly sound and free from disease, together with other new varieties of superior qualities. New Seedlings in Peck Bags, price 5*s*. These Seedling Potatoes are all selected, and contain red and white varieties, both of Kidney and Round sorts, and are well adapted to replace the losses that have arisen from the disease, as every selected tuber is of full maturity, having been cultivated with nursery care and attention for the last three years. He has also ready for delivery, in the same size bags, 20 selected tubers of the best varieties of Potatoes in cultivation, Red, White, Round, and Kidney sorts, late and early, so that every grower, in case of losses in stock and sorts, may at once obtain a collection of those most desirable to commence again with.—These are recommended for distribution by the wealthy to the poor cottagers and others; and in all these cases a most liberal allowance will be made. They will be sent out in bags, sealed and labelled, free of expense to any of the Railway Stations in London, or to any of the Booking-offices, Wharfs, &c.; and may be had at all the respectable seed warehouses in London. Price 5*s*.

Agricultural and Garden Seeds, of first quality, sent to all parts of England, and packed for Exportation.

Phillips's Hardy Ridge Cucumber, in packets 1*s*.

* This Catalogue, recommended by the late Mr. Loudon, contains the names of 158 varieties of Potatoes, with every descriptive information relating to the various sorts. Sent post free for 1*s*.

EDWARD TILEY begs to state that those Gardeners who had seed of his First Prize CUCUMBER, VICTORY OF BATH, in the autumn, have expressed the highest satisfaction in the production of the fruit, it fully answering the description given by him, having more than realized their expectation, and deserves to be cultivated by every Cucumber grower in the kingdom. Parties wishing to avail themselves of the opportunity of purchasing the above, should delay no time, as the stock on hand is very limited.

Sold in Packets, 3 Seeds, 2*s*. 6*d*.; 7 Seeds, 5*s*., at his General Seed Shop, 16, Pulteney-bridge, Bath.

A remittance expected from unknown correspondents.

Bath, Feb. 28, 1846.

DAHLIAS, FUCHSIAS, PANSIES, AND VERBENAS.
ROYAL NURSERY, SLOUGH, BUCKS.

W. C. BROWN'S DESCRIPTIVE CATALOGUE is ready, and will be forwarded immediately on application. It contains every novelty of the season—each DAHLIA has the grower's description attached. Amongst the first-rate ones are Beauty of Hanta, Bohemian Girl, Captain Warner, Lady Charleville, Marquis of Bath (true), Marchioness of Cornwallis, Magician, Newington Rival, Princess Radziwill, Queen of Perpetuals, Sir E. Antrobus, and Brown's Rose d'Amour. The FUCHSIAS also are very select, and contain Newberry's Delicata, Halley's Empress, Epps' Nymph, Lady Julia, and Queen of Virgins, Cassandra, Cleopatra, Duchess of Sutherland, Mrs. Lane, Prince Albert, Pomona, Queen Victoria, Serratifolia, &c. Amongst the PANSIES (for which and Dahlias this Nursery is famous), Brown's Cassandra and King of Saxony, Brown's Arethusa, Curion, Hannibal, Maid of the Mill, Prior, &c., Cloth of Gold, Rolla, Juno, Middleton, Orion, Prince Albert, Pizzaro, Sulphurea Elegans, Tom Pinch, Dido, Perseus, President, Bryant's Perfection, &c. All plants will be sent out very strong. A remittance expected with distant orders, for which the package will be allowed.

W. C. B. begs to observe, he can supply every article connected with the Nursery business. His collection of Pinuses is unique. Osmundia Regalis, just imported from Ireland; small crowns of this magnificent Fern, 5*s*. each; larger, weighing nearly a cwt., 3*l*. 3*s*.—Feb. 28.

THE TRUE FASTOLFF RASPBERRY.

GREAT YARMOUTH NURSERY.



NORFOLK, 1846.

YOUELL & CO., being the parties who first introduced to the notice of the Horticultural world the above truly excellent Raspberry, unequalled for the size of its fruit and richness of flavour, and possessing an extensive Stock of fine Canes, beg to offer the same upon the following terms, guaranteed to be of the same quality as those they had the honour of supplying Her Most Gracious Majesty the Queen, His Grace the Duke of Northumberland, His Grace the Duke of Rutland, His Grace the Duke of Marlborough, the Earl of Harrington, the Earl of Liverpool, the Earl of Abergavenny, the Earl of Egremont, the Lord Bishop of London, Lord Viscount Lorton, Lord Sondes, and most of the Nobility, as well as the Horticultural Society of London, the latter having awarded Youell & Co. two prizes for it.

Packages containing 100 canes	£1	4	0
Do. do. 50 do.	0	13	0
Do. do. 25 do.	0	7	0

Small Canes, 12*s*. per 100.

A liberal discount will be allowed the Trade when "quantities" are ordered.

For full description of the above see their advertisement of Jan. 17.

Thirty packets of new and choice Flower Seeds, per post, free, for 5*s*.

Great Yarmouth Nursery, Feb. 28.

THE MONSTROUS GREEN-GAGE, or "REINE CLAUDE MONSTREUSE DE BAVAY."

For a description of this Fine PLUM, see *Gardeners' Chronicle*, No. 5, 1846. Dwarf trained plants, 5*s*. each. Owing to a misprint in the Catalogue, the colour of Saint Martin's Quetache Plum was quoted as purple; it should be yellowish white, the same as given in the Catalogue of the Horticultural Society, from whence it was received.—Sawbridgeworth, Herts.

WARNER and WARNER, Seedsmen & Florists, 28, Cornhill, respectfully inform the nobility and gentry their NEW CATALOGUE comprising all the choice New Flower and Vegetable Seeds is now ready, and can be had post free upon application. For Particulars refer to "Harrison's Cabinet" for March.

NEW BELGIAN PLUM, "REINE CLAUDE DE BAVAY," very strong dwarfs at 5*s*., from Mr. Van Houtte's Nursery at Ghent, to be sold by Messrs. Hugh Low & Co., Upper Clapton Nursery, London.

The usual discount to the Trade

REGENERATION OF THE POTATO.—SEED saved in the most careful manner from the Berry of the earliest and best kinds, without disease, can be had in Packets. No. 1, containing 13,000 Seed, which will be sufficient to produce Plants for more than 30 square perches of Land, 7 yards to the perch. No. 2, containing more than 6000 Seed, will have sufficient plants for more than 15 perches. Application by Post-office Order on Baltinglass, for No. 1 Packet, 10*s*. 6*d*.; No. 2 Packet, 5*s*. 6*d*., payable to Mr. Moses Neile, Steward, Bellville, Stratford, County Wicklow. Each Packet will be forwarded, post paid, and registered as a money letter, to prevent the chance of miscarriage. Printed directions will be forwarded with each Packet, as to sowing and after-culture. Persons applying are requested to make their address legible.

"We have been favoured with a package of Potato Seeds from the parties offering the above for Sale, whose respectability we can vouch for, and think it remarkably well saved."—*Editor Farmer's Gazette.*

*** A sample of the Seed to be seen at No. 28, Bachelor's-walk, Dublin.

HORTICULTURAL TOOL WAREHOUSE.

GREEN and CONSTABLE, Wholesale and Retail Ironmongers, 36, King William Street, (four doors from London Bridge,) beg to announce that they have a large assortment of New and Improved GARDEN TOOLS, including Lord Vernon's Patent Hoe, Dr. Lindley's Patent Garden Fork, Lyon's Patent and other Improved Spades, solid head Garden Rakes, Ladies' Light Garden Forks, Transplanting Tools, Jointed Hot-house Syringes, Fumigators, Improved Garden Shears, Edging Irons, &c. Ladies' Horticultural Chests fitted with every implement requisite for the Garden.

GENUINE SEEDS.

UNDER THE PATRONAGE OF HER MAJESTY.

J. G. WASTE, No. 4, Eyre-street Hill, Hatton Garden, returns his best thanks for the very liberal support he has hitherto received, and begs to call the attention of his Friends and the Public in general to the following reduced Scale of Prices of a small portion of his very Extensive Stock.

	Per bush.—£	s.	d.
Pea, Early Frame	0	9	6
,, Early Kent	0	18	0
,, Early Warwick	0	9	6
,, Early Charlton	0	8	6
,, Early Prince Albert	14	0	
,, Dwarf Blue, Prussian	0	8	6
,, Dwarf Marrow	0	9	6
,, Tall Marrow	0	9	6
,, Tall Matchless	0	12	0
,, Large Waterloo	0	9	6
,, Woodford's Green	0	11	0
,, Fleming's Victory	0	10	0
,, Milford Marrow	0	13	0
,, Redman's Long-podded	0	10	0
,, Bishop's Early Dwarf	0	11	0
,, Spanish Dwarf	0	11	0
,, Blue Scimetar	0	10	0
,, Tall White Knight's	13	0	
,, Dwarf	0	14	0
,, Tall Green	0	13	0
,, Dwarf	0	13	0
,, Cormack's British Queen	1	4	0
,, Hay's New Mammoth	3	0	0
,, Fraser's Shirley Marrow	3	0	0
,, Farnes' Royal Green	3	0	0
,, Dancer's Mammothery	3	0	0
,, White's Queen of Dwarfs, p. qt.	0	5	0
Ditto per bush.	5	12	0

A splendid new variety, growing only 1 foot high, producing a larger pod than any of the same habit; the seed is quite distinct from all others, and larger than any dwarf Pea in cultivation; it has been grown at the Royal Gardens, Frogmore, and approved of as a new variety, and also at Her Majesty's table for its superior flavour.

Bean, Early Long Pods per bush.	0	6	0
,, Taylor's Extra Large Windsor	0	7	6
,, Common ditto	0	6	6
,, Green Long Pods	0	6	0
,, French of sorts	1	4	0
,, Scarlet Runner	2	0	0
Beet, Waite's Blood Red - per lb.	0	2	0
,, Green	0	1	6
,, White	0	1	6
Broccoli, Waite's Early London White	0	10	0
,, True Walcheren	0	14	0
,, Early White	0	4	0
,, Early White Cape	0	8	0
,, ,, Purple Cape	0	4	0
,, Grainger's Early White	0	6	0
,, Early Purple Sprouting	0	3	0
,, Chappel's Cream	0	5	0
,, Ditto White	0	5	0
,, Portsmouth	0	4	0
,, Brimstone	0	4	0
,, Miller's Dwarf	0	5	0
,, Dwarf Siberian	0	4	0
,, Knight's Protecting	0	4	0
,, Howden's Superb	0	5	0
,, Potter's Pink	0	5	0
,, Southampton	0	6	0
,, Late White	0	3	6
,, Dwarf Russian	0	6	0
Brussels Sprouts, fine imported	0	2	0
Cabbage, Superfine Early Dwarf (Waite's)	0	2	6
,, Early York	0	1	6
,, Nonpareil	0	1	9
,, Battersea	0	1	6
,, Imperial	0	2	0
,, Emperor	0	2	0
,, Queen (Shilling's)	0	10	0
,, Large York	0	1	6
,, East Ham	0	2	0
,, Vanack	0	2	0
,, Sugar Loaf	0	1	9
,, Incomparable	0	2	0
,, Red Dutch (Imported)	0	2	0
,, Drumhead or Scotch	0	1	0
,, Dark Green Colewort, fine	0	2	0
,, Turnip Rooted	0	2	0
Celt, Fine Green Curled	0	1	3
,, Large Scotch	0	1	0
Carrot, Early Dutch Frame	0	1	6
,, Scarlet Horn per c. t.	7	0	0
,, Long Red Surrey	7	0	0
,, Long Orange	5	0	0
,, Fine Selected Altringham	9	0	0
,, Large Greek top pod White	1	1	0
Cauliflowers, fine Early, per lb.	0	8	0
,, Fine Late	0	8	0
,, ,, Large Asiatic	2	0	0
,, ,, Walcheren	0	12	0

	per lb.—£	s.	d.
Cucumber, Fine Stockwood	0	14	0
,, Long Prickly	0	10	0
,, Short Prickly	0	7	0
,, Frame	4	0	0
,, Manchester improved Frame, p. pkt. 12 seeds	0	1	0
,, Warwickshire Hero	0	1	0
,, Latter's Victory of England	0	1	0
,, Walker's fine long, per pkt., 12 seeds	0	1	0
,, Roman Emperor	0	1	0
,, Weedon's fine long	0	1	0
,, Sion House improved	0	1	0
,, Cuthill's new black spine, per oz.	0	15	0
And all other choice kinds.			
Celery, Seymour's Improved White, per lb.	0	3	6
,, Red Giant	0	1	9
,, White ditto	0	1	9
,, New American White	1	10	0
Cress, fine curled, per bushel	1	0	0
,, Plain	0	18	0
Endive, fine Green curled per lb.	0	2	6
,, White curled	0	2	6
,, Batavian	0	3	0
Grass, fine mixed, for lawns	0	10	0
,, Mixed for pasture	0	7	0
Assortment of Sorts per pkt	0	1	0
Leek, Broad Flag per lb.	0	3	0
,, London	0	3	0
Lettuce, Improved white Cos	0	8	0
,, Ady's large Cos	0	8	0
,, Brighton Cos	0	7	0
,, Paris Cos, fine	0	7	0
,, Egyptian Cos	0	6	0
,, Fine new Bath Cos (White Seed)	0	7	0
,, Ditto ditto (black seed), requires no tying	0	7	0
,, Green Cos	0	6	0
,, White Winter Cos	0	10	0
,, Drumhead Cabbage	0	10	0
,, Berlin ditto	0	5	0
,, Malta ditto	0	10	0
,, Tennis Ball	0	7	0
,, Brown Dutch	0	3	6
,, Hammersmith hardy Green	0	4	0
,, White Silesia	0	10	0
,, Imperial Brown Cos	0	12	0
And every other variety.			
Mangold Wurzel, fine improved Long Red per cwt.	2	10	0
,, Long Yellow	3	10	0
,, Yellow Globe	3	0	0
,, Red ditto	3	10	0
Mustard, white, per bushel	0	14	0
Mushroom Spawn	0	8	0
Onion, fine White Sandy, per lb.	0	4	0
,, White Portugal	0	4	0
,, Ditto Spanish	0	4	0
,, Reading	0	3	0
,, White Globe	0	6	0
,, Brown do.	0	4	0
,, James's Long Keeping	0	4	0
,, Brown Deptford	0	4	0
,, Strasburgh	0	3	0
,, Two Bladed, for Pickling	0	8	0
,, White Lisbon	0	1	0
,, Large Tripoli	0	4	0
,, Blood Red	0	1	0
,, Welsh	0	1	9
Parsnip, Hollow Crowned, per lb.	0	0	6
Parsley, Double Curled, per bushel	1	1	0
,, Plain	0	11	0
,, Myatt's New Treble Garnishing, per lb.	0	2	0
Potatoes, Ashleaf Kidney, p. bsh.	0	6	0
,, Red Ash-leaf Kidney	0	6	0
,, Early Frame	0	6	0
,, New Early Prolific	0	6	0
Radish, Early Scarlet Short Top, p. bush.	1	6	0
,, Early Frame	1	8	0
,, Fine White Turnip	8	0	
,, Red ditto	1	10	0
,, Black Spanish per lb	0	1	6
And all other kinds.			
Rape Salad, per bsh.	0	9	0
Sage, Broad-leaved	0	7	0
Savoy, large Drumhead per lb.	0	1	9
,, New Cabbage, fine	0	4	0
,, Dwarf Curled	0	1	3
Scorzonera, per quart	0	1	0
Spinach, Round, per bushel	0	9	0
,, Prickly	0	6	0
,, Fine Flanders	0	10	0
Sweet Marjoram, p. lb.	0	5	0
,, Basil	0	4	0

J. G. Waite's Advertisement continued.

	Per bush.—£	s.	d.
Turnip, Early Dutch (Imported), per lb.	0	0	9
,, Fine Early Snowball	0	0	9
,, Yellow Stone	0	1	0
,, Yellow Malta	0	1	0
,, Yellow Scarisbrook	0	1	0
,, Stubble, p. bush	1	1	0
,, White Stone	1	1	0
,, White Round	1	1	0
,, Green ditto	0	18	0
,, Red ditto	1	1	0
,, White Tankard	1	3	0
,, Green ditto	1	2	0
,, Red ditto	1	1	0
,, White Globe	1	1	0
,, Green ditto	1	1	0
,, Cream, new	1	4	0
Turnip, Red new	1	1	0
,, New White Dorcaster, very large, p. lb.	0	1	6
,, Dale's Hybrid, per bushel	1	4	0
,, Purple Topped, Scotch	1	2	0
,, Green ditto	1	2	0
,, Purple Topped, Swede	1	2	0
,, Improved ditto	1	1	0
,, Green ditto	1	0	0
,, Skirving's Improved Liverpool Swede	1	1	0
,, Laing's ditto	1	5	0
,, Matson's ditto	1	4	0

With every other kind of Horticultural, Floricultural, and Agricultural Seeds in cultivation, too numerous to insert, 30 per cent. lower than any other house in London.

*** Terms cash, or reference in London from unknown correspondents.—Feb. 28.

NEW AND SUPERB WHITE FUCHSIA, "SANSPAREIL," 10s. 6d. per plant.

YOUELL and CO. beg to call the attention of cultivators of FUCHSIAS to the above Seedling, which they will guarantee is not surpassed by any light variety yet raised, and will give general satisfaction, and refer to the following remarks upon it:—

"A *correct* representation of it may be seen at the Nursery."

"An elegant flower, light tube and sepals, with purple crimson corolla."—See *Gardeners' Chronicle, Sept. 26th*, 1845.

"A New White Fuchsia.—We have just seen a magnificent white seedling Fuchsia, raised by the Messrs. Youell. The flower is about 3 inches in length, the tube and sepals white, and resembles 'Venus Victrix,' but is three times its size, and is much more brilliant and fair in colour. It should be called 'Sansparell,' as it is most assuredly one of the most beautiful of its species. We quite envy Messrs. Youell their prize."—*Editor of the Cambridge Advertiser, Oct 1st* 1845.

Their 5 other fine Seedlings (for particulars of which see their Advertisement of the 17th inst.) will be ready for sending out with the above in the early part of May, and when the set is taken, will be charged 1*l.* 11*s.* 6*d.*

Their CATALOGUE of FUCHSIAS this season will be found arranged in two divisions, namely, Light and Dark Coloured varieties of various shades, and they flatter themselves that the care observed by excluding very many varieties now out of date, and others that do not possess sufficient merit, that any disappointment on the part of the purchaser will be prevented.

12 Ex. fine Varieties, 12*s.*	Selection left to Youell & Co.
12 Ditto ditto 21*s.*	Selection left to Purchaser or do.
50 Fine Varieties 40*s.*	Selection left to Youell & Co.
50 Extra fine ditto 60*s.*	Selection left to Purchaser or do.

Their CATALOGUE for 1846 is just published, containing a list of prices of the very best Fuchsias, Verbenas, Select Plants, Camellias, Ericas, Coniferous Plants, Petunias, Cinerarias, Pansies, Chrysanthemums, Antirrhinums, Polyanthus, Herbaceous Plants, Carnations, Picotees, Pinks, &c. &c., which will be forwarded on application by enclosing two postage stamps.

YOUELL and CO. beg to offer the following good and desirable plants to the notice of their Friends and Amateurs, feeling assured from their well known mode of executing all orders, that those favouring them with their commands will receive none but articles of the very best quality.

Superb new heavy-edged PURPLE PICOTEE, "BURROUGHES'S PRESIDENT," 15*s.* per pair. For particulars, see *Gard. Chron.* of 11th Oct.

Also, "BURROUGHES'S DUKE OF NEWCASTLE," the best light-edged Purple Picotee, 15*s.* per pair.

CARNATIONS AND PICOTEES.

			£	s.	d.
12 pairs extra fine and very superior first-class Show Flowers, by name			2	10	0
25	ditto	ditto ditto	5	0	0
12	ditto	Fine Show Flowers ditto	1	10	0
25	ditto	ditto ditto	3	0	0

Extra fine Show Pinks, by name, per dozen pair, 12*s.*

SELECT VERBENAS.

Seedlings raised 1845.

YOUELL and CO. in offering the following new and fine Seedling VERBENAS, beg leave to observe that the "Seedling varieties" sent out by them the three past seasons, have given such universal satisfaction, that they consider any further remarks upon them unnecessary. It is sufficient to state that they are really fine and superior varieties, and cannot fail of giving satisfaction to every grower of this beautiful tribe. They also possess the requisite and valuable properties of being sweet scented, and producing fine shaped and exceedingly large flowers.

Exquisite.—A beautiful pink, with conspicuous yellow eye, large and of fine form.—5*s.*

* Grandissima.—Creamy white, immensely large, very fragrant, and a valuable addition.—5*s.*

* Helena.—Pale lilac, with a conspicuous yellow eye, very sweet-scented, fine form, and very distinct variety.—3*s.* 6*d.*

* Heroine.—A beautiful salmon colour, very large, fine form, and fragrant.—3*s.* 6*d.*

* Celesty.—A fine bright puce with yellow eye, a very beautiful variety.—3*s.* 6*d.*

* Aurora.—Fine bright rose, large and sweet-scented, of good form (very desirable).—3*s.* 6*d.*

* Ajuxeon.—A rich dark claret, with light eye, large, and sweet-scented.—3*s.* 6*d.*

The above will be ready per post free, or otherwise, in the first week of May, at 21*s.* the set.

12 fine varieties	6*s.* per dozen.
12 Extra ditto	10*s.* ,,
PANSIES, 12 fine varieties	10*s.* ,,
,, 12 Extra ditto, very superior, first-rate show flowers	18*s.* ,,
PETUNIAS, 12 ditto	9*s.* ,,
CINERARIAS, 12 ditto	12*s.* to 18*s.* ,,

ERICAS, fine and free-flowering sorts, by name, 9*s.*, 12*s.*, and 18*s.* per dozen.

HERBACEOUS PLANTS, fine sorts, 6*s.* to 9*s.* per dozen.

RIBES SANGUINEUM FLORE PLENO, 10*s.* 6*d.* per plant.

MYATT'S "BRITISH QUEEN," STRAWBERRY, 5*s.* per 100.

"PRINCESS ALICE MAUDE," 10*s.* ,,

YOUELL'S CELEBRATED TOBOLSK RHUBARB, fine transparent pink, the best for forcing, 12*s.* per dozen. Roots planted in a cellar or closet now will be fit for cutting in a month.

The finest DOUBLE ANEMONES, 12*s.* per lb.

The finest Mixed RANUNCULUSES, all known named flowers, 12*s.* per 100.

** Foreign Orders carefully executed so as to ensure safe transmission.

N.B. Steam Ships to London three times a week; to Hull, twice a week; and per rail to London every eight hours.

Great Yarmouth Nursery, Feb. 28.

FOREIGN SHEET GLASS, of good quality, for Horticulture, and general purposes. To be had at F. Elphick's, 78, Castle-street East, Oxford-street. For Ready Money only.

SUPERB SEEDLING FUCHSIAS.

W. J. EPPS, F.H.S. begs to inform the admirers of this flower that he purposes sending out, in the first week in April the following distinct FUCHSIAS, feeling confident he cannot fail to give the highest satisfaction:—

LADY JULIA.—This flower is of a beautiful waxy white, tube and sepals slightly tipped with green, corolla vivid crimson, habit good, and has merited the following high opinions:—

Gardeners' Gazette, July 19.—"J. W.—The white is very pretty and the contrast striking; even the green tips seem almost ornamental; instead of a blemish."

Gardeners' Chronicle, August 9.—"J. W. T.—The variety No. 1, with white tube and sepals and rosy crimson corolla, is a handsome variety, and one of the best of its class we have seen." 10*s.* 6*d.* per plant.

COUNTESS OF CORNWALLIS.—This Fuchsia is remarkably striking, and is decidedly the most splendid and distinct variety yet raised. The habit is very fine (like Eppsii), and a profuse bloomer. The following are the opinions of Dr. Lindley and G. Glenny, F.H.S.:—

Gardeners' Chronicle, Nov. 1.—"W. J. E.—Your Seedling is a handsome variety. Light tube slightly striped with pink, sepals expanding freely, disclosing a fine rosy crimson corolla. The flower is fine in texture, and will rank with the best of the light varieties."

Gardeners' Gazette, Oct. 25.—"Mr. Epps's Fuchsia.—Rich scarlet corolla; pale—nearly white sepals; very striking, and, if the habit be good, a pretty accompaniment to 'Nymph' and 'Queen of Beauties.'" 10*s.* 6*d.* per plant.

QUEEN OF THE VIRGINS.—This also is very attractive, and will give great satisfaction. The tube and sepals light buff, corolla large, and of a beautiful dark crimson purple, superior to the "Queen of Beauties." This flower has only been submitted to Dr. Lindley, whose opinion is as follows:—

Gardeners' Chronicle, Sept. 6.—"W. K.—A very pretty light variety, having a fine crimson purple corolla." 10*s.* 6*d.* per plant.

The set 1*l.* 7*s.* The usual discount to the Trade where three of each are taken.

All orders from unknown correspondents to be accompanied with a remittance.—Bower Nursery, Maidstone, Feb. 28.

SUPERB SEEDLING PANSIES.

C. HART, Florist, &c., Guildford, Surrey, begs to announce, that on Tuesday, March 10th, he intends sending out the undernamed very splendid PANSIES. Early orders alone will secure plants, as the stock is limited.

CONSOLATION.—A very splendid lilac purple, with a beautiful white eye—very novel. Its form is perfect, making a circle, of fine texture, quite smooth on the edges. It received a Certificate of Merit at the Royal South London Floricultural Society in May last. Dr. Lindley's opinion, *Gardeners' Chronicle*, p. 332.—"C. H.—No. 10, very beautiful."

BRONZE UNIQUE.—Very beautiful bronze, upper petals belted with the same, rich yellow ground, of fine form and substance. Dr. Lindley's opinion, p. 440, 1846.—"Bronze Unique contains good substance and other good qualities."

Price 10*s.* 6*d.* the pair, for Cash. Sent free by post.

COLLECTIONS—FINE NAMED FLOWERS.

20 Superb Show Flowers	..	..	..	£1	0 0
20 Fine do.	do.	..	..	..	0 15 0
20 Good do	do.	..	..	..	0 10 0
20 Border varieties	..	..	..	..	0 6 0

Good Plants of Conquering Hero, Baroness Wenman, Prospero, Ariadne, Ne Plus Ultra, Model of Perfection, &c., at moderate prices.

Spring Catalogues of Pansies and other Plants may now be obtained.

Plymouth, Feb. 28, 1846.

GLASS AT VERY LOW PRICES.

WILLIAM E RENDLE and CO., at the solicitation of many of their most influential customers, have determined to enter into the GLASS TRADE. Arrangements have been made with some of the most extensive manufacturers, so that they will be enabled to supply the best quality Glass, *at the lowest remunerating prices for Cash*

Delivered free of Carriage in London or Plymouth.

Small Squares.

4 inches by 3, and under		inches by 3,		1½*d.*	per foot.
5	,, 3,	,,	6	,,	4, 2*d.* ,,
6	,, 4,	,,	9	,,	7, 3*d.* ,,

Large Squares, not exceeding 40 inches long.

Cylinder	.. No. 0, 11 oz. to the foot,	4½*d.*	per foot.
Sheet	.. No. 1, 16 oz.	5½*d.*	,,
,,	.. No. 2, 21 oz.	7*d.*	,,
,,	.. No. 3, 32 oz.	1*s.*	,,

Packed in Boxes containing 100 feet.

Cash remittance or reference in London.

Plymouth, Feb. 28, 1846.

FOREIGN SHEET GLASS AND GLASS TILES.

C. JARVIS having just imported a large quantity of the above articles, in quality and substance hitherto unequalled, can offer them at a lower price than any other house in the trade, for ready money only, at his old established WINDOW GLASS WAREHOUSE, 38, Great Castle-street, a few doors from Regent-street, where orders, forwarded with reference, meet with prompt attention. Every other description of WINDOW GLASS equally low in price.

HORTICULTURAL GLASS OF BRITISH MANUFACTURE, at J. Welch, jun., Phillips, and Co.'s

Warehouse, 12, Panton-street, Haymarket.—Having made arrangements with a British Manufacturer, they are enabled to offer the above article in unlimited quantities at the following terms, in Squares not exceeding 40 inches long:—

No. 0—(equal to Foreign Sheet)	..	..	4½*d.* per foot.
1—averaging from 16 to 18 oz. to the foot			6*d.* ,,
2 ,, 21 to 28			7*d.* ,,
3 ,, 32			1*s.* ,,

J. Welch, jun., having been many years with Mr. Drake, of 8, Jermyn-street, and 318, Oxford-street, and at the time of the glazing of Chatsworth Conservatory, has devoted himself to the Horticultural Glazing Department, begs to call the attention of Horticulturists generally to the above prices for Glass, which they undertake to glaze in any part of the United Kingdom.

They also beg to recommend for Pits and Garden Lights small size squares, which they offer at the following low prices, packed in 100 feet boxes, not particular to thickness:—

Under 5 in. by 3	..	1½*d.*	per foot.
5 in. by 3 and ,, 6 in. by 4	..	2*d.*	,,
6 in. by 4 and ,, 9 in. by 7	..	3*d.*	,,

J. W. & Co. solicit inspection of their stock of Stained and Ornamental Glass at their Warehouse, as above.—12, Panton-street, Haymarket.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—

R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

per gross.		per gross.		per gross.	
6 in. by 4	6*s.*	8 by 5	13*s.*	9 by 7	18*s.*
7 in. by 4½	9*s.*	8 by 6	14*s.*	10 by 8	20*s.*

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists, apply to R. Cogan, Glass, Lead, and Colour Works, 49, Leicester-square, London.

FLOWER SEEDS.

ARTHUR MACKIE begs to announce that his DESCRIPTIVE LIST OF FLOWER SEEDS is now ready, and can be had upon application. For the convenience of the purchaser A. M. has enclosed them in printed envelopes, and he trusts that the information which will be found thereon will be both interesting and instructive.

The annexed is subjoined as a specimen of the plan he has adopted:—

SCHIZANTHUS RETUSUS.

Blunt-petalled Schizanthus.

Diandria Monogynia. Nat. Ord.—Scrophulariaceæ.

Half-hardy biennial. Height, 2 to 3 feet.

Flowers, crimson and orange. June to October.

A native of the Andes of Mendoza. Introduced 1831.

Deriv.—(*Schizo*, to cut; and *anthos*, a flower; from the irregular form of the corolla.)

For the convenience of purchasers at a distance the above will be forwarded free through the post.

Norwich Nursery, and No. 19, Exchange-street.

NEW SPRING CATALOGUE.

Woodlands Nursery, Mayesfield, Uckfield, Sussex.

WM. WOOD AND SON have now ready for immediate distribution, a new and much enlarged CATALOGUE OF GREENHOUSE, STOVE, AND HERBACEOUS PLANTS; Camellias, Fuchsias, Verbenas, Petunias, Cinerarias, Chrysanthemums, and other plants suitable for bedding. To which is added, a choice selection of Roses, Conifers, Shrubs, and Climbers, cultivated in pots.

Copies of the above will be sent, GRATIS, on application; and those friends who have hitherto favoured W. W. & S. with their commands will receive the same in due course.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 28, 1846.

MEETINGS FOR THE FOLLOWING WEEK

Monday,	Mar. 2	Entomological	8 P.M.
Tuesday,	— 3	Horticultural	3 P.M.
		Linnean	8 P.M.
Wednesday,	— 4	Society of Arts	8 P.M.
Friday,	— 6	Botanical	8 P.M.
Saturday,	— 7	Royal Botanic	4 P.M.

It is stated in the daily papers that Lord INGESTRE exhibited the other night in the House of Commons some NEW healthy POTATOES, which he said had been grown at Isleworth from diseased sets; and his Lordship is reported to have argued from these specimens that no danger is to be apprehended from planting land with such sets.

We have now before us some of the Potatoes produced on the occasion alluded to. They were Cornish Kidneys, one of the most healthy varieties at present known, just what would resist disease if any will, and if we do not much mistake, the produce of last year's growth. From their age and appearance, they are more than two-thirds ripe, and are to the eye quite sound. But what then? Assuming that they are really the produce of diseased sets, of which however we have no evidence, and we will even add some doubt, they prove just nothing at all; for plenty of apparently healthy young Potatoes have already been obtained in many parts of the country from diseased sets. It is added, however, that Lord INGESTRE'S Potatoes were obtained from Mr. CHAPMAN, a great market gardener at Isleworth. If so, we can assure his lordship that at that place the disease has broken out in a severe form. One division of Mr. CHAPMAN'S frames is seriously affected; and he found that apparently sound sets *placed on a shelf under cover*, produced diseased shoots. Mr. CHAPMAN estimates his own loss from disease at 1000*l*. What are called *new* Cornish Kidneys are at the time of writing this exhibited in Covent Garden with the skins already tainted.

The great question before the country is not whether a few young Potatoes can be had in an eatable state, but whether the great Potato *crop* of the coming year is safe. Of this future event we must decide by positive not negative evidence, and we must endeavour to gather from a few certain facts, knowledge for our guidance in the course to be taken very soon. The Isleworth case has no more bearing on the question than the 20 witnesses for the horse-stealer, who each swore that they did not see the man commit the robbery. Let us, therefore, look at the matter, soberly, in its true aspect, and not waste time about negative evidence, which is worthless.

We last week stated that the forced Potatoes at Colonel WYNDHAM'S, at Petworth, were said to be diseased, but we did not vouch for the accuracy of the report. We now have the facts of that case before us. Mr. M'EWEN, the very intelligent gardener at Petworth, has sent us samples of his crop, and an account of his management of it. *His sets were selected with the greatest care*; to the eye they are externally perfect, and we should have felt sure that if any Potatoes whatever would have been safe they were the Potatoes to rely upon; they have been greened, too, and carefully dressed with lime. Now Mr. M'EWEN states that he has "for some time" observed his Frame Potatoes "getting worse every day;" and he has sent us samples of the latter, and of others planted in the open ground in November. Let us describe them:—1. *Frame Potatoes.*—Stems 18 inches high, in luxuriant health, as far as vigour and colour indicate it; No. 1, a little decaying, the leaves blotched and rotting here and there; tuber fair to the eye, but with many cinnamon brown spots *in the centre* (the signs of disease). No. 2. Leaves quite as vigorous, but much more diseased; one shoot, 18 inches long, black and rotten all through; in this the tuber presented similar appearances *in the very heart*, but they were much fewer in number and more difficult to discover. 2. *Open Ground*—Two samples sent; in both, the tubers *are perfectly sound, as far as the eye can discover*; but the younger shoots, each about 4½ inches long, and still under-ground, are diseased—the one having two gungrenes and the other one upon the sides. This is the Petworth case.

We may now state, that at Oulton, in the houses under Mr. ERRINGTON'S own care, early Potatoes, forced in a Pine stove, kept exceedingly damp, "were affected by the murrain so strongly that nearly all their leaves perished." Mr. J. WALKER, of Ashton Hayes, near Chester, informs us that he also has had "six lights of Potatoes totally destroyed by the same disease which affected the Potato crop last year—some of the young Potatoes are quite affected through—the Potatoes when planted *were quite sound* and grew very strong and healthful *until they were a foot high*; then the disease attacked them and destroyed the whole six lights in a very short time" Mr. WALKER has two more lights as bad, and two others in which charcoal was used, "but the disease is in them likewise."

We will add that symptoms of the same kind have begun to show themselves in the Duke of Norfolk's garden at Arundel. And Mr. STITHEN RADCLIFF, writing from Belleville, near Baltinglass, County Wicklow, asserts that "Potatoes which have been planted in many cases are showing symptoms of decay."

From Lord STAFFORD'S, at Cossey, near Norwich, Mr. WIGHTON, an excellent, trustworthy observer, writes that—

"The disease has appeared amongst my early Potatoes in a hothouse; the stems are only about 4 inches high, and are marked so apparently with the rot, that there can be no doubt about the matter. I selected the seed Potatoes very carefully, but I found some of them attached to the diseased stems tainted with the malady. I have also seen it amongst some early Kidneys, under a wall, that happened to be left in the ground, where the disease was last season."

The news from Bicton is worse. From a letter written by Mr. BARNES, dated Feb. 25, we have just time to make the following extracts:—

"In my note to you early yesterday morning, I stated I should examine my various growing Potato crops. I went over them yesterday afternoon, viz., two early crops, now with good young tubers to them, in two different hothouses; both crops, I am truly sorry to state, are attacked with the disease, and astonishingly altered since Sunday only. It is running over them like wildfire, producing its gangrene sore-looking blotchings on the stems or stalks, and the brown burnt-looking spots, and black inky-looking blotchings on the foliage, to a considerable extent. Two other crops I have in Melon pits at present are clear. One later, under hoops and mats, &c., to protect them, are affected with the pest; all those crops have hitherto been remarkably clear and healthy, and I never saw Potatoes grow stronger; we took every pains in well preparing the seed in autumn, and used such means as we considered likely to destroy this pest, and had hitherto placed much confidence in the crops, fully considering that we would be safe from infection this season; our hopes are now sadly blighted—unexpectedly. 1 *o'clock, p.m.*—I have this forenoon discovered the disease amongst the Potatoes in the Melon pits, in various stages; I could not discover it yesterday; these to all appearance will now fall a sacrifice; hitherto so healthy and strong. Another week may scorch up every stem and leaf."

Ash-leaved Kidney Potatoes, clean, and free from all blemish, are going off rapidly in the dry stores of the dealers.

In Anglesea, at Bodorgan, the seat of Mr. OWEN FULLER MEYRICK, the murrain "shews itself to a great extent in the common red field variety," as we learn from Mr. EWING, the gardener at that place, who adds—"To the best of my belief there is little or no chance of saving Potatoes over the present year."

Finally, at Crofthead, near Carlisle, the autumn-planted Potatoes on Mr. BROWN'S farm, from a diseased stock, appear now to be in a state of decay, *although great pains were taken in timing and sorting them.* This crop will, to all appearance, end in a failure, and when two rows are planted with *cut* Potatoes, the sets are entirely decayed. In the same place, however, autumn-planted Potatoes from "Mossy" land are sound, germinating, and, to *all appearance*, a good crop may be expected.

Are these *facts* to be disregarded? Are the signs thus manifested early, in Cumberland, Cheshire, Wales, Hertfordshire, Middlesex, Sussex, Devonshire, and even in Wicklow, of no import? Shall we wrap ourselves in a false security, and sleep till our ship is on the rocks? Surely we had better take soundings, consult our charts, and if we find the current setting towards the reefs we should be insane not to endeavour to steer another course. In such an emergency we should desire no better pilot than the gallant member for South Staffordshire himself.

Gentlemen may rely upon it these are the small black clouds in the distance, which indicate the coming storm. And let us be thankful to a merciful Providence that we are warned in time before the ship is among the breakers.

Mr. ERRINGTON found that by removing his diseased Potatoes from a damp to a dry Pinery he arrested the progress of the evil in the course of a fortnight; and Mr. WALKER states that his Potatoes in a Vinery are not (yet) affected: he even thinks that the disease would be avoided if the plants had plenty of air in the day-time, and the foliage could be kept dry.

Possibly—but not probably; if Potatoes were to be grown in garden-pots, and reared in Vineries, the supposition might carry some consolation with it; but of what avail is that to the great body of cultivators who are compelled to trust to seasons, in islands where precariousness is so notorious? We ourselves incline to the belief that if a Potato, originally nearly sound, could be reared slowly in a warm soil, kept dry during its growth, exposed when above ground daily to a bright sun, warm air, and cloudless sky, and if those conditions could be insured for the whole duration of its annual existence—that there then would be little risk in the Potato crop of 1846. But who is there, among the many madmen of our day, quite mad enough to reckon upon such a fortunate combination of circumstances? We hope and trust no one.

It may be alleged that the Potatoes are diseased because they have been forced; that Mr. ERRINGTON'S, in particular, were injured by having been grown in a damp Pine stove. But the Petworth and Bicton Potatoes are, in part, from the open ground; and who before ever heard of Potatoes being diseased when forced? Why, the conditions to which they are subjected when forced are precisely what would be most conducive, under ordinary circumstances, to a healthy vegetation. The truth evidently is—and it is sheer folly to shut our eyes to it—that the vitality of the Potato is affected by the late season, and that the least thing in the world will now throw it into a state of disease. Its constitution is only to be renewed by a long and careful regimen.

We must therefore repeat our warning, *not to plant Potatoes about which there is a doubt.* It would be better to gamble in a lottery, or in Capel-court. Doubtless, in some instances, success will attend the risk—but whose will that success be? We cannot venture to say whose.

How are we to know Potatoes about which there is a doubt? is the natural rejoinder. How, indeed? THEY CANNOT BE KNOWN. The eye will not distinguish them; nor will the resources of Chemistry, Botany, or Physiology, do anything in this matter. Even the microscope fails us. We have now examined diseased Potato-plants obtained from sets so apparently sound that we have entirely failed in discovering an unfavourable symptom; and we are irresistibly driven to the conclusion that, in such cases, the malady is *latent*. That being so, we can no more determine whether the murrain is present in a Potato, than whether gout or king's-evil are latent in a child; we must wait for time to make the discovery.

But the production of food cannot be allowed to wait for the slow advance of time. We must have it at the moment we want it, or we starve. *Therefore* we say to the Irish people, HANT NO MORE POTATOES FOR A SUSTENANCE.

Solacia ceresant oculos vitantibus agri:

Sow your land with Oats, or other grain,

Triticeos fetus, passuraque farra bidentem,
Hordeaque ingenti fenore reddat ager.

The natural kindness of your landlords will furnish you with the means of doing so, in this your great calamity. You cannot afford to gamble in the article of food. Certainty is indispensable in your case. Turn, then, to Oats; they are a much better food than Potatoes, and they can be relied upon. Potatoes are a lottery in which the prizes, when you win them, are not worth the having. It is, in any case, a shame to plant the most fertile land in Europe with the worst kind of food which the earth is capable of yielding; and, in the present conjuncture, it would be a wickedness to do so, when the danger that attends it is thus providentially discovered *in good time.*

We formerly (p. 815, 1845), stated upon the authority of Government returns that Gallicia and Corsica were at that time the only foreign countries in Europe from which a supply of perfectly sound Potatoes could be obtained. Now that the importance of showing what districts are uninfected has become so much more apparent than it then was, we hasten with permission of Government, to make

known the state of the Potato disease in Scotland, some counties of which are, or were, seemingly exempt from the visitation.

ABSTRACT OF THE STATE OF THE POTATO CROP IN SCOTLAND.

Drawn up from Official Returns to the Home Office, Nov. 18, 1845.

Synods of—	No. of Parishes in which the Disease has existed serious Loss, i. e., 1 or above.	No. of Parishes in which the Disease has existed inconsiderable Loss, i. e., below 1.	No. of Parishes in which the Disease has not appeared.	No. of Parishes in which the Crop is an average.	No. of Parishes in which the Crop is above the average.	No. of Parishes in which the Crop is under an average.
Lothian and Tweedale	49	24	..	30	26	21
Merse and Teviotdale..	51	7	..	17	25	17
Dumfries	46	3	..	8	21	20
Galloway	29	3	..	9	18	4
Glasgow and Ayr	94	7	..	41	46	10
Argyle	21	7	8	11	22	3
Perth and Stirling	40	12	5	22	31	6
Fife	44	13	..	23	32	6
Angus and Mearns	8	32	26	29	17	19
Aberdeen	..	1	88	43	17	30
Moray	..	..	46	15	10	21
Ross	..	..	21	10	8	5
Sutherland & Caithness	..	..	22	6	16	..
Glenelg	1	2	16	7	4	0
Orkney	..	..	2	...	..	2
Shetland	..	..	..	..	..	..
		*728			735	

* The sums of these respective numbers do not amount to the actual number of returns received, 735, in consequence of some of them not giving information as to all the heads.

Requisitions sent to.. 905 Parishes, and
Returns received from 735

No return from 170 Parishes.

From this return it appears that in the synods of Aberdeen, Moray, Ross, Sutherland and Caithness, Glenelg, Orkney, and Shetland, the disease was, at the time of the returns to Government, that is to say, early in November, either unknown, altogether, or nearly so. It may have since manifested itself in a small degree; indeed, we know that in Sutherland and Caithness traces of it were discovered: (See *Gardeners' Chronicle* 1845, Nov. 29). Yet we do think that in this our present difficulty the northern counties of Scotland offer the best resources within our reach. To these we will add the Calf of Man, where Mr. SHEPHERD's Potatoes, concerning which we shall very soon have something more to say, are unaffected.

But we must break off for the present with recommending to consideration a dissertation, just published, by Mr. FORSYTH,* on the Potato disease; which is by far the best that has yet appeared among the pamphlets, although we are far from agreeing with the author in some of his views, and to which we shall hereafter refer more particularly.

[Just as we are going to press we have received a letter from Sir GEORGE MACKENZIE, dated Roslin, Feb. 24, in which is the following dismal intelligence:—"*The Potato disease has broken out in the North at last.* What could have *retarded* it there is a mystery."]

WITH the following explanation by Mr. MEEKE of the principles which govern the distribution of heat, we are constrained by press of other matter to close our Leading articles on POLMAISE HEATING. The subject will for the present be transferred to the body of the Paper.

"I have shown in a former paper, that the principles of simple radio-thermal heating are those which Nature employs. I propose now (according to my promise) to endeavour to prove that they are equally philosophical as natural, and I trust that in this also I shall in your opinion be equally successful. I might affirm, without fear of contradiction, that if natural, they must prove philosophical; but let us examine the two systems for the production and distribution of high atmospheric temperatures by our philosophical knowledge. I do not wish to prejudice the case of hot water *versus* hot air, by again reminding your readers of its expense; I will not dwell upon what I have heard about expensive boilers splitting, or the labour of supplying them (in many places) with water; upon pipes becoming choked up with deposit from the water, in the depth of the winter, such deposit only to be removed by the process of boring; of their ugly appearance in a house, the room they occupy, the extent of surface they expose to oxidation; all these things may be idle inventions of the enemy. I will leave in your own hands the charge against it, that while rapid currents of air are conducive to the health of plants, it provides none. But I will try both systems, by the laws which philosophy lays down.

"The question of the production of caloric is not at all involved; no one will deny, that a certain amount of burning fuel can evolve only a certain amount of caloric; no one pretends that the water produces the caloric; it is then a simple question of distribution which we have to examine.

"All bodies on the earth, whether solids, liquids, or gases, are constantly tending to an equilibrium of temperature, and this in two ways—by means of intermediate bodies or communications, and by radiation. Caloric is communicated through solids, from particle to particle, and this is called conduction; different solids differ much in their powers of conducting heat (among the less precious metals copper is the best), but caloric is transmitted through all solids by the same means, viz. from particle to particle. Caloric is communicated through liquids, to a very slight extent, in the same manner as solids, but still they have the power of communicating it with great rapidity, and this arises from the slight cohesion that exists among the particles of a liquid, so that the instant one particle becomes warmer, and consequently specifically lighter than its neighbours, it moves off, and is replaced by others, and thus currents are produced by means of which the caloric is rapidly distributed. Gases, like liquids, are imperfect conductors of caloric in the manner of solids, but owing to the slight cohesion of their particles, they communicate caloric by their internal movements or currents with a velocity totally unknown to the other forms of matter; compared to liquids, it is the velocity of the wind to that of the stream. But gases also allow the distribution of caloric by a mode unknown to solids and liquids, when those are opaque, and almost so when even they are transparent: I mean by radiation.

"Such are the means by which the distribution of caloric takes place through the three forms of matter; which material then shall we take for its distribution? Shall we take the solid? with a vast extent of surface, one end put into the burning fuel, the rest carried through the space to be heated, shall we be satisfied to allow the caloric generated by the burning fuel to pass along from particle to particle, hour by hour, to the place of its destination: oh, no! says the advocate for the liquid material, use water, its motions are so rapid, it will transmit in a minute to a given point that caloric which, by means of the solid, reached it only in an hour. What! exclaim Nature and Philosophy, use a liquid? a gas will do the work in a second; besides, the liquid will not carry the heat given off by radiation, but the gas will carry all, and rob it of none on the way. And here I charge the hot water system with not only a waste of time, but waste of power; I retort the charge its advocate has made on the hot air system, and ask what becomes of all that caloric which is given off in a radiant form from the furnace and boiler, when (as is constantly the case) these are placed apart from the house to be heated, and ask him whether, when he goes to see that the fire is right, he is not sensible that he is in the presence of a heated body? I will ask him at what point a thermometer would stand in the furnace chamber, if cut off from all atmospheric influence but that supplying the fire? What he feels, and the thermometer indicates, is radiant caloric, incessantly passing off, incessantly escaping and wasted, and yet the advocate of this system writes about waste of power!

"Let us follow the various wanderings of a particle of caloric (supposing it to be material). Through a hot water apparatus, it is distributed; in its latent existence, it passes (a thing of power) from the burning fuel to the iron boiler, thence to the water within it, whose particles move onwards, bearing in their currents the precious warmth; they deposit it on the inner surface of an iron pipe, through whose particles it has to make its way by the slow process of conduction; arrived at length on its outer surface, it flies by radiation to its appointed place, no bad representative of the "Wandering Jew," and almost reminding us of the nursery tale of the "Pig that would not get over the Stile." Let us look at the course of the same particle on the hot air principle; it owes its birth to the burning fuel; it has to pass an iron plate; but then at once it accomplishes its end, carrying with it, in its turn, particles, the product of radiation.

"With regard to distribution of atmospheric moisture, a few words will suffice. The circumstances which influence its production are, extent of surface, temperature, state of air as to dryness or moisture, as to currents or stillness, and pressure on the surface. The amount of moisture held in solution by the air is entirely dependent on temperature, and this amount increases in an increasing ratio with the temperature; so that when air at a high temperature is saturated with moisture, when the temperature falls, a deposition of dew takes place; thus, whether we look to the distribution of caloric or moisture on philosophical principles, must we not reject the hot water apparatus for the purpose of using high atmospheric temperature? Is it not an unnatural, unphilosophical, comparatively inefficient, and extravagant means of attaining the end?"

We must add that in the description of Mr. MEEKE's apparatus, a rather important typographical error has been observed. It is stated that "the stone slab H extends over the fire-place, forming the roof both of the flue and furnace." It should have been—the iron plate G extends over the fire, &c., as will be clearly seen by anybody who will again look at the plan.

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* "Brochure, No. I., being a complete practical Treatise on the Potato." By Alexander Forsyth. Longmans.

NOTES ON ESCULENTS.

(See page 85.)

Peas.—Next to the true Early Frame, for sowing in pots or boxes for turning out into the open border, is the Early Kent or Prince Albert, as it is called by some growers. It is not so robust a grower, nor yet so productive as the Early Frame, but quite as early a variety, and may be grown in smaller compass, as it seldom attains more than three feet in height, except in very rich soil.

In transferring the young crop to the open air, various situations may be selected, but the best (where a few early Peas are wanted) is close to the base of a wall or close wooden paling or temporary fence, with a south aspect, where they can be protected with light reed or straw hurdles, or by placing a few strong stakes over them with a few small branches between them and covering with mats, during cold nights and late spring frosts; either of these plans is easily done, and will answer well in such a situation, but care must be taken that the plants have plenty of air and light, and that they are fully exposed on all occasions whenever the weather permits, otherwise they will become drawn and will produce but a poor crop.

The best soil for very early Peas is a sandy loam, not very rich; for if planted in very rich soil, they grow too vigorously, and are consequently long in coming into a bearing state, while, on the contrary, if planted in a very poor soil, they are less robust, and come earlier to maturity, but then the produce is scant in proportion; the right course, then, is to avoid those two extremes.

As I formerly mentioned, there is no advantage in sowing in the open ground before the end of January or beginning of February, particularly in stiff soils in severe winters; for in many cases the very early sown ones (viz., those sown before Christmas) either get so thinned by slugs and mice, or crippled by the severity of the weather, that they are not worth allowing to stand, and often before the extent of injury is observed the season is past for sowing again for an early crop, while those sown about the end of January or beginning of February will have but little chance of being injured if treated in the following manner. Any time between the middle of January and the second week in February (the ground having been previously ridged, in order to have become mellowed by frost and wind), select a dry day, when the ground is free from frost, to sow your Peas. In sowing, allow plenty of seed, and cover 1½ inch deep, pressing the soil rather firmly over them, and, when finished, sprinkle a little gas-tar along the rows immediately over the Peas, to prevent the mice and slugs from attacking them; or a little diluted gas-water will answer the same purpose, if it can be obtained fresh; afterwards, when the plants begin to come through the ground, if the weather is likely to prove severe, sprinkle a little fine coal-ashes over them, or draw some fresh soil over them on a dry day. Stake them in the usual way, and screen them as much as possible from bleak winds. Peas sown in the open ground about the beginning of February will form a succession to those sown at the same time in pots and transplanted.

In making a selection of sorts for producing a constant supply, the early Charlton and Auvergne Peas may be sown at the same time with the Early Frame or Early Kent, and these will come into bearing one after the other. The former is a more robust, hardier, and taller kind, than either of the preceding, rising about 5 feet in height, with pods containing six or seven Peas of excellent quality. It is an abundant bearer.

The *Auvergne Pea* is a French variety of great excellence, and certainly the most prolific in cultivation, each pod containing, when well grown, from 10 to 13 Peas, of excellent quality. It attains nearly the same height as that of the Charlton, but is not so robust, and about a week later, giving a good succession between the latter variety and the Marrow Peas.

If the above varieties are sown about the beginning of February, and again in the first week of March, the first sowing to be on a warm south border, and the latter in the ordinary quarters in the kitchen garden, an abundant supply will be produced until the Marrow Peas come into bearing.

In making a selection of Peas for what may be termed the second season (or Marrow Peas), it must not be supposed that because you procure a dozen kinds they will produce as good a supply, and at different seasons, as if you were to grow but four of the more distinct and prolific varieties, sowing them at two or three different seasons; for this class of Peas are more numerous than any other, and in most cases, if you have the following kinds, viz., Knight's Dwarf Green Marrow, Knight's Tall Marrow, Dwarf Green Marrow, and the Tall White Marrow, you have representatives of all the others in this class, for, as I observed before, distinction without improvement is not worth notice. Slight varieties will always be produced

in Peas, as in all other vegetables which have to be annually reproduced from seed, and which are always liable to improve or degenerate, in accordance with the causes which first altered their habits, viz., more suitable situations and richer soils. Hence the reason why we have so many names applied to the same variety. Even that most distinct and best of all Peas for flavour, Knight's Tall Marrow, or Pois ridé tardif, of the French, has not escaped the ordeal of being re-christened with such names as British Queen, Indented Marrow, Wrinkled Marrow, &c.

Knight's Dwarf Green Marrow grows about 3½ or 4 feet in height, very robust, and with pods broad and rather flat, mostly containing five or six Peas of excellent quality; it is very prolific.

Knight's Tall White Marrow, Pois ridé tardif of the French, grows about 6 or 7 feet in height, with large broad pods containing from seven to nine Peas in each, of excellent quality. It comes in later than the preceding by nearly two weeks; this is the best of all the tall Peas for sowing late in summer.

Dwarf Green Marrow.—This variety, also known in the seedsmen's lists by the names Early Dwarf Green Marrow, New Green Nonpareil, Wellington, and the Pois vert hatif à la Moelle of the French, grows about 4 feet in height, very robust, with dark green, large flat pods, containing seven or eight Peas, of excellent quality; it is very prolific, and rather early for a Marrow Pea.

Tall White Marrow, or De Marly Pea, of the French, grows from 7 to 8 feet in height, with large, broad pods, containing eight or nine Peas in each, of excellent quality; it is very prolific and late. The first sowing of the Marrow Peas should be made about the 1st of March.—*G. G.*

PICOTEES.

(*See p. 857, 1845.*)

In continuation of my notice of the better sorts of Picotees, I shall now attempt to describe, in the first place, the purple edged class.

Nulli secundus when first sold caused quite a sensation, its petals were so beautifully smooth, and the lace round each so correct, that in spite of its wanting two more tiers, it became a great favourite; doubtless this flower will be the prolific parent of many splendid sorts, and from the circumstance of its seeding rather freely, will long be extensively cultivated.

Pluperfect (Wilson's)—Is a great favourite with many, being above the average size, with a fine broad and pure petal; its slightly serrated edge, however, will always prove a serious drawback.

Prince Albert (Crask's).—This is a variety of extremely fine properties, verifying the assertion of the Messrs. Norman, who first sold it, "that it has the best pod and petal of any flower yet offered." Its form is good, with broad, smooth, and stiff petals, the light lace or feather well defined, evincing no disposition to stripe or bar. Were I to criticise it severely, I should say its ground colour suffers in comparison with the foregoing variety. Still it is a splendid and first-rate sort, and will dispute the palm with Prince Albert (John's), which, though rather undersized, is remarkable for its purity, neatness of marking, and beautiful shape. In order to get this sort sufficiently large for exhibition, the layers or plants, ought not to bloom more than one, or at most two flowers.

Nottingham Hero (Robinson's).—This can be brought out in fine character, having a sufficiency of petals to be enabled to dispense with a few if requisite, without injury to the "ensemble" of the flower. It is rather above the average in size, the white is pure, and the petal as smooth on the edge as a rose leaf—it occasionally bars slightly.

Grace Darling (Ely's).—This is a favourite in most parts of the country, having most excellent pod and petals; it is, however, rather thin, and the styles stand unusually prominent. It is a very certain variety to produce seed, the offspring from which (when uncrossed) generally retain much of the character of the parent.

Agitator (Sharp's).—When in a weak state, the flowers are apt to come out of character, and then present nothing remarkable. On the contrary, when the layers are strong and well grown, it is one of the very best purple edges in cultivation, and would attract the eye in a moment amongst a thousand. It is fine in form, purity, and marking.

Elizabeth (Wilmer's).—This, again, is a variety of first-rate excellence, beautiful in all points, and to be depended on as a chaste and certain show flower.

Vespasian (Gidden's).—Comparatively an old flower, but indispensable to a collection, and is not easily "shaken off" at an exhibition; its marking is delicate and regular, and is generally esteemed first-rate.

Heavy-edged purple Picotees are a fine and striking class of flowers, to which there has latterly been some splendid additions. *Victoria* (Crask's), though not very new, is a variety with some fine properties, being of good form, large size, and a clear body colour, on which is portrayed a deep band of purple; it is, however, slightly serrated.

Nonpareil (Bennett's).—Very clean, of medium size, with a bright purple lace. The petal appears rather narrow, still it is a most pleasing sort.

Prince Royal (Wilmer's)—Large and striking, with a fine heavy lace of light purple, a most desirable variety.

Princess Alice (Wood's).—Extra fine, clean, and well laced. For exhibition this variety ought to be reduced to one or two pods, as it is apt to run small.

Others of good character, and which ought to be in every collection, but which have been more or less described in previous numbers of the *Chronicle*, are Ely's Field Marshal, Kirtland's Princess Augusta, and, Sharp's Invincible.

Amongst the best light-edged red Picotees are *Burroughes's Mrs. Bevan*, a flower of splendid petal, thick and velvety, well formed and finely laced.

Kirtland's Princess Royal, beautifully delicate, and is a sort that is universally admired. Sharp's Countess de Gray has well formed petals, the edging laid on very evenly, and is considered one of the best in its class. *Tolworthy's Isabella* has the ground colour good, edged or feathered with a peculiar dark crimson, and is a new variety of good properties. Others of older standing than the above, but excellent, are Sharp's Hector and Criterion—the latter has a bad pod; Mansley's Milkmaid, Kirtland's Mrs. Annesley, and Burroughes's Joan of Arc.

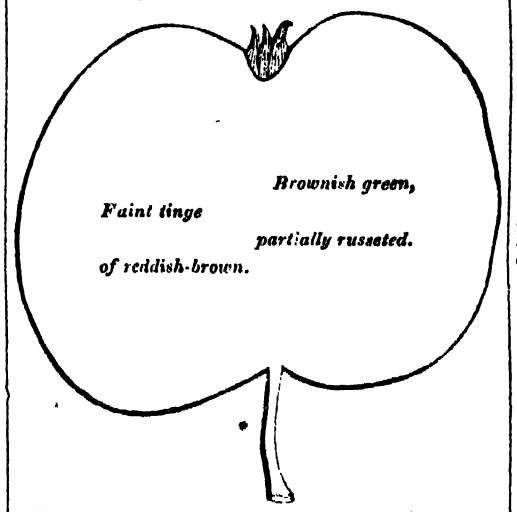
In heavy-edged red Picotees I may mention as first-rate, *Wildman's Isabella*, fine in form and petal, and novel in colour, being a purplish crimson lace on a pure white ground. This flower is highly esteemed, though rather difficult to class. New varieties are much wanted, but as flowers of standard excellence and acknowledged merit the following may be enumerated:—Sharp's Duke of Wellington and Ely's Mrs. Horner, very old favourites. Jessop's Sir William Middleton, excessively large and fine; Sharp's Red Rover, Robinson's Duke of Wellington, and Barraud's Cornelius; the last is apt to stripe down the middle of the petal, but it ought to be extensively grown for the chance of a good bloom. When in character, it is decidedly first-rate; none can eclipse the ivory whiteness or the thick velvety texture of the petals, or the splendid dark crimson with which it is margined.

The amateur will find the foregoing selection of sorts worthy of his best care and attention, and should he adopt the excellent plan of cross fertilisation from such a stock very excellent and first-rate sorts would naturally be produced.—*W.*

THE BOSTON RUSSET APPLE.

Synonymes.—Roxburgh Russet, Putman's Russet, Shippen's Russet (of some).

Of the numerous varieties of Apples introduced from America, this has proved the best of any yet fruited in this country. The celebrated Newtown Pippin can be grown here in some favourable situations, but in appearance and flavour is very inferior to the imported fruit, when such can be obtained uninjured by carriage. The Boston Russet, on the contrary, ripens perfectly, and seems as hardy as most English varieties.



The flesh is yellowish, and juicy, with a rich sugary flavour, somewhat resembling that of the Ribston Pippin, or rather between the latter and that of the Nonpareil, and from this statement its excellence will be readily appreciated. In perfection from January till April. The tree is of spreading growth, moderately vigorous, and a good bearer. Shoots chestnut brown, but mostly covered with a silvery gray cuticle, and slightly pubescent. Leaves flat, oval, acuminate, regularly serrated. Flowers rather above the middle size; petals ovate.

The tree is suitable for dwarf training, and ought to be in every collection. In the past unfavourable season many varieties of Apples, usually good, did not acquire that degree of perfection necessary to fit them for dessert; but the Boston Russet proved an exception, and it may therefore be confidently recommended for general cultivation in all parts of the country.—*R. T.*

THE AMATEUR GARDENER.

On Planting.—Since writing the last paper on this subject, I have met with two good illustrations of what I have said respecting the manner in which roots in pots will perform their revolutions round the sides of their contracted dwellings; and as the subject is one of great practical importance, I will relate the particulars. Two years ago I purchased a Wistaria sinensis from a nursery, and turned it out of the pot into a situation which I expected would have proved highly favourable to its rapid growth, but to my surprise and disappointment two summers have passed without its advancing an inch, although still alive. As the plant was surrounded by others which grew well in the same soil and situation, I concluded there must be something wrong at the roots, and on taking up the plant, I found them coiled up in a very symmetrical and cylindrical form just as they left the pot, only much enlarged, leaving no doubt of the cause of the stunted growth I complained of. I have disentangled the web of roots, and planted it afresh, and I have no doubt I shall now meet with success. The other instance was of a similar character. I struck a number of climbing Roses in pots three years ago, and turned them out into their permanent situations when very small. On taking up one which had grown but little, I found the same phenomena as exhibited by the Wistaria. These instances convey a lesson which is taught theoretically in all good treatises on gardening, but which is liable to be neglected in practice—that in planting from pots, the roots should be shaken from the mould and arranged properly. No one would forget to do this if the pot were crowded with roots; but these cases show that even where there appears to be plenty of pot-room, the roots may have received a direction which they will keep if it is not disturbed. I remember I was very careful in not disturbing the Wistaria when I planted it, hoping to forward its growth by allowing the roots to remain as they were. But the result has shown that I was wrong, and that the proper mode was to have disposed the roots *de novo;* I should, then, by this time have had a flourishing plant many yards high, instead of being obliged to begin again.

The first thing to attend to in out-door planting is, trenching the land. This must be done to a considerable depth; say about 2 feet or 30 inches. If an orchard or flower-garden is being laid out for the first time, the general drainage must be looked to before success can be hoped for. But if a new bed only is contemplated, or the planting of a single tree, the soil must be well disturbed; and if the subsoil is inclined to retain wet, an artificial drainage of bricks and stones is desirable. The digging must also extend much beyond the hole necessary for admitting the roots of the tree; the further this is done the better, as it is often the case that the surrounding soil has not been disturbed for centuries, and roots placed in a hole encompassed by such a hard mass will not ramify, but will be similarly situated with those in pots.

Trees and shrubs should always be planted high, to counteract the evils arising from unsuitable subsoils, and also to allow the air to get at the roots. People seem to think that, provided the stem appears above ground, it matters nothing where the roots are, and hence we often see newly planted trees covered up to the stem with paving stones, or gravel, and perhaps so situated that the soil is daily trodden on right up to the unfortunate prisoner. The nearer the roots are to the atmosphere, and the more porous the soil above them is, the better. I have just planted some fruit trees on the top of trenched ground, without digging a hole at all. There will in this case be a small mound, visible above the surface, and the trees will require a strong stake, and careful attention as to watering in dry days in spring; but with these precautions, I have no doubt the plan will be successful.

The smaller roots should be carefully preserved, arranged round the tree as much as possible, and kept near the surface. It thus appears that in transplanting, care should be taken to preserve the bunches of fibres which are too often torn from the stronger roots, and left in the ground. It is to be lamented, that even in nurseries too little attention is given to this matter, for we often see trees sent out with only a strong stick of old root attached, all that was really valuable having been cut or rent away. The remedy for this unworkmanlike treatment is for amateurs to be more knowing on such matters themselves, and to refuse to purchase trees which are so roughly treated. Firmly tread down and water, and your work is done, always remembering to keep a watch as to drought during the first spring and summer.—*H. B.*

Home Correspondence.

New Vegetable.—I fully concur in the facts mentioned at p. 101 by Mr. P. Mackenzie in respect to the bloom tops of Rhubarb being a useful article in cookery. Before Mr. Forsyth paid me a visit I had made it a rule to cut off and destroy the blooming stalks of Rhubarb pretty early after they had appeared, considering them as likely to rob the other parts of the plant; not so now, however. I take care to break out the summit and top of the side shoots just as the skin that encases them bursts, at which stage I have proved to my satisfaction that the article is a great delicacy, in tarts in particular, far superior both in delicacy and flavour to the stalks of the leaves to my taste. I believe that many other useful things might be turned to good account which have not yet attracted attention, and which are allowed to waste, and I believe that many matters have been commenced at the wrong end; we have hitherto been wise enough to eat the blossom-heads of Cauliflowers, Broccoli, &c., and thrown away the blossom-heads, the most delicate part of the Rhubarb, and eaten the leaf stalks; how is this to be accounted for? As to the prejudices of cooks in these matters, mentioned by Mr. M, I could speak to the correctness of the statement; however, let us hope that matters may yet mend. Cooks are not only prejudiced on matters of this kind, but others of higher station are; for instance, home-grown Oranges and Lemons, no matter how fine and juicy they may be, I have seen cast away as useless, and scouted, merely because they were home grown. How are we to account for this? I am at a loss to guess why it should be imagined that we are not able to produce Oranges and Lemons in equal per-

fection with other kinds of fruits; there is not that difficulty even in their production as there is in producing fine Pears.—*James Barnes, Bicton.*

Simmons's Hygrometer.—This instrument, noticed in the Leading Article of last Saturday, has been in my possession several weeks, and it gives me pleasure to say, that its action in determining the state of the atmosphere in my Orchidaceous and other houses is perfect. I look upon it as no small advantage to be able to communicate to others the humidity as well as the temperature we maintain in our plant structures. Every practical man on entering such erection casts his eye on the thermometer, and at once learns the temperature; he may now do the same on the hygrometer, and read off more easily the amount of moisture present. I hope it will not be long before all practical men will understand what is meant when such a statement as the following appears:—"We are now keeping the Orchidaceous house at from 56° to 70° of Simmons." As the inventor is a friend of mine and no horticulturist, if any of your readers wish for any information respecting the instrument, I shall be happy to give it upon application, premising that I have not the slightest pecuniary interest in it. Nevertheless, believing it will be found a most useful instrument, I do feel interested in its sale for the sake of its ingenious inventor, as well as for the advance of horticulture.—*E. Beck, Worton Cottage.*

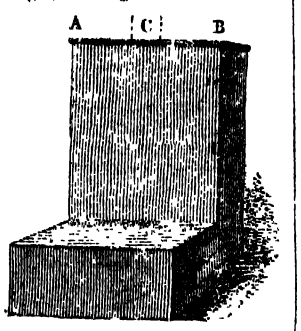
Profitable Mode of Planting Potatoes.—Plough in a good coat of manure, then plant with Bean-dibber a single eye scooped out, 6 inches apart and 18 inches between the rows. The scoop-bowl should measure 1 inch in diameter, set on, inclining backwards, and 1 inch from the handle. A woman can scoop 2 bushels in a day. The produce I have realised from the above mode has been 226 three-bushel sacks to the acre, heaped measure. In addition to this, more than two-thirds of the Potatoes remained for food for my pigs and cows. The experiment I made was as follows; I planted four lands in one field:—

The 1st, with two quarters of a Potato.		
,, 2d, with one quarter	,,	
,, 3d, with two eyes	,,	
,, 4th, with one eye	,,	

The fourth produced just double the quantity of the first.—*Charles Tulmage, Hersepeth, near Wheatley, Oxon.*

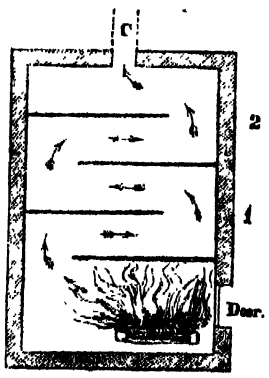
Potato Gangrene.—In the "Gardeners' Almanac," I have thus described the phenomena of this disease:—"Immediately after the rains and morning frosts of early August, the stems began to decay, but the weather continuing wet, instead of their decay being dry, and attended with the usual phenomena of their reduction to mere woody fibre, the putrefaction was moist, and the smell attendant upon it precisely that evolved during the decay of dead Potato haulm partly under water. The stems decayed whilst the fibres connecting the tubers with them were fresh and juicy—the putrefaction spread along these, the ichor being absorbed by their still energetic vessels, and passing into the still immature and unusually juicy tubers, imparted to them the gangrene; the infection first being apparent at the end nearest the connecting fibre, spreading gradually throughout the liber of the tuber, rendering it brown like a decayed Apple, and lastly, causing the decay of its interior portion. Previously to the final decay, the increased specific gravity of the Potato is remarkable, amounting to one-third more than that of a healthy tuber—an increase caused by its greater amount of water. When boiled it becomes black; but when submitted to a dry heat of about 200°, it rapidly loses moisture, and the progress of the ulceration is retarded, if not entirely stopped." Since the above description was penned, I have had abundant opportunity of examining Potatoes affected with the disease, and of pursuing numerous experiments, every one of which confirms my opinion that the Potato disease is purely a gangrene or ulceration of the tuber, and that the fungi and insects which supervene are merely sequents, customary sequents, of the disease. In every instance, except where the disease is imparted by inoculation or contact, it first makes its appearance at the end whereby it is connected with the parent stem, in conformity with the general observation that the disease first made its appearance in some part of the stem, and intimating that the ichorous matter there engendered was thence imparted to the tuber. If the cause of the disease had been a fungus, it seems apparent that its pores would occasionally have vegetated first, or simultaneously, in other parts of the tubers than that in most immediate contact with the stem. Again, if the cause of the disease was a fungus, then the application of any substance destructive of the fungi tribe would be effectually remedial. Now common salt is a substance possessing that destructive power. It will reduce the common Mushroom, and other fungi, to little more than a liquid form in a very short space of time; yet it has no effect in preventing the decay of the Potato once infected with the prevailing disease. I have washed the diseased tubers with brine, and have buried them in salt, but the gangrene still proceeded. These are facts apparently irreconcilable with the opinion that the disease is caused by a parasitical fungus. But if my observations are correct, I have absolute proof that the fungus appears only after the disease has made considerable progress, and decomposition has considerably advanced. I have examined the outside and the liber of a tuber in the early stages of its disease, but have never succeeded in finding a single fungus, nor even the appearance of its hyphasma or rootlets among the diseased cells. If the Rev. Mr. Berkeley has detected them, it will strengthen his opinion that a botrytis is the cause of the disease. His excellent essay on the subject in the "Journal of the Horticultural Society," is well deserving of perusal. Then, again, I have taken the putrid matter from a tuber in which the disease was far advanced, and have introduced it into an extensive wound freshly made in a healthy Potato, and the latter has speedily become infected, though in the putrid matter introduced, there was no appearance of fungi. Even when common salt was mixed with the putrid matter previously to introduction, for the purpose of destroying any fungi it might contain, still the disease was imparted by the inoculation. At present, therefore, my opinion as to the nature of the disease remains unshaken. I think it an ulceration, attended by all the usual phenomena of vegetable putrefaction; and, among others, that of engendering matter peculiarly favoured by the lower orders of fungi. As the Potato arrives at the last stages of decomposition, not only is the botrytis, but mucor, found upon it abundantly if exposed to the air in darkness. I am equally unshaken in the opinion that the gangrene was occasioned by the excessive rains and reduced temperature of early August. It matters nothing that the temperature and fall of rain, during the whole of 1845, did not much differ from that on an average of years. The question is, was there not generally an excess of rain, and an unusually low reduction of temperature at the beginning of August, when the disease made its prominent appearance? In all the meteorological tables which I have consulted this was the case.—*G. W. Johnson.*

Russian Stoves.—I observed (p. 101) a trifling press error in the description of the Russian mode of cleaning chimnies, but which might lead to mischief; a "billet," as printed, would be liable to tear the inside of a chimney; but a bullet, as it should have been (say a 10 or 18 pounder), would carry down the brush without injury to the brick-work of the shaft. It does not seem probable that working drawings of a Russian stove could be procured in this country, possibly not even at St. Petersburg, as the stove builders there never appeared to use drawings; the glazed ornamental tiles were their only guide for the exterior of the stove, the interior they constructed, as led by habit and individual skill, with more or less of flue. The annexed woodcut, however, may give some idea of the ordinary kind of stove for heating large rooms. The sketch is without any attempt at the customary ornamental varieties, as regards form or decoration,—such as pediments, columns, &c., as these must depend on the taste of the builder. I add a perpendicular section of the flue. This latter, if taken as an horizontal section, may serve to show the manner of forming flues in a Lejanka. Supposing coke or anthracite coal to be the fuel, the fuel chamber is large enough to receive an Oxford grate, or to admit of the construction of an earthen Arnott stove. Fire-bricks and fire-tiles only should be used for the whole internal structure, and provision should be made at 1 and 2 for taking out a tile and brick once or twice a year, so as to form an opening for the insertion of a scraper to clean out soot. The Russian glazed tiles, when of large dimensions, have small holes formed in the inside, through which connecting wires are passed and twisted tight. The tiles for angles are angular, so as to avoid joins at any edge. Glazed tile covered stoves have the great advantage over iron ones of never emitting smell, or contaminating the air, besides, when well constructed, that of perfect safety from fire, as they never become red hot on the outside.—*M. B.*



Exterior Appearance of a Plain Stove.

C. An opening or pipe communicating with the chimney shaft, in which shaft is to be placed the closer, described in the *Chronicle* of the 14th inst. This opening to be at the top or the back of the flue, according to what is most suitable to the chimney shaft.



Perpendicular Section of the Flues from A to B.

Scale ¼ of an inch to a foot.

Gooseberry Caterpillar.—Heat water (as much as might be wanted), to 150° Fahr., and syringe the bushes well; then strew a small quantity of hot lime under them, and pat the ground with the back of a spade or shovel. I have followed this plan with complete success about 14 years; the hot water does not hurt the bushes even in the hot weather of May.—*J. M.*——The season has arrived for applying a remedy by which this pest might be effectually prevented from appearing at all on the Gooseberry trees, I will state a simple method, which has been followed with complete success in my garden. Two or three years ago, my Gooseberry trees were stripped by these destructive pests, so that in some trees the fruit was deprived of flavour, or of further growth. The following season, when about to gather a few early ripened Gooseberries, I found that my fingers were soiled with soot, and on demanding of the gardener why this trap had been set, he told me it was to destroy the caterpillars, but he said "it had not done much good:" the application of soot to the trees at such a time, and in such a manner, surprised me, and I desired that he would, in the month of February or March of the next year, spread a good spadeful of soot under each tree, and with a prong mix it lightly with the earth, and set his wits to work to discover the reason for so doing; but not to fail to search for the caterpillar at the usual time of their destructive visits. Having applied the soot as directed to a row of about 30 Gooseberry trees, he found, as the season advanced, that he had thereby effectually prevented the ravages, or even the appearance, of the caterpillars.—*A Subscriber.*

Impositions.—Observing in your Paper of last week some remarks upon the Pear advertised by us under the name of Sussex Monster, as being an old friend under a new name, we beg to state that we received it from Frederick Allman, nurseryman, Horsham, Sussex, the grower, who requested us to advertise it for him at 10*s.* 6*d.* each, allowing us the usual trade discount. We did so, believing him to be an honest upright man; he represented it to be a new kind, and with this belief we undertook to advertise it for him.—*Warner and Warner.*

Weekly Prices of Potatoes per ton, in *Covent Garden Market*, in 1845, and 1846.

1845.			1846.		
Jan. 25	50*s.* to 80*s.*		Jan. 17	80*s.* to 160*s.*	
Feb..... 1	50	80	31	70	140
8	50	80	Feb..... 7	70	160
15	50	80	14	70	160
22	50	80	21	70	160
29	50	80	28	70	160

Also at the waterside, *Southwark.*

Jan. 27	55*s.* to 80*s*		Jan. 26	50*s.* to 120*s*	
Feb..... 3	55	80	Feb..... 2	50	120
10	55	80	9	50	120
17	55	80	16	50	120
21	55	80	23	60	130

Reviews.

Among the numerous works on Gardening, Botany, &c., which have accumulated on our table within the few last weeks, the following may be especially noticed:—

Flore des Jardins et des grandes cultures, by M. Seringe (vol. i.), is an 8vo of 600 pages, containing a familiar introduction to the Theory and Practice of Gardening, and a popular account of the six following natural orders of plants, viz.:—Violetworts, Rock Roses, Weldworts, Capparids, Crucifers, and Poppyworts. The work is illustrated with good plates and woodcuts, and will be found useful to the student.

Dr. Lovell Philips' Essay on Tropical Agriculture, noticed at p. 281, 1844, has reached a third edition—a satisfactory proof that our West and East Indian friends are thinking of something more than sugar and opium. The present edition has two letters on the treatment of cattle and the rotation of crops, which we recommend to the notice of the agricultural reader.

The 8th Number of the *Tasmanian Journal*, contains, among other topics, a description of some New Zealand Ferns by Mr. Colenso, and notes on the dental apparatus of Tasmanian snakes.

A new Universal Etymological and Pronouncing Dictionary of the English Language, embracing all the Terms used in Art, Science, and Literature (Gilbert), has a title which would insure it a sale if it were fairly executed. We cannot, however, afford it one word of praise. The notion of its being necessary to explain the pronunciation of absconding by ab-skond is ridiculous, and quite shakes our confidence in the common sense of the author. Nor is this unfavourable impression removed by finding such words as Abronia, Abrotanum, Absinthium, set down as "English" words. We cannot even spare a line of compliment for the manner in which the sound or meaning of such words is explained; in Abrotanum the accent is on the wrong syllable; Abrus is not wild Liquorice, although it is so called in the West Indies; there is no such genus of plants as Acalepha, neither is Acalypha "a genus of prickly plants;" nor is the natural order Acanthaceæ composed of shrubs or herbs, "generally prickly;" nor have the plants of this order a "turcillated" (what on earth is that?) pistillum; nor—but it is useless to go on.

The *Church of England Magazine* occasionally contains some interesting articles on the gossip of flowers; but we must make an exception to the Crocus in the last Number, which is, both as to letterpress and likeness (!) we will not say what.

Professor Schykowffsky has translated Dr. Lindley's *Theory of Horticulture* into Russian, and a copy is before us. It is well printed, and the Russian copies of the woodcuts are very respectable.

Professor *C. A. Meyer* has published a short account of the genus Ephedra, which he finds contain 21 species.

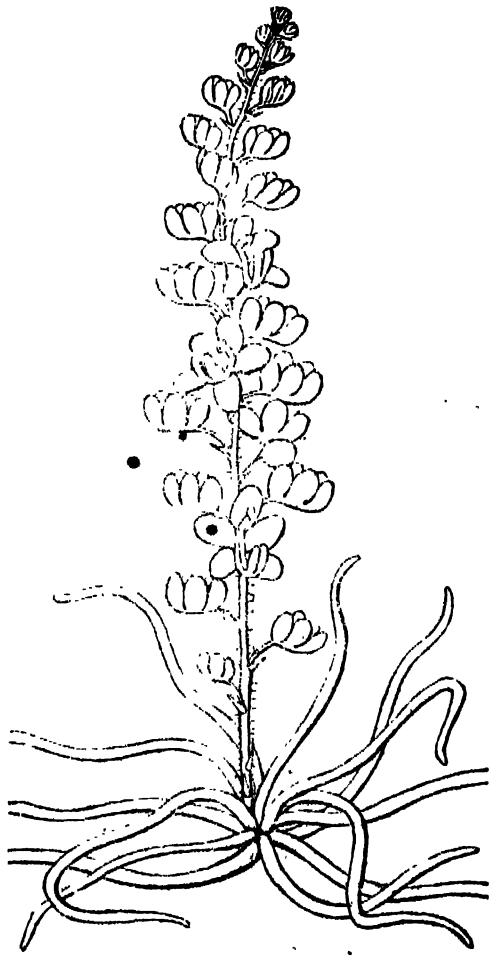
From *Dr. Kirschleger*, Professor of Botany at Strasburg, has appeared an historical essay on the doctrines of Vegetable Morphology, up to July 1845; it is full of talent, and may be regarded as an excellent sketch of the subject.

Finally, the 14th part of Dr. Joseph Hooker's *Flora Antarctica* comprises a portion of the Flora of the Falklands, and some highly curious plates, elucidating the structure of the singular parasites named Myzodendron. These drawings are by far the best which have yet appeared in illustration of that genus, and we doubt not that the letterpress, which we presume will appear in the next Number, will be of great interest.

New Garden Plants.

14. ANGRÆCUM FUNALE. (*Lindl. in Bot. Reg.* 1840, *sub. t.* 68.) The cord-rooted Angurek. *Stove Epiphyte.* (Orchids.) Jamaica. Messrs. Loddiges. SYN.—Epidendrum funale, *Swartz.* Limodorum funale, *Swartz.* Cœcoclades funalis, *Lindl. Gen. and Sp. Orch., No.* 8.

This singular plant presents one of those curious deviations from the ordinary rules of structure for which the Orchids are more conspicuous than any other Natural Order. It has neither roots, stem, nor leaves, properly so called; but in their stead it puts forth a number of cord-like or rather worm-like processes, growing like roots, but green like leaves, and performing their duty. A similar example occurs in several other Angureks, especially a Cuba species, discovered by Mr. Linden, and named after him Angræcum *Lindenii* (*Linden's* Angurek), and in a Nepal epiphyte called Chiloschista usneoides, of which the following is a diminished figure.



Mr. Linden's Angurek, which he found in the dense forests of Sagua and Nimanima, in St. Jago de Cuba, in September, 1844, has flowers a foot long, including the spur, and of the purest white. The lobes of the lip and the spur being drawn out into very long narrow ribands at the point, each flower seems to have three tails. We mention it in the hope that some enterprising merchant, trading with Cuba, may be able to procure it.—*J. L.*

Garden Memoranda.

Horticultural Society's Garden, Turnham Green.—The exceedingly healthy appearance and improved condition of the plants in the Orchidaceous-house shews that the system of heating by open tanks inclosed in a hollow chamber answers perfectly; but the great amount of evaporation from the tanks by the openings in the sides of the chamber renders large supplies of water absolutely necessary, and rain water being frequently scarce in summer, hard water from an open cistern was employed, which has had the effect of closing up the small lead pipes connecting the tanks and boiler with a thick incrustation of carbonate of lime, which is largely deposited when such water is boiled. One of the pipes (which was in the first instance too small for the ready passage of the water), lately burst and discovered the evil, which was found likewise to have extended to the boiler, insomuch that the latter had to be removed and cleaned. It therefore appears that hard water will not answer, where, in consequence of much evaporation, the boiler has to be often fed; and that it would be much better if narrow connections were avoided. In the greenhouse next the Orchidaceous-house several of Mr. Fortune's plants were in bloom, among which was a yellow Jasmine, supposed to be new, from Nankin. An Azalea, with small lilac flowers, with bright red spots, from the mountains of Hong Kong, and the blue-flowered Daphne Fortuni, which was exhibited at the January meeting of the Society, and which promises yet to bloom for some time, proving that should it not turn out to be hardy, which possibly it may, it will nevertheless form an invaluable object for greenhouse decoration during the dull months of winter and spring. Among other flowers which adorn the greenhouse in winter, may be mentioned the pretty little white-blossomed Selago distans, which has been blooming here for some months past, and which is exceedingly useful for bouquets, suffering to be cut to a great extent without being injured. The old Muraltia Heisteria, although not a gay plant, was also yielding a plentiful crop of small purple flowers, which, with Correæs, &c., formed a good contrast. In the large stove, the magnificent specimen of Lælia superbiens has been in bloom for these five weeks, having produced six strong flowering stems, four of which still remain in perfection. In the same house was also a specimen of the gay, winter flowering stove shrub, Inga pulcherrima, whose numerous tassels of long scarlet silky stamens render it an object of great beauty, and contrast well with the light airy Mimosa-like foliage. Along with it was a fine plant of Manettia bicolor, trained over an upright cylindrical trellis, which it gaily ornamented with a profusion of pretty red and yellow tubular blossoms. The house which was formerly a Pine stove, but which is now adapted to the growth of Orchids and other plants, was gay with the different species of Begonia, which form a fine display at this season, and which are well deserving of more extensive cultivation than they have hitherto received. To grow them well, however, they should have a compartment entirely devoted to their culture; where such could conveniently be spared, their beauty at this season, and, indeed, through the whole winter and spring months, would amply repay the sacrifice. The sorts in bloom were crassicaulis, a kind with palmate leaves and stems, inclining to creep, the flowers being nearly white; hydrocotylifolia, a neat growing sort with pink blossoms, and pretty black veined, nearly round foliage, and short creeping stems; stigmosa, also with short stems, and remarkable for its pale green spotted leaves and flowers, beautifully marked with pink; dipetala, from the upper sides of whose erect stems are suspended pretty clusters of pink flowers; vitifolia, likewise an erect stemmed variety, with oblique peltate leaves and nearly white flowers; odorata, with erect stems clothed with dark green foliage, and surmounted by terminal clusters of small white flowers; longipes, a sort with small blossoms individually, but produced in large clusters; papillosa, resembling dipetala; Meyerii, a white flowered strong-growing kind with oblique leaves, which, as well as the stems, are thickly covered with soft short brown hairs; ulmifolia, with ovate leaves and branching stems, about 3 feet in height, from whose tops hang clusters of blush-coloured blossoms; semperflorens, an erect growing sort with white flowers and dark green shining ovate leaves; and, finally, manicata, with stems inclining to creep, and an oblique acute foliage. The span-roofed house in the hardy department, mentioned at p. 627, 1845, as being in course of erection for the accommodation of half-hardy plants in winter, has been completed. It is a neat looking structure, and being glazed with panes 2 feet in length and 9½ inches in width, is very light and found to be every way well adapted for the purpose. It is heated by a 4 inch pipe passing round the house immediately within the walls. The pits, in connection with this house, heated on the hollow chamber system from the same boiler, with openings along the back and front for the supply of surface heat, have also been found to work well, any required amount of heat being fully at command, and entirely under control. In the large conservatory the noble bush of Luculia gratissima, growing in the bed, has been and is still finely in bloom. Some doubts have been entertained as to its succeeding well in a conservatory where the temperature is so low in winter; but the health of the plant, and the profusion of bloom which is produced year after year, clearly prove that it likes the situation. A large graceful tree of Acacia oxycedrus and other leguminous plants were just bursting into blossom, as were also the Camellias, which, in connection with various other things, will soon produce a fine display, and in a few weeks render this house well worthy of a visit.

Miscellaneous.

Gardeners' Soirée.—On Tuesday evening last, the Gardeners' Societies for Mutual Instruction in the neighbourhood of London, eight in number, held their first annual *soirée* at the City of London Mechanics' Institute, Gould-square, Crutched Friars. Soon after 7 o'clock, the company began to assemble in great numbers, and by 8 the hall, which was capable of accommodating about 300 persons, was densely filled, so much so, that those who had not previously purchased tickets were unavoidably refused admission. After the tea and coffee had been served, the chair was taken by Mr. R. FISH, who, in a speech explanatory of the object of the meeting, adverted to the origin of societies among gardeners, and to the indifference manifested at first by parties who now begin to recognise their importance; he ascribed their present prosperity to the reliance of members on their own exertions, rather than in the hope of extraneous support; and enforced the necessity of persevering in the same course. Several other speeches were given. Mr. J. CAIE (of the West London) dwelt at some length on the benefits afforded to gardeners by these societies; of their ameliorating influence on the mind, and their elevating and refining tendency on the character. Mr. M'EWEN (of the Regent's Park) spoke of the good already effected by existing societies, and pointed out the advantage that would necessarily accrue from the establishment of similar institutions in every part of the kingdom. Mr. C. MOORE followed on the same subject. Mr. PLUMRIDGE (of Long Ditton) advocated the union of gardeners' societies, and enumerated the advantages to be realised by the establishment of a central metropolitan Board of Directors of all the societies, by whom subjects might be arranged, agreeable to the wishes of each, without interfering with the independence of either; and thus scope might be given for a large display of that mutual assistance and reciprocal benevolence which is the characteristic feature of the system throughout. Mr. KEMP (of the Philanthropic, Chelsea,) alluded to the plan adopted by the Chelsea Society, of affording pecuniary as well as other assistance to members in cases of need, and advocated the same provision being made in connection with the regulations of all other societies. Mr. SHERWOOD, (of the Stamford Hill,) spoke of the good effects of mutual instruction on the physical, mental, and moral condition of mankind, and exhorted gardeners to persevere in pursuit of knowledge. In conclusion, it might be mentioned, that Messrs. Knight and Perry distributed 40 tickets among the gardeners in their establishment. The meeting, after offering a vote of thanks to the chairman, broke up at rather a late hour.

CALENDAR OF OPERATIONS.

(For the ensuing Week.)

CONSERVATORIES, STOVE, &c.

Germination of Seeds.—Darkness and permanency of moisture are regarded as the grand essentials in the process of germination. It is not a very good practice to cover seeds unusually deep, in order to secure either or both of the above points. Rolling and covering with litter are far preferable. Rolling is not, in my opinion, so much practised as it ought to be; the *rationale* of this process lies, I conceive, in three points: first, in the securing a due amount of moisture; secondly, a degree of permeability to the atmosphere; and lastly, in all probability, in an obstruction of the rays of light. The second point is pretty well illustrated by the process of potting. If a plant is potted in friable soil, without shaking or pressing down, the consequence is that on the first thorough watering the surface of that soil is closed in a serious degree. If, however, the soil being somewhat dry, is pressed tolerably firm, watering cannot easily disarrange the mechanical combination of its parts. Sphagnum is of great use in covering all small seeds impatient of soil covering. Great attention should be paid, however, to the removal of such screens in due time. *Conservatory.*—Poinsettias done flowering should be removed to other houses at work, to make new wood from which cuttings may be raised. The Euphorbia jacquiniflora, too, may be removed to heat, but not pruned; if cuttings be an object, they will break better without pruning, being liable to bleed. The routine here now will be a constant exchange with the other houses or forcing pit; nothing should be allowed to remain unless it blooms longer in fine health. Let the heat be moderate. Secure if possible a small amount of atmospheric moisture without drip. *Mixed Greenhouse.*—Those who follow up the cultivation of Pelargoniums should have their plants duly attended to in regard to staking out, &c. They will bear shifting the moment the blossom-bud is formed in the terminal points. Water very moderately after shifting until the pot is half full of roots; those not yet shifted will now take water freely. Have an eye to the Poinsettias, Euphorbias, &c., following the directions given above. Tender annuals, as Balsams, Cockscombs, &c., should now be sown; they will come up better, however, in a frame with a slight heat. Make all cuttings possible of choice Verbenas, Fuchsias, Petunias, and other popular and gay flowers; they will all be wanted for either pots, masses, or borders. *Stove and Orchidaceæ-house.*—Orchids will now be budding fast; beware of drip lodging in the young buds; where suspicion exists as to danger in this respect, it is sometimes well to remove some of the old coating which surrounds the bud; by which means, free circulation of air is established. The fires should be kept sufficiently lively in the early part of the day to allow of a free circulation of air; every leaf in the house should be dry for an hour or so at mid day; after which period the air should be gradually withdrawn, and atmospheric moisture renewed. This treatment will be found to suit the majority of stove-plants, as well as Orchids. *Cold Plant Pits.*—Fuchsias, Calceolarias, Petunias, Verbenas, &c., &c., intended for an early display, should now be removed from hence to a warmer atmosphere, and liberally watered, shifting those which require it.

KITCHEN GARDEN FORCING.

Pineries.—Beware of a sudden rise in the bottom-heat; when much new tan has been added, in consequence of recent shifting or removals this may readily take place. Constant attention to the trial sticks is now necessary in order to ensure success. For general purposes 80° or 85° is amply sufficient. Increase atmospheric moisture with increase of heat and light, and give air freely in the earlier part of the day; shutting up a good amount of solar heat when a chance occurs. *Vineries.*—Attend in a regular way to the disbudding or stopping of superfluous wood. Wait on the

bunches, which require shoulder tying; this is a matter which requires very careful handling. Allow a brisk heat on sunny afternoons; but be moderate at night; let 65° at that period be your maximum. Follow up in due order the principles applied to the early house with those in succession. Keep up a liberal amount of moisture independent of the syringe. *Peach Houses.*—As before observed, suffer no gross shoots to ramble above five or six eyes, without stopping; this will do more to equalise the sap than any mode of winter pruning. If they are properly attended to in these respects there will be little left for the knife. When the fruit is as large as marbles, commence thinning only a few at a time. Air freely at all other times of the day, and syringe liberally with much force in the afternoon. *Figs, Cherries, &c.*—As soon as the Fig-shoots are four or five joints long, commence stopping them; squeeze them flat between the finger and thumb; this is one of the principal secrets of success in Fig management. Ensure a steady degree of moisture at the roots; Figs are very impatient of drought—a very short period of neglect in this respect may prove fatal to the crop. *Cherries.*—Advance the heat on bright days, falling back to a low pitch at night, with abundance of air and atmospheric moisture. *Cucumbers, Melons, Kidney Beans, &c.*—Follow up former directions — regularly stopping and often sprinkling lightly with water round the frame. Pot off Melons into single pots; stop them, and get them strong for succession frames. Kidney Beans as before; giving plenty of liquid manure.

KITCHEN GARDEN AND ORCHARD.

Attend to due preparation of the ground to be used for the main crops of Carrots, Parsnips, Onions, &c.; endeavour to provide charred materials, half-burnt weeds, or leaves. Plant Seakale forthwith, salting and manuring heavily. Give all Asparagus beds a slight salting; this should be done after soiling; the rains will carry it down in a progressive way. Onions may be sown as soon as possible: choose a piece of ground that had been manured for a previous crop, adding no fresh manure; throw it into high beds. Sow when dry, cover thinly, and roll as hard as possible; the last advice will, perhaps, not apply so well to clayey soils. *Orcharding and Fruit trees.*—Bring pruning to a close immediately; root prune over-luxuriant trees, allowing about a foot to every inch of diameter at the base of the trunk, that is to say, for a tree of 4 inches diameter, open a trench 4 feet off, and so on. Get Apricots and Peaches covered forthwith. Uncover Figs, but do not prune until they begin to swell. Prune and nail Vines without delay, stopping the fresh cuts with a patch of white lead.

FLOWER-GARDEN AND SHRUBBERIES.

All Grass lawns should now have a thorough rolling, and all turfing repairs completed forthwith. Where it is absolutely necessary to edge lines of walks, let it be done now; and as soon as accomplished, run the heavy roller several times up and down the edge, to soften the cut line. All edgings should, if possible, have a slight inclination towards the walk, and they should only be fresh cut in consequence of irregularities in the line. High kept lawns should have a single mowing on the heels of the roller. The covering must be removed forthwith from all half hardy plants, climbers, Roses, &c., also all coverings of sawdust and heavy mulchings from Fuchsias and other tender things; do not remove the latter entirely—leave a little to protect the half blanched buds.

FLORISTS' FLOWERS.

Auriculas.—It was stated last week that if these plants were not already top-dressed, it should immediately be done; care, however, must be observed in the operation not to injure the surface roots when removing the soil. Though an operation with which most florists are conversant, still to the amateur (for whom these observations are particularly made) a short description may be acceptable. With a blunt stick carefully loosen the soil to about the depth of ¼ of an inch, avoiding any injury to the collar of the plant; having removed this, replace it with some compost of perfectly decomposed cow-manure or horse-manure, mixed with leaf soil. I would avoid anything too highly stimulating. No soil must be allowed to drop between the leaves. After having filled the pots the required height, give them a slight watering, to settle the soil, and place them in their situation for blooming. *Tulips.*—Attend to last week's directions, and cover the beds with large meshed nets; when too small the plants are apt to be drawn, which should be avoided. *Pansies.*—Beds are best made in the autumn; but where plants have been kept in pots during the winter months, they may now be planted with their balls entire on richly-prepared beds. *Pinks.*—These ought now to be carefully gone over, the surface soil slightly forked over, and a top-dressing similar in its composition to that above recommended for Auriculas should be put over the bed to the depth of ¼ an inch. *Carnations, &c.*—Planting time is now rapidly approaching; give all attention to the proper looking and management of the soil, as much of after success depends on this.

COTTAGERS' GARDENS.

Curled Kale, Brussels Sprouts, or other varieties of the Cabbage tribe, may now be removed to a special corner for seed; as, however, any two will corrupt each other, cottagers would do well to have a mutual arrangement in this respect, and exchange produce. Let the early Peas be carefully sticked, and take care to have a good plot of spring Cabbages planted. I would advise cottagers not to plant so many Potatoes this spring as usual; they will, I am afraid, be a great risk, and if they fail the cottager's summer will be half gone; moreover, the price is very remunerating at present. In the room of these, Carrots, Parsnips, Mangold Wurzel, or Swedes, may be grown, which will either exchange with the farmer, or realise a small sum with which to purchase Potatoes next October. Slopes of Horn Carrots may be got in still, soaking the seed in warm water for a few hours, to gain time; these will make way in August for winter greens. The Horn Carrot is a safer crop in respect to the grub than the larger kinds, and ripening so early, gives a chance for another crop, a most important thing with the cottager. Sow Onions (see Kitchen Garden Calendar), load the Sea-kale crowns with soil, or ashes; also place garden pots or chimney pots over the Rhubarb required early.

FORESTING.

The sooner all planting affairs are "wound up" the better; little safety is there in late spring planting. Finish all seed sowing, and get all hedging finished. Follow up any thinning in ornamental plantations with the introduction of Hollies, Thorns, Laurels, Rhododendrons, &c., as undergrowth; some of the Berberis would answer this purpose well. Large shoots of common Laurel may be half cut through, and sunk to the ground, laying a few spadefuls of soil on them; they make fine masses. Get dead fences up where wanted without delay. Thin out Larch plantations if not done, dressing up the stems to the live wood of those which remain; 15 to 20 feet is considered a proper distance at the final thinning.

State of the Weather near London, for the week ending Feb 28, 1846, as observed at the Horticultural Gardens, Chiswick

Feb.	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Sund. 22	24	30.076	30.071	50	40	45.0	S.W.	
Mon. 23	25	30.096	30.091	55	39	47.0	S.W.	.01
Tues. 24	26	30.100	29.912	57	47	52.0	S.	.21
Wed. 25	27	29.841	29.735	58	50	54.0	S.W.	.07
Thurs. 26	28	29.690	29.467	59	49	54.0	S.	.16
Fri. 27	●	29.569	29.476	55	36	46.0	S.W.	
Sat. 28	0	29.850	29.663	60	39	49.5	S.	.01
Average		29.888	29.769	57.1	43.1	49.8		.46

Feb. 22—Cloudy, overcast throughout
23—Overcast; exceedingly fine, densely clouded
24—Overcast and mild; cloudy; rain at night
25—Rain and very mild; overcast
26—Rain with brisk wind; partially fine, cast and mild
27—Heavy clouds; mild and fine
28—Cloudy; clear and exceedingly fine, with bright sun; slight rain
Mean temperature of the week 1·6 deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Mar. 7, 1846.

Mar.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds
Sun. 1	47 6	36 9	42.2	9	0.62 in	— 4 2 — 6 4 5 1
Mon. 2	48 9	34 8	42.8	8	0.48	5 1 2 — 1 6 5 1
Tues. 3	49 7	35.6	42.6	10	0.28	2 3 3 1 2 5 5 1
Wed. 4	49.8	33.0	41.4	8	0.48	2 6 — 3 1 3 4 1
Thur. 5	48 3	33.6	40 4	5	0.22	2 4 3 — 3 5 5 2
Fri. 6	47 8	32.6	39.9	8	0.75	1 5 2 1 2 2 3 4
Sat. 7	48.9	33 4	41.1	8	0.10	2 3 2 1 4 5 1 2

The highest temperature during the above period occurred on the 7th, 1834—therm. 60°; and the lowest on the 8th, 1843 —therm. 18°.

Notices to Correspondents.

To our Correspondents—We have every wish to oblige you by answering all questions relating to the subjects treated of in this Journal; but we must intreat you to be reasonable. We have now before us a letter containing 17 questions, upon as many different subjects, every one of which have been either answered repeatedly, or can be determined by a very cursory glance at our columns for the last month; and we regret to say we have many such cases. To spare time or space for answering these demands is impossible; it is not fair either to ourselves or our readers. Correspondents should, in common fairness, only apply to us for information upon points which they have previously taken reasonable pains to examine for themselves in documents accessible to every body.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each copy. An index has been added to this present edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

Bees—*J*—We should be obliged by *short* extracts from your journal: long ones would overwhelm us.

Books—*Z C*—We have not seen the "Abridgment of the Biblical Cyclopædia," but although the work would certainly bear abridgment, yet the original is not at all too long. It is an excellent work.

Cements—*G R C*—Employ some chemical lutes, or a washer of Mackintosh, and a flange with screws. Half-inch pipes are unfit for gardening purposes; 3-inch pipes are as small as it is fit to employ. You overwhelm us with questions: one or two at a time if you please.

Disease—*Dianthus*—No doubt your soil is in fault. The black spots are caused by want of *good* drainage.

Glass—*Handsworthy*—Plate glass does not concern the objects of our Journal, and we cannot help you. Nor do we believe that any one else can at present. Foreign plate is so inferior to English, that there is no chance or reason in getting up an opposition. It is not to be done. Let your young seedlings alone, and have nothing to do with the pruning knife at planting time. Plant 4 feet apart, and thin plentifully and skilfully.

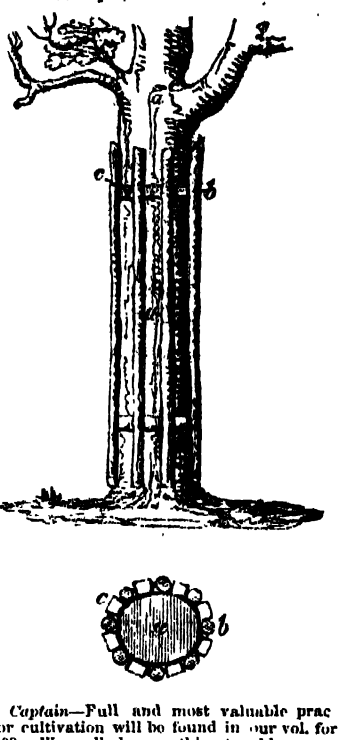
Greenhouses—*R O*—Greenhouses are better with open laps, unless some more efficient mode of ventilating them than has yet been though of can be devised.

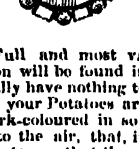
Heating—*J W*—Rooms heated by gas are unfit for plants, because of the dryness of the air, &c. It is the worst of all agents.

Insects—*M D*—The ant is called Myrmica domestica. Take some vials, put a little brown sugar in one, and smear the inside of others with a little treacle or honey, with crumbs of bread, and lay them down in the haunts of the ants. They will congregate in the vials, and when the number is great, cork up the vials and dip them in very hot water, and the ants will soon die, after which take out the corks, and replace the traps; the dead ants will not prevent others from entering. Please to tell us how the plan succeeds. *R*—*E B*—No. 1 is the larva of a small Bibio, (*vide* the *Gard. Chron.*, vol. iv. p. 765); No. 2 is a worm which I find in the contents of cesspools. It will not change to any insect. *R*—*Justus Tenax*—Your Centipedes appear to be the Geophilus carpophagus; we know nothing of its history beyond its living under the bark of trees. Can you give us any information regarding its economy? *R*—*B Cello*—It is the male of Cockroach. When this insect emerges from the pupa, like earwigs and others, it is soft and whitish, but it attains its natural brown colour as it dries and hardens. *R*—*Sub*—Lime-water will kill slugs and snails. Earwigs are trapped by placing dry Moss in the bottom of small garden pots supported on sticks; or by laying about joints of withered Hemlock or Bean stalks into which they will creep. The traps should be daily examined, and their contents destroyed. By this means these pests may be thinned very much.‡

Mr. Gordon—A packet of Cucumber seed having been forwarded twice to Mr. Gordon, of Castle Rimsbottom, and each time returned, if this should meet the eye of the said gentleman, I should feel obliged by his favouring me with the name of the county and nearest post town, when the order will be executed forthwith. *E. Tiley.*

Melons—*W W*—The best of Melons is the Beechwood, for all ordinary purposes. Some persons, who like red Melons, prefer the Scarlet Rock Cantilupe and the Windsor Scarlet Fleshed; but we do not agree with them. These may be had of all respectable nurserymen; we never recommend tradesmen. A good tree-guard and a handsome one will be found in our volume for 1843, p. 6. We now repeat the cut. Your iron hurdles have but one fault—they are expensive.





Names of Fruits—*J G P*—Your Apples appear to be the Court of Wick.‖

Names of Plants—*T F B*—Yes; it is allied to them. It is a bleached state of Peltidea canina; but its medicinal value is small. It is probably purgative. ——*H H*—Cilanthus punicens, and nothing more.

Old Seeds—*Z*—Mix a little *fresh lime* with the mould in which you sow your seeds.

Pelargonium—*The Captain*—Full and most valuable practical directions for cultivation will be found in our vol. for 1841, pp. 85 and 100. We really have nothing to add.

Potatoes—*M M M*—To the eye, your Potatoes are sound; but when sliced they become dark-coloured in so short a time after having been exposed to the air, that, in the present state of our fears, we hesitate to say that they can certainly be trusted. We hope they may. Pray make no apology; the subject is too important to be treated lightly.

Strawberries—*Fragaria*—We cannot judge of your case from your description. If a gardener cannot force Strawberries the simplest course is to exchange him. It is the easiest of all processes——*Constant Reader*—They cannot be too *near* the light; if the rim of the pot touches the glass and you have headroom for your fruit, so much the better.

Transplanting—*T S P*—Trees of large size, fruit trees as well as others, can be easily transplanted if you will go to the expense. The whole operation depends for its success exclusively upon preserving the old roots entire. Transplant as soon as you can; you are already late. If you cannot do it now, wait till next November if you wish to be *sure* of success.

Verbenas—*E N M*—You must be surely mistaken; no person calling himself a gardener would believe that draining a border kills, during winter, the Verbenas, or anything else that is planted on it. No, no; the person who says that is a garden-labourer, not a gardener.

Vine border—*W Jones*—You have made your Vine border well; and your neighbour knew nothing about the matter.

Misc—*N N*—If you will consult the indices of our volumes for 1842-3 and 4, you will find that much has been written on the treatment of Calceolarias. In last year's volume also, some good advice has been given on the subject. No kind of shrub will grow under trees except the common Privet, Box, and Holly.‡——*G J T*. With the convenience of a good frame you may grow successfully Indian Azaleas and Cape Heaths, without the aid of artificial heat. They will require, however, to be well covered up in frosty weather.‡——*G L*—The black powder which you find under the bark of your Apple trees is the work of insects, which attack your tree because it is unhealthy. Strip off all the loose bark, and manure your tree well, so as to make it grow.——*G R*—Any respectable nurseryman, if he chooses, can procure the Court Pendu Plat Apple for you.‡——*T W M*—Marine glue requires a high temperature when it is applied, and therefore is not capable of being substituted for putty. Always coat the knots in deal with good red-lead paint before the general painting.——*Llanrwst*—Larch seed is principally obtained from the Scotch seedsmen; any nurseryman can obtain it for you *if worth his while.*——*C C*—Botanical paper has been repeatedly advertised in our columns, which you must consult; it is, as we have frequently stated, the best that is known.——*W F S*—Endive is Cichorium Endivia; Chicory or Succory are the Cichorium Intybus.——*Sigma*—If your Azaleas and Heaths are struck, transplant them into pots of sandy peat, and keep them under bell-glasses till they have recovered the shift. The forks are sold by Mr. Wilson, Ironmonger, Witham, Essex.—*W D C*—North's tiles cannot be had in London. We have just had 500 up from Wordsley for own use.——*A Sub*—Lead and glass are the common materials that best resist the action of sulphuric acid.——*Sub*—Much information respecting the growth of Chicory has been given in our volume for 1844, especially at p. 294. It likes a deep, rich, loamy soil, and should be sown in drills about the beginning of May. Seed may be obtained from any respectable seedsman; it would be unfair to name dealers.‡——*Z*—If you will refer to our volume for last year, page 740, you will find that your question has been answered.‡——*J P*—We are unacquainted with Mr. F.'s address.

SEEDLING FLOWERS.

Cineraria—*A Z*—The seedling you propose to name "*Peerybingle's Beauty*" is a pretty variety; the ground colour is white, and the peculiarity of the flower consists in the ends of the petals being edged with bright crimson, similar to a Picotee."

Primula sinensis—*W E*—If improvement is aimed at in these flowers, the fringed edges should be got rid of, and the eye of the flower attended to, as the specimen sent is *pin eyed*; the truss sent presents many shades from white to lilac, but it exhibits no improvement upon those generally cultivated."

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of these numerous correspondents, the insertion of whose interesting contributions is still delayed.

THE CURATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.
40, New Bridge-st., Blackfriars. E. PUGSLEY, Secretary.
LIEBIG'S WHEAT MANURE now ready for delivery.

LIQUID MANURE.
ENGLAND INDEPENDENT OF THE WORLD FOR CORN.
THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.
The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 68, Dorset-street, Fleet-street, London.

The Agricultural Gazette.

SATURDAY, FEBRUARY 28, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY,	Mar. 4	Agricultural Society of England. Highland and Agricultural Society.
THURSDAY,	— 5	—Agricultural Imp. Soc. of Ireland.
WEDNESDAY,	— 11	—Agricultural Society of England.
THURSDAY,	— 12	—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.
Parsonstown—Banffshire—Vale of Alford—Holderness.

FARMERS' CLUBS.

Mar. 3—Moreton Hampstead — Darlington—St. Columb—Newark—Marshchill—Bunbury	Mar. 9—Wenlock—Great Oakley
— 4—Abergavenny — Watford — Jedburgh—St. Quivox	— 10—St. Peter's—Wootton Basset —Rochford Hundred—Framlingham—Ardleigh—Darking
— 4—Monmouth	— 11—Braintree and Booking — Hucleston
— 5—Hawick	— 12—Blofield and Walsham — Richmondshire — Grove Ferry
— 6—Lichfield — St. Austell — Claydon—Wakefield—Hadleigh—Debenham	— 12—Northallerton—Tavistock—St. Germains—Chelmsford—Halesworth—Wasebridge
— 7—Northampton — Malvern — Durham — Carlton-on-Trent —Cardiff—Collumpton	— 14—Dartford—Probus—Winchcomb—Swansea
— 9—Selby—Exminster—Tranford —Cirencester—W Market	

WE have to add, in reference to our remarks last week on the AGRICULTURAL COLLEGE, that we find the opening has been deferred until after Lady-day, and we are informed that it is in the contemplation of the Council to complete the wing of the building, so as to accommodate 200 students, as originally proposed; for it appears doubtful whether, with a less number, the establishment can be kept in a state of full efficiency at the low charge for each of 30*l.* per annum, which the Council is anxious not to exceed. It appears, too, that additional capital will be required for this purpose, and those who wish well to the College, and have not yet lent their aid, thus still have an opportunity of doing so, and thereby extending the sphere of its usefulness.

THE object of all art is the imitation of nature: to exceed, or even reach in every case the perfection of the pattern, is impossible, but the more closely it is kept in view, and the more nearly it is attained, the more perfect the performance will be, and the more exactly will our own ends be answered. Any departure from the principles suggested in the examples set before us by nature, through a hasty desire to arrive at the object by a nearer road, defeats the intended purpose. SHALLOW DRAINAGE offers many evidences of this. The gravitating tendency of water is perpendicular, and the more it is made to deviate from this course, *the weaker the effort of escape becomes, and the slower the motion of the fluid,* consequently a deep drain will fill quicker than a shallow one, provided the superstratum of soil be sufficiently porous to yield a passage to the moisture. But this it will do more and more readily every year, after the drain is once laid, let the clay have been ever so obstinate at first. The difficulty of making drainers believe this, occasions such a perpetual conflict between them and their employer, such a *perpetual tendency* on their part to lay their drains shallower, that unless their employer be very strongly convinced of the truth of the principles he wishes to carry out, the wearing and "experienced" opposition of his "practical" man, backed by the tempting cheapness of a shallower cutting, will prevail. It is important to be on our guard against this: but, happily, the delusion of shallow drains is passing away; with many other shallow things that assumed, in agriculture, the garb of "practice" and "experience," and attempted to set up an antagonism between scientific truth and practical expedience, as if what was true in the closet could be false in the field.

Every substance capable of absorbing water is capable of transmitting it. If, on digging up clay, we find it damp, we may be quite sure that if undermined, and *pressed upon by moisture from above,* the capillary sustension being overborne, it will begin to weep from below, and *every drop that falls wears a wider passage for the next,* so that time only would be wanting to increase the porosity, even were it not more rapidly hastened by the cracking produced towards the close of summer, when even capillary attraction has lost its last supply, and the contraction of bulk occasions separation into parts. However long we may have to wait for the completion of these processes, of this we may be sure, that *we have nature on our side,* from the moment the drain has been effectively laid. The effect may be slow, but the cause is in certain and perpetual operation. But we merely allude here to this physical law, as giving effect to the other hydrostatic principle of perpendicular descent, which would, of course, be inoperative without it. The *tendency* of a fluid to descend is of course equally strong in a basin as in a filter, though the one holds it and the other transmits it. Our object is to explain that a clay subsoil, which before acted like the first, is when undermined by deep drains likened to the second.

The whole principle of *deep* drainage, in its mere mechanical relation to the soil, depends upon the downward pressure of water; a power so strong, that it has been put into use, in the hydraulic press for instance, as one of the most irresistible of natural forces; a small tube of moderate height, charged with fluid, will in virtue of this power, burst the stoutest cask, if inserted into a well-secured aperture; and so equable and searching is the pressure of fluid-weight, that it has already been applied in the arts, wherever great force, continuous action, and perfect equability in its application, is particularly desired, as in the proving of gun-barrels, the testing of cast-iron beams and other purposes where the general stoutness of material affords no security against the weakness of its weakest parts.

Now anybody who has carefully and personally examined the character of the very stiffest clays, will not fail to have observed that, like ourselves, they have their *weak points*; here there is a natural crack, there a "sand-pot;" here again a bit of imbedded gravel, there a vein or cleavage filled with lighter soil of some description; that in fact, however obdurate in general character, *perfect continuity of texture* is never to be met with. So long as these escapements, so to call them, have no vent underneath, they remain comparatively inactive; but once *undermine* the field by deep drains, and their valuable office begins to show itself. The subsoil which before held up the surface-water like a basin, now begins to transmit it like a filter; every succeeding summer increases the number of cracks, as the drying clay gives way to the contracting tendency, and surrenders that continuity of texture which depended upon the imprisonment of its moisture. Where *one drop* of water descends and escapes, *another must follow it,* till the last be gone, *drawing the air after it.* From the moment the system of regeneration commences—to use the formidable words of the chemist—the *protoxide* begins to be converted into the *peroxide;* that is, *slightly* oxygenated earth, which repels vegetation, changes gradually by contact with atmospheric air into the *highly* oxygenated earth, which favours vegetation; and the roots of plants, which formerly turned up *like fish-hooks* on coming in contact with the subsoil, now plunge boldly into it, and add, by their eventual decay, to its vegetable character.

The student in hydrostatic science is astonished at the surprise with which a writer in the "Journal of the Royal Agricultural Society" tells us that *his 4-foot drains drew off the water in half the time that his 3-feet drains used to do.* It would be a marvel to him, contradictory to every known principle in the laws of fluids, if it were otherwise. The deeper the drain, the more irresistible the pressure of the water towards it, and the more rapid the escape. A simple experiment will illustrate this. Let a gun-barrel be filled with water and held vertically, allowing the fluid to escape at the nipple. The column of water will drive the fluid out with a force increasing rapidly with the distance from the point of escape to the mouth of the barrel; as the column decreases in depth, the force and rapidity of the stream will diminish also; till at last the fluid, instead of being projected several yards, merely escapes in drops. It is upon the same principle that a deep drain acts with more energy than a shallow one, exemplifying one of the soundest maxims of agricultural science—that if you *drain the subsoil, the soil will drain itself.*

It is a mere error to suppose that there is anything in the constitution or in the natural history of the most stubborn clay, of any description or locality whatsoever, which can long resist the operation of this principle. Every workman that ever handled a draining tool knows that it is easier to cut drains in winter than in summer, *because in winter the clay is wet,* thereby showing that it *has been penetrated by the surface moisture.* Herein lies the whole (mechanical) principle of drainage. If the water can make its way *into* it it can make its way *through* it. Give it a channel of escape underneath, and every pore by which the descending fluid is transmitted, however slowly at first, becomes worn and widened, year after year, by the perpetual attrition of the tiny, thread-like stream that once has found its vent.

The observer of Nature will find that every effort to imitate the principles on which her operations are conducted, receives adventitious and unexpected aid at her hands, greater in proportion to the fidelity with which the *pattern* is followed out. We remarked, in a former Paper, that in soils which drain naturally, the descent of the water is *perpendicular.* It is obvious, however, that, in laying shallow drains, we lose sight of the pattern, and attempt to create a more lateral and horizontal flow of the moisture, saturating the soil *near the drain* by the lateral pressure, sluggish as it is, of the rain that fell further off, towards the crown of the ridge; a tardy escape, and *an unequal distribution* of the moisture, is the pernicious consequence. But he who has the acuteness to perceive, and the boldness to follow closely, the true pattern exhibited in naturally free subsoils, puts himself at once within the protection of the hydrostatic law above explained; and, while deriving an unforeseen assistance, learns an instructive and profitable lesson in the consistency and *convergence* of the laws of Nature that work together for good, however apparently unconnected. He who would bring up the pearl must keep his eyes open and *dive deep.*

What we have hitherto said, applies only to the *mechanical* principles of drainage; the far more important investigation of it, in a chemical point of view, we must postpone for further remark.—*C. W. H.*

DEEP DRAINING.

I HAVE read with interest the communication on draining, by Mr. Mechi, in your Number for 7th of February, and beg to offer some remarks suggested by its perusal.

I am quite satisfied, from actual experiment, that rain-water will get to the bottom of 4 or 5 feet drains, though formed merely by tiles or pipes, in the manner described in the article referred to; and the familiar instances there adduced to show the difficulty of keeping water out of places which it is necessary to have dry, might well convince objectors of the propriety of keeping silence until they have put the matter to the test for themselves.

But there is a very important element in the case, which has been much overlooked in such discussions, viz., that by deepening the drains you increase the capacity of the soil to retain moisture beneficially. Strong undrained soil is saturated by a comparatively small quantity of rain; and whatever more falls upon it while in that state must run off from the surface, or stagnate upon it; whereas if drained the surplus water is not only got rid of below, but the whole depth, from the surface to nearly the level of the bottom of the drain, has acquired the capacity of keeping in store just so much as it needed for the benefit of the crop upon it. A cask tapped at the bottom is a very good illustration of the effect of a drain, so far as it goes; but a cask or other vessel filled with sponge, and tapped at the bottom, affords a better. If water is poured into such a vessel, it is obvious that none can escape below, until the sponge has drunk its fill; but if you continue pouring on the top the surplus will begin to escape by the tap in the same proportion. It is on this principle that land thoroughly drained, and deeply ploughed, stands drought better than any other: it has not merely been furnished with the means of ridding itself of surplus water, and so of protecting its crop from drowning; it has acquired also the power of retaining in itself a supply against a time of drought, and so of preventing its perishing of thirst. By treating soil in this way it is found that plants grown upon it send down their roots without fear, and are greatly less at the mercy of the vicissitudes of the season. It follows as another consequence of this, that tiles or pipes of small bore may more safely be used in deep than in shallow drains: for a shallow drain must pass the water nearly as fast as it falls; whereas, it is a good while before a deep one gets anything to do at all; and under continued rain the small pipe, owing to the help which it gets from the great depth of porous matter lying above it, is able to dispose of an amount of water which would swamp it altogether, if it lay nearer the surface. I do not, however, recommend the use of such very small pipes; for when all the other items of expense remain the same, it seems a pity for the sake of 6*s.* or 8*s.* per acre to risk the efficiency of such a costly operation. A field cannot be said to be thoroughly drained until provision has been made for carrying off all the rain that falls upon it by the drains, and without any running on the surface. Now, let any one look at the quantity of water running in the furrows of a close bottomed field during a heavy rain, and he will see that in order to get it all passed off in one-inch pipes, the drains must either be very near each other, or else made much deeper than usual. I have already given reasons to prove that the latter alternative will suffice; but if any one question it, let him visit during a heavy rain any undrained field lying on a really open subsoil, and he will find nearly the

whole water sinking down when it falls, and very little running in the furrows. Now, thorough draining will impart these conditions to any soil, with this difference, that the whole of the rain will sink where it falls, and the surplus escape by the drains, instead of the furrows.—*J. W., Berwickshire, Sept.* 17.

ON THE STATE OF HUSBANDRY IN LOWER BRITTANY.

WITH INCIDENTAL OBSERVATIONS ON THE CONDITION OF THE FARMING POPULATION THERE, COMPARED WITH THE SOCIAL STATE OF THE ANALOGOUS CLASSES IN IRELAND.

By Martin Doyle.

(*Continued from p.* 122.)

While pursuing the remarks already published under this head, I have met in the *Agricultural Gazette* with some pithy aphorisms "On Leases and Corn Rents, &c." which are pertinent to the point under our immediate consideration.

"It is absurd to suppose that any one would grant a lease without deriving thenceforth, or in prospect at the expiration of the lease, some advantage to himself beyond what he would derive from an annual letting of land; and whoever instils into the farmers' minds that they are to expect leases at the present value of the land, and at the expiration of them to be paid for all unexhausted improvements, is no true friend of theirs, but the reverse, raising hopes and expectations which common sense may tell them will never be realised."

"The length of the term should depend on the improvements covenanted to be effected by the tenant."

If a tenant, not knowing his business, undertakes the management of a farm and fails of success, or if, though sufficiently skilful, he becomes bankrupt by extravagance and carelessness, it would be hard that his landlord should suffer "for the ignorance of his tenant," or be a loser by his wilful neglect.

Leases for a short time to preserve the landlord from suffering by the negligence, insufficiency, or dishonesty of a tenant, have long been usual in Great Britain, where the landlord keeps the farm-buildings, &c. in repair, allowing also liberally for permanent improvements. In Brittany (as throughout France) leases for seven or nine years have superseded the old contracts (which were practically of long duration), because the relations of landlord and tenant became entirely changed at the revolution, which introduced, in place of the hereditary lords of the soil, who were regarded with respect and whose words were as bonds, a new proprietary class, who obtained the land by purchase from the state, and who in many instances were detested by the peasantry for their intrusion. The contracts between landlord and tenant thenceforth became a matter of mere commercial interest on both sides, and the continuance of their connection became no further desirable than it was rendered so by motives of mutual convenience.

One of the old usages has continued, however, in force, and its influence has a very beneficial effect in preventing the exhaustion of a farm by a tenant holding on a short lease, and the consequent injury to the owner, and probable loss, with certain inconvenience to the succeeding occupier.

This is termed the usage of *revenant bon* which is analogous to the *ancien gousse* of Flanders, and "consists principally in the value of the manure on the farm whether accumulated on the premises or incorporated with the land, and unconsumed by crops. Straw, standing timber, and (negatively) the repairs with which the tenant is chargeable by his lease and which he leaves to be executed by his successor. But the essential point is the just estimation of the quantity of humus contained in the soil. Now those only who know by experience the difficulty and expense of renovating an exhausted soil, can fully appreciate the general and individual advantage of a usage the effect of which is to combine the interests of the out-going with those of the incoming tenant, and their united interests with those of the proprietor and the public."*

The awards of the *revenant bon* are made by two experienced valuators, and in case of disagreement an umpire is called in.

The custom of taking large fines, with low rents, on each renewal of a lease is not uncommon in Brittany, especially in Bas Leon, where it is not unusual, as M. Souvestre states, to pay ten times the yearly rent in a single fine. This is a miserable system, by which the tenant is deprived of the capital necessary for his operations, but advocated by needy or avaricious proprietors on the ridiculous plea that it tests the solvency of the tenant. So it does, with a vengeance; it treats him like the horse which was brought by degrees to live on a single straw per diem; but then he died of inanition.

The old Irish covenants—remnants of feudality—respecting the payment of duty on fowls, pigs, &c., are often introduced into the Breton leases of modern times; a fruitful source of discontent and disputation between the parties concerned.

M. Souvestre describes an amusing scene at which he was present. A friend of his, who had just concluded the terms of a lease with a peasant, demanded over and above a fat pig yearly. The other demurred, declaring that if he were to accede to this he would be ruined. He offered a sucking pig however; this did not satisfy the proprietor. The result was, the notary who wrote down the terms of the agreement, inserted *un cochon ramonnable*.

Farming on shares is common in this poor country with the petty proprietors. The landlord provides the capital and divides the profits with the tenant, the returns being commonly made in kind; the landlord has his own stores for grain, &c., and only receives in cash his share of the sales made at the cattle and horse fairs. This primitive mode, which can never establish an independent yeomanry, is highly objectionable, and ought never to exist except under the unfavourable circumstances of a new county. Yet the peasantry, who thus submit to the continued and suspicious surveillance of their masters, are, though dependent in some respects, better off than day labourers anywhere, and far more comfortable than the majority of the small farmers in Ireland.

The class which most nearly resembles them in the latter country is that of the dairymen, who pay for each cow a fixed sum, or a given number of firkins of butter to the graziers, who hire out to them the dairy cow, and provide pasturage and winter keep for them;—a class of the Irish peasantry too in Connemara enter into engagements with the proprietors and larger farmers to plant the Potatoes, manure the land, and give half the crop to the landlord; this usage, however, loses its analogy with that on Brittany in two important particulars—the duration of the agreement, which is but for a single year, and its application to Potatoes alone. Mr. Jagoe, one of the most intelligent witnesses examined before Lord Devon and the other Land Commissioners, has recorded his opinion that "If that system were introduced more generally, it would be a very favourable change in comparison to the cow-acre system." He continues thus without perhaps knowing of the existence of the same usage in Brittany. "Through the greater part of Italy land is cultivated on the Metayer system, which is, that the landlord builds a house, and drains the farm if requisite, and the tenant and landlord at the end of the season divide the crop or the produce of the farm. The Metayer is bound to send the landlord's portion of the crop either to the market or to the landlord's granary."

He does not even always find the seed, and only pays half the land taxes. Yet, if the tenant has sufficient capital, it is better for him to cultivate upon his own account. We like the notion of independence, and would therefore endeavour to save him from the continued and vexatious inspections of the landowner or his bailiff. There is under this system a want of perpetuity or reasonable certainty of continued tenure.

If the tenant portion of the Breton farmers who, from the termination of the exactions of the feudal system in the 14th century to the revolution at the close of the last, were unable or unwilling to reclaim the lands, it is not to be wondered at, that with very short leases and some uncertainty of possession, they should have made but little progress in cultivating them, or even in draining or otherwise improving their meadows and arable fields. Under the previous circumstances the seigneurs and their tenants were connected by the strong bonds of hereditary attachment; the latter had no apprehension of being dispossessed of their farms, nor the former any disposition to remove them. As far as mutual confidence was concerned, a strong motive to industry was not wanted; yet apathy, ignorance, prohibitory clauses against innovation in the existing usages, and blind attachment to the primitive system of grazing, which required no exertions of labour (and which was perhaps inevitable from the paucity of labourers comparatively with the extent of country), concurred to prevent the introduction of improved methods of husbandry. To these obstacles must also be added the poverty of the province, the almost impassable state of the farm-roads, the total dearth of calcareous manure in the interior of the country, and the want of chemical knowledge to supply artificial fertilisers. Such a combination of circumstances has always rendered it exceedingly difficult and uninviting to the owners of those wild tracts individually to undertake the reclamation of them.

At the first revolution, too, many of the titles of the proprietors to their estates were lost, intentionally destroyed, or so intermingled with enormous masses of deeds scattered so promiscuously in the bureaus, that their recovery was a mere chance, and the arrangements between parties concerning the properties affected by them, often became subjects of hard dealing, dishonesty, and compromise of rights; fraud, imposition, and chicane aided in prolonging difficulties as regarded the rights of individuals, and years passed before order was restored.

The industrial resources of the province are now in a course of progressive, though slow, development—peace is producing her fruits in civilization and agricultural advancement—yet the lands which occupy a large portion of the superficial area of Brittany are yet, comparatively, in a state of nature. The existing causes of this continued negligence may be thus summed up:—

1. The natural infertility of the soil, whose surface is a thin covering of vegetable detritus and silicious sand; the subsoil being either argil or rotten schistus, with a very shallow layer of silex intervening, called *prit-prat*, which frequently contains oxide of iron. In summer, when there is rapid evaporation of moisture, the earth becomes too dry; in winter, from the opposite defect, it is difficult to work it. The vegetable matter on the surface consists principally of Heath (Erica vulgaris), and Furze (Ulex europæus), no very promising kind of soil it must be admitted for cultivation.

2. When property was sold after the state of anarchy alluded to, a considerable part of the "landes" had been confiscated with other property of the seigneurs, which were purchased by numerous small farmers from whom it would be almost impossible to purchase their different shares* so as to enclose them in one ring fence; for if any intermediate owners were indisposed to sell their lots or asked extravagant prices for them, a difficulty somewhat similar to that which the Irish land proprietor finds in squaring his farms and concentrating detached holdings would meet him and prevent the desired alteration.

3. Many communes (or parishes) possess rights of commonage on the landes which they obtained from time to time from the seigneurs, and as their inhabitants obtain from the surface heath sufficient to thatch their cabins, litter for their cattle, and a little scanty herbage for their stunted cows and sheep, they would think it unnecessary to teaze the ground with ploughs and harrows, or to drive a spade into it, even if by some mutual understandings with their neighbours they obtained the privilege of enclosing allotments—such is the indolence and stupidity of these people.

4. The want of enterprise and adequate capital among the natives for large operations, especially if the results be problematical.

5. The marked dislike which they have to the interference of strangers among them, especially if these have not Breton blood, and be ignorant of the Breton tongue.

(*To be continued.*)

* Souvestre.

* We have known seventeen families to live in one great chateau and its offices, near Lannion, joint proprietors of the property on which it stands, and disagreeing about the terms of partition, to the injury of all the parties concerned.

THE DEANSTON SYSTEM OF DRAINING AND DEEP WORKING.

[We take the following important communication from a report in the *Dublin Farmers' Gazette*, of a late Council meeting of the Agricultural Improvement Society of Ireland.]

"The great leading proposition of the Deanston system is, that the land for agricultural purposes shall be rendered uniformly and thoroughly dry, and that the soil shall be deeply worked. In order to obtain these important objects, it is necessary that the following rules be implicitly followed; for an imperfect adoption of the principles laid down, or a defective execution of the work to be performed, will, in effect, destroy the character of the system. The first point to be attended to is to see that a sufficient outfall for the drainage water is available, for the extent of land to be thoroughly drained, whether a district, a farm, or a field. In many situations the rivers and brooks which afford an outlet for the natural surface drainage are too high in the surface of their beds, even for complete surface drainage, and especially in times of flood in flat districts. When under-draining is to be effected, a fall of at least 4 feet from the surface is requisite, to ensure at all times a free discharge for the drainage water. The improvement of the outfall by the larger rivers becomes a public work, and has so far in Ireland been accomplished under the Commissioners of Works. The outfalls by the lesser streams, and by artificial cuts, or water courses, is so far provided for by the Drainage Act. There still remains the immediate outfall, which can only be provided for by the large proprietors, who possess whole drainage districts, or by the wise and friendly co-operation of smaller proprietors, where the drainage district is divided into separate possessions. The direction of plans for such operations will require special engineers for each respective locality, all, however, subject to these general rules. That all natural or artificial barriers to the free flow of the stream should be removed or modified, as far as circumstances will allow—that the channels of the rivers or streams should be made as ample as circumstances will admit—that the line of direction shall be as straight as the nature of the ground will allow, and that an uniform width of channel shall be adopted. When rivers continue their course in a long valley, where there is much flat and valuable land, and where the channel of the river cannot be got sufficiently deep to avoid overflowing in floods, then embankments should be raised up to protect the low lands from overflowing, and the outfall for the under-drainage of such lands should be provided for by an artificial cut, having its outfall into the river, at the lowest point which can be reached. The outfall being sufficient from the natural position of the ground, or having been obtained by artificial means, the district, farm, or field is in a position for the effective carrying out of the Deanston system. The surface of the water in the main outlet of the farm should, in its whole course, never be less than 4 feet under the surface of the ground. Circumstances, however, in many cases, will not admit of so much, and the compliance with this rule must, therefore, be judged in reference to the peculiar circumstances of each case. The frequent drains designed to give the character of thorough drainage to the land should be set off in the direction of the greatest descent as indicated by the general inclination of the surface of the field. They should be set off strictly parallel to each other, and where not interfering much with the proper line of declination, they should be parallel to the fences. The lines of drains should be carried uniformly over the whole surface of the field, without reference to the apparent wet or dry condition of the soil. There should be a receiving drain formed at the bottom of each field, which drain should be 9 feet or thereabouts distant from the fence, especially if it is a live fence, or if there be any hedgerow trees. This drain should be at least 6 inches lower in the level of its bottom, than the bottoms of the frequent drains, which discharge their

water into it, and the open of the drain should be ample in proportion to the area of the field. All open ditches should be filled up by forming a conduit with stones or tiles in the bottom, and filling in earth to level it up to the surface of the field. Where any hollow intervenes in the area of the field, it is necessary to put in a sub-main drain, similar to the one described, as the receiving drain at the bottom of the field; and such drain should be placed so as to conduct the water in the most direct course to the nearest outfall.

"The distance of the parallel drains from each other should never be more than 25 feet, and need not be less than 15 feet. If placed at more than 25 feet apart, the laws of percolation do not admit of a sufficiently quick passage of the water, to ensure, at all times, thorough-drainage. If placed nearer than 15 feet, an additional expense is incurred, without a corresponding benefit. In practice 21 feet apart has been found to be an arrangement suited to effect thorough-drainage in all soils. A fixed rule is always desirable, when it can be adopted, without risk of much unfitness; I, therefore, advise the adoption of 21 feet as the regulated distance. The depth of the frequent drains should not be less than 30 inches from the general surface of the field, when levelled down, and need not be more than 36 inches. Indeed, a greater depth is in most circumstances injurious, as the subsoil in the region immediately above the level line of the bottom of the drain is too far from the influence of the atmosphere to permit the absorption of the moisture in dry periods. In cutting the drains the plough may be used as an assistant, by taking out the first 10 or 12 inches of the soil. The drains should be cut as narrow and as straight and uniform in the sides as the nature of the soil will admit. All stones of whatever size interfering with the line of the drain should be removed. The bottom of the drains should not be more than 4 inches wide, and even narrower where tiles or tubes are to be used. The bottoms should be cut in as smooth and uniform a plane as possible, to insure the free and uniform flow of the water, and to form a proper bed for tiles or tubes, when such are used. As to the material with which the open of the drain is to be maintained for the free passage of the water, it may consist of any durable matter arranged in any fitting form. What I especially recommend is—1st, stones gathered from the field, of a size not exceeding 2½ inches in their greatest diameter, or stones broken from large masses to that size. Tiles, either of the horse-shoe section with soles, tubes of tiles not less than 2 inches in internal diameter, or any other suitable material made in any suitable form.

"In laying the material into the drain it is necessary to do it with care, and to place the whole in as uniform a manner as possible. When soft places occur in the subsoil, or where running sand prevails, I recommend that the drain should be cut a little wider and deeper at such places; and that a thin turf or scraw be laid, and the stones or tiles, or, in the absence of turf, a quantity of stiff clay, well trampled in, will suit as well. Where broken stones are used for filling, they should be carefully thrown in with no earth, and as little debris of the stone as possible amongst them. They should be put into the depth of from 6 to 8 inches,* and be dressed to an uniform surface at the top. Over the stones a thin turf or scraw should be laid, all along, with the grassy side down, the turf to fill the drain from side to side, and the joining at the ends of the successive scraws should over-lap each other, so that no opening shall be left for soil to get in amongst the stone. Over this turf or scraw a portion of the stiffest and most sterile of the subsoil should be filled in to the depth of 4 or 5 inches, and that should be well trampled down, the purpose being to seal completely the top of the stones, so that no soil may find its way through; and no water, except by filtration after the soil shall have partially opened from its dry position. The superincumbent layers of the soil put in should also be compacted by tramping, as there is nothing more injurious to drains than loose earth filling in, whereby water is allowed to accumulate in wet weather, to the great danger of filling the open of the drain with silt. In filling over the tiles or tubes, turfs or scraws are unnecessary, unless the subsoil is very free and sandy. A quantity of stiff and pure clay makes the very best covering, and should be well tramped, care being taken not to break the tiles. The successive layers of soil should also be carefully compacted. The surface or active soil should never be put into the lower part or the drain, but should be kept as the surplus to throw over the general surface, or to fill up hollow furrows.

"After the draining has been accomplished, the breaking up of the subsoil is essential to its thorough effect. This should not be attempted except in free soils, until the drains have been in operation for 12 months; and in very stiff and plastic clay, it should not be attempted for two years afterwards, unless after a very dry season. The moving of the subsoil may be accomplished by the subsoil plough, by the spade, by the fork, by the mattock or by the crowbar, as may suit the convenience of the party. In Ireland, where labour is plentiful and cheap, those methods requiring manual labour are to be preferred. In moving the subsoil, the active soil should be carefully preserved on the surface, unless where the active soil has been exhausted, and when the subsoil is of a nature to become at once active soil. When a field has been thoroughly drained, and the sub-soil stirred, the surface should then be levelled down to an uniform plane, as being the form best fitted for ensuring uniform dryness, and uniform condition of the soil, and as facilitating almost all agricultural operations, and as tending to afford the most uniform and abundant crops.—*James Smith, of Deanston.*

"To Edward Bullen, Esq., Secretary of the Irish Ag. Soc."

* At one time I recommended 12 inches of stones to be put in. I am now satisfied, from greater experience, that 6 or 8 inches of stones *well secured* are quite sufficient.

Home Correspondence.

Draining.—The writer of the Leading Article in the *Agricultural Gazette* of February 14, on the subject of "Drainage," states that the cost per acre for surface draining of the common clays of this country is from 5*l.* to 10*l.* It is probable that in some cases this may be true, where the extreme tenacity of the soil may require the parallel drains to be placed within 10 or 12 feet of each other, but this must be considered the exception and not the rule. For several years I have made all sorts of pipes and tiles for deep (or spring) and surface draining both for my own property as well as for sale, and as far as the extensive practice of draining in this district may be useful to your readers, it is at their service in the following details. I shall confine myself entirely at this time to surface draining, from 30 to 36 inches deep. I will assume that the parallel drains discharge themselves individually into a water-course or ditch, that they are placed 24 feet apart from each other, and that the drains are cut from 30 to 36 inches deep. The pipes used, to be 2 inches in the bore, and 15 inches long. This will give about 5 score and a half of rods to the acre, which at

5*s.* 6*d.* per score (a full price) is	£1	10	3
14 pipes to the rod, being 1540 to the acre at 27*s.* per thousand, the price in my yard	2	4	6
For the acre	3	14	9

To this of course must be added the delivery of the pipes to the work, charged according to the distance of cartage. Some farmers put 2 or 3 inches of stones or the clippings of hedges above the pipes before the earth is filled in; to this there can be no objection, but I believe it to be entirely unnecessary. If, however, mains are required to catch and carry off the water from the parallel drains, this must, of course be an additional expense, but it cannot be calculated at more than from 2*s.* to 3*s.* per acre. It is our practice to make these mains of good sized tiles doubled upon each other, and which are placed 3 inches deeper than the pipe work, and a main often carries the water from 10 to 15 acres. Smaller pipes than those I have described above are recommended by Mr Pusey, Mr. Parkes, and others, only because they are cheaper, but they find no advocates here, except my friend Mr. Mechi (whose farm is in this neighbourhood). These 1-inch pipes are, in our view, insecure; they readily "silt up," and in wet weather they cannot be safely placed; and when a tenant or proprietor contemplates an outlay, for security for an indefinite time, the additional cost of 10*s.* or 12*s.* per acre cannot be worth a moment's consideration. Many lauded gentlemen are now preparing to erect establishments for making draining goods, and it is highly important that they should select clay adapted to the purpose, or they will spend their money uselessly. I advise such persons to have their clay well tested before they begin, and as this work is usually let by contract, it is equally important that they should have the tiles and pipes well burnt. I know that large quantities of both tiles and pipes are used, which will break down so soon as they come under the combined action of air, water, and frost. Imperfect draining is worse than no draining at all. Machine makers promise largely, and want looking to. All is not gold that glitters.—*Henry Dixon, Witham.*

Subjects for Farmers' Clubs.—There are three paragraphs in your Paper of the 14th inst., the subjects of which it may not be amiss to bring together in one point of view. The first is headed "A few Passages from a Fen Labourer's Account of his own Life," which account gives occasion to your correspondent "J. A. C." to make mention of several means of bettering the condition of agricultural labourers, such as the allotment system, benefit clubs, clothing clubs, and schools for the children. The second paragraph I allude to is "On the Utility of Farmers' Clubs," signed "Wm. Glover," and the third is, "Savings Banks improve the Condition of the Labourer," signature "J. H." Amongst the many questions which members of Farmers' Clubs may be called upon to discuss, surely this is or should be a very prominent one, namely—How can we best promote the interests of those on whose industry and skill we are ourselves so necessarily dependent? Now, such a question is to a great extent answered in the communications above noticed. And well would it be if the individuals constituting Farmers' Clubs would turn their attention to these things, and aim at securing the services of a contented able-bodied and industrious peasantry, by encouraging measures such as are here proposed.—*Thos. Randell, Bradley, Feckenham.*

How is Phosphate of Lime rendered available as Food for Plants?—Mr. Bree's answer, given in p. 91, to this question, proposed in page 43, is not satisfactory. He asserts, indeed, that carbonic acid has the power of combining with a proportion of the lime in bones, thus displacing one equivalent of phosphoric acid and converting the insoluble into the soluble phosphate; but he does not assert that he can, in his own laboratory, cause carbonic acid to effect this decomposition, so contrary to the known habitudes of that acid; nor does he quote any authority to that point; therefore, until he does so, I must conclude that he has never put the matter to the test of experiment, and that he asserts what he supposes to be the fact, but what neither he nor any chemist has hitherto proved to be so. Mr. B.'s explanation of the process may possibly be the true one, but it must be made to rest on other grounds than mere supposition, before it will be deemed satisfactory by—*P. P.* [You *suppose* that this explanation rests on mere supposition; you cannot assert it. Did you see Mr. Gyde's answer to your question? That contained a reference to *experience*.]

The Doctrines of Animal Physiology.—Albumen, casein, fibrin, and gluten (whether animal or vegetable), consisting of the same elements, apparently in the same proportions, most of the eminent agricultural chemists of this day have come to the conclusion that the daily waste of fibrin in the living animal will be restored if the food contains a corresponding amount of albumen, casein, fibrin, or gluten; and the farmer has been led to suppose that to attain his object of enlarging the muscle of his feeding stock it is immaterial in which of the above forms nitrogen is administered, and theoretically the conclusion appears sound. Let us, however, examine it by the test of experience. The constitution of different animals and of the same animals under different circumstances, and the power of such animals to digest and assimilate different kinds of food do not appear to have their due share of attention; it having been assumed that if carbon, nitrogen, &c. are abundantly provided, it matters little in what form. A single instance may perhaps suffice to explain the meaning of the writer, and to induce attention to the subject on the part of others better qualified than himself to deal with it. A ploughboy, with his appetite sharpened and his system braced by exercise, can readily digest sufficient cheese (casein) to supply the waste of his muscular fibre; but the sedentary man must repair his wasted system from nitrogenised food in some other form; casein he cannot take in sufficient quantity. The horse also, when regularly hard worked, is all the better for a good allowance of Beans (casein); whereas with little work, and the like allowance of Beans, but his other food lessened, his body would be heated and his general health deranged, for which the best remedy would be a change to Oats (gluten). From the foregoing remarks, it seems probable that those descriptions of food in which nitrogen is found in the form of casein, will be found best adapted for such animals as are required to labour, and that for feeding stock reliance should be placed principally on those descriptions in which it is found as albumen or gluten, which promise to be more readily assimilated. I do not wish to detract in the least from the praise which is justly due to such men as Liebig, Johnston, and Playfair. I read their works and appreciate them; but it is possible they may be wrong in some of their deductions, and as it is not with their chemistry but with their deductions I differ, perhaps I shall not be deemed over presumptuous.—*G. B. C., Manchester.*

Thistles.—At page 74, a writer remarking on the vitality of seeds, says that from some weeds we have nothing to fear from their seeds, and in reference to the common Thistle, observes he should like to see the person who can raise a bed of plants from its seeds. Your correspondent may have ocular demonstration of the fact that the Thistle will propagate itself from seed, if he follow the example of a friend of mine, who, having frequently heard the same assertion, but doubting its correctness, was induced to satisfy himself on the point by a simple experiment. This was done by collecting seeds from heads of the same Thistle, but differing in the degree of ripeness they had attained, and planting the seed from each head in separate pots. The result was that every seed, to all appearance, vegetated, the only observable difference being that the more fully matured seeds made the greater progress, and I had the opportunity of witnessing them growing with all the luxuriance of a bed of Cucumbers. Thus far, the generally received opinion that Thistles will not propagate from seed is erroneous. As regards Grass-land, there can, however, be no doubt that constant cutting is a means towards effecting a cure; but the most effectual, as well as perhaps economical method in the end, is to employ women and children to pull the Thistles by hand, when there is sufficient moisture for that purpose. When this latter plan has been pursued, it has resulted not only in the extirpation of this noxious weed, but in the very perceptible improvement of the pastures.—*F. D. H.*

To Cure Bacon—as large as "Curly Tail's:" To each flitch put common salt, 6 lbs; saltpetre, half a pound; salt prunello, 1 oz.; to be rubbed and turned every day and let them remain three weeks in pickle, and get them dried in a malt house; when it is cured, "Curly Tail" can send me a rasher to try; we have cured it this way for the last fifteen years.—*N. N.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held at the Society's House, in Hanover-square, on the 25th of February; present—Sir Charles Lemon, Bart., M.P., in the chair; Earl Spencer; Viscount Torrington; Hon. Captain Howard, M.P.; Sir John V. B. Johnstone, Bart., M.P.; J. Adams, Esq.; T. Alcock, Esq.; B. Almack, Esq.; G. Raymond Barker, Esq.; S. Bencraft, Esq.; H. Binsted, Esq.; F. Burke, Esq.; H. Burr, Esq.; Dr. Calvert; Rev. Thomas Cator; F. C. Cherry, Esq.; W. Cuthbertson, Esq.; G. Dyer, Esq.; J. Edwards, Esq.; A. E. Fuller, Esq., M.P.; H. Gibbs, Esq.; B. T. B. Gibbs, Esq.; G. Gurney, Esq.; J. H.

Hulme, Esq.; J. Kinder, Esq.; A. Majendie, Esq.; W. Miles, Esq., M.P.; E. W. W. Pendarves, Esq., M.P.; Professor Sewell; S. Solly, Esq.; and T. Turner, Esq.

The following new Members were elected:—

Jackson, William Kay, Barbot Hall, Rotherham, Yorkshire.
Markby, John, Duxford, Cambridge.
Widdrington, Captain, R.N., Newton Hall, Northumberland.

The names of 13 candidates for election at the next meeting were then read.

Potatoes.—Mr. Evelyn Denison, M.P., of Ossington, Nottinghamshire, communicated in a letter to Mr. Pusey, M.P., the following results of his experiments in the planting of single Potato-eyes:—

"*Ossington, Feb. 23, 1846.*

"At this moment of renewed alarm about the Potato crop, and the anticipated difficulty of providing seed for the wants of Ireland, I send you, according to your desire, an account of the experiment tried here last year, of planting single eyes of about the size of a nut, cut out of the whole Potato. Last year, about the middle of March, my gardener was planting early Potatoes, the Ash-leaved Kidney. It occurred to him, as an experiment, to cut out some of the best eyes from a certain number of Potatoes, and to plant these in rows side by side against whole Potatoes. The eyes were cut out with a common knife, and planted at once as they were cut out. The piece was cut out in the shape of a one-inch sided triangle. The sets from these single eyes brought in every case the best crops. From three roots there were one peck of Potatoes. One Potato weighed 1¼ lb. The tubers were generally large, weighing nearly ¾ lb. each. The plants rose with one single stem from the ground, which was strong and vigorous. They were not so early by a fortnight as those from the whole Potatoes. This may perhaps be accounted for by the circumstance, that in many cases the eyes of the whole Potatoes had made strong shoots when they were planted; but eyes which had not sprouted were chosen for cutting out, as being better suited for the operation. Another experiment of the same kind was tried with second-early Potatoes, called American Natives, with exactly the same results. I have at this moment a crop of early Potatoes under frames, grown from single eyes, which look most promising. The advantages which this plan holds out, seem to be these:—1st. In a time of scarcity several eyes may be cut from a single Potato, and almost the whole Potato is still available for food. 2d—If sets have to be sent from a distance, as from this country to Ireland, the bulk, and consequently the expense, would be materially diminished. 3d—By a little timely attention, by inducing parties to cut the crown off each Potato now in the course of daily use, an immense supply of seed might be procured, almost without expense. For the last three months I have had the crown, about the size of a Walnut, cut off every sound Potato consumed about this place. I have saved in this way a very large supply of seed for the spring. The eyes in these small pieces, cut off as long ago as three months, look quite fresh and well, and are pushing like those in the whole Potatoes. Here my experience ends; to make the case complete it would be necessary to have proof that the eyes from the crown of a Potato cut some time before planting would answer as well as those fresh cut. Of the apparently certain success which attends planting a single eye fresh cut, I have a very strong corroboration from the practice of the clergyman of a neighbouring village, Mr. Chell, of Knecsall. My gardener has been to Mr. Chell to-day, to obtain the exact particulars. He has been in the habit for 12 years of planting single eyes, making use of the remainder of the Potato for food. He has tried single eyes against whole Potatoes and cut Potatoes; and has always had the best crops from single eyes. He now plants nothing else."

An interesting paper having been also read from Mr. Southworth of Merebrow, Tarlton, near Ormskirk, on the same subject, containing the results of his practical experience on several points connected with the cultivation of the Potato, especially in reference to the importance of raising Potatoes intended for seed from poor soils, instead of rich ones, Sir Charles Lemon referred to the series of experiments carried on at the Horticultural Society's Gardens, by Mr. Knight and Dr. Lindley, to ascertain the best conditions under which the Potato-plant could be grown. Sir Charles Lemon and Sir John Johnstone adduced their testimony respectively to the advantageous practice in Cornwall and Yorkshire of growing seed Potatoes in a poorer soil than that in which they were afterwards intended to be cultivated. Mr. Fuller, M.P., Prof. Sewell, Mr. Miles, M.P., the Rev. Mr. Cator, and Dr. Calvert, also favoured the Council with the result of their experience on the subject of the decay or preservation of Potatoes in their respective localities, under certain circumstances.

Growth of Plants.—Mr. Pendarves, M.P., introduced Mr. Gurney to the meeting, when that gentleman detailed to the members present the plan of his operations for ascertaining the cause of that remarkable increase of vegetable growth which results from the application of a fibrous covering, such as that of straw or brushwood. The Council requested Mr. Gurney to prepare a written statement in detail on the subject, for the purpose of enabling the members to undertake those practical experiments of his plan which it was the object of his communication to suggest.

Mr. Harrison, of Devizes, transmitted to the Council a paper on the Manufacture of Draining Tiles; Dr. Calvert, a plan of his proposed Lecture and Exhibition of Grasses, at Newcastle-on-Tyne; the Count de Guyon, a letter on the subject of Agricultural Machinery; the Royal College of Chemistry, a communication connected with the application of Chemical Science to the Requirements of Practical Agriculture; and the Rev. Thomas Cator, a notice on the question of the height at which Wheat can be grown on the Welsh Hills, in comparison with that at which it is now grown in Scotland.

The Council then adjourned to Wednesday next the 4th of March.

AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

At the Meeting of the Council on Feb. 12, 1846, the Secretary stated that he had addressed letters to the agents of the several noblemen and gentlemen who had competed for the different gold medals of the Society for thorough-draining last year, requesting them to send in returns and particulars of the effects of the same upon the different lands since the work was executed, including tables of the relative increased value and improvement of the soil, and the general effect that the operation itself has had upon it.

In reply to the above, a letter was read from Mr. William G. Andrews, of Comber, to whom the gold medal of the Society was awarded on that occasion, stating that he found it difficult to extract from the tenants any accurate account of the comparative produce of the drained and undrained lands, on which he could rely. They invariably admitted a great increase in their Potato crops, which they estimated, however, in the most vague terms, varying from a half to a sixth; but none of the tenants in occupation had made any accurate calculation of the relative quantity of any crop either before or after draining. The texture of the drained soil was evidently much improved, and it was manifest that even the pasture on the drained lands was preferred by the cattle, that on the undrained being invariably deserted by them, when the choice was offered to them. It was his opinion, however, that as thorough-draining was only the first step in the improvement, and as the full benefit of the process cannot possibly be expected until after subsoiling and deepening the land, filling up useless and injurious gripes and hollows, and substituting straight and regularly-trimmed hedge-rows for the crooked and cumbrous banks which now cover the ground and retard cultivation, be added; and as none of these measures have had time to be carried out to any extent, including all the other requisites of improved and proper rotation—green-cropping, house-feeding, and the judicious application of manures, &c., no satisfactory estimate could yet be made of the absolute increase in produce or value. It was his opinion, however, that when these different improvements shall have been properly carried out on the lands in question, and particularly in some of the neglected parts of these different estates, the increase of value and produce will be more than one-half, and will vary in the more improved parts from one-third to one-fourth at least.

Farmers' Clubs.

SUBJECTS FOR DISCUSSION.

11. Agricultural Statistics.

Importance.—Complete agricultural statistics, properly arranged, would constitute a perfect record of agricultural experience—perfect as regards both accuracy and fulness. They would teach us both the methods and the results of farm practice in every district of the kingdom. They would supply information to guide the labourer in his search after employment—the farmer in conducting his business—the landowner in the management of his estate—the capitalist in seeking for a profitable investment—and the Legislature in some of its most important functions. Are there any "practical" men who still laugh at the theoretical teachings of the chemist or geologists? Then let them aid in the collection of agricultural statistics, and thus create a source whence instruction more to their taste may flow—instruction based on recorded results, not on mere opinions or anticipation. Are there others anxious to increase the usefulness of "science" to agriculture? let them also aid in this work, and thus supply an extensive basis of facts, on which scientific lessons and suggestions may more securely rest; and we may further ask—are there any afraid that an ignorant landlord will regard every instance of success every improvement in farm practice which may thus be brought to light—as so many reasons to justify him in raising their rents? then let them aid in bringing before him an array of facts which will infallibly remove that ignorance—which will teach him, by reference to facts, the risks and losses and disappointments to which every change of weather—every passing epidemic—renders the farmer liable, and which will point out to his attention the facts that land for the most part is valuable only as capital is employed in cultivating it, and that a liberal treatment of tenants is thus the surest road to the ultimate advantage of the landlord.

Subjects Embraced.—The statistics of British agriculture embrace everything that can be said on the subject in its aspect all over the kingdom at any one period. They would inform us on the nature and extent of the several crops grown—whether permanent Grass, Wheat, Turnips, Barley, Clover, Oats, Potatoes, &c. &c.; they would state the mode of cultivation adopted in every case, and this would involve an account and numerical statement of the labour employed, the implements of cultivation, and the draught power employed, the manures used, &c.; they would state the acreable and total amount of the several crops grown, and what was done with them, and this would involve a statement of the live stock kept on the land, and the machines employed in converting some crops, and preparing others for market; they would also state the condition of the labourer, the wealth of the tenant, and the relationship existing between him and the landlord.

How are they to be compiled?—This is the most important question we can ask; for the only objection to the attempt is, that unless an accurate statement be obtained it may seriously mislead. We venture to suggest the task to Farmers' Clubs, and we shall shortly consider how their efforts may be best exerted.

Newcastle-upon-Tyne: *Thorough-draining.—Feb. 7.*—Mr. Robson, of Sunniside, agent to Mathew Bell, Esq., M.P., Woolrington, Northumberland, introduced this subject. After some introductory remarks, and an allusion to the general recognition of the advantages of thorough-draining, he entered upon the consideration of the best modes of carrying out this profitable improvement. Some, he observed, were satisfied with a depth of 18 inches; they then deposit a tile without a sole, and cover it with thorns, gravel, and other porous material. Others, in the same description of soil, insist on the depth of 3 or 4 feet—used a pipe of an inch bore—and fill in with strong clay, hard rammed down. One of the two modes must be erroneous, or, at least, they could not be equally efficacious. He would state the results of his own brief experience on the lands with which he had to deal (strong clay soil on retentive subsoils), and support his principles and practice by corroborative evidence from men of much greater experience in thorough-draining—by which he meant a complete and uniform dryness of the land, effected at the least possible expense. As agent to Mr. Bell, he had overlooked, and in a great measure superintended the whole of the drainage on that gentleman's estate for the last five or six years, during which period an expenditure had been incurred in draining-tiles alone considerably exceeding 1000*l.* When thorough-draining was first practised in this neighbourhood, the prevailing idea was, that to lay land dry, and especially clay land, drains could not be placed too shallow, so long as the tiles were not interfered with or disturbed by the common plough, or horses' feet, and that the material for filling in could not be too porous. Among those who once approved of this system, he might number himself, but experience had convinced him of his error. The first steps in improvement were the rejection of all more porous materials for filling in than the surface soil, the deepening of his drains to 2 feet, and the use of a sole with the drain-tile. But, within the last 18 months, he was satisfied that he had adopted a still better system, viz., to cut the drains to a depth of 2½ feet below the furrow, and to fill up with the clay that had been thrown out in cutting. The distance of the drains apart, their depth and direction, were matters that must vary according to circumstances. His own practice had been to make the drains from 15 to 20 feet apart, and, latterly, 30 inches deep (the main drains 3 feet). Where fields lay in high ridges, he had varied the distance from 15 to 25, and even 30 feet. The furrow which took the greatest declivity was the most economical and proper inclination. Much difference of opinion prevailed on the subject under consideration among farmers of the district, and especially as to the filling in. The results of his own experiments, on the Woolrington farm, where he had filled up the cuttings with clay, in place of loose soil, had been all that he could desire. The land had been firm and dry, and the Wheat crop, last season, was greater than was ever known to have grown there aforetime. To fill in with clay was a practice generally condemned by his neighbours. It had been ascertained, however, on land perfectly drained, that the water descended, not through the filling, as was supposed, but through the fissures produced by the contraction of the clay after drainage. It then entered the drains at the bottom free from all impurities it would be loaded with if it sunk through a porous filling; and it was therefore recommended by experienced drainers, that the most proper material was the most impervious. The contrary practice had been the ruin of scores of miles of drains, and the loss of thousands of pounds to their enterprising constructors. Mr. Robson quoted Professor Johnstone as an authority for deep draining and clay filling, and observed that by the former, namely, deep draining, the depth and fertility of soils were increased. The farmer was enabled to work that useful adjunct to draining, the subsoil plough, by means of which the water was allowed to sink perpendicularly to the drains and the roots of plants were enabled to penetrate further in search of sustenance. Where drains were shallow, and the covering material porous, the water entered in an impure state, and in time the duct was choked—Mr. Spencer, of Park Farm, near Wortham, the "father" of deep draining in Kent, had written to Mr. Parkes, consulting engineer to the Royal Agricultural Society, stating that experience had taught him to have his drains 42 inches to 52 inches deep, and from 24 to 34 feet apart, in the strongest clays, and from 48 to 60 inches deep, and from 50 to 60 feet apart, in more porous soils. He had formerly made his drains shallow, but in 1830 he drained a field 3 feet deep, in which the drains were previously only 2 feet deep. To his surprise, he then found the shallow drains useless. He tried a drain 4 feet deep in the same field, which, after rain, always ran the first and the longest. The result of this experiment led him to double the depth of his drains, and many shallow drainers had been converted to his plans. Mr. Robson next cited Mr. Morton, of Whitfield, Gloucestershire, the manager of Lord Ducie's "example farm," who practises deep draining and compact filling; also Mr. Arkell, author of the prize essay on draining, published in the "Royal Agricultural Society's Journal" for 1843. The latter gentleman said, "he could not speak too positively on the necessity of making drains at least 30 inches deep in tenacious soils; not but that deep drains were best on all, yet an 18-inch cut might drain a porous soil tolerably well, but on a clay it would not drain far." Mr. Robert Beart, of Godmanchester, Huntingdonshire, was the last authority quoted by Mr. Robson in favour of deep draining and filling with clay. He then considered the best material for thorough draining. His experience in stones had been very limited, but he had no doubt they made the safest drains where a rapid descent could be obtained, and they were placed at a sufficient depth. Tiles, however, when properly used, were quite as efficacious, and, if

properly burnt, about as durable, while a great saving was effected in the carting. The price of tiles had been greatly reduced within the last few years, but would admit of much further reduction, and still leave a good profit to the manufacturer. The lowest price he had paid for the smallest size (viz., 1½ by 2½ inches, and 15 inches long), had been 21*s.* per thousand, and the sole (without which a tile ought never to be laid) would bring up the price to 31*s.* But the pipe-tile was in general use in the south of England, and answered perfectly. He had not tried it himself until November last, when he used it in the drainage of a 9 acre field, and as far as he could judge, the experiment had been successful. The cost of these pipes was 21*s.* per thousand: diameter 2 inches, and length 15 inches. But 1-inch pipes, according to Mr. Parkes, were found equal to surface drainage, when properly applied, even when the descent was moderate; and he (Mr. Robson) had seen a field laid completely dry with pipes at 1-inch bore. In a county which he had visited, a statement had been handed to him of the cost of manufacturing pipe-tiles per thousand. It was 7*s.* 8*d.* for 1½-inch pipes, 10*s.* 2*d.* for 2-inch, and 13*s.* 6*d.* for the larger size. In this neighbourhood, where coals were cheap, 2-inch pipes might be made for 10*s.* per thousand, and a great saving in drainage might consequently be effected. The expense of draining an acre with tiles and soles, in his own experience, four years ago, was 6*l.* 18*s.* A friend had supplied him with cost per acre of draining with pipes, and it was only 3*l.* 5*s.* 8*d.* An interesting discussion ensued, in which the general opinion seemed to be in favour of deep draining and filling with clay.—*William Glover, Hon. Secretary.*

Reviews.

The Journal of the Royal Agricultural Society of England. Vol. 6, Part 2. J. Murray, Albemarle-street.

The present Number is full of very interesting and useful papers, among which are Reports on the Farming of Kent and Cornwall, Essays on One-horse Carts, on Gorse, on Fences, on the Advantages of Reducing Hedgerows, &c.; Dr. Playfair's Lectures on the Potato Disease are also published in it, but we notice it here more especially for the purpose of transferring to our columns a paper by Mr. Pusey on Superphosphate of Lime, in which a simple account is given of the theory connected with the operation of that manure, as well as some striking instances of its fertilising powers.

"In bones, however, the phosphorus, in an acid state, is compounded with lime in such a proportion as to form a salt called phosphate of lime, which water does not dissolve, and which therefore acts slowly upon the roots of crops to which it is applied as manure. Dr. Liebig knew that oil of vitriol (sulphuric acid), if mixed with bones, would take to itself a part of this lime, leaving behind a new salt containing at least a double portion of phosphorus, and therefore called superphosphate of lime, which salt being readily dissolved by water, he hoped would afford a more digestible food for the young Turnip, and the result has answered his expectations. Such is the simple history of this great discovery.

"Hitherto, as I said, the mixture has been applied as a liquid manure, diffused sometimes in 50 times its bulk of water; and it has been prepared in vessels troublesome to procure and liable to be injured by the acid. Availing myself, however, of a suggestion for dispensing even with these, I formed a flat heap of dry mould about 10 feet across, the surface of which was scooped into a hollow basin, capable of holding 20 bushels of ground fresh bones. A little water was poured on, but I have since omitted the water. Sulphuric acid, to the amount of about half the weight of bones, was gradually poured into this basin. They soon begin to heat, seething violently, and sending out a great deal of steam, with a peculiarly offensive stench; presently the whole mixture wears the appearance of boiling blood, and swells so much from the escape of gas, that the workmen stirring it with their hoes must take great care to prevent it from bursting over the sides of the earthern basin. In a short time, however, the cauldron becomes quiet; and the bones disappear altogether, except a few fragments: so that the heap may be shovelled together, and might be drilled on the same day, but this would not be advisable, as some small lumps still half liquid remain in the compost. On the first occasion the earth and dissolved bones were left mixed together; and though perfectly cool when so left, I learned, on returning, after six weeks' absence, that a second heating had soon taken place, and found that the heap was hot still. The offensive smell was gone, and was replaced by the musky odour of rotten dung. I mention this circumstance because I am anxious to draw it to the attention of chemists. This second fermentation may be that of the animal matter contained in the bones, and may bring out its ammonia; if so, it will be a question whether it be desirable thus to give time for the formation of ammonia before the manure is applied; or whether it be better to drill the compost at once, allowing the ammonia to be produced under ground, and so be supplied to the young plant more gradually.

"The compost thus made was tried in July on some light land very much exhausted, and naturally unkind for the growth of Turnips. The trial ground was about 3 acres. On one part the compost of bones and acid was drilled at the rate of 4½ bushels of bones to the acre; on another part, bones at the rate of 20 bushels an acre; and I added, on a third part, a manure (purchased from Mr. Fothergill, under the name of superphosphate of lime) at the rate of 2 cwt.

"The bones and acid took the lead of the bones, and kept it throughout. I am bound to add that the superphosphate prepared by Mr. Fothergill not only surpassed the bones, but also that which I had manufactured myself. Possibly the quantity of Mr. Fothergill's may have been too large for comparison; but though I think my own method of preparing superphosphate a convenient one, when the bones are at hand, it appears also that if we can ensure the delivery of a genuine article, it will be still better to buy this manure ready made. In this trial there could be no doubt that all the three forms of bones acted strongly, for the crop grew vigorously where they were used, while on spots where they were purposely omitted, it could scarcely be said to grow at all; and though, from late sowing, and from being left too thick, the Turnips had not time to come to maturity, the result was quite decisive for our present comparison. About a fifth of an acre was weighed on each piece, with the following results:—

Manure per Acre.	Cost.	Yield of Turnips.
1. 20 bushels of bones ..	55*s.* ..	44¼ cwt.
2. 4½ bushels of bones with 100lbs. sulphuric acid ..	22*s.* ..	49½ cwt.
3. 2 cwt. Mr. Fothergill's superphosphate	14*s.* ..	53 cwt.
Present price ..	17*s.*	

"The saving of immediate expense by Dr. Liebig's discovery is certainly very great, if we take it only as from 55*s.* to 22*s.* per acre on the Turnip land, which should be one quarter of the whole acreage of a light arable farm. The trouble of preparation is slight, and of its application next to nothing: for Mr. Hornsby informs me that his Turnip-drill will distribute equally as small a quantity as 15 bushels over an acre; as then the 4½ bushels of dissolved bones do not require to be mixed with more than 10 or 15 bushels of earth, and his drill holds 25 bushels, the use of this compost would not require more than one stoppage for filling the drill on each acre.

"Mr. Fothergill's preparation, if the quantity assumed be correct, was still more successful, and having tried it elsewhere I am enabled to speak most highly of it. A neighbour, to whom I supplied some, found that 2 cwt. of this superphosphate, costing then 14*s.*, answered better on his land for Turnips than 2½ cwt. of the best Peruvian guano, for which he had paid 32*s.*

"It is a grey damp substance, partly a powder, partly in tough lumps like dry dough. The same lumps are found in the compost as I prepare it myself. It would evidently be a great waste of manure to drill these lumps into the land without reducing them to powder; but this is not easily done, for they are so tough that no pounding will crush them. As the point is one of importance, I may mention the method we at last hit upon. The whole mass, mixed with ashes, should be passed through a large coarse wire sieve, and the lumps then be spread about 2 inches thick on a hard floor. A small garden roller should then be drawn over them backwards and forwards until they are flattened to a uniform cake. If the workmen now work this cake with a fine garden rake, they will find that the tough mass will crumble between its teeth. I dwell upon this, because I think we ought to make it a rule in the use of all artificial manures, by bringing them into a state of powder, and mixing them thoroughly with dry mould or ashes, to spread them so uniformly in the soil that each rootlet of the future crop shall have as fair a chance of finding its portion of food as if liquid manure had been used.

"Having tried the method described above, I venture to recommend it to farmers; but I consider it by no means a perfect prescription. It is not clear whether the second fermentation should be allowed to take place or not. It is by no means clear that the proportion of acid (one-half the weight of the bones) might not be diminished. It is doubtful whether the amount of bones, 4½ bushels, be the right dose per acre. It is very likely that phosphorus should not be administered singly, but should be combined with potash, as Dr. Liebig advises. These are points which I beg to recommend to our members for their future inquiry.

"Before concluding, I must mention a process long known in this neighbourhood, which seems curiously to agree with Dr. Liebig's treatment of bone-manure. Mr. Brooks, of Hatford, has for many years assured me that he could make 4 bushels of bones go as far as 20 bushels by mixing them first with peat-ashes. It occurred to me that since many peat-ashes contain sulphate of lime, this practice might be a self-taught form of the recent scientific discovery. Following his instructions, I mixed 8 bushels of crushed bones with 16 bushels of our brick-coloured peat-ashes, and the mixture was thrown up in a heap. In a few days they began to heat violently, and the heat lasted for about 10 days, at the end of which time on opening the heap scarcely a particle of bone could be detected. The whole was reduced to a fine reddish grey powder. The fragments of bone which still showed themselves were exactly like those which sulphuric acid has acted on. On trying this compost by the side of superphosphate with a crop of Turnips the effect was precisely the same. Whether the cause be the same, one cannot of course be certain, until a chemical analysis has been made. The ashes cost only 4*d.* for 2 bushels, the acid would have cost five times as much. The trial, therefore, will be worth making for those who have bog-peat at hand; though peat varies so much in its elements that there can be no certainty of success. If it fail, there will be nothing lost; if it answer, it may be useful, in Ireland especially. The ashes must be moderately damp, for dry ashes, I found, do not exert any action upon the bones.

"Such are the assured advantages to be derived to the Turnip crop by the solution of bones, but we may further hope to see the use of superphosphate extended even to corn crops. Theory certainly requires it, for, according to Boussingault, a crop of 4 quarters of Wheat to the acre draws from that acre of ground at least 30 lbs. of phosphoric acid. Experience countenances it, for though bone-manure is usually applied to the Turnip crop, its effects, as is well known, are seen in the following corn crops. But further, a direct experiment, too, has proved its success. This was made by Mr. Pemberton Leigh upon Wheat, and published in our Journal * last year, but is so much in point that I must give it shortly again:—

One Acre.	Cost. £ *s.* *d.*	Yield of Wheat per Acre.	Increase per Acre.
No manure ..	—	.. 29 bushels.	
Rape-dust, 5 cwt. ..	1 12 6	.. 38 do.	.. 9 bushels.
Urate, 6 cwt. ..	1 12 6	.. 38 do.	.. 9 do.
Dung, 30 loads ..	4 10 0	.. 40 do.	.. 11 do.
Guano, 3½ cwt. ..	2 4 0	.. 40 do.	.. 11 do.
Superphosphate, 6 cwt.	2 4 9	.. 53 do.	.. 24 do.

"The increase of 24 bushels, that is 3 quarters of Wheat per acre, by the use of superphosphate, is enormous, equal, in fact, to the whole average yield of many farms, and could hardly be expected again; but though we must not hope for so large a return in money as 8*l.* for 2*l.*, this manure is so cheap that a much smaller increase in the Wheat crop would pay for its use.

"I have drilled it in this year with Wheat, but Mr. Leigh's plan of using it as a top-dressing in March may be a better one, because it is not wanted sooner, being chiefly required for forming the grain, and if applied in the autumn is liable to be washed down during winter. I think that it deserves trial on Wheat, and I am sure that we ought now to give great attention to the cheapening of artificial manures. We have succeeded in reducing the expense of draining to one-third of its former cost, and I do not despair that, by equal perseverance, we may, in 3 or 4 years, bring down the cost of manures in equal proportion. I believe that all bones should now be sold to the farmer in the cheaper and readier form of manufactured superphosphate; and that of all compound manures, though potash and ammonia may be required in them, a main ingredient must be phosphorus.—*Pusey, December* 29, 1845."

Miscellaneous.

Boussingault on the Preparation and Composition of Manure (vol. ii. p. 68).—If opinions are divided on the question, whether manure should be used before or after fermentation, they are not less so as regards the manner of spreading it, and the proper season for carrying it into the field. It is clear, however, that the views which have been formed on the first of these points will materially influence our conceptions as to the second. Those who are convinced that the dung should be used as it comes from the stall, are quite indifferent as to the time of carting it; the most convenient time may be chosen, which is no small advantage, and this is our practice at Bechelbronn, where it is carried out as soon as possible. The fields destined to be manured in spring are supplied in winter, when the frost permits. The dung, at first laid in little heaps at regular distances, is afterwards spread as equally as possible, most frequently on the snow—a practice in which we have never found any inconvenience. The method adopted by certain cultivators of keeping dung in great masses, with a view to spreading it when the tillage takes place, is certainly wrong; the spots in which the heaps are laid are too highly manured, and the plan is adapted for long fresh dung only. The custom of leaving the dung for months, perhaps, spread on the land and exposed to every variation of season, has been criticised; it is said to lose its volatile parts; that rain washes out and carries off those which are soluble; and, induced by these fears, many do not spread the dung till the very moment when the land is ready for the plough. This difference of opinion in parties personally interested in making the most of their manure ought not to be passed over lightly. In agricultural matters, it is dangerous to generalise too much. The climate ought to be taken into consideration. In Alsatia experience speaks for the practice in question; but in other countries, there may be very good reasons against it. In Alsatia, where the rain during the whole year amounts to 27 inches, during December, January, and February, the quantity amounts only to 4,36 inches. The quality of the manure might, perhaps, be injured where the proportion in winter is greater. The quality of manure also must be taken into consideration. A manure-heap which contains a large proportion of carbonate of ammonia, and emits a very decided odour of volatile alkali, would certainly be deteriorated by prolonged exposure to the air; but this loss is scarcely sensible where the manure contains but a small quantity of volatile ammoniacal salts, as is the case with that which has been treated with gypsum; much less when fresh dung has been discharged in cold weather, with a view to its remaining unimpaired till the time of tillage. When the rains are not too heavy the soluble parts of the manure which is spread over the land penetrate it and are retained in the upper stratum, exactly as when, instead of incorporating the manure with the soil, it is spread over crops in full vegetation, or before the germination of the seed. The practice of top-dressing is often profitable; and it is proof enough of the little inconvenience there is in exposing

* "See account given by Mr. Strouts, vol. v. p. 605.

the dung to change of weather. It arose, in the first instance, perhaps, from necessity, but it has been found so useful that it has been much adopted. We have applied it with decided advantage to crops after hoeing, time being thus gained for the production of manure. In the district of Marck, it is daily gaining ground; the dung is spread when the plant has already appeared, and experience shows that the passage of the carts over the land is not sensibly injurious; it would be preferable, however, to choose a time when the surface is hard from frost. This method, according to Schwertz, is very useful in Switzerland for hemp, and indeed for almost every kind of crop. I regard it myself as a matter of convenience, but Thaer assures us, and his authority is of great weight, that he has too often seen its good effects on leguminous crops not to be convinced of the excellence of this method on loose land in which the grain has been sown rather late.—*M. J. B.*

CALENDAR OF OPERATIONS.

FEBRUARY.

There are several operations proper to this month which we have not yet mentioned, and which with the limited space permitted to us, we can now do little more than merely enumerate. A portion of *Spring Tares* should be sown immediately; they will be ready for mowing or feeding in June, in time for an after crop, on the same land, of White Turnips; three bushels per acre, drilled in rows six inches apart, is a sufficient seedling. A bed of *Cabbage* seed should now be sown for transplanting in June—the Drumhead is as good a field Cabbage as any. *Grass Lands* may be manured with farmyard compost, or any of the less soluble manures, as bone-dust, during dry weather in this month. All soluble top-dressings should be applied later in the season, when plants are more able to take immediate advantage of them.

Fences should be looked to; ragged, or overgrown hedges, should have been properly dressed or mended before this. Useless fences should be grubbed up at this season, and the ground they occupy should be either fallowed or sown with some fallow crop, as Potatoes or Turnips, during the first season.

Peas may also be planted towards the end of this month. We shall refer to this subject next week.

But the most important operations of this season are those connected with *the Management of Stock*. The lambing season has commenced, and the constant attention and care of the shepherd is now required. Fatting sheep and cattle in yards and stalls, and boxes, brought in or put up for the consumption of the green crops will now be making their best progress. Keep them constantly dry, warm, and clean, by daily supplies of fresh litter. The wet and cold weather which generally characterises this month, makes a great difference between fatting sheep *folded* on Turnips and sheep fed on them in yards, in cases where the latter can be kept free from foot-rot. Just the same difference, in fact, as the engineer finds in the cases respectively of a colliery steam-engine, with a boiler exposed to rain and snow, and one such as those found in Cornwall, where every part from which heat can escape is sheltered and covered. The farmer's object should be the same as that of the Cornish engineer. Both must adopt every means to economise the fuel: for this is not with them as with the engine as the coal-pit, *to be had for nothing*. Turnips and oil-cake are both costly articles—as much so to the farmer as are coals in Cornwall; and the object of those who use them must be to produce the intended effect with as small an expenditure as possible. Sheep and oxen in sheltered spots, and well littered, like steam-engines well "jacketed," waste a less portion of their food or their fuel in keeping up the heat proper to each, and the remaining portion being thus larger, is more effective, by which the force is maintained in the one case, and the fat is laid on in the other. "Warmth is an equivalent for food,"—for, supply warmth artificially, and you will not need to supply so much of the food by which it is maintained naturally. Success in feeding depends no doubt on a good selection of stock, and on a proper selection of food for them; but it also greatly depends on the attention of the farmer in keeping his stock dry, clean, and *warm*.

Notices to Correspondents.

Barley Sowing—*W C*—We should prefer sowing both Barley and Clover seeds towards the end of next month; but if your land is ready you would not run much risk in sowing the former now, and the latter might be sown broadcast, and hoed in some time in March. You may calculate, with good cultivation, on 18 tons of White Carrots, or 24 tons of Swedes per acre; and for *feeding* purposes, we should prefer the latter. But a few acres of Carrots will be very useful for your horses. Sow the first week in April. We shall refer to the matter in our Calendar.

Bones and Sulphuric Acid—*Ignoramus*—Four bushels of fine bone-dust, and about 120 lbs. of sulphuric acid, mixed together in a large tub, containing about 40 gallons of water, and suffered to remain there for two days; then turned out on a heap of two cart-loads of turf-ashes, and mixed well together, and spread broadcast over the land by shovel out of cart just before drilling up for Turnips, will be a sufficient dressing for one acre of land. Oyster-shells will not do instead of bones; they contain very little phosphoric acid, which it is the object of the process to render soluble.

Carrots—*W R*—Sprout the seed in damp sand before sowing, and sow 5 lbs. per acre. That will be your best security against the fly. We never saw a young Carrot plant injured by insects.

Diseased Potatoes—*W Northumberlandis*—No. We fear that the rot among your planted Potatoes has only just begun. Wait till they are a foot high, if they last so long—and if you like to speculate in the matter.

Drainage—*Heney*—Your land being injured by spring-water, its removal is by no means "a work of supererrogation;" but you will in addition to this require a regular system of drainage for the rain-water. Your bed of gravel may be drained by one or two deep cuttings; but the field will hardly be drained except by a uniform series of 3 ft. drains at intervals of about 7 yards. As regards the expense, two-thirds payable by the landlord, and one-third with expense of carriage by the tenant, is a division which few would object to.

Double Ploughing—*L W Lilly*—In the plan suggested last week in our Calendar, each couple of Bean-rows would be 7 feet 3 inches from the next couple. This is ample interval, even in cases where Turnips or Potatoes are the intervening crop. For you may have two rows of either of these crops at 26 inches apart, and still have plenty of space for the horse-hoe between them and the beans.

Drains—*S P P*—3 ft. deep, 7 yards apart, and tube-tiles of from 1½ to 3 ins. in diameter, are good depth, width, and material; let the subsoil be either sand or clay.

Flax—*M P*—A pamphlet will soon be published by our correspondent, Mr. Dickson, giving you all the information you can require. We will notice it when it appears.

Farm Buildings—*Inquirer*—It will always be to the advantage of the tenant for the landlord to execute all permanent improvements, and charge a per centage on his outlay in the rent, for the former, in 99 cases out of the 100, has ample room for the investment of his capital in that higher farming which these improvements render advisable. Nevertheless, to take the case of a Grass farm to be broken up, and requiring additional buildings for arable culture, if will, we imagine, be the interest of a tenant with sufficient capital to accept an offer of the farm at its present value on a lease of 21 years, on condition of executing all roads, drains, buildings, &c., himself. And we can scarcely see, that if without a lease he should erect buildings, he could have reason to complain were his landlord, on giving him notice to quit, to pay him 1-21 of his expense for every year short of 21 since the date of his outlay. He would thus receive that portion of the principal sum to which on our former supposition he would be entitled, and he would all along have received ample interest on the whole of it in that increased value which good buildings have conferred on the farm. We shall make some further remarks in another section of this Paper next week.

Grass Lands—*D P Q*—Can any one direct our correspondent to a work on the Management and Manuring of Grass-lands? We do not know of any exclusively on that subject. There is a useful chapter in Donaldson's "Manures, Grasses, and Farming."

Grass Seeds—*B D D*—The following is a list of seeds, which any seedsman will give you, suitable for a light gravelly soil:—

Alopecurus pratensis	1½ lbs.	Poa pratensis . . .	1 lb.
Dactylis glomerata .	5 ,,	Medicago lupulina .	1 ,,
Festuca duriuscula .	2 ,,	Trifolium pratense perenne . . .	4 ,,
— pratensis .	2 ,,		
— rubra .	2 ,,	Trifolium repens . .	5 ,,
Lolium perenne .	12 ,,		

Common Barley 1 bushel. Sow in damp weather in April on a fine tilth; bush harrow in and roll.

Greaves—*H G B*—We should not think the tallow-chandler's refuse worth its present market value as manure.

Grano—*T W M*—Sow 4 cwt. per acre of Ichaboe, broadcast over the land just before you "bout" or rib it up for the Mangold Wurzel seed. —*N N*—Apply it broadcast in wet weather, and trust to the rain for making it "liquid." 3 cwt of Peruvian per acre will suffice for Potatoes of anything else.

How to Convey Eggs—*H D*—If shaking will render eggs abortive, we imagine packing in plenty of sawdust and conveyance by spring carriages, will suffice to secure them from injury.

Indian Corn—*J H*—We have used a good deal thus:—Boil a bucketful of Linseed-meal in 5 bucketsful of water for 10 minutes; pour out the mucilage into a large tub; add a bucketful of Indian Corn ground, and a bucketful of Bean-meal, and mix well up; then add 4 bushels of fine straw-chaff, and mix the whole up and serve it out to 12 or 20 beasts, according to their size. They will thus receive about 4 lbs. of mixed meal a-piece in a form calculated to ensure a thorough digestion of it. For the purchase of Maize, apply to any corn-dealer.

Lucerne—*H H H*—It will do as well as anything else in a deep soil in a shady situation. Sow 14 lbs. per acre about the middle of April in rows 15 or 18 ins. apart.

Manures—*H Q*—Urate, guano, bonedust, &c., may all be sown broadcast over the ground just previously to ribbing it up for the seed. They will thus for the most part be collected together in the mass of earth through which the young plants will strike their first roots. We consider it better to scatter farmyard manure broadcast also; plough it lightly under, and then rib the land as in the other cases for the Turnip seed.

One Horse Carts—*S S S*—Eleven cwt. is much too heavy, but you may obtain at the Iley Iron Works working plans of a very good, strong, tilt cart, weighing 8½ or 9 cwts., such as shall carry a ton weight of roots, as Swedes or Carrots, and such as, with a suitable frame to be attached, shall carry a ton weight of straw, well loaded; and a good farm-horse on good roads ought to draw either of these loads for 9 or 10 hours a day.

Small Farm—*A B C*—We would cultivate by the spade any portion that might be kept permanently as arable land, and either sell the crop standing on the ground, or hire a thrashing-machine for a day to get the grain crops ready for market. You would thus require nothing more than a room in which to keep the small quantity of grain you might grow, and a tool-house, besides your cow-house, yard, and dairy. This will be more economical than buying horses and implements, unless you have other use for them. You will find Carrots, Parsnips, Lucerne, and Mangold Wurzel to be very good crops for dairy purposes, and these are as well given raw as steamed.

Superphosphate of Lime—*Inquirer*—You need not add it to guano. There is plenty of phosphoric acid in guano, and if you wish to give it a more soluble form than that in which it is generally formed, add to it some sulphuric acid, say 20 m.s. to every cwt. of good dry guano.

Turnips—*S W*—In our opinion you should have pulled them up in the autumn; and if they are White Turnips, you should have had them all consumed before January.* At the same time it is often convenient to have a few acres to fold ewes and lambs on, giving the latter liberty to crop the sprouts. Turnips in sprouting doubtless draw their nourishment from the bulbs first—which they spoil more than is made up for by the green food which grows out of them. And after awhile, they will draw nourishment from the land to the detriment of the future crop; because, though by ploughing them in you return everything to the soil again, yet it is then in a form not so suitable for the immediate use of the growing plants. You had better let them stand now, and fold the ewes and lambs on them immediately. We will tell you all about the rest in our Calendar before the time comes.

Wheat Culture—*Inquirer*—Both rolling and harrowing, or hoeing in spring are good for Wheat. They both effect a new arrangement of the material of the soil, and they both break up the cake which may have formed on the surface.

Miss—*Inquirer*—Calves become yearlings, and yearlings 2 years-olds, not at any particular season, but when they have respectively completed their first and second years of age.

*** Communications reaching town after Wednesday, cannot be answered the same week.

Markets.

Smithfield, Monday, Feb. 23.—Per stone of 8 lbs.

Best Beef, Herefords, &c	4s	0	0s	4	Best Downs & Half-breds	3s	0 to 3s 4
Best Short Horns	3	8	4	0	Best Long-woods	4	8 5 0
Second quality Scots	3	10	3	4	Sows and second quality	4	0 4 6
Calves	4	6	5	6	Pigs	3	8 4 8

Beasts, 2730. Sheep, 18,290. Calves, 57; Pigs, 204.

All-hows the number of Beasts is moderate the trade is very dull, the demand being limited, which is usual at the commencement of Lent; 4s 4d is quite the top price for the best Scots. The best Short-horns make 4s.—The supply of Sheep continues very short trade is, however, dull, and rather less money is obtained.—Veal trade is rather worse.—Pork trade is very heavy.

Friday, Feb. 27.

Beef trade is exceedingly heavy—very little is doing. It is difficult to effect sales of the best Scots, &c., at 4s 2d, and the best Short horns barely make 4s 4d: Second quality, 3s 8d to 3s 10d. Several remain unsold.—Trade is heavy amongst the Sheep but the number being small all are disposed of: best Downs 3s 8d to 4s, and Long-woods 4s 8d to 5s. Ewes, 4s 6d to 4s 8d.—Veal scarce is heavy, still a choice Calf makes 5s 6d; other qualities are lower.—Pork trade is bad; the warm weather is much against it. Small Pigs make about 4s 8d.

Beasts, 840. Sheep, 2070. Calves, 99; Pigs, 208.

*** Were unbroken

Hops, Friday, Feb. 27.

There is no alteration in this market. The consumers keep barely to supply their immediate wants. It is considered that, at the present moment, there is not left unsold of last-coloured Hops one eighth of the last crop. The quantity of old Hops is unusually small, so that, if in the latter season the demand, Hops would, in our opinion advance considerably. A process is in use early to form any correct judgment as to the coming crop, but from past experience a wet cold summer (as last), followed by a mild winter, generally produces quantities of insects in the succeeding spring, and a defective crop of Hops.

Partridge & Smith, Hop-Factors.

COVENT GARDEN, Feb. 23.—In consequence of the extreme mildness of the season the supply of Vegetables is very abundant, and Fruit, although not plentiful, is also sufficient for the demand. Pine-apples have not altered in price since our last account. Grapes are sufficient for the demand, as are also Apples and Pears; among the latter we remarked some beautiful specimens of Beurré Rance. Fine large Oranges are very scarce, and are rising in price; but plenty of second-rate samples may be procured. Nuts are sufficient for the demand. Little alteration has taken place in the prices of Vegetables. Asparagus is good and plentiful, and the same may be said of French Beans, which are rather too abundantly supplied for the demand. Seakale and Rhubarb are excellent in quality. The supply of Broccoli, Brussels Sprouts, and other winter Greens, is good. Large white Broccoli, from Cornwall, fetches from 1s. to 3s. per dozen heads. Excellent Celery may be obtained at last week's prices. Potatoes, of the best quality, still continue to fetch 8s. a ton; in consequence of the abundance of other vegetables, however, trade for them is somewhat dull. Chicory continues to be supplied. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Poinsettia pulcherrima, Jasmines, Lily of the Valley, Pentas carnea, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Rhododendrons, Cinerarias, Gardenias, and Roses.

FRUITS.

Pine Apple, per lb., 4s to 6s		Lemons, per dozen, 1s to 2s	
Grapes, Hothouse, per lb., 3s to 6s		— per 100, 4s to 10s	
— Spanish, per lb., 1s to 1s 6d		Almonds, per peck, 6s	
— Portugal, p. lb., 1s to 2s		Sweet Almonds, per lb., 2s 6d to 3s	
Apples, Dess., per bush., 7s to 10s		Filberts English, p. 100 lbs., 50s to 60s	
— Kitchen, 3s to 7s 6d		Nuts, Cob, per bushel, 60s to 70s	
Oranges, per dozen, 1s to 2s 6d		— Barcelona, 90s	
— per 100, 4s to 18s		— Brazil, 16s	
— Seville, per 100, 8s to 16s		— Spanish 14s	
— per dozen, 2s to 2s 6d		Chestnuts, per peck, 1s to 2s	
		Pears, per bush., 6s to 18s	

VEGETABLES.

Cabbages, per doz., 6d to 1s		Parsnips, per doz., 3d to 4d	
— red, per doz., 2s to 3s		Shallots, per bundle, 1s to 1s 3d	
Brussels Sprouts, p. hlaf., 1s to 1s 6d		Salsafy, do., 1s to 1s 6d	
Savoys, per doz., 6d to 1s 3d		Onions, per bushel, 1s 6d to 2s	
Broccoli, Brown, per bdle., 6d to 1s 3d		— pickling, per half-sv., 2s to 3s	
— White, 2s to 3s 6d		— Spanish, per doz., 3s to 5s	
Greens, per doz. bunches, 1s 6d to 3s		Shallots, per lb., 6d to 8d	
French Beans, per 100, 2s 6d to 4s		Garlic, per lb., 6d to 8d	
Sorrel, per hf. sieve, 6d to 1s		Endive, per score, 6d to 1s 6d,	
Potatoes, per ton, 70s to 160s		Lettuce, per score, Cab., 4d to 6d	
— cwt., 4s to 8s		— — Cos, 6d to 1s	
— bushel, 3s to 4s		Radishes, per 12 bunch., 1s to 2s	
— Kidney, per bushel, 4s to 6s		Mushrooms, per pottle, 6d to 1s 6d	
Turnips, per doz. bunches, 1s to 2s		Small Salads, per punnet, 2d to 4d	
Red Beet, per doz., 6d to 1s 6d		Fennel, per bunch, 2d to 3d	
Carrots, per doz. bchs., 2s to 3s		Savory, per bunch, 2d to 3d	
Horse Radish, per bundle, 1s 6d to 2s		Thyme, per bunch, 4d	
Seakale, per punnet, 6d to 2s		Watercresses, p. 12 score bun., 6d to 1s	
Rhubarb, per bundle, 6d to 1s 3d		Parsley, per bunch, 1d to 3d	
Asparagus per bund., 2s to 3s		— Roots, per bundle, 1s	
Cucumbers, each, 2s to 3s		Tarragon, per bunch, 6d	
Spinach, per sieve, 1s to 1s 6d		Mint, green, per bunch, 2d to 3d	
Leeks, per doz bunches, 1s to 2s		Marjoram, per bunch, 2d	
Celery, per bunch, 6d to 1s 6d		Chervil, per bunch, 2d to 3d	
Cress sone, each, 6d to 1s			

POTATOES.—Southwark, Watersde, Feb. 23.

The supply to this market since this day se'nnight has been limited, yet, in consequence of the unprecedented mildness of the season, the trade is very heavy at the following prices:—York Reds, 80s to 110s per ton; ditto Regents, 60s to 110s per ton; fine quality French Reds, 120s to 130s per ton; Montrose Buffs and Blues, 70s. Jersey Blues 70s per ton.

HAY.—Per Load of 36 Trusses.

Smithfield, Feb. 2

Prime Meadow Hay	90s to 95s	New Hay	—s to —s	New Clover	—s to —s
Inferior New & Rowen	65 75	Clover	85 0	Straw	25 35

Cumberland Market Feb. 26.

Prime Meadow Hay	90s to 95s	Old Clover	110	Straw	28s to 30s
Inferior	70 80	Inferior do.	90		
New Hay	— —	New Clover			

Jones & Baker, Hay Salesman.

Whitechapel, Feb 27.

Fine Old Hay	85s to 90s	Old Clover	105 to 110		
Inferior Hay	65 70	Inferior do.	90	Straw	23s to 34s
New Hay	— —	New Clover			

MARK-LANE, Monday, Feb. 27.

The supply of Wheat from Essex, Kent, and Suffolk, was extremely small this morning, fine dry samples were taken readily at the prices of this day se'nnight, but others remained unsold late in the day; old and fine free Foreign are much wanted; in bonded, with the exception of the best Dantzic, which are sought after by the millers at previous rates, there did not appear to be anything doing. Finest Malting Barley maintains our quotations, but inferior is difficult to dispose of at 1s. per quarter lower. Beans are fully as dear; the value of Peas is unaltered. Oats are a dull sale at a decline of 6d. to 1s. per quarter, excepting fine English Corn, which is scarce. The top price of flour is reduced to 53s. per sack.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	59 to	66	Rye	50	52
—— Norfolk, Lincolnshire, and Yorkshire	59	63	White	30	32
Barley, Malting and distilling	30 to	34	Grinding	28	28
Oats, Lincolnshire and Yorkshire	21	24	Feed	21	23
—— Northumberland and Scotch	22	25	Potato	25	26
—— Irish	22	24	Potato	24	27
Malt, pale, ship	54	60			
—— Hereford and Essex	60	68			
Rye	36	37			
Beans, Mazagan, old and new	38 to	41	Tick	31	32
—— Pigeon, Heligoland	35 to	40	Winds	30	32
Peas, White	36 to	40	Maple	28	32

FOREIGN.	s.	s.		s.	s.
Wheat, Dantzic	70 to	72	Barley, Grinding	26	28
—— Pomeranian, Rostock, and Mecklenburgh	66	68	Oats, Dutch	20	21
—— Marianopoli	64	66	—— Flemish	20	21
—— Danish and Holstein	62	64	—— Potato	21	22
—— Petersburgh, Archangel, and Riga	60	62	—— Swedish	20	21
—— Polish	58	60	Beans, Horse	34	36
—— Salonica	58	60	Peas, Maple	32	34
—— Egyptian	56	58	—— White	32	34
—— Brabant	56	58	—— Boilers	34	36
—— Odessa	54	56	Rye	34	36
—— Taganrog	52	54	Flour, per sack	50	53
—— Marianopoli	52	54	—— Hamburgh	46	48
—— Barletta	52	54	—— American	40	42
—— Genoa	52	54	—— Canada	40	42
—— Leghorn	52	54	—— Spanish	40	42
—— Trieste	52	54	—— Stockholm	40	42
—— Ancona	52	54	—— Gothenburgh	40	42
—— Sicily	52	54	—— Archangel	40	42
—— Egyptian	52	54	—— Petersburgh	40	42
—— Odessa	52	54	—— Riga	40	42
—— Taganrog	52	54	—— Memel	40	42
—— Marianopoli	52	54	—— Dantzic	40	42
—— Barletta	52	54	—— Pomeranian	40	42
—— Genoa	52	54	—— Rostock	40	42
—— Leghorn	52	54	—— Mecklenburgh	40	42
—— Trieste	52	54	—— Danish	40	42
—— Ancona	52	54	—— Holstein	40	42
—— Sicily	52	54	—— Polish	40	42
—— Egyptian	52	54	—— Salonica	40	42
—— Odessa	52	54	—— Egyptian	40	42
—— Taganrog	52	54	—— Brabant	40	42
—— Marianopoli	52	54	—— Odessa	40	42
—— Barletta	52	54	—— Taganrog	40	42
—— Genoa	52	54	—— Marianopoli	40	42
—— Leghorn	52	54	—— Barletta	40	42
—— Trieste	52	54	—— Genoa	40	42
—— Ancona	52	54	—— Leghorn	40	42
—— Sicily	52	54	—— Trieste	40	42
—— Egyptian	52	54	—— Ancona	40	42
—— Odessa	52	54	—— Sicily	40	42
—— Taganrog	52	54	—— Egyptian

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition at the Auction Mart, Bartholomew-lane, on Tuesday, March 3rd, and following day, at 12 o'clock, about Two Thousand fine Standard ROSES, consisting of Hybrids, Perpetuals, Noisettes, Bourbons, Chinas, &c. Also, a superb collection of DAHLIAS, in dry roots, &c. May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

PLANTING SEASON. — TO NOBLEMEN, GENTLEMEN, BUILDERS, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. WILLIAM DENNIS, to submit to Public Competition, on the Premises, opposite to Cremorne House, King's-road, Chelsea, on Monday, March 9, and following day, at Eleven o'clock, in consequence of the ground being immediately required for extensive Horticultural Erections, a portion of the valuable NURSERY STOCK, comprising Dwarf, Standard, and Pillar Roses in choice varieties, Dwarf and Standard Lilac, and Gueldre Roses; a quantity of the finest fruit-bearing Mulberry Trees in the Kingdom; fine Prize Gooseberries, in collection. About 25,000 Aucuba Japonicas in all sizes; Yuccas, Paeonies, Irises, &c. &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS, & OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition at the Auction Mart, Bartholomew-lane, on Thursday, March 5, 1846, at 12 o'clock, about Two Hundred Double CAMELLIAS from 2 to 5 feet, consisting of all the approved varieties; the whole beautifully furnished with bloom-buds. Also a splendid assortment of Standard and Dwarf Roses, Choice Dahlias, Azalea Indica, Erica, &c. May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers.—American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS beg to announce that they have received instructions from the Proprietor to submit to Public Competition at the Auction Mart, Bartholomew-lane, on Wednesday, March the 11th, 1846, at 12 o'clock, the valuable collection of SUCCULENT PLANTS, formerly belonging to THOMAS HITCHEN, Esq., of Norwich, by whom they were collected with extreme care and attention during a long series of years. The above collection will be found well worthy the attention of Amateurs and the Trade.—Catalogues can be had upon application at the American Nursery, Leytonstone; or of ARTHUR MACKIE, at the Norwich Nursery.

NURSERY STOCK, BROOMFIELD, NEAR CHELMSFORD.

TO BE SOLD BY AUCTION, by Messrs. BAKER & SON, and Mr. BEADLE (who are jointly concerned in this Sale), upon the Premises occupied by Mr. John Harris, on MONDAY and TUESDAY, March 2 and 3, 1846, the extensive and valuable NURSERY STOCK, including several hundred Standard and Dwarf Peaches, Nectarines, Apricots, Pears, Apples, Cherries, Plums, Gooseberries, and Currants 5000 Spruce, Scotch, Larch, Weymouth Pine, Silver, and Balm of Gilead Firs, 6000 Common and Portugal Laurels, Laurestines, and an assortment of American Shrubs. A variety of ornamental Evergreens and Deciduous Shrubs, &c. &c. 1000 Oak, Ash, Elm, and other Forest Trees 55,000 of Whitethorn Quick. Also, the LIVE AND DEAD FARMING STOCK, Seeds, Cucumber-frames, Garden Tools, &c. &c.

Sale to commence each day at 10 o'clock. The Lots will be adapted to the Trade. 14 days will be allowed for removing the Stock.

Catalogues may be obtained at all the neighbouring Inns; Places of Sale; of Messrs. Beadel & Forlkes, 25, Gresham-street, London; Messrs. Baker & Son, Writtle and Chelmsford; and of Mr. Beadel, Duke-street, Chelmsford.

TO BE LET, WITH IMMEDIATE POSSESSION, within six miles of the Weybridge Station of the South Western Railway, A WALLED GARDEN, containing about TWO ACRES OF PRODUCTIVE SOIL, Conservatory, Hot and Succession Houses, Pits, and Sheds. The walls are covered with choice Fruit Trees in high bearing and order. A residence for a superior Gardener—accommodation for a journeyman. The implements may be taken at a valuation by the tenant.

For particulars apply to Mr. Wm. Keye, steward, Ockham Park, Ripley, Surrey.

LUTON HOO, BEDFORDSHIRE.
TO MARKET GARDENERS AND OTHERS.

TO BE LET on Lease or by the Year, Walled Gardens of 5 Acres, clothed with the finest Fruit Trees, particularly Pears; and other Gardens and Orchard of 5 or 6 Acres, with Gardener's House, and all requisite Out-buildings, all compact. From Lady-day now next ensuing. To View, and for Particulars, apply to Mr. AKERS, Loudon Lodge, Luton Hoo Park.

N.B. Luton Gardens are 29 miles from London, and 9 from St. Albans. The London and Birmingham Railway passes within a few miles, and their Luton branch, as proposed, immediately adjoining. Coaches to and from London pass daily.

Rent is not so much the object in letting the Gardens as having them well kept up, and Fruit Trees trained. Security and references will therefore be required.

SEEDS.—CORNER OF HALF-MOON-STREET
THOMAS GIBBS and CO.
(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application

WORSTED GARDEN NETS 2½d. per Yard, protecting trees from frost and blight; also Wo Net, Wasp Net, Bunting, Screens, &c. Hemp Garden Nets, 1½d. per yard; old mended Fishing Nets, 2d. per yard.—ROBERT RICHARDSON, maker of all kinds of Garden Nets, Fishing Nets, Sheep Nets, Rabbit Nets, Tents, Rick Cloths, Marquees, Transparent Frame and Greenhouse Covers, cheap Tarpaulings, &c. &c., 21, Tunbridge-place, corner of Judd-st., New-road, London.

TO THE NOBILITY, GENTRY, NURSERYMEN, IRONMONGERS, AND OTHERS,

LINGHAM BROTHERS, 170, Little Hampton-street, Birmingham, sole Manufacturers of the IMPROVED MENOGRAPH or Labels for Garden Borders, Flower Pots, &c. Engravings of the same, with prices attached, sent per Post to all parts of the Kingdom, on application as above.

Sole Agents in London, G. and J. DEANE, Horticultural Implement Warehouse, 46, King William-st., London Bridge.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

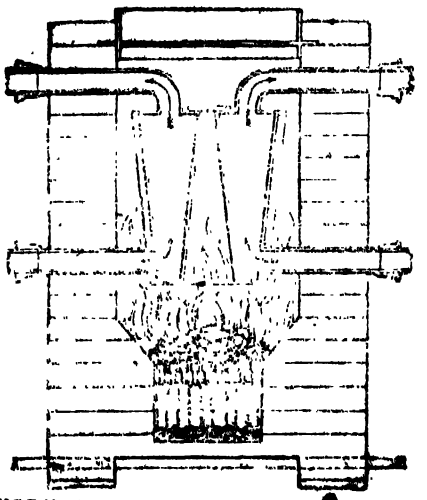
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

THE TANK SYSTEM.



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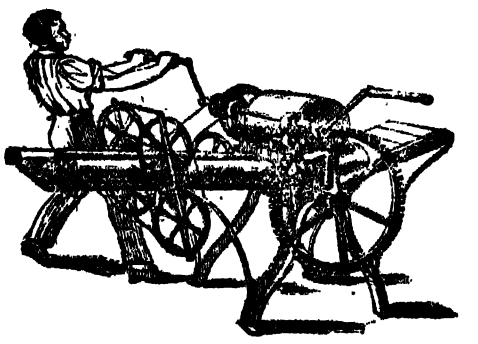
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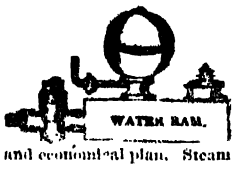
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FLORIST TO HER MAJESTY THE QUEEN.

WILLIAM MILLER would call especial notice to his very fine Seedling Fuchsias, Verbenas, Petunias, Antirrhinums, &c, for the Spring of 1846
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GREAT BRITAIN—This variety resembles Exoniensis though altogether a much larger flower, tube and sepals bright pink with a large bright purple corolla, nearly blue This flower shines as if varnished over as Lowryii which gives it a beautiful appearance very fine flower and good habit—*Land Stewards Journal August* 22*nd* W Miller We consider your seedling to be a very desirable variety its large size the form of the tube, and the disposition of the footstalk, are good qualities and the colours of the sepals and petals are pretty well contrasted particularly in the young flowers—Price 10*s* 6*d*
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Gardeners' Chronicle Aug 10—"1 Your seedlings are large and good flowers Comet' French white with lilac centre, Samye' pink with a blotch of light purple in the centre is a large handsome and distinct flower
Gardeners' Chronicle Sept 6 W M Coquette' when fully blown has the newly opened flowers on the crown of a beautifully rosy pink while those below are nearly white When bloomed in the style of the present specimen it forms a very handsome object The same observation applies to the Comet which is large having a tinge of lilac on the face of the flower which is ornamented with crimson purple centre We have lately seen one somewhat similar to this but not quite so large and distinct'
Land Stewards Journal, Sept 6 'Mr Miller Your seedlings are very good ones and possess the character of distinctness the blooms and trusses are large and the colours pleasing We prefer Coquette a delicate pink with deep pink eyes and Samye rather deeper pink with a tinge of purple in the dark colour about the eyes the others Turban deep pink with rose eyes and Sunbeam rose colour are less novel though equally good in other respects
Gardeners' Gazette Oct 4—Mr Miller All are pretty because of the dark eyes but Comet is by far the best in all qualities Samye is the next best and Coquette third
Floricultural Cabinet Nov W M The Gardeners are very handsome and distinct from any we have seen
The entire new character of these Verbenas the mass of first rate opinions given of them by all the leading Horticultural works and the numerous orders taken for them when in flower render any further remarks altogether unnecessary The leading sorts will be figured in the Cabinet" The usual allowance when three sets are taken

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AFRICAN A very superb dark purple flower of extra substance and shape This Petunia is the thing long wanted a good large rich dark constant and hardy Petunia *Land Stewards Journal* August 9th W Miller The Petunia is rich in colour (a deep rose purple, with dark centre), large in size one of the best we have seen in substance and all that need be desired in form Having said this we need not add that we think it a variety calculated to become useful good dark Petunias being much wanted" Two blooms were also sent to the Messrs Henderson's of Pine Apple Nursery when the following answer was received 'Pine Apple Nursery, August 6th 1845 Dear Sir Your Petunia I think is a very good one, I saw something like it at ——— the other day but not so large I consider yours to be a very good thing I am, dear Sir, yours very truly A Henderson' Dr Lindley's opinion in *Chronicle* 'W M, No 1 is a very good Seedling rather common in colour,' but though remarkably clean on the edge'—Price 5*s*
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 10.—1846.] SATURDAY, MARCH 7. [Price 6*d*.

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Calendar, horticultural	151 *c*	— superphosphate of lime as	155 *b*
Calycegia pubescens	150 *b*	Meadows, to irrigate	157 *b*
Chaff as manure	156 *b*	Peas, to obtain early	160 *b*
Conifers at Methven Castle	157 *a*	Plant potting 148 *c*,	151 *c*
Corn, Indian 153 *b*,	166 *a*	Polmaise heating	148 *c*
— spring, to plant	157 *b*	Potato disease, 147 *b*, 149 *c*,	151 *a*
Cow losing milk	158 *b*	— preventive for	150 *a*
Dorking Farmers' Club	157 *b*	— rot	155 *c*
Farming capital	166 *a*	Potatoes, prices of	166 *b*
Food, Maize as	155 *b*	— substitute for	149 *a*
— for sheep	157 *a*	Potting, remarks on 148 *c*,	151 *c*
Geese as food	157 *a*	Road making	156 *b*
Grass seeds for a lawn	168 *b*	Rocks	155 *b*
— for pasture	168 *b*	Season, mildness of	149 *b*
Heating, Polmaise	148 *c*	Sheep, gorse for	157 *a*
— fuel for bollers	149 *b*	Superphosphate of lime	155 *b*
— fire mortar	150 *a*	Turnip crop	153 *a*
Highland and Agri. Society—		Warrington Nat. History Soc.	151 *a*
Wheat fly	156 *c*	Wheat-fly	166 *c*
— Transactions of, rev.	157 *c*	Wheat, value of different kinds of	155 *c*
Horticultural Society	150 *b*		

GARDENERS' BENEVOLENT INSTITUTION.—NOTICE is hereby given, that an Election for Four Pensioners on the Funds of this Institution will take place in June next. All persons desirous of becoming Candidates are requested to forward their applications and testimonials to the Committee before the 31st inst., after which time they will not be received. Printed forms of application may be had of

E. R. Cutler, Secretary,
March 4, 1846. 97, Farringdon-street

JAMES BROWN, Nurseryman, Hackney, successor to Marnock and Manly, begs to offer the following choice collections of FLOWER SEEDS just imported from Erfurt, in Prussia:—Collections of China and German Asters, 24 vars.; Fine Double Balsams, 12 vars; Ten-week Stocks, 24 vars.; Brompton, Queen, and Emperor Stocks, of choicest kinds; Thunbergia, of sorts; Ipomopsis cornopifolia, &c. &c.
Nursery, Hackney, near London.—March 7, 1846.

WILLIAM MILLER respectfully solicits the attention of the readers of the *Chronicle* to his Advertisement in last week's Paper of his UNRIVALLED SEEDLING VERBENAS, FUCHSIAS, PETUNIAS, ANTIRRHINUMS, GERANIUMS, &c. Descriptive and Priced Catalogues can be had gratis.—Providence Nursery, Ramsgate.

FINE BEECH.—A quantity of fine BEECH, 5 to 7 feet high, TO BE DISPOSED OF, well adapted for Hedging, Stocks, or Planting out singly. Price, 40*s* per 1000, cash. No charge for package.—Address to S. Wood, Nurseries, Huntingdon.

IMPROVED GIANT ASPARAGUS.—This favourite Vegetable may now be cultivated at less than half the customary expense, by having the Improved Giant variety, which may be cut the following spring the beds are made. Plants, from 5*s*. per 100, with printed particulars for cultivation, may be had of Warner & Warner, Seedsmen, 28, Cornhill, London. Fine Seakale, Rhubarb, &c.

DAHLIA—"EBOR."

JAS. BACKHOUSE and SON, York, intend sending out plants of this fine seedling DAHLIA on the 1st of the 4th month (May), at 10*s*. 6*d*. each.
An allowance to the Trade, whether one or more are taken; delivered carriage free when three or more are ordered.

NEW BELGIAN PLUM, "REINE CLAUDE DE BAVAY," very strong dwarfs at 5*s*., from Mr. Van Houtte's Nursery at Ghent, to be sold by Messrs. Hugh Low & Co., Upper Clapton Nursery, London.
The usual discount to the Trade.

TROPÆOLUM AZUREUM.

MESSRS. VEITCH and SON have to offer imported TUBERS of the above beautiful Plant, warranted true. Strong extra Tubers, 15*s*. Second size, 10*s*. 6*d*. each. The usual discount to the trade. Post-office order or reference required from unknown correspondents.—Exeter, Mar. 7.

PINE PLANTS.—Fruiting and succession, Blacks or Queens, may be had in any quantity on application to W. Davis, Green-street, Marlborough road, Chelsea.—Mar. 7.

PINE PLANTS.—A few Trinidad PINE PLANTS for sale, warranted true. To be viewed at Mr. J. Thompson's, Market Gardener, Ealing, Middlesex.

HOYLE'S SEEDLING GERANIUMS—AUGUSTA, GIPSEY MAID, JOSEPHUS, DUKE OF ORLEANS, LORD MORPETH, AND ALICE.

WILLIAM MILLER begs to announce that he has about half a dozen sets of these beautiful Seedlings to offer; they are good plants well established in pots, and can be sent by post or otherwise to any part of the United Kingdom, warranted with perfect safety. The price, for Cash, is 3*l*. the Six, the money from unknown correspondents must accompany the order. 100 Geranium Seeds 10*s*., 50 do. 5*s*., 25 do. 3*s*., post free.
Providence Nursery, Ramsgate.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, and Others.
ABIES CANADENSIS, or HEMLOCK SPRUCE.—George Baker, Nurseryman, Bagshot, having the largest stock of the above in Europe, of all sizes and in fine condition, can with confidence recommend this noble tree to the notice of the Public, and having so large a stock (viz. 200,000 large plants, 8 feet high, besides smaller sizes), can dispose of them at very low prices; also, with a General Nursery Stock. He begs to offer at equally low prices, in all sizes, the largest assortment of Kane's lattis, as ever offered to the Public.—Prices can be had by letter, and shall be attended to forthwith.

E. BECK informs the Public that the various Articles manufactured by him in Slate for Horticultural purposes, may be seen in use at Worton Cottage, Isleworth, upon application to the gardener (*Sundays excepted.*)

SEED POTATOES.

HURST & M'MULLEN, Seedsmen, 6, Leadenhall-street, have a good stock of sound roots of the following excellent early varieties:—
Soden's Early Oxford, too well known to require description, 3*s*. per peck.
Haigh's splendid New Kidney, fine flavour and large produce (about ten days later than the Ash-leaved), 3*s*. per peck.
Shilling's New Early, 4*s*. per peck.
Chalmore Kidney, introduced by Messrs. Tyso & Co., Wallingford (see *Gardeners' Chronicle*), 3*s*. 6*d*. per peck.
Ash-leaved Kidneys, 2*s*. per peck.
Bryan's New Early Prolific, 4*s*. per peck.
New Red Kidney, very early, boils white, delicious flavour, 2*s*. 6*d*. per peck.
New Dwarf Goldfinder, 2*s*. per peck.
New Wiltshire Kidney, a very early and productive kind, 2*s*. 6*d*. per peck.
Martin's Early Globe, 2*s* per peck.
See next page for List of New and Choice Flower-seeds.
GRAYSON'S GIANT ASPARAGUS, 3*s*. per 100.
Do. do. do. 4*s*. per 100, very strong roots.
6, Leadenhall-street, March 7.

THE TRUE FASTOLFF RASPBERRY.

GREAT YARMOUTH NURSERY. NORFOLK, 1846.

YOUELL & CO., being the parties who first introduced to the notice of the Horticultural world the above truly excellent Raspberry, unequalled for the size of its fruit and richness of flavour, and possessing an extensive Stock of fine Canes, beg to offer the same upon the following terms, guaranteed to be of the same quality as those they had the honour of supplying Her Most Gracious Majesty the Queen, Hi Grace the Duke of Northumberland, His Grace the Duke of Rutland, His Grace the Duke of Marlborough, the Earl of Harrington, the Earl of Liverpool, the Earl of Abergavenny, the Earl of Egremont, the Lord Bishop of London, Lord Viscount Lorton, Lord Sondes, and most of the Nobility, as well as the Horticultural Society of London, the latter having awarded Youell & Co. two prizes for it.

Packages containing 100 canes			£1	4 0
Do.	do.	50 do.	0	13 0
Do.	do.	25 do.	0	7 0

Small Canes, 12*s*. per 100.
A liberal discount will be allowed the Trade when "quantities" are ordered.
For full description of the above see their advertisement of Jan. 17.
Thirty packets of new and choice Flower Seeds, per post, free, for 6*s*.
Great Yarmouth Nursery, Mar. 7.

GLADIOLUS GANDAVENSIS.—Strong Bulbs of this splendid Plant (coming from Mr. Van Houtte's Nursery, at Ghent), are to be sold by Messrs. Carter, 238, High Holborn; Charlwood, Covent-garden; Hurst & M'Mullen, Leadenhall-street; Knight & Perry, King's-road, Chelsea; H. Low & Co., Upper Clapton; Noble & Co., Fleet-street; W. Rollisson & Sons, Lower Tooting; Warner & Warner, Cornhill; and at Messrs. Dickson & Co., 1 Waterloo-place, Edinburgh, N. B.

A COLLECTION OF VEGETABLE GARDEN SEEDS, consisting of all the newest and most approved sorts for 1*l*. 1*s*. as follows—4 qts. Peas, 2 qts. Windsor Beans, 2 qts. Kidney Beans, 1 oz. Beet, 1 oz. Scotch Kale, 4 oz. Broccoli, 1 oz. Brussels Sprouts, 2 oz. Cabbage, 2 oz Carrot, 1 oz. Cauliflower, 2 oz. Celery, 1 qt. of Cress, 1 packet of Frame Cucumber, 1 oz. Endive, 2 oz. of Lettuce, 1 packet of Melon, 1 qt. Mustard, 4 oz. Onion, 1 oz. Parsley, 1 oz Parsnip, 1 pt. Radish, 1 oz. Savoy, 1 pt. Spinach, 2 oz Turnip, of sorts.
A collection of the best Annual Flower Seeds, containing 65 varieties, for 10*s*. All other sorts of genuine Seeds, Catalogues of which will be forwarded on application. Seed Potatoes warranted free from disease
Clarke & Co., Seedsmen and Florists, 86, High-st., Borough.

AURICULAS, POLYANTHUSES, PINKS, CARNATIONS, AND PICOTEES.

JOHN SLATER, Florist, Cheetham-hill, near Manchester, respectfully calls the attention of the admirers of the above-named Florists' Flowers to his large, healthy, and select collection, which he is selling at moderate prices; Catalogues of which may be had on prepaid application. 12 varieties of Show Auriculas for 18*s*.; 20 pairs of 20 varieties of Show Carnations and Picotees 20*s*., package included.
N.B. Nurserymen and others wanting from 100 to 500 pairs of Carnations and Picotees will be supplied at very low prices.

EDWARD TILEY begs to state that those Gardeners who had seed of his First Prize CUCUMBER, VICTORY OF BATH, in the autumn, have expressed the highest satisfaction in the production of the fruit, it fully answering the description given by him, having more than realised their expectation, and deserves to be cultivated by every Cucumber grower in the kingdom. Parties wishing to avail themselves of the opportunity of purchasing the above, should delay no time, as the stock on hand is very limited.
Sold in Packets, 3 Seeds, 2*s*. 6*d*.; 7 Seeds, 5*s*, at his General Seed Shop, 16, Pulteney-bridge, Bath.
A remittance expected from unknown correspondents.
Bath, Mar. 7, 1846.

CARNATIONS AND PICOTEES.

MESSRS. NORMAN continue to supply a few pairs from their most select collection of show varieties grown. Also, some fine yellow-ground Picotees. Catalogues can be had on prepaid application.—Bull Fields, Woolwich.

NEW TARIFF.
IMPORTANT TO AGRICULTURISTS AND OTHERS.

J. G. WAITE begs to announce that he has just received a consignment of upwards of 1000 bushels of splendid mixed PASTURE GRASS, which he now offers at the low price of 4*s*. per bushel, samples of which may be had on application.
All other kinds of Agricultural and Horticultural Seeds 30 per cent. lower than any other house in London.
Terms—Cash, or reference in London from unknown correspondents.—4, Eyre-street-hill, Hatton-garden, London.
March 7, 1846.

NEW DARK EYED VERBENA.

W. MILLER'S LIST, containing a description of the above beautiful and uncommon Seedling Verbena, and his choice Seedling Fuchsias, Petunias, Antirrhinums, &c., can be had by application. All who grow the above plants should have this List.—Providence Nursery, Ramsgate.

H. GROOM, Clapham Rise, near London, (removed from Walworth.) By Appointment FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY,
Begs to recommend to the attention of the Nobility, Gentry, and Public his extensive assortment of the above FLOWERS, which he can supply of the best quality.

	£.	*s*.	*d*.
100 RANUNCULUSES in 100 Superfine sorts, named	2	10	0
Superfine Mixtures . per 100—7*s*. 6*d*. to	1	1	0
100 ANEMONES, in 100 Superfine sorts, named	2	2	0
Superfine Mixtures . . . per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named	3	3	0
Good varieties . . . per doz plants	0	18	0
25 pair of CARNATIONS, in 25 ditto, named	2	10	0
Best mixtures . . . per doz. plants	0	6	0
25 pair of PICOTEES, in 25 ditto, named	2	10	0
Best mixtures . . . per doz. plants	0	6	0
25 GERANIUMS, in 25 Superfine sorts, named	3	10	0
Good kinds . . per doz., from 12*s*. to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each	0	2	6
" PUNCTATUM . "	0	7	6
" SPECIOSUM (true) . from 1*l*. 1*s*. to	3	3	0

H. Groom begs to say his Catalogue of GERANIUMS and NEW PLANTS is ready, and will be forwarded by post on application. Foreign Orders executed.

FROM VAN HOUTTE'S NURSERY AT GHENT.

THUNBERGIA? FASTUOSA.—A beautiful new climber plant for the hothouse. Price 10*s* 6*d*.
GUNNERA SCABRA.—A noble new Peruvian plant. Price 5*s*. to 10*s*. 6*d*.
MUSSÆNDA AFZELII.—A very curious African plant, bearing a large white leaf in each of its flowers. Price 10*s*. 6*d*.
Orders are taken, and figures of these plants (and also of the GLADIOLUS GANDAVENSIS) can be seen at Messrs. Carter's, 238, High Holborn; Charlwood, Covent-garden; Hurst and M'Mullen, Leadenhall-street; Knight and Perry, King's-road, Chelsea, Hugh Low and Co, Upper Clapton, Noble and Co., Fleet-street; Wm. Rollisson and Sons, Lower Tooting; Warner and Warner Cornhill; and at Messrs. Dickson and Co's., 1, Waterloo-place, Edinburgh, N. B.

USHER'S BRILLIANT CALCEOLARIAS AND CINERARIAS OF 1845, &c., &c.

WILLIAM MAY, F.H.S., begs to announce to his Friends and the Public that these splendid CALCEOLARIAS will be ready to send out the first week in April, in 16 distinct and superb varieties, the first selection from the entire stock of Mr Usher's seedlings of last year, which for size, form, and brilliancy of colour are unequalled. The first section of eight sorts, Four Guineas; the second section of eight sorts, 3*l*.; if the entire collection of 16 sorts are taken, the price will be 6*l*. He has now ready to send out Usher's splendid CINERARIAS, viz., "Lady Constable," and "Usherii," (post free) the two for 10*s*. 6*d*. A Descriptive List of the above may be had on application.
W. M. possesses extensive stocks of the undernamed of the most select quality, viz.—Hardy Herbaceous Plants, 100 fine sorts, correctly named, for 42*s*.; 200 sorts for 63*s*. Hardy Flowering and Evergreen Shrubs, 100 sorts, correctly named, for 42*s* Hollyhocks, 25 superb distinct named sorts for exhibition for 40*s*.; 12 sorts for 20*s*. Hollyhocks, good double mixed sorts, 42*s*. per 100, all warranted double. Gladiolus, Dr. Herbert's hardy hybrid, at 20*s*. per dozen; these are splendid varieties, and as hardy as the Crocus. A full collection of Stove, Greenhouse, and Herbaceous Plants; Hardy, Evergreen, and Flowering Shrubs, Forest and Fruit Trees, Garden and Flower Seeds, Woollen Net for covering Fruit Trees, &c., &c., of which Catalogues may be had on application at Hope Nursery, Leeming-lane, Bedale.—March 7.

SALTHILL NURSERY, NEAR WINDSOR.

A. J. STEWART'S DESCRIPTIVE CATALOGUE, for 1846, contains 88 closely printed pages, comprising Lists of the choicest sorts of Camellias, Fuchsias, Verbenas, Petunias, Chrysanthemums (his Collections of all which are not surpassed), Geraniums, Dahlias, Pansies, Greenhouse Plants, Roses of every class, Ornamental Trees and Shrubs, Alpine Plants, Fruit-trees of all kinds, Culinary and Flower Seeds, &c. &c.; the whole priced as moderately as possible; may be had upon application, inclosing two postage stamps.

NEW SPRING CATALOGUE.
Woodlands Nursery, Mayfield, Uckfield, Sussex.

WM. WOOD and SON have now ready for immediate distribution, a new and much enlarged CATALOGUE OF GREENHOUSE, STOVE, AND HERBACEOUS PLANTS; Camellias, Fuchsias, Verbenas, Petunias, Cinerarias, Chrysanthemums, and other plants suitable for bedding. To which is added a choice selection of Roses, Conifers, Shrubs, and Climbers, cultivated in pots.
Copies of the above will be sent, GRATIS, on application; and those friends who have hitherto favoured W. W. & S. with their commands will receive the same in due course.

CHOICE FLOWER-SEEDS

SOLD BY

HURST & M'MULLEN, SEEDSMEN, 6 Londenhall-street, London.

(Abridged from Harrison's Floricultural Cabinet for March.)

	Per collection—s.	d.
Imported German Stocks, in 36 splendid varieties	6	0
Do. do. do. in 20 do.	3	6
Do. do. Asters in 24 do.	5	0
Do. do. do. in 15 do.	3	6
Hollyhocks (very choice), in 12 named varieties	3	0
Larkspur (German), in 12 splendid do.	3	6
Balsams, 12 beautiful double varieties	3	0
Imported Zinnia elegans, 8 fine varieties	3	6
Verbenas, 8 choice kinds	3	0
Wallflowers, 8 imported varieties	3	0
Scabious German, 8 do.	2	0
Poppies, 16 splendid do.	3	6

The following at 6d. per packet, except those marked 1s.:—

Acacia, in varieties
Achimenes, in varieties, 1s.
Aconitum, in fine varieties
Æsophyllum venosum
Agrostis pulchella
Alonsoa incisa and grandiflora
Alstromeria aurea
,, other varieties
Anagyclus bicolor
Anagallis, Phillipi fl. 1s
,, superba grandiflora, 1s.
,, Coccinea splendens, 1s.
Anchusa capensis
Anemone, new Russian
Anoda Dilleniana
Anomatheca cruenta
Antirrhinum, splendid, mixed from 30 varieties
Anthemis purpurescens
Aquilegia, choice varieties
Ardisia paniculata
Argemone grandiflora & alba
Aster, German, fine mixed imported
,, fine double Turkey
,, Nosegay
,, globosus, dwarf
Auricula, from a choice collection, 1s.
,, Alpine
Balsam, superb mixed double
,, Camellia flowered
,, new spotted
Begonia nitida
Berberis aquifolia
Blumenbachia insignis
Brachycoma iberidifolia
,, Veitch's new white, 1s.
,, ,, new lilac, 1s.
Beiza gracilis
Browallia grandiflora
Cactus, from choice kinds
Calandrinia elegans
Calceolaria, from finest shrubby varieties
,, herbaceous, very choice
,, new gold striped, very splendid, 2s. 6d.
,, splendid new hybrid
Calampelis scaber
Callichroa platyglossa
Calliopsis Drummondii
,, hirsuta, new
,, purpurea elegans
Campanula punctata
,, lactiflora
,, stricta
Canna, in varieties
Cantua picta
Carnation, from finest stage flowers, 1s.
Cassia Sumatronii
Catananche bicolor
Centaurea Americana
,, montana, new from the Alps
,, rapentica
,, Phrygia
Chamostoma polyanthum, 1s.
Cherizema varium
,, Rhombii, 1s.
,, cordata illicifolia
Chrysais compacta
Cineraria, very splendid mixed
Cladanthus Arabicus
Clarkia alba limbrata
Clematis azurea grandiflora, 1s.
Cleome, choicest kinds
Clerodendron
,, squamatum
Clintonia pulchella
Cobæa scandens
Cock's-comb, crimson and yellow Giant
Commelina Krowinskii, new
Convolvulus minor, new dark variety
,, scarlet
Cosmanthus grandiflorus
Crepis Drummondii
Cuphea silenioides
Cytisus racemosus
,, Attleeana
Dahlia, saved from a splendid collection
,, scapigera
Datura, of sorts
Delphinium Barlowii
,, splendid mixed
Dianthus chinensis, fine mixed
Didiscus cæruleus
Digitalis, new spotted
Diotis maritimus
Dracocephalum peregrinum
Eccremocarpus scaber
Egg-plant, new long white, from China
Elichrysum album grandiflorum
,, macranthum roseum
,, monstrosum
,, new superb pink, from Swan River
Eylesa androsæmifolia and splendid mixed, from the Wild Cape
THE Lridium grandiflorum lysis of the cyathophera, 1s. and other Uncopsis this popular ot large variety
R. Gaz mixed, 1s.
Funkia cærulea
Gaillardia picta
,, coccinea
Genista monospermum, sweet scented
,, candicans
Gentiana asclepiadea
Geranium, saved from a superb collection, 1s.
,, splendid new scarlet, 1s.
Gesnera splendens
,, Cooperi
Geum splendens
Gilia splendens
,, Nivalis, new white seeded
Gladiolus hybridus
Gloxinia, fine mixed
,, macrophylla variegata, 1s.
,, caulescens major, 1s.
,, speciosa, 1s.
Goodetia Lansfordii
Heartsease, carefully selected from the best varieties by Thompson, Widnall, and Day, 1s.
Hebenstreitia tenuifolia
Heliotropium, varieties
Hibiscus Manihot and other varieties
Hollyhocks, superb mixed
,, rose camellia
,, fine wallflower-coloured
Hovea Celsii, 1s.
Humea elegans
Iberis lagascaniea
,, superba
Impatiens, in varieties
Ipomœa rubro cærulea, 1s.
,, cærulea splendens
,, coccinea
,, Horsfalli
,, soldanellii
,, quamoclet
,, new yellow
,, splendid mixture of dark varieties
Ipomopsis picta
,, elegans,
,, Beyrichii, new
Kaulfussia tradeloides
Kennedya grandiflora
,, rubicunda superba, 1s.
Lantana Sellowii
Larkspur, German mixed, very splendid
,, Neapolitan
Lathyrus latifolius rubro
,, albus
Leptosiphon albuflorum
,, lilacinum
Leucaria senecioides
Leycesteria formosa
Limnanthus grandiflolius
Linaria perezii
Linum quadrifolium, 1s.
,, multicaule alba
Lisianthus Russellianus, 1s., with Cuthill's Treatise
,, glaucifolius, 1s.
Lonas, in varieties
Lobelia erinus
,, gracilis alba
,, heterophylla
,, propinqua
,, ramosus, splendid
Lophospermum erubescens
,, Hendersonii
Lotus cytissoides
Lupinus ornatus, 1s.
,, luchlus
,, many choice varieties
Lusiana calycina
Lychnis fulgens, 1s.
Lythrum speciosum, 1s.
Marianthus cœruleus
Martynia fragrans, 1s.
Maurandia Barclayana
,, new lilac
Mesembryanthemum tricolor
,, alba
Mimosa sensativa
,, elegans, new
Mimulus Hudsonii
,, moschatus, musk
,, choice mixed
Nemesia floribunda
Nemophila striata, new beautiful, 1s.
,, discoidalis
Nierembergia, fine mixed
Œnothera, in varieties
Oxalis rosea
,, floribunda
,, carnosa
Oxyura chrysanthemoides
Papaver Armaria
,, floribunda
Paeonia papaveracea
Passiflora lacarnata
Peas, Sweet, new large purple
,, white, everlasting
Penstemon gentianoides splendens
,, ovalifolium
,, pallidum novum
,, Schoulerii
,, mixed, splendid varieties
Petunia violacea grandiflora
,, mixed, from splendid varieties
,, in varieties, named

HURST & M'MULLEN'S Advertisement continued.

Phlox Drummondii, in many beautiful shades of colour
,, new white, 2s. 6d.
,, new scarlet, Wood's, 1s.
,, splendid new herbaceous, mixed, 1s.
Physalis edulis, Cape Gooseberry, 1s.
Picotee, imported, German, fine, 1s.
,, French, 1s.
,, English, saved from stage flowers, 1s.
Pimelea, in varieties, 1s.
Pink, saved from a splendid collection (Hodges, of Cheltenham), 1s.
,, new white Chinese
,, intermediate, fine
Platylobium formosum
,, Murrayanum, 1s.
Platystemon calaforuleum and linlare
Podolepis chrysantha
Podolobium, new variety
Podospermum angustifolium
Polyanthus, from named flowers, saved by a celebrated grower, 1s.
Poppy, new Himalayan
,, 12 other beautiful vars
Portulacca Thellusonii and splendens
Potentilla, 6 beautiful vars.
,, insignis, new and splendid
Primula cortusoides
,, sinensis, rosea, and alba, fringed
,, 8 beautiful shades of colour, mixed, 1s.
Psadium Cattleyanum, 1s. Guavo fruit
Ranunculus, saved from a superb collection
Rhodanthe Manglesii
Rhododendron, fine mixed
Salpiglossis, splendid variety, mixed
Salvia patens, and other vars.
Sanvitalia procumbens
Schizanthus albus
Schizanthus Grahamii, crimson
,, Hookerii, scarlet
,, Priestii, pale
,, retusus superbus
Schizopetalon Walkerii
Schypanthus elegans
Sedum cæruleum
Shortia Californica
Silene speciosa, and other vars.
Spiræa Aretica and Lindleyana
Sphenogyne grandiflora
Statice latifolia
Stocks, imported, German, mixed
,, New Emperor, scarlet and purple
,, Scarlet Intermediate, true
,, Purple do., new
,, imported, Prussian, in varieties
,, Prince of Wales
,, Chanois, superb
,, Victoria
,, splendid Giant Brompton
,, do Queen
,, new dwarf white wall-leaved, 6 inches
Swainsonia galigifolia
Sweet William, new double dark
Tagites signata
Tetranema Mexicana, new, 1s.
Thunbergia alata & aurantica
Trachymene cœrulea
Trachelium cœruleum
Tropæolum tricolorum
,, Jarrattli, 1s.
,, trimaculatum, 1s.
,, pentaphyllum
Verbena, fine mixed
Vesicaria utriculata
Veronica speciosa, 1s.
Viscaria oculata
Violet, Russian
Wahlenbergia cappilaris
Wallflower, new lilac
,, French striped
,, dwarf blood-red
Witsenia corymbosa
Zinnia elegans, splendid mixed

TO GENTLEMEN AND NURSERYMEN, &c.

EVERGREEN OAKS.—Eight Hundred to One Thousand Evergreen Oaks, two years plants, either fit for Potting or Planting, at 6s. per hundred about 750 Red and White Raspberry Canes, at 3s. per hundred, also about 150 Red, White, and Black Currants, and Gooseberries, 1s. 6d. per dozen.—Direct A. B., 12, Wood's Cottages, Sussex-road, Brixton, Surrey.

SELECTION OF CHOICE FLOWER SEEDS.

WILLIAM E. RENDLE & CO. have a small Stock of the following choice Flower Seeds. Many of the sorts, such as MARTYNIA FRAGRANS, PHLOX DRUMMONDII, and others of equal value, have been saved under the inspection of their Foreman, the Seed, therefore, can be warranted to be quite new, and correct to name

SCALE OF PRICES, SENT POSTAGE FREE.

50 Choice Flower Seeds, including the following, ... for 12s.
30 do. do. do. .... ,, 8s.
20 do. do. do. .... ,, 6s.

Brachycome iberidifolia.
Clintonia pulchella.
Martynia fragrans.
Didiscus cæruleus.
Eucharidium grandiflorum
Nemophila discoidalis.
Podotheca capitata.
Schizopetalon Walkerii.
Finest German Asters.
Rhodanthe Manglesii.
Phlox Drummondii.
Dianthus latifolius.
Lobelia erinus.
Mesembryanthemum tricolor.
Nemesia floribunda.
Schizanthus retusus.
Viscaria oculata.
Finest German Stock.

A useful Chart has just been published, giving the height, colour, and mode of raising the principal sorts of Flower Seeds, *gratis*, with each order. A General Catalogue can be had on application. A remittance is not required from known Correspondents, or those who give reference in London.

Union road Nursery, Plymouth, Mar. 7.

SUPERB SEEDLING FUCHSIAS.

W. J. EPPS, F.H.S., begs to inform the admirers of this flower that he purposes sending out, in the first week in April, the following distinct FUCHSIAS, feeling confident they cannot fail to give the highest satisfaction:—

LADY JULIA. This flower is of a beautiful waxy white, tube and sepals slightly tipped with green, corolla vivid crimson, habit good, and has merited the following high opinions:—

Gardeners' Gazette, July 19.—"J. W.—The white is very pretty and the contrast striking; even the green tips seem almost ornamental, instead of a blemish."

Gardeners' Chronicle, August 9.—"J. W. T.—The variety No. 1, with white tube and sepals and rosy crimson corolla, is a handsome variety, and one of the best of its class we have seen." 10s. 6d. per plant.

COUNTESS OF CORNWALLIS.—This Fuchsia is remarkably striking, and is decidedly the most splendid and distinct variety yet raised. The habit is very fine (like Eppsii), and a profuse bloomer. The following are the opinions of Dr. Lindley and G. Glenny, F.H.S.:—

Gardeners' Chronicle, Nov. 1.—"W. J. E.—Your Seedling is a handsome variety. Light tube slightly striped with pink, sepals expanding freely, disclosing a fine rosy crimson corolla. The flower is fine in texture, and will rank with the best of the light varieties."

Gardeners' Gazette, Oct. 25.—"Mr. Epps's Fuchsia.—Rich scarlet corolla; pale nearly white sepals; very striking, and, if the habit be good, a pretty accompaniment to 'Nymph' and 'Queen of Beauties.'" 10s. 6d. per plant.

QUEEN OF THE VIRGINS.—This also is very attractive, and will give great satisfaction. The tube and sepals light buff, corolla large, and of a beautiful dark crimson purple, superior to the "Queen of Beauties." This flower has only been submitted to Dr. Lindley, whose opinion is as follows:—

Gardeners' Chronicle, Sept. 6.—"W. K.—A very pretty light variety, having a fine crimson purple corolla." 10s. 6d. per plant.

The set 1*l.* 7*s.* The usual discount to the Trade where three of each are taken.

All orders from unknown correspondents to be accompanied with a remittance.—Bower Nursery, Maidstone, Feb. 28.

PETUNIA FRAGRANS.

WILLIAM GREGORY informs the Public that he purposes sending out the above plant the first week in April; colour, violet purple, very fragrant. It was submitted to the inspection of Dr. LINDLEY in October last, whose report was "Your flower is of a good form, bold and striking, and if combined with the powerful fragrance you describe, a desirable flower." Price, 3s. 6d., with the usual allowance to the Trade when three or more plants are taken.

Nurseries, Cirencester, March 7.

N.B. This advertisement will not be repeated.

NURSERYMEN AND FLORISTS TO HER MAJESTY, THE QUEEN.

NEW AND SUPERB WHITE FUCHSIA. "SANSPAREIL," 10s. 6d. per plant.

YOUELL AND CO. beg to call the attention of cultivators of FUCHSIAS to the above Seedling, which they will guarantee is not surpassed by any light variety yet raised, and will give general satisfaction, and refer to the following remarks upon it:—

"A *correct* representation of it may be seen at the Nursery." "An elegant flower, light tube and sepals, with a purple-crimson corolla."—See *Gardeners' Chronicle, Sept. 20th, 1845.*

"A NEW WHITE FUCHSIA.—We have just seen a magnificent white seedling Fuchsia, raised by the Messrs. YOUELL. The flower is about 3 inches in length, the tube and sepals white, and resembles 'Venus Victrix,' but is three times its size, and is much more brilliant and fair in colour. It should be called 'Sanspareil,' as it is most assuredly one of the most beautiful of its species. We quite envy Messrs. YOUELL their prize."—*Editor of the Cambridge Advertiser, Oct.* 1*st*, 1845.

Their 5 other fine Seedlings (for particulars of which see their Advertisement of the 17th inst.) will be ready for sending out with the above in the early part of May, and when the set is taken, will be charged 1*l.* 11*s.* 6*d.*

FUCHSIAS.

12 Ex. fine Varieties, 12s.	Selection left to Youell & Co.	
12 Ditto ditto 21s.	Selection left to Purchaser or do.	
50 Fine Varieties 40s.	Selection left to Youell & Co.	
50 Extra fine ditto 60s.	Selection left to Purchaser or do.	

SELECT SEEDLING VERBENAS (raised 1845.)

Exquisite, 5*s.*; Grandissima, 5*s.*; Helena, 3*s.* 6*d.*, Celeste, 3*s.* 6*d.*, Aurora, 3*s.* 6*d.*; Auberon, 3*s.* 6*d.* For description of the above, see their Advertisement of last week. They will be ready for sending out, per post, free, or otherwise, the first week in May, at 21*s.* the set.

12 fine varieties	6s per dozen.	
12 Extra ditto, very superior	10s.	,,
PANSIES, 12 fine varieties	10s.	,,
,, 12 Extra ditto, very superior, first-rate show flowers	18s.	,,
PETUNIAS, 12 ditto	9s.	,,
CINERARIAS, 12 ditto	12s. to 18s.	,,

ERICAS, fine and free-flowering sorts, by name, 9s., 12s., and 18s. per dozen.

Superb new heavy-edged PURPLE PICOTEE, "BURROUGHES'S PRESIDENT," 15s. per pair. For particulars, see *Gard. Chron.* of 11th Oct

Also, "BURROUGHES'S DUKE OF NEWCASTLE," the best light-edged Purple Picotee, 15s. per pair.

CARNATIONS AND PICOTEES.

			£	s.	d.
12 pairs extra fine and very superior first-class Show Flowers, by name			2	10	0
25	ditto	ditto	5	0	0
12	ditto	Fine Show Flowers ditto	1	10	0
25	ditto	ditto	3	0	0

12 pairs Showy Border Flowers ditto, 12s.

Extra fine Show Pinks, by name, per dozen pair, 12s.

HERBACEOUS PLANTS, fine sorts, 6s. to 9s. per dozen.

RIBES SANGUINEUM FLORE PLENO, 7s. 6d. per plant.

MYATT'S "BRITISH QUEEN" STRAWBERRY, 5s. per 100.

"PRINCESS ALICE MAUDE," ,, 10s. ,,

The finest DOUBLE ANEMONES, 12s. per lb.

The finest Mixed RANUNCULUSES, all from named flowers, 12s. per 100.

** Foreign Orders carefully executed so as to ensure safe transmission.

N.B. Steam Ships to London three times a week; to Hull, twice a week; and per rail to London every eight hours.

Their CATALOGUE for 1846 is just published, containing a list of prices of the very best Fuchsias, Verbenas, Select Plants, Camellias, Ericas, Coniferous Plants, Pelargoniums, Cinerarias, Pansies, Chrysanthemums, Antirrhinums, Polyanthus, Herbaceous Plants, Carnations, Picotees, Pinks, &c. &c., which will be forwarded on application by enclosing two postage stamps.

Great Yarmouth Nursery, Mar. 7.

SELECT VEGETABLE SEEDS.

WILLIAM E. RENDLE & CO. have much pleasure in announcing to those who are fond of really choice and good vegetables, that they have this year procured a small stock of the following valuable sorts, which are all warranted to grow well, and to be of genuine quality.

A Packet of each will be sent postage free to any part of Great Britain or Ireland for *Ten Shillings*, or a selection of 12 sorts for *Five Shillings*. Any sort separate at *Sixpence* p. Packet.

Willcove Broccoli.	Myatt's superior Curled Parsley.
New Early Walcheren do.	Enfield Matchless do.
Chappel's Cream do.	Superb Crimson Beet.
Legg's Late Dwarf do.	Imported Brussels Sprouts.
Large Syrian do.	White Spanish Onion.
Hampton Court do.	Green-topped Carrot.
Potter's Pink do.	Early Matchless Cabbage.
Walcheren Cauliflower.	Olive-shaped Radish.
Large Asiatic do.	Earliest Cornish do.
Improved Guernsey Parsnip.	Early Hope do.
Green Flesh Cabool Melon.	Early British Queen do.
Ice Cabbage Lettuce.	London Market do.
Drumhead do.	Early Paignton do.
Golden Cos do.	Seymour's White Celery.
Blood Red do.	Lancashire Hero (Red) do.
Hampton Court Cabbage do.	Walnut-flavoured Pink do.
London Market do.	Improved Manchester Cucumber.
Ady's Large Cos do.	
Wood's New Frame Radish.	

Complete collection of Seeds suitable for a Kitchen Garden for 1*l.* 10*s.*, *including the above, carriage free, to any place within* 250 *miles of Plymouth.*

ALL OTHER KINDS OF GARDEN SEEDS.

Early orders are desired, as *some of the kinds* are scarce.

A general collection of Garden Seeds can be had on application.

SEA-SIDE PLANTING—BLACK SALLOW.

JAMES GRIGOR, NURSERYMAN, Norwich, begs to state that he has just been awarded the Gold Medal of the Highland and Agricultural Society for a plan of planting maritime situations, as most successfully adopted on exposed north-west situations on the Cliffs of the German Ocean in the County of Norfolk. This triumph of Arboriculture has been chiefly accomplished by the use of the NORFOLK BLACK SALLOW—a most determined grower, even when closely exposed to the influences of the sea air. Yarmouth, Hunstanton, Harwich, Aberystwith, Brighton, Bridlington, and other seaside towns and villages, have already availed themselves of this tree; so that the long wished-for desideratum, that of being able to contemplate the grandeur of the ocean from the shelter of a sylvan bower, is now being supplied on the easiest of terms.

Strong slips, package included, and carriage paid to London or Hull, 10*s.* per 100. Important directions with each packet.

J. G. continues to supply plants of his valuable HIGHLAND PINE-TREE at from 5*s.* to 50*s.* per 1000, according to size. "I very particularly admire the Highland Pine."—*Duke of Newcastle.*—Nurseries, Norwich, March 7.

SHRUBS, &c., AT VERY LOW PRICES.

WILLIAM E. RENDLE & CO., having a very large stock of the following SHRUBS, &c., and wishing to clear the ground they occupy, offer them at *unusually low prices*. Those gentlemen, therefore, who are in want, will find the present a *rare opportunity* for procuring stock.

All the plants are in robust and healthy condition.

Ilex Oak, 3 years' seedlings, in pans	.. ..	30s.	0d. per 1000
,, fine transplanted, 6 to 9 inches	..	7	6 per 100
Chinese Arborvitæ, fine transplanted, 18 inches		15	0 ,,
Cypress do. 18 inches		15	0 ,,
Bays, 1 year seedling, from pans	.. ..	3	0 ,,
Arbutus do. do.	.. .. ..	5	0 ,,
Cistus laurifolius, fine transplanted	.. ..	15	0 ,,
Spruce Firs, 3 years' seedling	.. .. ..	1	6 per 1000
Ash, 1 year seedling	.. ..	1	0 ,,
Hollies do.	.. ..	7	0 ,,
Beech, 2 years' seedling	.. ..	3	6 ,,
Scarlet Oak, 3 years' seedling	.. .. ..	4	0 per 100
Seakale, fine roots	.. ..	3	6 ,,
Asparagus, Judd's Giant, fine roots	.. ..	2	6 ,,

All orders above 3l. will be delivered free of carriage to London, Liverpool, or Bristol. Post-office order or reference from unknown correspondents.

Plymouth, March 7.

The Gardeners' Chronicle.

SATURDAY, MARCH 7, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, Mar. 11	Society of Arts	. . . .	8 P.M.
Tuesday, — 17	Horticultural	. . . .	3 P.M.
	Linnean	. . . .	8 P.M.
Wednesday, — 18	Microscopical	. . . .	8 P.M.
Saturday, — 21	Royal Botanic	. . . .	4 P.M.

At page 187, 1842, were printed some observations on a paper, by Captain CHURCHILL, R.M., on the "Biscayan way of Cultivating ASPARAGUS at St. Sebastian's." The principal features of this mode are, to form beds about 5 feet in width and of any convenient length, and to sow the seed in March in two drills, 2 inches in depth and 18 inches from the alleys; thus leaving a space of 2 feet between the drills. When the seedlings are about 6 inches in height, they are thinned to something more than 1 foot apart. Water is conducted once a day among the alleys and over the beds, so as to give these seedlings an abundant and constant supply of fluid during the season of their growth. This is the cultivation during the first year.

The second year, in the month of March, the beds are covered 3 or 4 inches in thickness with town sewerage, which remains on them during the summer, and which is lightly dug in during the succeeding autumn; the operation of irrigation being continued as during the first season. In the third spring after sowing, the Asparagus is fit for cutting, all its energies being doubtless developed by the manure being dug in in the autumn of the second year; and when it does begin to sprout, it finds its roots in contact with soil of inexhaustible fertility. Previously, however, to the cutting, each bed is covered, in the month of March, very lightly with dead leaves to the depth of about 8 inches. The cutting does not commence till the plants peep through this covering, when it is carefully removed from the stems, in order that the finest only may be cut, which are rendered white by the leafy covering, and succulent by the excessive richness of the soil.

In the autumn of the third year, after the first cutting, the leaves are removed, and the beds are again dressed with town sewerage, and these operations are repeated annually. In addition to this the Asparagus ground is so situated that the beds are half under salt water at spring tides.

Since the above was published, several of our correspondents have tried the plan in part, and, with one or two exceptions, with the very best results; but none seem to have *wholly* adopted the system, and, therefore, it may be said never to have yet been fairly put to the test of experiment.

Of those who have partly followed the Spanish method, one says, p. 485, 1842, "I forked into worn-out beds some manure from an old Cucumber bed, levelled the surface, and completely covered the beds with fine salt, at least a ¼ of an inch in thickness, leaving it to be washed in by rains. The result was that every weed was killed, and the Asparagus has thriven in a remarkable degree, throwing up numerous heads of large size and of excellent quality."

With equally good success another applied salt in summer at the rate of 2 lbs. per square yard. A third (see p. 429, 1844) in the spring of 1843 which was cold and wet, manured his beds, 14 yards long and 1 wide, with salt at the rate of 2 lbs. to the yard. He adds that notwithstanding the unfavourable season, his produce was greater and finer than ever he previously had it. In the following year the same plan was adopted, the spring being dry and frequently hot, and the produce was even greater and better in every respect than that of the previous year. So satisfied is another correspondent with the system of salting Asparagus beds, that he says (p. 334, 1844):—"I have a bed 30 feet in length, and 5 feet in width, on which I put one cwt. of salt about the middle of March for two years successively. The increase of crop, both in regard to size and number, is most extraordinary; I intend to continue one cwt. of salt for this bed every March."

In like manner other writers used salt at the rate of from 1 lb. to 2½ lbs. per square yard with the most striking advantage, applying it after cutting off the tops, and in spring in rainy weather.

From these and numerous other instances it would appear that the beneficial effects of salt as a manure for Asparagus is now fully established, provided it is applied at a proper period, which, in the majority of cases, has been when the plant was in a growing state. Mr. BEEK, of Stowmarket, however, applied it with great advantage (see p. 621, 1844) after dressing the beds in autumn, and again *early* in spring, using 1 lb. to a square yard. He argues that the salt has to be washed through a considerable depth of soil before it reaches the root, and when it does arrive there that its caustic character will have materially altered by dilution and chemical decomposition, and that it will do no harm then, but that it is injurious when applied to the delicate texture of the young shoots late in the spring.

In the few cases in which salt has been said to be injurious, the beds have either been in bad condition as regards drainage (see page 444, 1844), or it has been applied to beds newly formed (see page 489 and 529, 1845), and therefore to plants with wounded roots, for such recently planted Asparagus must be considered to be, however carefully the plants may have been taken up. The same injurious effect might also be produced by the salt coming in contact with wounded portions of the plant, whether of the roots in consequence of cutting the sides of the beds when throwing up the soil from the alleys or of the crown in cutting the shoots. A tree will be killed by the application of a quantity of salt to a cut root, although a much larger quantity might be given with impunity when the roots are in a sound state.

Along with the salt some have used nightsoil; liquid manure fixed and prepared with sulphuric acid; Potter's liquid guano at the rate of half a pound per square yard, following the application by plenty of water. These have been all employed with marked advantage.

It must be mentioned, however, that it is the opinion of the best cultivators, that in addition to these substances Asparagus must have farm-yard manure, if it is to be grown well. This is probably true in the case of heavy, or close land; but in loose, friable soil must be unnecessary, for such soils do not require that their texture should be improved.

What a pity it is that up to the present time no one has, as far as we are aware, carried out the Biscayan plan exactly.

WE wish we could this week say to our readers—there is not so much cause for alarm concerning the next POTATO CROP, and the anticipations of its impending ruin are unfounded. On the contrary, every new fact which comes to light renders the danger more apparent, and we must repeat our warning that there is no *certainty* that any English or Irish Potatoes will be fit for seed. That some will prove good is very probable; we do not in the least doubt that many persons will again have sound crops; but in the present state of our knowledge it is quite impossible to say who, because sound sets cannot be distinguished from unsound ones, and therefore *the cultivation of the Potato is literally reduced to a game of chance.*

Mr. BARNES, of Apley-park, assures a contemporary that he has lost his Ash-leaved Kidneys; but he found watering with lime-water put a stop to the progress of the disease. Mr. W. WICKLE, of Somerhill, near Tonbridge, has sent a young Potato, of advanced growth, exhibiting the disease in some intensity. "It was grown in a Potato-pit, the bed made of leaves in the usual way, with 10 ins. of soil on the top (a compost made three years back for Vine-borders). The seed was saved from Potatoes grown in frames last May, and packed securely before disease appeared."

Mr. ROBERT FISH, gr. to Colonel SOWERBY, at Putteridgebury, finds "a sixth of his frame Potatoes attacked;" they were once very vigorous and healthy; now the old sets are decaying, and the points of the leaves and stems are dying back. "All the sets had been greened previously to planting."

At Farnham Castle, in Surrey, Mr. BUTCHER has a pit of Potatoes, 16 ft. by 8 ft., all destroyed by the disease of last year. The sets when planted appeared quite sound, and went on very promising till the stems were about 1 foot high.

Even those who have planted their Potatoes in the autumn are, we fear, in no better position than their neighbours; for although in some places the autumn-planted sets are sound at present, as, for instance, those in heavy London clay, and the "Silverskins," near Taunton, yet we have no guarantee for their producing healthy plants. On the contrary, Mr. BARNES's most recent observations show that near Sidmouth, the new crop in the open ground, all planted in the autumn "from selected sound seed, and one lot in a beautiful pulverized piece of ground where an old plantation had been grubbed up, where a Potato has never before been planted," is so entirely attacked that Mr. BARNES failed to discover one sound shoot among hundreds that he examined in the forenoon of March the 2nd. Every form of the mischief was showing itself "ten times more than among the forced Potatoes." And in the latter from Bicton, many of which have been submitted to our inspection by the order of Lady ROLLE, and were exhibited last Tuesday at the Meeting of the Horticultural Society in Regent-street, the old sets were already in so putrid a state that they could not be washed. Now it is to be remembered that this is a case where the sets were apparently sound, having been prepared and selected with all the precautions which care and great skill could suggest; *that the crops did not show a sign of disease till very lately*; that many of the plants are still uninjured, although surrounded by dying companions; and that the evil is the same in all sorts of places, and under all circumstances. It rages in the open air, and has carried off its victims from the early Peach house, second Peach house, first Melon pits, second Melon pits, and hooped and matted beds. Manuring in various ways, and no manure, offer equally fatal results; and, as Mr. BARNES justly observes, although the decay of the Potato may be prevented by skilful storing, yet "*when restored to the open ground, disease once more makes its appearance in every form that has been written of.*"

It is in this impossibility of telling whether a crop is or is not to be diseased that the worst feature of the mischief now resides; for if we are to wait till the new crop is a foot or more high before we can tell whether it is safe, we not only lose the crop, but the use of the land for the season.

And now we must entreat our readers not to deceive themselves with the hope that disease has shown itself in Devonshire, only because it is a warm damp county, and that to the northward they will be safe. It must be remembered that it broke out originally in the warmest part of northern Europe, in the countries to the eastward, such as Germany, Holland, Belgium, and Northern France; and that its westerly course was to all appearance connected with the state of the crops to be attacked. The appearance of disease at Bicton, and in forcing-houses, is but a repetition of the phenomenon of last year. Moreover, notwithstanding the unwillingness of some sufferers to admit what is going on, the want of observation in others, and but a small part of this crop having yet been planted—nevertheless, we find proofs gathering around us in all directions. The following places have been already indicated:—

Cumberland	1, open ground.
Cheshire	3, in forcing-houses.
Anglesea	1, in ditto.
Ireland	3, Fermoy, Baltinglass, Portlaw, and report says more.
Norfolk	1, in a house and in the open ground.
Hertfordshire	2, in frames.
Middlesex	2, in ditto.
Sussex	2, in ditto and the open ground.
Devonshire	2, in ditto and the open ground.
Shropshire	1, in ditto.
Kent	1, in ditto.
Surrey	1, in ditto.

But if these facts are in themselves most alarming, how much more so do they become when connected with the evidence collected in the United States. From the first outbreak of the disorder among us, the attention of Government was directed to the importance of obtaining information from other countries concerning the disease; and we have now been permitted by Lord ABERDEEN to examine the whole of the Consular returns relating to this subject.

In Maine and New Hampshire it appears to have been first noticed in 1844, and to have become general in 1845. Mr. PETERS, Her Majesty's Consul at Philadelphia, writes December 30, 1845, that the disease was very general in Pennsylvania in 1843, and *continued to prevail in* 1844 *and* 1845, but only partially; Mr. BARCLAY, at New York, states, January 10, 1846, that the disease existed in that quarter in 1843, 1844, and 1845; and Mr. GRATTAN, the Consul at Boston, reports it *began* in Massachussetts in 1843, *increased* in 1844, and *became very general* in 1845. So that if this murrain is to run its course here as it has in the United States, we have *at least two years more to suffer its visitation*; and, considering how fatal it proved last year, how early it appears now, and in

how many different quarters, it is impossible not to dread that what is coming is worse than what has passed.

Nor does it appear, from the valuable documents now alluded to, that the Americans, with all their sagacity and scientific knowledge, have been able to discover any means of stopping its ravages, Lime, with them, as with us, has been much employed, and with no certain success.

Under these circumstances it is probable that in Great Britain, where land is too valuable to waste in great experiments, and people too closely packed to be able to bear the destruction of hundreds of acres of food for two successive years, Potato cultivation will return to the gardens, and cease to be relied upon as an important source of food. And gardens are where it should have always remained. But while we feel it our duty to recommend that a better kind of crop should be substituted for the Potato, we have also endeavoured to procure all possible information respecting the sources from which sound Potatoes may be had; and we now produce, by permission of Government, the following abstract of such European consular returns as elucidate this question.

An abstract of returns furnished to the Foreign Office by Her Majesty's Consuls in Europe, showing the state of the Potato disease in their several Consulates

Alicant .. *No disease*, but Potatoes soapy, scarce, and dear.
Bayonne .. Crop much diseased and unfit for use in many places.
Barcelona . *No disease. Crop abundant.*
Boulogne . Crop diseased and defective to the extent of ½ or ⅔.
Brest .. ditto ditto
Bilbao .. Crop greatly affected.
Bordeaux . Early crop sound. Later crop half lost from disease.
Carthagena *No disease*: but carriage difficult and dear.
Cadiz .. *No disease*. but none to be had.
Cette .. ditto ditto
Christiania Disease partial, about Skien (Nov. 25). Exportation prohibited.
Calais .. Much disease; ⅔ lost.
Corsica .. *No disease.* Good crop.
Charente.. Much disease in heavy lands; mostly sound in light sandy soil.
Genoa .. *No disease*. none to be had.
Galicia .. *No disease*: crop very abundant.
Granville . Much disease; ⅔ lost.
Havre .. Disease very general; half lost near Dieppe; nine-tenths near Rouen.
Leghorn .. *No disease*: no supplies can be had now.
Lisbon .... Crop diseased at Figueira and Coimbra. No appearance of it at Lisbon. Very few to be had Nov. 29. In the Figueira district disease so general that few proprietors have enough left for seed. The few Potatoes affected in the neighbourhood of Lisbon were grown from seed received from England! Dec. 29.
Marseilles. *No disease in Provence.* Symptoms have manifested themselves in the neighbouring departments.
Malaga.... *No disease*: few or none to be had.
Nantes.... Disease considerable.
Naples .... *No disease*; crop abundant and excellent.
Oporto .... Disease in the districts near the Douro; thought to be contagious. In the Beira alta, and neighbourhood of Oporto, an abundance; but now (Nov. 15), in many places of the Beira alta, and Tras os Montes they are beginning to rot.
Palermo .. *No disease*; none to be had; will not keep.
Stockholm Exportation prohibited.

It must be confessed that the prospects of Potato growers are not improved by these important returns; for it is clear that no supply of seed can be expected at this season of the year from Mediterranean ports, where alone, with the single exception of Galicia, the crop is sound. No reliance can be placed on the Portuguese seed; and with the exception of north-west Spain, all the northern districts of Europe are evidently as badly off as ourselves, or worse.

Under these circumstances we must look to this country, and consider whether it will be safe to use any sets that can be procured at home. We have no confidence in any one English, Welsh, or Irish *county*; and our trust in the goodness of the Potatoes from the north of Scotland, or even the Calf of Man, is shaken; some *localities*, however, offer a chance of good seed, and these are to be found scattered in a most unintelligible manner all over the kingdom. We may add that among the mass of conflicting evidence which overwhelms the Potato question, two solitary facts stand alone in their uniformity. The first is, that the Irish Cup Potato has, upon the whole, suffered less than any other field sort, both in Great Britain and Canada; the other is, that Potatoes on mossy or peaty soil are far less diseased than any others. It may therefore be a question whether the Irish Cup, from "moss" or peat land, will not supply sound seed. The misfortune is, that it is impossible to tell beforehand how such an experiment will turn out.

Believing as we now do that the wisest course for the peasantry and small farmers, who cannot afford to speculate in so uncertain a crop as Potatoes, is to discontinue their cultivation, we must endeavour to ascertain what substitute can be found for so large an article of diet; a most serious consideration for all who value, we do not say the comfort of the poor, but the safety of the country. In allotments and small holdings there is little means of changing crops, and in so many cases the occupiers mainly depend on their garden produce that the fittest substitute for the Potato becomes a most difficult question, the reply to which will admit of small delay. For that reason we venture at once to make some suggestions of our own, and to ask our correspondents to favour us with their views as early as possible in the ensuing week so that we may be enabled to resume the subject advantageously next Saturday.

The main point in this enquiry is to secure a *certain* crop, of good quality; the quantity of it, however important, is quite secondary. In this point of view it will probably be admitted that Oats offer the best resource. An acre of Oats will average, say 40 bushels, or 1700 lbs. of clean corn, exclusive of straw; of this 1316 lbs. will conduce to human sustenance; or if we merely calculate the nitrogenous materials 260 lbs. In these respects it is doubtless inferior to Potatoes, an acre of which yielding 8 tons, will furnish 2613 lbs. of nutritive matter of all kinds, or 400 lbs. of nitrogenous compounds. But the first is certain, and in allotments will yield a larger produce; the latter is worse than precarious.

Another crop of great value is the Hollow-crowned Parsnip. If we assume an acre of this root to yield on an average 12 tons (Colonel LE COUTEUR speaks of 27 tons in Jersey), we shall have 3216 lbs. of nutritive matter, of which 1200 (?) lbs. are nitrogenous. Altringham Carrots are also of much excellence; 15 tons of Carrots will yield 4032 lbs. of nutritive matter, of which 500 (?) lbs. are nitrogenous;* and if the White Belgian variety is sown, the produce is far higher; Colonel LE COUTEUR mentions, we think, as much as 38 tons having been obtained. The main objection to Carrots and Parsnips seems to be that they are subject to the rot. It is certain that in the past year both roots have been partially affected by a disease analogous to, if not identical with, the Potato murrain. Indeed, a case of the kind in some long red Carrots from Lord LANSDOWNE'S, at Bowood, was produced last Tuesday by Mr. SPENCER, at the Meeting of the Horticultural Society. We are not aware, however, that this disease has appeared to any more serious extent than that in Turnips. The Carrot and Parsnip are, indeed, so perfectly hardy, that we can scarcely anticipate a serious risk in growing them.

Very large weights of such Cabbages as the Drumhead and large Green Savoy may be readily obtained; and although we cannot just now lay our hands upon any satisfactory analysis of them, it is well known that they are very nutritious; in one place we see that they are asserted to yield 8001 lbs. of nitrogenous matter per acre. Scotch Kale is another hardy and most useful plant of the Cabbage race.

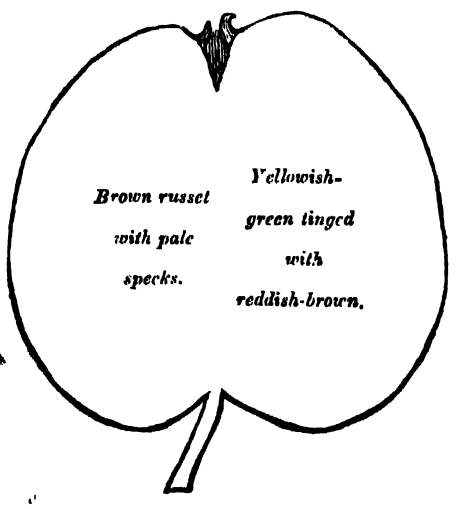
Our narrow limits, however, compel us to break off, without pursuing this inquiry any further for the present. We shall next week endeavour to suggest some experiments which may be worth trying in the ensuing season, and also to make some more definite proposals for the benefit of small growers who may wish to find a substitute for Potatoes.

* These computations are furnished by a friend, and require re-examination.

THE COCKLE PIPPIN.

Synonymes.—Nutmeg Cockle, Nutmeg Pippin, Brown Cockle Pippin, White Cockle Pippin.

Many collections consist of varieties which produce a superabundance of autumn and early winter fruit, whilst the supply for a later period is very deficient.



In order to remedy this, some good keeping sorts have been lately noticed in the *Chronicle*; and the one here represented will be found a very useful addition. It is a Sussex variety, much valued in the London markets on account of its sound keeping till late in the spring, as well as for its good qualities in other respects.

The fruit is sometimes nearly smooth, but generally it is browned with russet, particularly near the base. Small plaits surround the eye. The flesh is firm, yellowish-white, rich and sugary. Fit for use in January, and continues good till April, and may even be kept later. The tree is a good bearer. Shoots moderately strong, light brown. Leaves middle sized, oblong, somewhat acuminate, acutely crenated; stipules linear. Flowers rather below medium size; petals oval. One of the few varieties of late-keeping Apples which acquired anything like their usual flavour in the past unfavourable season.—*R. T*

THE AMATEUR GARDENER.

POTTING.—As this is the season when the plants in pits and frames, which have survived the winter, require repotting, the amateur should make himself acquainted with the best method of performing the operation, that his collection may have the best chance for future development. My observations on this subject will principally regard those who have not a greenhouse, and will refer to those classes of plants which may be kept with care during our winters in frames, such as Pelargoniums, Fuchsias, Calceolarias, Verbenas, Petunias, &c. These having been stored away in very small pots, must now be transferred to more roomy quarters, and finally potted previous to blooming.

The possession of soil of the right character is indispensably requisite to the successful potting of plants, and the gardener must attend to this before he commences his labours in this department of his art. The theory is, that the compost should be of such a character as to continue porous as long as possible, and be capable of yielding suitable nutriment to the productions committed to it. Those who have had experience in such matters will remember the different results manifested in watering plants in pots. In some cases the water passes rapidly through the mould, in others it pursues a wavy, sluggish, and lethean course to the bottom of the pot, and, in a few instances, it stands on the surface a long time after it is applied. Now, it will almost universally hold good that, in the first instance, the plant is in good health; in the second, it is slow in its growth; in the third, it is dwarfish and sickly. A compost must therefore be chosen which has porosity sufficient to allow water to move quickly off; for, if redundancy of water is fatal in field culture, it must be even more injurious in the contracted limits of a flower-pot.

I know that ladies who love gardening, and have a limited number of favourites which they tend with their own fair hands, are often at fault in reference to the soil which they should employ for potting. I will endeavour to make the subject as clear as possible, and also as easy; for it is possible to deter from floricultural pursuits by a cumbrous parade of science, or an unscientific minuteness as to the composition of soils. I remember when I became devoted to gardening some years back, and tried my skill on Auriculas and Carnations, I was discouraged and disgusted with the long catalogue of nostrums said to be beneficial to their growth. Night-soil and pigeons'-dung and sugar-bakers' scum are rather ill-favoured materials to have to manipulate; and although it is true such things are highly valuable in some circumstances, I can from considerable experience aver that horticulture can be successfully pursued without them.

I shall presently point out a mode of securing a proper compost at a day's warning, in cases in which an amateur has neglected to lay up a store of materials, but it is necessary to insist in the first place on the importance of having a well prepared heap, which will furnish a supply whenever it is wanted. For this, two materials will be sufficient. Good turfy loam from an old meadow is the *ne plus ultra* in the estimation of all expert gardeners, and its value cannot be too highly estimated. Get as much of the turf with it as you can, and put it in a heap for 12 months, when it will be fit for use. The other material is thoroughly-rotted stable-dung, taken from an old Cucumber frame, or by any other means brought to the state of dark friable mould. Two years are requisite to produce this complete rottenness. In the autumn these materials should be well mixed in equal quantities, and turned over two or three times in the winter. For most plants this compost will be found admirably suited, and there are few things which will not flourish in it. The turfy fibrous character of the loam secures a good drainage, and the rotten dung is *pabulum* adapted to the production of a vigorous growth and fine flowers.

But if you have not this goodly admixture, the result of two years' forethought, what is to be done then? As a substitute, take some of the best soil of your kitchen garden, part of an old Celery-trench, for example, and give it the requisite porousness by the addition of road-grit or silver sand. If you can collect some rotten leaves and mix with this substitute, it will make it more effective. Experience will soon show you whether you have a compost of the kind you want, and after a little practice all will be easy. But if the past cannot be altered, its omissions may have a profitable bearing on the future, and the preparation of a proper compost should be as sedulously thought of as the winter care of the plants themselves. The operation of potting must be treated of in another paper.—*H. B.*

Home Correspondence.

Polmaise Heating.—Presuming that your desire is to elicit by discussion the relative advantages of different systems, rather than to support any one in particular, I venture to offer one or two remarks on an article by Mr. Meeke, in your Paper of February 28. He says, "The question of the production of heat is not

at all involved; no one will deny that a certain amount of burning fuel, will evolve only a certain amount of caloric; no one pretends that the water produces the caloric;" so far it is all very well, but when he concludes the sentence by adding, "it is then a simple question of distribution which we have to examine." It naturally occurs to ask, whether the caloric, or to use the simple word heat, can be distributed before it is collected? If the fuel in burning evolves the heat, does not the apparatus in which it is burnt, first collect and then distribute it? It is not, I think, asserted that any apparatus collects all the heat which is evolved, more or less passing up the chimney, according to the construction of the furnace, and the degree of briskness with which the fire is allowed to burn. Some, and not a very small degree of merit, then, belongs to that apparatus which collects the greatest amount of heat evolved from a given quantity of firs. Does the Polmaise system, as a system, necessarily lay claim to this merit? Without controverting the manner which Mr. Meeke describes, as that by which the heat is conveyed by means of the water in the pipes, nor that it passes through the thickness of the metal, by conduction, to the surface, the length of time required for this operation, whether a few more or less of seconds be necessary, does not in practice, involve the least difficulty; especially where copper pipes are used. The main point is, whether an equal amount of heat is collected and distributed from a given quantity of fuel, by the hot water system (the contrary has yet to be shown); a mere imaginary difference in the rapidity of distribution, does not necessarily imply practical inferiority. The loss of heat which Mr. Meeke complains of, from the position of the boiler in many cases, is not a necessary evil attendant on the use of hot water, but arises from various causes, not knowing better amongst others, and might to a very great extent be avoided. I need make no remarks upon atmospheric moisture; every one who has a decent hot-water apparatus, and knows how to use it, can supply it at discretion. There is one point of view with regard to expense, in which the hot-water does not appear altogether at disadvantage. The Polmaise system is applicable to single houses or two under one range at most; and these almost requiring the lean-to form, whereas several houses and pits may be very easily heated by one boiler; and it is in this, the daily consumption of fuel, and attendance on several fires, that the expense of forcing houses consist, more than in the first cost. A larger outlay at first may be more economical and least trouble in the end. There is another point in favour of the hot water. The Polmaise system requires a considerable briskness in the fire before it can be set in action, and below which it cannot be maintained; the hot-water is obedient to every impulse, even that of a small slow fire, and has the advantage of supplying bottom-heat at the same time.—*T. K.*——I consider this system of heating to require better recommendation for general purposes than the flattering statements we have hitherto had. As Mr. Ayres justly observes (p. 53), no doubt the border was well made, and other circumstances favourable to getting the Vines into fine, strong, healthy condition, which might have occurred under ordinary treatment. To ripen Grapes in September is but little recommendation to the heating powers of the Polmaise plan, and I have no doubt that equally good Grapes would have been produced by the common flue system. As a proof of this, the latest house of Grapes here was ripe in September; and as the weather was colder during July and part of August last year, than we have had it during January and February hitherto, more fire-heat was used than in previous years, when fires were not lighted except in damp and cold weather, and when equally good Grapes were produced with those of last year. The house alluded to is heated by a front flue, and the crops astonished everybody who saw them; the greater part of the bunches exceeded 3 lbs. in weight, and several more than 5 lbs.; as black as jet, with a splendid bloom, and every berry perfect; each Vine produced on an average from 12 to 14 bunches, weighing, in the aggregate, from 30 to 40 lbs. Were the Polmaise Grapes superior to these? Perhaps some may doubt the truth of this statement; but it will be admitted by those who attended the three principal shows at Chiswick, that I had better Hamburgh Grapes than any there, and that too under very unfavourable circumstances, having 160 miles to send them by railway. It was mentioned in the report of the exhibition that fine Hamburgh Grapes were produced from Apley Park, but not quite coloured. Now, when these were first cut and packed they were perfect black, with a fine bloom, but travelling made a material alteration in the appearance of them when they arrived at Chiswick. My Vines are nearly all Hamburghs, and they were planted in the year 1823, so that they are not young. From what I have said it may be thought that I am for smoke flues for general purposes, but this is not the case, and I am at present having hot water introduced into the Peach-house and other forcing structures; but I would prefer flues, well built, to an imperfect hot-water apparatus, for early forcing. Great praise is due to Mr. Ayres for his plain and sensible statements, which are facts, and for exposing a plan which requires stronger proofs of its efficiency than has hitherto been produced, to render it a favourite with the public in general.—*Stephen Barnes, Apley Park, Bridgnorth.*

Substitute for Potato Diet.—In these times it may perhaps be interesting to some of your readers to know what good substitute can be recommended for the use of Potatoes. Some two or three months ago I undertook the duties of a member of the House Committee of Directors of the Caledonian Asylum, within whose province is the receiving of tenders, and the ordering of supplies of provisions for the Institution. Anticipating a dearth of Potatoes, and the difficulty of obtaining them of tolerable quality at any price, I suggested the propriety of laying in a stock of Rice and Peas, to be served to the children at their meals instead of Potatoes. The result of the experiment has been highly satisfactory, as we have found that 1¼ oz. of Rice will go as far as 6 oz. of Potatoes, and cost somewhat less than the latter, when the price is 7*s.* 3*d.* the cwt. The Peas are somewhat more expensive; but as they are chiefly used as a substitute for the suet puddings which were served once or twice a week, there is still, as will be perceived from the annexed paper, a considerable saving by thus using them. The calculation with respect to the milk and sugar was with a view to ascertain the cost of serving up the Rice in the form of Rice-broth. I ought to state that the children of the Asylum are pleased with the change made in their diet, and appear to relish much both the Rice and Peas.—*A. Henderson, Curson-street. Feb.* 28. The following is the paper above alluded to:—

Potatoes for 86 boys and 30 girls, at 6 oz. each, 708 oz., 44¼ lbs.
Price of Potatoes 7*s.* 3*d.* per cwt., or ¾*d.* per lb., 44¼ lbs., at ¾*d.* 2*s.* 10*d.* nearly.
Suet for ditto, 7 lbs., at 6½*d.* per lb., 3*s.* 7½*d.*
Flour for ditto, 22½ lbs., at 39*s.* per sack, or 1¾*d.* nearly per lb., 3*s.* 3*d.*
Rice for ditto, at 1¼ oz. each, 177 oz., 11 1-16th lbs., at 3*d.* per lb., or 28*s.* per cwt., 11¼ lbs., at 3*d.*, 2*s.* 9*d.*
Milk for ditto, 10 quarts at 3*d.*, 2*s.* 6*d.*
Sugar for ditto, 2 lbs. at 6*d.*, 1*s.*
Peas for ditto, 12*s.* 6*d.* per bushel, or 2⅞*d.* nearly per lb., 2 oz. each, 236 oz., 14¾ lbs. at 2⅞*d.*, 3*s.* 7*d.*

Earliest Hyacinths.—I have several Hyacinths growing in the open border in beautiful bloom. Those most advanced are Anna Maria, Alamode, Prince of Waterloo, La Déesse, General Van Ziethen, Passe tout, and Prince Frederick. The last named is in great perfection, the crowning bell having fully opened two or three days ago. On Thursday last, the 26th ult., I pulled Rhubarb which had been without any kind of protection. Several of the stalks were upwards of a foot in length. The variety was Marshall's Early Scarlet.—*G. W. Manning, Boscastle, Cornwall. Feb.* 28.

The Season.—I imagine that so mild a winter as the present one has rarely occurred. During the month of January we had in blossom Primroses, Violets, Crocus, Snowdrops, Hepaticas, Wallflowers, Stocks, &c., and the song of the thrush, blackbird, and lark was everywhere to be heard. The temperature in February has been similar to that of April or May, and at present (now the 26th of Feb.), there is no appearance of a change. The hedges are fast coming into leaf, and are in that state in which they usually appear at the beginning or middle of April. The Elder trees are in full leaf; and on the 16th of last month a friend of mine gathered a sprig of the Blackthorn in blossom. It is now very commonly the case. Pear trees, Apple trees, &c., are all but in blossom, and there are young Gooseberries on the trees. This day I saw in a garden a Honeysuckle in full blossom, and a Whitethorn edge perfectly green, having some of its leaves fully expanded, and I inclose a sprig or two; also some Mignonette, which I have just gathered in my garden. I may also mention that the Fuchsias in my garden have not lost their last year's foliage, and that the new shoots have made considerable progress. What a contrast to the season of 1845, when, at the end of April, vegetation was in much the same state as it now is in February. It may probably be remembered that the season of 1834 was very similar to the present one, and that we had then a check in March, with cutting north-easterly winds.—*W. W., Chichester, Feb* 26.—It may be interesting to know that the following plants are in flower in the walks of St. John's College, Cambridge:—Muscari racemosum, Primula vulgaris, Anemone nemorosa, Narcissus Pseudo-Narcissus, Ranunculus ficaria, Daphne Laureola, Buxus sempervirens, Taxus baccata, Pyrus japonicus. I also saw buds on the Honeysuckle (Lonicera periclymenum), only not opened. The temperature on the last two nights has not fallen below 50° Fahr. It is probable that no such season is on record. The Whitethorn hedges are producing their buds, Elder is almost in leaf, and the Elm is in flower.—*C. C. B.*

The Season in Northumberland.—My Apricots and Peaches have begun flowering, and flower strong. There never was here before so easy a winter, and so evenly progressive a spring. Snowdrops are about over, and Winter Aconite quite; Balm of Gilead unkilled in borders, and some of the Verbenas. Against a south wall, Verbena (Aloysia) triphylla, wood unhurt, and budding out. Arbutus has flowered through the winter, and even Oleaster is budding. Primula helvetica in garden borders is in full flower. Thorn hedges green in places. An old plant of Melaleuca hypericifolia, set out yet not plunged, to take its chance in November, is still unhurt, and beginning to grow from the ends of branches. Scilla sibirica is in flower. The wood of Fuchsia discolor and Riccartoni has stood in some places, and is budding out. Pyrus japonica, standing exposed, is in flower.—*C. M.*

New description of Fuel for Boilers.—As I frequently read of the bad performance of boilers, and of the care and attention required to keep the fires from going out, I am induced to offer a few hints by which any description of boiler may be made to burn for a much longer period than can be at all necessary, without attendance. Let such of your readers who wish to try the plan, or who being short of hands are desirous that their boiler should burn from night till morning, obtain from their coal merchant a load of blacksmiths' slack (small coal-powder used in blacksmiths' forges) and a sufficient quantity of fresh cow-dung from a cow-house; let some boys and girls be then set to work to make coal balls, about the size of a small Orange; first kneading the coal-slack and cow-dung together a little at a time, to the consistence of brick clay, using only as much of the soft cow-dung as is sufficient to hold the small coal-dust together. Boys and girls soon learn in a few trials to make these balls quite hard and round between the palms of the hands, and can make as much in a few hours as will last for a month, if used only at night. A heap of the coal-dust on one side of them, and a small stable basket of fresh cowdung on the other is all that is necessary. When made, pile them up in any corner for use; they will soon be dry enough for that purpose. When the gardener pays his last visit to the fires at night, let him rake out the fire to a few inches of the bottom, say to one-third of the whole space; fill up the remaining two-thirds with the balls, and in most cases that is all the trouble that need be taken till next morning. If they are quite dry at the time of using they will burn more rapidly than if not so, and therefore better adapted for slow and badly drawing boilers; but for quick draught a little dampness will not signify. In boilers of great draught, a little slack, damped, will be required to put on the top of them, but not mixed in with these more than can be avoided. In making the balls the stuff should be well mixed first, and pressed together tolerably hard. Should any of your readers find this plan to answer, perhaps they will be so kind as communicate their success. If the coal called Kilkenny coal be used, a good fire made with such balls will last 24 hours.—*The Captain.*

Potato Disease.—I have lately found, upon close observation, with the assistance of a good microscope, that in a few days after planting apparently sound Potatoes to all outward appearance, the disease first shows itself in little white oozings, in bunches of from 8 to 40 or more, something like a bunch of insect's eggs, or, as some would say, fly-blows; they are of a conical shape. Those little oozings, at first, have a shiny icy appearance, like salt or saltpetre, and are distant from each other, but they spread, and eventually meet in apparently one mass, looking like little lumps of starch, and when touched in a dry state, have exactly the feel of starch. Decay very quickly commences, and gangrene and putrified blotches immediately follow, exactly where those white oozings were observed; then, in a very short time, may be observed a white mildew or fungus, and in this stage the disease runs like wildfire; if a slice is cut from that part of the Potato on which this white oozing has first commenced, and the inside examined just opposite those white oozings that appear on the outside, saffron yellow looking gatherings may be observed, extending into the interior of the Potato; if a slice is cut off and examined after the gangrene putrefaction has taken place, those spots will have become much darker in colour, and in a very short time the whole tuber is thus affected. I also observe disease at the base of almost every eye which the tubers put forth in the open ground; I have examined some hundreds of various plantings, and not a perfect eye can I find; this white oozing springs up round the base of the eye, or young shoot, after the sets are planted, and of course very soon affects the shoots, no matter how strongly they may push forth, just under, or mostly within two inches of the surface of the soil. The shoots present first a dropsical, cancerous appearance, which swells until it bursts, cankers the shoot, which eventually drops down; the lower portion continues to put forth other shoots, to be attacked in the same way, until, from an occasional very strong tuber, a large bunch, or burr, of weak shoots is made, and the whole die off, when the vitality of the tuber is quite exhausted. These are facts which may be depended on. In regard to those we have planted of late, I cannot now see the shadow of a chance of their ever producing new tubers; we have not planted a Potato but what has been well greened, hardened, and well stored. We may possibly, however, obtain some return from the earliest autumn-planted crop; for they have grown wonderfully strong, though all affected—even the fibrous roots are affected plainly enough to be seen by the naked eye. The crops here altogether are getting worse daily, and should we get a crop of any kind this season, of course the progeny will all be affected; and by what means to prevent it I am quite at a loss to guess. There is no remedy to my knowledge that will expel or eradicate the disease from the sap or juices of the Potato, where the seat of the disease evidently lies. The only hope to be entertained is from a new stock, and, perhaps, to be safe, too, from imported seed. Under these circumstances, we must turn our attention to the production of other vegetables, more particularly Parsnips, as a root crop, and perhaps Jerusalem Artichokes, until we can find a better substitute. The above facts should certainly act as a caution to all. In conclusion, it may be of importance to mention that a quantity of tubers grown last year, and manured with soot, charred refuse, &c., still continue quite sound, never yet having shown the least appearance of the prevailing disease in any shape that I could discover, with the exception of having the foliage and stalks overrun with the black inky and burned-looking spots at the time when the others were killed. I am, of course, dubious of them; but still, up

to this time, they do happen to be quite clear in every respect. This matter I shall continue to closely watch, and take an opportunity of forwarding the particulars. The whole of the stalks and leaves are scorched up and gone from the first or early crops, and the young tubers are now affected, and the old Potatoes for present use are now going very fast with the pest, although they have been well stored.—*James Barnes, Bicton Gardens, Sidmouth.*—To-day I examined a three-light pit of Potatoes, planted in October, 1846, with Chapman's Potato, sets grown and saved by myself from early spring planting the same year. Sounder seeds could not be, to all appearance, when planted. The haulm was never touched by frost. A month ago it showed symptoms of disease, and continued; when, on examining it to-day, to my great disappointment, I could only get 2 lbs. of tubers the size of a pigeon's egg, the largest from the three-light. The stalk, 3 or 4 ins. next the old tuber, of a rusty colour, dry and brittle; and the tubers which were produced grew above the diseased part, from the joint of the stem after it was finally earthed up, so that the produce must be a second produce; and if it had not been earthed would prove a complete failure. My next succession, a four-light pit, Ash-leaf Kidney, sets saved same time as the other, nothing can look more luxuriant than at present; and should a failure occur I shall report to you. Perhaps it will be more interesting and desirable, as I am addressing you from the south of Ireland.—*D. R., Portlaw, near Carrick-on-suir, Feb 28.*

Potatoes in Ireland.—I was led, by some remarks on the failure of the Potato in your Paper received yesterday, to look at my Ash-leaved Kidneys, planted in a frame late in last year. They have hitherto shown every symptom of robust health, luxuriant foliage, 12 and 18 inches high or so, and on some of them fine young Potatoes. I found that the disease had attacked some of them, beginning at the root and proceeding upwards. I this morning renewed examination, and found that the state of the plant depended on the present condition of the seed tuber. Those which are attacked with disease I found to have their seed tubers completely rotten. Those which are still untouched I found to have the tuber *not* completely rotten, and that part to which the stalk of the plant was attached still sound. I then removed from them this seed tuber, and replanted the still healthy plant. I of course threw out all the diseased plants. From consideration of this, I am led to this conclusion, that the Potato this season has full nutriment to produce a fine, strong, healthy plant; and that the plant will retain its luxuriance and vigour so long as the seed tuber to which its stalk is attached remains sound; but as soon as that rots it communicates the rot to the stalk, and every appearance of the disease follows. The seed Potato for this year has not, I think, the faculty of keeping sound in the ground after it has produced its plant, as in ordinary seasons (judging, of course, from my Ash-leaved Kidneys.) I, therefore, am now removing Potatoes of different kinds to a floor in a store, and have them laid singly on it, and a little mould sprinkled over. As soon as the shoots are strong enough and rooted, I intend to separate them from the Potato and plant them out; these will then be free from the contagion of decay of the seed tuber. This plan is, I think, worth trial, as I think it is the premature decay of the seed tuber which communicates the disorder to the part of the stalk to which it is attached. One of your correspondents mentions that some of his Kidney Potatoes are still safe; if I were in his place I would carefully raise every one, and take off the seed-tuber. I have no doubt that he will find the seed tubers of those still safe to be not quite rotten yet, and in those which are diseased he will find them in a total state of rottenness.—*A. Thompson, Killylomain, Portadown, Ireland.*

Potatoes.—No method of preventing the progress of decay in partially diseased Potatoes has, in this vicinity, been so efficacious as leaving them unmoved in the ground until wanted. The last autumn, cases occurred of portions of plots being taken up by my allotment tenants at different times, all of which when dug up appeared sound, and were fit for use; but when the last were moved, a great portion of those which had been taken up the soonest and pitted, had become quite decayed. The ground occupied by Potatoes last year is now being dug and forked for other crops, and, as usual, many Potatoes are found which escaped notice; but of these I have not, upon inquiry, heard that a single tuber, even of the kinds which had suffered the most, is unfit for use. They appear in a much sounder state than they were when dug up before the winter. If, then, the malady should prevail another year, would it not be prudent to make the experiment with a part of the Potato crops, of taking up alternate rows for use, and earthing up the remainder sufficiently high to protect them from the effects of frost? A plan similar to this is often adopted by the epicure. The whole crop is left and covered with straw, long stable dung, &c., by which precaution fresh dug Potatoes may be had the whole winter, and are considered much more palatable than those taken up at the usual time.—*Rev. Dr. Stephenson, Souldern Rectory, Oxon.*

Fire-Mortar.—I fear the loam and lime recommended at p. 118, by "Alpha," will not stand in a high heat. As furnaces should be constructed with fire-bricks, I think the "putty" may be had of the sellers of the bricks; but if there be any difficulty in procuring it, and the work to be done be in a coal district, very many coal veins have fire-clay under them sufficiently good for common purposes; or pipe-clay, or potters'-clay mixed with a fourth of coke-dust, will stand high heats, and will not be likely to crack.—*Lusor.*

Peas.—I have practised the following mode of producing early Peas for these eight or nine years with good success:—Cut turves two or three inches in breadth and 18 ins. in length, turn them upside down, make a small mark lengthways in the turf sufficient to hold one row of Peas. Place them on a hotbed, or in a pit with a little heat, then sow your Peas. Two ordinary lights will hold about 50 yards. I sow about the 1st of February, and plant out in the first favourable opportunity in March.—*J. M., Sussex.*

Weekly Prices of Potatoes per ton, in *Covent Garden Market*, in 1845, and 1846.

	1845.			1846.	
Feb.....	1	50*s.* to 80*s.*	Jan. 31	70*s.* to 140*s.*	
	8	50	80	Feb..... 7	70 160
	15	50	80	14	70 160
	22	50	80	21	70 160
March	1	50	80	28	70 160
	8	50	90	March 7	70 170

Also at the waterside, *Southwark.*

Feb.....	3	55*s.* to 80*s.*	Feb.....	2	50*s.* to 120*s*
	10	55	80	9	50 120
	17	55	80	16	50 120
	24	55	80	23	50 120
March	3	55	80	March 2	60 140

Societies.

HORTICULTURAL SOCIETY.

March 3.—R. W. Barchard, Esq., in the chair. J. J. Blandy, Esq., of High Grove, Reading, was elected a Fellow. Of plants some capital specimens were produced, foremost among which may be mentioned a magnificent Erica aristata major, measuring about 2 ft. in diameter, and the same in height, covered with blossoms, from Mr. Green, gr. to Sir E. Antrobus, Bart., from whose garden also came a handsome Platus grandifolius and an enormous mass of the useful winter flowering Centradenia rosea. A Banksian Medal was awarded for the Cape Heath. Mr. Robertson, gr. to Mrs. Lawrence, sent Schomburgkia violacea, a beautiful South American species; a new Odontoglossum, with spotted white flowers; and the rare Phalænopsis amabilis, or white Butterfly-plant; a Knightian medal was awarded.—From Messrs. Veitch and Son, of Exeter, was a new yellow-flowered Tropæolum, which had been sent from Peru by Mr. Lobb, for which a certificate was awarded.—Finally of new things, Messrs. Loddiges, of Hackney, sent a new drooping-flowered plant, not before known in Europe, from Tropical Africa, for which a Knightian medal was awarded. It was named Ansellia Africana, in honour of Mr. Ansell, who when he was out with the Niger expedition found it growing on the trunk of the Oil Palm, in the island of Fernando Po. It proves to be a very handsome thing, and will be an acquisition to the Orchidaceous house. —Mr. Ball, nurseryman, Taunton, exhibited a pretty seedling Epacris; and a new Pelargonium named Bella, exhibiting a great improvement, as regards quality, on the kinds usually employed for forcing, was sent by Mr. Beck, of Isleworth, from whom also a communication was read regarding Mr. Simmons's hygrometer. It was mentioned that Mr. B. had had one in use for several weeks, during which time dull weather generally prevailed; but that in the three hot days we have lately had he had learned from this instrument that his arrangements for heating his Orchidaceous house were very defective, inasmuch as the power of creating moisture in the shape of vapour depended upon the temperature of the heating apparatus, which is a tank, on whose surface are water-tight compartments fitted with a plug. The heated water in the tank heats the water in these compartments, and vapour is given off, which if not required the plug is taken up, and, the water sinking into the tank, the evaporation ceases. On the 2d inst., the morning being very hot, the fire was raked out, and as the water cooled so was the arrangement above-mentioned made inoperative, and in a short time the hygrometer, from indicating 75°, or a considerable degree of moisture, went to the dry point, or 100°. On this being perceived, such resources as were at command were at once put in operation, which brought the instrument back to 70°. From the above Mr. Beck inferred that if he wished to keep his plants during the summer in the satisfactory state in which they were now mentioned to be, a power of throwing vapour into the house, quite independent of the boiler that heats it, would be required; in fact, that moisture must be obtained without heat. Mr. B.'s arrangements being very similar to those for heating stoves, &c., in general, these remarks were made in order to set others to think in the right direction.—Of Miscellaneous matters of importance, it may be mentioned that Potatoes (both from frames and from the open ground) of the present year's growth, exhibiting the disease of last year in all its previous forms, again came from Lady Rolle's gardens at Bicton, and from the garden of O. F. Meyrick, Esq., of Rodorgan Hall, in North Wales. Carrots were also shown, exhibiting the same calamity as that which had attacked the Potatoes; and Dutch Hyacinths, and various other things, were likewise mentioned to be suffering from the same disease.—From the Garden of the Society were Lycaste longipes, a woolly variety, with green flowers, which are more curious than beautiful; a noble Dendrobium nobile, in one bloom; a variety Zygopetalum crinitum; Spiranthes orchioides; two Begonias; Centradenia rosea, covered with little pink star-like flowers; the useful stove shrub Inga pulcherrima, with gaudy tassels of long scarlet stamens; Trymalium odoratissimum, a sweet-scented hardy greenhouse shrub; and Correa Goodei. —Seeds received from Mr. Fortune of the Shanghai Oil-plant, or Brassica sinensis, a sort of Rape, said to be hardy and well adapted for field culture, were distributed to such Fellows as wished to receive them; as were also cuttings of the following Pears, viz. Comte de Lamy, a good bearer as a standard, ripening middle-sized, roundish fruit, remarkably sugary and rich in October; Glout Morceau de Cambron, a variety little known, perfectly distinct from the Glout Morceau, and more resembling the Napoleon in its form and juicy flesh, which is, however, of finer consistency than that of the last-named variety—it ripens in November; the Flemish Beauty, an excellent standard Pear, which ripens in September and October, and which should be gathered before it parts readily from the tree; and Thompson's, a middle-sized, exceedingly rich, and melting variety, which ripens in November, and succeeds well as a standard.

BOTANICAL SOCIETY OF EDINBURGH.

Feb. 12.—Dr. Balfour in the chair. Mrs. J. Stewart, of Nateby Hall, was elected a life member. A collection of plants from Chippewa and various parts of Canada, presented from Dr. Philip W. Maclagan; and specimens of some of the rarer alpine plants of Scotland, presented by Dr. Balfour, were announced. The following communications were read:—1, On the Potato Disease, by Mr. John Goonsir. Mr. G. stated that there could be no doubt as to its general resemblance to an epidemic, and alluded to the striking resemblance between the rise and progress of epidemics, and the appearance, non-appearance, and increase of fungi. Coupling this analogy with the opinion that certain epidemics owe their existence to the growth of fungi or analogous beings in the animals afflicted, Mr. G. conceived that we are bound, in our attempts to explain the nature of the disease, not to overlook the fungi which exist in the diseased tubers. He was inclined to believe in the organic nature of the brown matter, and founded his belief chiefly on its peculiar form, and on its position in the cells. This view of the disease did not afford an indication of cure or prevention. It holds out, however, a hope that the murrain may not recur.—Dr. Greville saw nothing improbable in the Potato murrain being analogous to epidemic diseases in animals. The real cause, as in all epidemics, is involved in great mystery. Possibly a union of conditions may have taken place, favourable to the development of the fungus which appears to be invariably present. He thought it not improbable that certain conditions—one or more of them being of a meteorological character—may have combined in the course of the past season to promote the growth of the Potato fungus. The question has been asked, How do the spores of the fungus obtain access to the vegetable tissue? Perhaps they, as well as the spores of other of the minute fungi, may at all times inhabit the tissue of those species of plants to which they are respectively peculiar, without, under ordinary circumstances, deranging the vegetable functions, in the same manner as minute parasites infest different parts of the animal structure. In addition to this, there must be in plants, as well as in animals, a predisposition to receive the disease; for even epidemics make a selection of their victims. The fungus did not attack all plants of the Potato indiscriminately; some varieties throughout the infected districts having, comparatively speaking, escaped, a most valuable fact for the consideration of the practical agriculturist.—Mr. W. Crum stated that the colouring matter in diseased Potatoes contained nitrogen. He believed it was a fungus.—Dr. G. Wilson was of opinion that the vegetable physiologist was not entitled to refer to the fungus as the cause of fermentation, or to speak of it as more than an accompaniment.—Dr. Maclagan had no doubt that the fungus in the diseased Potato had originated in the leaves, and been propagated down along the stem to the tubers. He thought, however, that the question as to the nature of the Potato disease was not settled by proving the presence of a fungus in the altered portions. It was still a disputable point, whether the fungus was antecedent to, or consequent upon, the morbid state of the tubers.—Mr. Milne had been devoting attention to the meteorological branch of the inquiry, and thought that he had made a discovery which would explain the appearance of the disease in some places and not in others. He then described some peculiarities of the weather in England and Scotland during the summer and autumn of last year, as shown by meteorological returns which he had obtained from a number of places, both in those districts where the diseased prevailed, and in those from which it had been absent. He mentioned that the maximum summer-heat had occurred in England and southern parts of Scotland in June, whereas in the northern parts of Scotland, where the Potato disease had not appeared, the maximum heat had occurred in August as usual. He alluded also to repeated and sudden thermometric changes which had occurred in the south of England.—Mr. Braun and Mr. Gladwood remarked, that Potatoes in the early part of the season were not affected, and that where the stems and leaves had been cut away early, the disease had not appeared in the tubers left in ground. These facts seem to indicate some atmospheric influences which had come into

operation late in the season, or some cause which did not take effect till the tubers were fully developed.—II. A Synopsis on the British Species of the genus Rubus. By Mr. Charles C. Babington, M.A., F.L.S., &c.

LINNEAN SOCIETY

March 3.—Edward Forster, Esq., in the chair. Mr. Kippist presented specimens of the fruit of Eucalyptus macrocarpa, Banksia cylindrostachya, Hakea eristata, and other Proteads. Dr. Leman presented a specimen of the fruit of Trachylobium Lamarckianum, the Hymenæa verrucosa of some authors.

Mr. Newport read a short paper "*On the Aqueous Vapour transpired from the Beehive.*" The author drew attention to circumstances which do not appear to have engaged the attention of naturalists, viz. the quantity of vapour expelled from the hive by bees, during the act of ventilation, and the deposit of blackish matter at the entrance of hives on the footstool. He at first had supposed that this deposit was either occasioned by the shedding of pollen by the bees when they alight, or else that it was some rejected substance; but he soon satisfied himself that it was not occasioned by either of these causes, and he suggested, in the absence of direct proof, whether it may not be due to the same cause as that which darkens the waxen combs in the interior! and whether this may not result from a combination with the wax of part of the carbonic acid produced during the respiration of the bees, such combinations being promoted by the high temperature of the interior of the hive. He also suggested that the black deposit at the entrance of the hive might be due to the same cause, but observed that these views could only be substantiated by comparative chemical analyses of the amount of carbon in new and in old waxen combs. He confirmed, by his own experiments, the statements of Huber, that the vitiated air of the hive is removed by the fanning of the bees, and that in this process a double current is established. The respired air passes out by the one, while fresh air enters by the other. He found also that the former is of very high temperature, and is charged with a large quantity of vapour, the result of the respiration of the bees, and of their cutaneous transpiration. In one experiment which he made to collect and condense the vapour, as it issued forth, he found that during 11 hours of the night in the beginning of September, he obtained a drachm and a half of fluid condensed from the air that escaped from a single hive, at a time when the temperature of the external atmosphere was about 60° Fahr. The temperature of the vapour, as it issued forth, as examined in a glass vessel about 4 in. distance from the entrance of the hive, was then 69° Fahr.; and on another occasion when the open atmosphere was 61° Fahr., that of the vapour was 71° 5′ Fahr., while a thermometer which had been inserted through the top of the hive, and had remained so untouched for several days, showed that the upper part of the hive was then only 69° Fahr. The result of the whole observations seemed to show that the temperature of the expelled air of the hive, and the quantity of vapour it contained, were in proportion to the degree of activity, and the quantity of respiration of the bees.

WARRINGTON NATURAL HISTORY SOCIETY.

We are indebted to the kindness of Dr. Kendrick, un., for this abstract of a paper on the Potato disease, which was read by Mr. W. Wilson, at a late meeting of the above society. After some introductory remarks on the nutrition of animals, and the relative value of Potatoes as an article of food, being less nutritious than Wheat, Peas, &c., and on the chemical constituents, Mr. Wilson proceeded to describe their botanical structure, especially the starch granules, which are larger than those of Wheat, more irregular in form, and apparently laminated. He showed that the granules of starch do not in any case consist of an eternal pellicle filled up with substance of another kind; but that the substance throughout is uniform, not swelling in cold water, nor contracting when dried, of somewhat horny consistence, fragile when pressed between two plates of glass. When boiled they fill up the cells, which are then easily separable from each other, retaining their original forms. Mr. Wilson then proceeded to consider the disease, and expressed his opinion that the brown-spotted disease was wholly distinct from that which was characterised by fetid putrescence, as it also confessedly was from the moist gangrene which for several seasons has been observed in the Potato crops, and in commenting on the Rev. M. J. Berkeley's essay on the subject (published in the Journal of the Hort. Society), stated (as the result of his own experiments), that the brown spots did not extend themselves, nor increase in number after the tubers had been taken up; that such tubers were not more disposed to become fœtid and rotten than others which were without spots; that the spots were owing not to the presence of a fungus, but to a deposition of earthy matter, believed to be silica, because it resisted the action of acids after incineration, rendering the Potato in those parts of more solid consistence, and remarked that if the whole of the cellular tissue had been thus affected, the tubers would have resembled those infected with the dry-rot, which prevailed so extensively in Bavaria, &c., in 1830, and several following years; since he considered the dry-rot to be identical with the brown-spotted disease, but a more aggravated form of it, which rendered the Potatoes as hard as stone, incapable of being softened by boiling. Healthy tubers do not contain any earthy matter insoluble in acids; therefore this deposit of silica is to be regarded as excrementitious. The cells thus affected contain starch in the usual state. The presence of the mycelia of fungi, he considered to be accidental, since he did not observe any such appearance until after long search, and then only in the cells lying almost immediately underneath the cuticle. He confirmed Mr. Berkeley's statement that the brown spots were chiefly confined to the cellular tissue above the layer of scalariform vessels. He insisted upon the fact that many brown-spotted Potatoes yet remained in other respects perfectly sound, as a reason for not fully admitting Mr. Berkeley's views.

In discussing the history of the disease characterised by the brown spots, Mr. Wilson pointed out the possibility that all those accounts which affirmed that the disease was prevalent in 1843 and previous years had reference to a different disease, and that this of 1845, if not identical with the dry rot of 1830, was peculiar to 1845. An accurate knowledge of the history of the disease was essential to the formation of correct opinions concerning its cause.

Mr. Wilson then gave the result of his inquiries into the cause of the disease. He admitted that if Mr. Berkeley was correct in assuming that the brown-spotted disease existed in 1843, there were presumptive though not conclusive grounds for believing that the parasitic fungus called Botrytis infestans was the proximate cause of the disease, and after having himself witnessed the mode in which that fungus infested the leaves of the Potato plant, growing out of the stomata, and shooting its root-like mycelia in every direction through the parenchymatous tissue, to the manifest obstruction of the processes of respiration, perspiration, and digestion (the proper functions of the leaves of vegetables), he concurred with Mr. Berkeley in ascribing the disease to the injurious action of the fungus. At the same time, Mr. W., in the present state of our knowledge of the history of the disease, thought it probable that the fungus (though the proximate cause of the disease or diseases), could not have established itself where it did, unless the plants had become predisposed to diseased action through the adverse meteoric influences so ably described by Professor Lindley in the *Gardeners' Chronicle* (August 23). He considered that weather of so very unpropitious a character as that of July and August was well calculated to disturb the proper equilibrium of the two opposing forces, chemical affinity and the vital principle, in a plant which was indigenous to an almost tropical climate (Chili), and more liable to be injured by excessive moisture than by reduced temperature, according to the opinions of those who were familiar with the climate of its native country. Even Wheat had suffered greatly from the very same causes.

In discussing Mr. Berkeley's argument founded upon the fact that an allied species, Botrytis Bassiana, which destroyed silkworms, had been observed to possess the power of establishing itself upon healthy caterpillars, even of other species, Mr. Wilson admitted that if no mistake existed on this point, it would be unreasonable to deny that the Botrytis infestans might have a similar power to attack a healthy Potato-plant. The proof would be more satisfactory if (now that the attention of competent observers was aroused to the subject), it should be ascertained, in some propitious season to come, that the Botrytis continued to infest the leaves, and the same result should follow. He considered it sufficient to confine our views of injurious action to the disturbance of the vegetable functions in the leaf of the Potato, where the fungus was in immediate contact with the most vital part of the plant: it had probably no specific action on the tubers. He pointed out an essential difference between decay and disease, the one occurring only in dead organised matter, the other in parts where the vital principle continued to act, a distinction apparently not adverted to in Mr. Berkeley's essay, but having an important bearing upon the arguments there employed. Mr. Wilson agreed with Mr. Berkeley in thinking the disease (of fetid putrescence) not contagious. He then commented on Dr. Andrew Ure's essay in the "Lancet," in vindication of Liebig's views, evidently misunderstood by Dr. Ure. The casein exists in a soluble state in vegetables. Liebig did not confine his remarks to unsound Potatoes; and the method of preserving Potatoes by immersing them in dilute sulphuric acid previous to drying them for food is preferable to that of grating them, for several reasons, and especially because much of the azotised matter (the really nutritious part of the Potato) is thus preserved. Mr. Wilson considered that the fetid putrescence of the Potatoes was owing to the formation of casein instead of albumen in the tubers, and explained why the presence of casein did not invariably produce decay.

In order to obviate future mischief, Mr. W. concurred with Mr. Rothwell (*Farmers' Herald*) in recommending that new varieties should be raised from seed, with a view to more complete acclimatisation. He also pointed out the impropriety of not planting Potatoes until after they had sprouted. The rubbing off of the sprouts must necessarily impair the vitality of the tubers, because it had been found that the starch of the Potato was partly transferred to the sprouts. If any constitutional disease exists in the tubers, it may have been the result of continued mal-treatment of this kind. Mr. Wilson, however, considered that we were not in sufficient possession of facts to form an infallible conclusion as to the cause of disease, or even its true character, and recommended a closer investigation in the coming season of the habits of the parasitic fungus above-mentioned. In the course of the lecture several illustrative diagrams were exhibited, representing microscopic dissections, highly magnified, of Botrytis and other fungi found in the Potato plant and on the tubers, the cellular tissue of the latter, and the starch granules.

New Garden Plants.

15. Amaranthus oleraceus. The Chusan Han-tsi. *Tender Annual Esculent.* (Amaranths.) Chusan. Mr. Fortune states that this is "a vegetable used as Spinach by the Chinese. The variety grows strongly, and ought to be sown in beds or rows rather thinly." It requires to be grown in a very rich light soil and a rather moist temperature of about 60°. If proper accommodation can be afforded the seeds may be sown at any time, and the leaves will be fit for use in two months after. Some plants were put out in June, on a warm border, but did not succeed. At the first gathering, the tops may be cut off, and fresh leaves will be thrown out, but they will be smaller than those first produced. A few leaves of sorrel improve the common Spinach. The Han-tsi possesses in itself a very slight but agreeable acidity which renders the above addition unnecessary. It is to be regretted that it is not yet sufficiently hardy to succeed out of doors; but it can be easily cultivated in pits or in pots in any forcing house, and thus afford an additional variety to the culinary list even in winter.—*Journal of the Horticultural Society.*

16. Calystegia pubescens. Downy Bindweed. *Hardy Perennial.* (Bindweeds.) North of China.

This curious plant approaches very nearly to the C. sepium or larger Bindweed of our English hedges, from which it differs in having firmer and smaller leaves, much narrower bracts, and a fine pubescence spread over every part. It is the first plant of its order that has been mentioned as producing double flowers. They are about as large as those of a double Anemone, but the petals are arranged with the irregularity of the Rose; they are of a pale very delicate pink, and remain expanded for some days. The calyx is quite unchanged. The exterior petals are very much lacerated and irregular in form; those next the centre are narrow, drawn together into a kind of cone; the next central are completely concealed by those without them, and diminish till they are mere scales, analogous to those which may be found in the first buds which burst in the spring. Not a trace can be found of stamens or pistil. It is probably quite hardy if planted in a dry situation. It requires a rich loamy soil and is easily increased by the roots. The roots very much resemble those of the common Bindweed (Calystegia sepium). It flowers freely in July and August. It is a very handsome climbing plant, with large double flowers, which are produced freely.—*Journal of the Horticultural Society.*

CALENDAR OF OPERATIONS.

(For the ensuing Week.)

CONSERVATORIES, STOVE, &c.

Potting.—This will now be a matter of daily occurrence, and on the mode in which this is performed will depend the future success of the plant. I need say little here about the propriety of using fibrous soil, or about thorough drainage; these things are now tolerably well carried out, but a few words to the amateur may be acceptable, as to the best mode of watering newly-potted things in general. Let it be a maxim, then, never to water a fresh potted plant, until it is fixed where it is to remain. I have known even a gardener (of course a very bad one), give his fresh potted plants a thorough watering whilst on the hand-barrow, to "settle the soil," as it is termed, and then immediately to carry them to their destination. This, although called gardening, should be termed "puddling;" it is not possible for plants to thrive after such handling. The soil for potting should be neither wet nor dry; one is as great an evil as the other; it should, of the two, incline to dryness, and should be pressed tolerably firm, not thumping the pot on the potting-board. The watering at first should not be performed in order to "settle the soil," this means shutting out the atmosphere; but merely with the intention of preventing the soil from becoming any drier. Hard balls should be soaked over head in water a day previous to shifting. *Conservatory.*—The families of Camellia, Acacia, Cytisus, Phaius, Rhododendron, Eutaxia, Citrus, Epacris, Correa, Azalea, and last, but not least, the Rose, will be a blaze of beauty where plant-growing is well attended to. They will now require abundance of water, to which clear liquid manure should be constantly added. Dispense with fire heat as much as possible; the immense perspiration caused by a March sun is more than enough for some of their evanescent beauties, without the aid of fires. Canvas screens too should be at hand, to be drawn over the brightest parts of the house for two hours in sunny days. *Stove and Orchidaceous House.*—Orchids are now swelling fast, and many of the blocks and baskets of Stanhopeas, Gongoras, Dendrobiums, &c., will require to be syringed about twice a week; let this be done on sunny mornings early, and give air freely for a couple of hours for fear of moisture lodging amongst the buds. In shifting large specimens in pots break the pot carefully all round in small masses without injuring the roots, and shift the whole mass together. Terrestrial Orchises, in general, will do better in loamy turf and leaf mould (not too much decayed), blended with the lumps of peat. Renew Moss on blocks forthwith. Attend to disrooting and pruning back Justicias, Vincas, Clerodendrons, Eranthemums, Geissomerias, Plumbagos, Poinsettias, Erythrinas, &c.; at least, those exhausted by

flowering, and a few for early work. Those done first, if carried on in due course, will be the earliest next autumn and winter. *Mixed Greenhouse.*—Force on Fuchsias where fine and large specimens are required; a moist atmosphere, with a slight degree of shading, will run the shy sorts into wood by retarding the flowering principle. Those wintered in outhouses or cellars should now be brought forth and potted, if possible, to give them a start for the decoration of lawns or the flower-garden. Brugmansias should be disrooted, and started in heat. Shift, when necessary, Australian and Cape plants in a growing state, likewise Pelargoniums, Calceolarias, and Cinerarias, with a view to having fine specimens. Pot successions of Gloxinias and Achimenes, and keep them rather dry and warm. *Forcing Pit.*—Keep Roses free from insects, watering frequently with liquid manure. Provide successions of forcing things. The Dutch bulbs should not stay long here. The Hyacinths lose much effect when their bells are too far asunder through too much excitement in proportion to the light. Sow tender Annuals. Do not forget Phlox Drummondi and Rhodanthe Manglesii, with the Portulaccas, &c. *Cold Pits.*—Air these structures continually, at night as well as by day, if there be no frost. Pot off stores for the flower-garden, and get them forward, more especially Scarlet Pelargoniums, Salvia patens, Heliotropes, Verbenas, &c.

KITCHEN GARDEN FORCING.

Pineries.—It should be understood at all times, that a sudden check of any kind whatever is at variance with the economy of the Pine plant. In shifting early in the spring this frequently happens if the plants are allowed to stand unplunged in a temperature of 50°, whilst the tan bed from which they were drawn has probably been 85°. Now this great discrepancy is found to be followed by pernicious effects. The Hamiltonian system, when once established, will save a future Calendar writer the trouble of adverting to this thrice-told tale. Attend well to atmospheric moisture; rest assured that as far as the Pine alone is concerned, it is not easy to overdo it at this period. Be sure to secure a powerful solar heat, with occasional syringings. Do not be afraid of a thermometer of 90° at 3 o'clock on a sunny afternoon. *Vineries.*—Look well to the bottom-heat of early forced Vines, the roots of which are unfortunately outside. Endeavour to keep fermenting material to 80° or 90°. When material of this kind is suffered to become inert at this period, it is far better removed altogether; as mulching, if it has not the principle of fermentation within it, only serves to chill, as is the case in the application of wet material in a hot and dry summer. Early Grapes now about stoning should be run over once more with the scizzors; let the shoulders be well set out. Keep up a soft and warm atmosphere on all ordinary occasions, but allow the heat to rise to 85° or 90° early in the afternoon of bright days, sinking to 65° at night. If your borders of the late houses are still too retentive of moisture, make holes or "pots" in any direction, without injury to the root, and fill them three parts full of brickbats, or stones, using a mixture of raw turf chopped, and lime rubbish, for a foot over the surface of these extra drainages. *Peach-houses.*—Those swelling will now begin to enjoy a little liquid manure; clarified soot water, with some stale urine, and dissolved guano, all as clear as good ale, will be found of great service. Gross shoots need scarcely be feared with this application, in doors, provided all luxuriant wood is stopped as soon as it is five or six leaves long. *Cherries*—as before. *Figs.*—Provide against red spider by copious syringings, and the application of sulphur on the pipes, according to principles laid down in an early Calendar. If, indeed, this mode is persisted in, there will not be much occasion for the syringing as far as the spider is concerned. Be sure to follow up stopping. *Forcing Frames and Pits.*—Make it a point to turn one of the linings to the early Cucumbers and Melons, once every week, until May. See that they are of equable moisture, and take care that no "burning" extends into the bed. Secure by frequent sowing and good cultivation *in pots*, stout plants full of health, of choice Melons. Do not object to turning out old plants in preference to young ones, provided they have not received any check. Secure abundance of atmospheric moisture to Kidney Beans; water both these and Strawberries continually with clear manure water; as soon, however, as Strawberries change colour, use clear water.

KITCHEN GARDEN AND ORCHARD.

Make sowings forthwith on well situated beds of the following vegetables, viz.:—Green Kale, Savoys, Leeks, Brussels Sprouts, Chou de Milan, (Thousand-headed Cabbage,) Cauliflower (a pinch), and dwarf Cabbages; and, a little Pomeranian Cabbage, a sprinkling of Somers's, or other late spring Broccoli may also be added. Get in plants of Parsley; soot dressings have been highly recommended by first-rate practical men for this purpose. Give a slight salting to all your Asparagus beds and Sea-kale ground, and soot over all Strawberry plantations requiring manure. Sow Peas, Beans, and Radishes, as soon as the former sowing is fairly above ground. Prick out very early Celery in a frame. Old mellow dung made firm is good, and prevents tap roots. Sow all herbs—sweet Marjoram, and Sweet Basil, on heat. Cover up with litter all early slopes of Radishes, Horn Carrots, &c., whilst the sun shines, about three o'clock, and water them once a week with tepid clear manure-water. *Orcharding and Fruit-trees in General.*—Protect by all possible means the blossom. Straw-ropes, mats, canvas, bunting, Fir-boughs, and fronds of Fern, should all, or any of them, be in requisition. As soon as you have finished nailing the Peach-trees, mix sulphur and soap-water to the thickness of paint, and draw a band of the mixture between the shoots, in all directions; this once done, and that well, will secure the trees thoroughly from red spider for twelve months. Proceed with grafting, following in the order in which the buds break. Thrust a wisp of hay once a week into white Broccoli, the heads of which are showing, for fear of frost.

FLOWER-GARDEN AND SHRUBBERIES.

A thorough collection of the best hardy annuals should now be sown; they are of most service and most esteemed before the gay masses of Verbenas, Pelargoniums, &c., come to perfection. Where a frame or pit is at liberty, I would recommend their being sown in small pots, in loamy soil, and not turned out until they are slightly pot-bound; the flower then gains the predominance, and the great proportion of this above the leaf constitutes the chief beauty of many of the annuals; they are more easily protected also from slugs. Get Dahlias in heat directly for propagation.

COTTAGERS' GARDENS.

Look to the Kitchen Garden Calendar at all times, as to sowing and planting. Although the cottager is not obliged to sow and plant all things there mentioned; yet, what he requires may in general be done as there recommended. Where a cottager has a frame, it should be occupied with early Potatoes, to be succeeded by Cucumbers. Now is the time for grafting; there is no occasion to cut the head entirely away from trees still bearing, in order to introduce new or better sorts. Grafts may be placed on the sides of shoots, and the top of the old tree reduced progressively. Pot off cuttings of Fuchsias, Verbenas, &c., for window plants and for garden display. Keep the cuttings low in the pots, and cover with a flat pane of glass; they may then stand in a sunny window without shading.

FORESTING.

All Fir or Pine planting may, if not done, be now finished. Larch buds early; therefore, no time can be lost. Remember rotation of planting; Firs must not follow Firs, but common forest-trees, and *vice versa*. If the hares or rabbits disbark young trees, use some nauseous dressing on their stems. This is a good season for charcoal-burning. Keep the shovellings of the bank for dressing seed-beds. Finish seed-sowing, except of Beech and Sycamore; these are liable to suffer from late frosts.

State of the Weather near London, for the week ending Mar. 5, 1846, as observed at the Horticultural Garden, Chiswick.

Feb.	Moon's Age.	Barometer. Max	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain.
Frid. 27	1	29 648	29.597	62	38	50 0	S. E.	.05
Sat 28	2	29 952	29.864	64	42	53.0	S.W.	
Mar.								
Sun. 1	3	30 056	29 949	60	45	52 5	S.	
Mon. 2	4	30 053	29 926	60	41	50.5	W.	
Tues. 3	5	29 869	29 705	60	47	53.5	S.W.	
Wed. 4	)	29.491	29 473	58	40	49 0	S.W	.19
Thurs. 5	7	29.599	29 471	55	34	44.5	S W.	.97
Average		29 798	29 678	59.0	41.0	50 0		.44

Feb. 27—Slight haze; showery; cloudy and fine
28—Exceedingly fine and warm; partially overcast at night
Mar. 1—Overcast; light fleeting clouds; partially overcast
2—Fine; slightly clouded, very fine, clear at night
3—Cloudy, densely overcast and windy, overcast at night
4—Rain; brisk wind; clear and fine at night
5—Showery; heavy clouds and sun occasionally; clear and fine.
Mean temperature of the week 6 deg. above the average

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Mar. 14, 1846.

Mar.	Aver. Highest Temp.	Aver. Lowest Temp	Mean Temp	No. of Years in which it Rained	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 8	50 1	33.6	41.8	6	0.17 in.	2	3	2	—	5	3	2	3
Mon. 9	50.8	33.0	40 1	4	0.47	1	3	1	2	2	6	2	3
Tues. 10	51.8	35.5	43.4	9	0.69	2	3	—	3	3	4	3	2
Wed. 11	51.5	34.9	43.2	8	0.30	1	2	1	4	2	7	1	1
Thur. 12	51.8	30.9	41.3	9	0.32	1	1	2	3	1	7	4	—
Fri 13	52 5	33.0	42.7	9	0.30	2	3	3	1	5	4	2	
Sat. 14	50.4	37 0	43.7	9	0.48	—	2	3	—	4	5	4	2

The highest temperature during the above period occurred on the 9th, 1826—therm. 60°; and the lowest on the 13th, 1845—therm. 13°.

Notices to Correspondents.

To our Correspondents—We have every wish to oblige you by answering all questions relating to the subjects treated of in this Journal; but we must intreat you to be reasonable. We have now before us a letter containing 17 questions, upon as many different subjects, every one of which have been either answered repeatedly, or can be determined by a very cursory glance at our columns for the last month; and we regret to say we have many such cases. To spare time or space for answering these demands is impossible; it is not fair either to ourselves or our readers. Correspondents should, in common fairness, only apply to us for information upon points which they have previously taken reasonable pains to examine for themselves in documents accessible to every body.

Birds—*A C* inquires whether the Virginian Nightingale has ever been known to sing in this country?

Books—*Amicus* Roberts on the Vine.

Charcoal—*Constant Reader*—The ashes and charcoal made from resinous wood are as good for horticultural purposes as any other. The last published Number of Loudon's "Gardeners' Magazine" was, we believe, in January 1844.

Drainage—*E H M*—If any gardener persists in asserting that his Verbenas in pots are killed because good drainage was put in the bottom of the pots, we can only say that we should be sorry to have such a gardener ourselves, and should try to find a person of more common sense.

Glazing—*T S*—Ground glass will do well for all greenhouses in summer, for it renders shades unnecessary; but it will not suit houses in which plants are kept growing in winter. Blinds in the inside of a house will not cool it so much as if they are on the outside. A flue will do very well, if nothing more is wanted of it than you say.

Gold Fish—*Alfred*—The principal circumstance requiring attention is to supply them with river or pond water, not pump water. You had better advise with the person who sells them, as there may be something which he can explain in their history.

Gooseberries—*Ap Llewellin*—T. Whittaker, Manchester.

Insects—*X Y*—They are the larvæ of Dilophus febrilis, which have been introduced with the manure. You can only kill them by dry heat or the application of liquids, which will also destroy your plants. Put some damp Moss on the pots, probably they will congregate under it; and communicate the result to us. *R.*——*J M H*—You will kill the Virginia Creeper if you wash it with gas-water, but we cannot advise you further without seeing the insects you complain of. Please to send 2 or 3 in a pill-box by post. *R.*

Names of Plants—*Arbuscula*—It is Ilex opaca, and the colour is natural to it in a cold climate.——*Temple*—Poa annua.

Potatoes—We are indebted to many correspondents for information on this subject: and we must beg those who do not find their communications noticed to believe that they are not overlooked, but will be used in such a manner as may appear most conducive to the public benefit.——*S N*—We must refer you to our Leading Article.——*The Mills*—We do not find disease in the specimen you have sent. The ends are bruised a little, that is all, and it is apparently caused by the journey.——*K*—We can find no disease in any of your Potatoes. There can be no objection to experimenting with seed in raising seedlings; but you must not expect any result this year. Pray do not send us any more to examine; for it is impossible to spare the time which such inquiries demand. ——We had put into type a letter from Mr. Chapman, of Brentford, but as we find it occupies a whole column of our smallest print, we are unable to do more than state its object, so far as we can make it out. Mr. C. complains of the use made of his name in the Leading Article of last week, which he says contains many inaccuracies. He should not blame us for that use; it was forced upon us by what happened in the House of Commons. He proceeds to state that he has had no communication with Lord Ingestre, who has been "*misled* in supposing that the new Potatoes he (Mr. C.) exhibits in London, were raised from diseased sets." He expresses his surprise that we should have supposed them, since we saw them, to be new, which, if he again reads our observations, he will find we did *not* suppose them to be; he says the disease "*has shown itself* in his ground in one box," when this box, consisting of several lights, was inspected, it had broken out in two lights and was progressing. There could be no mistake about that, for we examined the diseased plants ourselves, one of the Messrs. Chapman having obligingly sent them to us. He says that the loss in last year's crop is greatly exaggerated; may be; but the statement was *that of a person in Mr. C.'s own ground*, as he will find upon inquiry. We are glad to know that he has not been so heavy a loser. The following paragraph we extract entire:—"You say we found that apparently sound sets placed on shelves under cover produced diseased shoots. This statement is calculated to deceive his lordship and the public. In my former letter I stated the disease had exhibited itself in the shoots of Potatoes when on shelves in a dry fruit room, as much as it had in those planted in the earth. My argument was, that some atmospheric phenomena were acting on all Potatoes which were in a growing state in the summer of 1845, totally irrespective of situation, and not, as your statement would lead your readers to believe, that the produce of last year is exhibiting the disease now, for I beg to assure you the contrary is the fact; we have some so placed, and they are as healthy as any Potato ever grown." We had understood that the attack upon the Potatoes on shelves was a new case; but it seems that here a mistake has been really made, and we hasten to correct it. Mr. C. doubts whether sound new Potatoes have been obtained from diseased sets, and he asks where; if he will read attentively what is said in this Paper he will see where. In conclusion, Mr. C. says that we have insinuated that he had attempted to deceive the public, now we should be very sorry that such an impression should go abroad, and we confidently refer to the article complained of by Mr. C. (p. 131), in proof that we not only had no such intention, but that we have treated Mr. C with that courtesy which he has a right to expect.

Seeds—*Z V*—Your seeds will not repay you for the trouble of raising them. We should throw them away.

Simmonds's Hygrometer *D L*—This has been advertised in No. 8, p. 114. We are not aware that we can add anything to what has already been said. It will be more fully described in the next "Journal of the Horticultural Society."

Tea—*W G* There is every reason to believe that Black and Green and Assam Tea are each produced by different species

Vases—*J L*—Agapanthus umbellatus, Lysimachia nummularia, Verbenas, if plenty of coarse drainage is used, and Sedum Sieboldii, if you can keep the slugs away, will grow in your vases.

Ward's Cases—*H M*—You should read Mr. Ward's own statement. It is a little 8vo volume, published by Van Voorst.

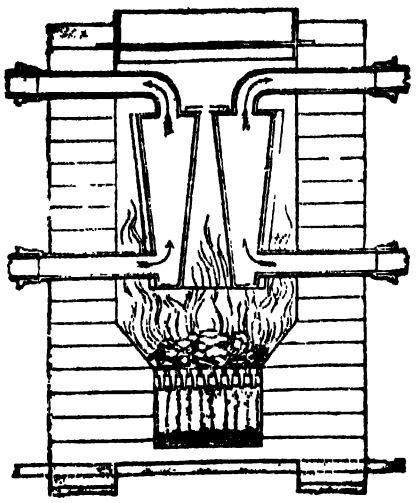
Misc—*F H*—The Paper is published on Saturday morning, and therefore cannot possibly reach you till the afternoon.—One shilling will be given for No. 14, 1842, and No. 34, 1841. ——*E M G*—The most suitable stocks for grafting Medlars on are the common Thorn or Pear.‡ *A E*—It is impossible to soften vegetable ivory by any practicable process. Eggs lose nothing and gain nothing by cooking; the other question we cannot answer; but we presume they are much more nutritious. We should be greatly obliged by the receipt. ——*E S*—Your Violets are punctured by insects, or by some kind of animal. Perhaps by green-fly. ——*Ulo* Magnolia grandiflora is too large a plant. Evergreen Honeysuckles, or Escallonias, or Ceanothus divaricatus, or Pyrus Japonica, would be better.——*M P*—Water your Rose-trees with half an ounce of nitrate of soda dissolved in a couple of gallons of water, and apply half the quantity at a time. Watch the effect; and if necessary repeat the dose. Always use this salt in very small quantities. It is of no consequence which way you put seeds into the ground. Nature will always right itself.——*S C*—Your Firs have been attacked by some insect, whose punctures have arrested growth and caused the production of galls. Clay or marl your land; you can hardly take any other course with advantage. We doubt its being rich. Dry a little as completely as you possibly can; fill the bowl of a tobacco-pipe with a known weight of it; then expose it to a red heat for half an hour; when cool weigh it again, and note the difference, if any; you will then know if you have much organic matter in it.——*B C A*—The Pyracantha will answer your purpose.‡——*America*—We would advise you to try Canna.‡ ——*J W*—Open a trench on each side of your Yew hedge, which is becoming bare at the bottom, down to the roots (but without disturbing them), and fill it up with a rich but loamy soil. In April thin the tops, but not very severely. ——*R E F*—You may apply salt to Asparagus-beds at the rate of 20 lbs. per rod. Charcoal dust may be applied to Strawberry plantations at the rate of 2 bushels per rod. Burnt clay may be applied in the same proportion. Those substances may be either applied together or separately, and slightly forked in. Charcoal is beneficial to Onions, but the above rate scattered in the drills. Generally speaking, farm-yard manure is the best. The New British Queen is such the same as Knight's Tall Marrow, growing 7ft. or 8 ft. ——*J L L*—The Number is out of print.——*Dodie*—You are not likely to obtain the Lace-tree on this side of Jamaica, nor the Gerradias out of the United States. Buffalo-berry is unknown to us. The others any respectable nurseryman can obtain from his London correspondents; but they are dear.

SEEDLING FLOWERS.

Cinerarias—*R A C K*—Neither of your seedlings are sufficiently good to send out; the blue, which is fine in colour, has very narrow petals; the crimson variety is very inferior to the sorts in cultivation.*——*J B*—Both your varieties are fine in colour, but the petals are too narrow for the improved state of the flower.*——*W W*—Nos. 1 and 3 are very good varieties, having broad petals, but they are not superior to similarly coloured sorts already out; 3 is too small and dull in colour to be useful. The best variety is the purple, No. 2, which is fine in colour.*

Primula sinensis—*R A C K*—There appears to be no novelty in your two seedlings.*

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—180, Fleet-street, London.

The Agricultural Gazette.

SATURDAY, MARCH 7, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Mar. 11—Agricultural Society of England.
THURSDAY, — 12—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, — 18—Agricultural Society of England.
THURSDAY. — 19—Agricultural Imp Soc. of Ireland
LOCAL SOCIETIES.—Parsonstown—Vale of Alford—Wells.

FARMERS' CLUBS.

Mar. 9—Selby—Exminster—Yeaford—Cirencester—W. Market—Wenlock—Great Oakley
— 10—St. Peter's—Weston Bassett—Rochford Hundred—Framlingham—Ardleigh—Dorking
— 11—Braintree and Bocking—Harleston
— 12—Blofield and Walsham
Mar. 12—Richmondshire—Grove Ferry
— 13—Northallerton—Tavistock—St. Germains—Chelmsford—Halesworth Wadebridge
— 14—Dartford—Probus—Winchcomb—Swansea
— 16—W. Hereford—Botley—Bakewell
— 17—Bromsgrove

THERE is more FOOD FOR STOCK at the present moment in many parts of the country than there was four months earlier in the season at the corresponding period of last year. Having within the last fortnight repeatedly traversed the district lying within the lines joining London, Bristol, Manchester, and Hull, we can speak with confidence on the point. Never before have we seen so late in the season such an immense extent of Turnip crop still in the field. This, so far as it goes, is certainly matter for satisfaction, as it will enable the farmer to feed his stock up to heavier weights than he might otherwise have been able to make them, and it will also enable him to keep a larger extent of his Grass land for hay. But we have noticed the fact chiefly that we might call attention to the condition in which these Turnip crops at present are. They are worsening every day; we have seen many fields in full bloom; the bulbs are rapidly assuming a tough and almost woody texture in consequence of their juices being absorbed in nourishing the young plants springing from them. Had these bulbs been harvested and pitted in autumn, they could not thus have exhausted themselves; they would then have been of double their present value as food for stock. But the roots are not only rapidly deteriorating, they are injuring the land they occupy; they are draining from it materials on which the future Barley-crop is to be fed, and there can be no doubt that *it* will suffer from this abstraction of its food.

It is not a sufficient answer to say—consume the Turnip-crop on the land, and you will thus restore to the soil that of which it has been robbed. When Turnips have bloomed sheep will not eat them; you may plough them in to be sure; but the ingredients composing them are not then, as they were, distributed throughout the soil in a form and manner fit for vegetable nutrition, they are concentrated in hardened masses of no fertilising influence until after a tedious process of decay they shall have been restored into the elements out of which they have arisen.

It is of little use to mow down the young shoots; others will form, and the change rapidly proceeding in the texture of the bulbs cannot be retarded thus, so long as this moist mild weather continues. The crop must be ploughed up and gathered into heaps as it ought to have been in November last. Young cattle in yards will eat the green shoots, and the bulbs should be cut up for sheep. We venture to assert, on an annual experience of upwards of 1500 tons so consumed, that the farmer is well paid, by the greater economy of the process, for the expense of harvesting roots in autumn, and feeding both sheep and cattle under shelter; and we have now to add, to the advantage of this practice, a freedom from the risk of growth attending an abundant crop in a mild winter.—*M.*

As it is not improbable that MAIZE OR INDIAN CORN will speedily find its way in considerable quantities into the British market, every one will ask the question—In what way can it be profitably employed? We shall endeavour to answer this question. The Maize is a plant belonging to the natural order of Grasses, and partakes of the general properties of the Cereal group of these plants, to which it belongs. It is a much taller and stronger plant than any of the other Cerealia. It is monœcious, and from two to four heads of fruit ripen on each plant, each head containing from 600 to 800 seeds. It is a native of America, but its successful cultivation is not confined to that country, as it is extensively planted in the south of Europe. It ripens in the month of September, and during this process requires a temperature that is seldom or never found in the north of Europe. It is on this account found impossible to cultivate it with advantage in Great Britain. There is, however, an inferior kind cultivated in some parts of North America, and also partially in Germany, which will sometimes ripen well in this country; but the inferior quality of the seeds, and the uncertainty of the result, render it anything but a desirable plant in British agriculture. It is not, then, as a native product that we must look to Maize for any advantage.

Although Maize may be employed both as food for man and beast in various stages of growth, the seed is evidently its most important part. In chemical composition the seed resembles all the other Cerealia, the relative quantities of its component parts alone differing. It has lately been made the subject of chemical analysis by Dr. LYON PLAYFAIR, and he has favoured us with the result. Its composition is as follows—

Protein	7
Fatty matter	5
Starch	76
Water	12
	100

It will be seen from this analysis that it contains less protein, or nutritive matter, than Wheat, Oats, or Barley, but more than either Rice or Potatoes. It contains, in fact, three and a half times the quantity of nutritive matter that is found in Potatoes, and a very much larger quantity of starch and less water. It also possesses more fatty matter than any of those, which is an important consideration where the mere fattening of animals is considered. It will be thus found, as an article of diet both for man and beast, superior to Potatoes and Rice, but inferior to Wheat, Oats, and Barley.

The question will now occur as to what is the probable price at which the Maize will be brought into the English market. A recent writer on this subject, in America, says, "It can be sold at the port of shipment at half a dollar per bushel; its freight across the Atlantic would be about 18 cents per bushel; and if admitted into England duty free, it could be ground into meal or flour at a cost of 6¼ cents more, making in all 75 cents, or three-quarters of a dollar. Allowing, in addition to this, 25 cents for retail profits, the article could be sold at one dollar a bushel in the manufacturing towns, or about 4*s.* 4*d.* sterling. Now the bushel weighs at least 58 lbs., which at 4*s.* 4*d.* is less than 1*d.* sterling per pound." It is not improbable that Maize may be purchased at a less price than this, and if *not* eaten by man may be at least advantageously employed for feeding animals. In the countries where it grows, extensive use is made of it for this purpose. In America, pigs are fattened on it, and the pork they yield is reckoned of a finer flavour than when the animals are fed on other food. Poultry of all kinds are very fond of it, and their flesh is much improved in flavour. Horses also, and oxen and cows may be fed upon it. When it is given to animals it should be first ground into meal, and then mixed with warm water so as to form a pottage. Horses prefer the unground seeds but they should be previously soaked in water, as when given to them dry they wear the teeth, and in young horses will sometimes produce blindness, from the exertion of the muscles of the jaw in masticating them.

Although Maize does not contain much protein, it may be still a question as to how far a certain bulk of other matters is not necessary to the proper digestion of food. The Irishman eats 10 lbs. of Potatoes to get at the same quantity of nutriment as is contained in one pound of bread. But would a pound of bread be found, in practice, a substitute for the 10 pounds of Potatoes? We question if it would. If bulk, then, be of consequence, we find that Maize meal has the property of uniting with a large quantity of water, and thus increasing its bulk. The writer above quoted says, "I carefully weighed out one pound of the meal, and gave it to a person who understood the mode of cooking it. In the course of boiling, it absorbed about five pints of water, which was added at intervals until the process was complete. The bulk was again weighed, and gave as a result four pounds and a half." This is a large increase of weight, and if it be found that a certain bulk of the more nutritious foods, as Oats, Peas, or Beans, are required in order to render the same amount of nutritious matters digestible, then there would be a saving in using the Maize. These are points which might easily be made matters of experiment amongst our agriculturists, and those who would perform them would be doing a great service.

With regard to the use of Maize as food for man: there can be no doubt of its adaptability for this purpose; the Indians of many parts of America live almost entirely upon it, it forms the staple diet of the slaves in America, and is eaten by all classes in many parts of that country. In the parts of Europe where it is cultivated, it is used as the staple food of the inhabitants. It may be cooked in a variety of ways. The meal may be made into porridge, and eaten with milk; it makes puddings and cakes of all sorts, and may be advantageously added to Wheat flour for making bread. [Bread made from 1 part Maize flour and 2 parts Wheat, is in appearance like "second" bread, but much more agreeable in taste.] It must, however, be borne in mind that unless bulk can be proved to be of essential service, it is not, as far as its nutritious element, protein, is concerned, a cheaper article of diet than Wheat itself. It is the fact that Wheat possesses so exactly the proportions of protein and starch that are required by the system of man in these climates, that has made it the staple article of food in this and other European countries, and must give it a preference over Maze, or any other hitherto proposed substitute.—*L.*

THE POTATO ROT.

THAT the disease was caused by atmospheric influence, there can be little doubt. Much has been written and said with regard to the cause; minute fungi having been found in the decaying Potato, the source was attributed to them. That parasitical fungi similar in their nature to those which produce mildew and dry rot, were the real cause of the malady, is the general opinion of many whose extensive knowledge entitles it to respect. It has been stated that one of these plants belong to the genus Botrytis, and is described as entering by the breathing pores of the Potato leaves, passing down through the interior of the stem into the tuber, where its spawn fixes itself, traversing the cellular mass, separating the cells, causing alteration in their chemical condition, and thus producing decay. In other cases, in diseased portions of the Potatoes, where the spawn is not apparently distinguishable by the most practised observers, it is suggested that the juices of the plant may be vitiated by the parasite which destroyed the leaves, and that particles of it too obscure to be distinguished by the eye might be circulated with the juices, producing disease by irritation. Without the aid of the microscope, the presence of the parasite is not to be detected, unless it makes its appearance outside the Potato in the form of mouldy tufts; hence it is inferred that it is produced exclusively from within. The evidence of the best microscopical observers is conclusive on the point that in diseased Potatoes the spawn of fungi is found in large quantity; and it is well ascertained that these parasites spread rapidly in warm and damp situations; under such circumstances producing infinite mischief, which is to be successfully resisted by dryness and a low temperature. But the mildew theory does not appear to have been well established; for it is difficult to conceive why fields of Potatoes near each other, and even the same kind of Potatoes in juxta-position in the same field, should have been differently affected—certain varieties more injured than others; and how is it that when sound Potatoes are pitted or heaped where a diseased one may chance to be amongst them, that if mouldiness is able to appear it rapidly establishes itself on the sound Potatoes, especially if the temperature of the pit is high, and will rapidly extend throughout the entire mass?

A peculiar weather was observed over the whole of the north of Europe, as well as in America, where the disease had declared itself. About the middle of June we had a few hot days, followed by cold, and after the beginning of July the weather again became suddenly hot, which as abruptly changed into cold, continuing throughout the end of July and greater part of August, with a great want of sunlight along with the rain, and low temperature that prevailed. Such a combination of untoward circumstances would appear ill-suited for the healthy growth of the Potato—a plant absorbing a large quantity of water; its whole construction is formed with a view to its doing so, and to enable it to

part with this water its broad succulent leaves are provided. To the motion of the fluids low temperature is unfavourable, as to the action of the cells of the plant; and to enable the water sent into the leaves to be perspired, sunlight is moreover required. The amount of perspiration of a plant in feeble light is small; in bright sunshine copious. All this important class of functions was deranged during the late season. That the Potatoes had been compelled to absorb an unusual quantity of water, and prevented digesting it by the lowness of temperature and want of sunlight—rendering it impossible for them to get rid of it by perspiration—has been ascertained by analysis of sound and diseased Potatoes. The sound ones of previous years were found by Dr. Lyon Playfair to contain on an average 72 per cent. of water; but last year from 72 to 75 per cent. of water, whilst the diseased Potatoes gave as much as 80 per cent. of water.

How was it that the sound Potatoes were inoculated with the sporules of the fungus while others escaped? Was it not due to their previous disease, and the attack of the fungus only the consequence, not the cause, as all decaying matter would indicate as the rule of nature?

Although the first symptoms of disease appeared to commence in the leaf, spotting it as it spread, yet it is believed by the best practical observers to have commenced underground in that part of the haulm immediately above the old set.

From the prevalence of high winds the Potato haulm was knocked about till it had wrought a hole in the soil round its stem, by which the water descended, and there coming in contact with the old set that still retained hold of the living plant, it acted like a sponge—itself decaying—feeding the live stem with semi-putrid matter. Sudden warmth had forced into preternatural vigour the whole Potato plant, and debilitated its organisation. A low temperature as abruptly succeeded, with frost, encrvating the whole plant, and especially affecting that tender part of the haulm just underground, where water collects most and the temperature is lowest. The spots on the leaves were merely the symptoms of the underground malady, for when the attack on the stem beneath the ground was slight, no indication of its presence was traceable in the foliage.

Potatoes have suffered most on deep loamy and clayey lands, and less in dry elevated sandy districts, where the influence of the season was mitigated by the slowness of growth, or compensated for by the natural warmth of the soil. Peaty soils suffered least, and those on the purest Moss were decidedly soundest.

The cells of the Potato are found to be composed of nitrogenous or azotised substances, such as vegetable albumen, &c. Moss being largely composed of organic matter, sometimes as much as 70 per cent. of its whole weight, when brought into a favourable state for decomposition by the destruction of its antiseptic or preserving quality, must furnish in great abundance protein compounds, so necessary for the proper frame-work of the Potato. Animal and vegetable matter added in abundance—which is commonly the case for a Potato crop—will, likewise, in a peaty soil under decay producing ammonia, add greatly to that important ingredient. The cellular tissue of the tuber being thus strongly formed was in a favourable state for resisting the vicissitudes of the late season, and not to be easily ruptured. If the framework of the Potato be not strongly formed by having a due supply of nitrogenised matter, the cells becoming surcharged with starch will naturally be broken and injure the cellular structure; rendering it more liable to decay under circumstances such as heat and moisture.

Rank ill-made manure taken from the court-yard soaking with urine, rich in ammonia, and applied to alluvial soils, will necessarily produce a waxy or hard-hearted Potato from an over abundance of protein compounds producing cells without starch to fill them. But it will at the same time produce a vigorous foliage, enabling the plant in course of time to obtain carbonic acid from the atmosphere to form starch as well as from the decay of the manure in the soil, supplying an over-dose of carbonic acid, which carbonic acid may enter the roots, or by the leaves, the mouths of which being under will naturally absorb it largely in its ascent through their foliage, and, consequently, produce a mealy outside. A rupture of the outer cells, under the above circumstances, may fairly be supposed to produce decay of the Potato eating inward like a canker. It is perfectly obvious that the manure should be properly prepared, having the due proportion of azotised substances and alkaline bases, to enable the plant to assimilate the food necessary, in order to form its different component parts, as it cannot obtain a supply of carbonic acid from the atmosphere till its leaves are formed. In growing Potatoes for seed, they would appear to require different treatment from those for the table, feeding cattle, and for the starch manufacturer. The former should have a liberal supply of protein compounds, the latter carbonaceous to a greater extent.

Finally, according to the present state of our knowledge—as there are differences of opinion among scientific men—let us bring the soil into a fine texture, or dry clean friable state, and then add the organic and inorganic elements in sufficient quantity, and in appropriate proportions—Nature will do the rest.

The late planted Potatoes suffered most, but all were attacked at a certain stage of their growth, when near to maturity. Indeed, as a general rule, the Potato crop was affected just in proportion to the state of ripeness in which it was. Generally speaking, all varieties, in whatever soil and however situated, whether high or low, were more or less affected, which is conclusive against the mildew theory, being diametrically opposed to any previous knowledge we possessed as to the attack of mildew.

Afraid of prolixity in what I have already said, let me now endeavour to give a few practical hints as to the best method for preserving Potatoes for seed during the trying months of spring. The Potatoes should be carefully turned over periodically by the hand, and all that indicate the least disease removed. Keeping them dry and cool by a proper ventilation of the pits or heaps is of vital importance. A well drained or naturally dry spot should be selected for pitting the Potatoes, as, in narrow pits, containing about 7 cwt. to the yard in length, with drain tiles or pipes placed longitudinally and transversely at short intervals in the bottom of the pit with upright shafts, all open at their extremities, to give the whole a free current of cold dry air. Thatching the pits well with straw has been found, so far as the season has yet advanced, to answer well, but it is not sufficient to protect the Potatoes against frost winds; and, therefore, a very little earth must be added, with merely as much straw as will keep the earth from mixing with them, to facilitate the process of turning or removing when required, and to be well thatched and roped with straw or other material to keep the whole perfectly dry. Turf sods laid next to the Potatoes, and thatched over with straw, or rushes, make an excellent covering for the pit or bin, but can only be procured in certain districts where liberty can be had for cutting them, and the carriage not too expensive.

It has been recommended to bed the Potatoes in layers of charcoal, charred sawdust, charred peat crushed, burnt clay (charring soils is much better than burning to a reddish ash, as their absorbing and disinfecting powers are much enhanced by the presence of finely divided carbon), and dry soil mixed with burned unslaked lime broken small to effect their better incorporation. But it is too expensive and troublesome a plan to be generally adopted, though in situations where the materials could be easily procured, they might be used to great advantage.

That the Potato crop of last year was so generally attacked with consumption in many districts of the United Kingdom, that seed Potatoes will require to be imported, there can be no doubt. But mercantile enterprise will not be wanting to bring seed from the south of Europe or north-west of Scotland.

The whole Potato crop in the province of Galicia, in the north of Spain, is reported to be perfectly sound, and as great numbers are annually grown for exportation to the Spanish West India Islands, a considerable quantity could be readily procured. Considering the climate of Galicia, seed from that quarter would appear well adapted for renewing our crops. No disease appeared in the island of Corsica, which might furnish a few hundred tons. Around Bordeaux the early Potatoes gathered in July were sound, although the late crop was diseased. They are reported, moreover, to be sound in the north of Scotland, where a quantity of seed might be procured; but it is greatly to be desired that a large quantity of good sound seed Potatoes should, as soon as possible, be secured in the south of Europe—for importation into this country—where the peculiar weather we experienced in the north was not observed.

The charred packing stuffs recommended above should be used in storing the Potatoes in the ships' hold, to prevent fermentation during their transport; for, to prevent intestine motion in the Potato before it is about to be committed to the soil, is of vital importance.

Potato planting in autumn has been practised successfully by Mr. Gray, of Dilston, Northumberland. He had an increase of one-third in his October planted Potatoes over his April; there was little difference, however, in his October, November, and December plantings. The planting may even be extended into January—and a considerable breadth has been planted in this neighbourhood during the last month, especially by Mr. Fairbney, Kirkton and Dalpatrick—an enterprising farmer; but the land must be thoroughly drained or naturally dry, deep wrought, and well pulverised, before there is much chance of success, and the planting never attempted but when the soil is in a fair surface condition or tilth; the seed also should be perfectly sound. Mr. Gray's treatment of his autumn and spring planting were as near as possible alike, being placed in drills 30 inches wide and 6 inches deep, with the manure under the sets, and there was no disease perceptible at the time of taking up, about the 14th October last: the earliest or autumn and winter planted, showed a few blanks in the rows, but more vigour and greater strength in the stems. He had the large Potatoes cut in two, and the small ones planted whole in autumn, but the cut ones gave considerably the largest crop. The spring planted had the like seed cut in two, but were deficient by about one-third, which is a large defect when soil and treatment was alike. The autumn planting certainly deserves a general trial after such favourable results; but in a soil that expands and contracts with frost and thaw, of course it will not succeed. There is no doubt, however, of success if the soil be first dried completely, loosened deeply, and well commingled; which should be the case at all times before the Potato is committed to it.

The Potato is an exotic and tropical plant, and although it has been long climatised, we know in practice it is a delicate esculent, requiring a great deal more care in its cultivation and preservation generally than it has yet received.

In a former letter in April last, I recommended early planting as a great preventive against failure, that the Potatoes should be all planted before the end of April. I still proffer my previous advice, not only as being a preventive against failure in the sets, but also in diminishing the attack of the late malady, taking into account soil and situation. I likewise advised making only two sets of a Potato, to cut off the root end, laying it aside, and to split the remainder longitudinally so as to have some of the rose end eyes in each set, which is important.

It has been recommended that Potatoes intended to be grown for seed should be planted on the flat 2 inches deep, not earthed up, but the soil kept loose and clean. That the crop will be as large, and the germinating powers invigorated by the greater number of the tubers having grown above ground receiving the advantage of the light and air, strengthening the buds or eyes, and believed to be much hardier, and not so easily injured by rain or frost as those grown in the usual way. A manure, containing a preponderance of protein compounds, should be added to the soil some time previous, properly incorporated, and the land brought to a fine friable state, before the Potatoes intended to be grown for seed are planted in the flat surface.

To imitate Nature as far as practicable in raising Potatoes for seed, is of vital importance; and the planting shallow on the flat surface would appear to comprehend this principle.—*W. Ewing, Strageath, Crieff, Perthshire, Feb.* 18.

ON INCREASING THE SUPPLY OF LABOUR.

[A very interesting discussion took place on this subject at a late meeting of the North Walsham (Norfolk) Farmers' Club. We have the permission of the secretary to transfer to our columns the remarks of some of the speakers.]

Mr. Gower: Of the amount of agricultural labour in East Norfolk I cannot speak definitely, and will merely affirm that the average is low, considering the nature of the soil, which is, generally speaking, suitable to almost any rotation. I would earnestly impress the members with the belief that capital employed in labour is a most profitable investment, indirectly as well as immediately; for, by increasing the means of the labourer, it enables him to buy more of the farmer's produce. I would suggest the following alterations in farm practice:—Green-cropping, and stall-feeding. It is an undeniable fact, that double the quantity of stock may be maintained by feeding them in open yards, or what is still more preferable, in covered boxes or stalls, and the extra manure thus made would amply repay the extra labour. I would beg to refer you to our report of last year for a system of cropping. I have begun in earnest to carry out that system, and shall have a piece of Rye, after Wheat, ready for soiling at the end of next month, which I intend to follow by Tares, thus securing a succession through the summer; and I think I may say that by this plan I shall employ two men and two boys extra for 26 weeks. Another important improvement, and source of increased employment for the labourer, is the better management of our fences, which have hitherto been great obstacles to good farming; as it is very evident they injure the crops in their vicinity, and are nurseries for weeds, which are continually fouling the land. When we consider the fact, that in every 100 acres of land there are 10 in fences, it will be seen how desirable it is to do away with half of them. I may be told that the landlord may object to those alterations; but I believe this will rarely occur, as I am bound to say my experience has taught me the gratifying fact, that the landlord will always appreciate the efforts of the tenant to provide full employment for the poor. I am aware this question opens a wide field for discussion on the restrictive clauses of leases, and I do hope the enlightened spirit of the age will tend to simplify these. I do not intend to enter into this subject; but, surely, it would be sufficient security for the landlord if the tenant be restricted from taking two white straw crops in succession, (except where the land has laid more than one year in Grass,) and be required to consume the produce upon the farm. Increased attention to the collecting and management of manure will open up a source of very profitable labour.

Mr. Cubitt: I am aware that I am in the presence of many farmers whose example I might well follow, but I will defy any practical man to go through the eastern part of this county—yes, even this far-famed county of Norfolk—without seeing thousands of acres most slovenly cultivated for the want of additional labour. First, to improve the condition of the labourers we must endeavour to keep them fully employed at fair wages, without which all other attempts will be perfectly futile. And I cannot but think it would be to the interest of every farmer in this country to allow each of his labourers a few rods of land for the growth of vegetables. In my opinion such a system, judiciously carried out, would tend more than any other to improve the character and morals of the agricultural labourers, and I think it would assist in destroying the influence of that greatest of all his enemies—the village beer-shop. But there is another point worthy of attention. It ought to be the duty of every employer to watch over the interests of his labourers, and he has various opportunities of adding to their comfort with but little pecuniary inconvenience to himself; and, depend on it, if a farmer expects to have good and faithful servants he must first teach them that he feels interested in their welfare, and he will then achieve an object of no small importance to his own individual in-

terests. And now it devolves on me to state my opinions as to the means of finding increased employment. I conscientiously believe that if all the land in this country was properly and profitably cultivated, there would at the present day be a very great insufficiency of agricultural labourers. I shall commence with the root culture, and I challenge any practical farmer to ride through the more fertile districts of this county, without seeing a great annual loss in the Turnip-crops, arising from ineffectual tillage and the want of manual labour—a loss amounting on some farms to many tons per acre, which would more than repay the proper cultivation of the whole crop (manure excepted). A heavy crop of Turnips cannot now be grown where land has been long cultivated with that plant (as in Norfolk) without great care and trouble. But I will now suppose that you have succeeded in producing from 20 to 30 tons per acre of Swedes. Let them at the proper season be removed from the soil, and carefully stored (except on those soils which require feeding off). It matters not what season follows, such a system in the end invariably pays a good per centage for additional labour, enables you to get your spring crops sown in due season, and, what is of equal importance, preserves the rich and saccharine juices of the Turnip. I now come to the method of consuming these roots. Every farmer is become aware of the advantages of box or stall-feeding, but I regret that excellent system is not likely to become general amongst tenant-farmers without the assistance of their landlords, for the majority of farm-buildings in this neighbourhood are now one of the chief obstacles to good farming, being not only dilapidated but constructed in such a manner as tend more to the destruction than the preservation of the manure. In feeding cattle I would recommend every farmer to make himself acquainted with the valuable properties of Linseed, boiled and mixed with cut hay, straw, chaff, or other provenders; it makes excellent food in addition to Turnips, is generally relished by all descriptions of stock, and enables him to keep an increased quantity; but its advantages can only be fully and justly appreciated by its being carried out in practice.

Next comes the management of the manure made from the root-crops, and notwithstanding all that has been said and written on this subject, the most barbarous practices are still in existence. I have lately seen drains cut across the manure in yards to facilitate the escape of superfluous moisture arising from the want of spout around the buildings Previously to carting out manure, a good compost or layer of earth should be formed to receive it to the depth of 18 or 20 inches, and when lime is used it should be twice carefully turned before placing the manure upon it, for the good effects of lime are partially destroyed in forming composts, for want of a more perfect incorporation of the materials. This done, I will suppose the manure intended for Turnips to be placed upon the compost, firmly pressed and well covered. Three weeks or a month before required for use the heap should be turned, mixing with it one-half of the compost, and again covering it over; about ten days after it should be again turned, every particle of manure being now separated and thoroughly mixed with the remaining compost. It is in a great measure from want of proper attention in this respect, combined with careless hoeing, that our Turnip fields so frequently present such an irregularity of growth. Next, I would call your attention to the unprofitable manner in which our artificial Grasses are consumed. Where artificial Grass is required for fattening purposes it might be cut up and mixed with a portion of boiled Linseed, and at the early part of the season it is advisable to cut some dry provender with green food. This plan, more than all others (of consuming our Grasses), would prove a great saving, and increase the demand for labour.

Capt. Matt: Not being well versed in agriculture, it may seem presumptuous in me to address this meeting, but no one can live in the county, particularly in these times, when the culture of the soil, with its liabilities and capabilities, occupy so large a portion of public discussion, without feeling interested. And I think it is the duty of every one to keep his eyes open and report any experiments he may meet with for the benefit of his neighbours. I have been staying lately in Dorsetshire, which is not a county where one would expect to find an improved system of farming, as agriculture there has been, generally speaking, little attended to; but there is a striking exception in the farming of the Rev. Mr. Huxtable; he is a very clever experimental farmer, and has lately hired 230 acres, partly in the vale, and partly on the down, on both of which he has tried many experiments, and I believe with great success. The down land before it was broken up, was valued at 2*s.* 6*d.* per acre. The vale farm was in a most wretched condition for want of draining, in which he has expended more than 600*l.* Now this may appear an extravagant sum, and you may consider Mr. Huxtable an enthusiast, but I can assure you that he is a plain practical farmer, one, however, who has a thorough knowledge of chemistry, which is the foundation of all his experiments; and agriculturists have come from all parts of the kingdom to examine his farm, which I will now attempt to describe. He attributes his success wholly to shed-feeding his sheep, and stall-feeding his cattle, which do not lie upon straw, but upon open splints. Large sheds are erected for the sheep, holding from 60 to 120 each, the largest being divided into pens of 10 each; they are roofed in, with a passage up the centre for feeding. Under the splints, the floor, which is excavated, is well puddled with clay, so as not to absorb the urine, and covered with sawdust, burnt clay, or dry mould, which receives the droppings from the animals. This manure is not removed till the spring, when it is carted away in almost a solid state and drilled with the Turnips. The results have been most successful, both in the health and well-doing of the sheep, the return having been nearly 2*s.* per head weekly upon each sheep. The same system is pursued in fattening his beasts, no straw being used except to litter his cart-horses, the pigs laying on sawdust. By this means an extraordinary quantity of cattle are kept, 660 sheep have been fatted without the use of hay, the straw being cut into chaff with half a pint of Oats or Peas daily, over which ground boiling Linseed is poured. The liquid manure from the beasts is removed to a large covered tank from whence it is pumped and applied to the Grass land, or elsewhere. The result in the Turnip crop is very satisfactory; for by this system he has succeeded in raising a crop of Swedes averaging nearly 25 tons per acre on one of the most barren hills in Dorsetshire, the most unlikely spots having been selected for the experiments, and I have scarcely seen a finer crop this year in Norfolk. This improved system of farming must of course employ a great many extra labourers. I understand Mr. Huxtable was paying 12*l.* a-week for labour on a farm not exceeding 230 acres, but he assured me that he was prepared to prove that the demand for labour was profitably increased. And however incredible it may appear, I have no reason to doubt the truth of these statements. At all events we ought all to be much indebted to Mr. Huxtable for making these experiments, for it plainly shows that capital may be applied, and labour profitably employed in an improved system of farming; and I think you will all allow that these experiments on growing are of the greatest value just now, when from the depreciation which may take place in the price of corn, the attention of the farmer must more than ever be directed to that which is the most important and the most profitable. Having thus endeavoured to show the benefits resulting from an improved system of farming, I must for one moment reverse the picture, and point out the evils of the opposite system; and I need not go far for an instance, as there are many to be found in that same county, Dorsetshire. In the vale of Blackmore (a very few miles from Mr. Huxtable's), a friend of mine has some farms quite saturated with water, which he proposed to one of his tenants to drain, either finding all the labour himself and charging 5 per cent., or finding the tiles if he would find labour. Both propositions were declined, as the farmer was perfectly satisfied to go on as he had done for the last 20 years. Now, I would ask, is such a man fit to be a farmer? Do you think that such a man, even if our worst fears are realised, can possibly be benefited by such a system? Would he not reap 30 per cent. by laying out his 5 per cent. In other words, would not the supply of labour be profitably increased? Protection certainly has not benefited, and never can benefit such a man. And I fear he is by no means a solitary instance. But mark the consequences. Here is a man with the labourers around him, calling (as Mr. Huxtable has justly observed), for labour and for bread, and he refuses to employ them even when it might be done profitably to himself. The labourer is willing and anxious to work, but there is no one to hire him. A large supply and no demand; and what is the consequence? The labourer is half starved, the land is half cultivated; his miserable cottage and poverty-stricken appearance in many parts of the country too plainly show that the rate of wages is generally very far below the average of the best cultivated districts. It is evident that such a state of things must continue wherever such a miserable system prevails; the land must be cultivated, the tenant impoverished, the labourer degraded, until the agriculturist becomes persuaded, by the success of repeated experiments, that capital may be safely invested, and that alteration in his practice may be profitably made in order to meet the increased demand for labour.

A very animated discussion then ensued, respecting those circumstances which affected the price of labour, and the amount paid in this district.

Mr. Thomas Cubitt, of Wilton, had examined his labour account, and found that during the last 5 years his labourers had received more on an average than 12*s.* weekly, and he thought the majority of farmers in this district would find their labour exceeded this sum.

Home Correspondence.

Superphosphate of Lime.—The remarkable increase of Wheat which has followed the employment of superphosphate of lime, on the farm of Mr. Strouts, will probably induce many agriculturists to use it on their corn crops, in the hope of obtaining similar results. Having manufactured the substance for some years in very large quantities, and also having carefully noticed the effect produced by it upon a variety of soils and crops, I will venture to offer some remarks upon the subject, which will explain in a very satisfactory manner the discordant results which have attended its application to corn crops. I believe that it would be difficult for any one to point out an instance where the judicious employment of superphosphate of lime upon the Turnip crop has failed to produce a decided benefit; but when applied to a corn crop, its effect has been most irregular. In some instances the crop has been increased one-half, while, in others, a total want of effect has been the result of its application. Its constant effect upon Turnips, and partial effect upon grain crops, point out clearly that its action upon those plants must depend upon circumstances essentially different. The effect of superphosphate of lime upon corn crops (and the same is true with any mineral substance) depends entirely upon the amount of azotised matter in the soil. When a soil has been deprived of its organic matter by injudicious cropping, superphosphate of lime is incapable of increasing the produce of corn. I have at present a field on my farm which has been under experiment for some years. It yields annually a certain amount of Wheat, without any manure whatever; but no amount or combination of inorganic substances is capable of adding to this yearly produce. The following result will explain this:—

	Grain.	Straw.	Weight of bshl.
Annual produce of soil unmanured ..	928	1120	58½
700 lbs. super-phosphate of lime.. ..	956	1116	58½
630 lbs. super-phosphate of lime, 70 lbs. sulphate of ammonia	1280	1868	62½

By substituting 70 lbs. of sulphate of ammonia for 70 lbs. of super-phosphate of lime, we get an increase of 334 lbs of grain and 252 lbs. of straw, and the weight of the bushel has increased 4 lbs, which shows how much the quality of the grain has improved. I have selected this experiment out of a multitude of others, all of which prove that increase of corn by means of mineral manures can only be obtained when the soil is rich in organic azotised matter. This fact, while it does great credit to Mr. Strout's farming, sufficiently accounts for the little effect which others have obtained from the use of the superphosphate. I have long ago ceased to recommend this substance for corn, because I think the benefit derived from it is of a very questionable nature. But those who employ it must bear one thing in mind, that whatever increase of corn superphosphate of lime produces, the whole must be consumed on the farm in addition to what is customary, otherwise the fertility of the soil will rapidly diminish. The azotised matter in a soil is very easily exhausted, but it is a work of time and expense to restore it again. The employment of super-phosphate of lime upon the Turnip crop rests upon totally different grounds, and is not liable to the same objections or abuse as in the case of corn. Turnips are always consumed on the farm, and he is the best farmer who can obtain the largest crop at the least expence. Rapidity of growth in the young plant is of essential importance, and superphosphate of lime is pre-eminent in obtaining this. The Turnip moreover is a plant which exposes a large surface of leaf to the atmosphere, and on this depends its power of obtaining azotised matter. I will now give the result of three years' cultivation of Turnips, the whole of the produce being removed each year:—

	Bulbs only.							
cwt.	Tns.	cwt.	qrs.		Tns.	cwt.	qrs.	lbs.
4½ superphos. of lime	12	3	2	No manure	4	3	3	2
5 superphos. of lime	7	14	3	No manure	2	4	1	0
11 superphos. of lime	14	0	0	No manure	6	9	0	24

The amount of leaf removed was about half the weight of the bulb. We see here a striking difference between the Turnip and the Wheat plant; one can supply itself with organic matter from the atmosphere, when supplied with abundance of phosphates; to the other phosphates are useless, unless accompanied with azotised matter. A very remarkable fact is apparent upon looking at these Turnip experiments, namely—the vast amount of phosphates necessary to obtain the Turnips. The amount of phosphate of lime removed from the soil in the three crops I found by analysis not to exceed what was supplied in the superphosphate the first year. And it will be found a rule without any exception that the amount of phosphoric acid required to produce a given weight of Turnips, increases in proportion as the soil is destitute of organic matter. 1 cwt. of super-phosphate of lime on one soil will produce a greater weight of Turnips than 10 cwt. will upon another. Whatever difficulty there may be in accounting for this scientifically, the practical inference to be drawn from it is obvious—that the economical application of mineral manures is limited to those crops which derive organic food from the atmosphere, and even in these its value is greatly reduced when the soil is deficient in vegetable matter.—*J. B. Lawes.*

On the Value of Various Kinds of Wheat.—In one or two of your recent Numbers you have published letters from Sir G. Mackenzie on the importance of determining the value of various kinds of Wheat by the quantity of gluten contained in them; subscribing most cordially to the truth of his observations, I would yet remark that he must overcome the prejudice in favour of very white bread before he can induce people to buy the strong Wheats in preference to the fine white. As far as my observations go some of the Wheats containing most gluten are red Wheats, and yet notwithstanding their strength the very white and fine skinned Wheats fetch a much higher price in any market in Great Britain. This may be regretted, but I don't see how it is to be altered so long as appearance is preferred to intrinsic value. Sir George seems to think that the patent method of making bread is likely to supersede all others, and that good and bad flour will make equally light bread. This may be quite true, but I doubt whether bread made in this way, will be equally wholesome, at all events I fancy that the same chemical changes will not take place in the flour which occur in that fermented in the usual manner. I may be asked what are the chemical changes which take place in fermented flour, and how I know whether any really take place at all. In reply, I say, that I no more know what the change is than I know what changes

take place in the blood by having small-pox or measles, but we are sure there are changes, as the parties are no longer liable to infection; that a change does occur from fermentation, I think is proved by the following facts. Let any one prepare a starch from sago, flour, or farina, and into that starch put a small quantity of unfermented flour whilst the starch is boiling, in a very few hours the starch will be decomposed and worthless, but if the same quantity of flour be taken from some that has been steeped in water and fermented as is usual in the cotton manufacture before it is converted into paste, the decomposition does not take place. Whilst I am on the subject of prejudices, I will mention another to which I would call the attention of your readers, but I fear with no more effect than will result from the attempt to induce them to use flour, which contains much gluten—it is the prejudice in favour of white veal; this is carried to such an excess, in my opinion, that I doubt if one person in a thousand knows what the taste of veal really is in its natural state. To get it white the calves are bled (in many instances three or four times) to such an excess that they can scarcely stand after the operation; and in addition to this they are kept in the dark and allowed to lick chalk, that the flesh may be as white as possible, although these processes rob the meat of all its flavour, as any one will soon discover if he will contrast and compare veal so prepared with some taken from a calf which has run wild in the fields, sucked its mother when it pleased, and never lost a drop of blood until it was killed; why, one pound of it is worth a dozen of the other, and yet so strong is prejudice in this respect that the butchers assure me that the veal of a running calf can scarcely be sold except to the poor. If I were a little nearer you I would give you the opportunity of judging for yourself. —*T. G.* [As "T. G." says, some of the changes involved in the ordinary manufacture of bread may be unknown; but others are sufficiently well known. One of them is the absolute destruction of a portion of the flour which is used up in the formation of the gas by which the dough is puffed out. This loss is avoided in the patent process.]

How can Landlords improve the Agriculture of their Estates?—Some time ago Mr. Sturt is reported to have said at an agricultural meeting in Dorsetshire that he would willingly advance capital to those of his tenants who had not sufficient means to stock and cultivate their farms properly. Sir Robert Peel has, I think, recommended landlords to do the same thing, and it is very good advice to those who can follow it. It may be easy for those who have money to lend some; but is this the most effectual way of assisting farmers? An advance of capital in the shape of money has been often tried, and at least frequently without success. Now I have sometimes thought that a landlord might supply his tenant with sheep or other stock and artificial manure; but I cannot point out how the parties ought to apportion the returns. If you will state the most effectual means of attaining so desirable an object, I think you will be doing a great and very general service.—* * * [We should be inclined to answer the question by recommending the loan of capital—not as a favour, but on terms which would obtain between one man of business and another—to those tenants who perceive the advantage of higher farming but want the means. And for the advantage of those tenants who do not recognise the importance and profits of higher farming we would advise the establishment of an example farm].

Indian Corn.—I was surprised to see in your Paper of Feb. 7, the statement of Mr. J. E. Rolls relative to Indian corn, repeated. Permit me to ask whether the letters signed "Frumentum" in the *Times* newspaper in answer to the above (which had previously appeared) came under your notice, as also the corroboration of "Frumentum's" assertion by General Napier? As an inhabitant of the parish in which the General lived 10 years (to which place and period he alludes in his letter from Guernsey), I feel an interest in the subject, and am desirous that the public should not be misled on the subject of Indian corn. If Mr. Rolls means Cobbett's corn, the General proves that he grew it for 10 years on the same plot of ground (depending on intercultivation only for the healthiness of the successive crops), strictly on Cobbett's plan, and he asserts that at the end of 10 years his corn was finer than the original seed bought of Cobbett. If Mr. Rolls means a different species of Indian corn, it ought to be clearly stated; but if not, then it is plain, as has been shown by others, that he forced the plants prematurely, and the first sharp night after he set them out in the open ground was fatal to their precocious state. Some notice from you of the above point at this eventful time, when no needless alarm ought to be raised to the prejudice of a crop that may be useful to our farmers under the possibly altered features of agricultural industry, will be esteemed a favour.—*G. W., Freshford, near Bath.* [If the writer means that Indian corn can be *profitably* raised in this country, he is wholly wrong. Where are we to get the fierce American sun? We may ripen Indian corn in gardens *sometimes*, no doubt, but at what cost? The Channel Islands may be an exception, but we doubt it.]

Road Making.—In a Notice to a Correspondent in last week's *Agricultural Gazette*, I see you advise an enquirer to lay 3 or 4 inches of burnt clay as a foundation for 5 or 6 inches of gravel. I live on a clay subsoil, and have to send four miles for gravel. I am now making some new roads, and find fetching the gravel is a very heavy expense. Will you inform me whether burnt clay will answer the purpose instead of so much gravel? Will it become muddy in wet weather?—*Clay Hall.* [We imagine that burnt clay will not be a sufficient substitute for gravel, though, with a substratum of it, less gravel will be required for the road. It should be burnt in stiff lumps, and then broken with a hammer.]

Rooks.—In answer to an inquiry of "R. W," I can state a friend of mine was anxious to establish some rooks near his house. A magpie came and built its nest. My friend obtained either four or five eggs from a neighbouring rookery, and put them in the magpie's nest in lieu of her own. She hatched them and reared them, and continued with them until the autumn. In the spring of the next year the magpies returned, when the rooks drove them away, established themselves, and now my friend has a considerable rookery.—*A Subscriber.* [We have received other letters recommending "R. W." to obtain old nests and place them in his Ash and Sycamore trees.]

Cutting Chaff answers admirably for manure. It instantly absorbs the liquid manure, and mixes intimately with the solid where trod, making a dense compact mass, requiring much less room and cartage, for a load of this is certainly equivalent to two of long loose strawy stuff. It is astonishing how small a space a truss of straw occupies when cut half inch; of course there is just as much of it when cut as before, although some folks seem alarmed at the diminution in bulk. We cut with two-horse power and Wilkes' (of Sheffield) cutter. We can cut 32 trusses per hour, but do cut about 22 to 26, at a common pace. I consider the cost of cutting is amply repaid by other saving. Of course decomposition proceeds more effectually; there is less shaking, turning, &c., and far less waste by escape of ammonia than in large loose masses. In bedding our horses and cattle, we always put long straw over it to prevent their getting dirty by lying on the moist and filthy mass; but for pigs this is unnecessary, as they will not dung near the bed.—*I. J. Mechi.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Monthly Council was held at the Society's house, in Hanover-square, on Wednesday last, the 4th of March; present, The Right Hon. Lord Portman, President, in the chair; Sir Charles Lemon, Bart., M.P.; Sir John V. P. Johnstone, Bart., M.P.; Col. Austen, M.P.; S. Bennett, Esq.; W. R. Browne, Esq.; Col. Challoner; F. C. Cherry, Esq.; J. W. Childers, Esq., M.P.; H. Gibbs, Esq.; S. Grantham, Esq.; W. Fisher Hobbs, Esq.; John Kinder, Esq.; P. Pusey, Esq., M.P.; F. Pym, Esq.; Prof. Sewell; J. V. Shelley, Esq.; R. A. Slaney, Esq.; W. Cuthbertson, Esq.; A. E. Fuller, Esq., M.P.; Joseph Johnson, Esq.; James Marmont, Esq.; S. Solly, Esq.; E. Tattersall, Esq.; and T. Turner, Esq.

The following new members were elected:—

Hamborough, Albert, Steep Hill Castle, Newport, Isle of Wight
Lowe, Henry Porter, Calverton, Nottingham
Smith, John, Goswick, Berwick-on-Tweed
Merrifield, Thomas Seare, Waintfleet, Lincolnshire
Sankey, Richard, Nant, Holywell, Flintshire
Hall, Henry, Neasdon, Willesden, Middlesex
Roebuck, J. A., Milton, Christchurch, Hampshire
Green, William George, Belford Villa, Belford, Northumberland
Bolam, Christopher, Low Trewitt, Rothbury, Northumberland
Fitz-Patrick, Richard Nelson, Granstown Manor, Queen's County, Ireland
Cookson, John, Benwell House, Newcastle-on-Tyne
Edwards, William, Brook House, Ross, Herefordshire
Curtis, George, Canterbury

The names of seven candidates for election at the next meeting were then read.

Finances.—Colonel Austen, M.P., Chairman of the Finance Committee, presented to the Council the monthly Report of the state of the funds of the Society; from which it appeared, that stock to the amount of 1200*l.* having been sold out of the 3¼ per cents. to meet the inconvenience occasioned by the excess of payments over receipts on account of the Shrewsbury Meeting, the invested capital was reduced accordingly to 7000*l.* stock, with a current cash-balance in the bankers' hands of 1589*l.* The Council unanimously adopted this Report, and ordered that a letter should be addressed by the Chairman of the Committee to each member of the Society in arrear of his subscription, reminding him of the circumstance, and requesting a remittance of the amount by means of a post-office order made payable to the Secretary.

Prize Essays.—Mr. Pusey, M.P., Chairman of the Journal Committee, reported that 105 essays had been already received in competition for the prizes offered by the Society; independently of those essays which are required to be sent in at a later period of the year; namely, those on the Potato disease, by the 1st of June; those on the St. John's Day Rye, by the 1st of October; and those on Peat Charcoal, as a manure, by the 1st of December next.

Agricultural Chemistry.—Mr. Pusey, M.P., as Chairman of the Committee on the Analysis of the Ashes of Plants, then laid before the council the following Report of the Committee on that subject:—

Report.—"The Committee on the Analysis of the Ashes of Plants beg to report, that Professor Graham, to whom the design had been referred, waived the undertaking in behalf of Dr. Lyon Playfair, the Consulting Chemist of the Society, on that gentleman's appointment as Chemist to the Museum of Economic Geology, to which office a Laboratory in London is attached. That Dr. Lyon Playfair, however, having been placed on several commissions under the crown, has not had time at his disposal for carrying out the Society's views. That this delay has served greatly to strengthen the original grounds of the undertaking, since the hope then entertained, that after ascertaining those earthy materials of crops which are found in their ashes, we might employ the same chemical substances as artificial manures, has now been carried partially, and is likely to be carried more generally, into practice. That it is necessary, however, to obtain new analyses of these ashes, because differences are found in the results of former inquiries, which it is desirable to clear up, and to ascertain whether these differences have arisen from errors of the experimentalist, or from variations in soil, manure, or other causes affecting the produce itself, and consequently its mineral ingredients. That in order to secure the utmost attainable accuracy, Professor Liebig, who suggested this undertaking should now be consulted as to the methods by which it should be carried into effect, and requested to communicate his views to the Council. That the Committee recommend the partition of the analyses; and that application should in the first instance be made to those institutions which have already recognised agricultural chemistry as a distinct object of their researches. They therefore recommend, that as the College of Chemistry has appointed a Committee on Agricultural Chemistry, enquiry should be made on what terms a share of the analysis would be undertaken by that Society; and that a similar enquiry should be made of the Agricultural College at Cirencester. They recommend that the names of several members eminent for their chemical acquirements should be added to the Committee."

This Report having been unanimously adopted, and agreeably with its recommendation, the names of Professor Liebig, Dr. Lyon Playfair, Dr. Daubeny, Professor Solly, and the Rev. A. Huxtable, added to the list of the Committee; the following gentlemen were, on the motion of Mr. Pusey, M.P., elected Honorary Members of the Society, and also added subsequently to the Committee, namely, Professor Graham, Dr. Fownes, Dr. Wade, and Dr. Hofmann.

A letter was then read from Dr. Gardner, Secretary to the Royal College of Chemistry, communicating a suggestion from the Council of that body to the Council of the Royal Agricultural Society of England, that a Committee of the Society should be appointed to confer with a Committee of the College, for the purpose of ascertaining the mode in which the prosecution of chemical inquiries, for agricultural purposes, as an object of common interest to both institutions, can be most efficiently carried out. The Council resolved that this suggestion should be referred to the Committee of Analysis, which should be authorised to communicate with the Committee of the Royal College of Chemistry on the subject.

The Rev. A. Huxtable communicated, through Mr. Pusey, a letter substantiating the accuracy of his estimate of the expense of growing Turnips on barren land, chiefly with chemical articles; the original pecking of the land having cost, not 6d., but 3d. only per rod.

Country Meetings.—Mr. Shelley having reported to the Council the various results of the consideration of the General Newcastle Committee in reference to the arrangements for the ensuing county meeting of the Society, at that town, in the middle of July next, the Council decided generally on the following points:—

1. That there shall be no Council Dinner this year.
2. That a lecture on some subject of practical interest shall be delivered at Newcastle-on-Tyne at 5 o'clock on the afternoon of Wednesday the 15th of July.
3. That the award of prizes by the judges shall be read at 8 on the same evening.
4. That the lecture-room shall be open to all members of the Society, on their being furnished with free tickets to be obtained at that period of the secretary.
5. That all details on these points be left to the arrangement of the General Newcastle Committee.

The Council then took into consideration the various offers made to the Society on the subject of the lecture to be delivered before the members at their ensuing county meeting.

On the motion of Mr. Humphrey Gibbs, the following appointments for the meeting were confirmed:—viz.

Director of the Show.—Mr. Brandreth Gibbs.
Stewards of the Cattle Department.—Earl Spencer, Mr. Druce, Mr. Kinder.
Stewards of the Implement Department.—Mr. Miles, M.P., Mr. Shelley.

The Council having ordered that it be referred to the Rotation of Districts' Committee, to take into consideration the expediency of holding the country meeting of the Society for 1847 in the South-Wales district, Mr. Pusey gave notice that he should bring that question before the Council at its next monthly meeting.

Flax.—Mr. Pusey stated that it was the intention of the Journal committee, to take into consideration whether it would not be desirable for the Society to offer a good prize on the subject of Flax cultivation.

The following communications were then made to the Council.

1. A statement by the President of the uniform success which at present attended his experiments in growing Potatoes apparently sound and healthy, from the most diseased seed in which a sound eye had been left; and of his intention of submitting the results of his numerous experiments on this subject to the Council as soon as plants were sufficiently advanced in growth for the purpose: the sound eye in those cases not having been extracted, but the whole mass of the seed Potato planted together.
2. A statement from Sir Charles Lemon of the probable latent existence of the disease in the Potato previously to the last season, and of its actual existence in given specimens without being discoverable to the eye by means of the most powerful microscope.
3. Communications on the same subject from Mr. Fuller M.P. and Mr. Browne.

4. A letter from Mr. Kimberley on the cultivation of the Convolvulus Batatas, or "Sweet Potato," as a substitute for the ordinary Potato; and on the circumstances under which the Spanish Phosphorite could be obtained from the Continent.
5. A letter from Mr. Moyle of Western Canada on the subject of Gypsum as a manure.
6. Results from Mr. Rodwell of his cultivation of the Italian Rye Grass, with specimens of the brown and pale varieties.
7. The new volume of Coates's Herd Book from the Editor, Mr. Strafford, of 4, Morton Villas, Camden-Town.
8. Mr. Johnson's prices of Draining Tiles; Mr. Bate on Agricultural Schools and Farms; Mr. Couch on destruction of Insects; Mr. Nichols, Papers on Flax Cultivation; and Mr. Ewing on Potato Consumption.

The Council then adjourned to Wednesday next, the 11th of March.

HIGHLAND AND AGRICULTURAL SOCIETY.

At the late monthly meeting of the Society, Mr. Lawson read a paper by Mr. Gorrie on the Wheat-fly. Mr. Gorrie states that the Wheat-fly had not attracted general attention till the deficiency in the Wheat-crop, caused by its ravages in the years 1827-8-9 and 30. The number of flies produced appears to depend partly on the quantity of maggots deposited in the soil the previous autumn and partly on the occurrence of a mild temperature about the middle of June, when the Wheat-ear partially appears. Unless the weather be serene and dry, with the thermometer above 54 deg. Fahrenheit at night (the period when the eggs are deposited), few or none of them are deposited, which may account for the manner in which its depredations have diminished since 1830. The author adverts also to the check given to the propagation of the insect, even in favourable weather, by the operations of a small beetle, which destroys the maggot in its appearance outside of the glume. Burying the surface of the ground containing the maggot, at the bottom of the furrow, by means of a skim plough is recommended, but the author adds, that even then, if Beans succeed Wheat, the perforations of the Bean-stalks facilitate the after-rise of the insect. Bearded Wheats are not so much affected as other sorts; but out of eighty varieties belonging to Mr. Gorrie, only two (and these of a coarse description—the Cone and the Egyptian), have been known to escape. Barley has occasionally in seasons when the fly was very abundant, been slightly affected. Where Couch-grass, Triticum repens, is allowed to run to seed on the borders of fields, a certain nursery is created for the young maggots. The most certain preventive measure is to be found in scarifying and burning the surface, as is done in England; but that process can only be followed when Wheat is neither succeeded by Beans, nor sown down with Grass-seeds. It was formerly suggested by the late Sir John Sinclair, that a few stalks of Hemp amongst Wheat might by its smell prevent the fly from entering the field, but the author is ignorant if the suggestion has ever been acted upon. Mr. Lawson remarked that the plans recommended by Mr. Gorrie of ploughing or scarifying and burning could only have place where Beans do not succeed the Wheat, or when there are no Grass-seeds in the ground; in either of these cases no remedy is suggested for the evil.

The Chairman said that, seeing that the loss caused by this insect had been computed to amount, in the Carse of Gowrie, during two years, to 90,000*l.*, it was most important that attention should be directed to the best remedy. Mr. Scott has recommended guano; perhaps it might act like hemp—by smell; and inquiry should be made if the evil had ever occurred in fields where guano had been used.

The next paper was read by Sir William Dunbar of Mochrum, Bart.; it was an essay by Mr. Boyd of Innerleithen, on the planting of Whins and Broom for the winter and spring feeding of sheep. The author explained the great importance of such feeding, whether with regard to the condition of the animal, its powers of lambing and rearing, and the state and value of its fleece. He states, in regard to the latter point, that the wool ceases growing whenever the animal is pinched in food, and that when it recommences its growth, on nourishment being supplied, a joint or knuckle is produced on the staple of the wool, by which it is rendered apt to snap in two, and therefore unfit for combing purposes. It is the opinion of Mr. Boyd that winter and spring feeding is the department least understood and attended to in the management of stock, particularly with regard to the value of Whins and Broom. They fill up the blank in green feeding betwixt the decay of herbaceous plants in autumn and their revival in spring, and they afford a nourishment the most wholesome and palateable that can be offered to sheep during that interval, with the additional recommendation of being plants in general suitable for the soil of our mountainous districts. Several very strong cases are adduced in the report in support of the author's views. Mr. Somner, an enterprising tenant in Berwickshire, on taking possession of his farm of West Moriston, found his flock (Leicesters and Cheviots) liable, from the nature of the pasture, to suffer from rot. Being aware that Whin-feeding had an effect in this disease, he established a nursery of the plant, by means of which, and through the agency of his shepherds, in sowing it, he soon reared a sufficient supply of Whins. From the time that the sheep had access to them the disease disappeared, till 1837-8, when a severe frost cut them down, the rot then reappeared to an alarming extent, till the Whins were restored, when it again vanished. The following is another instance of the beneficial result of Whins for winter food. In 1837, the farm of Blackhouse, in Peebleshire, was visited by so severe a storm, that the hirsel which grazed on the highest ground, 35 score, was reduced for some days to feed on the Heather tops, it being impracticable to supply them with artificial food. A thaw, followed by a frost enabled them fortunately to travel on the top of the snow, and they were driven to the valley of the Tweed, and put into a field of 10 acres containing Whin and Broom, and after being fed there for 18 days, they resembled in condition Turnip-fed sheep, rather than hill stock, while the mortality among them from the commencement of the storm, till the lambing season, was but a fractional part of that which occurred during the same period among the low ground sheep, which had been fed with the best artificial hay. The author states that the Earl of Traquair is cultivating the Whin extensively over the large sheep farms in his estate, and that Mr. Scott, of Woodhouse, near Jedburgh, who produces about the best ewes and lambs in that district, has been long an advocate for Whin feeding in spring and winter. The Whin should never be cut, but portions of it should annually be burned to keep its shoots tender and succulent. The Ulex strictus, or upright Irish Whin, has the greatest number of shoots, and seems, therefore, most relished by the lambs; but it is tender and more easily affected by frost than the French and Scotch kinds. Broom, though not so important as a food for sheep, is invaluable as a medicine. Both Whins and Broom should, according to Mr. Boyd's recommendation, be planted on a system so as to afford winter shelter as well as feeding, and in some measure supply the want of sheep stalls.

Mr. Grant, of Kincorth, had always heard that the Whin possessed medicinal qualities for sheep, and this idea was strongly corroborated by the striking facts stated by the essayist in reference to Mr. Somner's flock.

Professor Balfour thought it right to mention, that the Ulex strictus, or Irish Whin, was a mere variety of the common plant; it was only to be raised by cuttings, and could not be propagated from seed.

Mr. Grant, of Kincorth, then read a report on the recently introduced Coniferæ, prepared by Mr. Bishop, Methven Castle, Perthshire. The author, who is land-steward to Mr. Smith, of Methven, has collected an extensive assortment of the Coniferous trees of more recent introduction; the locality of the Methven Pinetum is about 600 feet above the level of the sea; it has an open exposure to the south and west, with rising ground to the north. The surface is wholly muir soil, resting on a bottom of hard till. The trees, comprehending above 60 different species and varieties of the Coniferous tribe, were planted without any preparation beyond the formation of a few surface drains; notwithstanding which, many of them have, within the last 15 years, exceeded in growth the Scotch firs and Norway-spruces contiguous to them, which were planted two years previously. The trees chiefly noticed by the Reporter are the Pinus cembra Helvetica, or Swiss Stone Pine; the Pinus monticola, or short-leaved Weymouth Pine, which has grown more freely than any other sort in the collection; the Pinus laricio, or Corsican Pine; Austriaca, or black Pine; Pinus ponderosa, which has not been so successful as others; Abies Douglasii, or bracteated spruce Fir, a noble and beautiful tree, retaining, even in elevated moorland, its superiority of rapid growth; Abies Menziesii, or warted branched Spruce, esteemed by Mr. Bishop as the hardiest of all the recently introduced Coniferæ; it also defends itself against the attacks of game by the twisted position of its prickly pointed leaves; Picea pichta, or pitch silver Fir, a very handsome Fir of rapid growth; Picea nobilis, or long-bracted silver Fir, the introduction of the seed of which in larger quantities would, in Mr Bishop's opinion, be a great acquisition to the country, as there can be no doubt that it will suit the climate of Scotland well.

Mr. Lawson remarked, that it was interesting to know, that in a moorish soil, and at a considerable altitude, the rarer Coniferous trees had rivalled, in many instances excelled, the common Firs of the country. He might mention the Pinus austriaca and Pinus laricio, Black and Corsican Pines, have been planted in millions since their first introduction, and are answering well. He had lately had an opportunity of witnessing at Dunrobin Castle a number of specimens of the ponderosa, which were thriving well.

Professor Balfour then read a communication on irrigation, being a report by Mr. Simpson of Glenythan, Aberdeenshire, in the laying out, management, and produce of water meadows. Mr. Simpson's operations were conducted on two different lots of ground, the one measuring 4 a. 1 r. 38p., the other 1a. 4p. Both lots are irrigated by the same stream, the water of which has been analysed, and the only noticeable ingredients contained in it are very minute proportions of sulphate of lime and muriate of soda (common salt). The surface of the ground was levelled, and the course of the stream altered, so as to allow water courses to be led along the highest level of the ground to be operated upon. In July 1843, Grass-seeds of ten different sorts were sown in lot No. 1, at the rate of about 26 lbs. per imperial acre; the meadow was raked, top-dressed with earth, and rolled, the roller being drawn by a light pony. In August, the weather being more than usually dry, a small quantity of water was allowed. The expense of the whole operation in lot No. 1 is estimated by Mr. Simpson at 31*l.* 8*s.* 3*d.*, which sum includes payment to a qualified person for taking the levels and superintending the work, the cost of seeds, sowing, rating, advertising, &c. In the beginning of November, 1843, the water was let on, and continued without intermission till May 1844. The spring of that year was cold and raw, and the scarcity of Grass was general. Mr. Simpson cut his crop of 1844 as it was daily required, instead of making it into hay, one object being to allow the Grass to ripen, and the seed to shake out, and add to the roots in the ground for after years. The cutting commenced on 14th June, 1844, and was continued till the middle of October, during which period 119 cart-loads of Grass, including 18 of aftermath, were taken off the ground. An average load of Grass was weighed, turned into hay, and then weighed as such; the result was a produce of more than 390 stones of 22 lbs. per imperial acre. In winter 1844 and spring 1845 the meadow was kept under water, as in the previous season. The crop of 1845 was cut and consumed as the former was; the number of cart-loads it yielded was 142. The weight of the crop was again ascertained in the manner before described, and the produce amounted to at least 470 stones per imperial acre. Previous to the operations described, the meadow might have been worth from 5*s.* to 7*s.* 6*d.* per acre; it is now valued by the tenant at 3*l.* to 4*l.*; and if it were near a large town, it would be worth, in Mr. Simpson's opinion, double that sum. A decided improvement has been observed in the milk and butter produced on the farm in 1845, which, in consequence of the quantity of Grass consumed by the cattle, there has been an increase of animal manure to the extent of fully one-sixth. The above summary relates to that part of the Report upon lot No. 1. Similar operations, attended with the like results, were carried on upon No. 2. Mr. Simpson states that on his part of the country irrigation was ill understood and little practised, the success attending his experiments, has, however, induced others to follow his example.

Farmers' Clubs.

Dorking: *The most approved system of planting all kinds of spring corn.*—No decided resolutions were passed, as it was considered that the infantile state of the Society, and the very able manner in which the subject had been treated by others far more advanced in practical experience, would hardly justify a direct conclusion; more particularly as it is the present object of the Club to bring before the immediate notice of its members, and to direct their especial attention to the different systems advanced, so as to induce them to make such comparative experiments as shall lead to a practical knowledge of that system which is most applicable to the locality. As regards planting Barley, one member contended that sowing it at the rate of four or five bushels per acre broadcast was the best way, inasmuch as by sowing it was dispersed more evenly over the whole surface of the soil, and by using a large quantity of seed it had not the opportunity to tiller or branch, which, as he believes, is prejudicial to the sample; in order to produce a good sample of Barley, it was highly necessary that the whole of the corn should ripen together, which, when it was sown or drilled with a small quantity of seed, would not be the case. Another member advocated the principle of planting it in November, after the manner recommended by Mr. Hewitt Davis, only with a larger quantity of seed than is used by that gentleman. The experiment was made by sowing a piece of land of an average quality with the rest of the farm, which is of a light sandy nature, in November, 1844. It was not in the least injured by the severe weather which followed, and in harvest last year it was the most productive piece of Barley grown on the farm, and by far the best sample. The attention of the members was also directed to the planting of Clover and Grass seeds in corn as being closely connected with the subject before them. The use of the Suffolk drill in depositing all kinds of Grass seeds was strongly advocated by several members, more particularly on strong land, as in dry seasons, when the seed was merely scattered on the surface of the soil, the greater part of it would never vegetate.—*T. P., Hon. Sec.*

Reviews.

The Journal of Agriculture and the Transactions of the Highland and Agricultural Society of Scotland. No. 11. January 1846. Blackwood: Edinburgh.

A very excellent Number of this valuable quarterly periodical. A capital article on Corn-rents, to which we have already referred (see p. 28)—a very interesting one on Dutch and German Husbandry—a paper on the Constitution of the Potato—an account of the Highland Society's Show at Dumfries, and various short articles embraced under the heading "Farmers' Note Book" make up the Journal; and that section of the work in which the Society's transactions are published, contains among other things a report by Professor Johnston, on the proceedings of the Agricultural Chemistry Association. It is to this more especially that we shall at present direct the attention of our readers. We have not room for reference to all the subjects discussed in this report. They are: 1, the Composition of Liquid Manure; 2, can its fertilizing ingredients be easily extracted? 3, the Composition of Barley; 4, Sour Beer as Manure; 5, Waste Liquor of Potato mills; 6, Lime in Slate Rocks; 7, Lime Refuse of the Bleachers as a Manure; 8, Composition of Oil-cakes; 9, a Substitute for Oil-cake. We hope to be able at intervals to lay extracts of some length from this Report before our readers; at present we must content ourselves with one on the best method of extracting or filtering as it were the fertilizing matters out of liquid manure, so

that these being left in the filter may be easily conveyed to the soil, and thus the immense labour of carriage be avoided. Professor Johnston says :—

"That a method for thus extracting the virtues of liquid manure may be of use; several conditions are required. Thus—

"1°. It must be perfectly efficient. If a method were recommended which should merely separate one portion of the substances or one kind of matter from liquid manure, while it left the rest behind, it would only lead to a more general waste than now exists, in so far as it would induce many to believe that, a part being thus extracted, the fluid which was left might be allowed more freely to run to waste.

"2°. It must be easy of execution. A process which involves much trouble would not generally be adopted by practical men, and if it were difficult to perform, it would be imperfectly done. These drawbacks would cause the method to fail; it would consequently fall into disrepute, and the advantages of scientific knowledge and skill would sink in public estimation.

"3°. The materials employed for the purpose must be abundant, cheap, and easily accessible everywhere. This is the most difficult condition to fulfil, and it presents the greatest bar to the introduction of any economically useful method of effecting the object in view.

"The only substance at present known, by which the separation of all the valuable ingredients from liquid manure can be fully effected, is animal charcoal. A sufficient supply of this substance, when intimately mixed with the liquid manure, will take up nearly the whole of the saline and colouring matters it holds in solution, will carry down the substances it holds in suspension, and will leave the water nearly pure and colourless. The refuse of the prussiate of potash manufactories will have this effect, and what remains when ivory black is digested in spirit of salt (muriatic acid) will do still better. But this kind of charcoal is neither cheap nor abundant, and therefore cannot be recommended to general use. The refuse animal charcoal of our manufactories is now sold as a manure, at the price of several pounds a ton; either those who sell or those who use it might render it still more valuable by causing fermenting liquid manure to filter through it before it is applied to the land.

"But other kinds of charcoal possess this property to a certain extent. Wood charcoal reduced to powder, charred saw-dust, and charred peat, are all capable of being used with advantage in extracting the ammoniacal and other salts which give its value to the liquid of our farm-yards. Experiment has shown that, when filtered through a bed of such charcoal, the liquid escapes without colour and almost without taste, while the charred peat or saw-dust is itself converted into fertilizing manure. Wherever such charcoal, therefore, can be obtained in abundance and at little cost by the practical farmer, this mode of employing it may be both useful and profitable to him. Saw-dust or peat may also be mixed with earth and charred, when the heap, after being several times drenched with liquid manure, will be converted into a valuable compost.

"Still it will be uncertain that the liquid thus treated has been deprived of all the fertilizing substances it contains. Even when it passes off perfectly transparent, colourless, and without smell, it often, indeed almost always, contains in solution both organic and inorganic substances, which are useful to the plant. That it contains soluble organic matter is shown by its again becoming muddy, and fermenting, when allowed to stand for a considerable time, while the inorganic or saline substances are readily detected by evaporating the clear liquid to dryness.

"However beneficial, therefore, the use of such forms of charcoal may be, we can scarcely consider it, in almost any circumstances, as likely to effect a saving of the whole of the valuable matters contained in our liquid manure. A great portion of the loss now incurred may be prevented by the use of such kinds of charcoal, and the fertilizing substances may, through their means, be applied to our crops, at seasons of the year for which, in the liquid form, they are not suited—still the application of the whole liquid to the land would return to the soil more of what the crops had carried off, and would thus keep it longer in a state of fertility without the aid of foreign manures.

"Various other substances have been recommended and used for the purpose of extracting from the liquid of the farm-yards, from urine, and from the water of our common sewers, the different chemical compounds they are known to hold in solution. Thus, burned and powdered gypsum, when intimately mixed with such liquids, falls for the most part to the bottom, carrying with it a greater or less proportion of the matters which the water had previously dissolved. This powder, when collected and dried, forms the principal part of what is known in the manure-market under the name of urate, and is more or less valuable according to circumstances. But it always leaves in the liquid much more than it extracts from it, and hence goes but a little way in saving what the liquid manures contain.

"Again, if alum or sulphate of magnesia, (Epsom salts,) or sulphate of zinc, or sulphate of iron, (green vitriol,) be mixed with fermenting urine or tank-stuff, a powdery matter, more or less dense, will fall to the bottom, which will contain the phosphates and a portion of the other saline and even of the organic constituents of the liquid. This powder, therefore, may be used as a manure, either alone, or, what is better, in admixture with other fermenting manure; but all these substances leave most of the valuable salts in the water behind them, and, therefore, besides their cost, are open to the objection that they do not perform the purpose for which they have been employed.

"This latter objection applies more strongly to slaked lime, which does indeed carry down much of what the liquid holds in suspension and in solution, such as the phosphates and much of the organic matter, but it leaves behind all the ammonia, and even decomposes the ammonia-producing substances which those liquids contain, and causes their elements to be more speedily dispersed through the air.

"On the whole, therefore, it does not appear that at present we are likely to obtain any means of completely, easily, and cheaply separating the fertilizing ingredients of our tank-stuff from the water in which they are dissolved. It is not likely, indeed, that any generally available means will be soon discovered by which these fertilizing substances can be wholly extracted in a dry form equal in manuring value to the liquids themselves as they flow from our farm-yards.

"The method of absorbing the whole liquid by partially dried peat, and thus adding to the quantity of fermented manure at the disposal of the farmer, is perhaps a better, as it is certainly an easier way, of using up the liquid manure where peat abounds, than the method of using charred peat to separate its constituents. This method is very extensively employed both in Ireland and in Scotland, the only objection being, that the manure is not so portable as that which may be obtained by the use of peat in a half charred state. The use of peat, indeed, in our dung-heaps cannot be too generally recommended. It prevents the escape of ammoniacal and other volatile substances, it absorbs disagreeable odours, and renders the neighbourhood of dunghills less unpleasant and unwholesome. It is probably owing to the copious use of peat in this way that so little injury arises to the health of the peasantry of Ireland and of parts of Scotland, from the dung-pit so often seen before the doors or beneath the windows of their cottages."

Notices to Correspondents.

RURAL CHEMISTRY, by Edward Solly, Esq., F.R.S.—A new edition, with additions, is reprinting, and will be ready in a few days.

AGRICULTURAL GAZETTE—*A B C*—We regret our inability to please you.

COW LOSING MILK—*J B*—The defect arises from the orifices of the teats being too large. Milk the cow three times a day instead of twice, so as not to let the udder get too full. John Lawrence, the author of a work on Cattle, has been dead many years; his publishers also, we have no doubt. His book on Cattle is only to be met with at old bookstalls. If you wish a copy, please send us your address. *W. C. S.*

CHURN—*C C*—Try Robinson's, of Lisburn, Ireland.

CUTTING CHAFF FOR MANURE—*The Captain*—See "Home Correspondence."

DOCKS—*John o' Groat*—You must pull them up in wet weather whenever big enough to lay hold of. There is nothing for it but perseverance. For Moss, drain the land, lime it, and fold sheep over it, feeding them on Turnips, &c., brought on the field.

FIELD GARDEN SYSTEM—*R Mason*—You will find very good rules in some of the early Numbers of last year's *Agricultural Gazette*. If you have not the Paper, we will reprint them.

FIELD LAWN—*E V*—The following seeds per acre will answer your purpose:—Alopecurus pratensis, 2 lbs.; Anthoxanthum odoratum, ½; Dactylis glomerata, 2; Festuca duriuscula, 3; F. pratensis, 3; F. rubra, 2; Lolium perenne, 7; Lolium Italicum, 3; Phleum pratense, 1½; Poa nemoralis, 3; Poa trivialis, 3; Trifolium pratense perenne, 3; Trifolium repens, 5; in all 38 lbs, and one bushel of Barley.

FORK HUSBANDRY—*Mr. Stephens*—Could you favour us with a detailed account of your experience. The figure with reference is published in the Number for Dec. 13, 1845. See "Notices to Correspondents."

GUANO—*R A J*—We would apply it in the case of Potatoes, broadcast in wet weather over the land just before the young shoots make their way through, and, in the case of Turnips, broadcast just before ribbing the land up for the seed. 3 cwt. of Peruvian guano will be needed per acre; turn it out of the bags, pound it small, and sow it by hand broadcast.

MANURE DRILL FOR TURNIPS—*Y X*—Do you know the Utley manure drill for two rows? We understand that it has answered very well. Superphosphate of lime may be procured of Mr. Lawes, Deptford Creek.

PASTURE—*C J*—You had better pare and burn it, and dig it up and sow Turnips, and cultivate them well this year. That will destroy the weed, and you can lay it down next year again. The weed is Ranunculus repens—Creeping Crowfoot.

PERMANENT PASTURE—*W R*—On a light gravelly soil, we would take out of your list the Creeping Bent-grass, the Crested Dog's-tail, the Yellow Oat grass, and Rough Meadow-grass, and add some Common Rye-grass. The list would then stand thus—Meadow Foxtail, 2lbs.; Cock's-foot, 4; Meadow Fescue, 3; Sheep's Fescue, 3; Hard Fescue, 2; Smooth Meadow-grass, 2; Common Rye-grass, 8; Cow-grass, 4; White Clover, 5; Hop Trefoil, 4; with about 2½ bushels of Barley.

PIGS—*A B*—See Article "Swine," Martin Doyle's Husbandry, and in Johnson's Encyclopædia of Agriculture; and Article "Hog" in Rham's Dictionary of the Farm.

Markets.

SMITHFIELD, MONDAY, Mar. 2.—Per stone of 8 lbs.

Best Scots, Herefords, &c	4s	2 to 4s	4	Best Downs & Half-breds	5s	2 to 5s	6
Best Short Horns	3	10	4	0	Best Long-wools	4	8	5	2
Second quality Beasts	3	0	3	6	Ewes and second quality	4	4	4	6
Calves	4	4	5	4	Pigs	3	8	5	0

Beasts, 3641; Sheep, 14,150; Calves, 53; Pigs, 210.

Beef is in short supply to-day, and the best qualities are readily disposed of at fully late prices, though on the whole trade is dull. Some few of the choicest Scots make rather over 4s 4d, and the most selling Short-horn rather more than 4s, but other qualities are a heavy sale.—The supply of Sheep is the shortest that has been known for several years; notwithstanding, trade is heavy—5s 6d for the best Downs, and 5s 5d for the best Long-wools, are extreme quotations.—Veal trade is dull at rather less money.—Pork trade continues heavy.

FRIDAY, Mar. 6.

The supply of Beef is short: trade is rather better. The best Scots, &c., make from 4s 4d to 4s 6d, and Short-horns 4s to 4s 2d; Second-quality, 3s to 3s 8d. We have again a very scanty show of Sheep, and prices are high. The best Downs, &c., 5s 6d to 5s 8d; best Long-wools, 5s to 5s 4d; Mores, &c., 4s 6d to 4s 8d.—Veal is also dearer; a choice Calf makes 5s 8d.—Pork trade is improved by the scarcity of other provisions; prices range from 4s to 5s 4d.

Beasts, 678; Sheep, 8800; Calves, 106; Pigs, 303.

41, West Smithfield.

HOPS, FRIDAY, Mar. 6.

We have no alteration to notice in the Hop market since last week. The demand continues for immediate consumption.

PATTENDEN & SMITH, Hop-Factors.

COVENT GARDEN, MARCH 7.—In consequence of the continuance of mild weather, the supply of Vegetables during the week has been rather on the increase. Fruit is also sufficient for the demand, and trade is pretty brisk. Pine Apples are good in quality, and, considering the season, tolerably plentiful. Foreign Grapes are sufficient for the demand; and a few Hothouse Grapes have also made their appearance; the chief novelty at present in the market, however, is some fine looking samples of Strawberries; the sorts are the Roseberry and Keen's Seedling. The best samples of Dessert Apples bring about 16s. per bushel, and in some instances more money; but inferior sorts may be obtained from 8s. to 9s. per bushel. Pears remain nearly the same as they were last week. Oranges are scarce, and rising in price; but plenty of second-rate samples may be procured. Nuts are sufficient for the demand. Little alteration has taken place in the prices of Vegetables. Asparagus is good and plentiful, and the same may be said of French Beans, which are abundantly supplied. Seakale and Rhubarb are excellent in quality. The supply of Broccoli, Brussels Sprouts, and other winter Greens, is good. Large white Broccoli, from Cornwall, fetches from 1s. to 3s. per dozen heads. Excellent Celery may be obtained at last week's prices. Potatoes, of the best quality, meet with a brisk sale at 8l. a ton; but in consequence of the abundance of other vegetable, trade for inferior samples is dull. Chicory continues to be supplied. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Poinsettia pulcherrima, Jasmines, Lily of the Valley, Pentas carnea, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Rhododendrons, Cinerarias, Gardenias, and Roses.

FRUITS

Pine Apple, per lb.,	4s to 6s	Lemons, per dozen,	1s to 2s
Grapes, Hothouse, per lb.,	3s to 6s	— per 100,	6s to 14s
— Spanish, per lb.,	0d to 1s	Almonds, per peck,	0s
— Portugal, p. lb.,	1s to 3s	Sweet Almonds, per lb.,	2s 6d to 3s
Apples, Dess., per bush.,	7s to 16s	Filberts, English, p 100 lbs.,	60s to 90s
— Kitchen,	3s to 7s 6d	Nuts, Cob, per 100 lbs.,	60s to 70s
Oranges, per dozen,	1s to 2s 6d	— Barcelona,	90s
— per 100,	4s to 18s	— Brazil,	16s
— Seville, per 100,	8s to 18s	— Spanish,	14s
— per dozen,	2s to 3s 6d	Chesnuts, per peck,	4s to 8s
		Pears, per hf.-sv.,	0s to 15s

VEGETABLES

Cabbages, per doz.,	6d to 1s	Parsnips, per doz.,	3d to 1s
— red, per doz.,	2s to 3s	Scorzonera, per bundle,	1s to 1s 3d
Brussels Sprouts, p. hf.-sv.,	1s to 1s 6d	Salsify, do.,	1s to 1s 3d
Savoys, per doz.,	0d to 1s 3d	Onions, per bushel,	1s 6d to 3s
Broccoli, Brown, per bdle,	6d to 1s 3d	— pickling, per hf.-sv.,	2s to 3s
— White,	0d to 2s 6d	— Spanish, per doz.,	1s to 2s
Greens, per doz. bunches,	1s 6d to 3s	Shallots, per lb.,	6d to 8d
French Beans, per 100,	2s to 3s	Garlic, per lb.,	0d to 8d
Sorrel, per hf.-sieve,	0d to 1s	Endive, per score,	6d to 1s 6d
Potatoes, per ton,	70s to 170s	Lettuce, per score, Cab.,	4d to 6d
— cwt.,	4s to 8s	— — Cos,	6d to 1s
— bushel,	3s to 4s	Radishes, per 12 bunds.,	1s to 2s
— Kidney, per bushel,	3s to 4s	Mushrooms, per pottle,	6d to 1s 3d
Turnips, per doz. bchs.,	1s to 2s	Small Salads, per punnet,	3d to 6d
Red Beet, per doz.,	3d to 1s 6	Fennel, per bunch,	2d to 3d
Carrots, per doz. bchs.,	2s to 3s	Savoy, per bunch,	4d to 6d
Horse Radish, per bundle,	1s 6d to 3s	Thyme, per bunch,	4d
Seakale, per punnet,	6d to 2s	Watercress, p. 12 sm. bun.	6d to 8d
Rhubarb, per bundle,	6d to 1s 3d	Parsley, per bunch,	1d to 3d
Asparagus per bundle,	3s to 9s	— Roots, per bundle,	1s
Cucumbers, each,	2s to 3s	Tarragon, per bunch,	6d
Spinach, per sieve,	1s to 1s 6d	Mint, green, per bunch,	6d to 9d
Leeks, per doz. bunches,	1s to 2s	Marjoram, per bunch,	4d
Celery, per bunch,	6d to 1s 6d	Chervil, per pun.net,	2d to 3d
Cardoons, each,	6d to 9d		

POTATOES.—SOUTHWARK, WATERSIDE, Mar. 2.

The supply is moderate, and many of the late arrivals had quick passages, in consequence of which most of the samples have arrived in good condition, and the demand for York and Scotch Reds has been brisk, and better prices have been realised, yet there is no demand for the inferior samples of Regents, Jersey Blues, or Blues or common Whites from any country. Prices ranged as follows:—York Reds, 80s to 140s per ton; ditto Regents, 70s to 110s per ton; Scotch Reds, 75s to 90s per ton; Montrose Reds and Blues, 70s; Jersey Blues, 70s per ton; True Shaws, for plants, 90s to 110s per ton.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Mar. 5.

Prime Mead. Hay	80s to 92s	New Hay	—s to —s	New Clr.	—s to —s		
Infr. New & Rowen	50 70	Clover	85 to 115	Straw	29 36		

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Mar. 5.

Prime Mead. Hay	90s to 97s	Old Clover	110s to 118s				
Inferior -	70 80	Inferior do.	90 105	Straw	30s to 36s		
New Hay -	— —	New Clover	— —				

JOSHUA HAKER, Hay Salesman.

WHITECHAPEL, Mar. 6.

Fine Old Hay -	80s to 90s	Old Clover	110s to 120s				
Inferior Hay -	63 70	Infr. "	70 84	Straw	28s to 34s		
New Hay -	— —	New Clover	— —				

MARK-LANE, MONDAY, Mar. 2.

The supply of Wheat by land carriage samples from Essex, Kent, and Suffolk, was again small to-day; fine dry parcels sold readily at the full prices of last week, but the damp and inferior qualities were difficult of disposal. Bonded was apparently neglected, but a cargo or two afloat at Falmouth changed hands on about late terms. Barley was less plentiful than it has been, fine qualities were the turn dearer, with rather more inquiry for other descriptions.—The show of Beans was large, and late prices were barely maintained.—We reduce the quotations for white Peas 1s. to 2s. per qr.; Maple and Grey sell slowly.—The value of Irish Oats is hardly supported, but Scotch being scarce are unaltered.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk . White	58	66	Red .	50	62
—— Norfolk, Lincolnshire, and Yorkshire .	50	63	White	59	65
Barley, Malting and distilling 32s to 34s Chevalier	34	36	Grind.	28	26
Oats, Lincolnshire and Yorkshire . . Polands	22	24	Feed	21	22
—— Northumberland and Scotch . . Feed	22	25	Potato	22	23
—— Irish . . . . . Feed	21	24	Potato	24	27
Malt, pale, ship	54	60			
—— Hertford and Essex	60	66			
Rye	34	37			
Beans, Mazagan, old and new 28 to 40	Tick	30	42	Harrow	32	44
—— Pigeon, Heligoland . 35 to 40	Winds	40	42	Longpod	32	36
Peas, White . . . . . 36 to 38	Maple	36	38	Grey .	36	31

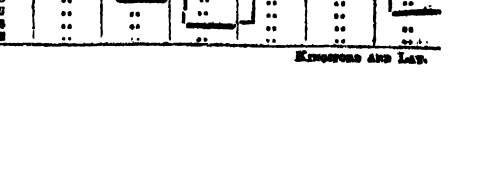
FRIDAY, Mar. 6.

The arrivals of all descriptions of Corn during the week have been moderate; the attendance at this market was small, and business generally very limited; we observe no alteration in the value of Wheat, either English or Foreign, free or bonded.—Barley of fine quality meets a free sale, but inferior is very difficult to dispose of.—Beans and Peas remain the same.—The Oat trade is firm, and holders endeavouring to obtain a slight advance.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Jan.	24 per Quarter.	55s 7d	31s 8d	21s 10d	37s 8d	36s 1d	36s 8d
—	31 . . .	54 8	31 3	21 10	39 0	35 6	35 8
Feb.	7 . . .	54 3	30 10	21 7	34 3	35 9	35 6
—	14 . . .	54 9	30 6	21 5	33 7	34 9	35 7
—	21 . . .	55 0	30 11	21 6	36 10	34 9	34 8
—	28 . . .	54 6	29 7	21 5	33 4	34 2	35 2
6 weeks' Aggreg. Aver.		54 9	30 8	21 8	36 4	35 2	35 6
Duties on Foreign Grain		18 0	8 0	6 0	9 6	7 6	7 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Feb. 21.



KINGSTON AND LEA.

TO FOREMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS beg to announce that they have received instructions from the Proprietor to submit to Public Competition at the Auction Mart, Bartholomew-lane, on Thursday, March the 17th, 1846, at 12 o'clock, the valuable collection of SUCCULENT PLANTS, formerly belonging to THOMAS HITCHEN, Esq., of Norwich, by whom they were collected with extreme care and attention during a long series of years. The above collection will be found well worthy the attention of Amateurs and the Trade.—Catalogues can be had upon application at the American Nursery, Leytonstone; or of ARTHUR MACKIE, at the Norwich Nursery.

TO NORLEMEN, GENTLEMEN, NURSERYMEN, GARDENERS, &c.

MR. JOHN MILLER, of Bristol, will sell by Public Auction, on the Premises, at Sherbourne, Dorset, on Tuesday, March 17, 1846, and following days of business, all the valuable NURSERY STOCK, GREENHOUSE and HERBACEOUS PLANTS, GREENHOUSES, &c., &c., the property of Mr. John Davison, Nurseryman, whose lease is expired. The Stock consists of fine standard and dwarf trained and quarter Pouches, Nectarines, Apples, Pears, Plums, Cherries, &c.; a choice and general assortment of Evergreens and flowering Shrubs; standard and dwarf Roses, of the newest kinds; also Ash, Oak, Larch, Scotch, Spruce, and Silver Firs; Beech, Elms, Limes, Sycamores, standard Walnuts, &c., Raspberries, Gooseberries, Currants, Strawberries, Giant Asparagus, Seakale, Rhubarb, &c.; also 550 yards of fine Hornbeam, Evergreen Privet, and Beech-hedges, from 4 to 7 ft. high, Quicks, Hollies, &c.

The Greenhouse Plants consist of Ericas, Indian Azaleas, Cinerarias, Petunias, Camellias, Geraniums, Fuchsias, &c., of the newest kinds. The whole of the Stock is of first-rate quality, fit for immediate planting, and will be sold in lots suitable to every class of purchasers. Also the several Greenhouses, about 100 feet in length.

Catalogues to be had at the Sherborne Nursery; and of the Auctioneer, Westbury, near Bristol. To be on view one week previous to the day of sale.

Sale to commence each day at 10 for 11 o'clock precisely.

TO BE LET, WITH IMMEDIATE POSSESSION, within six miles of the Weybridge Station of the South Western Railway, A WALLED GARDEN, containing about TWO ACRES OF PRODUCTIVE SOIL, Conservatory, Hot and Succession Houses, Pits, and Sheds. The walls are covered with choice Fruit Trees in high bearing and order. A residence for a superior Gardener—accommodation for a journeyman. The implements may be taken at a valuation by the tenant.

For particulars apply to Mr. Wm. Keye, steward, Ockham Park, Ripley, Surrey.

LUTON HOO, BEDFORDSHIRE.
TO MARKET GARDENERS AND OTHERS.

TO BE LET on Lease or by the Year, Walled Gardens of 5 Acres, clothed with the finest Fruit Trees, particularly Pears; and other Gardens and Orchard of 5 or 6 Acres, with Gardener's House, and all requisite Out-buildings, all compact. From Lady-day now next ensuing. To View, and for Particulars, apply to Mr. AKERS, London Lodge, Luton Hoo Park.

N.B. Luton Gardens are 29 miles from London, and 9 from St. Albans. The London and Birmingham Railway passes within a few miles, and their Luton branch, as proposed, immediately adjoining. Coaches to and from London pass daily.

Rent is not so much the object in letting the Gardens as having them well kept up, and Fruit Trees trained. Security and references will therefore be required.

TO BE LET, Furnished, from Lady-day next, for three or five years, with or without Land, and the exclusive shooting over 600 acres of good Sporting Ground, an Excellent HOUSE, with every accommodation for a large family; pleasantly situated in the county of Surrey, 27 miles from town, within 4½ miles of a station on the South Eastern Railway, which will soon be brought to one mile, and a station on the Brighton Railway within 3 miles. Inquire of Col. St. CLAIR, Felcourt Lodge, East Grinstead, Sussex.

HORTICULTURAL GLASS.—NET CASH PRICES.

In squares under 5 inches by 3 inches .. .. 1½d. per foot.
Ditto, 5 in. by 3 in., and under 6 in. by 4 in... 2d. ,,
Ditto, 6 in. by 4 in., and under 9 in. by 7 in... 3½d. ,,

In Large Sizes up to 40 inches, long and quite flat.

No.		per ft.
0—1-16th of an inch thick, or averaging	12 oz. to the foot,	4½d.
1—1-14th ,, ,, ,, ,,	16 oz. ,,	5½d.
2 1-10th ,, ,, ,, ,,	21 oz. ,,	7d.
3—1-8th ,, ,, ,, ,,	32 oz. ,,	1s.

The thicknesses most recommended are Nos. 1 and 2, and the most proportionate sizes are 18 inches by 6 inches, 28 in. by 7 in., or 38 in. by 9 in.

ROBERT DALL & CO., Glass Merchants, Hull, beg to call the attention of Noblemen and Gentlemen to the above prices for Glass suitable for Horticultural purposes; and as they are advantageously situated for importing, there being a daily steam communication between the port of Hull and the Continental Markets, and, in addition to this, having made arrangements with eminent English Manufacturers for a regular supply, they are enabled to offer every advantage to the purchaser, and also to insure the prompt execution of all orders with which they may be favoured.

N.B. Cucumber and Sticking Glasses supplied.

FOREIGN SHEET GLASS AND GLASS TILES.

C. JARVIS having just imported a large quantity of the above articles, in quality and substance hitherto unequalled, can offer them at a lower price than any other house in the trade, for ready money only, at his old established WINDOW GLASS WAREHOUSE, 38, Great Castle-street, a few doors from Regent-street, where orders, forwarded with references, meet with prompt attention. Every other description of WINDOW GLASS equally low in price.

HORTICULTURAL GLASS OF BRITISH MANUFACTURE, at J. WELCH, jun., PHILIPS, and Co.'s Warehouse, 12, Panton-street, Haymarket. — Having made arrangements with a British Manufacturer, they are enabled to offer the above article in unlimited quantities at the following terms, in Squares not exceeding 40 inches long:—

No. 0—(equal to Foreign Sheet)	.. ..	4½d.	per foot.
1—averaging from 16 to 18 oz. to the foot		5½d.	,,
2 ,,	21 to 23 ,,	7d.	,,
3 ,,	32 ,,	1s.	,,

J. WELCH, jun., having been many years with Mr. Drake, of 8, Jermyn-street, and 315, Oxford-street, and at the time of the glazing of Chatsworth Conservatory, has devoted himself to the Horticultural Glazing Department, begs to call the attention of Horticulturists generally to the above prices for Glass, which they undertake to glaze in any part of the United Kingdom.

They also beg to recommend for Pits and Garden Lights small size squares, which they offer at the following low prices, packed in 100 feet boxes, not particular to thickness:—

Under 5 in. by 3	..	1½d. per foot.
5 in. by 3 and ,, 6 in. by 4	..	2d. ,,
6 in. by 4 and ,, 9 in. by 7	..	3d. ,,

J. W. & Co. solicit inspection of their stock of Stained and Ornamental Glass at their Warehouse, as above.—12, Panton-street, Haymarket.

FOREIGN SHEET GLASS.

MESSRS. EDWARDS AND PELL, 15, Southampton Street, Strand, are supplying FOREIGN GLASS, of excellent quality, at 3¼d. per foot. This glass is strong, of good colour, and well adapted for Horticultural purposes. They have also a stock of striking glasses of the most approved form, ranging from 3½ by 2½ inches to 12 by 6 inches, which they are selling at prices equally moderate.—Belgian Glass Depot, 15, Southampton-street, Strand.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

per gross.	per gross.	per gross.
6 in. by 4 .. 6s.	8 by 5 .. 13s.	9 by 7 .. 18s.
7 in. by 4½ .. 9s.	8 by 6 .. 14s.	10 by 8 .. 26s.

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists, apply to R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square, London.

MESSRS. J. AND H. BROWN beg to inform the Nobility and Gentry that they will send the following desirable Plants to any part of the United Kingdom:—

Andromeda floribunda, per dozen	24s. 0d.
Epigæa repens, each	2 6
25 New Hardy Ghent Azaleas, one of a sort, named ..	25 0
25 Hardy American Azaleas do. do. ..	15 0
12 Rhododendrons, best hardy sorts, including Scarlet, White, and Rose-coloured varieties	12 0
25 Hardy American Shrubs, one of a sort, named ..	10 6
25 Superior Dwarf Roses, on their own roots, do. ..	10 6
12 Do. Climbing Roses, do. do.	8 0
Cloth of Gold, do. do. each	3 6
Tea-scented Roses, one of a sort, in pots, per dozen ..	12 0
Devoniensis and yellow Noisette Roses, per dozen ..	9 0
Camellias, of sorts, per dozen	30s. to 40 0
12 Superior sorts of Greenhouse Azaleas	30 0
12 Do. do. do.	18 0
12 Do. do. Ericas	15 0
12 Do. do. Geraniums	12 0
Lobelia fulgens, cardinalis and serotina, per dozen	8 0
Salvia patens, per dozen	8 0
Œnothera macrocarpa and teraxifolia, strong plants, per dozen	9 0

Choice selections of Flower Seeds, in packets, 5s. and 10s. each, sent free by post.

Albion Nursery, Stoke Newington, London.

FOR IMMEDIATE PLANTING.
RANUNCULUSES AND ANEMONES.

TYSO AND SON, Florists, Wallingford, can still supply assortments of the above Flowers at prices advertised in the *Chronicle* of Feb. 21. Catalogues sent on the receipt of two labels.

THE BEST VERBENAS OF THE YEAR.

GEO. SMITH has pleasure in offering his matchless SEEDLING VERBENAS, of which G. S. warrants them to surpass any other eight known. Seven of them have taken First class Prizes; they are large, of first-rate form, five of them beautifully edged or spotted. They have been justly admired by all who have seen them. To be sent out the last week in April, at 30s. the set, or 5s. per plant, post free, viz.—

DUCHESS OF SUTHERLAND, fine blush with bright cherry eye; obtained the First Seedling Prize at the Royal Botanic Gardens of London; First at Cremorne Gardens.

DUC DE NEMOURS, fine rose with yellow eye; first at the Royal Metropolitan.

EMPEROR, bright crimson with white eye; first class at the Royal Surrey Gardens.

LOVELY ANN, vivid scarlet edged with pink; first class at Highgate.

MODESTA, fine cream with rose spot.

MISS WATSON, glossy blush with yellow eye; first class at the Royal Metropolitan.

MERRY MONARCH, bright scarlet edged with dark rose; first class at Highgate.

QUEEN OF BEAUTIES, delicate pink with rose spot.

G. S. has a Seedling Petunia, Alba Magna, a large pure white, the throat veined with violet. It was shown at the Royal Botanic Gardens, and allowed by Nurserymen and Florists to be the best white Petunia they had seen. It was also favourably noticed in the *Gardeners' Chronicle*. Price 3s. 6d. per plant.

G. S.'s Descriptive Catalogue of Verbenas, Fuchsias, Dahlias, &c., is now ready, containing every leading variety, they having obtained the first prizes at all the great shows round London. The following kinds are now ready, and they will be found to be all fine and large, with decided colours, of good form, at 10s. per dozen; if by post, postage free; or if by railway, hamper and package gratis, viz.:—

Atrosanguinea, Avalanche, Array, Beauty Supreme, Beauty (Smith's), Bloomfield Beauty, Duke of York, Defiance (Pearson's), Delecta, Excelsa (Smith's), Emma, Enchantress, Elegans, Fair Rosamond, Grandis, Garland, Gladiator, Rudibras, Hebe, Louis Philippe, Lilac Perfection, Magnifica, Messenger, Poultii, Princess Royal (Tiley's), Queen of England, Rose d'Amour, Rose Charmante, Speciosissima, Timandra, the Giant, Tricolor Alba, the Favourite, and Vesta.

All orders from unknown correspondents must be accompanied by cash or reference.

Tollington Nursery, Hornsey-road, Islington, near London.

ELLETSON'S SUPERB APRIL BROCCOLI.

WILLIAM MAY, F.H.S., having purchased the entire stock of this unequalled late BROCCOLI from Messrs. Elletsons', Market Gardeners, Thorngumbald, near Hull, begs to announce that he is prepared to send it out in sealed packets (post free) at 5s., with printed directions for its culture. This Broccoli has been raised by the Messrs. E., who have hitherto held the entire stock, and who state that if sown on or about the 20th of April, it will come into use the April following. This is what no other White Broccoli will do (and is a great desideratum). It is of very dwarf growth, perfectly hardy, and of large size, weighing from 10 to 16 lbs. each, stands fire after ready for 10 days before opening or splitting, and is as white and as firm as a Cauliflower. As a proof of its superiority, Messrs. E. have at all times sold it in Hull Market at 3s. 6d. per dozen, when the ordinary sorts have been sold at 9d. and 1s. per dozen.

W. M. has also "Usher's Unique Double French and African Marigold Seeds," in 20 varieties. These are the most splendid Marigolds in cultivation, and wherever exhibited, have not failed taking away the prizes. The collection of 20 varieties for 7s. 6d. (post free). These, with the Broccoli seeds, may be had of the Advertiser, Hope Nursery, Leeming-lane, Bedale; and in London, of Messrs. WARNER & WARNER, Cornhill, and of Mr. CHARLES FARNES, Seedsman, St. John's-street, Smithfield, at which places specimens of the Broccoli may be seen during the month of April.

N.B. As the supply is limited, early orders are requested.

FARM TO LET, WARWICKSHIRE.—325 acres. One-fourth Meadow and Pasture. Having undergone much improvement in the hands of the Proprietor, it is requested that none but persons of suitable capital will apply. The house is fit for a person of respectability; a Bailiff's house likewise on the farm. A lease will be given.—Direct to W., Messrs. Lea, Gibbs, and Couchman, Henley in Arden, Warwickshire.

FOREIGN SHEET GLASS.

JOHN HAVERSON, Jun., 42, Hackney-road, having received a large quantity of SHEET GLASS superior to most in the Market, will forward the same on receipt of a post-office order, in unlimited quantities and large sizes up to 40 inches long, from 4½d. per foot, or in cases containing 200 feet, sizes 10 by 30, averaging from 14 to 16 oz. per foot, at 4d. Small sizes in 100 feet boxes, at 3½d.

SUPERB SEEDLING ANTIRRHINUMS AND FUCHSIAS.

J. FOWLE in offering his best thanks to his numerous friends, begs to announce that he has selected four more beautiful and distinct Varieties from his large Collection of SEEDLING ANTIRRHINUMS of last year's production, which were the admiration of all who saw them.

ANTIRRHINUMS.

ATTRACTION.—Very large deep rose, and well expanded petals, with white lip, producing immense spikes of bloom.
TRICOLOR.—Compact dwarf habit, with crimson petals, gold coloured lip, and a white tube.
UNA.—A fine large pink flower, delicately pencilled with crimson, and possessing a beautiful light lip.
SUPERBUM.—Particularly attractive in its colour, having a light crimson tube, and petals deeply veined with vermilion, with a fine yellow lip.

The above four Varieties for 15s. A discount when two or more sets are taken. To be sent out the first week in April.

J. F. begs to offer to the public the Seed of his superb Collection at 2s. 6d. and 5s. per packet, warranted to contain upwards of twenty-four of the best Varieties.

N.B.—A distinct collection at 9s. per dozen.

SEEDLING FUCHSIAS.

EXQUISITE.—The flowers are short and broad, with a short pink tube, pink sepals tipped with green, and dark petals. The habit is good and blooms abundantly. See *Gardeners' Chron.* for Oct. 11, 1845:—"S. B.: Your seedling is a most prolific bloomer, lively and attractive in colour, and for general purposes very ornamental." A first class certificate was awarded it by the Royal South London Floricultural Society. 7s. 6d. each.

COLOSSUS.—See "Florist's Journal" for September, 1845.—"This is the largest flower we have yet seen; it is perfectly smooth, and of great substance; it may be regarded as one of the very best of the dark class; 7s. 6d. each, with a discount to the trade. To be sent out the first week in April. A dozen of the best Varieties, including SERRATIFOLIA, for 15s.

Also a fine Collection of VERBENAS, PETUNIAS, ANAGALLIS, HERBACEOUS PLANTS, &c. &c., a descriptive Catalogue of which may be had on application.

Remittances required from unknown correspondents.—Post-office orders are made payable at the Post-office, Kennington Cross, Kennington, Surrey.

Holland Nursery, North Brixton, Surrey, March 6.

THE BEST FUCHSIAS AND VERBENAS OF 1845.

WILLIAM MILLER will commence sending out the last week in March, in stout tin cases (or in pots, if required), post free, 12 new, choice, and very distinct FUCHSIAS, fit for Exhibition, for 7s. 6d.; 12 extra first rate, very distinct varieties (all sent out for the first time last season), such as Alfred the Great, Amethyst, Admiral, Brutus, Balloonil, Superb, Coventina, Chubby-boy, Captivation, Duke of York, Delicatissima, Duchess of Sutherland, Eminent, Expansa, Formosissima, Highland Chief, Hero, Hamlet, Helena, Imperialis, Incomparable, Junius, Lord Ashley, Lord Sandon, Lady Sale, La Polka, Maynell grandiflora, Magnet, Mrs. Fry, Monstrosa, Mrs. Bayley, Nymph, Oberon, Othello, Picta, Pickwick, Pulchella carnea, Pluto, Pillar of Beauty, Queen Victoria, Queen of Beauties, Roderic Dhu, Rosabella, Snowball, Saltan, Shakspeariana, Sneyersii, Sir D. Dundas, Sir W. Magnay, Sylph, Theophrastus, and Unique, for 18s. the dozen. Also 12 extra good, distinct VERBENAS, such as Alba Magna, Alice Hawthorn, Avalanche, Beauty, Beauty Supreme, Barkerii, Bedford Beauty, Bloomfield Beauty, British Queen, Celestina, Childe Harold, Defiance, Duke of York, Desirable, Emma, Enchantress, Fair Rosamond, Favourite, Hebe, Hudibras, Hudsonii, Incarnata, Jewess, Louis-Philippe, Leonora, Minerva, Maid of Athens, Medora, Magnificent, Master Polaskii, Mulberry, Penelope, Princess Royal, Perfection of England, Rose d'Amour, Speciosissima, Skinnerii, Tresor Parfait, Tricolor Alba, The Giant, Tweedinna, Picta, Vesta, for 6s. the dozen. Those persons ordering are requested to send the names of the sorts they already possess, that W. M. may send other suitable varieties.—Printed priced Catalogues may be had (giving the colours of the Fuchsias, and description of the new Seedlings for 1846,) at the Providence Nursery, Ramsgate.

P.S. On account of the forward state of the season, a great many of the sorts may be had at once, and in good plants.

THE UNRIVALLED APPLE, THE STURMER PIPPIN.

MESSRS. DILLISTONE take this medium of stating, in reply to numerous inquiries respecting the above APPLE, that its history is fully given, with a drawing of its fruit, in Maund's "Fruitist" for March, 1845.

Scions may be had as in former seasons, by inclosing 3s. 6d. in stamps.—Apply to the above, at their Nurseries, Sturmer, near Haverhill, Suffolk.

P.S. A few Healthy Plants to spare, price upon application.

HORTICULTURAL IMPROVEMENTS.

J. READ begs to inform Ladies, Amateur and Practical Gardeners, that he has taken out a NEW PATENT for Improvements in his Garden Engines, Machines, and Syringes. The action of the Valves is such as to prevent the possibility of their getting out of repair, which J. R., from 21 years' practical experience can safely warrant. The above are adapted for Forcing Houses, Conservatories, &c., surpassing anything of the kind ever offered the public, inasmuch as they can be worked with half the Labour of any other Engines now in use. Manufactured only by the PATENTEE, 35, Regent-Circus, Piccadilly, where they may be seen and proved.

N.B. None are genuine except stamped with the words READ'S PATENT.

TO THE ADMIRERS OF THE SCARLET GERANIUM.

J. CURTIS, Florist, Balham, Surrey, intends to send out, the first week in April, his superb seedling Scarlet Geranium COMET, not to be surpassed for brilliancy of colour and size of flower.

See Dr. Lindley's opinion of this flower in the *Gardeners' Chronicle*, August 16, 1845:—"J. C. B.—Your seedling is a most brilliant and handsome flower; the individual flowers are larger than usual, and of a dazzling scarlet; the truss before us contains 12 expanded flowers, and 27 buds in different stages of progress; stem stiff, but not stout. We consider this the largest and one of the best of the scarlets we have seen." 10s. 6d." Strong Plant Seedling Fuchsia EMPEROR, a large and splendid variety, with thick fleshy flower, and of excellent habit: the tube and sepals dark rich crimson, the corolla violet purple. See Dr. Lindley's opinion in the *Gardeners' Chronicle*, October 11, 1845:—"J. M. B.—Your seedling No. 5 is of great substance and depth of colour; this is a fine variety." 7s. 6d."—N.B. No plants will be sent out without a money order.

STEPHENSON AND CO., 31, Great Smith-street, Westminster, London, and 17, New Path-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

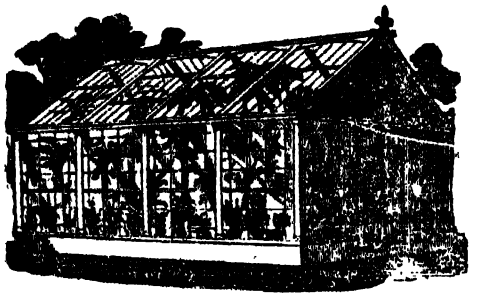
Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SHERWEN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth, Mr. Henderson's Pine-apple-place; and in the Horticultural Society's Gardens.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER's superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

SMITH AND CO.



ESTABLISHED NINE YEARS.

HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, AND GENERAL GARDEN FURNITURE MANUFACTURERS;

GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA, LONDON.

FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

CLARK'S METALLIC  HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.

Proprietor, Mr. THOMAS CLARK.

Superintendent of the Works, Mr. JOHN JONES.

IN returning his grateful thanks to the Nobility, Gentry, and Public at large, for their liberal patronage of the above Establishment during a period of nearly 30 years, Mr. CLARK begs to state that the repeal of the duty on Glass, enables him to offer his METALLIC HOT and GREENHOUSES at a greatly reduced price. These Houses are glazed with British Sheet Glass, in panes of from 24 to 30 inches in length, and of such thickness as to preclude all danger of accidental breakage, whilst that which arises from the action of frost (frequently amounting to 25 per cent. per annum), is effectually prevented by the peculiar mode of glazing adopted. As a sample of his Metallic Hothouses, in which all the most recent improvements are happily combined, Mr. CLARK refers with pride and satisfaction to the magnificent range erected by him in the new Royal Gardens at Frogmore, which is admitted by all competent judges to be the most complete and perfect of its kind in the world.

HEATING BY WARM WATER.—An improved method of HEATING, by the CIRCULATION OF HOT WATER, may be seen in operation daily, at J. L. BENHAM & Son's Stove Grate Manufactory, 19, Wigmore-street, Cavendish-square. Estimates given for warming Churches, and other Public or Private Buildings, in town or country. A great variety of Warm Air Stoves of every description, from 15s. to 20l.—19, Wigmore-street, Cavendish-square.

GUANO.

TO BE SOLD AT HEGINBOTHAM'S COFFEE-HOUSE, New Corn Exchange, Mark-lane, on Monday, the 9th inst., at 2 o'clock, 300 Tons, in bags, of fine dry BOLIVIAN GUANO (very little inferior to the Peruvian), in lots of 3 and 5 Tons.—WM. KIRKMAN & Co., Brokers.—March 5.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,

COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.

7, Lime-street, Mar. 7.

GUANO, PERUVIAN AND AFRICAN, warranted Genuine to Analysis: also Gypsum, and all other Manures of known value, on sale by MARK FOTHERGILL, 40, Upper Thames-street.

BRITISH GUANO, equal in quality to Peruvian, at 9l. per ton. Pamphlets gratis on 6 Stamps being forwarded, being amount charged for postage. Agent for DINGLE'S HAND SEED DIBBLE.

POTTER'S GUANO COMPARED WITH PERUVIAN.—Testimonial. "Sir, we distributed a large quantity of Guano to the tenantry, principally Peruvian, also two tons of Potter's. *It proved much superior to the best Peruvian.* Yours, &c., W. LUMSDEN, Fort Augusta, Arthurstown, April, 1845."

POTTER'S GUANO COMPARED WITH PERUVIAN.—In Dec., 1842, the Earl of Zetland obtained the following result on Grass. The produce of Hay from 2 cwt. Peruvian per acre was 1 ton 18 cwt., while with 2 cwt. Potter's it was 2 tons 8 cwt., a difference *in favour of Potter's of* 10 *cwt.* Observe the price of Potter's Guano is now only 9l. per ton, and no Wharf or Cartage charges.—Manufactory, 28, CLAPHAM-ROAD-PLACE, LONDON.

THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.

40, New Bridge-st., Blackfriars. E. PURSER, Secretary.

LIEBIG'S WHEAT MANURE now ready for deliver

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

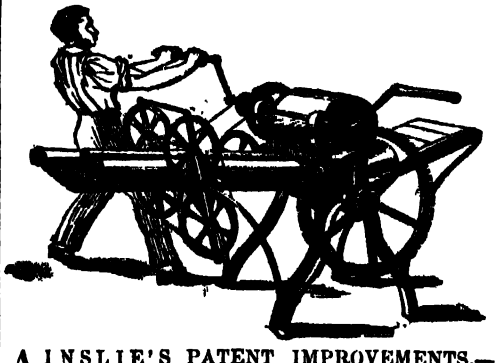
THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

THRASHING MACHINES, made Warranted not to Damage the Straw.—Mrs. MARY WEDLAKE, Widow of the late Mr. THOMAS WEDLAKE, of the original Fairkytes Iron Works, Essex, and 118, Fenchurch-street, opposite Mark-Lane, City, established upwards of 40 years, begs respectfully to remind Agriculturists that she continues to manufacture these excellent Machines, made, and first introduced, by her late husband these 30 years, and now much improved. Warranted not to damage the Straw. Numerous references to parties using the Implement may be had.

Patent light Ploughs, and Superior Dressing Machines, also patent Chaff-cutting Machines made on scientific principles, may be seen at 118, Fenchurch-street, repository opposite Mark-lane; also, Horse-Rake, and DINGLE'S new Hand Dibbling-Machine so much approved of. City Repository for Agricultural Implements, 118, Fenchurch-street, opposite Mark-lane.

DRAINING TILES AND PIPES.



AINSLIE'S PATENT IMPROVEMENTS.—For MAKING and DRYING Draining Tiles of the 1st CLASS. Gentlemen having works in operation, or who are about to erect them, will find the above worthy their attention.

The PROCESS combines EFFECT with ECONOMY, as Tiles can be made ready for BURNING at all seasons; generally from ten to thirty hours, according to the nature of the clay. To be seen at Alperton, Acton, Middlesex; Mr. HOWE, Engineer, 11J, Great Guildford-st., Southwark; the Polytechnic Institution, Regent-street, London. Particulars may be had from JOHN AINSLIE, Alperton, Acton Middlesex.

TO THE NOBILITY . . . TRY, NURSERYMEN, IRONMONG . . . AND OTHERS.

LINGHAM BROTHERS, 170, Little Hampton-street, Birmingham, sole Manufacturers of the IMPROVED MENOGRAPH or Labels for Garden Borders, Flower Pots, &c. Engravings of the same, with prices attached, sent per Post to all parts of the Kingdom, on application as above.

Sole Agents in London, G. and J. DEANE, Horticultural Implement Warehouse, 46, King William-st., London Bridge.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND CO., beg to notice they have reduced the price of their mixture of GRASS SEEDS for laying down to permanent Grass, to 32s. per acre, allowing 2 bushels and 12 lbs. to each acre. Mixed sorts for improving old Grass-land, 1s. 3d. per lb. Fine sorts for forming Lawns, 1s. 4d. per lb. Alsike Hybrid Clover—this is a valuable Clover—2s. 6d. per lb. Large White Carrot Seed, 1s. 6d. per lb.

An Agricultural Price List is ready for delivery.

GEORGE GIBBS and Co., Seedsmen, &c., to the Agricultural Society, 26, Down-street, Piccadilly.

CHEAP AND DURABLE ROOFING, AND THE BEST RESISTER OF FROST FOR GARDEN PURPOSES.

BY HER MAJESTY'S  ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, Manufacturers and only Patentees of THE PATENT ASPHALTED FELT FOR ROOFING, and which for many years has been in extensive use for Roofing Houses, Verandahs, all kinds of Farm Buildings, Sheds, and for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, *which has been exhibited at the Great Agricultural Shows of England, Scotland, and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c.*, and is also patronised by Her Majesty's Board of Ordnance, Commissioners of Woods and Forests, the Hon. the East India Company and the Botanical Gardens, Regent's-park. It is extensively used in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference is made. This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET). NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'s, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy.—Price ONLY ONE PENNY PER SQUARE FOOT.

*** Samples, with Directions for its Use, and Testimonials of seven years' experience (which contain much useful information), from Noblemen, Gentlemen, Gardeners, Architects, and Builders, SENT FREE to any part of the Town or Country, and orders by Post executed.

The new Vice-Chancellor's Courts, the Offices attached, and Passages leading to Westminster-hall, Dr. Reid's Offices, and other Buildings at the New Houses of Parliament, are roofed with F. M'NEILL and Co.'s Felt, and is known by its having the appearance of lead roofs.

☞ The Public is respectfully cautioned against misrepresentation, as the only Works in Great Britain where the above Patent Roofing is made is F. M'NEILL & Co.'s Manufactories, Lamb's-buildings, Bunhill-row, London.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

IMPROVED DIBBLING MACHINE.

JOHN WEATHERSTONE begs to inform the Agricultural Public that his PATENT HORSE-DIBBLING MACHINE is now ready, whereby the greatest regularity may be insured in the deposition of all Seeds. A team of four horses will be found sufficient power to draw one of the largest size.

Price of Machine, with six rows..... £35
" eight rows..... 40
" ten rows..... 45

Applications for further particulars may be made to Mr. JOHN WEATHERSTONE, Cassington, near Oxford; or to Messrs. GILL and WARD, High-street, Oxford.—Agents wanted in all parts of country.

DINGLE'S HAND DIBBLING MACHINE, for depositing all kinds of Seed. It is so constructed that it will at the same moment make the hole and deliver the exact quantity of Seed with extreme regularity, nor is the soil liable to choke the point.

Agent in London:—Mr. MARK FOTHERGILL, 40, Upper Thames Street, where the Machines may be seen.

PATENT VULCANISED, FLEXIBLE, INDIA RUBBER HOSE PIPE, for Gardeners, Railway Companies, Brewers, Distillers, Fire Engines, Gas Fitters, Plumbers, and for Agricultural and all other purposes where a perfectly Flexible Pipe is required.

J. L. HANCOCK begs to announce to the Public that he is appointed by the Patentees the sole Manufacturer of the above article, which is in every respect superior to Leather Hose, and also to the ordinary India Rubber Hose. The Patent Vulcanised India Rubber is stronger than native Caoutchouc, does not become hard or stiff at the lowest atmospheric temperatures, is applicable to Steam, Hot Liquor, or Gas, does not require oil or any other application, is manufactured to resist Oil or Grease in various degrees, and of any length or size without a join. MACINTOSH & Co's Patent Vulcanised India Rubber, in sheets of any length, width, or thickness, and Washers for Steam Joints and other purposes. Also, Elastic Canvas Packing for Pistons, &c., and articles of India Rubber manufacture generally. Manufactory, Goswell Mews, Goswell Road, London.

GOOD BLACK TEA, 3s. 6d., 3s. 8d., and 4s. per lb.; GUNPOWDER, 5s.; YOUNG HYSON, 4s. 10d.; GOOD COLONIAL COFFEE, 1s. 4d.; FINE PLANTATION, 1s. 8d. THE ABOVE ARTICLES OF THE STRONG, USEFUL KINDS, are addressed to the notice of large consumers. SWEET AND BAILY, 88, South Audley-street, Grosvenor-square.

For ready money only.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Chandos-place, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the precinct of Whitefriars, in the City of London:—and published by them at the Office, No. 4, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, March 7, 1846.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 11.—1846.] SATURDAY, MARCH 14. [PRICE 6*d*.

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GARDENERS' BENEVOLENT INSTITUTION.—NOTICE is hereby given, that an ELECTION for Four Pensioners on the Funds of this Institution will take place in MAY next. All persons desirous of becoming Candidates are requested to forward their applications and testimonials to the Committee before the 31st inst., after which time they will not be received. Printed forms of application may be had of

E. R. CUTLER, Secretary,
March 4, 1846. 97, Farringdon-street.

UNIVERSITY COLLEGE, LONDON.
ELEMENTARY COURSE OF BOTANY.

Professor LINDLEY will commence a course of Lectures on BOTANY to a JUNIOR CLASS, on Monday, March 30th, at 8 o'clock, A.M. Subject—The Distinctions between the principal Natural Classes and Orders of Plants belonging to the Flora of Europe.

The Course is adapted for persons commencing the Study of Botany.—Fee 2*l*.

The Course to the Senior Class will commence on the 1st of May.

Further particulars may be obtained at the office of the College.

C. J. B. WILLIAMS, M.D., Dean of Faculty of Medicine.
A. DE MORGAN, Dean of Faculty of Arts.
CHARLES C. ATKINSON, Secretary to the Council.
March 14.

KNIGHT'S CELEBRATED "ISPAHAN" MELON.

R. GLENDINNING begs most respectfully to direct the attention of Melon Growers to the description of this most superior variety, as advertised in the *Gardeners' Chronicle* and *Gardeners' Journal*, January 10; and also of his genuine BEECHWOOD MELON, presented to him by Sir John S. Sebright, Bart.

Knight's "Ispahan" Melon, 10*s*. 6*d*. per packet of 6 seeds.
Beechwood .. .. .. 5*s*. 0*d*. „ of 12 seeds.

To be had also genuine of Messrs. FLANAGAN & SONS, Seedsmen, 9, Mansion House-street, London.

Chiswick Nursery, near London, March 14.

NEW AND SUPERB CINERARIAS.
Woodlands Nursery, Marcesfield, Uckfield, Sussex.

WM. WOOD AND SON have an extensive Stock of the above desirable Spring Flowering Plants, well established, and now coming into bloom, which they beg to offer as under:—

12 fine varieties, for	6*s*.
12 superior ditto	12*s*.
12 superb new ditto	18*s*.
25 extra fine ditto	15*s*.
25 superb ditto	25*s*.

W. W. & Son are still issuing their new and much enlarged Catalogue of GREENHOUSE, STOVE, AND HERBACEOUS PLANTS; Camellias, Fuchsias, Verbenas, Petunias, Cinerarias, Chrysanthemums, and other plants suitable for bedding. To which is added, a choice selection of Roses, Conifers, Shrubs, and Climbers, cultivated in pots.

Copies of the above will be sent, GRATIS, on application; and those friends who have hitherto favoured W. W. & S. with their commands will receive the same in due course.

IMPROVED GIANT ASPARAGUS.—This favourite Vegetable may now be cultivated at less than half the customary expense, by having the Improved Giant variety, which may be cut the following spring the beds are made. Plants, 5*s*. per 100, with printed particulars for cultivation, may be had of WARNER & WARNER, Seedsmen, 28, Cornhill, London. Fine Seakale, Rhubarb, &c.

SUPERB SEEDLING FUCHSIAS.

F. JENNINGS AND J. DAINS beg to inform their Friends who have already favoured them with their orders, that fine strong, healthy plants of their two unrivalled Seedlings, GIANTESS and BRITISH QUEEN, will be ready for delivery after 25th March, in 60-sized pots. It may be just to remark, that Giantess is considered the largest light and most striking variety ever offered the public, being equal in size to Smith's Gigantea, but of compact and robust habit, see *Gardeners' Chronicle*, Feb. 21st. The following respectable Nurserymen have ordered the above:—Messrs. Chandler, Vauxhall; Rollo, Dalston; Epps, Maidstone; Dawson, Maidstone; Ivery, Peckham; Atlee, Stockwell; F. Pulbairn; Cross, Battersea-lane, with many others; price 7*s*. 6*d*. each; the usual allowance where three or more are taken. Post-office orders payable at Kennington-cross, South Lambeth, Surrey.
March 14th.

SEED POTATOES.

WARNER AND WARNER, SEEDSMEN, 28, Cornhill, opposite the Royal Exchange, London, have just received a large supply of the following early and sound POTATOES:—

Chinese Round, very early and prolific, introduced by Messrs. Dickson, of Chester, 5*s*. per peck.
Ash-leaved Kidneys, 2*s*. per peck.
Somersetshire Prolific, very early and fine flavour, 7*s*. per bush.

Where a large quantity of the last-named is taken, an allowance will be made in price.

N.B. See also next page for an abridged list of Choice Flower and Vegetable Seeds.

POTATOES.—The Subscriber has on hand a large quantity of excellent POTATOES, quite free from disease, fit for seed or the table, which he is now selling at 3*s*. per bushel. Also a large quantity of very superior White Globe and Swedish Turnip Seed, warranted true to name.

ARCH. T. GART, Seedsman.—Kelso, March 14

REGENERATION OF THE POTATO.—SEED raised in the most careful manner from the Berry of the earliest and best kinds, without disease, can be had in Packets No. 1, containing 13 000 Seed, which will be sufficient to produce Plants for more than 80 square perches of Land, 7 yards to the perch. No. 2, containing more than 6000 Seed, will have sufficient plants for more than 15 perches. Application by Post (office Orders on Baltinglass, for No. 1 Packet, 10*s*. 6*d*.; No. 2 Packet, 5*s*. 6*d*., payable to Mr. M'NEILE, Steward, Bellville, Stratford, County Wicklow. Each Packet will be forwarded post paid, and registered most letter, to prevent the chance of miscarriage. Printed directions will be forwarded with each Packet as to sowing and after-culture. Persons applying are requested to make their address legible.

"We have been favoured with a package of Potato Seeds from the parties offering the above for Sale, whose respectability we can vouch for, and think it remarkably well saved."—*Editor Farmer's Gazette*.

*** A sample of the Seed to be seen at this Office.

EXHIBITION OF CAMELLIA JAPONICA, OR JAPAN ROSE.

A Collection of these beautiful Exotics is now in bloom at CHANDLER & SON'S Nursery, Vauxhall. Admittance gratis.

CARNATIONS, PICOTEES, &c.—This being the best time for planting out the above Florists' Flowers, JOHN HOLLAND, Market-place, Middleton, near Manchester, respectfully informs Amateurs, Florists, &c., that he can supply the most choice varieties, on early application, of Auriculas, Alpines, Polyanthus, Pinks, &c. 20 pairs, in 20 named varieties, Show Carnations and Picotees, 20*s*., package included. Catalogues on prepaid application

WANTED about 200 Yards of HOLLY HEDGE, not less than 24 inches high. Full particulars of price, locality, best mode of transit to London, &c., to be sent to A. Z. Y., at Messrs. Good's, Stationers, Moorgate-st., London.

SEED POTATOES, &c.

HURST & M'MULLEN, SEEDSMEN, 6, Leadenhall-street, London, have a good stock of sound roots of the following excellent early varieties:—

SODEN'S EARLY OXFORD, too well known to require description, 3*s*. per peck.
HAIGH'S SPLENDID NEW KIDNEY, fine flavour and large produce (about ten days later than the Ash-leaved), 3*s*. per peck.
SHILLING'S NEW EARLY, 4*s*. per peck.
ASH-LEAVED KIDNEYS, 2*s*. per peck.
NEW RED KIDNEY, very early, boils white, delicious flavour, 2*s*. 6*d*. per peck.
NEW DWARF GOLDFINDER, 2*s*. per peck.
NEW WILTSHIRE KIDNEY, a very early and productive kind, 2*s*. 6*d*. per peck.
MARTIN'S EARLY GLOBE, 2*s* per peck.
GRAYSON'S GIANT ASPARAGUS, 3*s*. per 100.
MYATT'S VICTORIA RHUBARB, 1*s*. 3*d*. each.

Catalogues of NEW AND CHOICE FLOWER SEEDS, &c., as published in "Harrison's Floricultural Cabinet," for March, are now ready, and will be forwarded on application.

GLADIOLUS GANDAVENSIS. Strong bulbs of this splendid plant, at 5*s*. each.

DAY'S NEW SPLENDID DARK ROSE-LEAVED CLOVE, 1*s*. 6*d*. per pair.

CHOICE IMPORTED FLOWER SEEDS.

	Per collection—*s*.	*d*.
Imported German Stocks, in 36 splendid varieties	6	0
Do. do. do. in 20 do.	3	6
Do. do. Asters in 24 do.	5	0
Do. do. do. in 15 do.	3	6
Hollyhocks (very choice), in 12 named varieties	3	0
Larkspur (German), in 12 splendid do.	3	6
Balsams, 12 beautiful double varieties	5	0
Imported Zinnia elegans, 8 fine varieties	3	6
Verbenas, 8 choice kinds	3	0
Wallflowers, 8 imported varieties	3	0
Scabious, German, 8 do.	2	0
Poppies, 16 splendid do.	3	6

6, Leadenhall-street, Mar. 14.

FLOWER SEEDS.

ARTHUR MACKIE begs to announce that his DESCRIPTIVE LIST OF FLOWER SEEDS is now ready, and can be had upon application. For the convenience of the purchaser A. M. has enclosed them in printed envelopes, and he trusts that the information which will be found thereon will be both interesting and instructive.

The annexed is subjoined as a specimen of the plan he has adopted:—

SCHIZANTHUS RETUSUS.
Blunt-petalled Schizanthus.
Diandria Monogynia. Nat. Ord.—Scrophulariaceæ.
Half-hardy biennial. Height, 2 to 3 feet.
Flowers, crimson and orange. June to October.
A native of the Andes of Mendoza. Introduced 1831.
Deriv.—(schizo, to cut; and anthos, a flower; from the irregular form of the corolla.)

For the convenience of purchasers at a distance the above will be forwarded free through the post.

Norwich Nursery, and No. 10, Exchange-street,

ASH-LEAVED KIDNEY POTATOES.—To be Sold, about 35 Bushels in good order. Price, 9*l*. 10*s*.—Apply by letter, post-paid, to D. M. Y., Post-office, Ware.

FINE BEECH.—A quantity of fine BEECH, 5 to 7 feet high, TO BE DISPOSED OF, well adapted for Hedging, Stocks, or Planting out singly. Price, 40*s*. per 1000, cash. No charge for package.—Address to S. WOOD, Nurseries, Huntingdon.

PINE PLANTS.—Fruiting and succession, Blacks or Queens, may be had in any quantity on application to W. DAVIS, Green-street, Marlborough-road, Chelsea.—Mar. 14.

SHRUBS, &c., AT VERY LOW PRICES.

WILLIAM E. RENDLE & CO., having a very large stock of the following SHRUBS, &c., and wishing to clear the ground they occupy, offer them at *unusually low prices*. Those gentlemen, therefore, who are in want, will find the present a *rare opportunity* for procuring stock.

All the plants are in robust and healthy condition.

Ilex Oak, 3 years' seedlings, in pans	30*s*. 0*d*.	per 1000
„ fine transplanted, 6 to 9 inches ..	7 6	per 100
Chinese Arborvitæ, fine transplanted, 18 inches	15 0	„
Cypress do. 18 inches	15 0	„
Bays, 1 year seedling, from pans	3 0	„
Arbutus do. do.	5 0	„
Cistus laurifolius, fine transplanted	15 0	„
Spruce Firs, 3 years' seedling	1 6	per 1000
Ash, 1 year seedling	1 0	„
Hollies do.	7 0	„
Beech, 2 years' seedling	3 6	„
Scarlet Oak, 3 years' seedling	1 0	per 100
Seakale, fine roots	3 6	„
Asparagus, Judd's Giant, fine roots	2 6	„

All orders above 3l. will be delivered free of carriage to London, Liverpool, or Bristol. Post-office order or reference from unknown correspondents.

Plymouth, March 14.

SEEDLING FUCHSIAS.—No. 8. DUKE OF NORFOLK, white tube and sepals with a slight tip of green; very dark rosy purple corolla. Price 7*s*. 6*d*., per plant.

No. 7. DELICATA, fine large flesh-coloured tube and sepals, the latter tipped with green, crimson purple corolla. Price 7*s*. 6*d*. per plant.

No. 10. MARY ANN, short pale tube, nearly white, with long expanded sepals; bright red corolla, very distinct and handsome.

J. BARKWAY has devoted much attention to raising SEEDLING FUCHSIAS during the last few years, and has succeeded in obtaining the beautiful varieties as above, which he now offers to the public, confident that they will give as great satisfaction as his Norfolk Hero did in 1845; they have been submitted to Dr. LINDLEY for his opinion, which is as follows:—*Gardeners' Chronicle*, Aug. 9. "*J. B*—Your seedlings generally are flowers of good substance, smooth in texture, and possessing clear and bright colour; Nos. 7, 8, and 10 are the best of the light sorts, showy and pleasing."

To be sent out the first week in April. The usual discount to the Trade.—East Dereham, Norfolk, March 14.

HOLMES'S CALCEOLARIAS.



SUDBURY NURSERY, DERBYSHIRE.
Under the distinguished Patronage of
HER MOST GRACIOUS MAJESTY QUEEN VICTORIA,
HER MAJESTY THE QUEEN DOWAGER, AND
HIS ROYAL HIGHNESS PRINCE ALBERT.

W. H. HOLMES, F.H.S., respectfully announces that he is now sending out his Collection of fine seedling Calceolarias—Catalogues of which, and of those raised and sent out by him in 1845, 1844, and 1843; also Geraniums (including Mr. Beck's New Seedlings), Fuchsias, Dahlias, Cinerarias, Pansies, Phloxes, Verbenas, Petunias, &c. &c., may be had on application.

THE UNRIVALLED APPLE, THE STURMER PIPPIN.

MESSRS. DILLISTONE take this medium of stating, in reply to numerous inquiries respecting the above APPLE, that its history is fully given, with a drawing of its fruit, in Maund's "Fruitist" for March, 1845.

Scions may be had as in former seasons, by inclosing 3*s*. 6*d*. in stamps. Apply to the above, at their Nurseries, Sturmer, near Haverhill, Suffolk.

P.S. A few Healthy Plants to spare, price upon application.

FUCHSIA CHALLENGE.—Whereas Messrs. J. HALLY, of Blackheath, J. W. EPPS, of Maidstone, and H. LANE and Son, of Great Berkhamstead, have entered into an agreement to show their several Fuchsias, named "Empress," "Countess Cornwallis" and "Mrs. Lane," against each other, for stakes of 5*l*. each, at the next June exhibition of the Horticultural Society at Chiswick, the owner of the second best variety, if deemed worthy by the judges, to have 5*l*., and the remainder of the stakes to go to the owner of the best variety, and if any of the parties engaged do not bring forward their flower at the time appointed, they are to forfeit 5*l*. extra, to go with the stakes.

The above parties do hereby give notice that they are willing to allow, and do hereby invite all such persons to compete with them who may be the owners of any seedling varieties of Fuchsia (not being imported species), raised and flowered prior to 1846, and who may choose to sign and abide by the conditions of the above-mentioned agreement, and who shall also give notice of their intention so to do to either of the above parties within 15 days of the date hereof.

Any person wishing to compete may have a copy of the above-named agreement for them by application, stating the name of their Fuchsia, to either of the parties named above.

N.B.—As others are engaged in this show except those mentioned, and it will be needless for any one to advertise who are going to compete with the above, unless they are prepared to enter into an engagement so to do.—March 14.

AN ABRIDGED LIST OF NEW AND CHOICE FLOWER AND VEGETABLE SEEDS,

SOLD BY

WARNER AND WARNER, SEEDSMEN AND FLORISTS,

No. 28, CORNHILL, OPPOSITE THE ROYAL EXCHANGE, LONDON.

Packets of the following choice Flower Seeds can be had at 6*d.* per paper, except where marked 1*s.*

Acacia, several choice vars.
Achimenes rosea superba, 1*s.*
,, hirsuta, quite new, 1*s.*
Agathea spatulosa
Agrostemma, new species from India
Alonsoa grandiflora
Alstræmeria Hookeril
,, Barclayana
Anagallis coccinea splendens
,, monelli major
Anchusa capensis
Andromeda buxifolia, 1*s.*
Anemone vitæfolia
,, new hybrid
Antirrhinum hybridum, 20 shades of colour mixed
Aquilegia, four new varieties, separate
Arabis crispata
Atropa mandragora
Auricula, from fine named show flowers, 1*s.*
Azalea carminata, new, 1*s.*
Balsam, fine double Camellia flowered, mixed
Brachycome iberidifolia, 1*s.*
,, lilac, new
,, white, new, 1*s.*
Boisduvalia Douglasii
Cactus, choice kinds, 1*s.*
Calceolaria, shrubby and herbaceous, from the most splendid flowers
Calandrinia grandiflora
Calliopsis picta
,, heterophylla
Campanula stricta
,, g. andiflora
,, Lorei, blue and white
,, double white and violet
Canna, in varieties
Carnation, from fine-named show flowers, 1*s.*
Centaurea Americana
Chorizema varium
Chænostema polyantha
Cineraria, saved from the most brilliant blue and crimson flowers
Clerodendrum squamatum
,, fallax
Clintonia pulchella
Cobæa scandens
,, stipularia
Cockscomb, new giant scarlet
,, new dwarf yellow
Convolvulus minor, dark purple
,, inflatus
,, minor albo
Crepis barbata
,, Drummondi
Cyclamen, three varieties mixed
Cynoglossum longifolium
Cytisus Atleanu, new and splendid, 1*s.*
,, racemosus
Dahlia, from choice named flowers, 1*s.*
Datura, double white and purple
Daviesia suligna
Delphinium grandiflorum
,, choice varieties separate
Dentaria pentaphylla
Dianthus Chinensis, extra fine double
Digitalis grandiflora
Eccremocarpus scaber
Egg plant, new long white, from China
Elichrysum, superb new var., from the Swan River
Erica andromediflora, Cavendishii, vernix coccinea } 1*s.* each.
Eucharidium grandiflorum
Eucoea Menziesii
Fuchsia fulgens, splendid dark varieties, 1*s.*
,, from the finest named show flowers, 1*s.*
Gaillardia coccinea splendens
,, Wellsiana
Gardoquia betonicoides, 1*s.*
Genista tinctoria, beautiful
Geranium, from the finest named show flowers, 1*s.*
Gesnera Cooperii
Geum grandiflorum
Gilia splendens nova
,, nivalis new
Gladiolus Herbertiana
Gloxinia rubra splendens, 1*s.*
,, Youngii, 1*s.*
,, Menziesii, 1*s.*
Godetia rosea splendens
,, aurea
,, pubescens
Grahamia aromatica
Heartsease, from choicest named show flowers saved by Thomson and other eminent growers.
Hibiscus Manihot, splendid
,, Hiliformis var. Barclayana, 1*s.*
[illegible] 1*s.*
,, splendens
,, coccinea
Hollyhocks, 24 sorts mixed, extra fine
,, new rose dahlias, flowered
Hoves Manglesii
Hugelia cærulea
Ipomœa rubra cærulea, 1*s.*
,, triloba alba
Ipomopsis elegans
Jacobea, double dark crimson
Kennedya, choice kinds
Lallemantia peltata
Larkspur, German, fine mixed
Lisianthus Russellianus, 1*s.*, with printed directions
Linum, choice varieties
,, quadrifolium
Loasa pentlandica
Lobelia ramosa, beautiful
,, propinqua, very pretty
Lupinus Hartwegii
,, ramosus alba
,, German, 12 vars., mixed
Lychnis alba nova
Marigold, French and African, 20 vars. separate, most superb, 7*s.* 6*d.*, raised by Mr. Usher.
Martynia fragrans, 1*s.*
Maurandia Barclayana
,, rosea
Melissa grandiflora
Mesembryanthemum albo
,, pyropœum
Mimosa leucocephala
Mimulus Denhamii, sweet-scented
,, splendens
Morina longifolia
Myosotis palustris, or Forget-me-not
Nemophila discoidalis, black
,, striata, quite new, 1*s*
Nepeta macrantha
Nicotiana, scarlet
Œnothera Drummondii
,, odorata
,, speciosa, pretty
Papaver bracteata
,, alpina lutea
Passiflora edulis
Paulownia imperialis
Pentstemon splendens
Petunia grandiflora, beautiful
Phlox Drummondii
,, large crimson
,, choice perennial vars.
Picotee, saved from the finest English named flowers, 1*s.*
Pimelia hypericifolia & rosea
Pink, intermediate, very pretty
Pink, from fine named flowers, 1*s.*
,, Chinese, new double, fine
Phalangium liliago
Polemonium grandiflorum, from Northern India
Polyanthus, fine mixed, from named prize flowers, 1*s.*
Pœonia, finest mixed
Portulaca splendens
Poppy, fine mixed from imported varieties
Potentilla insignis
,, grandiflora
Primula cortusoides
,, sinensis rubra, fimbriata
,, alba, ditto
Rhodanthe Manglesii
Rhododendron campanulatum beautiful, 1*s.*
Salpiglossis, 20 *varieties mixed, superb*
,, 4 varieties, separate
Salvia patens
,, 3 other named sorts
Sanvitalia procumbens
Scabiosa, German mixed, extra fine
Schizanthus albus
,, retusus superbus
Schizopetalon Walkerii, sweet scented
Silene speciosa
Solanum corasiforme
Stachys coccinea
Statice cephalanthe
Stocks, German imported, 24 varieties, mixed
,, Queen's Bouquet, most beautiful, new, 1*s.*
,, Moss's, intermediate
,, Emperor, new and splendid
,, Chamois, yellow, large flower, 1*s.*
Sweet William, double variegated
,, dark rich colour
Tetranema Mexicana, new, 1*s*
Thunbergia, mixed
Torenia scabra
Tradescantia crecta
Tropæolum Jarrattii
,, brachyceras
,, pentaphyllum
Tweedia cœrulea
Verbena, from the newest and best named flowers
Veronica speciosa, new and beautiful, 1*s.*
Viola arecta
Vinca roseo and alba
Viscaria oculata
Wallflower, new violet
,, dwarf blood colour, superb

WARNER and WARNER'S Advertisement—*continued.*

Wallflower, new double gigantic, bronzy red, 1*s.*
Wahlenbergia capillaris
Xeranthemum robustum luteum
Zinnia Elegans, mixed

With many other varieties too numerous for insertion. See General Catalogue, and "Harrison's Floricultural Cabinet," for March.

GERMAN SEEDS IN COLLECTIONS.

Asters, 24 vars. imported, very beautiful	5	0	the collection.
,, 12 do.	3	0	,,
Balsams, 12 do., very fine and double ..	3	0	,,
Cockscombs, 12 do., beautiful	3	6	,,
Hollyhocks, 12 do., do.	3	0	,,
Larkspurs, 12 do., splendid	3	0	,,
Peonies, 12 do.	3	0	,,
Poppies, 12 do.	3	0	,,
Scabious, 12 do., splendid	3	0	,,
Stocks, 36 do., most beautiful and double	6	0	,,
,, 12 do., Wall-leaved	3	0	,,
,, 12 do., Giant Brompton	3	6	,,
Wallflower, 8 do., very handsome ..	3	0	,,
Zinnias, 12 do., beautiful	3	0	,,

The above German seeds are all of the very best quality, and can be confidently recommended.

CHOICE VEGETABLE SEEDS.

Beet, Whyte's fine blood-red, extra, p. pkt.	0 6
,, Brazilian, variegated, beautiful for garnishing - -	0 6
Broccoli, Walcheren, true, comes in very early	0 6
,, Elletson's Superb April White Broccoli, with instructions for culture	5 0
,, Metcalfe's imperial Pink Cape - -	0 6
,, Early white autumn	0 6
,, Cheltonham, new, a very large and most excellent late variety - - -	0 6
,, Warner's new superb White - -	0 6
,, Hale's new Hardy Cape, a very superior kind -	0 6
Brussels Sprouts, imported - - -	0 6
Cabbage, Warner's Incomparable, the earliest sort known, most delicious flavour - - -	0 6
,, The Queen (new), very fine flavour -	0 6
Carrot, fine Scarlet Studley - - -	0 6
Cauliflower, fine early Asiatic - -	0 6
,, Large, late London, fine - - -	0 6
Celery, White, The Monster - p. pkt.	0 6
,, Wonder, large Red, solid - - -	0 6
Cove tronchouda, a delicious vegetable -	0 6
Endive, new transparent yellow, beautifully curled - - -	0 6
Lettuce, Paris Cos, extra	0 6
,, Imperial Winter Cos	0 6
,, New Summer Cabbage - - -	0 6
,, New Winter Cabbage - - -	0 6
Ohio Squash, a most delicious variety of vegetable marrow	0 6
Onion, large White Portugal - - -	0 6
,, Large Madeira, new	0 6
Parsley, extra fine double curled, beautiful for garnishing	0 6
Radish, early short top, transparent -	0 6
,, French scarlet, olive shaped. -	0 6
Scandix bulbosa, or Turnip-rooted Chervil, a most delicious vegetable -	0 6
Strawberry, Alpine, Red and White - -	0 6
Turnip, Early Snowball, fine - - -	0 6

A General Catalogue of Garden and Flower Seeds may be had on application, by post, as a single letter.

THE BEST FUCHSIAS AND VERBENAS OF 1845.

WILLIAM MILLER will commence sending out the last week in March, in stout tin cases (or in pots, if required), post free, 12 new, choice, and very distinct FUCHSIAS, fit for Exhibition, for 7*s.* 6*d.*; 12 extra first rate, very distinct varieties (all sent out for the first time last season), such as Alfred the Great, Amethyst, Admiral, Brutus, Balloonii, Superb, Coventina, Chubby-boy, Captivation, Duke of York, Delicatissima, Duchess of Sutherland, Eminent, Expansa, Formosissima, Highland Chief, Hero, Hamlet, Helena, Imperialis, Incomparable, Junius, Lord Ashley, Lord Sandon, Lady Sale, La Polka, Maynei grandiflora, Magnet, Mrs. Fry, Monstrosa, Mrs. Bayley, Nymph, Oberon, Othello, Picta, Pickwick, Pulchella carnea, Pluto, Pillar of Beauty, Queen Victoria, Queen of Beauties, Roderic Dhu, Rosabella, Snowball, Sultan, Shakspeare, Surpass, Sir H. Pottinger, Sir W. Magnay, Sylph, Theophrastus, and Unique, for 15*s* the dozen Also 12 extra good, distinct VERBENAS, such as Alba Magna, Alice Hawthorn, Avalanche, Beauty, Beauty Supreme, Barkerii, Bedford Beauty, Bloomfield Beauty, British Queen, Celestina, Childe Harold, Defiance, Duke of York, Desirable, Emma, Enchantress, Fair Rosamond, Favourite, Hebe, Hudibras, Hudsonii, Incarnata, Jewess, Louis-Philippe, Leonora, Minerva, Maid of Athens, Medora, Magnificent, Master Polaskii, Mulberry, Penelope, Princess Royal, Perfection of England, Rose d'Amour, Speciosissima, Skinnesii, Tresor Parfait, Tricolor Alba, The Giant, Tweediana Picta, Vesta, for 6*s.* the dozen. Those persons ordering are requested to send the names of the sorts they already possess, that W. M. may send other suitable varieties. —Printed priced Catalogues may be had (giving the colours of the Fuchsias, and description of the new Seedlings for 1846,) at the Providence Nursery, Ramsgate.

P.S. On account of the forward state of the season, a great many of the sorts may be had at once, and in good plants.

SUPERB SEEDLING FUCHSIAS.

W. J. EPPS, F.H.S. begs to inform the admirers of this flower that he purposes sending out, in the first week in April, the following distinct FUCHSIAS, feeling confident they cannot fail to give the highest satisfaction :—

LADY WULIA.—This flower is of a beautiful waxy white, tube and sepals slightly tipped with green, corolla vivid crimson, habit good, and has merited the following high opinions :—

Gardeners' Gazette, July 19.—"J. W.—The white is very pretty and the contrast striking; even the green tips seem almost ornamental, instead of a blemish."

Gardeners' Chronicle, August 9.—"J. W. T.—The variety No. 1, with white tube and sepals and rosy crimson corolla, is a handsome variety, and one of the best of its class we have seen." 10*s.* 6*d.* per plant.

COUNTESS OF CORNWALLIS.—This Fuchsia is remarkably striking, and is decidedly the most splendid and distinct variety yet raised. The habit is very fine (like Eppsii), and a free blooiner. The following are the opinions of Dr. Lindley and G. Glenny, F.H.S. :—

Gardeners' Chronicle, Nov. 1.—"W. J. E.—Your Seedling is a handsome variety. Light tube slightly striped with pink, sepals expanding freely, disclosing a fine rosy crimson corolla. The flower is fine in texture, and will rank with the best of the light varieties."

Gardeners' Gazette, Oct. 25.—"Mr. Epps's Fuchsia.—Rich scarlet corolla; pale—nearly white sepals; very striking, and, if the habit be good, a pretty accompaniment to 'Nymph' and 'Queen of Beauties.'" 10*s.* 6*d.* per plant.

QUEEN OF THE VIRGINS.—This also is very attractive, and will give great satisfaction. The tube and sepals light buff, corolla large, and of a beautiful dark crimson purple, superior to the "Queen of Beauties." This flower has only been submitted to Dr. Lindley, whose opinion is as follows :—

Gardeners' Chronicle, Sept. 6.—"W. K.—A very pretty light variety, having a fine crimson purple corolla." 10*s.* 6*d.* per plant.

The set 12. 7*s.* The usual discount to the Trade where three of each are taken.

All orders from unknown correspondents to be accompanied with a remittance.—Flower Nursery, Maidstone, Mar. 14.

SELECTION OF CHOICE FLOWER SEEDS.

WILLIAM E. RENDLE & CO. have a small Stock of the following choice Flower Seeds. Many of the sorts, such as MARTYNIA FRAGRANS, PHLOX DRUMMONDII, and others of equal value, have been saved under the inspection of their Foreman, the Seed, therefore, can be warranted to be quite new, and correct to name.

SCALE OF PRICES, SENT POSTAGE FREE.

50 Choice Flower Seeds, including the following....for 12*s.*
30 do. do. do. .... ,, 8*s.*
20 do. do. do. .... ,, 6*s.*

Brachycome iberidifolia.
Clintonia pulchella.
Martynia fragrans.
Didiscus cæruleus.
Eucharidium grandiflorum.
Nemophila discoidalis.
Podotheca capitata.
Schizopetalon Walkerii.
Finest German Asters.
Rhodanthe Manglesii.
Phlox Drummondii.
Planthus latifolius.
Lobelia erinus.
Mesembryanthemum tricolor.
Nemesia floribunda.
Schizanthus retusus.
Viscaria oculata.
Finest German Stock.

A useful Chart has just been published, giving the height, colour, and mode of raising the principal sorts of Flower Seeds, *gratis*, with each order. A General Catalogue can be had on application. A remittance is not required from known Correspondents, or those who give reference in London.

Union-road Nursery, Plymouth, Mar. 14.

SELECT AND CHOICE FLOWER SEEDS, with full directions for sowing, treatment, height, colours, &c.

	s.	*d.*
100 varieties choice Annuals, including the most approved new	15	0
50 vars. ditto ditto ditto ..	8	6
30 vars. ditto ditto ditto ..	5	6
20 vars. ditto ditto ditto ..	4	0
20 vars. best dwarf kinds, in larger packets, suited for filling beds on lawns	7	6
12 vars. ditto ditto ditto ..	5	0
20 vars. choice greenhouse Annuals, including Phlox Drummondii, Portulaca, Rhodanthe, Sedum azureum, Brachycome, Mesembryanthemum tricolor, Martynia fragrans, &c. ..	7	6
20 vars. choice greenhouse Perennials, including Calceolaria, Fuchsia, Petunia, Cineraria, Chorozemas, &c.	10	
20 vars. choice hardy Biennials and Perennials, including fine Hollyhock, Pansy, Emperor Stock, &c.	5	0

The above sent free by post at the prices affixed, or packets, as follows :—

Per packet.—*s.* *d.*	Per packet.—*s.* *d.*
Calceolaria, carefully saved from choice flowers 0 6	Petunia, from choice flowers 1 0
Fuchsia, ditto 1 0	Phlox Drummondii, from 20 fine varieties 0 6
Cineraria, ditto 1 0	Ditto, scarlet and crimson..... 1 0
Geranium, ditto..... 2 6	Gladiolus, from splendid summer hybrids 0 6
Pansy, ditto 1 0	
Antirrhinum, ditto 0 6	
Dahlia, ditto 0 6	

Remittances in franks or Post-office orders from unknown correspondents.

Catalogues of Flower and Vegetable Seeds, embracing the best in cultivation, will be sent pre-paid to applicants.

BASS and BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.—Mar. 14.

THE BEST VERBENAS OF THE YEAR.

GEO. SMITH has pleasure in offering his matchless SEEDLING VERBENAS, of which G. S. warrants them to surpass any other eight known. Seven of them have taken First-class Prizes; they are large, of first-rate form, five of them beautifully edged or spotted. They have been justly admired by all who have seen them. To be sent out the last week in April, at 30*s.* the set, or 5*s.* per plant, post free, viz.—

DUCHESS OF SUTHERLAND, fine blush with bright cherry eye obtained the First Seedling Prize at the Royal Botanic Gardens of London; First at Cremorne Gardens.

DUC DE NEMOURS, fine rose with yellow eye; first at the Royal Metropolitan.

EMPEROR, bright crimson with white eye, first class at the Royal Surrey Gardens.

LOVELY ANN, vivid scarlet edged with pink; first class at Highgate.

MODESTA, fine cream with rose spot.

MISS WATSON, glossy blush with yellow eye; first class at the Royal Metropolitan.

MERRY MONARCH, bright scarlet edged with dark rose; first class at Highgate.

QUEEN OF BEAUTIES, delicate pink with rose spot.

G. S. has a Seedling Petunia, Alba Magna, a large pure white, the throat veined with violet. It was shown at the Royal Botanic Gardens, and allowed by Nurserymen and Florists to be the best white Petunia they had seen It was also favourably noticed in the *Gardeners' Chronicle*. Price 5*s.* 6*d.* per plant.

G. S.'s Descriptive Catalogue of Verbenas, Fuchsias, Dahlias, &c., is now ready, containing every leading variety, they having obtained the first prizes at all the great shows round London. The following kinds are now ready, and they will be found to be all fine and large, with decided colours, of good form, at 10*s.* per dozen; if by post, postage free; or if by railway, hamper and package gratis, viz. :—

Atrosanguinea, Avalanche, Array, Beauty Supreme, Beauty (Smith's), Bloomfield Beauty, Duke of York, Defiance (Pearson's), Delicata, Excelsa (Smith's), Emma, Enchantress, Elegans, Fair Rosamond, Grandis, Garland, Gladiator, Hudibras, Hebe, Louis Philippe, Lilac Perfection, Magnifica, Messenger, Poultii, Princess Royal (Tiley's), Queen of England, Rose d'Amour, Rose Charmante, Speciosissima, Tunandra, the Giant, Tricolor Alba, the Favourite, and Vesta.

All orders from unknown correspondents must be accompanied by cash or reference.

Tollington Nursery, Hornsey-road, Islington, near London.

SEA-SIDE PLANTING—BLACK SALLOW.

JAMES GRIGOR, NURSERYMAN, Norwich, begs to state that he has just been awarded the Gold Medal of the Highland and Agricultural Society for a plan of planting maritime situations, as most successfully adopted on exposed north-west situations on the Cliffs of the German Ocean in the County of Norfolk. This triumph of Arboriculture has been chiefly accomplished by the use of the NORFOLK BLACK SALLOW—a most determined grower, even when closely exposed to the influences of the sea air. Yarmouth, Hunstanton, Harwich, Aberystwith, Brighton, Bridlington, and other seaside towns and villages, have already availed themselves of this tree; so that the long wished-for desideratum, that of being able to contemplate the grandeur of the ocean from the shelter of a sylvan bower, is now being supplied on the easiest of terms.

Strong slips, package included, and carriage paid to London or Hull, 10*s.* per 100. Important directions with each packet.

J. G. continues to supply plants of his valuable HIGHLAND PINE-TREE at from 5*s.* to 50*s.* per 1000, according to size. "I very particularly admire the Highland Pine."—*Duke of Newcastle.*—Nurseries, Norwich, March 14.

JESSOP'S NURSERY, CHELTENHAM, Established in 1815, from its extensive connection offers peculiar advantages to Noblemen and Gentlemen requiring Gardeners, Foresters, or Farm-Bailiffs of established skill and reputation.

All communications promptly attended to.

HORTICULTURAL SOCIETY OF LONDON.—Notice is hereby given, that the EXHIBITIONS of FLOWERS and FRUIT, in the Society's Garden, in the present season, will take place on the following SATURDAYS, viz., May 9, June 13, and July 11; and that Tuesday, April 21, is the last day on which the usual Privileged Tickets are issued to Fellows of the Society.

NURSERYMEN AND FLORISTS . TO HER MAJESTY THE QUEEN.

YOUELL & CO. beg to refer the readers of the *Gardeners' Chronicle* to their advertisement in last week's Paper, containing the newest and very best Fuchsias, Verbenas, Carnations and Picotees, Pansies, Petunias, Cinerarias, Ericas, Herbaceous Plants, &c. &c., as well as the Fastolff Raspberry.

25 packets of new and Choice Flower Seeds, per post, free, 6s.

Steam-ships to London three times in the week; to Hull twice in the week; and per rail every eight hours to London.

Great Yarmouth Nursery, March 14.

The Gardeners' Chronicle.

SATURDAY, MARCH 14, 1846.

MEETINGS FOR THE FOLLOWING WEEK.

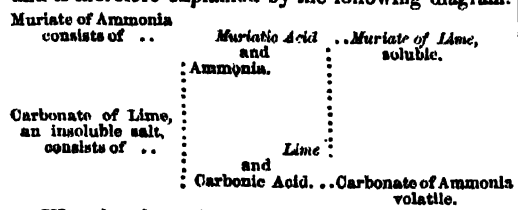
TUESDAY,	Mar. 17	Horticultural	3 P.M.
		Linnean	8 P.M.
WEDNESDAY,	— 18	Society of Arts	8 P.M.
		Microscopical	8 P.M.
SATURDAY,	— 21	Royal Botanic	4 P.M.

THE most serious objection that has been made to HOT WATER as a HEATING MEDIUM, is its tendency to incrust the interior of the apparatus with carbonate of lime, thus producing explosions, or rendering the fire inefficient. We have now before us an instance of the kind where a boiler became lined, in a few months, with a crust nearly half an inch thick, and as hard as freestone; and there is no doubt that such deposits are accumulating in all hot-water boilers and tanks, with more or less rapidity, according to the impurity of the water employed. Indeed, everyone who has a hot-water apparatus in action must, unless he constantly uses rain water, expect to be obliged some day to pull it down for the purpose of having it cleaned.

This inconvenience is more serious than is commonly supposed, and having been found universal in steam boilers, has attracted the attention of Dr. RITTERBRANDT, who lately brought the subject before the Society of Arts, suggesting an effectual cure.

In order to obviate the difficulties just spoken of, Dr. RITTERBRANDT proposes to use the *salts of ammonia*, it being known that if to a soluble salt of lime be added a solution of carbonate of ammonia, precipitation takes place, and the acid which held in solution the lime unites with the ammonia, while the carbonic acid of the carbonate of ammonia combines and falls down with the lime; but, upon the water being heated, the precipitated carbonate of lime combines with the salt of ammonia, is re-dissolved, and the carbonate of ammonia is formed and escapes with the vapours of the boiling water. Feeling convinced that this peculiar reaction took place, viz., that carbonate of lime, precipitated from a salt of lime by carbonate of ammonia, would be again dissolved by the application of heat, it only remained to be proved how far the principle was capable of decomposing the carbonate of lime already existing in calcareous water, and the results exceeded the most sanguine expectations. However highly charged with lime water may be, the process answers, and the solution is in all cases perfect.

The *rationale* of the chemical reaction, although familiar to chemists, may not be so to all our readers, and is therefore explained by the following diagram.



We take these details from a report of the proceedings of the Society of Arts, at a subsequent meeting of which very useful institution the subject was revived, and some further information communicated by Dr. RITTERBRANDT. On the latter occasion a number of experiments were made to prove that although the muriate of ammonia effectually disintegrates the incrustation, still it does not have any injurious effect upon the boilers, whether they are of copper or iron. Mr. GOOCH, of the Southampton Railway, stated that when the subject first came under his consideration, there were two points which he was desirous of having made clear to him. The first was—That the ammonia did actually prevent the deposit; and the second, that the application of the muriate when applied to upon the metal. Upon both of these points he expressed himself perfectly satisfied, and stated that he had adopted the plan with all the engines under his superintendence. The quantity of ammonia used on the Southampton Railway is at the rate of 1 lb. for every 1500 or 2000 gallons of water. The cost of the ammonia is about 3*d.* per lb.—Mr. GOODIFF had also seen experiments made on the engines of steam-vessels, one of which, George the Fourth, had its boiler completely incrusted; but after the experiment had been carried on for six weeks, the boilers became clean. It had also been tried in a small stationary high-pressure engine, of eight horse-power, working with salt water, and the same results followed.

The lesson which gardeners should learn from this important practical communication is, that if they wish to keep a hot-water apparatus in working order, without running the risk of the interior becoming "furred" up, they will invariably add one ounce of sal-ammoniac (or muriate of ammonia) to every 90 gallons of water with which their apparatus is filled.

DURING the past week Lord GEORGE BENTINCK has been lecturing to the House of Commons on the POTATO DISEASE. He has discovered that kiln-dried Potatoes will not grow, and that either lime or charcoal will make diseased Potatoes keep. His lordship might have gained the first piece of erudition from the nearest maltster; the latter we should have thought he had picked out of the reports of the Irish Commissioners if the assertions he has been so obliging as to make respecting these gentlemen did not show that he had never read their recommendations. But, said Lord GEORGE, the very worst Potatoes, if you spread them out on the floor of a Peach-house, and dust them with quick-lime every day *until the rotten part is converted into starch* (!) (*O magnis posthac inimicis risus!*) will form fine healthy shoots; and all at the small expense of 6*d.* a sack for the lime. It is a pity that we have not Peach-houses all over the country, and that people employed in turning over rotten Potatoes, and dusting them until the marvellous conversion of rottenness into starch is effected, should be so unreasonable as to demand wages for their trouble.

This exhibition in St. Stephen's forces us back to the question of what was the cause of the disease. It may by some be assumed that the unvarying success which has attended our earliest recommendation (August 23 and 30, 1845) of keeping the Potato dry, in which manner only do either lime or charred materials appear to act, is a proof of the truth of our original hypothesis (August 23, 1845), that the peculiar atmospheric causes of 1845 produced the mischief. For ourselves, we are wedded to one opinion only in regard to this matter, and that is, that the evil was *not* caused by fungi. Atmospheric conditions seemed to explain the difficulty best, and, in the absence of a more rational solution, we have looked to them; but we are now bound to say that circumstances have by degrees come to our knowledge which weaken this hypothesis materially, if they do not entirely destroy its value. So long since as the autumn of last year we were made aware of the singular fact, that Potatoes of 1844, in the possession of Sir JOHN LUBBOCK, upon being placed in dry sand under a shed, where they were guarded from the weather, produced diseased tubers; but their malady was somewhat different in its aspect from that of the open fields, and as the case at that time stood alone, we could not attach much importance to it. At a later period similar intelligence reached us, but not having seen the Potatoes alluded to by our informant, that too was not calculated to shake our first opinion. Two other facts have, however, come to our knowledge, which, in connection with those above mentioned, are calculated to give rise to a very different speculation. The British consul at Lisbon states in his despatch dated December 29, 1845, that the *few Potatoes diseased near that city, were grown from seed received from England.* We have now before us young Potatoes raised in the garden at Bodorgan from sets ripened in 1844, and kept in reserve till August 1845, when they were planted in the open ground, *a large proportion of which are very much diseased*; and those the most so which are oldest. In another column a similar fact is mentioned by Mr. SWAN, of Garnston.

This looks as if the murrain was engendered in 1844 and only showed itself in 1845. The facts may, perhaps, be otherwise interpreted, but they seem to point to that conclusion. They are scarcely reconcileable with the action of unfavourable seasons, or of an epidemic, which was first contended for, we believe, by Mr. MOORE, of Glasnevin, and has since been recognised by others of undoubted authority, among whom Dr. GREVILLE tioned. If, however, they do nothing more, they certainly complicate the question, and render the fate of the succeeding crop more doubtful than ever, for if they lead us to assume that the murrain was engendered in 1844, and only manifested itself in a formidable degree in 1845, we must look out for the worst consequences in 1846; as the experience of the United States indicates, and as the gathering evidence already brought forward by us seems so strongly to point out.

The question of providing, for poor people at least, a sure substitute for the Potato crop, becomes then of the highest importance. It will not do for them to try experiments and fail; such expenses must be incurred by the wealthy, or by speculators. We now, therefore, produce the following Table, showing the quantity of produce, of 13 different crops, that may be obtained from an English acre, under ordinary circumstances. This will enable everybody to judge for himself what is most worth his growing. If it should appear that the produce per acre is in any case taken too low, or too high, a little calculation will serve to correct it. No doubt it is generally much too low where high cultivation is employed. If Potatoes are averaged at only eight tons an acre, although plenty of growers obtain 12 or even 14 tons, so also are Parsnips taken at only 12 tons instead of 20, Carrots at 15 tons instead of 25, and so on.

A TABLE of the average weight per acre of 13 crops of corn or vegetables; and also of their organic and inorganic constituents, calculated by EDWARD SOLLY, Esq., F.R.S.

Average Produce per Acre.			Water.	Unazotized Organic Matter.	Protein Compounds.	Inorganic Matter.
			lbs.	lbs.	lbs.	lbs.
1. Turnips	25 tons,	or 56000	51800.0	3309.6	442.4	448.0
2. Carrots	15 tons,	or 33600	29438.6	3128.2	665.2	383.0
3. Parsnips	12 tons,	or 26880	21542.7	4042.2	561.8	333.3
4. Potatoes	8 tons,	or 17920	14228.5	3053.6	433.7	204.2
5. Barley .	35 bsh.,	or 1800	237.6	1314.2	205.9	42.3
6. Oats .	40 bsh.,	or 1700	238.0	1215.7	187.8	58.5
7. Peas . .	25 bsh.,	or 1600	137.6	1017.7	209.4	45.3
8. Beans .	27½bsh.,	or 1750	138.2	979.0	581.2	51.6
9. Wheat .	28 bsh.,	or 1680	245.6	1184.4	218.4	35.6
10. Cabbage,	10000 plants	or 80000	73840.0	4184.0	1456.0	524.0
11. Jerusalem Artichokes,	500 bsh.,	or 28000	22176.0	4888.8	599.0	336.0
12. Beet		.. 75000	65850.0	7212.5	1020.0	817.5
13. Buckwheat,	30 bsh.,	or 1800	162.5	942.5	177.5	17.5

In this Table it will be observed that the largest amount of waste is in Cabbages, and the smallest in Peas. But, to ascertain the real importance of these crops, it is necessary to examine firstly their relative value, if protein alone, the only nutritive part, is regarded; and this is shown in the following Table:—

	lbs.
1 Cabbages	1456.0
2 Beet	1020.0
3 Carrots	665.2
4 Jerusalem Artichokes ..	599.0
5 Beans	581.2
6 Parsnips	561.8
7 Turnips	442.4
8 Potatoes	433.7
9 Peas	399.4
10 Wheat	218 4
11 Barley	205.9
12 Oats	187.8
13 Buckwheat	177.5

In the next place, we ought to consider what they are worth if the other matters which, although not literally nutritious, nevertheless render them fit for food, are taken into account. The following Table shows their relative value, if organic matter of all kinds is taken:—

	lbs.
1 Beet	8342.5
2 Cabbage	5640 0
3 Jerusalem Artichokes ..	5487.8
4 Parsnips	5204.0
5 Carrots	3793.4
6 Turnips	3752.0
7 Potatoes	3487.3
8 Beans	1560.2
9 Barley	1520.1
10 Peas	1417.1
11 Oats	1403.5
12 Wheat	1402.8
13 Buckwheat	1120.0

The great value of a Cabbage crop is here apparent; for it is evident that if land is planted with Drumhead Cabbages, two feet apart, and they can be made to weigh 8 lbs. each, a greater amount of food will be obtained than from any crop, except Beet, which Cabbages beat in nutritive matter, but give place to in absolute quantity. Beet, however, being less palatable and saleable, except for cattle, than Cabbages, must rank lower. Then we find what enormous quantities of food may be derived from Carrots, Parsnips, Jerusalem Artichokes, and Beans, each of which ranks above Potatoes in whatever way they are regarded. As to Jerusalem Artichokes, they appear to be far beyond the Potato in real value, although, perhaps, not equally palatable; for, in addition to the excellent quality of their roots, to which alone reference is made in these Tables, they will grow in the poorest soil, require

stems make excellent fuel, or may be employed for cattle feed whether green or dry.

Mr. Forsyth, of Alton Towers, speaks thus of the Jerusalem Artichoke :—

"I have grown the Jerusalem Artichoke so as to produce a greater weight of tubers than Ash-leaved Kidney Potatoes generally produce, and in addition to this it yielded of eatable stems, a standing crop of 12 ft. It bears frost on the tuber with impunity; it is full of eyes, buds, or sets, more so than Potatoes; it requires rich land, and plenty of sun and air, as it is notoriously late in forming its tubers. I have cultivated it as food for game; pheasants devour it greedily in winter, and as the frost does not affect it, it requires no further attention than to be scattered in the covers. I have a good deal to say regarding the value of this plant for agriculture, but your columns are too crowded now with the Potato question to admit of its being entered upon fully—suffice it to say, that it is a wholesome vegetable of the easiest culture, not subject to any disease, although it never gets good usage, and I think there are few gardens of any note that could not supply a good stock of it, if it were looked up from the rubbish among which its lot is generally cast. In growing it for the tubers, the stems must be topped at 3 feet, and it is only when young that cattle could eat the stems; it is a sure cropper, and consequently may be relied on, and can be used (if better is not to be had) as food for man; and if it fails in this, it will fatten pigs, and feed milk cows."

Of course we would not have anybody crop his land exclusively with any one of these things; they will be most valuable when made to form the basis of a cottager's husbandry, as, for example, in some such manner as that proposed by Mr. Stratton, of Eastington, near Stroud, namely, that a part of the land be immediately planted with Hollow-crowned Parsnip and Carrots, the remainder with early Peas, reserving a small portion for the purpose of sowing, as soon as possible, some Savoy Cabbage, Winter Greens, &c., &c., so that when the Peas are harvested, a portion of the land may be planted with the same, and the remaining part with Turnips. The Peas, he observes, will be nutritious food during winter, and should there be an objection as to boiling them, that may be overcome by first boiling them in water with a small portion of soda, from which they must be strained before using for soup. But these are matters which all intelligent cultivators can judge of for themselves, and to which we may perhaps direct attention hereafter. In the meanwhile we would invite attention to two excellent papers on *mixed* crops, which will be found in another column.

The importance of Glass to gardeners, and the part which this Journal has taken in the price of it since the repeal of the duties, renders the following extracts from an Excise Return just laid before Parliament extremely interesting:—

Extracts from Letters received (by Mr. Wood, *the Chairman of Excise,) from Glass Manufacturers in various parts of England, on the present state of the Glass Trade.*

No. 1. The necessary suspension of operations pending the equitable adjustment of drawbacks, and the admirable facilities to all branches of the trade by your department, *left us all without stocks to commence the new era*. The manufacturer had then to meet an increased demand after the remission of duty; consequently in no branch has the supply been yet equal to the home demand, and export orders have been supplied to a great extent by foreign glass imported under bond. Manufacturers have availed themselves of the increased demand to keep up the price; an increase of works has been the consequence; and foreign workmen have been imported, which has occasioned a scarcity of hands on the Continent. These remarks apply more particularly to blown window-glass. Immediately after the repeal of duty, the demand for crown, sheet, and plate glass, became excessive, so that orders could not be supplied, and continues so; additional houses have commenced working, and large companies are forming at Hull, Dublin, and Belfast; that at Hull with a capital of 200,000*l.* The great difficulty is the want of a sufficient number of skilful mechanics.

No. 3. None in our branch (window glass) had any notion that the demand would have been so extraordinary as it has proved. The extra make, since the repeal, could not be less than 50 per cent. Besides the old glass-houses, five new ones started, and five more are under way. Nearly all, both new and old, are making, or about to make, sheet-glass; and the demand for workmen in that branch is such, that men are making from 4*l.* to 8*l.* a week. In the meantime the Belgians have been obliged to advance their men's wages, and some are entirely laid up for want of men, as about 200 of their best workmen have been abstracted by the temptation of extravagant wages here. The best crown glass makers are now making 38*s.* to 40*s.* per week; Frenchmen, 5*l.*

No. 4. We have exchanged the excise for a much severer taskmaster, *videlicet*, our own men; and matters are not likely to mend. So long as the labour supply is below the demand, they dictate whom we shall or shall not employ, and what number of aprentices we shall receive. Until the manufacturers can exercise greater control over their workmen, they cannot give the full benefit of their exertions to the public.

No. 5. It would be impossible to point out any alteration made by Sir Robert Peel so signally successful as the repeal of the glass duties, more especially those relating to window glass. The supply has not been able to meet the demand; and from the scarcity of workmen, wages have risen fully 30 per cent. Previous to repeal there were 18 crown and 5 sheet houses: total, 23. Presently at work, 23 crown and 12 sheet: total, 35. In addition to the above, the new houses are 5 crown, 1 sheet, and 2 half crown and half sheet: total new, 8; making in all, 43 furnaces; being nearly double the number at work before the repeal; and the quantity of window glass manufactured is supposed to be nearly double. Four other establishments are projected, which will probably make glass within 6 months. Nearly the whole of the glass made has been consumed in the country; any little export has been to order, and no consignments as formerly. The increased consumption arises partly from reduction in price; and a new outlet has arisen from *the demand for horticulture*, which *is becoming a trade of itself, and is yet in its infancy*.

It hence appears that up to the present time the glass makers have been no sufferers from the competition that has been excited; and it is clear that, notwithstanding the enormous quantity of foreign glass brought over to England, the home trade was never in a more flourishing condition than it now is.

We are happy to add, that this national gain has not been effected by any sort of private suffering; for although the repeal of the duties has reduced the cost of the Excise establishment to the extent of 52,636*l.* a year, yet the official return informs us that most of the officers discontinued in consequence of these reductions have already been provided for, and the remainder of those who are capable of further service will, it is expected, be re-employed in the course of the next six months.

POLMAISE HEATING.

Your correspondent, "J. K." has, I am sure, judged rightly in supposing that your object is to elicit by discussion the relative advantages of different systems of heating, and not to support any one in particular, at all events, till its superior merits are proved; and surely the advocates of Polmaise Heating will be the first to confirm this statement; as, had such not been your object, Polmaise had been smothered in its birth. I trust that this is the common object of us all, and that we shall remember we are contending not for victory but truth. Before answering your different correspondents I will, for the benefit both of your readers and Polmaise, make a plain statement of the case as it stands up to the present time. This shall be as concise as possible.

On the 27th of July, 1844, a statement appeared in the *Chronicle*, from Mr. Murray, of a new mode of heating a hothouse, with a short account of some of its results; a more lucid and unvarnished statement never appeared in your pages, nor one bearing more clearly the impression of simple truth. It gave little explanation of its mode of action, but it furnished us with a "great fact;" and I wish all your readers who take an interest in this subject would again refer to this communication.

The following week, Mr. Glendinning, without any denial of the facts, attacked it. He stated only two objections—1st, that the heated air was brought in at the back of the house instead of the front; 2dly, that it admitted air from without to keep up a healthy atmosphere. Is it possible that Mr. Glendinning objected to that which most horticulturists insist upon as essential to vegetable health? Is it possible Mr. Glendinning used these words—"that if the house had been heated by hot water, it would be unnecessary to admit fresh air from without?" On the 24th of August, Mr. Mackenzie writes to say that he has seen the Vinery at Polmaise, that there are many systems of heating, but he has seen none so simple and efficacious!—Vine and Grapes alike extraordinary, competitors beaten, and, most important of all, that the greatest difference in the temperature between the hottest and coldest part of the house was only 5°! On the 7th of September, Mr. Glendinning, not contradicting Mr. Mackenzie's facts, expresses his surprise that any one should defend such a system on such grounds; that is, we are not to judge by results! He points out the evil of smoke-flues, but not those of Polmaise. On the 28th of September, Mr. Murray furnished us with another "great fact." He had exhibited Grapes, and beaten eight competitors. He predicts his plans will supersede flues and pipes, being cheaper, more easily managed, and requiring less fuel, &c. The same Number contains an invitation from Mr. Mackenzie to Mr. Glendinning to come and see the Vinery, and to judge for himself. Then followed a letter from Mr. Henderson, stating that it might not be right to ascribe all the effects at Polmaise to the heating apparatus, while much might be owing to other circumstances; that further evidence was required, especially as to the power of early forcing. Mr. Glendinning, apparently not having accepted Mr. Mackenzie's invitation, repeats his first objection (not the second), says that it is fatal to any system! and this in spite of results, and the statement that the variation of the thermometer in different parts of the house was only 5°. And then, alas! for the first time, personalities were introduced; and these being replied to in a similar manner, you were compelled to state, that while your own opinion was not unfavourable to the system, its discussion had better be discontinued. Thus was the consideration of a subject, deserving strict and immediate investigation, postponed for twelve months, in consequence of its having assumed a personal character. While I do not conceal my earnest desire to establish a system which my physical knowledge tells me is best fitted to attain its end, I sincerely trust that it will not lead either myself or others to the slightest expression of invective.

On the 27th of December, 1845 (more than a year since the last unfortunate communication), appeared a paper signed "C." reviving the subject, pointing its peculiar adaptation to Vine-growing, corroborating the facts previously stated, and expressing a wish to see the attempt extended to other things. On the 3d of January, in the present year, appeared the first Leading Article on the subject, stating that we must not suppose that our system of heating had arrived "at the end of all alteration for the better;" that there were more important considerations yet to be entered on, than the form of a boiler or adaptation of a pipe. While admitting that we heated well, you contended we might do so more cheaply; that while we grew our plants well, we might grow them better; and that the one condition might involve the other, and that the system at Polmaise was an advance in this direction; in fact, your watch-word was the sage one—Advance! You reprinted the plans, explained their mode of action, so far as the principle of atmospheric currents was concerned, and drew fresh attention to Mr. Murray's great and uncontradicted facts. On the 10th, allusion was again made to the subject; you carefully stated that its applicability to stoves had yet to be proved; that the plans might be improved upon; but that Mr. Murray's Grapes were so splendid, they frightened all competitors; you advised those who wished for similar results to try similar means, and drew attention to the several points in the plan which required it. The following week Mr. Rivers, and Mr. Murray's gardener, communicated their experience; the latter gave his reasons for introducing hot air at the back of the house. The same paper contained a letter from Mr. Walker, of Dublin, stating that he thought the demands on the wet blanket would be greater than could be supplied, when the Vine became older; but he gave no reason for his opinion.

On the 24th, Mr. Shearer published a plan, by which a Vinery had been heated since 1840, on the hot-air principle, essentially the same as that at Polmaise, though differing somewhat in its arrangements. Mr. S. states that he sees no difficulty in the system; that the cost of the fuel is very small, its effects all he could wish; that the atmosphere in the house was never oppressive, however high the temperature, in consequence of its motion; that the leaves were moved and the plants in high health. In the same Number appeared a communication from Mr. Ayres, to whom it is fair to remember that he had not seen Mr. Shearer's communication, and who (I bear him willing testimony) is seldom to be seen in the ranks of those whose cry is, "Stand still." He criticised the statements made as to the quality of the fruit being dependent on the mode of heating; he doubted if the Vinery were heated at all. He then attacks the system itself, contends that it will fail to produce high temperature, because another hot air system—not Mr. Murray's! not Mr. Shearer's!—had failed in his hands, and he asks for the solution. It is simple: he had not provided the condition of Polmaise—he had not provided a return cold-air pipe! Would his present hot-water apparatus retain its present efficiency if the return pipes were removed? He asked, What will be saved by the system? He spoke of a hot-water apparatus costing 20*l.*, and then of having spent 70*l.* He said that it will cost from 7*l.* to 10*l.* annually to repair a stove, but does not give any reason, or state what are the cost of repairs in an extensive hot-water apparatus. He informs us that he finds no advantage in a moving atmosphere; but the next sentence informs us that he finds the best results from allowing the ventilation to remain open; and he is, moreover, glad to avail himself of the addition of the celebrated Polmaise blanket to his hot-water pipes. He said that the Polmaise plan is Mr. Penn's; that it attempts to circulate currents contrary to the laws of nature; that it involves a waste of power; that he considers it an unpromising instrument; and while expressing a wish that right should prevail, he attempts to bear it down by the weight of his great name and his high professional character.

On the 31st of January, you replied in a Leading Article to Mr. Ayres' doubts of the Vinery being heated at all; you reminded him of the scorched leaves! It contained a communication from "J. H. H.," contending for the success of the hot-air plans, and giving one of his own. This brings me to the more delicate ground of referring to my own part in these discussions. Of this I will say but little; I will leave others to judge of the merits of these communications, and their power to advance the system for which I have contended. I am quite willing to await results, before asking for any share in the praise of bringing them about. Letters which I have received induce me to think that I have carried conviction to the minds of some; others ask me if it is adapted to their particular case!—one for a greenhouse, one for a stove, one for a conservatory,—while the point which I wish to impress upon your readers is, that I am contending, not for a plan, (not even my own) but for a system, which, if proved

to be true, is applicable not only to horticulture, but to every purpose for which the distribution of atmospheric heat is required, and which may readily be adapted by varying plans, to all the varying circumstances for which it is needed—church, factory, hothouse, stove or greenhouse. I will state how my attention became fixed on this subject, though not myself possessing a house heated on this system. Being a constant reader of the *Chronicle*, I saw from time to time the statements of the great facts I have named; I saw some abusing the system; some contending for it; but none denying the facts; while no attempts were made thoroughly to examine the system by the light of nature and of science, to see whether these great facts were not exactly what we should anticipate if the system were so examined. I felt that previous study of this branch of physics had placed me in a position to aspire to this investigation. It is now before your readers, for them to judge of its accuracy; and I will only add, that every step in the argument has strengthened me in the conviction that it is the most natural and philosophic system for the distribution of atmospheric heat yet proposed. I prognosticate its complete triumph, for it is a step in advance; and I will not asperse the memories of those great men who made this branch of philosophy their study, by supposing that they handed down to us statements as axioms, which are no axioms; and if the laws which they have laid down on this subject be true, Polmaise must triumph.

At an early opportunity I will, with your permission, examine such new adverse arguments as may arise, and also endeavour to produce some further evidence in favour of the system.—*D. B. Meeke, Holmdale House, Nutfield.*

DISEASES OF PLANTS

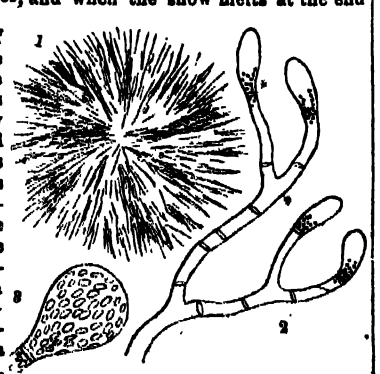
[SNOW MOULD.]

To the same division with Mucor and Antennaria belongs a very curious genus which is developed on the surface of the snow, and which claims notice here merely from its analogy with another production, which may properly be considered as affecting the vitality of plants. It was first discovered, in the north of Iceland, by Thienemann, who has described the genus under the name of Chionyphe; but two other species have since occurred in Germany, one in the neighbourhood of Dresden, and in great abundance. It is developed on the snow in clear weather, when the sun has power enough to melt the outer surface of the snow, without the existence of a general thaw. It appears to spring either from the dung of some animal, or on snow which is impregnated with dung or urine, and soon spreads over the surface of the snow in shining fleecy patches, dotted with the red or green fruit, which resembles that of Mucor. When the snow melts, it is left behind, upon the subjacent Grass, in the form of a cobweb stratum of great delicacy, which soon vanishes.

The truffles have also their representative in the division with which we are occupied, in the genus Endogone, Lk., proposed many years since, but only lately rediscovered in France by Messrs. Tulasne, to whom the credit of its determination is due, and still more recently by Mr. Broome, in Somersetshire, whose discoveries in the undergrown Fungi are of such importance. It grows upon Mosses in woods, forming little downy balls about the size of a Pea, filled with a mass of threads, surmounted by sporangia, exactly as in Mucor.

The plant to which I now wish to call attention, from its analogy with Chionyphe, though of a very different structure, is one figured and described in a late Number of the "Botanische Zeitung," Aug. 16, 1844, under the name of Lanosa nivalis, by Professor Unger of Grätz. Unlike the former, it is developed beneath the snow, and is in certain seasons extremely destructive to grass and corn. The years in which it is most injurious are those when a deep snow sets in without any previous frost, when it sometimes destroys whole crops of corn; and this is so well known to the farmer, that in such seasons it is customary in certain districts to plough up the hard frozen surface of the snow occasionally during the winter. The plant is of a very simple structure, consisting merely of branched transparent and occasionally anastomosing jointed threads, the ultimate joints of the small lateral branches of which at length assume a red tinge and separate at the articulations, producing oblong spores.

It forms white patches a foot or more in diameter, which themselves evidently consist of a quantity of lesser orbicular patches, and when the snow melts at the end of February or beginning of March, assume here and there a red tint, as if partially dusted with red powder. This change arises from the formation of the spores, and the snow is scarcely melted when the whole disappears, leaving behind a withered plot, which according to the greater or less vigour or duration of the parasite, is either completely barren, or at length, if the disease be more superficial, slowly recovers its verdure. In some years the mould is so abundant, that the crops are completely destroyed, and there is no other remedy than to sow the land again. It is more destructive to Barley and Rye than to Wheat, and the more luxuriant the blade, the more subject is the crop to be affected; it is customary, therefore, either to mow off the flag, or to feed it off with sheep. The Barley is sown earlier, it may be observed, than with us, because it is more certainly protected in winter by the deep snow.



1, a patch of snow mould; 2, one of the threads magnified; 3, the end of the latter, containing spores, more magnified.

These plants have not hitherto been observed in Great Britain, but it is very probable that they will be noticed, now that attention has been called to the subject. After the last deep snow, I observed withered patches in the pastures; but I was too late, possibly, to discover to what they were attributable. It is not, however, likely that our crops should frequently suffer from such a cause, at least in the lowland districts, where it more generally lies this winter; should deep snow set in without previous frost, there is every reason to believe that the disease will occasionally appear as in many different parts of Germany.—*M. J. B.*

MIXED CROPS.

1. As you invite suggestions of a substitute for the Potato crop, I send you an account of an experiment which was tried last year by one of the best farmers in this district. He planted his Potatoes as usual, in drills about 30 inches wide, sets 9 inches apart, and betwixt each set a single Bean was planted at the same time; the whole covered up in the usual way; and so treated till the crop was ready. Five bushels of field Beans were planted in this way over an extent of 3 or 4 acres; they were cut when ripe, and produced 60 bushels. There was no apparent diminution of the Potato crop, which, like almost all others in this district, was partially diseased. The two crops grew together and presented a beautiful appearance when in bloom. Both Potatoes and Beans were planted in the beginning of May, and the soil was not of that strong character usually considered necessary for Beans; but, on the contrary, was of a moorish sandy nature, and lately reclaimed from waste. The climate was good. This plan was tried by my friend at the suggestion of the clergyman of the parish, who had seen it practised with success in Dumfriesshire.

Would it not be well to suggest a trial of this plan in Ireland, instead of the total abandonment of the Potato crop? It may be done at little expense, and should the Potato crop fail, the Bean crop will be something to fall back upon, while, if both succeed, which I trust in many cases they will, the people will still have their favourite, and, as yet, indispensable food, with the addition of a more nutritious article of diet. The earlier the crop can be planted the better, so far as the Bean is concerned, though, in the instance above, it was planted so late as the beginning of May.—*James Caird, Baldoon, Wigtown, N.B., March 9.* [The plan of planting Beans among Potatoes has already been *advantageously* tried in Ireland.]

2. A paper of mine on "mixed crops," with a view of finding something to help on Potatoes, and by increasing the quantity of grain, and the productiveness of the soil, enable us to meet any depreciation of price the repeal of the Corn-laws may cause, is now in course of publication in the *Irish Farmers' Journal.* I will, however, now give you a short notice of my system:—I found in experiments last year tried for other objects, and which you will find detailed in the *Agricultural Gazette* of the 15th Nov., 1845, that grain (Barley), sown in rows occupying an areal breadth of 31½ inches, gave a much greater return (25¼ cwt. to the statute acre), than rows at smaller intervals (21 inches), that the outside rows of the same experiment differed but little from them; while the internal rows gave only an average of 16½ cwts., and that the end plants of the rows tillered much more than the interior ones. Similar results attended a patch of Potatoes, the outside rows being superior by one-half to the internal ones. From the unexpected results, and from some other facts, I deduce that we may introduce into our fallow crops rows of grain at wide intervals, without injury to them, and returning us a very respectable crop of corn; for if rows occupying an areal breadth of 31½ inches gave so very heavy a crop (25¼ cwt. of Barley), rows at intervals of double or treble that distance may be expected to give us at least one-half or one-third such crop, while the intervals of from 6 to 8 feet in breadth would give us a full crop of low growing vegetables, as Parsnips, Carrots, Turnips, &c., or even the more lofty and spreading one of Potatoes, but as Potatoes also seem, to some extent, to follow the same rule, they might be made the wide row crop in lieu of the grain, and thus, in the event of the failure, there would still exist a very respectable crop of other vegetables. The ridge or lazy bed culture of Potatoes, you know, is common in Ireland, and, despised as it is, I think it is not so very contemptible [certainly not], and that it has many advantages. The wide furrow of the ridge allows for a free draught of air.

I draw a distinction between simultaneous and successive mixed crops, and I offer you an exemplification in a plan I would recommend of alternating grain, Cabbage, and Potatoes, now in the ridge. I would sow in the centre a row of grain, very thin, on each side of this row, a row of Potatoes, and on brows, or edges of the ridge, rows of Cabbages. In the case of the later Potatoes, I would plant an early Cabbage in autumn, and in the place of the early Potatoes, I would plant the Early Wellington Cabbage to succeed them. The grain and the Potatoes I term the simultaneous crops; the Cabbage with them, the successive crops. I make this distinction because in the simultaneous cropping, care must be taken that one of the crops in the connection does not acquire a too early rankness of growth for the other. With Potatoes, the corn, Parsnips, Turnips, &c. should have the *pas en avant.* I think by thus mixing these three crops, one acre of land would produce as great a return of them as two acres would give, if each occupied the ground separately, and one crop only in the year.

There is a circumstance I should mention; 15 years ago, a rot, and, I think, probably the same disease, commenced in the neighbourhood of Killybegs, in the county of Donegal, but it did not occur till the beginning of May, when the seed rotted in the ground and in the house; the smell of the diseased Potato, and the taste, as well as I can recollect, were the same as in the present disease; it also attacked partially as this has done; it existed for three, four, or five years in a neighbourhood; from Killybegs, it spread northerly, then to Connaught, and afterwards to various parts of Ireland; it reached the county of Leitrim, and the neighbourhood from which I write, only three or four years since, and it has prevailed last year, when many instances occurred.

During the time it prevailed in Donegal, I secured a crop by planting my sets, in the first instance, on a dunghill, and transplanting them out when they were from 1 inch to 4 inches high. Dung-heap 3 feet, covered 3 inches with light earth, sets (they were scooped ones for the greater ease of transplanting) covered with 3 inches. Although many of the sets were completely decayed away at the transplanting, yet the plants did to the full as well, and not a miss in my crop—every other failed. About 2 acres each year were thus planted.—*J. A. M. Goodiff, Gratard.*

Home Correspondence.

Potato Disease.—I have upwards of 24 lights in pits of Potatoes which will be ready for digging next month. I have dug four lights of Potatoes that were planted at the end of November; I am glad to say I only found one young Potato that had a sign of disease; it grew in the middle of the bed under a broken square of glass; the soil was wet—all the rest of the soil I gave no water to. When the Potatoes were ripe, the *soil was as dry as the dust on the street.* I think, as far as I can judge, it is a good plan not to water the Potatoes under glass this season, and to ferment the dung or leaves well before it is used. My employer, Lord Cottenham, told me that what I had sent to his table of this year's growth, were very good.—*Geo. Urquhart, Copse Hill, Wimbledon.* —— Although there be no certainty of the Potato crop for the present season, still some think otherwise, and even say that diseased sets will produce healthy crops, provided we have a good summer. Lately, however, I put some diseased Potatoes into pots placed upon a warm flue in the sun, which grew most vigorously, as if the tops were nursed by the decaying Potatoes. But yesterday the disease began to appear on the leaves, and to-day it is so increased that I fear that the stems will soon be as rotten as the Potatoes that produced them.—*J. Wighton, Norwich.*

Potato Disease, began in 1844.—In November last I planted in sand, in boxes, Potatoes which were grown in 1844, and had been kept up to that time in an inner closet in one of the out-houses where I usually keep my winter stock. Some of the boxes are in the greenhouse, and others in a closet in the house, but the result has been the same. The shoots died away by being confined in a dark room, consequently no more appeared above ground since they have been planted. Some of the tubers have produced entirely diseased Potatoes, *i. e.* all on that tuber are bad, and other tubers have produced all healthy young ones. My stock of Potatoes last year was produced from the same seed. Those planted in a light soil were only partially diseased, whilst the same planted in a more retentive soil were half diseased. Some American Natives were planted at the same time by the side of those grown in the sandy soil, and entirely escaped, whilst some American Natives which were planted in the retentive soil (but later) were very much diseased. From the above-mentioned experiment I am brought to the conclusion, that the disease existed in 1844; because the Potatoes planted in November were not influenced by the atmosphere, or by the wet season. But, on the other hand, how is it that the American Natives should be free from disease in a light soil, and not in a retentive soil? Could the American Native seed be tainted, but the disease prevented by being planted in a light soil early, and matured before the excessive wet weather set in? The Potatoes which were planted in November last had been in a damp closet, and the small tubers formed before they were put into sand; I am therefore led to suppose that the damp, unwholesome room, had encouraged the disease in the same way as the wet, retentive soil did. A question arises in regard to the American Natives as to the seed being tainted; unfortunately I had none in the closet with the others. I find cutting off the end of the Potato, with the eyes, to answer perfectly; those cut off in November, and planted in the ground in December, have shoots an inch long.—*George Swan, Garnston, near Ratford, March 7.*

Variegated Kale.—In my neighbourhood are some early Cabbages, so exceedingly beautiful in appearance as to have attracted the attention of everybody; they were raised from seeds of the common early Cabbage,

and before the plants were purchased by their present owner, and transplanted, they were not remarkable. Each of the leaves I enclose is from a different plant; they can give you, even if they arrive in tolerably good condition, but little idea of the extreme beauty of their colours; some are quite white; some white powdered, with deep green spots; some edged; some of a beautiful greenish white have leaves veined with Peach blossom, edged with dark green, &c. We know of no red Cabbage within a mile and a half of the spot where the parent plant was grown (for they are all of the same plant). Is this a common circumstance? If not, tell me if this beautiful variety (more fit for a greenhouse than a Cabbage garden) can be preserved.—*X. Y. Z.*

[This is the neglected variegated Kale, sometimes called Ragged Jack, and may be perpetuated by sprouts or cuttings of its stem. We agree with you in thinking it beautiful.]

Polmaise Heating.—I have perused with attention Mr. Meeke's papers on Polmaise heating, and I cannot avoid the conclusion, that he confounds relations and functions which are perfectly distinct in their nature and objects, and do not admit of a logical comparison. He seems to compare water, as an instrument or means of conveying heat, with air; not as air instrumental or the means of conveying heat, but as the subject which is itself to be warmed. To have instituted a just comparison, the terms of it should have been as between water inclosed in a metallic pipe or case, as a medium for conveying heat to the said pipe, and air similarly inclosed for the like purpose of conveying heat to its metallic envelope. In either case the metallic surface is the ultimate point at which the heat is given off; and it matters not (so far as the air of the hothouse which is to be warmed is concerned) whether the heat has been conveyed to the metallic surface through the medium of water or air, or by the direct action of fire, provided the area and temperature of the heated surface exposed to the contact of the air be the same in each case. Radiation is just as active and effectual from a metallic surface, heated through the medium of water, as any other medium; but I cannot see that radiation has anything to do with the question of warming the air of a hothouse by one method more than another. I do not pretend to more than a superficial knowledge of the science of heat, but if there is one fact which my reading has impressed distinctly on my mind, it is, that the temperature of air is not in any notable degree directly affected by radiated heat. Heat is radiated from the sun to the earth, and the objects are not; and comparing small things with great, heat is radiated from the fire of a room, or from the heated surface of a stove, to all the solid objects of or in the room; but the air, through which the rays of heat are transmitted from one object to another at a distance, remains comparatively unaffected by them; and its own temperature is only raised by its particles coming in contact with the objects to which heat has been transmitted, and then from one particle of air to another by circulating currents. But all this is conduction, not radiation; and the precise advantage of the Polmaise system is, that it facilitates the conduction of heat among the particles of air, by causing a rapid circulation and bringing fresh particles of air into momentary contact with the heated surface, whether it be the plates of a stove heated by a fire or a pipe heated by hot water.—*J. H. H.*

Hereman's Dilutium.—At page 76 of the "Journal of the Horticultural Society," and also in an extract in the *Chronicle*, I perceive that Mr. Hereman's Dilutium for destroying the mealy bug had been used in the garden of the Society, and that "in a few days after its application Mammillaria gracilis died, and all the other plants were more or less injured." Surely some error must have been committed in applying this liquid, as I have used it for some time past for various plants without any injury, while to every insect which it touches it is certain death. Since the account appeared in the "Journal," I have applied it to the tender growing shoots of various stove plants, such, for example, as Ixoras, Clerodendrons, Exostemas, Limonias, and several other plants, without washing it off, as Mr. Hereman directs, and yet it did no harm. My neighbour, Mr. W. Barnes, has used it since it was first sent out, and though he found it to injure very tender shoots if not washed off in time, he is so convinced of its value that he would on no account be without it. The only objection which Mr. B. has to it is the expence, but as Mr. Hereman now sells as much for 1*s.* as he formerly charged 5*s.* for, Mr. B.'s objection is removed. At the present time sufficient to dress a tolerably large collection of plants may be procured for 1*s.*, so that no one need be without it. For my own part, I consider it invaluable.—*W. P. Ayres, Brooklands.*

Cinerarias.—A correspondent has suggested the propriety of offering medals of higher value than are now given for Calceolarias at the Horticultural Society's exhibitions, on the grounds of their great beauty and still further capability of improvement. I have no intention of detracting from the merits of the Calceolaria in recommending the Cineraria as equally worthy of favourable consideration by those who arrange the schedule of prizes. Few plants are more useful in a garden than the Cineraria, for it might be had in bloom if desired, during the greatest part of the year, and when in bloom there are few plants more showy. Would it not, then, be advisable another year to offer medals (even if of small value) for the best six Cinerarias of distinct and good varieties.—*Cineraria.*

Vine Growing without Artificial Heat.—As an active controversy is now occupying your columns as to the best method of heading greenhouses, I believe I can give your Grape-growing readers, at least, some information on the subject; in which I hope to show that the finest Grapes may be matured in this country without the aid of artificial heat. I have two Vineries, each about 20 feet by 10, both heated by hot-water pipes; one house having the addition of a few loads of tan. The Vines are chiefly Black Hamburgh, Black Prince, and Sweetwater. As the Hamburghs did not colour to to my satisfaction, I tried the experiment of inarching on the Black Prince; and I think I gained something in colour by the trial. But being still dissatisfied, I erected a small glass house on the south-western side of the dwelling-house. Here I introduced from the garden a branch of a Sweetwater, on which I inarched a Black Hamburgh. The result was that, in the second year, I obtained from this Vine, without artificial heat, Grapes not only superior to any in my other houses, but which carried the first prize at the last Horticultural exhibition at Maidstone last year, against 15 competitors from some of the best Vineries in that part of Kent.—*A Subscriber, Bearsted-house.*

The Season.—This day (March 9), I have seen trees of the common English Laurel in full flower, and Portugal Laurels are putting forth their leaves. These facts are the more extraordinary, because I never remember a winter during which the greater part of the year's growth of wood was not destroyed, most especially of the former species, thus rendering the time of flowering and growth very late in the year. Snowdrops have passed away several weeks since; the Crocuses are nearly over. Shoots of climbing Roses are 6 or 8 inches long, and on one small plant are two buds. Paeonia moutan, which flowered here the end of last May, is in large bud; Salvia splendens and Grahami have stood out unprotected through the winter, and look well; the Fuchsias, generally cut down to the root, are now in full leaf to the end of their long stems; Hyacinths are in bloom in the open ground; Primroses have put up a succession of flowers since Christmas; Honeysuckle, of various kinds, is in large bud; and, in short, this place, much exposed, wears the appearance of early May.—*S., near Lancaster.*——By way of further illustration of the extraordinary precocity of the present vernal season, it will be interesting to know that in an afternoon's walk this day, I perceived the following plants in bloom, several of which anticipate, by a full month, their usual period of flowering:—Narcissus pseudo-Narcissus, Hyacinthus non-scriptus, budding; Oxalis Acetosella, Ruscus aculeatus, Glechoma hederacea, Cardamine hirsuta, Draba verra, Sarothamnus Scoparius, Myosotis collina, Veronica Chamædrys, V. hederifolia, Luzula campestris, Carex præcox, and many others. Ranunculus Ficaria, the earliest herald of advancing spring, was in bloom Feb. 1; not, however, as Wordsworth says:

> Telling tales about the sun
> When we've little warmth or none,

but whilst we were in the enjoyment of the most agreeable temperature. Corydalis claviculata has been flowering beautifully throughout the winter, particularly in Stopham Hanger, where it has climbed a length of 4 or 5 feet, and is still advancing. "Blackthorn winter" has commenced with us these three weeks, and many a Hawthorn hedge is clothed in tender green.—*F. A. Malleson, Pulborough, Sussex, March 7.*

Manure for Cabbages.—The following hint might be acceptable to cottagers and other growers of Cabbages:—Instead of wasting manure in setting the plants, as soon as they are well established open as large a hole as you can with a Potato-dibble, or any good substitute, and fill the opening with soap-suds, chamber-ley, soot, or other similar compound brought to the consistence of tolerably thick paint, or such as will just pour from a watering-pot with the rose off. If a tank of liquid manure is at hand, thicken it with soil, sand, sawdust, or other available substance; nothing can be better, and certainly nothing so economical. All kinds of Cabbage are greedy of salt in weak solution. Make the hole close to, but not to touch the plants. As soon as one row is finished, beginning at the first hole, turn a portion of the adjacent soil into the hole with your shoe or any gardening instrument. One dose, if properly administered, will do.—*Probatum est.*

Weekly Prices of Potatoes per ton, in *Covent Garden Market*, in 1845, and 1846.

	1845.			1846.	
Feb.	8	50*s.* to 80*s.*	Feb.	7	70*s.* to 160*s.*
	15	50 80		14	70 160
	22	50 80		21	70 160
March	1	50 80		28	70 160
	8	50 90	March	7	70 170
	15	50 90		14	70 170

Also at the waterside, *Southwark.*

Feb.	10	55*s.* to 80*s.*	Feb.	9	50*s.* to 120*s*
	17	55 80		16	50 120
	24	55 80		23	50 120
March	3	55 80	March	2	60 140
	10	55 80		9	60 140

Societies.

STAMFORD HILL, CLAPTON, & STOKE NEWINGTON GARDENERS' ASSOCIATION.

Jan. 19.—Mr. Merry in the chair.—Mr. Crichton, gr. to J. Foster, Esq., read a paper on the culture of Achimenes and other plants belonging to the natural order of Gesnerads. This order Mr. C. stated to contain several genera of great interest, five of which, namely, Achimenes, Gesnera, Gloxinia, Rhizinia, and Niphea, he would treat of collectively. Beautiful, says Mr. C., as are the whole of them, the Achimenes are the most attractive; their dwarf bushy habit, brilliant flowers, and the length of time they continue to bloom, render them worthy of our care in cultivating them for the greenhouse or conservatory. The species longiflora, grandiflora, pedunculata, rosea, and picta come from Guatemala; and coccinea from Jamaica; the other four genera are natives of the West Indies and of South America. They all like a stove heat, but they may also be grown without such convenience, for most of the Achimenes and several of the Gloxinias will attain a high degree of perfection in a Cucumber-frame. The compost I employ is light sandy loam, turfy peat, and rotten dung, in equal parts, with a little silver sand; these are mixed well together in the autumn previously to being used, allowing the mixture to remain exposed to the action of the air till wanted, but protected from rain. These plants are all readily propagated from under-ground tubers and from leaves; where the latter are preferred they should be inserted in sand and peat and covered with a bell-glass, plunging the pots in a hotbed; the bell-glass should be wiped dry every day until the plants are rooted, when it should be removed altogether, and air given to encourage their growth. In order to keep up a succession of blooming plants from April till the dark months of the succeeding winter, some are started at different times in spring, commencing about the middle of January. The bulbs are taken out of the dry soil in which they have been stored, and are potted singly (choosing the strongest), in 3-inch pots, well drained and filled with the above-mentioned soil, placing a little silver sand round each bulb. Gloxinias, Gesneras, and others which grow from the same bulb every year, are placed in pots just large enough to admit of their annual growth. After receiving a little water they are placed in a hotbed or house where the temperature ranges from 60° at night to 70° by day, and the fermenting material in which they are plunged from 75° to 80°, not higher, as either excess of heat or water at this early stage of excitement would be injurious. When the pots become filled with roots they are shifted at once into those in which they are to be flowered. The Achimenes have the best effect when grown in masses; this is done by taking four plants out of small pots, and planting them in a larger one or in a pan, of a foot in diameter or so, in proportion to the size required, with 2 or 3 inches of potsherds in the bottom, to secure perfect drainage; the top as well as the bottom heat is now raised to about 80°, keeping up a moist atmosphere: the Achimenes are syringed frequently, and air is given at every favourable opportunity, and water when necessary, but the latter with care, as many of the fleshy-leaved kinds are easily injured by too much water. When small pots are employed liquid manure is given twice a week, but never before the roots have completely filled the pots; while growing they are kept as near the glass as possible, removing them when in bloom to the greenhouse, but taking care not to expose them to cold draughts; shading is sometimes necessary to preserve the flowers. For winter-blooming Achimenes picta, Niphea oblonga, Gesnera zebrina, lateritia, oblongata and bulbosa, are employed; but although the others are not seen in bloom in the dark months of winter, Mr. C. believed them to possess capabilities for that purpose, provided a proper course of treatment were adopted. After they have done flowering water is partially withheld, and when the tops have died down the roots are removed to any place free from frost and moisture till they are wanted.—Mr. Merry remarked that he started the bulbs before he took them out of the store pots, he then planted three in a 5-inch pot (three of which pots he shifted into a 9-inch pot as soon as they were filled with roots); he believed that they might be flowered throughout the whole year.—Mr. Kendall recommended pans for Achimenes. He said that the best method of propagating Gloxinia was to lay the whole leaf under sand, and from it a number of plants would be produced.—Mr. Crekford disapproved of much shading or syringing, as both tended to elongate the young shoots; the best specimen of Achimenes he had ever seen was grown in a pan. If pots were used the soil should be poor and porous, or the plants would expend their energy in the formation of tubers.—Mr. Tant remarked, that out of a number of very healthy plants of Achimenes grown by him, the only one that did produce tubers at all grew in nothing but sand and charcoal.—Mr. Wren had always found the different kinds of Gesnera to do best in soil rather stiffer than what he used for Achimenes. He never syringed his plants.—Mr. M'Donald thought the bulbs of Gloxinia should not be kept in a low temperature while at rest; he had lost several, and attributed it to the temperature of the place, not being above 40°, but had never lost any when placed on a shelf in the stove.—*W. Sherwood, Hon. Secretary.*

Reviews.

Phycologia Britannica, or a History of British Sea-weeds. By William Henry Harvey, M.D.

Three Numbers of this beautiful work have now appeared, with which such of our readers as may not have met with it will thank us for making them acquainted. The drawings are beautifully executed by the author himself on stone, the dissections carefully prepared, and the whole account of the species drawn up in such a way as cannot fail to be instructive even to those who are well acquainted with the subject. The price, too,

half-a-crown for each fasciculus of six plates, is extremely reasonable.

A few only of the more recent discoveries have been figured in the supplementary numbers of English botany, and the gleanings of British Algæ, and matter of the most interesting description is daily coming in from various quarters, so as to make such a work absolutely necessary, besides which, the greater part of our more common Algæ have never been illustrated in a manner agreeable to the present state of Algology. The curious fructification of the common Fucus vesiculosus, though partly discovered many years ago at Appin, by the late Capt. Carmichael, without the aid of improved lenses, is probably unknown to many botanists; and the same may be said of many points which have not been clearly understood till very lately. More than a third of the species in the three Numbers which have appeared have not before been figured, and some are very recent acquisitions to the British flora.

We are sorry that Mr. Harvey does not include the fresh-water species within his plan, as, notwithstanding the excellence of many of Mr. Hassall's figures, there is still much room for illustration as regards synonymes and affinities, and we fear that the late attempts by Kützing and others to place the genera upon some surer footing, are calculated to aggravate the difficulties which attend their study rather than to relieve them.

New Garden Plants.

17. Epidendrum nævosum. Freckled Epidendrum. *Stove Epiphyte.* (Orchids.) Oaxaca. Mrs. Lawrence.

Sp. Char.—Pseudo-bulbs oval, 3-leaved along the sides. Leaves leathery, lanceolate, spreading, about 3 inches long. Scape longer than the leaves, erect; raceme drooping, close, with long narrow bracts not much shorter than the ovaries. Sepals and petals white, alike in form and size, linear-lanceolate, turned to one side. Lip oval, free, a little narrowed at the base, quite entire, with glandular or warted veins and midrib; yellow with numerous purple freckles.—*J. L.*

This pretty little species has flowered in the collection of Mrs. Lawrence, who received it from Mexico along with Barkerias, Lælias, and other plants. It is nearly allied to the Barkerias, which are apparently only a form of the genus Epidendrum, or, at least, hardly distinct from the Encyclium division, from which they are principally distinguished by the absence of pseudo-bulbs. The freckled appearance of the yellow lip is very remarkable. Mr. Robertson informs us that the specimen sent us had been in flower upwards of two months. —*J. L.*

18. Silene Schafta. The Schafta. *Hardy Perennial.* (Cloveworts.) Siberia.

This proves to be a beautiful little herbaceous plant, producing a great number of spreading slender downy stems, which form compact tufts, and are terminated near the extremity by four or five bright purple flowers more than an inch long. Of these flowers, that at the extremity of the shoot opens first, and those below it one after the other in succession, so that the branches are by degrees covered all over with blossoms. Its stems do not rise above 6 inches high, and render it well suited for bedding out, or for cultivating in pots among collections of Alpines, or for decorating rockwork. It grows in any rich soil, and is increased by seeds, which are produced freely, and flowers from the end of June to October: the young plants from seed will not bloom before the second season. This species must be regarded as a very handsome small plant for rockwork, and very desirable on account of its blooming profusely and for a long time in the autumn.—*Journal of Horticultural Society.*

Garden Memoranda.

Messrs. Godwin's Nursery, Market Drayton.—In visiting this establishment we were struck on inspecting a house appropriated to the forcing of Roses, amongst numerous others to see the Persian Yellow in great perfection, its fine glossy dark green foliage contrasted finely with the dark rich gold yellow of its flowers, which were very double and perfect. It had been observed during the last Rose season in the open borders, both at Messrs. Lane's and Rivers', very good, but its adaptation for forcing has been doubted; any doubt, however, on this score will be entirely removed on seeing the specimen in question, the blooms of which were much larger, and every way superior to those seen in the open air, so that it proves itself a valuable acquisition to the lover of forced Roses. This specimen produced its blooms principally near the ends of the shoots, which in some measure detracted from the beauty of the plant. This, however, Messrs. G. thought might have been entirely obviated had the ends of the shoots been trained or bent down so as to have checked the rapid flow of the sap to the extremities, and, consequently, have predisposed it to have given out a more regular and liberal supply of bloom. Paul Joseph (Bourbon) seems to force well, and with its rich deep velvety crimson hue, offered a striking contrast to the preceding, by the side of which it stood; its habit, however, is rather too stiff, and it is apparently of less vigorous growth than is desirable. Hybrid Perpetual Comte d'Eu with its fiery carmine flowers seems to force equally well. This, evidently belongs to the Bourbon group, and with a free and graceful habit, and exuberant foliage, is certainly one of the most beautiful of Roses; the head of this was regularly covered with bloom, and it seems particularly well adapted for pot culture. Bourbon Gloire de Paris was also fine, but there was somewhat too much of a dingy purple tinge in its petals to render it an universal favourite. Amongst the most prominent of this group was the old favourite Queen of the Bourbons. This forces remarkably well, and for the rapid reproduction of its flowers throughout the entire season stands unrivalled. Reine des Vierges was not sufficiently advanced to warrant an opinion of its merits. Lady Alice Peel (Perpetual) is most beautiful, and forces admirably, producing an abundance of perfectly formed blooms, and emitting an inimitable fragrance. It was, however, difficult to single out those most beautiful, as there are now so many fine varieties in these interesting classes, particularly Hybrid Perpetuals, and Bourbons. The house in which they are growing is heated by hot-water pipes. The method of propagating them here is in a mixture of charcoal-dust and silver-sand, with apparently good results.—*Z. L.*

Miscellaneous.

Suggestions about Cabbages.—An article in the *Irish Farmers' Journal* of the 10th December, 1845, condemns the practice of leaving on all the sprouts on the stumps of Cabbages when the heads are cut off; and recommends, "that when the sprouts begin to come, they should be all rubbed off but the best, or at most two; but if there be only one left to grow on each stump, it will grow faster and better, and be occasionally as good as the first head that was cut. When a Cabbage is cut, the leaves should be cut off the stem; and, as soon as the buds of the stump begin to grow, rub off or cut all but one of the strongest and best to grow into a head, which it will do in an incredibly short time, equalling, and more frequently excelling, the first head itself." Now, we see the stumps of Cabbages thrown away; not even made manure of, and of which they make the best. This year, particular care should be taken of them; and, in the neighbourhood of gentlemen's gardens, the refuse stumps of the earlier Cabbages should be given to the poor for the purpose of planting. Wherever early Cabbage can be obtained, they should be prepared for planting; as Cabbaging in May and June, and in the way recommended above, gives a second head in July. It is very customary to plant Cabbages on the edges of Potato ridges; it is not, then, a great innovation to recommend only a single row of Potatoes in the middle of each bed for some of the late Potatoes, and to plant the rest of the bed with Cabbages. If the beds are made 3 feet wide, and the furrow half the width, and a row of Potatoes planted along the middle, or even two rows and a row of Cabbages on each brow, the whole would come to perfection, and as many Potatoes would be produced as if the whole ridge had been planted with Potatoes. In making the furrow half the width of the ridge, and throwing the whole of the earth out of it on the ridge, an artificial depth is given to the ground; thus, if the surface is 8 inches deep, there will be 12 inches of surface on the ridge, and the great breadth of the furrows will allow room for digging it, and, by so doing, loosen the subsoil. By pursuing this plan three years in succession, the whole subsoil would become loosened, and a considerable depth of soil obtained; while, during the operation, no crop has been lost, and every year the crops have had the benefit of a deep soil on the ridge.—*Mr. Goodiff, in Irish Farmers' Journal.*

Destruction of Rats, Mice, &c.—Some gardeners are in the habit of employing arsenic for poisoning Peas, Beans, grain, meat, &c., which they put in places frequented by rats and mice. This practice is exceedingly dangerous for other animals, and likewise for children. It is a much more simple and far less dangerous plan to rasp or crumble some bread, and mix it with equal quantities of powdered quick-lime and sugar, and lay small parcels of this mixture in the way of rats or mice. These, being very fond of sugar, eat the powder, and the liquids of the stomach, coming in contact with the quick-lime, produce an effect analagous to that produced by water on this substance; it becomes quenched. The violent inflammation which results causes death; and this may be accelerated by placing a vessel full of water within the reach of the animals.—*Revue Horticole.*—‖

Account of Various Substances found in the Guano Deposits, and in the Vicinity, by E. F. Teschemacher, Esq.—In the course of researches on the coast of Africa for saltpetre, in the neighbourhood of the deposits of guano, various other substances were discovered, which Mr. Teschemacher has described and analysed. The first substance examined, found at present only in small quantities, and described, was the phosphate of ammonia in a crystallised state. The next substance was the bicarbonate of ammonia, also found crystallised, of which the analysis is given. The third substance described was a new mineral body well-known in the laboratory as an artificial compound, viz., the ammonio-magnesian phosphate; this, however, was found in patches in the guano beds in crystals of a considerable size. The primary form is the right rhombic prism, of which Mr. Teschemacher has given the measurements taken by the reflecting goniometer; the analysis follows; and then the importance of this compound is pointed out as an ingredient in manure, as containing ammonia and phosphoric acid in a state insoluble in water. The last substance described was composed of carbonate of lime and magnesia and phosphate of lime, and found imbedded in guano; it consists of concentric laminæ slightly adhering together, and had the appearance of an organic structure. It was supposed to be derived from remains of bones and shells partially decomposed. —*Chemical Gazette.*

CALENDAR OF OPERATIONS.

(For the ensuing Week.)

CONSERVATORIES, STOVE, &c.

At no period of the year, perhaps, is caution in the use of fire-heat more needed than in the month of March. March winds are proverbial, and March suns are at times intensely bright. Now, as these winds are by no means to be desired in hothouses, the very best plan is to keep down fire-heat at the lowest possible pitch all the morning; and, where forcing is going on, to have a lively fire for a couple of hours in the afternoon —say from three o'clock until five. By these means the necessity of giving much air will be obviated, and the climate within maintained in a most wholesome state as regards moisture, &c. Frequent attention is necessary at this period, both to the giving of air and also to the taking it away gradually. A smart reduction should be made soon after noon in forcing houses, and the whole should be taken entirely away as soon as it is considered safe. Canvas shading will be in great requisition also. Conservatory plants to be retarded, Camellias making growth, Pines in a delicate state at root, whether from disrooting or otherwise, and even the late Vines swelling their buds, will be benefited by a little shade during bright sunshine. *Conservatory.*—Shading will now be of the utmost importance; Camellias growing should be so placed as to receive both more shade and also more atmospheric moisture than the general inmates of this house—they are, in fact, far better in a little close house by themselves, which should be kept up to 70° by day and 60° by night, receiving much the same treatment as Orchids at this period. Large specimens of Fuchsias should now receive very liberal shifts; in fact, with well-regulated potting, and thorough drainage, they should be placed in their final pots or tubs at once. *Stove and Orchidaceous-house.*—Growing Orchids will now require shading for a couple of hours during bright sunshine, for fear of too copious a perspiration; also in order to retard Dendrobiums, &c., in blossom; the latter however will do extremely well in a dry warm parlour or drawing-room, only they will require a good watering at the root occasionally. A very moderate amount of atmospheric moisture will suffice for these plants when in flower; the growing specimens must at this period have a considerable increase. *Mixed Greenhouse.*—Now is a good time to sow imported or home-saved seeds of tropical plants. Half fill the pot with drainage—use peat, loam, and silver-sand, in equal parts. Water them thoroughly, but slowly, with a fine rosed pot, and cover their surfaces with a good coat of sphagnum. They may be placed on a warm shelf in the shaded part of the house. Some of the growing Ericas may be shifted now; use abundance of drainage and sandy-heath soil full of fibres; thrust it in lumps round the ball, now and then forcing down pieces of stone or lumps of charcoal, and finally coat over the surface with some of the finer portions of the soil, which should have a liberal amount of sand. The ball must be moderately moist before shifting, for if thoroughly dry, no after watering can bring it right. Pot Cape or other bulbs as soon as the foliage is getting strong—use chiefly loam, leaf-soil, and silver-sand. Dress Pelargoniums and stake them out; slip off all inferior and ill-placed shoots, and make cuttings of them, they will flower well through the autumn. Lisianthus Russellianus should now have a liberal shift, with much drainage; and should be placed in pans of water in a Cucumber-frame, or other situation where there is a moist heat. Attend well to watering. Be shy however in watering newly-shifted things; do not water these heavily; give them a little and frequently, through a rosed-pot, until they become well rooted.

KITCHEN GARDEN FORCING.

Pines.—The utmost attention will now be requisite as to shading, and the management of bottom heat where tan is employed. Where there exists the least suspicion of burning, let something be done to stay it, without a moment's delay. The best way is to move the pots to and fro until they are detached in a great degree from the tan; they can be pushed straight again by a couple of poles, when all danger is over. Any newly-potted stock in which the roots are defective, should be well shaded. Fruiters in a strong and healthy state will require liquid manure. Beware, however, of watering newly-potted stock; give them smart syringings instead, about three times a week, and shut them up with a powerful solar heat of 80° or 90°. *Vineries.*—Pursue close stopping in the early house, until the berries begin to colour, when the shoots may be allowed to ramble awhile if so inclined. Late Grapes now swelling, would be better, in my opinion, if they could be shaded on sunny days; under the influence of a powerful sun, the sap becomes hurried to the extremities too rapidly. Moreover, the temperature becomes altogether too high for a steady equalisation of the sap. Keep the wood constantly softened by the application of moisture. *Peach Houses.*—As before; attend well to stopping, disbudding, and a free circulation of air at all times, and pursue the same principles with those now commencing to force, as recommended for the earliest house; only this advanced period will require a greater amount of atmospheric moisture. *Cherries, Figs, &c.*—See former Calendars. *Forcing-frames and Pits.*—Continue stopping attentively all Cucumbers and Melons; use plenty of water round the sides of the frames, and round the hills as long as the bottom-heat will allow it. Give air early in the morning, and shut up as early as possible, syringing the plants slightly with warm water soon after the houses are closed—say about 3 o'clock. At-

tend well to successions of Melons; do not allow them to become stunted; they are never the worse for age if this be guarded against. Give Kidney Beans very free waterings with liquid manure; stick them if requisite, and syringe them two or three times a day; keep them in a light situation, with a humid atmosphere. Give Strawberries abundance of both air and manure-water. Thin out succession crops in due time where set too thickly.

KITCHEN GARDEN AND ORCHARD.

Keep an eye to seed-sowing as in last Calendar; get grafting also completed. Prepare a fresh plantation of Globe Artichokes if necessary, by deep trenching, and high manuring, for if encouraged in this way they will, by judicious thinning, keep much longer in bearing. Keep up a succession of Lettuces, and get those raised in boxes in heat, pricked out in a warm situation, highly manured. After planting out the winter Cauliflowers, there generally remains a quantity of small plants; these, if pricked out in a cool and shady border, on rich soil, will make a succession, and form the connecting link between the principal winter plants and the spring sown ones. Silver-skinned Onions should now be sown for pickling—the poorest soil in the garden is the fittest; work it when dry; throw it into high beds—the higher the better—and after sowing thickly, tread it as hard as a turnpike-road if possible. Top-dress Hautbois Strawberries in beds, also other kinds where the ground is somewhat exhausted, as soon as the old leaves are cut away, and the plants thoroughly dressed. *Orcharding and Fruit-trees in general.*—Finish off all nailing of wall-trees, and protect all possible. Tie down a good many of the weak and short-jointed branches of Pears and Plums on walls, or dwarfed Espaliers. This will be found much better than the old or spurring-back method. In the meantime cut away all over-luxuriant wood close to the stem. Destroy all insects before the trees bud. Clear away all scale, &c., using a wash, composed chiefly of clay-water and sulphur, on trees liable to insects.

FLOWER-GARDEN AND SHRUBBERIES.

The weather being unusually fine, and vegetation very forward, the mowing of lawns will have commenced in many places. I may perhaps be allowed to repeat, that where "high dress" is to be carried out, it is of the utmost importance to take every possible means in the spring to ensure a permanent green sward through the summer. Lawns, or portions of them, having a hungry sandy soil, and liable to "burn," should have a slight dressing of some kind every spring; even common soil will benefit them, as it induces another tier—if I may be allowed the term—of surface roots, of course increasing their volume. However, a dressing of marly or clayey soils in a highly pulverised state, would obviate the tendency to "burn." A slight dressing of guano has a capital effect in such case, having considerable saline properties. Those who desire to have Moss and Provins Roses through the whole summer should now cut back a portion for that purpose, merely pruning away the parts which have budded. Superfluous suckers of Roses, Lilacs, &c., may be removed, and planted out for successional stock, and the old stools of Roses richly top dressed. The pruning of Roses in general must forthwith be completed.

FLORISTS' FLOWERS.

The late frosts have proved the necessity of attention to protection, which has, of late, been so often urged; from the forward state of Tulips, Auriculas, &c., they are very much more susceptible, and it will doubtless prove an awkward blooming season. Auriculas will require double mats over the frames whenever there is any indication of frost, for, should the trusses of expanding flowers meet with a check, they will rarely expand satisfactorily. A moderate supply of soft water may now be given whenever necessary, and where there has been no opportunity of top dressing the plants with rich compost, an application of Brain's liquid guano about every ten days will be found highly beneficial. *Ranunculuses.*—Seedlings which are just out of the ground are extremely tender; the boxes or pans in which they are sown should be placed in frames, though all air must be given as often as possible, to prevent their becoming drawn. *Carnations and Picotees* are "spindling" fast; these may be removed if they have flower buds on them, and one of the strongest lateral shoots encouraged to take the lead. In procuring fresh varieties, do not forget the Rose Picotees, which are not only beautiful, but extremely fashionable amongst florists. Fanny Irby (Wilson's), Princess Royal (Wilmer's), Mrs. Barnard (Barnard's), Ivanhoe (Crouch's), Correggio (Wilson's), Queen Victoria (Green's), will be found amongst the best. *Tulips.*—The beds may now be gone over carefully, breaking the surface soil with the hand, at the same time exposing any leaves which may have the canker, to the full action of light and air. Attend to covering as occasion may require. *Pinks.*—Vacancies in beds should immediately be filled up, others may be potted off in large pots for blooming.

COTTAGERS' GARDENS.

Follow up sowing the necessary crops as in the kitchen-garden portion of the Calendar. Carrots and Onions on trenched ground, the manure in the bottom. Sow a little Celery on a warm slope; throw small sifted ashes over the surface to prevent the depredations of slugs, and cover up with a little litter. Celery seed must be kept constantly damp, and the bed should be very rich. All grafting should be finished off hand; the cottager would do well to graft a few leading shoots in his Thorn hedge with the new Scarlet Thorn. Potato planting should be proceeded with, both with the early kinds and the late; although it has been too much the practice to set the late crops in May, and even June; the consequence of which is, that the seed is never ripened as it ought to be, and this circumstance (coupled with fermentation in bags or pits) is at the bottom of all that tenderness of constitution that renders the plant an easy prey to any disease. The cottager should sow a few hardy annual seeds directly, plant out his Carnation layers, finish planting the Ranunculus, and attend to his flower-beds generally.

FORESTING.

March winds and bright sunshine are very trying to new plantations; these should now be looked over, and if any young trees are loosened by the winds they should be instantly made firm by treading well when dry, and if necessary, covering with a little fresh soil. It is advisable to dip the roots of forest trees (in late spring planting) in a very thick puddle; this is highly necessary in March. See that all trimmings are cleared away before the trees begin to shoot.

State of the Weather near London, for the week ending Mar. 12, 1846, as observed at the Horticultural Garden, Chiswick.

Mar.	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 6	8	29.720	29.549	53	41	47.0	W.	.02
Sat. 7	9	29.777	29.715	53	28	40.5	W	
Sun. 8	10	30.018	29 777	54	24	39 0	N.W.	
Mon. 9	11	30.205	30 105	58	27	41.5	S W.	
Tues. 10	12	30.388	30.268	58	29	43.5	N W.	
Wed. 11	13	30.544	30.497	57	26	42.5	N.W.	
Thurs. 12	14	30.600	30 580	48	26	37.0	N.E	
Average		30.193	30 064	54.1	29.0	41.5		.02

Mar. 6—Fine; overcast; fine; slightly clouded at night
7—Overcast; very fine, with light clouds; very clear; frosty
8—Clear; cloudy and fine, clear and frosty at night.
9—Frosty; fine, with sun; partially overcast
10—Frosty and foggy, fine; clear; slight frost
11—Foggy; very fine; clear and frosty at night
12—Foggy; very dense fog in forenoon; clear; slight frost.
Mean temperature of the week 4 deg. below the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Mar 21, 1846.

Mar.	Aver. Highest Temp.	Aver. Lowest Temp	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds N.	NE.	E.	SE.	S.	SW.	W.	NW.
Sun. 15	50 6	38.6	44.6	11	0.49 in.	2	5	2	2	4	4	1	
Mon. 16	53.2	35 0	44.5	7	0.25	—	3	4	3	2	2	1	
Tues 17	50 3	35 7	43 0	5	0 26	1	3	2	—	1	5	5	3
Wed. 18	50.2	35.1	42.6	4	0.05	2	5	—	—	1	5	5	2
Thur. 19	51.1	34 9	43 0	4	0.02	1	3	2	—	1	5	5	2
Fri. 20	54.2	35 8	44.0	3	0.13	1	1	3	—	—	3	2	5
Sat. 21	52.0	37.4	44 7	9	0.21	4	1	1	2	2	4	4	1

The highest temperature during the above period occurred on the 19th and 20th, 1836—therm. 69°; and the lowest on the 20th, 1845—therm. 18°.

Notices to Correspondents.

To our Correspondents.—We have every wish to oblige you by answering all questions relating to the subjects treated of in this Journal; but we must intreat you to be reasonable. We have had before us a letter containing 17 questions, upon as many different subjects, every one of which have been either answered repeatedly, or can be determined by a very cursory glance at our columns for the last month; and we regret to say we have many such cases. To spare time or space for answering these demands is impossible; it is not fair either to ourselves or our readers. Correspondents should, in common justice, only apply to us for information upon points which they have previously taken reasonable pains to examine for themselves in documents accessible to every body.

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each copy. An index has been added to this present edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s*

Amaranthus—*J H H.*—Thanks. Your paper on the white-stemmed Amaranth will appear in the next Number of the "Journal of the Horticultural Society." The A. oleraceus is new to this country; of course not to India.

Apples—*& C.* If professionals do not know the Duchess of Oldenburgh, they should become acquainted with it; for it is beautiful, distinct, and good. See the Fruit Catalogue of the Horticultural Society. It has no synonyme.

Books—*M W*—Mackintosh's "Practical Gardener," and Loudon's "Suburban Gardener."——*G K*—You should now provide yourself with "School Botany," the study of which is full time for you to begin.——*X*—Roberts on the "Vine."——*M D*—We agree with you. The books are unreasonably dear, but the first is a good treatise; the last has been sufficiently criticised in our columns.——*Lambert*—You will find the information you seek in the "Vegetable Kingdom," now ready for publication.——*J C*—Mr. Barnes's "Observations on the Pine," are published in the last number of Loudon's "Gardeners' Magazine," published by Longmans.

Frames—*Weglof*—We advise you to buy the last edition of "Mills on the Cucumber," and to build your pit exactly as he directs.

Glazing—*B C*—We do not understand your question. As to laps, our *experience* is where it was; our opinion is favourable to dispensing with them.

Grapes—*Ap Llewellin*—Apply to the London Nurserymen.‖

Greenhouse Climbers—*F Keane*—Tacsonia pinnatistipula and mollissima; Passiflora Loudoni, racemosa, Herbertiana, and membranacea; Ipomœa hcifolia and Learli; Clematis azurea grandiflora, Camptosema splendens, Tecoma australis, Bignonia jasminoides, Kennedya Marryattæ, Hardenbergia digitata, macrophylla and ovata; Maudevilla suaveolens, and Dolichos lignosus.§

Insects—*T C Alton*—Your Wheat is attacked by the maggot of a little fly called Oscinis vastator, whose history you will find in the "Royal Agricultural Journal," vol. v. p. 493. *R.*——*L I V*—I cannot discover any insects on your plant, but there is a resinous deposit on the pubescence of the leaves. *R.*——*A Subscriber*—If your plant be small, immerse it in weak Tobacco-water; if not, the only remedy is to pick off and burn the leaves that are most infested, and wash the stem and branches with gum-water if it be practicable. *R.*——*J M H*—The looping caterpillars can only be got rid of by hand-picking, and if you persevere for a few days, you will see no more of them this year. If the plant can be shaken or brushed with a soft broom, you will find the caterpillars on the ground or suspended by a thread. *R.*——*R G*—Your letter has come, but it contained no insects or Plum shoots.

Market Gardens—*Bolton*—You may grow excellent vegetables in such a soil as yours, provided there is not an iron "pan" above the gravel. If there is you must break through the pan, or nothing will thrive. Town sewerage is the best manure for you. If you try guano you will obtain the same result; but the quantity you will need depends upon the degree of exhaustion of your land. Give a preliminary dose of 4 cwt. an acre; and if you find that you have not used enough, add half a similar dose when your crop is growing; if mixed largely with water it will act the better. Cow-dung is valuable for you.

Mildew—*Jos*—Your note is so illegible that we cannot decypher more than three-quarters. As far as we can ascertain the purport of the facts you mention, yours does not seem to be different from other cases. Why one plant is predisposed to mildew and others not is unknown. It is clear that different species and varieties, and even individuals, differ greatly in this respect. Frequent syringing with rain-water in which a very little saltpetre has been dissolved has been found the most useful remedy; but it will not always succeed. The moss on your pots cannot be kept off: you must remove it by frequent rubbing, and free the earth by scraping it off. To kill it will be to kill the plants growing in your pots.

Names of Fruits—*Yowell & Co*—1, Fearn's Pippin; 2, Dumelow's Seedling.‖

Names of Plants—*W J G*—Scilla sibirica——*A B*—Cornus mascula.——*N Gaines*—Gesnera faucialis, and nothing more,——*L J V*—We never saw or heard of an Orobanche attacking a Gesnera, and would be much obliged by your sending us a pot of it to 21, Regent-street, in order that its habit may be watched. The Gesnera seems to be G. rutila. The red berries belong to Rivina lævis——*T D*—Rivina lævis.

Pine-apples—*D R*—We do not see the force of your criticism. Mr. F. speaks of one set of Pines, Mr. B. of another. *We* vouch for the accuracy of the *last*.

Potatoes—*G J B, A Constant Reader, and others*—If you can afford the risk, you may as well leave your Potatoes in the ground, and watch them as they grow; for if they fail, you will probably be aware of it in time to plough them up for a summer crop of something else.——*R*—Your new crop may have rotted from the dose of lime and soot which you applied, for that would cause an extrication of ammonia, which, under present circumstances, is better avoided. But we suspect that, although they were perfectly sound and greened when planted a fortnight ago, yet your sets would not have rotted in a fortnight if they had not been strongly predisposed to disease. You now see to your cost that our warning was not in vain.——*W P L*—Much obliged. Our Leader of to-day will tell you that our opinion is the same as yours. Some of your facts are very interesting; may we publish them? without your name, if you please. It is not true, so far as we know, that disease first appeared in Cornwall. The course appeared to be E. Germany, Holland, Belgium, and N. France, I. of Wight, and Kent. But your information alters this view. We regret to be forced to confirm your fears about Onions and Parsnips. Hyacinths are, in some cases, in a similar state; but the disease in these plants is very limited.

Rhododendrons—*Sigma*—You will certainly not keep them in health unless you give them half peat, or decayed leaves, or some soil of a similar nature.

Rot in Beans—*A Young Gardener*—Your Windsor Beans are rotten, or rotting fast; the ground is too wet and cold. Your Peas are weak, but all nothing else. There is no reason to suppose that the Potato disease will contaminate the ground.

Sea kale—*Apiarius*—Trench and manure the ground well. Line it off in beds, 4 feet wide, with 2 feet alleys between. Plant 3 rows, which will be 16 inches apart, in these beds, and let the distance be 18 inches from plant to plant in the rows. If you have not good young plants, better sow seeds at the above distances.‖

Seeds—*W J K*—The seeds are of no value to you as nurserymen, with the exception of a few species which you will readily pick out for yourselves by their names.

Strawberries—*N M N*—For extensive cultivation, Keen's Seedling, is the best. The ground ought to be well trenched and manured. The plants should be in rows 2 feet apart, and 18 inches from plant to plant in the rows. Keep them clear of runners, except a few for increase if required; in forking the soil between the rows, take care not to injure the roots. Mulch with fresh stable-yard manure before the plants begin to grow in spring, and they will bear well for 4 years at least.‖

Tender Annuals—*C L*—Since you have no means of obtaining artificial heat, you must defer sowing your seeds till warm weather comes. Then place them on the *surface* of the ground on a south border; cover them with moss, and place a garden-pot over them, the hole in which is stopped up. Watch them daily, and when the seeds begin to grow open the hole in the flower-pot; then in a few days remove the pot for a few hours in the day, without exposing the young plants to the direct sun, and then harden them by similar degrees.

Tradesmen—*G. T——y*—You must excuse us. It is our principle not to recommend tradesmen. Standing in the position we occupy, it would be most unfair if we were to do so. If those who have goods to sell will not advertise them it is their loss—not ours, nor yours. If they do advertise them, and they are worth having, they are sure to sell them. We know that some persons think advertising unworthy of great houses; we are of a different opinion, and so is the public at large. Why should tradesmen place their lamp under a bushel? The British Government does not think it an act of unworthiness to advertise when they have anything to sell, or want to buy anything. It is therefore one of the foolish prejudices of trade that advertising is *infra dignitatem*. In the meanwhile those who do advertise run away with the best part of all retail trade.

Worms—*Anon*—Lime water is your only practicable resource.

Misc—Is. will be given for No. 36, 1845.——*An Amateur Florist* can have the two Numbers required to complete his set.——*Hirsute*—Celeri navet should be raised like other Celery, and planted out shallow in rich sandy soil. Radis d'Hiver should be sown in July; Potiron jaune in very gentle heat, in pots, in April, so as to be fit for turning out in very rich soil in May. Pourpier sow in May, in the open border.‖——We regret our inability to mention any one who would be able and willing to name specimens of Seaweed.——*G*——Cabbages, &c., are earthed up in order that their stems may throw out roots into the earth, and so increase the number and vigour. Experience is in favour of this practice. Why not reduce it to an experiment?——*K J D and Elizabeth*—Ivy does no harm to sound buildings, nor to trees, unless it twines round their trunks. If, however, buildings are ruinous, then Ivy will insinuate roots and produce evil. Camellias are not hurt by judicious forcing.——*Apiarian*—White Belgian Carrot in the soil you describe will yield a large produce, and animals thrive well on it as part of their food. For your soil try the Breadfruit, Coruish Kidney, and Regent's Potatoes. Seymour's Superb White and the Violet Celery are amongst the best.‖——*E M G*—You cannot bud Roses now. From the beginning to the end of August is perhaps the most certain time, as the sap is then in full force. The best period, however, varies in different years. The great desideratum is that the bark should part easily from the wood, showing a a rich supply of sap below it.‡——*W Tebbett*—We never name florists' flowers.‡

SEEDLING FLOWERS.

Camellias—*J D & Co*—Your seedling Camellia is a handsome flower, of average size, with slightly reflexed petals; it resembles eximia in colour and general appearance, but it is much fuller of petals, which gradually diminish to the centre.*

Cinerarias—Y—Your seedling No. 1, a large, brilliant crimson, with broad petals, is a very good flower, but not one of a superior character. No. 2 wants colour.*——*J M, Cheshire*—Your seedlings have not been received.*

Pansies—*A B*—Your seedlings are too small; 2 and 3 are useless. No. 1 is the best flower, but this will be of no use unless it comes larger.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
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LIQUID MANURE.
ENGLAND INDEPENDENT OF THE WORLD FOR CORN.
THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.
The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

The Agricultural Gazette.

SATURDAY, MARCH 14, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
Wednesday, Mar. 18—Agricultural Society of England.
Thursday, — 19—Agricul.ural Imp. Soc. of Ireland.
Wednesday, — 25—Agricultural Society of England.
Thursday, — 26—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.
Ross—E. Lothian—Taunton—Wells (Ireland)—Fifeshire.

FARMERS' CLUBS.

Mar. 16—W. Hereford	— Bosley	Mar. 26—Newton	
Bakewell		— 26—Otter St. Mary—Bolsover	
— 17—Bromsgrove		— 27—Rhins of Galloway	
— 25—Plympton St. Mary		— 28—Hereford	

THE report of "The General Newcastle Committee," presented 10 days ago, has resulted in the following resolutions, among others, with reference to THE NEXT COUNTRY MEETING OF THE ENGLISH AGRICULTURAL SOCIETY:—

1. That there be no Council dinner this year.

2. That a lecture on some subject of practical interest shall be delivered at Newcastle-on-Tyne at 5 o'clock on the afternoon of Wednesday, the 15th of July, &c. * * *

This we are sure our readers will agree with us in considering a step in the right direction; and after the experience of a year shall have *proved* it to be so, we may hope to see a still farther advance towards a better arrangement of proceedings during the week of our annual country meeting. The dinner in the Pavilion will, we hope, share the fate of that for the Council; and the hours which it now occupies will then be left open, as are those hitherto occupied by the latter, for "a lecture on some subject of practical interest." And not only will the time, which has till now been thus taken up, be available for more useful occupation, but the money hitherto thus spent will be available for more useful purposes. One thousand pounds per annum may, we imagine, be more usefully laid out than in merely balancing the statement of receipts and payments on account of this annual meal of the members. And we imagine that this is about the sum expended in this way every year by the Agricultural Society of England. A thousand pounds would settle many important points hitherto undecided in the theory of agriculture—it would stock a small model farm—it would almost endow a professorship. But 1000*l.* every year! What increase in the usefulness of the Society might we not expect from the *judicious* expenditure of so large a sum? And the system of the reform on which, from the resolutions quoted above, we judge that the Society has now entered, will, we doubt not, ultimately have the effect of increasing their available annual income by this amount.

We hope that the Society will not be satisfied with this one step in the right direction. What they should aim at is, an organised system of discussion during their annual meetings, similar to that which obtains at the meetings of the British Association for the Advancement of Science; where committees are appointed to superintend each of the various subjects in which the Society is interested. And the road to this is through an arrangement such as was adopted last year by the Highland Society, or rather by its coadjutor, the Agricultural Chemistry Association, at the Dumfries meeting, where discussions on appointed subjects were held after public breakfasts.

An English gentleman who was present at the first of these breakfasts, (we quote from the "Quarterly Journal of Agriculture,") writes as follows:—"I gained more practical information by the discussion upon draining than from anything else I either saw or heard at Dumfries. I think it most desirable if such meetings could be got up for the Royal English Agricultural Society at Newcastle next summer; when such a mass of people is congregated together, each may be able to convey something which would be of importance to his next neighbour. Why not encourage such intercourse in every possible way?"

IT was intended to recur to the subject of AGRICULTURAL STATISTICS in the same section of the Paper as that in which it has been already noticed (p. 140); but as it is of importance that the matter should obtain general attention, we make no apology for transferring our further remarks to a place where they will probably be more generally read. We have already considered the importance and usefulness of an acquaintance with the agricultural statistics of one's country. Let us now refer to the practical part of the subject, and consider the mode in which they are to be compiled.

1. Who are to do it?

The parties to undertake it must be located at convenient distances all over the country, or they will not have the knowledge which is necessary; and they must possess a practised judgment on agricultural matters, or they will be liable to mislead instead of instruct: and we ask—Who are so competent, in all these respects, as Farmers' Clubs? If each club were to prepare, after a common plan, a statement of the agriculture of its district, and send it up for collation with the others by the central Farmers' Club in London, who would no doubt willingly undertake the labour, the result would be of great national value. We hope the London Society will take up this subject, as it has already so usefully taken up the subject of tenant-right, and issue circulars to Farmers' Clubs all over the country, enforcing its importance.

2. And now, in reference to this work, let us further consider—how individual clubs should undertake it. The following plan would probably answer:—Let a committee be appointed to introduce the subject in its most general aspect. Their duty will be to report on the extent of the district—to present a plan of it laid down on a map (the sheet of the ordnance survey in which it occurs may be had for 7*s.* 6*d.*)—to state the variety of soils occurring in it, the boundaries of each being also marked down on the map—to state the extent of woodland, waste, pasture, and arable land on each of these subdivisions of the district. In addition to this, the committee may report on the more general agricultural features of the district, such as the general size of farms, giving the limits within which this particular varies—the nature of the tenure, whether the farms are held on lease or not, stating the proportional extent of land, in the district, so held—the rent per acre, and other taxes on the arable and the pasture land respectively—the value of the waste lands—the nature and neighbourhood of markets, &c. These matters will be amply sufficient to fill up an evening with useful remarks and discussion, and after the corrections arising out of this amongst a body of intelligent farmers, we should have perfect confidence in the accuracy of their report on these heads. Another committee must then be appointed to introduce the subject more in detail; their duty will be to report in reference to each of the subdivisions of the district, dependent, as they are, on the nature of the soil, as to what crops are grown in it, and the rotation of them which there obtains; from this, coupled with a knowledge of the extent of such subdivision, they will easily calculate the extent of each crop annually grown in the district; they will also report as to the proportional extent in each subdivision of pasture land mown, and pasture land each year depastured; and then taking the other subjects also into their consideration, such as farm capital, labourers, implements, power employed, live stock, markets, &c., they will be able to give, as it were, a heading to each of the chapters in the work on which the Club has entered; and power should have been given them to name a member, and a small subcommittee for his assistance, to report upon each. The work is laborious, and as it can be carried on only at their monthly meetings, it may occupy the Club for a long time; but we are persuaded that they will derive more instruction during the progress of it than they would in almost any other mode of occupying their meetings. These chapters would refer to the different crops grown within the district, each forming the subject of a distinct report and evening's discussion. The extent grown, the acreable produce, the mode and details of its cultivation, the quantity and expense of labour employed on it from first to last, the mode of harvesting it and preparing it for market, or of consuming it, would all require discussion in reference to each crop. The following also would be the subjects of distinct reports: 1. The condition of the labourers, their wages, existence of benefit societies, development of allotment system, average amount of poor's rates, quantity of labour employed per 100 acres on arable and pasture land respectively, &c. 2. The quantity of horse or ox labour employed within the district on arable and pasture land—their actual and relative expense—and in connection with this a statement might be made of the mode and expense of road management within the district, the tolls upon horses, and the tax upon land for their maintenance. 3. The agricultural machinery employed within the district, implements of tillage, machines for sowing and for cultivating the land during the growth of the crop, machines of carriage, harvest implements, and machines for preparing the crops for market or consumption. 4. The mode in which manures are managed within the district; whence they are derived; what additions by purchase or otherwise are made to the quantity manufactured on the land. 5. The number and kinds of live stock, cattle, sheep, and pigs, occurring in the district; the mode of their management, and the nature and quantity of their products, beef, veal, milk, butter, cheese, mutton, wool, bacon, pork, store cattle, sheep, and pigs. 6. The acreable amount of farm capital employed under the various modes and management which obtain within the district, the relationship between landlord and tenant, the rent paid for the various descriptions of land, the nature of the terms on which the land is held, &c. When all these subjects shall have been fully discussed, then the Club should depute to some of its members the task of arranging the materials thus accumulated, in order that the information they convey may be placed in a tangible and useful form. Perhaps the best plan, as we have already suggested, would be that the London Farmers' Clubs should appoint a committee to determine in what method the subject may be best approached, and to supply to the Farmers' Clubs throughout the country the form in which to arrange the facts they may be able to gather together. We shall be glad to hear that the secretaries of these societies have turned their attention to this subject. From some little acquaintance with the nature of their duties, we believe one of their chief difficulties is to select, for the monthly discussions, subjects which are at once of general and of local interest; the one that they may be *usefully* discussed, and the other that a sufficiently large meeting may be drawn together. Now, we can hardly imagine any subjects more perfectly to unite these two qualities than those to which we have alluded as arising out of the attempt to compile local agricultural statistics. Only let an active secretary and two or three energetic members get together and make a hearty beginning in this direction, with the view of sending the results of their labours to some central office (and none can be better than that of the London Farmers' Club), where they will be compared with others, and published for the general good, and they will soon see their meetings crowded by members; some to applaud, others, no doubt, to protest; but all interested in an attempt fairly to exhibit the actual condition of agriculture in their neighbourhood.

The labours which would be thus undertaken by these few leaders of their Society are of the most useful kind in the cause of agricultural improvement. The Royal Agricultural Society of England has told us so. Look at their prize lists, and you will find them headed by offers for reports of district agriculture. And what would be the results of labours such as we have described, but a district report of this kind—a report, however, of much greater value than any which the Agricultural Society can obtain by their offers of premiums, for it would rest upon the authority not of one, but of many; and it would refer, not in necessarily general language, to a whole county, but in minutest detail to the methods and results of farming within a well known district.

Will some of our leading Farmers' Clubs, who favour us with occasional reports of their proceedings, be kind enough to discuss the policy of the suggestions we have here made?"

AGRICULTURAL EDUCATION.

THE readers of the *Agricultural Gazette* have recently had the subject of Agricultural Education prominently placed before them with such emphasis as to leave no doubt that many influential parties will be induced to fall in with, and second the views there exposed. With entire deference to their superior qualifications, I will leave "C. W. H." and his coadjutors to pursue their noble object to a happy termination, bidding them heartily God speed, for the cause they advocate is one of deeply increasing interest, and it must, sooner or later, force itself, I hope not with unpleasant vehemence, upon the notice of the agricultural world.

The object of this communication is not to illlustrate with any further ideas the importance of institutions of the magnitude and wealth of the Agricultural College

of Cirencester; but I do not consider myself to be advocating a cause one whit less important, when I maintain it to be at least equally necessary to adapt to their legitimate ends the schools for the juvenile population of our rural districts. We shall only reach the head of the man through that of the boy; and when we see the astonishing tenacity with which the most antiquated and irrational prejudices are kept up by that type of all mistaken consistency, the agricultural mind, we shall own the necessity of carrying on the conflict of improvement in this as well as in the other channels proposed.

I am not aware that, in any of the inferior schools of the agricultural districts, it is ever borne in mind that any more information should be instilled into the youthful mind than what is necessary to ensure a knowledge of some of the details of business. As for natural history and natural science, with all their varied and delightful ramifications, instances are most rare of the rural schoolmaster ever troubling himself to make his pupils acquainted even with their merest elements. Let these be taught systematically and scientifically; they will be sure to interest the young folks deeply;—the boy thus instructed, grown into a young man, will show, by the sure indications of an attachment to the study of Nature, an intimate acquaintance with her more important operations, and a facility in the practical application of these principles, that the light of truth will dispel from the proceedings of his mature years those vulgar errors and destructive prejudices which withered in his forefathers the very soul of enterprise. Far be it from me to underrate the difficulties attending this only wise course of instruction; for experience, no less certain than painful, tells me the hardest battle the rural schoolmaster has to fight is with the parents, not with the pupils, who are always willing enough to pass from pounds, shillings, and pence, to the interesting history of an animal, or the structure of a plant. The course pursued must, therefore, be marked with a prudence and a circumspection in which, unfortunately, interest has to play a strong part.

Of Botany it would not be necessary to impart a scientific acquaintance, much less a critical knowledge of indistinct species; but the Grasses ought to be well understood; and so should the Clovers, many Cruciferæ, Umbelliferæ, &c., ignorance of which is, at least, inconvenient; and both Vegetable and Animal Physiology should be particularly attended to.

In Geology much may be learnt in a little time by a judicious selection of facts.

Entomology is so necessary that it must be learnt in some way, and if the farmer chooses to abhor books, he shall receive more disagreeable lessons still from his ragged and vanishing Turnip-tops, his smutted Wheat, and his blighted Apple trees.

Chemistry is a more serious consideration; here a little learning is a dangerous thing, indeed, both to pocket and land. Still, a farmer of rather more than average intellect will derive vast benefit from an acquaintance with chemical science prudently applied

It is sincerely hoped that none of these remarks will wound a single feeling in the breast of an honest farmer; no man respects the downright character of the British farmer, or appreciates his sterling worth more than the writer; yet he believes, and believes in good company, that that British farmer stands in decided need of some impulse that shall drive on to mental advancement. For the year 1846 has dawned; the year 1849 is impending. Never was there a time when the farmer has been so driven back upon his own latent and almost unknown resources as he soon, and ever thereafter, will be. The new commercial policy of Great Britain will so revolutionise the condition of the farmer as to force him to use a hundred ways and means he has never yet dreamed of, or has only thought and spoken of to ridicule and to condemn.—*F. A. Malleson, March* 5.

HOW CAN THE PRODUCE OF LAND BE INCREASED TO MEET A FALL IN PRICE?

You said you would be glad to receive my comments on our farming. The report is very imperfect; still you will be able to understand my object, viz., by soiling the cattle, or house-feeding, to keep as large, or a larger stock than is now kept, and grow more corn than is now grown. It is surprising the acreage required for 12 to 14 milk-cows out of a farm of 100 acres.—*Richard Barker, Whitehaven.*

"How can the produce of land be increased to meet a fall in price?" I answer—first, by preserving all manures which now run to waste, and increasing the efficacy of these manures. Secondly, by keeping the stock in the house all the year as far as possible, thereby producing more manure, decreasing the breadth of pasture-land on each farm, and increasing the breadth of green crop and white crop, these being the sources whence the farmer pays his rent. I shall confine myself as much as possible to authorities bearing on the questions to satisfy you there are fair grounds for believing that by improved husbandry an average price of 45*s.* per qr. for Wheat, with other products in proportion, would enable the farmer to pay his present rent and be better off than he now is with a price of 55*s.*, by applying the same skill and enterprise to land that is applied to manufactures. First, then, "What is the value of the manures now wasted in this country?" I always like to give the opinions of other persons on subjects of such vital importance as the one which I am attempting to discuss; and as Mr. Hannam has been engaged for a length of time in making practical experiments, and as his general judgment as a chemical agriculturist, as well as a political economist, is so well known, I shall quote him as an authority for our increased wants. He says—"We have, according to the calculations of the Poor Law Commissioners (on the sanitary condition of the people), the fact that the increase of the population in England is 230,000 per annum, and that this is an increase requiring annually tenements; 27,327 cattle; 64,715 lambs; 70,319 sheep; and 7,894 calves, which is equal to the produce of 81,000 acres of pasture land; and, at 56 oz. daily for a man, wife, and three children, 105,000 quarters of Wheat, equal to the produce of 28,056 acres of land, at 30 bushels (which is more than the regular average) per acre. Being altogether the produce of 109,000 acres of good land required every year to feed the increase of our population."

With respect to waste manures, which is the subject on which we are now treating, Mr. Hannam says—"That the question of the economy of these matters is one at the present period of peculiar interest and importance, and will enable us, in some degree, to accomplish an object which we have shown to be of national importance—the production of a greater quantity of food at a less cost to the community than at present."

This is one means whereby the farmer may, in some degree, lessen his expences and increase his returns If I am paying for that extra produce which I might by judicious economy obtain at no cost, and am in fact farming badly; if I neglect the waste manures on my own farm and buy no other tillage, I am not producing as much as possible; and if I buy manure, I am not producing as cheaply as possible. There is another item to which I might call your attention, that is the drainage of cattle sheds, which, says Davy—"Contains the essential elements of vegetables in a state of solution. The analysis of urine will explain this; thus, according to Sprengel, of 1000 parts of cow's urine, 926 are water, while of the remaining 74 parts, 40 parts are an organic substance, containing a large portion of nitrogen, which it affords the plants in the shape of ammonia."

"The greatest value of liquid," says Liebig, "is when a manure is wanted which shall supply nitrogen to the soil." And when we consider that, by every pound of ammonia which evaporates, a loss of 60 lbs. of Wheat is sustained, and that with every pound of urine a pound of Wheat might be produced; that each cow kept in the house would supply many hhds. annually, the indifference with which these liquid excrements are regarded is incomprehensible. The drainage from the manure heaps is scarcely less potent than that from the sheds; it is, however, certainly not less valuable, as it consists of urine and a solution of the richest matter of the dung and compost. Will it be believed that the manure heap loses no less than half of the fertilising properties, which, but for mismanagement, it would otherwise contain. The amount of loss which farmers sustain in this way is lamentable. Add to this the whole of the liquid, which is of more value, if properly applied, than the solid, as it contains twice the quantity of nitrogen and all the alkaline salts. The city of Strasburg, which is situated in a corn country, receives 12,000*l.* per annum, which is equal to 10*s.* per head upon the population. This ratio in Great Britain would amount to 13,500,000*l.*, and on England alone to 7,500,000*l.* This is independent of the loss which is sustained in our farm-yards, which would amount to even a still greater sum. The amount and the quality of manure which might be obtained by the farmer from our gas works, would be something very considerable. There is no less than 7000 gallons of ammonial liquid annually thrown away at our gas-works. Abundant proofs might be given of this, but I trust that enough has been already supplied to satisfy you all that the annual loss which the country sustains in manure alone is immense and serious. But when we consider the loss on applying the principle to the production of food, it appears still greater, and I might rest the answer to the second question on the proofs already adduced, as it is clear that loss of manure is a loss of corn. Dr. Wilson, in his recent lecture, stated that three-quarters of the solid is lost from fermentation and wot, so that from our own farm-yards alone we lose more than would produce double the quantity of our present growth of Wheat. Are not these, then, worthy of our most serious consideration, since, by attending to this single subject, we should be able to feed our population at such rates as would defy all the foreign competition that might be attempted! But as the second question comes more immediately home to the farmer, I must allude to it. I say then, having resolved to save all your manures, the system is incomplete unless you keep all your stock in the house the year round, and till every acre of land (except where you have natural meadows that can be irrigated), to make it produce as large an amount of corn as possible for the consumption of man, and an amount of green crop sufficient for double the number of cattle which you now keep. The author of "Outlines of Flemish Husbandry" says that, "We [surpass the Flemish farmers greatly in capital, in varied implements of tillage, in the choice and breeding of cattle and sheep; and the British farmer is, in general, a man of superior education to the Flemish peasant, but in the minute attention to the qualities of the soil, in the management and application of manures of different kinds, in the judicious succession of crops, and especially in the economy of land, so that every part of it shall be in a constant state of production, we have still something to learn from the Flemings; but the auxiliary of the Flemish farmer is the tank wherein are collected not only the liquid from the cows and horses, but also the drainings of the dung-hill," which, to the disgrace of ourselves as a people, are allowed to run down the ditches, fertilising, as they pass along, the ground which is appropriated to no purpose. These tanks, which are about 8 feet square, are frequently covered over with loose boards. The Flemish farmer would as soon think of dispensing with his plough as with his tank. The system of Flemish husbandry is well worthy of our attention: "The number of beasts fed on a farm of which the whole is arable land, is surprising to those who are not acquainted with the mode in which the food is prepared for the cattle. A beast for every 3 acres of land is a common proportion, and in very small occupations, where much spade husbandry is used, the proportion is still greater. In every farm a fifth at least of the land is sown with Turnips immediately after the harvest. Carrots, which have been sown in spring, either alone or amongst the Barley, Flax, or Colza, complete the winter's provision."

Here we have a brief summary of the merits of Flemish husbandry. The cows are in the house all the year round, except perhaps on fine days for exercise. Two cows are kept for every 6 acres of land, that is, 33 cows for each farm of 100 acres, and yet the land is all under the plough, and producing yearly heavy crops, maintained in this high condition by the liquid manure-tank and cart alone; for they pay but little attention to solid manure such as we make, or rather it goes into the liquid as it is made, because they will not waste straw as bedding. This is an immense increase on the stock supported upon farms of the same extent in this country, and at the same time growing more corn; but there is also another feature in their husbandry almost as important, which is, that they endeavour to obtain an extra crop from one portion of their land every year. As their cattle are supported through winter on roots and straw (considering hay too expensive) they sow late Turnips and Rape or Vetches, "immediately after harvest." They also sow Carrots betwixt the rows of their Wheat and Flax—both drilled—and these crops pushed on with their "liquid," yield a produce that would surprise any farmer who has never used this manure. Their summer feed is almost universally Clover. As I passed through the country from Brussels to Bruges in the month of October 1843, I saw Carrots and Cabbages growing whence crops had been taken, which very clearly shows that by growing more hay under a five-course rotation, our cattle would always be in good condition, our manure rich, and a large farm could be almost as easily managed as a small one. The small farmer might adopt the four-course rotation after his land was in good heart, and thereby increase his profit. It appears from the returns of nine farms in this neighbourhood that a stock of 12 to 14 cows and three or four horses are kept for every 100 acres, requiring from 30 to 40 acres for pasture for their support during the summer, and generally showing from 8 to 12 acres lying in fallow. This quantity of land I consider to be altogether lost to the country; our system of farming shows only half the breadth of corn land which such farms ought to produce, and I maintain that by adopting the Flemish system of husbandry a stock of 30 cows could be maintained on each farm of 100 acres, and the following crops of corn be grown in addition:—

1st year..20 acres Turnips, Mangold, and Carrots: ground well prepared in autumn.
2nd year..20 acres Wheat.
3rd year..20 acres Clover and Rye-grass.
4th year..20 acres ditto, with liquid manure, followed by winter Vetches and Rape.
5th year..20 acres Oats with liquid.

Producing 120 acres of crop, and keeping a stock of 30 to 33 milk cows.

ON THE STATE OF HUSBANDRY IN LOWER BRITTANY.

WITH INCIDENTAL OBSERVATIONS ON THE CONDITION OF THE FARMING POPULATION THERE, COMPARED WITH THE SOCIAL STATE OF THE ANALOGOUS CLASSES IN IRELAND.

By Martin Doyle.

(*Continued from p.* 138)

The Breton proprietor is often an advocate for planting trees, instead of pursuing a system of alternate cropping, and being ignorant of Turnip culture, as pursued in the county of Norfolk, where much of the soil is naturally as light and poor as the average quality of the *landes* of Brittany, and objecting that the cultivators themselves could not consume all the vegetables that might be raised on the moors if they were to crop them with Cabbages and Turnips, &c., asks what would become of the produce if there were no towns near, whose markets might require them? The answer is, they might cultivate them for their cattle, create a consuming class on their own ground, and thus, would they be amply repaid in the increase of manure and multiplication of stock. In England and Ireland the commons and other waste lands are now absolutely required for raising vegetables and corn for the support of man. The time will come when the extensive *landes* of Brittany may be wanted too in a degree which will not admit of their remaining waste.

The government of Louis Philippe deeming it expedient to reclaim these wastes, of which, by the statistic reports of Agricultural Societies and other authorities, three-fourths are fit for tillage, meadows, or plantations, have passed a law to allow the communes to alienate their rights of commonage (if they can be prevailed upon to do so) with the approval of the Prefet of the department; and some individuals have succeeded in prevailing on those parochial corporations to sell their

portions of the *landes* to companies or private persons undertaking the reclamation of them; the gradual enclosing of those moors may be therefore expected, for experience alone is wanted to prove that the amount of produce derivable even from the poorest of them by cultivation, with a fair deduction for time, labour, and capital expended, greatly overbalances the advantage which the peasantry derive from them in a state of pasturage in common, 12 acres scarcely sufficing to keep a cow alive, whereas the same extent of the same moor land, if properly cropped with Turnips would support, as has been calculated, 32 store cattle (of the small mountain breed), and also fatten four oxen.

A company was established in Brittany on the plan of the Irish Waste Land Improvement Company a few years ago, but we believe with little success, perhaps from want of more liberality in their rates of purchase, but more probably from the disinclination of the owners to agree among themselves in making sales. The Breton Company, however, had the privilege of purchasing in perpetuity, while the other by their act of incorporation has been restricted to the taking of leases, generally, for 99 years.

Experience has tended to confirm the notion that reclaiming those *landes* on a large scale does not repay; planting hardy Pines, which will grow on the driest soil, has there been tried by some enterprising proprietors.

Wherever little farmers or labourers have inclosed some allotments they have succeeded wonderfully; whereas gentlemen proprietors have found such operations too expensive; and large tenant farmers, who could reclaim on cheaper terms, with long leases, do not exist in Brittany. Some workmen inclosed about 30 acres of moor near St. Brieux, built cottages, and reclaimed the soil with the spade. They have prospered, and shown how much better it would be for the peasantry of parishes possessing such commons to sell or allot them to the labouring classes, on the condition of real improvement, and thus supply remunerative occupation to the families of the labouring poor.

There are not the same elements of enlarged improvement in Brittany as in Great Britain and Ireland, either in a proprietary or a substantial tenant class—no very wealthy landowners with sufficient power over their estates—no bailiffs of skill and experience—no crowds of eager and hard-working labourers, but a set of lazy hinds who would leave work at any time for a scene of merry-making—a fair, or a market, or a pardon,* while the ripe corn was in the most critical state. Some of these reproaches may, indeed, be occasionally brought against the Irish labourer—but not often; witness his exertions where example and sufficient motives to persevering industry are before him; but the Breton peasant, from transmitted habits, is indisposed to great efforts, and decidedly opposed to any system of servitude or labour which would bind him strictly to time and place. Hired labour being executed thus irregularly and badly, it follows that reclaiming the moors is only remunerative with certainty to the farmers who execute the operations with their own hands. The number of proprietors farming on a large scale is very small compared with the agricultural population at large, and these gentlemen have rarely capital to spare for the erecting of farm buildings, providing implements and stock, &c. Without adequate means, they cannot, therefore, reclaim on an effective plan, and even if they had the means, speculations in land-jobbing are almost unknown in that country—enterprises of such a nature are not consistent with their character, nor is it indeed the disposition of Frenchmen generally to venture upon undertakings too great for their capital. They like to concentrate their means of action on a small space; their prudence in this is commendable; "slow and sure" is a maxim we sometimes forget, to our cost.

Many parts of these *landes* would produce Potatoes and kitchen vegetables, and green food for cattle, though in many cases unsuited to corn (Buckwheat and Millet excepted). The hoeing and weeding necessary for the removal of weeds under a green crop system in a few years would displace the indigenous plants.

The method of cultivation by the small farmers and labourers on a small scale is this:—Having inclosed a space, the Heath and other coarse plants are pared off with hoes and spades, and burnt; beds are marked out 48 inches wide with a spade or plough, with intervals of 12 inches in breadth, for the furrows; the ashes are next spread, and Rye, Oats, or Millet is sown and covered evenly by shovels from the furrows. Next year these furrows being filled, and the entire surface consequently level, new furrows are marked out in the middle of the former beds, and manure (generally *noir animal*†) applied; and thus in a few years' course (one foot in four having always been occupied by the furrows) the whole field is dug to a sufficient depth.

Among the chief causes which have led to the improvement of the heaths is the discovery of the beneficial effects of *noir animal* (the residuum of the sugar manufactories), a powerful agent on these cold and sour soils. The use of this manure has rendered the two systems of paring and burning the surface, and of reducing the vegetable matter without burning, far more common than formerly.

An explanation of the experiments made by M. Reiffel at Grand Jean, near Nozay, about 10 leagues to the north of Nantes, in Loire Inferieure, will tend to show the results of such practice.

In order to test the matter exactly, three lots of different qualities and situations were inclosed, and each was subdivided into two parts, one of which was pared and burnt in the Irish way, and the other was ploughed without burning, so that a fair average result might be obtained. One subdivision was treated as follows, during four years:—

1*st Year.*—After inclosing a field, and hoeing up the Heath, &c., and burning it in heaps, beds were marked out with a plough, with intervals of 12 inches for the furrows. The ashes were then spread, and Rye or Oats being sown on it, an even covering was given from the furrows with the spade and shovel.*

2*d Year.*—The furrows being filled up and the surface levelled, new furrows of the original width were marked out in the middle of the original beds, some *noir animal* was scattered over them, grain of a different kind from the preceding crop was sown and covered as before.

3*d and 4th Years.*—The same method was followed, so that at the end of the 4th year the whole of the field was dug to a uniform depth.

The land being, after the foregoing treatment, in a perfectly friable state, the furrows were filled in the subsequent year by the plough, so that the whole field could be laid down evenly with Grass seeds, or subjected to the drill husbandry of green crops. By this simple process the Breton farmer, at the cost of about 7*s.* per English acre (exclusively of manure), often raises four successive crops of corn, but it is only on the moors of the best quality that such courses of cereal crops have been obtained.

Mr. Reiffel's second method (which does not differ from our common practice) was as follows:—The ground being cleared from stones, roots, &c., was ploughed very lightly at the beginning of the year with a wide and flat furrow-slice, in sets 25 feet wide. It was left in that state until the succeeding January, when it was cross-ploughed at double the former depth, at an angle of 45°. Early in May it was harrowed well with a heavy drag, and the roots of Heath and undecomposed sods were thrown into the furrows to rot. At the end of May it received the third ploughing in the direction of the first (with a pair of oxen), somewhat deeper than before; after which, though there were tufts of Heath and other slowly decomposing substances on the surface, the ground was fit for Buckwheat (which ought always to be sown on the 21th June at the latest).

Before we proceed with the statement of accounts respecting M. Reiffel's work, we must notice one of his general remarks† as given in the interesting report now before us, viz., if the soil be of very good quality the first ploughing is made before Christmas, and in the following Sept. the furrow-slices are broken up with hoes, after which a harrowing is given, then one ploughing, after which autumn corn is sown.

Some of the results of his experiments by the two methods are thus given:—

No 1.—Paring and burning.	fr.
Hoeing the surface and burning the sods ..	90 p. hectare.
Labour of spreading ashes and reducing clods	15 ,,
Ploughing in the ashes	12 ,,
	117

No 2.—Ploughing, &c., without burning.	
Preluminary work in removing obstructions to the plough	7 p. hectare.
2 ploughings with full teams	59 ,,
Heavy harrowings	6 ,,
3d ploughing with a pair of cattle	12 ,,
8 hectolitres of *Noir animal*	80 ,,
	155

Thus it appears that the expense in No. 2 was greater than No. 1; but the returns from No. 2 were greater, Wheat having been obtained (with 4 hectolitres‡ of *noir animal*, however), in the second year. The report gives the receipts for three years in each of the two cases.

No. 1	328 fr.
No. 2	426 fr.

The second method, therefore, though the most expensive at first, proved the most profitable in the end.

But so much depends on the quality of the moors, local circumstances, and seasons, that M. Reiffel, whose improvements on the *landes* are the most remarkable in Brittany, was unwilling to pronounce decidedly on either side of the question; upon silico-argillaceous soil, he gives a general preference to the use of the plough without burning. Yet on an average of circumstances, and on an extended scale, he recommends both practices concurrently, particularly during the first year, when a large supply of fodder cannot be obtained all at once for plough teams; and, he might have added, on account of the difficulty of procuring manures in sufficient quantities in the interior parts. His rotations are—

1st year—Buckwheat: raised with 8 hectolitres of *noir animal*,
2d ,, Wheat or Rye: raised with 4 hectolitres of *noir animal*, or 15 hectolitres of powdered Charrée.‖
3d ,, Oats, half allowed to ripe; the remainder cut green.
4th ,, Cabbages, Swedish Turnips, Trifolium incarnatum, winter Vetches, 20,000 kilogrammes§ of dung to the nectare; Buckwheat cut green or ploughed into the ground, Chaulages des terres.
5ht ,, Wheat or Rye.
6th ,, Rye-grass and Red Clover.
7th year—Potatoes, cattle Beet, 30,000 kilogrammes of dung to the hectare.*
8th ,, Rye or Wheat.
9th ,, Rye Grass with Red and White Clover.
10th ,, Pasture.

Buckwheat is found to be the best crop in the first instance, and requires less preparatory ploughing and harrowing, and being an article of general consumption with the peasantry, always fetches a higher price than Oats; besides, it loosens the land, and prepares it as well for autumnal corn as a summer fallow.

(*To be continued.*)

Home Correspondence.

How to meet the Doctor's Bill.—To the dairy farmer who has a considerable portion of his capital invested in live stock, it is important that he should adopt the most effective, and at the same time most economical plan that presents itself for providing against the loss to which he is frequently subjected, from the various epidemics affecting cattle. It is essential that he should at such times have early recourse to the best advice and assistance; yet the large bills which are soon run up by the veterinary surgeon deter the farmer from seeking his aid in the onset, and the disease which (as in the case of pleuro-pneumonia) in its early stages is almost beyond the skill of the practitioner, runs its course; and before the cow-house is freed from the pest, many valuable beasts have perished. Independently of the positive loss, these casualties are a fruitful source of anxiety to the farmer; to free him from which, and also to secure him from those heavy losses which have borne down many deserving men, I beg him to consider attentively (which, if he does, I think, he will adopt) the following suggestions:—1stly, that he shall, whilst his cattle are in health, contract with a respectable veterinary surgeon for all necessary medicines, and attendance, at a given sum per head per annum, ill or well. By adopting this course, he will divide the expenses of a year of calamity over a series of years; should his cattle be ill, he has recourse at once to the best advice, and the respectable surgeon is exempt from the suspicion of making a bill, no small comfort to an honourable man. So far for disease; but as, in spite of the best medical assistance, death frequently ensues, I suggest, 2ndly,—That he shall insure his cattle in one of the Insurance Offices, established expressly for the purpose of insuring the live stock of farmers, &c. Here, again, he will adopt the same principle laid down before, that of making each year bear its average share of loss. To the reflecting farmer little need be said on the advantages of being able to calculate his outgoings on this head with as much precision as any other expenses of his farm. What the writer here recommends to others he practises himself.—*G. B. C., Manchester, March* 4.

Phosphate of Lime as Food for Plants—I do not seek to trespass on your columns. My present object is merely to suggest, whether it has not escaped your attention, that you have now inserted two explanations, flatly contradictory of each other; and whether it is not rather incumbent on you to step forth as arbiter, and to point out on which side the truth lies. The contradiction to which I refer is this: that Mr. B., in page 91, asserts that carbonic acid decomposes phosphate of lime; while Mr. G. (page 108) states that carbonic acid renders it soluble, but does not decompose it. I have no doubt in my own mind that Mr. B.'s explanation is unfounded altogether; Mr. G.'s experiment is almost conclusive, but cannot be considered quite beyond objection, until he can imitate the supposed process of nature, by effecting the solution in question without the previous application of muriatic acid and ammonia.—*P. V.* [Mr. Gyde says that carbonic acid water dissolves bone-earth, and he does *not* say that it "does not decompose it" We do not consider the two paragraphs at all inconsistent. Mr. Gyde states the facts, and Mr. Bree's statement of theory satisfactorily explains them. What is the fact?—that a gallon of carbonic acid water will dissolve 30 grains of bone-earth, out of any given quantity acted upon; and the theory?—that the carbonic acid has not simply driven off a portion of phosphoric acid (which is found in solution), and taken its place in union with the lime, but that its affinity for lime, assisted by the existing affinity of bone-earth for phosphoric acid, has induced such an interchange of elements (*one* portion of bone-earth being decomposed—its lime uniting with carbonic acid, and its phosphoric acid uniting with the phosphate of lime in *another*), that the resulting compounds are a *super*-phosphate of lime which is soluble in water, and a carbonate of lime found among the sediment.]

Electro-culture and the Potato Disease.—Your insertion, on the 7th inst., of the Rev. Edwin Sydney's statement, that his Potatoes within an electrified space were healthy, while those outside, but in the same soil, were much diseased, induces me to direct the attention of your readers to a similar circumstance reported by the Rev. F. Lockey, and published in the last number of the "Electrical Magazine," page 234; and to add, that a parallel instance, as to their preservation from disease, but without a very marked increase of the crop, has been communicated to me. These are facts which it is rather difficult for the mind to reconcile with the assumption that electro-culture has no influence on vegetation. But when I state that these facts are perfectly consistent with, and to be expected, if viewed in connection with the scientific facts on which the doctrine of electro-culture is based, it seems to me that

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* The Irish patron.

† This *noir animal* is the residuum of blood used for clearing sugar in the refining manufactory. There is also another kind of *noir animal*, which is obtained from the refuse animal matter of slaughter-houses and knackers'-yards, exposed to the action of fire.

* The little farmer uses the spade like the Irish Con-acre man.

† Agriculture de Pouest de la France, Revue Trimestville, par Jules Reiffel, vol. 1.

‡ The hectolitre contains 100 lbs. English.

‖ The wood-ashes which have been used in the *lessive* for cleansing linen.

§ The kilogramme is equal to 2 lbs. English.

* The hectare contains 2 acres and a half English.

even scepticism should pause. A great calamity is intimately connected with this subject. These three crops of electrified Potatoes were equally influenced by rain, moisture, and temperature, with those unelectrified grown close to them in the same soil. Also in the south of France, where two crops of Potatoes are annually obtained, the first of this year was quite healthy, while the second crop was very much the reverse, although this latter, which suffered severely from the disease, enjoyed a superior temperature—of the air, 5° 5′ (Reaumer or Centigrade); of solar heat, at 2 P.M., 8° 4′ (R. or C.); and of the temperature of the earth, at the depth of a metre, 7° (R. or C.); and 9 inches less rain fell than there did on the spring crop; and the minimum of temperature was only 0° 4′ for the second crop lower than for the first, fruitful and healthy one. (See the Report of M. de Gasparin to the Académie des Sciences of Paris, or the "Plough," No. 2. p. 178.) Now, it is evident that in all these important particulars the second crop was most favoured. Again, it has by several persons been reported that in high and dry soils they have found the Potatoes diseased, and, in the low and wet soils in the neighbourhood, perfectly healthy. I might particularise one such statement of one of your correspondents in the Isle of Wight. Contrast this with the fact mentioned by Dr. Lyon Playfair, in his first lecture at the Royal Institution, that in former years the water found in healthy Potatoes was 72 per cent., but this year 75 per cent.; and in the unhealthy 80 to 83 per cent.; so that if it appears that neither to the soil, nor to temperature, nor to external moisture, is this disease in the Potato to be ascribed, where are we to look for the cause?—*R. Dewey Forster, Findrassie, near Elgin, Feb.* 24. P.S. The presence of casein instead of albumen, as noticed by Liebig, the absence of nearly two-thirds of the usual quantity of nitrogen, and the existence of one-eighth too much water, I esteem effects of some other agent; and that that agent is sudden in its action, both this year and last testify.

Deep Draining.—One fact is worth a thousand doubtful and conflicting opinions. I will state a fact that must I think convince every reasonable person that it is the depth of drains that produces dryness, and not their closeness or mode of filling up. Close and shallow drains shall have ceased running, and yet the land shall be wet. Deep and distant drains shall be still discharging, and notwithstanding the surface will be dry. Here is a case in point: In a nine acre field, six acres of it were drained 12 ft. apart, and 32 ins. deep; the drains filled up 10 ins. with stones, and a round 2-inch pipe. These drains act perfectly, and commence running in winter about 20 minutes after the rain falls. This drainage cost 10*l.* per acre. The other three acres were drained three months since, at a cost of 3*l.* 4*s.* per acre, as follows:—1-inch pipes, no stones or bushes, but the earth returned into the drains; distance 33 ft. from drain to drain; depth about 32 ins. at the ditch, and carried into the rising ground 5 ft., each its own leader; the drains right up and down the land with the fall. Most people would suppose that the closely drained land with such an abundant ventilation by stones and a large pipe would dry the land best; such, however, is not the fact, but the very reverse, as I will now show. This field being in fallow, afforded a good opportunity for a comparison. It is a very strong tenacious clay, much of the same quality on all parts of it, and has a fall of many feet. For the last three weeks I have watched it under various circumstances, and in every case the three acres deeply drained presented quite a contrast to the shallow drained portion. So far as the colour of the field could be discerned the contrast is plainly perceptible; the deep drained side a uniform light drab colour; the shallow drained a dark or black colour, becoming gradually more patchy as the ground got dryer; but showing that although the drains had some time ceased running, the water was held up to the surface by capillary attraction. In fact so marked and uniform was the distinction, that the two opposite sides of the field looked at some hundred yards distance like different soils, and yet the deep drains were still weeping. The question of deep or shallow drainage in strong soils is far too important nationally and individually to remain in doubt or abeyance, and I call upon those whose minds are biassed to throw off prejudice and be guided by facts—not by assumptions and opinions. Let them consider that gravity has no weight in the presence of capillary attraction. I mean that however heavy water may be, and however inclined it is to descend, it is absolutely made to rise up many feet instead of falling. Look at the interior of church-walls, the outsides of white-washed cottages, &c.; you often see the water staining the walls at a height of 6 or 7 ft., depending upon the capillary powers of the material, and its capacity for heat or dryness. Look at the sides of ditches in a drying March day. You will see that although they have ceased running, the ground for 18 or more inches high is black with wetness. We must never forget that the hills are always the wettest places, and consequently into the hills should we cut deeply. The capillary power is strongest in the hills. Any man who drains the valley and not the hill, will find his land still wet. I hope we shall hear no more of carrying off the "top water," and with it the best of our manure. We all admit the benefits of irrigation: but forget that the richest irrigation is that from the clouds, charged with heat, ammonia, carbonic acid, &c., which common sense should teach us to carry through our land, not over it.—*J. Meehi, Tiptree Hall, March* 25.

Land Flooded by Sea Water.—I shall be greatly obliged if you will state the most eligible course to pursue in the case of pasture and arable land, which has been flooded by sea water during the high tides to which the coast of Essex was exposed about two months since. Upon some part of it the water remained the greater part of two days; other parts were only inundated during 6 or 8 hours. The Wheat and Clover appears now to be dying, although at first it did not present any appearance of injury.—*C. H. B.* [Have our correspondents any experience which would be useful to "C. H. B.?"]

Experiments.—It is much to be desired that such of your correspondents as report experiments would be careful to conduct them from beginning to end with minute attention to contingent circumstances which may affect the results, and to be as accurate as possible in their weights and measures. I am induced to make these remarks from reading the report of an experiment on Swedish Turnips, p. 123, which is, in my opinion, rendered nugatory by the observation that "two yards were measured in each acre;" surely if it were right to record the experiment at all, it was worth while to weigh more than two yards in each acre; the whole should have been weighed: half the experiments recorded are in the same predicament.—*Lusor.*

Draining being the mine from which agriculturists are to obtain a means of subsistence, I may be again permitted to allude to the subject, even with the prospect of being accused of repetition. On a former occasion I raised my humble voice in favour of three feet drains in preference to any other depth, and I still continue of that opinion; whether tiles and soles are used, or tubes, will depend very much as to the facility of procuring them and the cost—both are good. I once recommended a trial of clay draining for pastures as practised on the stiff soils of Gloucestershire. It can be done for less than half the charge for draining according to the usual plan, and answers extremely well. I recollect being rather taken to task on introducing the subject, for supposing that water would find its way through clay, pressed down as I had described; it however runs off merrily, as I can speak from experience. As economy in agriculture will be more necessary than ever, clay draining might be made available in large damp parks and extensive rushy pastures, where the land was strong enough to admit of it. It is quite refreshing to see so many writers advocating the application of capital to land, and condemning the folly of farming without having money at command. It is also satisfactory to read some quiet remarks relative to Thistles, &c., growing where Wheat ought to spring up. I hope a few individuals may be induced to notice any localities during the ensuing spring and summer, where great neglect is apparent in the cultivation of the soil. I do not say this ill-naturedly, but when there are hundreds out of employment, it is a shame and a sin to have valuable land overgrown with weeds.—*Falcon.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A WEEKLY COUNCIL was held at the Society's house, in Hanover-square, on Wednesday last, the 11th of March; present, THOMAS RAYMOND BARKER, Esq., in the chair; Sir R. Price, Bart., M.P.; F. Burke, Esq.; F. C. Cherry, Esq.; B. Gibbs, Esq.; Professor Sewell; W. R. C. Stansfield, Esq., M.P.; C. H. Turner, Esq.; G. Wilbraham, Esq., M.P.; H. Wilson, Esq.; B. Almack, Esq.; G. R. Barker, Esq.; T. B. Browne, Esq.; H. Burr, Esq.; Dr. Calvert; W. Cuthbertson, Esq.; A. E. Fuller, Esq., M.P.; J. A. Knipe, Esq.; A. Majendie, Esq.; A. Ogilvie, Esq.; E. Parkyns, Esq.; H. Price, Esq.; T. Turner, Esq.; T. R. Tweed, Esq.; and J. L. Wight, Esq.

The following new members were elected:—

Wheatley, Matthew, Shieldfield, Newcastle-on-Tyne
Peel, Jonathan, Accrington-house, Blackburn, Lancashire
Barber, Thomas, Hobland-hall, Great Yarmouth, Norfolk
Atkinson, John, Newbiggin, Hexham, Northumberland
Nelson, William, Olive-house, Alnwick, Northumberland
Lawson, Edward, Redesdale-cottage, Newcastle-on-Tyne
Thurlow, Rev. Thomas, Baynard's-park, Guildford, Surrey

The names of 19 candidates for election at the next meeting were then read.

The following communications were received:—

1. From Professor SEWELL, on the part of extensive cattle salesmen, in the metropolis, complaining of the serious injuries to which stock were exposed in their conveyance by railway, in consequence of the improper treatment to which they were subjected, and the want of proper arrangements for their stowage and transit; and the great loss sustained on that account by their owners. The extent to which such injuries were inflicted was corroborated by Mr. Cherry and Dr. Calvert; Mr. Cherry suggesting that the animals should be placed in divided compartments, and that spring-puffers should be placed between the trucks.
2. From Mr. OWEN, of Westerfield, near Ipswich, on the use of Sea-water as Manure.
3. From Mr. ELLY, of New Ross, Ireland, on an experiment in progress on the Feeding of Sheep with Furze.
4. From Mr. NEILE, of Belle-ville, county of Wicklow, a present of Potato seeds, carefully collected from healthy plants of 1845
5. From Mr. ROGERS and Mr. BROWN, communications on the subject of the Potato disease.
6. From Mr. DOUGLAS, on the Removal of Diseases of Cattle arising from their Teething.

The Council then adjourned to Wednesday next, the 18th inst.

AGRICULTURAL CHEMISTRY ASSOCIATION.

At the late monthly meeting, Professor JOHNSTON mentioned in reference to the planting of diseased Potatoes, that it had been stated by Dr. Greville and himself, that there was no physiological or botanical reason for concluding that because a Potato was diseased, that therefore it would of necessity produce an unsound and diseased plant, and consequently diseased tubers. He should not enter into the botanical reasons for this opinion; but he would direct attention to the fact that inasmuch as the disease was situated in the cellular tissue, and did not till a late period in the process of decay affect the part that germinatod, there was no reason to suppose that the shoot which sprouted out might not be perfectly healthy, though surrounded by diseased matter. That opinion was the result of a knowledge of the botanical structure of the Potato, and was also consistent with all they knew of the nature of the shoots which up to that time had been observed to spring in apparently robust health. Since their last meeting however experiments had been brought forward by Professor Lindley, and published by him, accompanied by a strong opinion of the risk which would attend the planting of Potatoes not perfectly sound. He affirms that "diseased sets will produce diseased crops"—as if no sound tubers could be produced from them—an opinion which he thought stronger than the circumstances warranted. He also mentions that apparently sound Potatoes have been planted which have produced sprouts apparently healthy, but have afterwards fully developed the disease, and sometimes have shown fungi; and he therefore draws the further conclusion, that great danger exists in planting even apparently sound Potatoes from diseased districts—thus excluding from use as seed the whole produce of that large portion of the island which has been affected by the disease. He did not think, however, that the reasoning or the conclusions of Professor Lindley were justified by the facts he had stated. As to those which had been forced, he observed that the circumstances in growing Potatoes in a forcing house were so different from those attending their growth in the ordinary field, that they could not draw fair conclusions in regard to the extent of the disease which was likely to appear in the latter, from that which manifested itself in the hot atmosphere and fermenting soil of a forcing-house. But that was a mere opinion he entertained. Still he thought they should not discourage the people at large by broad statements of merely probable consequences; they should rather suggest such remedies as their knowledge enabled them to communicate. Such sweeping opinions as these should not be issued to the country, unless upon the surest evidence, as they were likely to produce bad effects; and a single expression unhappily chosen, might produce injurious consequences. There was another point to which he wished to allude, which was brought out by Dr. Greville from the returns which had been received. They would recollect that the last meeting was unanimous in reference to the choice of Potatoes—that all those who knew anything about the subject concurred in the opinion, that the variety of Potatoes termed "Cups," was that which in Scotland had failed the least. He, therefore, thought that wherever Cups could be had; they should be selected; for out of 26 returns, 22 alleged that that variety was the least affected. He would even venture to state it as an opinion which would regulate his own practice were he a farmer, that sound Potatoes of the Cup variety, though from a diseased district, would be less likely to fail than sound Buffs, Flat Reds, or Lumpers brought from a district in which no disease had hitherto appeared. Professor Johnston then alluded to the other causes supposed to modify the disease, as the influence of the climate, &c., upon which he would not enlarge, as Mr. Milne and Dr. Greville would give much information upon the subject. —Mr. MILNE, who had undertaken the meteorological branch of the enquiry, then stated at great length the result of his investigation, which is not yet completed; but of this we can only find room for a very short abstract. He showed that rain could not have caused the disease, but he was inclined to think that there was evidence of unusual and long-continued cold in the diseased districts, sufficient to have injured the Potato plants, especially in rich or highly manured soils; and he was led the more to this conclusion from learning that the weather, especially in September, had not been so ungenial in the northern counties. To these two causes, then, viz., the much smaller amount of temperature last summer, and the abnormal distribution of it, he was inclined at present to ascribe the failure in the Potato crop, without the necessity of assuming any degeneracy of the species, or the wafting of seeds of fungi through the air. He recommended that the most hardy varieties should be alone or chiefly cultivated; that the Potato ought not to be stimulated with too much manure; that plants should be grown specially for seed, in order that stronger and more vigorous sets may be obtained than may be got from Potatoes grown for the table; that the time of ripening ought to be accelerated by early planting, draining, &c. and, finally, that the shaws ought to be cut over, whenever any general appearance of disease manifests itself on them. Mr. Milne illustrated his statements by exhibiting tables of rain and temperature made up from registers in England and Scotland.—Dr. GREVILLE stated, with reference to the remarks which Prof. Johnston had made relative to the accounts of forced Potatoes having already been attacked with the disease, that all Dr. Lindley said deserved, from his high cha-

raster, the greatest consideration; yet in this instance he (Dr. Greville) thought that more was drawn from the experiments than they might be found to justify. Certainly every farmer would act wisely in obtaining the best seed which circumstances admitted of, and from a non-infected district if convenient. But from the accounts already known, and still accumulating, in favour of the Cup variety, there was strong reason to hope that sound sets, although from an infected district, would under careful management produce a satisfactory return. The vitality of that variety was remarkable, and it was known (unlike most kinds), to bear producing year after year on the same land without deterioration.

Farmers' Clubs.

SUBJECTS FOR DISCUSSION.

12. THE VALUE AND COST OF FARM BUILDINGS.

1. *Who Benefits by the Former?*—The landowner does; for, being kept in repair by the tenant, they are a portion of the permanent value of his estates. This, however, is not *strictly* true; for buildings, however repaired, do deteriorate; and the landlord, therefore, has a right when he has invested money in their erection, to expect a higher interest for it than for that which he has invested in the purchase of land. Good buildings are worth "14 years' purchase;"* *i. e.* 7¼ per cent. on their cost is a fair rental. But the tenant also benefits, and that to a much greater amount than the mere rental he pays for them. The fact is, the value of a farm per acre to rent is very greatly influenced by the accommodation afforded (by buildings) for the due execution of the latter processes in the manufacture of the goods which the farmer sells. A farmer should be glad to pay 7½ per cent. for additional buildings of whatever kind *that may be required*.

2. *Who is to Pay for their Cost?*—The landlord, of course, if they go to increase the value of his property. And he may pay for them *directly*, charging, as we have said, 7½ per cent. for his outlay; or he may pay for them indirectly, by offering such privileges to the tenant as the latter may consider it to be his interest to accept on the condition of erecting farm buildings at his own expense, according to understood specification. Now, what are such privileges?—and this is the main point for discussion. We consider permanency of tenure for 21 years at the present value of the land, to be a sufficient inducement to a good and intelligent tenant to place his farm, whether by the execution of roads, drainage, or buildings, in all respects, as he would wish it to be. It is, however, only with the last we have at present to do. Even here, unless he has more money than he can invest in cultivation, it will be much *more* for his interest that his landlord should erect them, and charge him for their annual value, because, while in both cases he will enjoy the same *advantages*, in the one, at the end of 21 years, he will find that he has paid an annuity of 15*l.* (or 2000*l.* supposing them to cost that sum), which, had it accumulated at compound interest, would then be worth 1850*l.*, while, in the other, paying 2000*l.* down at once in the first year, it would, at the same interest, at the end of the same period, be worth 5300*l.* Nevertheless, where he has not this choice, it will answer his purpose to erect buildings on these terms rather than farm without them. This opinion, however, may be controverted—"much may be said on both sides"—and on the arguments brought forward by either party will depend the interest of this discussion.

MAIDSTONE: *Annual Meeting.*—Mr. Barnes in proposing as a toast "the Prosperity of Agriculture," said, Let any one survey the Wealds of Kent and Sussex, and he must see much which ought to be corrected. He was last week in a portion of Sussex, where there was a considerable quantity of land which might be said to be uncultivated, wide hedgerows, overhanging timber, small enclosures, all highly detrimental to the land, and preventing it from producing half of what it is capable. It was a strange fact that their leases for the most part contained clauses absolutely preventing the tenant from removing a single spit from the side of their hedgerows, which were overspread with thorns and weeds. In many parishes which had been surveyed for the purpose of the Tithe Commutation Act, no less than one acre in ten was lost in this way, and that one acre is capable of producing half as much more as those around it. He felt assured the company present, both commercial and agricultural, would lend their aid and influence in endeavouring to procure a removal of these obstacles to improvement, by circulating the facts he mentioned, until they reached the ears of those who had the power to remove them. There was no farmer who laboured in his own fields but must feel his spirits broken down, and his energies enfeebled, by such discouraging circumstances—when he saw the high timber, the wide hedges, which defeated all his efforts. It was utterly useless to sow seed near these trees and hedges, for if they did so there would not be half a crop. He knew instances of small inclosures where full half the crop was spoiled from the want of air and sun. These things were staring them in the face, and they could not afford to lose the advantages they were thus deprived of. They had no back country to fall back upon, as they had in America and other countries. It behoved them, then, to use their best efforts to obtain the removal of these serious obstacles to improvement, the necessity of which was more especially necessary under present circumstances. Another important object was thorough draining on all wet, low, clay soils. Saturated as they were with wet, it was known by every practical farmer, how much the want of draining added to the other evils of small enclosures. The Weald of Kent was, in fact, in a state, as regarded many parts of it, of comparative barrenness, compared to what it might be under a more liberal system of cultivation. But the question was, Whence was the outlay to effect this to be obtained. He must say it would doubly pay any landlord who was in a situation to do so, to undertake the whole outlay at his own charge, while he would greatly benefit the occupier. Some landlords had come forward to do this, charging 6 or 7 per cent. for draining with tiles, which would remain for ever, and this would amply repay them in a short time, and the tenant would be benefited far beyond the amount of his additional rent. At the same time he had a strong objection to that deep draining which was recommended by some on their clay lands, believing from his own experience that the soil would not admit the water to the drains at so great a depth. There were other notions of the present day to which he equally objected. One of those which had started up was the thin sowing, alluded to in the report. He had great respect for Mr. Hewitt Davis, or any other man who would travel out of the beaten track in search of improvement, but in this case he could not think the system recommended at all beneficial. He had never witnessed any failure equal to that occasioned by too slight a plant. He had lost more from this cause than from wet, worm, or any other cause.—Mr. Nesbit made a few observations relative to the applicability of chemistry and science to agriculture, and in what way the practical farmer might avail himself of their aid. During the last 10 years chemistry had made such advances, that there was no doubt at all of the benefits that must result from its application to agriculture. With respect to its general outline it was very plain and simple. Farmers were in the habit of putting dung on their land—to produce a crop. Suppose they put the same weight of bricks, no such results would follow. It was not then the weight simply. They must therefore look to what the manure was composed of—and it is thus discovered that some substances are useful—others not so—and the benefit of chemistry is to show us what substances are useful and what are not—in what proportions some substances are more useful than others—what ingredients are taken out of the land by certain crops, and what manure it is therefore necessary to put on to restore the soil to its proper state. With this view he had lately been making an analysis of the Hop, from a sample furnished him by Mr. Pain, of Farnham, and he had found that a crop averaging 4 cwt. to the acre took out of the soil 17 lbs. of potash per acre. This, therefore, was the substance to be supplied. Now if they put on a manure containing only a small portion of potash, they must either put on an enormous quantity to produce the result, or if they only put on a small quantity they would have but a small crop. To supply the potash requisite for the Hop plantation he had mentioned, it would be necessary to put on 1 ton 5 cwt. of guano, whereas 3 cwt. of guano would supply all the other things wanted, except the potash, which the chemist could supply at a trifling expense. This showed how great a saving might be effected by the due application of chemistry.

* Dwelling houses paid only 7½ per cent. when the risk, during the war, of all money investments was much greater.

Farm Memoranda.

SMALL FARMS NEAR MARKETHILL.—The following is a report of certain small farms on Lord Gosford's estate, near Markethill. Mr. Ferguson, one of the judges to decide upon their relative merits, and to determine with which the challenge clock offered by Lord Gosford should remain this year, made the following statement at the late meeting there:—"We first viewed the farm of William Wallace, containing 7 acres, 2 roods; then that of Robert M'Clinchy, containing 10 acres, 3 roods, and 17 perches; and that of John M'Clinchy, containing 10 acres, 17 perches; all of which farms were exceedingly creditable to the parties that occupied them. Robert M'Clinchy was short of stock, having only one cow, one horse, and two pigs, but his farm showed more labour to have been expended on it than any of the others. He has, we understand, been in bad health, but is now well; and from the appearance of his farm, and the exertions he is making, we have no doubt, next year, he will be able to show as good a stock as the others. None of them had any permanent pasture; and Robert M'Clinchy had levelled all his ditches, except one at the side of a road going through the farm; and a considerable portion was furrow-drained, all having a fair proportion of Turnips and fodder for their stock. The next farm we visited was Bernard Nugent's, containing 2 acres, 2 roods, and 25 perches, in one field, consisting of the following crops, viz., Potatoes, 1 acre; Turnips, 1 rood, 20 perches; Clover, 3 roods; Oats, 1 acre, 1 rood; Flax, 35 perches. His stock consisted of one good cow and one large pig. Mrs. Nugent seems to understand, and, in fact, to manage everything with respect to the cultivation of this beautifully managed field. Her husband is employed at Gosford, and she does all the work of the little farm, and attends to her cow and pig. The cow she keeps constantly in the house, and the pig she feeds with Potatoes and buttermilk. It comes out of its sty at her call, and stands up to be washed, seemingly with good will. This operation Mrs. N. performs every Saturday night, and her care is fully repaid, not only by the affection with which the pig appears to regard its mistress, but with the surprising growth of the animal. Mrs. N. affirmed it to be 4 months old; none of us being a judge of the age of a pig by its mouth (though, by its bulk, we were of opinion that the good wife had just forgot to place a 1 before the 4), we, of course, believed what she told us. Mrs. N. showed us the best spread flax we ever saw; and, in fact, taking all the crops in this field into consideration, we doubt if there was another field of equal size in the county that contained a more valuable crop. The next farm we visited was John Beatty's, containing 9 acres, 1 rood, and 32 perches. His stock consisted of two cows, in fine condition, kept constantly in the house; two large pigs, and a litter of small ones. Mr. Beatty appears to be a thriving man, and, as he told us, is quite prepared to purchase more land, when any offers convenient to him. He conducts his little farm, which is naturally of a good quality, with the greatest care and economy, and has most excellent crops, particularly Italian Rye-grass, which he had cut three times this season. The next farm we visited was John Gilliland's, containing 8 acres, 3 roods, and 9 perches—one field. The cows are constantly kept in the house. He has a very convenient house for them, with a passage at their head for a handcart to convey their food to them, so that Mrs. Gilliland can attend to them while her husband is engaged in the farm. He has levelled all inside ditches, and has it nearly all furrow-drained. On the site of an old ditch he has planted Potatoes, one part with farm-yard manure, and the other part with guano; the Potatoes planted on the guano (we found on examining a portion of both) had quite the advantage, both as regards size and quantity. Mr. Gilliland is not only an excellent farmer, but also a tolerably good mechanic. He builds, plasters, and does the carpenter work of all his little concern. The entrance into his farm, his cottage, and, in fact, everything he has, bear a comfortable and pleasing appearance. His mode of conveying the urine from the cow-house, by a metal pipe (over a stream of water that comes from a well), till it empties into a well-prepared liquid manure tank, pleased us very much. Mrs. G. appears to manage her part with equal cleverness and attention. The next farm we visited was Mr. Greer's. This was a very creditable farm, with an excellent stock, but they were not so strictly house-fed as those last mentioned. The next farm we visited was Jacob Albin's, containing 9 acres. We found this a very commodious little farm; the Potatoes and Turnips well cultivated, and a very superior crop. Mr. Albin had lost three cows this summer by the distemper. He had purchased another, which, with a very superior one Lord Gosford had the kindness to make him a present of, were doing well. Mrs. A. appears to manage the dairy department exceedingly well, which for cleanness and neatness could not be surpassed. The next farm we visited was Samuel Loudon's, containing 8 acres, 2 roods, and 30 perches—in two fields. There does not appear to be a more thriving or more industrious man on the estate than this person. Every kind of grain was good, particularly his Oats. He has his Flax dams placed at the top of his farm, and he always turns the Flax-water on his fields. The part where the Oats grew so luxuriant had been thus watered the autumn before. The next farm we visited was Mr. Bradford's, containing 10 acres, 3 roods, and 30 perches—in two fields. This is also a very industrious man. He and his family cultivate their farm almost exclusively with the spade, which is producing them four times as much as before he began house-feeding. The cows are kept constantly confined in the house. On having them turned out, they seemed to enjoy their minutes' liberty with the greatest glee. Mr. Bradford had taken a crop of hay off the part of the ground sown in Turnips, and yet they appeared to be a very good crop. The next farm we visited was Mr. Rolston's, containing 12 acres, 1 rood, and 15 perches. His stock consisted of three cows, one horse, and two large pigs, and he says he intends levelling his ditches next year. I cannot sit down without expressing the pleasure we felt on visiting these farms, and witnessing so much comfort in so many families. I would also beg leave to express the pleasure with which we viewed the spirit of rivalry which exists among the female competitors, as I may term them, with respect to Lord Gosford's clock. Our decision is—1st, Mr. Gilliland; 2d, Mr. Albin; 3d, Mr. Beatty; 4th, Mr. Bradford; and, of course, Mr. Gilliland will now recover the clock which Mr. Beatty took from him last year."

Miscellaneous.

Thin Sowing.—The bad use made by Mr. Barnes, at the annual dinner of the Maidstone Farmers' Club, of the speech of the Rev. Mr. Huxtable, at the Sturminster Farmer's Club, to prejudice farmers against what is termed thin sowing, induces me very reluctantly to trespass on the attention of your readers, by making some observations in reply. "The sum of the Rev. Mr. Huxtable's remarks is simply this. That he had tried thin sowing, and that notwithstanding he had hoed his Wheat again and again, the weeds at harvest had smothered his corn." [See the original speech as given in the county papers.] My arguments in favour of sowing only a bushel of Wheat to the acre, I beg to summarily present to such of your readers as have not seen my little work, "The Injury and Waste of Corn from too thickly Sowing." The present return in England from the seed sown averages only about tenfold, whilst a single grain planted where space to tiller is afforded, yields from one to two thousand fold. An ordinary ear of Wheat affords 40 grains; therefore a bushel of Wheat sown on an acre, and producing only one ear to each grain, that is without any tillering, must return 40 bushels. As one root where space is given, will give from 30 to 40 ears, there can be no occasion to sow more than a bushel per acre (if it be evenly spread), even supposing that a loss of 29 out of 30 of the seeds be anticipated, because the loss of adjoining plants will be met by the tillering of the survivors. On the other side, if more than a bushel of Wheat be sown, and produce plants, more plants will be created than can attain maturity, and the consequence in the spring and summer must follow, that the whole will not have space to grow, and instead of a healthy, vigorous growth, and full ears, at harvest, there will be a slight straw and small ears; exactly the same result as that which too often mayo-

seen in crowded plantations, where none of the trees, from their number, attain full growth, and many perish from disease. I have here given what I term the *rationale* of my recommendation, and I trust I have only further to observe, to induce your farming readers each to test my recommendation, that my practice in the first instance was to sow 2½ bushels of Wheat per acre, and my alterations arose from observing that the thinner sown grain ever in the latter stages grew best, and yielded most at harvest, and further, that although I farm largely I have not at this time an acre of land of my own that has so much as one bushel of Wheat sown to the acre; and that nothing has ever occurred or come to my knowledge to cause me to doubt that I am right in advising such apparently very thin sowing. I have some hundreds of letters in confirmation of my practice. I can name large farmers who are adopting my very small proportions of seed, from their own experience, and indeed scarcely a day passes that does not bring me letters in its favour; but I never yet brought thin sowing forward as a means to counteract bad farming; neither thin sowing, high manuring, nor clean cultivation, separately, will ensure a crop; and it is an error to visit every failure of thin sowing as the consequence of too little seed. I know that many hundreds of quarters of corn have this year been saved by my means, and to advantage; this knowledge, when failure of food is so much to be dreaded, is a happiness to me.—*Extract from a Letter by Hewitt Davis, in the Maidstone Gazette.*

A Mode of Illustrating the Injury done to Manure, by being repeatedly Flooded with Rain Water.—Suppose that any of the married men in this company was to get hold of his wife's teapot, after she had done with it, and was to dry up the leaves carefully, and bring them to her for her tea the next morning, I would just ask you, whether she would be likely to find out the trick or not? I imagine she would not be long in discovering the cheat; and I might venture to guess he would find out to his cost that, if that was the way he was to keep her in tea, she would soon find a way to keep him in hot water. Now, if the wife would feel so indignant at being supplied with tea that had been wet two or three times, how ought the farmer to feel that was supplied with manure that had been wet two or three hundred times? It is true the farm cannot fight its own battle as well as the mistress, but there is such a thing as passive resistance, and you may depend on it, that in the harvest, the farmer will be made to feel, that in cheating his land, by giving it manure which has lost all its strength, he has been, in fact, cheating himself, and that this may have a worse result even than cheating his wife.—*Mr. Blacker, at the late Markethill meeting.*

CALENDAR OF OPERATIONS.

MARCH.

[The publication of this paragraph was accidentally omitted last week.]

Peas.—This is the proper season for sowing Peas. Sow from two to three bushels per acre in rows a foot apart, on land which has been well cultivated and reduced to a fine tilth on the surface. The Grey Hastings, the Early Grey Warwick, and the Grey Bounceval, Giant, or Dutch Peas are good sorts for field culture; the first being the earliest. The Early Charlton and Prussian Blue are varieties which will also answer for field culture in good situations. The Pea prefers a calcareous loam; it affects a lighter soil than the Bean.

Dung Heaps should now be turned and commingled; those intended for the fields where Carrots are to be sown should be the first. This operation will cost 1*d.* per cubic yard, measured *before* turning. Six inches of the soil on which the heap lies should be thrown up with it.

The farmer must now purchase his stock of seeds—Carrots, Clovers, Grass seeds, Mangold Wurzel, and Turnips; and let him purchase quantities equal to 5 lbs. of the first per acre on all lands to be sown with it, 12 or 14 lbs. of mixed Clovers, 1 bushel of Grass seed, 5 or 6 lbs. of Mangold Wurzel, and 4 or 5 lbs. of Turnip seed. During dry weather at this season, the lands for Turnips may be ploughed, in the case of undrained lands in perch-wide ridges, but where naturally or artificially dry, it may be cross-ploughed in great widths.

Oats should now be sown. Harrow the land down, whether after Grass or fallow crop, and drill 4 bushels per acre in rows, 9 inches apart. Pickle the seed first, by placing each sack of it separately on the barn floor, and pouring over it (not out of an iron vessel, or it will be corroded) a solution of 8 oz. of sulphate of copper (blue vitriol); it will dry of itself in an hour, and be ready for sowing. This, probably, by a caustic action dissolving the glutinous attachment of the smut spores to the grain, and destroying them, is found in great measure a security against smut, to which Oats, not being generally pickled like Wheat, are greatly more liable. The Hopetoun Potato and Poland Oats are good varieties—the first being distinguished by an abundant yield, and good and bulky straw; the second, by the quality of the grain; and the third, by its earliness. The Tartarian Oat is largely cultivated in bleak situations, where a large quantity of coarse grain is desired.

Spring Tares or Vetches should be sown now for the main crop. Drill 3 bushels per acre in rows 6 inches apart.

Wheat Lands should be picked over; Docks and Coltsfoot flowers pulled; and stones gathered into heaps. Cast everything off at once, and burn all weeds. Get your *Clover-seeds* mixed—1 cwt. of red or Cow-grass, ½ cwt. of white, and ½ cwt. of Trefoil—ready for sowing next week at the rate of from 12 to 14 lbs. of the mixture per acre. Get your *Belgian Carrot-seed* mixed with *dry* sand (you can damp it afterwards to make it sprout a little before sowing), or turf-ashes, in the proportion of 6 lbs. to every 2 bushels, to be sown before the end of the month, at the rate of 2 bushels of the mixture per acre.

You have bought your seed Barley by this time; next week will be a good time to sow it. Three bushels per acre on good land is sufficient. Chevalier Barley is, we believe, the best sort to grow in kindly soils and situations.

Notices to Correspondents.

RURAL CHEMISTRY, by Edward Solly, Esq., F.R.S.—A new edition, with additions, is reprinting, and will be ready in a few days.

BEANS—*Nottingham*—Dibble about 2 inches deep.

BONES AND SULPHURIC ACID—*A Yorkshireman*—Your plan will no doubt answer very well; 100 lbs. of sulphuric acid, and 4½ bushels of bone-dust dried in mould, and sown broadcast, per acre, for *volume* Wheat or Oats.

BUCKWHEAT—*J M*—Drill, in the middle of May, 1½ bushels per acre, in rows 9 inches apart, on light land.

COWHOUSE—*J R*—A stall in a *well-ventilated* stable will answer perfectly. Kindness; by all means.

ESSAY ON FENCES—*Brentwood*—We shall take an early opportunity of publishing extracts.

FORWARD WHEAT—*A C K*—Are you inland? Then, as your land is light, sow 3 cwt. of common salt per acre, harrow it in across the drills. And whenever your land is dry enough, turn sheep in and let them eat the Wheat down. Or if you prefer it, you may wait till April, and mow the Wheat down, there will be no fear of your hurting the young ear at so early a stage of its growth.

GORSE—*J M*—Sow early in April 4 lbs. of seed per acre on a finely-pulverised surface, of clean friable land, in rows 16 inches apart.

HAND DIBBLE—*M*—A simple, cheap, efficient dibble is, in our opinion, still a desideratum. *If* (which we cannot imagine) you can unite simplicity and efficiency in an instrument costing only 7*s.* 6*d.*, no doubt it will sell. Enclose a plan and specification, and 10*l.* to any patent agent, and he will register it for you, and you will thus possess an exclusive privilege of manufacturing the article for 3 years. The agent's expences will be perhaps 2*l.* in addition.

LINSEED—*High Weay*—Give half a pound of the meal to each sheep, boil it to a mucilage in about three times its bulk of water, and pour it over straw or hay chaff in their troughs.

PIGS—*M P*—Try the improved Essex breed. Mr. Fisher Hobbs, of Mark's Hall, near Kelvedon, is a good person to apply to.

RABBITS—*RG*—Can any one cure "the canker in rabbits' ears?"

RED CLOVER SEED—*Martin*—It ordinarily weighs a little heavier than good Wheat. 70 lbs. a bushel is an extraordinary weight—we never saw it.

SAINFOIN OR RYEGRASS—*E T W*—You may safely fold ewes and lambs on its aftermath when it is three weeks old. That is your proposal—is it not? Only if it should be very strong or growing it will be necessary to look after them closely and occasionally drive them about lest they should overfeed.

SHALLOW BOG, DRAINED 3 FEET DEEP, RESTING ON CALCAREOUS MARL—*An Irish Farmer*—You have all the elements here of a most fertile soil. The surface must be levelled with spade or otherwise, and the tufts burned; and wide trenches should be dug, 5 yards apart, down through the marl, and their contents thrown over the ridges. Dry weather, succeeded by rain, will soon moulder the marl thus scattered. This should have been done last autumn, and the land should have been dug over, and you might then have planted Potatoes this spring; but now your first crop will be next year. And you should, as soon as possible, lay the land down to Grass, and depasture with sheep and cattle for 2 or 3 years; then plough it up for Oats; and marl a second time in the autumn, and take some root-crop the following year.

SHEEP HUSBANDRY—*A Sub*—"Spooner on the Sheep" is the completest work you can get.

STEAM ENGINE—*V*—You may get a six-horse power engine and boiler for from 150*l.* to 250*l.* It will be worth your while to get an engine "for 130 acres of plough land and 250 of park; and to cut timber, &c." Steaming poor hay and straw is said make cattle relish it more. We have not experience on the point, but some of our correspondents may perhaps be able to inform you.

SUPERPHOSPHATE OF LIME—*Y Z* It is the same as that which sulphuric acid produces in bones. You will find that we answered your question at p. 158. Mr. Pothergill's address is 40, Upper Thames-street, London.

TANK—*H T A*—Let the contents of your main drain run into a tank, say 6 feet deep, 6 feet wide, and 10 feet long, built with brick and well cemented. Any sort of pump of sufficient size will answer your purpose; let it terminate about a foot from the bottom. Cover the tank over with some poles, and faggots crossing them, and earth over that. The contents will be best applied by a water-cart over Grass lands in March; or you may pump them out over heaps of any absorbent material, such as turf ashes, strawy dung, &c., and use them in the garden in this compost form, digging them in for Potatoes or any other vegetable during the dry weather in spring.

TO STOCK A MOUNTAIN FARM—*Shirgar*—Excuse the delay of a week.

TURNIP-SEED—*A Correspondent*—Select round or cylindrical, not flattened bulbs, choose those with small necks and neat roots. Cut the tops off, and transplant them into ground which should have been dug over some time before: place them about a yard part every way, and then wait till spring. If you have a large extent of ground thus planted, all that you have to do is to clean the ground with the hoe, and wait till the seed is ripe, if you have only a single row, each plant should be supported by a stake. Do not transplant into richly-manured ground.

WHAT "CAN BE" A PROFITABLE PRICE FOR CORN?—*Constant reader*—No man can tell. Each, to be sure, can answer for his own system of cultivation; but no one can foresee either the improvements which may occur in the manufacture of Wheat, Barley, &c., or their influence on price and production. See p. 14. As regards what farm-profit "*in fairness*" SHOULD amount to; why, there is no limit to be found in that aspect of the question. If you ask what it WILL amount to, then we answer—it depends on the general prosperity of the country, the market value of land, the abundance of capital, and the skill of the farmer. Capital will yield in this business as rich an interest as in any other requiring equal skill.

MISC—*A Sub*—Give your mare a mild dose of physic, after which a peck of good Oats per diem, with chaff, and a moderate portion of good sweet hay. An hour's walking exercise daily during the first week, two hours the second, after which another dose of physic, then trotting exercise and a few Beans with the Oats every day. A loose box, and plenty of good grooming, will be necessary adjuncts. *W. C. S.*

*** Communications reaching town after Wednesday, cannot be answered the same week.

Markets.

SMITHFIELD, MONDAY, Mar. 9.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	4s	to	4s	6	5s 4 to 5s 8
Best Short Horns	4	0		4	4	Best Downs & Half-breds	5	4		5	6
Second quality Beasts	3	8		3	8	Best Long-wools	5	2		5	6
Calves	4	0		5	4	Kwes and second quality	4	4		4	10
						Pigs	3	8		3	10

Beasts, 2235; Sheep, 17,430; Calves, 48; Pigs, 204.

The supply of Beef is very small to-day, and trade very brisk. The best qualities of such description make rather more than our top quotations in some instances.—There are a few more Sheep, but the demand is more than equal to the supply, and everything is sold very dear. Some of the choicest small Downs have made nearly 6*s.* per 8 lbs.—Veal trade is rather dull.—Pork is rather more in demand.

FRIDAY, Mar. 13.

The morning being cold and favourable for slaughtering the trade is nearly as good as on Monday for Beef, still 4*s* 6*d* is quite the top price of the choicest Scots, and the best Short-horns barely make 4*s* 4*d*.—Mutton trade is hardly so good, the dead markets having been considerably lower since Monday; notwithstanding, the choicest Downs make nearly 5*s* 8*d*; best Long wools, 5*s* to 5*s* 4*d*; Ewes, &c., 4*s* 4*d* to 4*s* 6*d*.—Veal trade continues steady; a choice Calf makes about 5*s* 6*d*.—Pork trade is rather better; nice Porkers are worth about 5*s* 6*d*.

Beasts, 757; Sheep, 3900; Calves, 181; Pigs, 220.

4*l*, West Smithfield.

HOPS, FRIDAY, Mar. 13.

The Hop market continues just in the same state as last week.

PATTESHALL & SAUNDERS, Hop-Factors.

POTATOES.—SOUTHWARK, WATERSIDE, Mar. 9.

The supply to this market during the last week has been unusually limited, but there has been some arrivals from the northern districts, and the demand was brisk for York and Scotch Reds at further advanced prices. Many samples of second-rate Regents, and others of inferior qualities, are still on hand. York Reds, 80*s* to 140*s* per ton; ditto Regents, 70*s* to 110*s* per ton;

COVENT GARDEN, MARCH 14.—Vegetables of every description are plentifully supplied; Fruit is also sufficient for the demand. Pine-apples, considering the season, are tolerably plentiful, and good in quality. Grapes have not altered in price since last week. Apples and Pears are supplied in quantities sufficient for the demand, which is not great. Oranges are very scarce, so much so that they can hardly be obtained at any price. Nuts have altered very little in price since last week. Among Vegetables Asparagus is rather on the rise; in regard to quality it is not so good as it has been, the two or three cold nights that we have lately had being unfavourable to its growth. French Beans are plentiful, but not very good in quality. Seakale and Rhubarb are excellent; the former is lower in price. Broccoli and other winter Greens are sufficient for the demand. Brussels Sprouts are not so plentiful as they have been, and the same may be said of Celery; the latter is good in quality. Young Carrots may be bought for about 9*d.* a bunch. Potatoes have not altered in any way since our last account. First-rate samples are readily sold at last week's prices. New Potatoes fetch from 4*d.* to 6*d.* a lb. Lettuces, Radishes, and other Salading, are good and plentiful. Cut Flowers chiefly consist of Heaths, Hyacinths, Tulips, Jasmines, Lily of the Valley, Pentas carnea, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Rhododendrons, Cinerarias, Gardenias, and Roses.

FRUITS.

Pine Apple, per lb.,	6*s* to 10*s*	Lemons, per dozen,	6*d* to 8*s*
Grapes, Hothouse, per lb.,	2*s* to 6*s*	— per 100,	6*s* to 14*s*
— Spanish, per lb.,	9*d* to 1*s*	Almonds, per peck,	6*s*
— Portugal, p. lb.,	1*s* to 5*s*	Sweet Almonds, per lb.,	2*s* to 3*s*
Apples, Dess., per bush.,	7*s* to 16*s*	Filberts, English, p. 100 lbs.,	80*s* to 90*s*
— Kitchen,	2*s* to 7*s* 6*d*	Nuts, Cob, per 100 lbs.,	90*s*
Oranges, per dozen,	1*s* to 2*s* 6*d*	— Barcelona,	90*s*
— per 100,	4*s* to 18*s*	— Brazil,	14*s* to 16*s*
— Seville, per 100,	8*s* to 18*s*	— Spanish,	14*s*
— per dozen,	2*s* to 3*s* 6*d*	Chestnuts, per peck,	3*s* to 8*s*
		Pears, per hf.-sv.,	6*s* to 18*s*

VEGETABLES.

Cabbages, per doz.,	6*d* to 1*s*	Parsnips, per doz.,	3*d* to 1*s*
— red, per doz.,	4*s* to 8*s*	Scorzonera, per bundle,	1*s* to 1*s* 3*d*
Brussels Sprouts, p. hf.-sv.,	1*s* to 1*s* 6*d*	Salsify, do.,	1*s* to 1*s* 3*d*
Savoys, per doz.,	6*d* to 1*s* 3*d*	Onions, per bushel,	1*s* 6*d* to 3*s* 6*d*
Broccoli, Brown, per bdle.,	6*d* to 1*s* 3*d*	— pickling, per hf.-sv.,	2*s* to 3*s*
— White,	9*d* to 2*s* 6*d*	— Spanish, per doz.,	1*s* to 6*s*
Greens, per doz. bunches,	1*s* 6*d* to 2*s* 6*d*	Shallots, per lb.,	6*d* to 8*d*
French Beans, per 100,	1*s* 6*d* to 2*s* 6*d*	Garlic, per lb.,	6*d* to 8*d*
Sorrel, per hf.-sieve,	6*d* to 1*s*	Endive, per score,	6*d* to 1*s* 6*d*
Potatoes, per ton,	70*s* to 170*s*	Lettuce, per score, Cab.,	4*d* to 6*d*
— cwt.,	4*s* to 8*s*	— — Cos,	6*d* to 1*s*
— bushel,	2*s* to 4*s*	Radishes, per 12 bunds.,	1*s* to 1*s* 6*d*
— Kidney, per bushel,	3*s* to 4*s*	Mushrooms, per pottle,	6*d* to 1*s*
Turnips, per doz.,	1*s* to 2*s*	Small Salads, per punnet,	2*d* to 3*d*
Red Beet, per doz.,	6*d* to 1*s* 6	Fennel, per bunch,	2*d* to 3*d*
Carrots, per doz. bchs.,	2*s* to 3*s*	Savory, per bunch,	4*d* to 6*d*
Horse Radish, per bundle,	1*s* 6*d* to 2*s*	Thyme, per bunch,	4*d*
Seakale, per punnet,	6*d* to 1*s* 6*d*	Watercress, p. 12 sm. bun.	6*d* to 8*d*
Rhubarb, per bundle,	6*d* to 1*s* 3*d*	Parsley, per bunch,	1*d* to 2*d*
Asparagus per bundle,	2*s* to 3*s*	— Roots, per bundle,	1*s*
Cucumbers, each,	2*s* to 3*s*	Tarragon, per bunch,	6*d*
Spinach, per sieve,	1*s* to 1*s* 6*d*	Mint, green, per bunch,	6*d* to 8*d*
Leaks, per dos. bunches,	1*s* to 1*s* 6*d*	Marjoram, per bunch,	4*d*
Celery, per bunch,	6*d* to 1*s* 6*d*	Chervil, per punnet,	2*d* to 3*d*
Cardoons, each,	6*d* to 9*d*		

HAY.—Per Load of 36 Trusses,

SMITHFIELD, Mar. 12.

Prime Mead. Hay	85*s*	to	92*s*	New Hay	—*s*	to	—*s*	New Clr.	—*s*	to	—
Infr. New & Rowen	65		80	Clover	80	to	115	Straw	32		35

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Mar. 12.

Prime Mead. Hay	90*s*	to	97*s*	Old Clover	110*s*	to	115*s*			
Inferior -	70		80	Inferior do.	80		105	Straw	33*s*	to	36*s*
New Hay -	—		—	New Clover	—		—				

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Mar. 13.

Fine Old Hay -	80*s*	to	88*s*	Old Clover	110*s*	to	130*s*			
Inferior Hay -	65		70	Infr. „	80		90	Straw	28*s*	to	34*s*
New Hay -	—		—	New Clover	—		—				

Medley Hays scarcely saleable at any price.

MARK-LANE, MONDAY, Mar. 9.

The supply of English Wheat by land carriage samples this morning was very small, and the condition being somewhat improved, an advance of fully 1*s* per qr. was realised upon the White, but Red and damp qualities cannot be noted higher; free Foreign continues in good request; in Bonded we did not hear of any transactions.—Fine Barley sells freely, but ordinary descriptions are offered at low figures.—The show of Beans and Peas was good, and we reduce our quotations 1*s.* per qr. on all sorts of the latter.—Oats are scarce, English and fine qualities must be written 6*d.* per qr. dearer.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk - White	58	66	Red -	50	62
—— Norfolk, Lincolnshire, and Yorkshire	60	63	White	60	63
Barley, Malting and distilling 30*s* to 34*s* Chevalier	31	34	Grind.	23	25
Oats, Lincolnshire and Yorkshire - - Polands	26	27	Feed	21	23
—— Northumberland and Scotch - - Feed	23	25	Potato	23	29
—— Irish - - - - - Feed	21	24	Potato	24	27
Malt, pale, ship - - - - -	54	60			
—— Hertford and Essex - - - - -	60	65			
Rye - - - - -	34	36			
Beans, Mazagan, old and new 35 to 40	Tick	30	42	Harrow	32	44
—— Pigeon, Hollgoland - 35 to 46	Winds	40	48	Longpod	32	36
Peas, White - - - 34 to 38	Maple	32	37	Grey	27	30

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	4023 Sks. — Brls.	4417	4009	6564	8402	—	1477	710
Irish -	— „ — „	—	—	46	3736	—	—	—
Foreign -	1053 „ 5513 „	11859	—	—	9796	—	9439	1914

FRIDAY, Mar. 13.

The arrivals of Wheat during the week have been good; the English on offer this morning found a ready sale at fully Monday's prices; Bonded continues to meet a retail demand from the Millers, and two or three cargoes afloat on the coast have been sold at previous rates.—Barley, Beans, and Grey Peas, fully maintain their late value; White are very unsaleable.—Oats are in fair demand, and the turn dearer than on Monday.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English - -	7270	4520	8046	4520 Sks
Irish - -	—	—	—	—
Foreign - -	12260	120	3150	—

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Jan.	31 per Quarter.	54*s* 8*d*	32*s* 8*d*	21*s* 10*d*	35*s* 0*d*	36*s* 6*d*	36*s* 6*d*
Feb.	7 - - -	55 8	30 10	21 7	34 2	35 6	35 6
—	14 - - -	54 9	30 6	21 9	33 7	34 9	35 7
—	21 - - -	55 0	29 11	21 6	33 10	34 9	34 6
—	28 - - -	54 6	29 7	21 5	33 4	34 7	33 9
Mar.	7 - - -	54 10	29 8	21 10	33 6	34 11	33 6
6 weeks' Aggreg. Aver.		54 6	30 8	21 8	33 1	35 0	35 0
Duties on Foreign Grain		12 0	8 0	6 0	9 6	7 6	7 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Mar. 7.

Price.	Jan. 31	Feb. 7	Feb. 14	Feb. 21	Feb. 28	Mar. 7
55s 6d	..	..	..	..	..	..
55 11	..	..	..	..	..	..
56 3	..	..	..	..	..	..
— 8	..	..	..	..	..	..
55 7	..	..	..	..	..	..
— 0	..	..	..	..	..	..
54 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 3	..	..	..	..	..	..
— 2	..	..	..	..	..	..

SEEDS, Mar. 13.

Canary - -	per qr	44*s* to 48*s*	Linseed Cakes, Foreign, p. ton	8*l*	to	8*l*
Carraway - -	per cwt	40 50	Mustard, White - p. bush.	—		—
Clover, Red, English -		80 100	— Superfine „ -	—		—
— — Foreign -		50 62	— Brown „ -	—		—
— White, English -		80 84	Rapeseed, English, per last	28*l*		32*l*
— — Foreign -		48 64	Rape Cakes - per ton	—		—
Coriander - - -		10 12	Safflower - -	—		—
Hempseed - - per qr.		32 36	Tares, Essex, winter p. bush.	—		—
Linseed - - per qr.		42 46	— Foreign -	—		6
— Baltic - - -		40 42	Trefoil - - per cwt.	20		30
— Cakes, Eng. per 1000/111		12*l*	Turnip (too variable for enumeration)			

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS beg to announce that they have received instructions from the Proprietor to submit to Public Competition at the Auction Mart, Bartholomew-lane, on Tuesday, March the 17th, 1846, at 12 o'clock, the valuable collection of SUCCULENT PLANTS, formerly belonging to THOMAS HYTCHEN, Esq., of Norwich, by whom they were collected with extreme care and attention during a long series of years. The above collection will be found well worthy the attention of Amateurs and the Trade.—Catalogues can be had upon application at the American Nursery, Leytonstone; or of ARTHUR MACKIE, at the Norwich Nursery.

TO NOBLEMEN, GENTLEMEN, FLORISTS, & OTHERS.

MESSRS. PROTHEROE & MORRIS will submit to public competition, at the Auction Mart, Bartholomew-lane, on Wednesday, March 18, 1846, and following day, at 12 o'clock, a very fine Collection of CARNATIONS and PICOTEES, comprising all the approved varieties; also a splendid assortment of DAHLIAS in dry Roots, Choice PINKS, HEARTSEASE, ROSES, &c.—May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

MESSRS. C. B. TAIT AND T. NISBET will sell by Auction, at their Great Room, 11, Hanover-street, on Monday and Tuesday, April 6th and 7th, 1846, at one o'clock, the VALUABLE BOTANICAL LIBRARY AND EXTENSIVE HERBARIUM of the late ROBERT GRAHAM, F.R.S., Regius Professor of Botany in the University of Edinburgh, including among the Books, Flora Fluminensis, 9 vols. folio; Hooker and Greville's Icones Filicum, 2 vols. folio; Greville's Cryptogamic Flora, 3 vols.; Curtis's Botanical Magazine, and Edwards' Botanical Register, by Lindley, complete; Roscoe's Monandrian Plants; Decandolle; Astrologia; De Lessert; Icones Selectæ Plantarum, 2 vols.; Labillardiere; Novæ Hollandiæ Plantarum, specimen, 2 vols. folio Bennett; Plantæ Javanicæ Rariores; Smith's English Botany, 31 vols.; Roxburgh's Flora Indica, 3 vols.; Decandolle's Prodromus Regni Vegetabilis, 11 vols.; Transactions of the Linnean Society, &c.

The HERBARIUM consists of an extensive general Collection of European, African, South and North American, East and West Indian and Australian Plants. Orders from gentlemen who cannot attend the sale, addressed to Messrs. C. B. TAIT and T. NISBET, will meet with the strictest attention; from whom also Catalogues of the Sale can be had on application.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, GARDENERS, &c.

MR. JOHN MILLER, of Bristol, will sell by Public Auction, on the Premises, at Sherbourne, Dorset, on Tuesday, March 17, 1846, and following days of business, all the valuable NURSERY STOCK, GREENHOUSE and HERBACEOUS PLANTS, GREENHOUSES, &c., &c., the property of Mr. John Dawson, Nurseryman, whose lease is expired. The Stock consists of fine standard and dwarf trained and quarter Peaches, Nectarines, Apples, Pears, Plums, Cherries, &c.; a choice and general assortment of Evergreens and flowering Shrubs; standard and dwarf Roses, of the newest kinds; also Ash, Oak, Larch, Scotch, Spruce, and Silver Firs; Beech, Elms, Limes, Sycamores, standard Walnuts, &c.; Raspberries, Gooseberries, Currants, Strawberries, Giant Asparagus, Seakale, Rhubarb, &c.; also 550 yards of fine Hornbeam, Evergreen Privet, and Beech-hedges, from 4 to 7 ft. high, Quicks, Hollies, &c.

The Greenhouse Plants consist of Ericas, Indian Azaleas, Cinerarias, Petunias, Camellias, Geraniums, Fuchsias, &c., of the newest kinds. The whole of the Stock is of first-rate quality, fit for immediate planting, and will be sold in lots suitable to every class of purchasers. Also the several Greenhouses, about 100 feet in length.

Catalogues to be had at the Sherborne Nursery; and of the Auctioneer, Westbury, near Bristol. To be on view one week previous to the day of sale.

Sale to commence each day at 10 for 11 o'clock precisely.

MR. J. ELLIOTT will sell by Auction, at the Chapel Nursery, Battersea Fields, on Tuesday, March the 17th, at 11 o'clock, A SPLENDID COLLECTION of STANDARD, HALF STANDARD, and DWARF ROSES, of the most approved sorts; large Ornamental Trees, consisting of Allanthus glandulosus, Weeping and other Worked Limes, Weeping Ash of sorts, Weeping and other Worked Laburnums, Gold-barked Ash, Pyrus spectabilis, Weeping Willows, Rose Acacia, Worked Sorbus, Scarlet Thorns, Large Poplars of sorts, Cedar of Lebanon in pots, Cytisus, Spartium incarnatum, large Laurels, Laurestinus, Rhododendrons, Spruce and Scotch Firs, Yews, Striped Box, Variegated and Green Hollies, Myrtles, Irish Ivies, Ericas, &c. Choice Collection of Carnations and Picotees by name, Geraniums, Pansies, fine Dahlias, Pinks, Double Scarlet Lychnis, Delphinium Barlowii, Pæonia odorata, &c. &c. To be viewed the day before and morning of Sale. Catalogues to be had of the principal Seedsmen; the place of Sale: Mr. GAINES', Covent-Garden; and of the Auctioneer, Putney, Surrey.

TO BE LET, WITH IMMEDIATE POSSESSION, within six miles of the Weybridge Station of the South Western Railway, A WALLED GARDEN, containing about TWO ACRES OF PRODUCTIVE SOIL, Conservatory, Hot and Succession Houses, Pits, and Sheds. The walls are covered with choice Fruit Trees in high bearing and order. A residence for a superior Gardener—accommodation for a journeyman. The implements may be taken at a valuation by the tenant.

For particulars apply to Mr. Wm. Keye, steward, Ockham Park, Ripley, Surrey.

TO BE LET, Furnished, from Lady-day next, for three or five years, with or without Land, and the exclusive shooting over 600 acres of good Sporting Ground, an Excellent HOUSE, with every accommodation for a large family; pleasantly situated in the county of Surrey, 27 miles from town, within 4½ miles of a station on the South Eastern Railway, which will soon be brought to one mile, and a station on the Brighton Railway within 3 miles. Inquire of Col. St. CLAIR, Felcourt Lodge, East Grinstead, Sussex.

TO BE LET, EDMONTON NURSERY.—In consequence of the Proprietor being about to retire from the Nursery business, this desirable Nursery is to be let, with immediate occupation. The whole may be taken at a valuation, or by private contract, and accommodation will be given in the terms of payment, if desired.—Apply personally, or by letter, to Mr. HERCHMAN, at the Nursery, Edmonton, or to Mr. HUGH Low, Clapton Nursery.—March 14.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, and Others.

ABIES CANADENSIS, OR HEMLOCK SPRUCE, —GEORGE BAKER, Nurseryman, Bagshot, having the largest stock of the above in Europe, of all sizes and in fine condition, can with confidence recommend this noble tree to the notice of the Public, and having so large a stock (viz. 200,000 large plants, 8 feet high, besides smaller sizes), can dispose of them at very low prices: also, with a General Nursery Stock. He begs to offer at unusually low prices, in all sizes, the largest assortment of Kalmia latifolia ever offered to the Public.—Prices can be had by letter, and shall be attended to forthwith.

NEW DAHLIAS, VERBENAS, AND FUCHSIAS.

F. AND A. SMITH AND CO. beg to apprise their patrons that their List of the above, containing an extensive assortment, is now ready, and ought to be in the hands of every amateur. Also a List of Vegetable and Flower Seeds, German Stocks, Asters, &c.—Hackney, Mar. 14.

TO THE ADMIRERS OF THE SCARLET GERANIUM.

J. CURTIS, Florist, Balham, Surrey, intends to send out, the first week in April, his superb seedling Scarlet Geranium COMET, not to be surpassed for brilliancy of colour and size of flower.

See Dr. Lindley's opinion of this flower in the *Gardeners' Chronicle*, August 16, 1845:—"J. C. B.—Your seedling is a most brilliant and handsome flower; the individual flowers are larger than usual, and of a dazzling scarlet; the truss before us contains 12 expanded flowers, and 27 buds in different stages of progress; stem stiff, but not stout. We consider this the largest and one of the best of the scarlets we have seen." 10s. 6d. "Strong Plant Seedling Fuchsia EMPEROR, a large and splendid variety, with thick fleshy flower, and of excellent habit: the tube and sepals dark rich crimson, the corolla violet purple. See Dr. Lindley's opinion in the *Gardeners' Chronicle*, October 11, 1845:—"J. M. H.—Your seedling No. 8 is of great substance and depth of colour; this is a fine variety." 7s. 6d.—N.B. No plants will be sent out without a money order.

SPLENDID AND DISTINCT NEW SEEDLING FUCHSIAS.

J. HALLY, Nurseryman and Florist, Blackheath, begs to announce his intention to send out about the 25th March, the following distinct and beautiful FUCHSIAS:—

1. EMPRESS: this is, by all judges who have seen it, allowed to be the best light Fuchsia of the season. For description see *Gardeners' Chronicle*, Sept. 27, 1845:—"J. Y. B.—Your seedling is a beautiful specimen of a light variety, tube and sepals white, the latter slightly tipped with delicate green; it is smooth, shiny, and waxy in texture; the sepals expand well, fully showing the corolla, which is a clear rosy purple. This is the best and most decided of the light varieties we have seen, there being no tinge of pink in the tube." Gardeners' Gazette, Sept. 20:—"J. H.—Very pretty, indeed, and, if not too much like some others, will be a great acquisition. It is as pretty as any light one we have." Again, in answer to B. R. D.—"Hally's is pretty nearly, if not quite, the best we have seen this season." See also, in the same paper, a report of the West Kent meeting of Philanthropic Society of Gardeners, where it was exhibited. This has been challenged against any Seedling Fuchsia of the past season.—10s. 6d.

2. CANDIDISSIMA, tube and sepals clear paper white, having no disposition to turn red under any circumstances. Corolla, a bright rose; a most abundant bloomer. This, though small, is a most beautiful and distinct thing; was exhibited and greatly admired, although a bad plant, at the last July show in the Regent's Park.—7s. 6d.

3. MARCHIONESS OF CAMDEN, a large light flower, with well expanded sepals, and a large rich crimson corolla, resembling Smith's Queen Victoria, but of strong robust handsome habit.—7s. 6d.

4. SILVER GLOBE, a compact globe-shaped flower, expanding well, colour of "Nymph," but tube and sepals more silvery, and corolla more lilac; of very compact habit.—7s. 6d.

*** The Set for 30s.

FUCHSIA SERRATIFOLIA, 5s. each.
SMITH'S QUEEN VICTORIA, 5s.

A large collection of Camellias, and general assortment of Nursery Stock.

AURICULAS, POLYANTHUSES, PINKS, CARNATIONS, AND PICOTEES.

JOHN SLATER, Florist, Cheetham-hill, near Manchester, respectfully calls the attention of the admirers of the above-named Florists' Flowers to his large, healthy, and select collection, which he is selling at moderate prices; Catalogues of which may be had on prepaid application. 12 varieties of Show Auriculas for 18s.; 20 pairs of 20 varieties of Show Carnations and Picotees 20s., package included.

N.B. Nurserymen and others wanting from 100 to 500 pairs of Carnations and Picotees will be supplied at very low prices.

DAHLIAS, FUCHSIAS, PANSIES, AND VERBENAS.
ROYAL NURSERY, SLOUGH, BUCKS.

W. C. BROWN'S DESCRIPTIVE CATALOGUE is ready, and will be forwarded immediately on application. It contains every novelty of the season—each DAHLIA has the grower's description attached. Amongst the first-rate ones are Beauty of Hants, Bohemian Girl, Captain Warner, Lady Charleville, Marquis of Bath (true), Marchioness of Cornwallis, Magician, Newington Rival, Princess Radziwill, Queen of Perpetuals, Sir E. Antrobus, and Brown's Rose d'Amour. The FUCHSIAS are also very select, and contain Newberry's Delicata, Halley's Empress, Epps' Nymph, Lady Julia, and Queen of Virgins, Cassandra, Cleopatra, Duchess of Sutherland, Mrs. Lane, Prince Albert, Pomona, Queen Victoria, Serratifolia, &c. Amongst the PANSIES (for which and Dahlias this Nursery is famous), Brown's Cassandra and King of Saxony, Brown's Arethusa, Curion, Hannibal, Maid of the Mill, Prior, &c., Cloth of Gold, Rolla, Juno, Middleton, Orion, Prince Albert, Pizzaro, Sulphurea Elegans, Tom Pinch, Dido, Perseus, President, Bryant's Perfection, &c. All plants will be sent out very strong. A remittance expected with distant orders, for which the package will be allowed.

W. C. B. begs to observe, he can supply every article connected with the Nursery business. His collection of Pinuses is unique. Osmundia Regalis, just imported from Ireland; small crowns of this magnificent Fern, 5s. each; larger, weighing nearly a cwt., 3l. 3s.—March 14.

GAINES'S SUPERB SEEDLING DAHLIAS, FOR 1846.

PRINCESS RADZIWILL (Gaines's), white, edged with violet, decidedly the best light Dahlia ever seen, perfectly round in outline, two-thirds of a ball, the centre high, very full, double, symmetrical, and constant throughout the season, has been awarded the following prizes.—First Class Prize Stonehenge; first ditto, Bath; first ditto, Teddington; first ditto, Chelmsford; first ditto, Surrey Gardens; first ditto, Cremorne House; the only places it was exhibited; and pronounced by Mr. Glenny, a perfect gem.—See Gardeners' Gazette, No. 30. Height, 3 to 4 feet, 10s. 6d.

PRIDE OF SURREY (Gaines's), rosy purple, of fine form, warranted the best of its colour, perfect outline, the centre high, the petals beautifully cupped, forming two-thirds of a ball, and one of the most constant Dahlias in cultivation; has been awarded two first class certificates, and highly recommended as a first-rate flower. Height, 3 to 4 feet, 10s. 6d.

PULCHELLA (Gaines's), white, laced with deep rose, the centre high, fine cupped petals, large, round, and constant, pronounced by Mr. Glenny a very useful and handsome variety, being a colour much wanted; has been highly recommended. Height, 3 to 4 feet, 10s. 6d.

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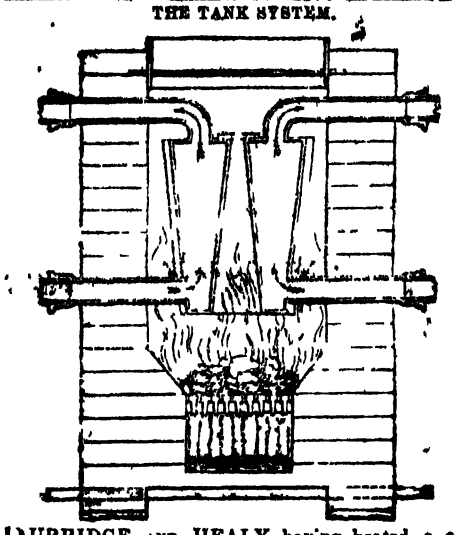
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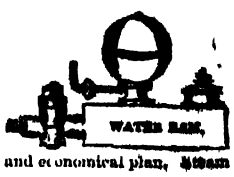
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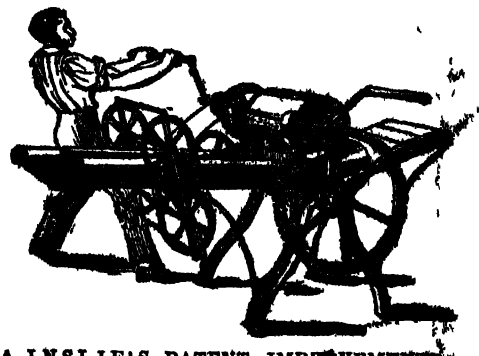


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Agents for Advertisements and Communications are to be addressed to Mr. Mitchell.—Saturday, March 14, 1846

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 12.—1846.] SATURDAY, MARCH 21. [Price 6d.

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STAMFORD HILL HORTICULTURAL SOCIETY.—The EXHIBITIONS of this Society for the present year will be held on the undermentioned days viz.

Tuesday, 12th May next,
Tuesday, 16th June next,
Friday, 24th July next

The above Society is confined to the resident gentry and Amateurs, but, for the general encouragement of Horticulture, prizes are awarded to Nurserymen, who are invited to compete among themselves at each Exhibition.

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Assistant Professor, Dr Blyth

The Laboratory opened on the 16th inst, for the Second Session, which ends July 31. The method of Study pursued is that of Giessen Every Student works an Analysis by himself, under the immediate and constant direction of the Professors, so that a practical knowledge of Chemistry, and skill in manipulation, are attained simultaneously

Fee for every day during the Session, 12l 10s, for four days a week, 10l, for three days, 8l, for two days, 6l, and for one day in every week, 4l, materials included.

By Order of the Council John Gardner, M D, Sec.

ARCHÆOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

The next MEETING of the Subscribing Members will be held on FRIDAY, the 3d of APRIL, at the Rooms of the Institution of Civil Engineers, 25 Great George-street, Westminster.

The subject for special discussion will be—

"The Art of Design as applied to the Illumination of Manuscripts, and the peculiarities which mark the productions of each country"

Members who cannot personally attend, are invited to forward, by any friend, Mss which they may consider as likely to bear on the subject.

Archæological Institute Apartments, 12, Haymarket.

Attendance from 12 to 3 daily.

T. Hudson Turner Secretary

The ANNUAL MEETING of the INSTITUTE will take place at York, under the patronage of his Grace the Archbishop, President, the Earl FITZWILLIAM, commencing [illegible]

A [illegible] KIDNEY POTATOES, free from disease, to be had [illegible], of Mr J. Nutting, Seedsman, 52, [illegible]

THE [illegible] FREE STURMER PIPPIN [illegible] take this medium of [illegible] inquiries respecting the above A[illegible] given, with a drawing of its fruit. [illegible] Sciontons, by inclosing 3s 6d in stamps [illegible] their Nurseries, Sturmer, near Haverhill, Suffolk.

P.S. A [illegible] to inspect, price upon application

[illegible] AND PICOTEES

M[illegible], NORMAN continues to supply a few pairs [illegible] selection of show varieties grown, [illegible] Flatmoss Catalogues can be [illegible] Gull Fields, Woolwich.

[illegible]—AUGUSTA, GIPSEY [illegible] WILLIAMS, LORD MOR[illegible]

[illegible] to intimate that he has about [illegible] beautiful Seedlings to offer, [illegible] pots, and can be sent [illegible] to any part of the United Kingdom. Warranted [illegible] for Cash, is 6d. the Six, [illegible] Orders [illegible] must accompany the [illegible], 24s., 36 do. 3s., post free.

[illegible] MARKET, SUFFOLK.

S[illegible] CATALOGUE OF [illegible] FLOWERS, can now be had [illegible] application, containing nearly every new [illegible] of the season. A [illegible] Catalogue of ROSES and [illegible] is also ready, and will be sent, if required.

FOR SALE.—A LARGE QUANTITY OF SPLENDID TURF.—Apply to J. Hamilton and Son, Keppel-street, Chelsea.

E. BECK informs the Public that the various Articles manufactured by him in Slate for Horticultural purposes, may be seen in use at Worton Cottage, Isleworth, upon application to the gardener (Sundays excepted)

THE NEW WHITE FUCHSIA
JACKSON'S "MRS FREDERICK MILBANK."

WM JACKSON and Co., Nurserymen, beg to state that they have determined upon reducing the price of this magnificent Fuchsia to 7s. 6d each, and will return the whol amount should it prove otherwise than represented (See Advertisement of the 29th ult.) The whole of the plants will be sent out the beginning of next month The usual discount to the trade, A reference or remittance from unknown correspondents is respectfully solicited

W J and Co can also supply the following at the annexed low prices —Fuchsia serratifolia, 5s each, 12 splendid Prize varieties of Fuchsias, 3s, 12 ditto Geraniums, 5s., Cineraria Lady Prudhoe, 5s; ditto Countess of Zetland, 5s each Best set of 6 varieties, including these beautiful sorts, 17s 6d.—Cross Lanes Nursery, Bedale, Yorkshire, March 21.

NEW DAHLIAS, VERBENAS, AND FUCHSIAS.

F. AND A. SMITH and CO. beg to apprise their patrons that their List of the above, containing an extensive assortment, is now ready and ought to be in the hands of every amateur Also a List of Vegetable and Flower Seeds, German Stocks, Asters, &c.—Hackney, Mar 21

GRASSES, TURNIPS, MANGOLD WURZEL, &c. &c., sold by J G WAITE

GRASSES

Poa Trivialis, 60s per cwt.
,, Pratensis 60s do
,, Nemoralis, or Wood Grass, 65s do.
Timothy Grass, 45s to 80s. do
Lucerne (New), 70s to 80s do
Cock's-foot, 5s. to 6s 6d. per bushel.
Crested Dog's-tail, 20s to 24s. per cwt.
Meadow Fescue, 4s per bushel.
Hard do, 7s do
Sheep's do 12s do
Meadow Foxtail 5s do
Yorkshire Hay Grass, 1s 9d do
Italian Rye Grass, 8s to 12s do
Pacey's do 4s to 6s do
Sweet Vernal, 2s per lb
Furze French, 80s per cwt
Tares (Spring) 6s. to 7s 6d per bushel
Trifolium incarnatum, 40s per cwt
Splendid mixed Pasture Grass, 4s to 7s per bushel
,, Lawn do, 10s to 12s 6d do.

TURNIPS

Stubble 21s per bushel

TURNIPS—continued.

White Stone 21s per bushel
White Round, 21s. do.
Green do 18s do.
Red do. 21s. do.
White Tankard 23s do.
Green do 22s do.
Red do. 21s. do.
Purple Topped Swede, 23s do
Improved do 22s do
Green do 20s do
Skirving's Improved Liverpool Swede 21s do.
Laing's do 25s do
Matson's do 24s do

MANGOLD WURZEL

Fine Improved Long Red, 50s per cwt
Long Yellow, 70s do
Yellow Globe, 60s do.
Red do 70s do

With every other kind of Horticultural Floricultural, and Agricultural Seeds in cultivation too numerous to insert

Terms—Cash or reference in London from unknown correspondents —4 Eyre-street hill, Hatton garden, London, Mar. 21.

MESSRS. J. AND H BROWN beg to inform the Nobility and Gentry that they will send the following desirable Plants to any part of the United Kingdom —

Andromeda floribunda, per dozen	24s	0d
Epigæa repens, quite hardy, each	2	0
25 New Hardy Ghent Azaleas, one of a sort, named	25	0
25 Hardy American Azaleas do do	15	0
12 Rhododendrons, best hardy sorts including Scarlet, White, and Rose-coloured varieties	12	0
25 Choice Hardy American Shrubs of sorts	10	6
Magnolia Grandiflora, Conspicua, Glauca, Purpurea, and Fuscata, each	3	6
Briobotrya Elliptica, and Japonica, each	3	6
Berberis Glaumacea, and Tree Peonies, each	5	0
6 Superior Dwarf Roses, on their own roots, named	10	6
12 Do Climbing Roses, do do	3	0
Cloth of Gold, do do each	3	6
Devoniensis, and yellow Noisette, do do per dozen	9	0
Lilium Lancifolium, Album, Punctatum, and Speciosum, one of each for	30	0
Camellias, of sorts per dozen	30s to 40	0
12 Superior sorts of Greenhouse Azaleas	30	0
6 Do do. do	18	0
12 Do do. Ericas	15	0
12 Do do. Geraniums	12	0
6 Pair Choice Gernations	12	0
Lobelia Fulgens, Splendens, and Serotina, per dozen.	3	0
12 Best Perennial Phloxes, one of a sort	3	0
Enothera Macrocarpa and Tenuifolia, per dozen	2	0

Choice selections of Flower Seeds, in packets, 5s. and 10s. each, sent free by post

Albion Nursery, Stoke Newington, London.

SEED POTATOES.

WARNER AND WARNER, Seedsmen, 28, Cornhill, opposite the Royal Exchange, London, have just received a large supply of the following early and second EARLY TABLE

Chinese Round, very early and prolific, introduced by Messrs. Dickson, of Chester, 5s per peck.
Ashleaved Kidneys, 3s. per peck
Northumberland Prolific, very early and fine flavour, 5s. per bush.

Where a large quantity of the last-named is taken, an allowance will be made in price.

N.B. See next page for an abridged list of Choice Flower and Vegetable Seeds

NEW AND SUPERB CINERARIAS
Woodlands Nursery, Maresfield, Uckfield, Sussex.

WM. WOOD AND SON have an extensive Stock of the above desirable Spring Flowering Plants, well established, and now coming into bloom, which they beg to offer as under:—

12 fine varieties, for	..	..	..	..	6s.
12 superior ditto	..	..	..	..	12s.
12 superb new ditto	..	..	..	..	18s.
25 extra fine ditto	..	..	..	..	25s.
25 superb ditto	..	..	..	..	36s.

W W. & Son are still issuing their new and much enlarged Catalogue of GREENHOUSE, STOVE, AND HERBACEOUS PLANTS, Camellias, Fuchsias, Verbenas, Petunias, Cinerarias, Chrysanthemums, and other plants suitable for bedding. To which is added, a choice selection of Roses, Conifers, Shrubs, and Climbers, cultivated in pots

Copies of the above will be sent, GRATIS, on application; and those friends who have hitherto favoured W W & S. with their commands will receive the same in due course

GENUINE HARE RABBITS.—THE LARGEST AND FINEST BREED IN THE KINGDOM This large, beautiful, and scarce variety has great length and depth of carcase great width and substance of loin, long erect ears, and weighs, when at maturity, from 16 to 17 lbs Are as hardy and prolific as the common or wild rabbit, from one to two months old, 12s per pair, three to four months, 18s, older, 25s. Free to London

Apply to Mr. John Bartt, Market-place, Great Yarmouth.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, and Others.

ABIES CANADENSIS, OR HEMLOCK SPRUCE.—George Baker, Nurseryman, Ragshot, having the largest stock of the above in Europe, of all sizes and in fine condition, can with confidence recommend this noble tree to the notice of the Public, and having so large a stock (viz. 200,000 large plants, 3 feet high, besides smaller sizes), can dispose of them at very low prices also, with a General Nursery Stock. He begs to offer at unusually low prices, in all sizes, the largest assortment of Kalmia latifolia ever offered to the Public —Prices can be had by letter, and shall be attended to forthwith.

SEA-SIDE PLANTING—BLACK SALLOW.

JAMES GRIGOR, Nurseryman, Norwich, begs to state that he has just been awarded the Gold Medal of the Highland and Agricultural Society for a plan of planting maritime situations, as most successfully adopted on exposed north-west situations on the Cliffs of the German Ocean in the County of Norfolk This triumph of Arboriculture has been chiefly accomplished by the use of the NORFOLK BLACK SALLOW—a most determined grower, even when closely exposed to the influences of the sea air, Yarmouth, Hunstanton, Harwich, Aberystwith, Brighton, Hiddington, and other seaside towns and villages, have already availed themselves of this tree, so that the long wished-for desideratum, that of being able to contemplate the grandeur of the ocean from the shelter of a sylvan bower, is now being supplied on the easiest of terms

Strong slips packed included and carriage paid to London or Hull, 10s per 100, Important directions with each packet.

J G continues to supply plants of his valuable HIGHLAND PINE-TREE at from 3s to 50s per 1000, according to size.

I very particularly admire the Highland Pine."—*Duke of Newcastle*.—Nurseries, Norwich, March 21

SHRUBS, &c., AT VERY LOW PRICES.

WILLIAM E. RENDLE & CO., having a very large stock of the following SHRUBS, &c., and wishing to clear the ground they occupy, offer them at *unusually low prices*. Those gentlemen therefore, who are in want, will find the present a *rare opportunity* for procuring stock.

All the plants are in robust and healthy condition

Ilex Oak, 3 years' seedlings, in pans	..	20s	0d.	per 1000
,, fine transplanted 6 to 9 inches	..	7	6	per 100
Chinese Arborvita, fine transplanted, 18 inches		15	0	,,
Cypress do	18 inches	15	0	,,
Hays, 1 year seedling, from pans	.. ..	5	0	,,
Arbutus do do.	.. ..	5	0	,,
Cistus laurifolius, fine transplanted	.. ..	15	0	,,
Spruce Firs, 3 years' seedling	.. ..	1	6	per 1000
Ash, 1 year seedling	.. ..	1	0	,,
Hollies do	.. ..	7	0	,,
Beech, 2 years' seedling	.. ..	3	0	,,
Scarlet Oak, 3 years' seedling	.. ..	4	0	per 100
Seakale, fine roots	.. ..	3	6	,,
Asparagus, Judd's Giant, fine roots	.. ..	2	6	,,

All orders above 3l. will be delivered free of carriage to London, Liverpool, or Bristol. Post office order or reference from unknown correspondents.

Plymouth, March 21.

SEEDLING FUCHSIAS.—No 6, DUKE OF NORFOLK, white tube and sepals with a slight tip of green, very dark rosy purple corolla. Price 10s. 6d. per plant.

No 7 DELICATA fine large [illegible] tube and sepals, the latter tipped with green, crimson purple corolla. Price 7s. 6d per plant

No. 10 MARY ANN, short pale tube, nearly white, with long expanded sepals, bright red corolla, very distinct and handsome

J. Barraway has devoted much attention to raising SEEDLING FUCHSIAS during the last few years, and feels encouraged in obtaining the beautiful varieties he offers to the public, confident that they will give the greatest satisfaction as his Norfolk Hero did in 1845, they have been submitted to Dr Lindley for his opinion, which is as follows:—*Gardeners' Chronicle*, Aug 2. "J. Barraway's seedling Fuchsias are flowers of good substance, superb in texture, and surpassing clear and bright colour: Nos 7, 8, and 10 are [illegible] light sorts, showy and pleasing."

To be sent out the first week in April The varieties [illegible] to the Trade.—East Dereham, Norfolk, March 21.

AN ABRIDGED LIST OF NEW AND CHOICE FLOWER AND VEGETABLE SEEDS,

SOLD BY

WARNER AND WARNER, SEEDSMEN AND FLORISTS,

No. 28, CORNHILL, OPPOSITE THE ROYAL EXCHANGE, LONDON.

Packets of the following choice Flower Seeds can be had at 6d. per paper, except where marked 1s.

Acacia, several choice vars.
Achimenes rosea superba, 1s.
,, hirsuta, quite new, 1s.
Agathea spatulosa
Agrostemma, new species from India
Alonsoa grandiflora
Alstrœmeria Hookerii
,, Barclayana
Anagallis coccinea splendens
,, monelli major
Anchusa capensis
Andromeda buxifolia, 1s.
Anemone vitifolia
,, new hybrid
Antirrhinums hybridum, 20 shades of colour mixed
Aquilegia, four new varieties, separate
Arabis crispata
Atropa mandragora
Auricula, from fine named show flowers, 1s.
Azalea carminata, new, 1s.
Balsam, fine double Camellia flowered, mixed
Brachycome iberidifolia, 1s
,, lilac, new
,, white, new, 1s
Boladutalia Douglasii
Cactus, choice kinds, 1s.
Calceolaria, shrubby and herbaceous, from the most splendid flowers
Calandrinia grandiflora
Calliopsis picta
,, heterophylla
Campanula strieta
,, grandiflora
,, Loreli, blue and white
,, double white and violet
Canna, in varieties
Carnation, from fine-named show flowers, 1s.
Centaurea Americana
Chorizema varium
Chamosterna polyantha
Cineraria, saved from the most brilliant blue and crimson flowers
Clerodendrum squamatum
,, fallax
Clintonia pulchella
Cobœa scandens
,, stipularis
Cockscomb, new giant scarlet
,, new dwarf yellow
Convolulus minor, dark purple
,, inflatus
,, minor albo
Crepis barbata
,, Drummondi
Cyclamen, three varieties mixed
Cynoglossum longifolium
Cytisus Atleanii, new and splendid, 1s.
,, racemosus
Dahlia, from choice named flowers, 1s.
Datura, double white and purple
Davisia saligna
Delphinium grandiflorum
,, choice varieties separate
Dentaria pentaphylla
Dianthus Chinensis, extra fine double
Digitalis grandiflora
Eccremocarpus scaber
Egg plant, new long white, from China
Elichrysum, superb new var., from the Swan River
Erica andromæditlora } 1s
,, Cavendishii } each
,, vernix coccinea }
Eucharidium grandiflorum
Eutoca Menziesii
Fuchsia fulgens, splendid dark varieties, 1s.
,, from the finest named show flowers, 1s.
Gaillardia coccinea splendens
,, Wellsiana
Gardoquia betonicoides, 1s.
Genista tinctoria, beautiful
Geranium, from the finest named show flowers, 1s.
Gesnera Cooperii
Gourd grandiflorum
Gilia splendens nova
,, rivalis new
Gladiolus Hertertiana
Gloxinia rubra splendens, 1s.
,, Youngii, 1s.
,, Monroesii, 1s.
Godetia roses splendens
,, aurea
,, pubescens
Grahamia aromatica
Heartsease, from choicest named show flowers saved by Thompson and other eminent growers.
Hibiscus Manihot, splendid
,, liliiflorus var. Barclayana. 1s
,, sinensis Parkeril, 1s
,, speciosa
,, coccinea
Hollyhock, 24 sorts mixed, extra fine
,, new rose Camellia flowered
Hoves Manglesii
Hugelia cœrulea
Ipomœa rubra cœrulea, 1s.
,, triloba alba
Ipomopsis elegans
Jacobœa, double dark crimson
Kennedya, choice kinds
Lallemantia peltata
Larkspur, German, fine mixed
Lisianthus Russellianus, 1s., with printed directions
Linum, choice varieties
quadrifolium
Lobelia pentlandica
Lobelia ramosa, beautiful
,, propinqua, very pretty
Lupinus Hartwegii
,, ramosus alba
,, German, 12 vars., mixed
Lychnis alba nova
Marigold, French and African, 20 vars. separate, most superb, 7s. 6d., raised by Mr. Usher.
Martynia fragrans, 1s.
Maurandia Barclayana
,, rosea
Melissa grandiflora
Mesembryanthemum albo
,, pyropmum
Mimosa leucocephala
Mimulus Deuhamii, sweet-scented
,, splendens
Morina longifolia
Myosotis palustris, or Forget-me-not
Nemophila discoidalis, black
,, striata, quite new, 1s
Nepeta macrantha
Nicotiana, scarlet
Œnothera Drummondii
,, odorata
,, speciosa, pretty
Papaver bracteata
,, alpina lutea
Passiflora edulis
Paulownia imperialis
Pentstemon splendens
Petunia grandiflora, beautiful
Phlox Drummondii
,, large crimson
,, choice perennial vars.
Picotee, saved from the finest English named flowers, 1s.
Pinella hypericifolia & rosea
Pink, intermediate, very pretty
Pink, from fine named flowers, 1s.
,, Chinese, new double, fine
Phalangium liliago
Polemonium grandiflorum, from Northern India
Polyanthus, fine mixed, from named prize flowers, 1s.
Paonia, finest mixed
Portulaca splendens
Poppy, fine mixed from imported varieties
Potentilla insignis
,, grandiflora
Primula cortusoides
,, sinensis rubra, fimbriata
,, alba, ditto
Rhodanthe Manglesii
Rhododendron campanulatum beautiful, 1s.
Salpiglossis, 20 varieties mixed, superb
,, 4 varieties, separate
Salvia patens
,, 3 other named sorts
Sanvitalia procumbens
Scabiosa, German mixed, extra fine
Schizanthus albus
,, retusus superbus
Schizopetalon Walkerii, sweet scented
Silene speciosa
Solanum cerasiforme
Stachys coccinea
Statice cephalanthe
Stocks, German imported, 24 varieties, mixed
,, Queen's Bouquet, most beautiful, new, 1s.
,, Moss's intermediate
,, Emperor, new and splendid
,, Chamois, yellow, large flower, 1s.
Sweet William, double variegated
,, dark rich colour
Tetranema Mexicana, new, 1s
Thunbergia, mixed
Torenia scabra
Tradescantia erecta
Tropeolum Jarrattii
,, brachyceras
,, pentaphyllum
Tweedia cœrulea
Verbena, from the newest and best named flowers
Veronica speciosa, new and beautiful, 1s.
Viola erecta
Vinca rosea and alba
Viscaria oculata
Wallflower, new violet
,, dwarf blood colour, superb
Wallflower, new double gigantic, bronzy red, 1s.
Wahlenbergia capillaris
Xeranthemum robustum luteum
Zinnia Elegans, mixed

With many other varieties too numerous for insertion. See General Catalogue, and "Harrison's Floricultural Cabinet," for March.

GERMAN SEEDS IN COLLECTIONS.

Asters, 24 vars. imported, very beautiful	5	0	the collection.
,, 12 do.	3	0	,,
Balsams, 12 do., very fine and double ..	3	0	,,
Cockscombs, 12 do., beautiful	3	6	,,
Hollyhocks, 12 do., do.	3	0	,,
Larkspurs, 12 do., splendid	3	0	,,
Pæonies, 12 do.	3	0	,,
Poppies, 12 do.	3	0	,,
Scabious, 12 do., splendid	3	0	,,
Stocks, 36 do., most beautiful and double	6	0	,,
,, 12 do., Wall-leaved	3	0	,,
,, 12 do., Giant Brompton	3	6	,,
Wallflower, 8 do., very handsome ..	3	0	,,
Zinnias, 12 do., beautiful	3	0	,,

The above German seeds are all of the very best quality, and can be confidently recommended.

CHOICE VEGETABLE SEEDS.

Beet, Whyte's fine blood-red, extra, p. pkt. 0 6
,, Brazilian, variegated, beautiful for garnishing - - 0 6
Broccoli, Walcheren, true, comes in very early 0 6
,, Elletson's Superb April White Broccoli, with instructions for culture 5 0
,, Metcalfe's imperial Pink Cape - - 0 6
,, Early white autumn 0 6
,, Cheltenham, new, a very large and most excellent late variety - - - 0 6
,, Warner's new superb White - - 0 6
,, Hale's new Hardy Cape, a very superior kind - - 0 6
Brussels Sprouts, imported - - 0 6
Cabbage, Warner's Incomparable, the earliest sort known, most delicious flavour - - - 0 6
,, The Queen (new), very fine flavour - 0 6
Carrot, fine Scarlet Studley - - - 0 6
Cauliflower, fine early Asiatic - - 0 6
,, Large, late London, fine - - - 0 6
Celery, White, The Monster - p. pkt. 0 6
,, Wonder, large Red, solid - - - 0 6
Couve tronchouda, a delicious vegetable - 0 6
Endive, new transparent yellow, beautifully curled - - - 0 6
Lettuce, Paris Cos, extra 0 6
,, Imperial Winter Cos 0 6
,, New Summer Cabbage - - - 0 6
,, New, Winter Cabbage - - - 0 6
Ohio Squash, a most delicious variety of vegetable marrow 0 6
Onion, large White Portugal - - - 0 6
,, Large Madeira, new 0 6
Parsley, extra fine double curled, beautiful for garnishing 0 6
Radish, early short top, transparent - - 0 6
,, French scarlet, olive-shaped - 0 6
Scandix bulbosa, or Turnip-rooted Chervil, a most delicious vegetable - 0 6
Strawberry, Alpine, Red and White - - 0 6
Turnip, Early Snowball, fine - - - 0 6

A General Catalogue of Garden and Flower Seeds may be had on application, by post, as a single letter.

IMPROVED GIANT ASPARAGUS.—This favourite Vegetable may now be cultivated at less than half the customary expense, by having the Improved Giant variety, which may be cut the following spring the beds are made. Plants, 5s. per 100, with printed particulars for cultivation, may be had of WARNER & WARNER, Seedsmen, 28, Cornhill, London. Fine Seakale, Rhubarb, &c.

RHODODENDRONS, AND THE TRUE "DURMAST" ENGLISH OAK (QUERCUS SESSILIFLORA),

The most valuable species, producing Timber of the largest dimensions and the highest price.

WROGERS AND SON, NURSERYMEN AND CONTRACTING PLANTERS, Southampton, having for many years paid particular care and attention in obtaining a stock of this splendid Oak, by procuring seeds from the finest specimens in the New Forest (their establishment being near its borders), beg now to state they have a fine Stock of Plants for sale, and that this is the best season for their removal and planting, as also for the Rhododendron, which from the particular adaptation of the soil of a large portion of their grounds, they grow to a great extent, and can offer at the low scale of prices quoted below:—

OAK: The true English "Durmast" of the New Forest (Quercus sessiliflora).
1-year seedling, 5s.; 2-years, 7s. 6d.; 3-years, 10s. per 1000.
Transplanted, 1, 2, 3 years, 20s. 40s. 60s. per 1000.

RHODODENDRON PONTICUM (excellent for cover),
4 inches, 40s.; 6 inches, 60s.; 9 inches, 80s. per 1000.
1 foot, 20s.; 2 feet, 40s per 100.
Roseum, 1 foot, 50s. per 100.
Hybridum, 1 foot, 12s. per dozen.

SEA PINE (Pinus maritima), excellent for exposed aspects.
1-year seedling, 7s. 6d per 1000; transplanted, 20s. per 1000

RHUBARB, the Common Tart (Rheum raphorticum) 10s. per 100.
Myatt's Victoria, 40s. per 100.

If ordered in less quantity than the above quotations, the charge will be at retail prices.

RARE AND BEAUTIFUL COLUMBINE.—The subscribers beg to offer strong plants of their AQUILEGIA GLANDULOSA, sent free by post at 1s. 6d. per pair, or 6s. per dozen, or for stamps of that value. The plant is adapted to the open ground, being a hardy perennial. The following is the opinion of the Editor of the *Gardeners' Chronicle*, extracted from that paper of 29th Nov. last:—"NEW PLANTS: John Grigor. Your Aquilegia is certainly one of extraordinary beauty; a flower now before us is upwards of 4 inches in diameter. We have often wondered that Aquilegias were not more the object of a gardener's care."—JOHN GRIGOR and Co., Nurseries, Forres, N. B.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. NEIGHBOUR & SON, that they have prepared, for the season an extensive supply of their various improved BEE-HIVES; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a postage stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

NUTT ON BEES, (6th Edition) just published.

NURSERYMEN AND FLORISTS TO HER MAJESTY THE QUEEN.

NEW AND SUPERB WHITE FUCHSIA.
"SANSPAREIL," 10s. 6d. per plant.

YOUELL AND CO. beg to call the attention of cultivators of FUCHSIAS to the above Seedling, which they will guarantee is not surpassed by any light variety yet raised, and will give general satisfaction, and refer to the following remarks upon it:—

"A correct representation of it may be seen at the Nursery."

"An elegant flower, light tube and sepals, with purple crimson corolla."—See *Gardeners' Chronicle, Sept. 20th, 1845.*

"A NEW WHITE FUCHSIA.—We have just seen a magnificent white seedling Fuchsia, raised by the Messrs. YOUELL. The flower is about 3 inches in length, the tube and sepals white, and resembles 'Venus Victrix,' but is three times its size, and is much more brilliant and fair in colour. It should be called 'Sansparell,' as it is most assuredly one of the most beautiful of its species. We quite envy Messrs. YOUELL their prize."—*Editor of the Cambridge Advertiser, Oct 1st, 1845.*

Their 5 other fine Seedlings (for particulars of which see their Advertisement of the 17th ult.) will be ready for sending out with the above in the early part of May, and when the set is taken, will be charged 1l. 11s. 6d.

FUCHSIAS.
(Now ready for sending out, per post free or otherwise.)

12 Ex. fine Varieties, 12s.	Selection left to Youell & Co.	
12 Ditto ditto 21s.	Selection left to Purchaser or do.	
50 Fine Varieties 40s.	Selection left to Youell & Co.	
50 Extra fine ditto 60s.	Selection left to Purchaser or do.	

SELECT SEEDLING VERBENAS (raised 1845.)
Exquisite, 5s.; Grandissima, 5s.; Helena, 3s. 6d.; Celeste, 3s. 6d.; Aurora, 3s. 6d.; Auberon, 3s. 6d. For description of the above, see their Advertisement of March 1st. They will be ready for sending out, per post, free, or otherwise, the first week in May, at 21s. the set.

12 fine varieties	6s. per dozen.
12 Extra ditto, very superior	10s. ,,
PANSIES, 12 fine varieties.	10s. ,,
,, 12 Extra ditto, very superior, first-rate show flowers	18s. ,,
PETUNIAS, 12 ditto	9s. ,,
CINERARIAS, 12 ditto	12s. to 18s. ,,

ERICAS, fine and free-flowering sorts, by name, 9s., 12s., and 18s. per dozen.

Superb new heavy-edged PURPLE PICOTEE, "BURROUGHES'S PRESIDENT," 10s. per pair. For particulars, see *Gard. Chron.* of 11th Oct.

Also, "BURROUGHES'S DUKE OF NEWCASTLE," the best light-edged Purple Picotee, 15s. per pair.

CARNATIONS AND PICOTEES.

			£	s.	d.
12 pairs extra fine and very superior first-class Show Flowers, by name			2	10	0
25	ditto	ditto	5	0	0
12	ditto	Fine Show Flowers ditto	1	10	0
25	ditto	ditto ditto	3	0	0

12 pairs Showy Border Flowers ditto, 12s.
Extra fine Show Pinks, by name, per dozen pair, 12s.

HERBACEOUS PLANTS, fine sorts, 6s. to 9s. per dozen.
RIBES SANGUINEUM FLORE PLENO, 7s. 6d per plant.
80 Packets of New and Choice FLOWER SEEDS, per post. free, for 6s.

True FASTOLFF RASPBERRY, 24s. per 100.
The finest Mixed RANUNCULUSES, all from named flowers, 12s. per 100.

*** Foreign Orders carefully executed so as to ensure safe transmission.

N.B. Steam Ships to London three times a week; to Hull, twice a week; and per rail to London every eight hours.

Their CATALOGUE for 1846 is just published, containing a list of prices of the very best Fuchsias, Verbenas, Select Plants, Camellias, Ericas, Coniferous Plants, Petunias, Cinerarias, Pansies, Chrysanthemums, Antirrhinums, Polyanthus, Herbaceous Plants, Carnations, Picotees, Pinks, &c. &c., which will be forwarded on application by enclosing two postage stamps.

Great Yarmouth Nursery, Mar. 21.

SPLENDID AND DISTINCT NEW SEEDLING FUCHSIAS.

J. HALLY, NURSERYMAN and FLORIST, Blackheath, begs to announce his intention to send out about the 25th May, the following distinct and beautiful FUCHSIAS:—

1. EMPRESS this is, by all judges who have seen it, allowed to be the best light Fuchsia of the season. For description see *Gardeners' Chronicle*, Sept. 27, 1845:—"J. Y. B.—Your seedling is a beautiful specimen of a light variety, tube and sepals white, the latter slightly tipped with delicate green; it is smooth, shiny, and waxy in texture; the sepals expand well, fully showing the corolla, which is a clear rosy purple. This is the best and most decided of the light varieties we have seen, there being no tinge of pink in the tube." Gardeners' Gazette, Sept. 20:—"J. H.—Very pretty, indeed, and, if not too much like some others, will be a great acquisition. It is as pretty as any light one we have." Again, in answer to R. R. D.—"Hally's is pretty nearly, if not quite, the best we have seen this season." See also, in the same paper, a report of the West Kent meeting of Philanthropic Society of Gardeners, where it was exhibited. This has been challenged against any Seedling Fuchsia of the past season.—10s. 6d.

2. CANDIDISSIMA, tube and sepals clear paper white, having no disposition to turn red under any circumstances. Corolla, a bright rose; a most abundant bloomer. This, though small, is a most beautiful and distinct thing; was exhibited and greatly admired, although a bad plant, at the last July show in the Regent's Park.—7s. 6d.

3. MARCHIONESS OF CAMDEN, a large light flower, with well expanded sepals, and a large rich crimson corolla, resembling Smith's Queen Victoria, but of strong robust handsome habit.—7s. 6d.

4. SILVER GLOBE, a compact globe-shaped flower, expanding well, colour of "Nymph," but tube and sepals more silvery, and corolla more lilac; of very compact habit.—7s. 6d.

The Set for 30s.

FUCHSIA SERRATIFOLIA, 5s. each.
SMITH'S QUEEN VICTORIA, 5s.
A large collection of Camellias, and general assortment of Nursery Stock.

ONE HUNDRED TONS OF SEED POTATOES.—RED KIDNEY POTATOES free from disease, and of the very best quality, are on SALE at East Wickham Farm, near Welling, Kent, about 10 miles from London. Price 5l. per ton on the farm, or delivered free on board at Woolwich at 5l. 10s. per ton. Apply to Mr. W. DICKSON, on the premises.

JOSEPH FRYER begs to call the attention of the Public to his extensive collection of first-rate PANSIES, which are now in the finest possible condition, and can be supplied, free by post, at very moderate prices; likewise, new Fuchsias, Petunias, Verbenas, and everything connected with the Nursery and Seed business. Catalogues forwarded on application. Five selected Pansey and Petunia Seed 1s. and 2s. 6d. per packet. Clareudon Nurseries, Camberwell, London.

HORTICULTURAL SOCIETY OF LONDON.—Notice is hereby given, that the EXHIBITIONS of FLOWERS and FRUIT, in the Society's Garden, in the present season, will take place on the following SATURDAYS, viz., May 9, June 13, and July 11; and that Tuesday, April 21, is the last day on which the usual Privileged Tickets are issued to Fellows of the Society.

The Gardeners' Chronicle.

SATURDAY, MARCH 21, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, Mar. 25	Society of Arts	8 P.M.
Friday, April 3	Botanical	8 P.M.

We heartily sympathise with our mere horticultural friends who are weary of the POTATO question. We assure them that we are of the same mind as they; and in proof of our sincerity we have this day endeavoured to dispose of the question by printing a double Number. Henceforward, we trust that it will not occupy any undue space in our columns, although its importance is such that no consideration will induce us to neglect it. Next week, therefore, we shall return to more miscellaneous matters, which we frankly admit have been too long, though unavoidably, neglected.

ALTHOUGH a sense of public duty has compelled us to bring before the public in the strongest possible way the uncertainty and risk that attend the POTATO CROP, under existing circumstances, yet we are not so insensible to the real value of the plant as to wish to see it disappear from cultivation. On the contrary, we believe it to be impossible to replace it with any crop upon the whole equally useful, if it is applied to its proper purpose, and not made the almost exclusive food of millions, as it now is. In the hope, therefore, of assisting in restoring this important article of food to its healthy condition, we propose to offer a few suggestions as to the kind of experiments which it may be advisable to try in the present emergency.

1. Mr. FORSYTH, in his valuable pamphlet, adverted to on a former occasion (p. 132), recommends that Potatoes should be planted on raised beds, 4 ft. wide, running north and south, and so inclined, that the sun's rays shall strike the east side of the bed in the morning, and the west side in the evening. He also proposes that these beds shall be separated by trenches 3 ft. deep; and gives some other details, for which we must refer to the pamphlet itself. The principal objection to his system is the cost of carrying it out; for he states that his "active" bed requires six times as much digging as the Irish "lazy" bed. He, however, only recommends this plan for gardeners, and modifies it considerably in field culture. As the directions for the latter are short we extract them entire.

"In preparing a field, or any portion of plough-land for Potatoes, then, instead of the ploughing, harrowing, and cross-ploughing, with the necessary drilling to receive the dung, and again drilling to cover the dung and sets, the whole process will be very easily managed, and with a very few simple and inexpensive tools, if the common plough be made to perform all the heavy labour, and the pointed shovel be only used to correct the arrangement of the soil.

"At Williamstown, in Aberdeenshire, a contractor undertook to trench a piece of land, previously to its being planted with forest trees; and, his price being very much under that of his competitors, he got the job, and no one envied him his bargain. A strict look-out was kept to see in what manner he would perform the work; and, to our surprise, his first operation on the land was with the *plough*; and he had a gang of men just to place the soil which the plough loosened in right trenching form; and with this arrangement his men never had to thrust either spade or mattock into the hard ground once during the whole job; but only had to shovel earth, as it was loosened by the plough: first, turning the green sod into the bottom of the trench, and then the bottom furrows of fresh soil on the top. In short, he trenched the land properly; a more beautiful piece of workmanship I never saw; and, compared with it, the best deep ploughing is but a poor mockery. Therefore, whoever wishes to prepare land for Potatoes, should first lay some good short dung on the surface; then trench the land with plough and shovel, as above, at least one foot deep; and after it is thus trenched in the autumn, with all the dung and weeds buried, and the clean new soil exposed to winter fallowing, the drills may be opened, three feet from centre to centre, in April, in the usual way, with the common drill plough, and either guano or old dry rotten dung put in and covered along with the sets, in the ordinary way, by means of the drill plough."

2. Since peat land has been found to be free from disease to a singular extent, it may be worth the while of those who are favourably circumstanced on the edge of heaths and drained mosses or bogs, to make some comparative trials between peat and ordinary soil. But we advise that peat alone be employed, and not "half and half" land, which is of an intermediate nature.

3. In all parts of the country, Potatoes must have been accidentally left in the ground all winter. In cold heavy land such Potatoes are apparently sound. Some of these might be selected, for the purpose of ascertaining whether the disease may be mitigated or subdued by keeping seed Potatoes in the earth all the winter, or whether all those which are predisposed to disease will not have perished in the operation, the sound ones only resisting decay.

4. A correspondent at Abergele reports that his "Black American Pink eyes," all being more or less diseased, planted in December, and well limed, are (March 4) in a very satisfactory state. Lime certainly produces apparently discordant results; nevertheless, there are more favourable than unfavourable reports of its action, and it deserves to be used experimentally. It is also said that dusting Potatoes with lime, as soon as the disease shows itself, has proved advantageous. This too may be resorted to as an expedient for arresting mischief.

5. Various sorts of Potatoes have been affected differently, to a remarkable extent. Black Scotch Potatoes so totally failed with ourselves, that not one sound one could be found; at Aberdeen the same sort retained its healthiness. Irish Cups were safe to a greater degree than any other as extensively grown. Irish "Apples" on the contrary, and "Lumpers" were horribly diseased. Mr. PARKER, of Clyffe, near Blandford, had some Salmon Kidneys grown within a yard of some sound red Potatoes, and he states that the first were quite sound, while the latter were "every one so rotten as to defy any selection." In Sussex, the "Mangold Wurzel" variety resisted the distemper successfully. It is, therefore, plain that all growers might enquire what sorts were last year least affected in their own neighbourhood, and try them in preference.

6. In the view of a German writer, the Potato disease is owing to a deficiency of magnesia in the soil. Those who are of the same opinion may try Epsom salts (sulphate of magnesia) in doses of from 2 to 4 cwt. per acre.

7. Another project is to sprout the Potato sets; when the sprouts have formed a few roots, to remove them from the set, and plant them in the usual way. It is supposed that the young sprout may be free from disease at an early period, although it may eventually derive disease from its parent; and it is expected that the separation of the sprout will enable the grower to secure a crop. We cannot say that this will happen; on the contrary, analogy is against the plan. But in our ignorance of the real cause of this murrain, we must not trust to analogy, and therefore the experiment is well worth a serious trial. As Potato parings and Potato eyes will, in ordinary years produce a crop, although not a large one, there is no doubt that a crop of some sort may be obtained from Potato sprouts, if they continue healthy. This proposition has been made by an Irish correspondent, at p. 150.

8. Mr. ROSS, the very intelligent gardener of Mr. DAWKINS PENNANT, at Penrhyn Castle, near Bangor, has made the following statement to us. His frame Potatoes are "quite sound and clean; the tops also are as healthy and dark green as in any season. He planted some in the open ground in November, some in December, some in January; all are coming up strong and healthy. He did not plant any diseased sets, but passed them all through his own hands. Before they were planted *he powdered them all over with flowers of sulphur*, and he has hopes that this substance may be of great avail in the present disease; those on which he tried flowers of sulphur in the beginning of winter have kept well." This is a new idea, and worth attention for reasons which we may, perhaps, advert to hereafter.

9. We have seen small sound Potatoes, produced from diseased tubers, at Lord PORTMAN'S, at Bryanston. The tubers had been put into a small garden-pot in the month of September, kept in a cold frame till the middle of December, then shifted into a well-drained 8-inch pot, and kept at all times perfectly dry in a hothouse of a temperature varying from 65° to 70°. The leaves and haulm were unhealthy indeed, but "the disease" had not appeared. This seems to indicate the value of very dry, warm situations, as has been pointed out in other cases, especially in one mentioned by Mr. ERRINGTON.

10. Mr. FITZGERALD, in a letter addressed to the editor of the *Limerick Chronicle*, states that, after various unsuccessful experiments, he tried a solution of bluestone (sulphate of copper) in the proportion of 1 lb. to 8 gallons of water, and steeped the Potatoes whole for a few minutes, stirring them about so as to get all the clay off. He then took them out and planted them in a warm place within doors; the result was that they put forth as vigorous healthy shoots as ever he saw. He has some of them now a foot high. He planted some out, and they remained sound. He tried the same experiment with cut Potatoes, but it did not succeed; the action of the bluestone being too powerful, it corroded them. He likewise tried leaving whole Potatoes for some hours in the liquid, but that likewise failed partially. "Although at any time it is preferable to plant whole Potatoes, still, after being steeped whole, they may be cut into two parts only; cutting through the rose end, being that having the greater number of eyes and farthest from the root. After they are steeped, they should not be left in a heap, but spread out on a dry floor."

11. In another column mention is made of a German Potato-scoop, for cutting out the eyes of the Potatoes. It may be worth trying the effect of planting such eyes, by way of comparison with experiment No. 7.

12. Raising new varieties from seed is a favourite project. DARWIN long since suggested the necessity of it, as will be seen by the following extract from his Phytologia (p. 95, sect. vii):—

"Another curious occurrence in this lateral production of vegetables by their buds has lately been published by Mr. Knight in the "Phil. Trans. for 1795," who observes, 'That those Apple trees which have been continually propagated for above a century by ingrafting, are now become so diseased by canker or otherwise, that, though the fruit continues of the same flavour, the trees are not worth propagating, as those grafts, though transplanted into other trees, he esteems to be still an elongation of the original tree, and must feel the effect of age like the tree they were taken from.' If this idea should prove true on further examination, there is reason to suspect the same may occur in the too long propagation of plants from bulbs and wires as Potatoes and Strawberries, which may have occasioned the curled tops of Potatoes, and the black blight in the flowers of the Hautbois Strawberry, which some have ascribed to its only bearing male flowers; the cure of which must arise from our applying to the varieties more lately derived from a seminal offspring. This degeneracy of trees or perennial herbaceous plants propagated by buds or root-scions, is not, I think, to be ascribed simply to the age of the original seedling tree, because each successive generation of buds or bulbs is as distinct from the parent as the generation by seeds. But as the lateral progeny of vegetables have no source of improvement after they have arrived at their maturity, but are liable, like other plants and animals, to injuries from food and climate, which injuries produce hereditary diseases; it is to this circumstance that their degeneracy ought rather to be ascribed; whereas, the sexual progeny of vegetables are liable to improvement by the intermixture of individuals of the same or even of different species to counteract the effects of hereditary diseases."

A variety of German accounts, confirming the importance of the practice, will also be found in another column. Our own view of the question is unfavourable, for reasons fully given at p. 855, 1845, to which we must refer the reader. In confirmation of the statement there made, we give extracts from two letters now before us. The first is from Mr. FINCH, of Great Berkhampstead, to the Council of the Horticultural Society. He says, that having observed a quantity of seedling Potatoes coming up last spring on a piece of ground in his garden, he selected about 20 plants, which were set in a fresh bed, with a view to obtaining some varieties. He was surprised to find the tubers, which were very small, greatly affected with the disease—more so indeed than any others in his fields or garden. The second letter is from Mr. JOHN J. WELLS, of Southborough, near Bromley, in Kent. He last year obtained from the seeds of the Cheshire White Potato about 70 or 80 seedlings, most differing in size, colour, &c. The haulm and leaves appeared healthy; but, notwithstanding any precaution, above 30 have become diseased and lost during the winter, and many of the remainder are partially tainted. We would not, however, on this account discourage the raising Potatoes from seed. On the contrary, we would encourage it, in the hope that varieties of sounder constitution than any we now possess may be gradually obtained. We must not, however, hold out any prospect of our procuring in the autumn a crop of field Potatoes from seed now about to be sown, because it has been done in Prussia and Saxony, as we know, partly from the statements in print, and partly from specimens raised by Mr. ALBERT, and by Mr. ZANDER, Count ARNIM'S gardener, at Boitzenburg, which specimens, sent to the Earl of ABERDEEN by the Earl of WESTMORELAND, the British Ambassador at the court of Berlin, we have been favoured with an opportunity of examining. For we must never forget the wide difference between the hot dry summer of Germany, and the cool damp seasons which we islanders usually experience.

13. Far more important than any of these plans, or, indeed, than any that we have yet heard of, is that which has been for 9 or 10 years pursued by Mr. SHEPHERD, with a particular account of which we must bring these observations to a close.

Off the south-west point of the Isle of Man is a small island of about 600 acres, called Calf Island,

on which seed Potatoes have been raised for some years past with great success by Mr. R. SHEPHERD, who farms the principal part of the rock, for so the place may be called. It is represented as consisting of thin land, some of which was never till lately under cultivation "since the flood," and covered with Heath and Fern, which are destroyed by paring and burning.

Mr. SHEPHERD states that when he first rented Calf Island, nine years ago, he purchased seed Potatoes for planting; that a great many failures occurred among the sets; that the whole were very sickly; and that ultimately he had a very poor crop. The next year he procured seed from the mainland, but had no better success. In consequence of these losses he resolved to raise his own seed, in the hope of increasing the vigour of his sets, and he adopted the following plan. In the autumn he top-dressed a piece of waste land with lime or lime compost, and set it off into beds 6 ft. wide, with 2 ft. paths or furrows between them. He placed his Potatoes (Irish Cups) on *the surface* of these beds, and thinly covered them with the surface earth taken by the spade from the paths or furrows between the beds. He left them thus through the winter, and earthed them up finally with the subsoil of the furrows as soon as they began to spring up. Mr. SHEPHERD adds, that the sets which he obtained by this means proved of excellent quality; that he has practised the plan ever since with unvarying success; and that farmers now "eagerly" seek for his seed, coming over from the mainland in boats to procure it.

In his opinion he has thus restored the Potato crop to a more healthy state. And he adds that he finds no danger from the frost to which his seed beds of Potatoes are thus exposed. In the winter of 1839 the frost continued so late that there was a scarcity of store Potatoes for his own table, so that it became necessary to use a pickaxe in order to open the ridges in which the Potatoes for consumption had been stored. Immersion in cold water for a couple of hours before they were cooked was sufficient to prevent all evil effects from the action of frost; and when, in the month of April, the seed beds were dug for planting, not a vestige of a rotten or diseased Potato could be found.

The process thus described is employed merely for raising Potatoes to be used for seed. The main crop is planted from the seed beds, and when ripe is housed in the usual way.

The seed beds are dug over on the day when the main crop is to be planted; and, at the same time, other seed beds are immediately (on the very same day if practicable) replanted in the manner above described, so that the seed Potatoes are never allowed to remain exposed to the air.

The theory of this practice is, that on fresh, poor, dry, well-drained land, Potatoes acquire a sounder constitution than on rich, forcing, highly-manured soil; that if such Potatoes are dug in the autumn, pitted during the winter, and replanted in the spring, their constitution will be again impaired, inasmuch as the Potato suffers by exposure to air, by fermentation, and other causes at work in the pits; and that therefore, if the soundness of constitution is to be retained and increased, the Potatoes which are intended for seed should never be taken from the ground till the moment when they are wanted for planting.

To this reasoning no objection appears to exist. On the contrary, it has been upon such grounds as those which seem to have influenced Mr. SHEPHERD in contriving his seed beds, that autumn planting has been advocated. For it was believed that any danger to which the Potato might possibly be exposed in the open ground, was far less than that which must necessarily be incurred in pits. Mr. SHEPHERD, however, urges with much force that having separate seed beds, from which to plant in the spring, is better than autumn planting, on the following account. Autumn-planted Potatoes do not "come" regularly, because worms and insects mutilate the sets during the winter months; but if the seed Potatoes remain in their beds till they are wanted in spring, it is easy to reject all that may prove to be diseased or injured; and the grower can then calculate with certainty upon an even crop. In this opinion we fully concur.

The result of the crops raised from Mr. SHEPHERD's Potatoes, in 1845, has been extremely advantageous. On Calf Island Mr. SHEPHERD had no disease among the Potatoes planted immediately from the seed beds; but it eventually showed itself to a limited extent among some headlands planted from *stored* Potatoes in March, without the pickle to be mentioned presently.

But although Mr. SHEPHERD's own Potatoes in Calf Island were thus safe, and also those of one of the lighthouse-keepers who obtained seed from him, yet the three other lighthouse-keepers, who treated their sets in the ordinary way, lost nearly the whole of their crops.

Mr. SHEPHERD, however, reports that on the mainland disease has showed itself in all the fields planted with seed sold by him, but to a much less extent than where other seed was employed; and he mentions the case of a farmer who planted his land with Cups from Calf Island, and from his own stock, and found that the former brought fully two tons an acre more, and were a fortnight earlier. It must be observed, however, that the seed which Mr. SHEPHERD sells is stored during winter. He only makes his seed beds large enough to supply himself.

The result of all this is so favourable to Mr. SHEPHERD's simple mode of cultivation that it certainly deserves to be made extensively known; and Potato growers cannot be too strongly urged to set apart a portion of their land every year, the poorest and driest they can find, exclusively for the production of seed.

Independently of the facts evidently connected with the seed-bed system, Mr. SHEPHERD states that he invariably steeps his cut sets in sea-water, immediately afterwards dries them with hot lime-dust, and then plants them; and he attributes some part of his success to the use of this preparation. He is also of opinion that the constant growing of the Potato in rich soils has debilitated its constitution, and *that we shall have as much reason to complain of diseased Potatoes this ensuing year as we had in the last.*

FUCHSIAS.

IN compliance with the request of several of your correspondents, who desire a few practical hints on the management of this beautiful tribe of summer flowers, I beg to offer the following remarks, which I consider will be suitable to the admirers of this flower, whether their object be public competition or the mere decoration of the greenhouse and flower garden:—

Presuming that the old plants are still in a dormant state, the first thing to be done with them will be to shorten the side shoots a little, and to place them in a temperature of from 50° to 60°, in order to induce them to make young shoots, from which a stock of plants may be obtained. In selecting the cuttings choose those of a short robust habit—such as generally protrude from the old stem; insert them in light sandy soil, and place the pot in a shady corner of a Cucumber frame. In a fortnight the cuttings will be sufficiently rooted to pot off, using a compost consisting of equal parts of turfy loam, peat, and leaf-mould, with a liberal sprinkling of sand and a little charcoal. Return them to the frame, but as soon as they are established in the fresh soil remove them to a more airy situation, with a moist atmosphere of from 50° to 65°, and endeavour to keep them in a vigorous growing state, for so sure as they receive a check when young so certain is it that they will never make first-rate specimens. When a sufficient supply of cuttings has been obtained the old plants may be cut down to within a few inches of the pot, and if they are watered occasionally with a little clear weak manure-water they will throw up strong shoots from the bottom. As soon as these shoots are 3 or 4 inches in length take the plants to the potting shed, and having prepared some of the before mentioned compost, shake them all out, reduce the roots, and re-pot into the smallest sized pots that the roots can be conveniently got into. At the same time, the number of shoots may be reduced to four, six, or eight, according to the specimen it is desired to produce, as a strong growing variety, with six, eight, or more shoots, will make a specimen 4 feet in height, and 6 feet in diameter, and when fully grown will require an 18-inch pot. After this potting, the plants should receive the assistance of a little bottom heat, and should be kept in a close moist atmosphere, with shade in bright weather, until they are established in their new pots, which will be in about a fortnight from the time of potting.

We will now suppose it to be the middle of February, at which time the young plants should be well established in 3 or 5-inch pots, and the old ones ready to receive their second shift. At this time the plants should be stout, thrifty fellows, with clean bright transparent stems and foliage, and young lively roots protruding all over the surface of the soil; and if in this state, they may, by proper treatment, be grown to any size. A good single-stem specimen of Exoniensis, when well grown, should be six feet in height, with branches drooping in regular succession from the pot upwards, and it should be a perfect mass of foliage and flowers; and other kinds, according to their habit of growth, ought to be equally perfect. To return, however, to the plants, we must now prepare for the second shift, and for this purpose a compost consisting of two parts turfy loam, one part sandy peat, one part half-decomposed leaf-mould, with a handful of small charcoal, and a liberal supply of coarse sand, must be thrown together and thoroughly incorporated, taking care to break it as little as possible. At each subsequent shifting of the plants, excepting the last, the same compost must be used, but at the final potting it will be as well to substitute equal portions of strong loam, and three-years-old cow dung, for the one part of peat before used; as this will make the compost of a more adhesive character, the plants will consequently not require so much water during the hot weather.

In shifting the plants, take care to drain the pots properly, by using five or six oyster shells, and some rough charcoal, placing some of the roughest of the compost over the drainage. Remove the plants at each shift into pots at least three sizes larger, for though it may not at all times be convenient to adopt the one-shift system, I believe there are now no good cultivators who think of practising the old small-shift system. It is impossible to say how frequently the plants will require shifting, but if they are growing vigorously, they will never go more than six weeks from the time they are first potted until they show bloom, without requiring a larger pot. The best situation for the plants during the first part of their growth will be a low hot-water pit, where they can be kept near the glass, giving them plenty of air both night and day, and abundance of atmospheric moisture, but taking care to shade them thinly during bright sunshine, as the foliage is very liable to burn. As the plants progress in growth and get too tall for the pit, remove them to a house kept at a temperature of from 55° to 65° or 70°; place them near the glass, give plenty of air and moisture, occasionally moistening the paths, walls, and stages with clean manure water, and dew the plants over both morning and evening with clean tepid water.

If these directions are attended to and carried out, there need be no fear of the red spider attacking the plants; but should that pest make its appearance, lay the plant down on its side and syringe with clean soot-water until every insect is washed clean away. Throughout the whole season it will be advisable to water the plants twice or thrice a week with manure-water, formed by mixing one bushel of sheep's dung, one peck of soot, half a peck of guano, and half a peck of lime; put the soot and manures together and mix them into a puddle with boiling water, and then throw in 50 or 60 gallons of soft water and the lime; stir the water frequently, and after it is quite clear, add two gallons of clean water to every gallon of the manure used, and apply it in a tepid state. It is astonishing what vigour this water imparts to the plants; indeed all other things being suitable, they seem to revel in it with that luxuriance that makes them really delightful to look upon.

So far my directions have been addressed to the productions of fine exhibition specimens, but now we will consider the management of the tribe where there is only a greenhouse to grow them in. Here then, if very large plants are required, it will only be necessary to spur the young shoots in, retaining the old wood or stem; but if dwarf plants are preferred, cut the old plants down to the pot in autumn, reduce the roots, and repot in smaller sized pots, using the same compost as before. These plants may be placed under the greenhouse stage during the winter, and be kept tolerably dry, and by this time in the new year they will be pushing young shoots. Remove them to the warmest corner of the greenhouse, and expose them to light, and as they progress in growth repot them as frequently as they seem to require room. They will not be in bloom so early as better grown ones, but will make very nice plants for the autumn decoration of the greenhouse. Young plants struck in March and April, if properly encouraged by the necessary pot room and liquid manure, will also make very useful stuff; for the autumn plants, so managed, are generally the best for setting about in the flower garden or vases, as, being less brittle, they are not so liable to be broken by the wind as more luxuriantly grown specimens.

In the flower garden, the management of Fuchsias consists in planting them in good, well trenched ground, of manuring them annually with a good dressing of leaf mould which also serves as a protection during winter, and also of soaking the ground occasionally, during their growing season, with liquid manure. It is not advisable to cut them down in the autumn, but to leave the old stems standing until the young shoots break up in the spring. Old plants which have been grown in pots are the best for planting out, but where it is necessary to plant young ones they should always be propagated the autumn prior to planting out. Some of the old species and varieties, such as F. coccinea, virgata, conica, Riccartonii, and formosa elegans are best for planting out, and F. fulgens also makes a fine bed. Single specimens of Fuchsias are also fine objects, on lawns especially; when they get large in such situations they should always be guarded by baskets to prevent them from being injured in mowing.—*Peter Jenkins.*

THE AMATEUR GARDENER.

ON POTTING.—In addition to what was said in the last paper respecting the kind of soil necessary for this department of horticultural art, I think it desirable to remind the amateur that each kind of plant should receive a little consideration before the operation of potting is performed, as a deviation from the general routine may be sometimes demanded by the habits of the plant. A vigorous growth will require larger dimensions; the natives of arid regions will be improved by a larger proportion of sand in the compost, and plants impatient of moisture must have a more carefully constructed drainage. As it would be an endless task to point out all these variations, the gardener should rather be directed to the great principle, that in planting and potting he should accommodate his practice, as far as possible, to the nature and habits of the production submitted to his art.

Get your pots from the makers; they then cost but a trifle; whereas, if purchased a few at a time, they be-

some expensive. Those of a thin structure should be preferred, as a clumsy pot is not only ugly, but it takes up so much more room. For drainage, broken crockery and oyster shells do admirably well. Place a concave shell over the hole, and fill up to the depth of about an inch and a half or two inches with pieces of broken crockery, varying the quantity according to the size of the pot. Having the soil moderately damp, but by no means wet enough to prevent its crumbling in the hands, all is ready for the transfer of the plants to their destination. If young plants from a seed-bed, or rooted cuttings, have to be potted, the process will be the same, on a small scale, as that described in a former paper for shrubs and trees. Plant high in the pot, let the roots ramify equally on all sides, and settle the whole by gentle pressure: but repotting is an operation of greater nicety, and must be more fully explained. As the soil in pots is necessarily very limited, it requires changing, and at this season all the plants in your collection which have been kept in pits and frames must be so treated. Suppose you have a quantity of Pelargoniums which were struck last season, and stored away in small pots during the winter; the pots will now be full of roots, and the plants must be shifted. The size called 48s will be best for Pelargoniums and most window-plants, although reference must be had to age and robust growth in this particular.

Before turning out the plant from the small pot, let the larger one to which it is to be transferred be so far filled with mould that the roots will be buried no deeper than they were before. Turn the plant and pot bottom upwards on to the palm and fingers of the left hand, which must at one and the same time keep the old soil from falling out, and allow the plant to remain uninjured in its topsy-turvy position. A slight tap of the edge of the pot on the barrow or stand where you are working will generally disengage the mass of root from its sides, and you may remove it with ease. An examination must now take place, the plant being still held in the open hand root upwards. Remove the old drainage, taking care not to rend away the young fibres which may have penetrated into it. If only a few roots are visible they need not be disturbed, but the mass can be turned as it is into the new pot, and the interstices round it filled up with the compost. The whole should then be pressed down so that the cone of mould and roots may no longer retain its shape, but may amalgamate with the new soil which has been introduced. But sometimes it will be found that the mass turned out is so entangled with roots, that repotting has no chance of success unless they are disturbed, and partly removed. The thicker and older portions must therefore be pruned away, and what remains disposed in a form favourable for future growth. To turn out plants from one pot to another without any reference to the state of the roots, is indeed repotting, etymologically considered; but philosophy must have to do with the matter, if the practice is to be more than a name.

When the work is finished, the plants should be shaded for a time, till they recover themselves; the young shoots should be arranged, and their growth stopped if necessary, by pinching off their points. The value of the process of repotting will be speedily visible, if it is properly done, in the rapid growth and healthy appearance of the plants. Besides this spring potting, in some cases the operation will have to be renewed. Fuchsias will often make so much new wood, and protrude roots so rapidly, that a transfer to a larger pot will be necessary. The judgment of the amateur must decide when this is desirable.—*H. B.*

POLMAISE HEATING.

I HAVE, in my last communication, endeavoured to make a fair and candid statement of the case of Polmaise, up to the time at which I first ventured to address your readers, and from which I think they must come to the conclusion that while all the facts are in favour of the system, these are only met by suppositions. Leaving them to form their own opinions of the arguments, by which I have endeavoured to prove that these facts are the exact results which Nature and science would lead us to expect from the means employed, I proceed to notice those statements which have appeared in your columns, together with, or subsequently to, my own; and which (I trust your readers will notice) no longer speak of the system as unworthy a trial, or as certain to lead to disappointment, but in language of a much more sensible and guarded character, and, in one instance, the system is spoken of favourably; while it is only my exposition of it that is objected to—a thing, indeed, of small comparative moment.

On the 14th of February "*J. C.*" says that I am in error in supposing that radiant heat is employed in this system; and this is also stated by "J. H. H.," in his communication of Saturday last. "J. C." and "J. H. H." state that the air cannot be warmed by radiant heat from the stove, as gases cannot be warmed by radiation, and therefore they infer that radiation is not concerned in the matter; this conclusion appears erroneous. I never stated that air was heated by radiation, I especially noticed the properties of gases with regard to the distribution of heat, their low conducting power, their ability to circulate heat by currents, and their property of allowing radiant heat to pass through them unabsorbed; but though the air is not warmed by radiation, the stove is, if the stove at Polmaise is at all similar in its construction to the generality of heating stoves. These are usually formed of a fire-box made of some non-conducting material, such as fire-brick, and while I admit that some caloric passes through the walls of the stove, I maintain that the great amount is distributed by radiation from the burning fuel to the iron plate; and that the atmosphere is warmed, not by direct radiation from the sun, but by coming in contact with the earth, itself heated by radiation; so the atmosphere of the house is heated, not directly by radiation, but by being brought into contact with a body which has received its heat in that manner. I ask again, may not this be called a natural system? I think this will bet your correspondents right on this point; probably some erroneous expression of my own may have led them into the error of supposing that I thought gases could be heated directly by radiation. "J. C." then speaks of his fears for the success of the system, of the warm air escaping at the top of the house, through "laps and crannies;" is this peculiar to the hot-air system? does not the same escape take place by whatever mode the atmospheric warmth is communicated? I have much to say about laps, but must defer it. "J. C." states that if the circulation is not quick, or the space great between the cold drain and hot opening, that a failure will ensue; of course in all things there are conditions to be observed to insure success; but when he speaks of slow circulation, let me remind him of the candle blown out 4 feet from the hot opening in Mr. Shearer's apparatus, which was placed at the "end of the house," and yet involved no failure! He then says, "no stove will answer that has a slow draught." My reply is, that any stove will answer that will heat the chamber; nay, more, that it is not essential to the system that the air supplying oxygen to the fire should come at all from the house to be heated, though it does so in Polmaise; and in my own plans I maintain that the draught from house to chamber will depend, not mainly upon the combustion within the stove (except indirectly), but upon "the difference of the temperature between the air in the house and the air in the chamber." That the velocity of the draught will be regulated, in fact, by the difference of density between the air in the two, and that, supposing there were a large fire, and this had been long sustained, and thus the temperature of the house was approximating that of the hot chamber, the draught would be trifling while the fire was large; indeed, when I reflect upon the many evils that might arise from a reverse current setting down the chimney, through the fire, and back towards the house, and when I know how frequent those down currents are, especially when the fire is dying out, or its combustion required to be slow, I cannot but think we should act more wisely, by avoiding this danger, in supplying the atmosphere necessary to the fire from an extraneous source; this will, if possible, simplify the plan, and of course secure the air of the house against one mode of exhaustion, and I especially recommend these remarks to the consideration of those gentlemen with whom I have communicated privately. On the 24th, is a letter from Mr. Liddel, in which he speaks hopefully and favourably of the system, remarking truly, that the days we live in are so fertile of invention, that no man should say the accomplishment of a particular object is impossible; that which is so to-day is not so to-morrow; and he gives some plan of his own for conducting the heated air more perfectly through the house. On the 7th March, J. K. says that I am right in stating, "that the question of the production of heat is not concerned" but, that when I say "it is a simple question of distribution;" he asks "whether the heat can be distributed before it is collected?" I reply, it is collected in the coals, evolved in the combustion, and our object then is distribution. He states "that it is not asserted any apparatus collects all the heat, more or less passing up the chimney." Polmaise substitutes the word distributes for "collects;" but lays no claim to arrest every particle of caloric from passing up the chimney; here it shares the common defect of all systems; but I believe that if plans are well arranged, no system need lose so little in this way. It is then said that the delay I complain of in the distribution of heat by water, compared to air, is of no moment; though your correspondent admits it, most people think time saved is an excellence; and is it no recommendation—that in a climate so changeable as this, the present system promises not only to heat well but rapidly? And then comes the truly important question—an importance scarcely to be overrated—for it affects not the expence of the first erection, but the constant one of its operation, namely, "whether from the same fuel an equal amount of heat is distributed by the two systems?" I shall shortly lay before your readers certain facts, by which they will at once perceive, that in this comparison too, hot water will be found on the side of waste; and this, to an extent little suspected, and not to be avoided, unless the lovers of hot water trespass on the grounds of Polmaise. All this, your correspondent says, we should avoid, "if we knew better." I will add, if we would but learn! Then he states, that the Polmaise system is adapted at most to heat only two houses; how he arrives at such a conclusion I am unable to imagine, but I am sure he is not brought to it by reading "Nature's book." His communication closes with a fallacy; "the Polmaise system requires considerable briskness in the fire before it can be set in action, and below which it cannot be maintained, while hot water is obedient to every impulse," that is, a liquid is more obedient to the impulse of heat than a gas! its particles more moveable! If your correspondent is correct, philosophy is untrue, and Polmaise ruined. Mr. Barnes, of Apley-park, follows with some remarks; but as they simply repeat Mr. Ayres's statements, and are chiefly occupied with a detail of his own success in Grape-growing, I may pass them by.

This brings me to notice the last communication, that of "J. H. H.," who objects, not to the system, but to my explanation of it, and the latter part of which I have already answered, in conjunction with "J.C.," on the subject of radiation not being concerned in this system. "J. H. H." states that I confound relations and functions which are distinct in their nature and object, and do not admit of a logical comparison; that I compare water as an instrument, not with air as an instrument, but as the subject itself to be warmed. I did compare air with water, as an instrument of diffusing heat. I investigated those very properties which intitled it, on that comparison, to be considered a superior instrument; and the fact of the subject being itself the instrument, neither invalidates the reasoning nor renders it illogical; but is an element of that fitness for which I contend? I am told, I should have compared hot water in pipes to hot air in pipes; if this latter had been the Polmaise system Mr. Murray would never have grown such Grapes, nor should I have volunteered its defence. If the admirers of hot water heating have in their system chosen an instrument for diffusing heat which is endowed with other properties which renders it so unmanageable that they are compelled to shut it up in iron pipes, while the lovers of hot air employ an instrument which is so docile, that they need subject it to no such restraint, am I to be told that I may not institute any comparison between these instruments, till I have unfitted the one for that purpose by the very means which has fitted the other. The case is this: I have something to be performed—two men present themselves as instruments—one a convict the other free; the former, before he can be rendered at all a fitting instrument, must be put in chains; is it fair, that before estimating the respective qualifications of these two men as instruments, I shall put the free man in chains also? nay, that I shall incapacitate him as an instrument, by subjecting him to the very conditions that capacitate the other: the hot water is the convict, and his friends must keep him in chains! There are moral errors in which the first false step involves a second; there are physical errors which involve the same process. I propose shortly to lay those facts before your readers which relate to the waste incurred in the hot-water system, to make some remarks on the plan of glazing with laps, and one or two other subjects relating to atmospheric heat.—*D. B. Meeke, Holmsdale House, Nutfield.*

GERMAN PAMPHLETS ON THE POTATO DISEASE, AND ITS REMEDIES.

AT this time all that relates to the Potato disease has so much interest, that we have thought it desirable to lay before our readers the following abstracts of some papers on the subject which have been extensively circulated in Germany.

No. 1. *On a New Potato Scoop, with directions for using it* (a paper circulated through Prussia by the Minister of the Interior, with the instrument to which it refers).—Since circumstances more than ever demand that economy be employed in the use of the seed Potatoes, so does it seem the most appropriate time to be reminded of a kind of culture which, although not new, is not yet universally known, and by which Potato planting is effected with slight loss in the mass of Potatoes. It is well known that every Potato in a depression on the surface, called an "eye," contains a germ which is capable of developing a perfect Potato plant. On a knowledge of this fact is founded the practice of growing the plant from cut Potatoes, or from thick portions of the bark or peel of the tuber. In both these cases the germ is easily injured, and the consequence is that twice or three times more tubers are employed than are really required. Already has it been proposed to use for this purpose a spoon or scoop, but nothing has been thought of adapted for general use. An experienced farmer has, however, invented a scoop, by the use of which a larger amount of produce is secured, and varieties of Potatoes which yield tubers of only small circumference, have by its use been made to give tubers of a large size.



In order that the scoop may be successfully used, those Potatoes should be employed which are perfectly developed, and care should be taken that the mass of flesh of the tuber taken out with it should be so large as entirely to surround the germ, and to contain the root of the germ uninjured. This instrument consists of a round scoop or spoon, made of steel, furnished with a sharp cutting edge; the diameter of the circle which the edge forms is an inch; the greatest depth of the scoop, which has the form of half a hollow globe, when measured from the centre of the diameter of the edge to the middle point of the cavity is 4½ to 5 lines. The scoop has a short steel shaft, by

which it is inserted into a wooden handle. When the scoop is used, the germ to be taken out should occupy the middle of the scoop, and the surrounding flesh should entirely fill the cavity. With a little use this instrument can be employed with ease and speed. When used on large Potatoes six or eight eyes may be taken out, and the rest of the Potato used for other purposes.

The germs thus procured are placed about two inches deep in the earth, with the flesh of the Potato below, and the eye or germ above. The distance of the plants should be that which is ordinarily adopted. The land on which the eyes are planted should be good, and the springing up of the plant watched, and the hoe be employed, for the riddance of weeds, &c.

The eyes which have been taken out may be permitted to dry for some days; but they should not be entirely dried before they are planted. When not planted immediately they should be thinly spread on something, as when they are laid in a heap together they become heated, ferment, and are destroyed. The scoop may also be employed, for the purpose of transporting seed from one district to another, at a diminished cost for carriage, on account of the bulk being much less than whole Potatoes. When this is done the scooped eyes should be carefully packed in Moss, speedily conveyed, and planted in the soil as fresh as possible. Where small landowners prefer planting whole Potatoes the produce may be much increased by attention to a few circumstances. The ground should be well dug and worked, and then the Potatoes may be planted deep, as deep, in fact, as the ground will permit; the plants should be placed at a distance of 2 to 3 feet from each other, and the earth not thrown up in rows around them, but in heaps for each plant. Ground is thus economised, and the roots have free space to spread in, and their produce is always greater. When rich manure is employed, great care should be taken to mix it well with the soil, but let it never be forgotten that Potatoes may be over-manured, and the vegetation thus stimulated, without the tubers being increased in number or size. If there be only a poor soil and weak manure, let the manure be placed under each plant-heap, and cover it with some earth, so that the plant-heap may not rest immediately on the manure.

No. 2. *Authentic Facts on the Renovation of the Potato by means of Seed, in relation to the disease of that plant now prevalent;* by W. Albert. With remarks by the Justiz-rath Isensee; Magdeburg, 1845. — This pamphlet is introduced by some remarks from Mr. Isensee, who states that he is not himself a practical agriculturist, but one who takes great interest in all that relates to agriculture. He is the president of the Agricultural Society of Cöthen, in which position he has not only great opportunities of observing the different branches of agriculture, but also is able to make comparative experiments. Having become acquainted with the fact that one of the Saxon agriculturists had made experiments on obtaining Potatoes from seed, and that even in the first year useful tubers for food and other purposes had been obtained, he turned his attention to the subject, and thus collected a variety of important details, which are recorded in the pages of the pamphlet before us. It ought to be added that the season in which the experiments were tried was not favourable; the spring was cold and wet, and the frosts in the beginning of September did much injury.

During the last 10 years it has been observed that the Potato has exhibited a marked change in the vital powers. For—

1. Their preservation is more difficult now than formerly; 400 or 500 bushels of the tubers might be laid together, and no bad results ensued; but recently 60 or 70 bushels laid together will speedily decay.

2. Formerly Potatoes when wounded in digging them up healed, but now they either putrify or become tainted.

3. It is well known, moreover, that in many places they cut off the ends of the Potatoes, where the buds are mostly found, and planted them as sets. Now, however, these ends most speedily run to decay.

4. Damp fields that used to yield sound and beautiful Potatoes, give now a crop of far less durability.

5. Varieties of Potatoes that formerly blossomed and bore fruit, perform these functions no longer; the blossoms drop off, and no seed can be obtained. All these points have been more or less observed in many places.

In 1839, however, a disease appeared which, within a short time, destroyed thousands of bushels of Potatoes. This was the dry gangrene (Kartoffelfäule), which speedily changed the tubers into a brown dry powder, and rendered them unfit for every kind of use. The author discovered that this disease was caused by insects, especially small mites, resembling those in cheese. Many persons smiled at this discovery, and supposed that the insects were produced by the disease in the Potato. The following things, however, ought to have some weight with such opponents:—

1. Such an explanation would favour the doctrine of equivocal generation, which the celebrated naturalist Ehrenberg, of Berlin, has contradicted.

2. The author has found in the midst of sound Potatoes nests of small white mites, and in the centre of an apparently sound Gibraltar Potato, a small living fly.

The author tried every means in his power to get rid of this disease, but failed; he at last, however, succeeded, by procuring seed Potatoes from a district where the disease had not been known. At the same time were constantly found individual Potatoes which entered into a state of decomposition, by which their whole organisation was quickly destroyed. Besides, also, the scurf (Schorfigwerden), or, so called, pock-mark (Pockenkrankheit), made its appearance. This disease, for the most part, exerted no influence upon the produce, nor upon the firmness or germinating power of the Potato; only in the sale, it prejudiced them on account of their unseemly appearance. The scurf, for the most part, made its appearance where the land had been strongly manured, or mixed with marl, chalk, or soap-ashes.

This year a disease has attacked the Potato in Belgium, Holland, the Rhine region, and other places, which has destroyed their organisation, and rendered them unfit for the food even of brutes. This disease has been accurately investigated in the countries where it has broken out. The French and English Governments have both appointed Commissioners. By some the disease has been attributed to the attacks of a fungus, which, fastening itself on the under surface of the leaf, prevents that organ from performing its proper functions, and the whole plant becomes diseased. In this district (Lower Saxony) the Potatoes have this year (1845) exhibited a greater tendency than usual to run into a fluid decomposition. This is especially the case with Potatoes in damp soils, and those which were placed under the water during the spring. Here and there specimens have been found which in all respects correspond with the above-mentioned disease.

What, then, is the origin of this disease? Numerous hypotheses are advanced in the various journals. To us it appears that it must have arisen out of the following causes:—

1. Peculiar atmospheric influences.
2. A continual propagation by tubers.

As a proof of the last cause acting before all others, is the fact, that the later varieties of Potatoes will not produce flowers and seeds. Unquestionably it is the legitimate function of a plant to bear seeds. The seed is the crowning result of the life of a plant; to it is committed the propagation and increase of the species, and when it fails to be produced it indicates a want of power both in the vegetable and animal kingdom. Further, it is a fact that the early varieties of Potatoes which generally blossom and bear seed have been affected to a much less extent with the prevailing disease than those varieties which are older, and which bear no flowers nor fruit. A brother of the reporter planted a field this year with the following varieties of Potatoes:—

a. Gibraltar Potatoes.
b. Sugar Potatoes.
c. Leipsic Potatoes, with red eyes.
d. Potatoes planted from seed.
e. Wax Potatoes (Wachs-Kartoffel).

At the harvesting, which occurred on the 20th of October, 1845, the Potatoes *a*, *b*, and *c* were found to contain more or less indications of disease, whilst the Wax Potatoes and those grown from seed were not touched at all. My brother also received from an agricultural society four Potatoes of a new sort, which were planted in a garden amongst other varieties. At the time of gathering all the other Potatoes afforded traces of the scurf, and exhibited suspicious looking spots upon the skin, whilst the produce of the four new Potatoes were entirely clean and free from disease. The produce of the four Potatoes was 40 lbs.

It ought, however, to be observed that it has always been found that some sorts of Potatoes are more liable than others to be diseased, although placed under the same circumstances; thus, in the district of the reporter the red varieties of Potatoes have been much better preserved than the white. The first possess always more consistence, and contain a much less quantity of water than the last.

From these observations it appears to result that the changes which the Potatoes exhibit in disease are produced by the soluble substances which they contain, and that the disposition thereto is produced by a weak cohesion of the elementary matters of which the Potato is composed. This asthenic state of the Potato gives many insects their nourishment in its tissues, and by this means the decomposition of the tuber is more readily affected. Even in the fluid forms of putrefaction, the reporter has discovered such insects, and at the moment of writing, a Potato is lying before him, which, on being inspected with the microscope, exhibits countless insects, the most of which resemble in appearance the cheese-mite.

For four years the Oberamtmann Albert has occupied himself with endeavouring to restore the vitality of the Potato by propagation from seeds. He has also induced others to try the experiment, which has indeed afforded some brilliant results. Especially have the following points been determined:—

1. By proper culture, Potatoes grown from seed in the first year gave large, perfectly ripe, and eatable tubers; so that from a Magdeburg acre (Morgen) above four Berlin wispel (a wispel is 24 bushels) were harvested. The seed mixed with dry earth was thinly sown in the middle of April, in rows a foot apart, in good garden ground. The seedlings were transplanted in a field at the end of May or the beginning of June. This should be done when they are 4 or 5 inches high. It is also necessary that each plant should have at least 3 square feet to grow in, as they develop a much larger root-system than those which are grown from tubers. It has generally been supposed that it required three years to obtain a crop of Potatoes from seed, but the reason of this has been that the young plants when transplanted have not been separated far enough from each other.

2. The Potato generated in this way exhibits constantly a great vitality. The vegetation is much more luxuriant, and the produce of the tubers more abundant. In September, 1845, the reporter counted on a single stem of a Potato plant 102 tubers all adapted for future seed, whilst on the stem of one of the mother-plants near by, there were only 13 tubers, although larger on an average.

3. Potatoes grown from seed are more durable. On the 10th of October 9 bushels of Potatoes from seed were placed upon a floor in a heap, and at the same time three-quarters of a bushel of the parent Potatoes. Fourteen days afterwards, 16 faulty individuals were picked out amongst the last, whilst in the first not a single unsound tuber was discovered. In fact the disease (and this more particularly applies to be dry gangrene before mentioned), has not developed itself in the Potatoes produced from seed.

4. In one case reported in the appendix, the produce of tubers obtained from seed was 2¼ greater than that obtained from the mother Potatoes on the same piece of ground, and this is in accordance with the previous results.

5. Notwithstanding that the half ounce (*Loth*) of Potato seed cost from 3 to 4 thalers in previous years, and from the frost in the beginning of September spoiling the Potato-apples this year, raising the price to 4 or 5 thalers the half ounce, yet the expence of growing the Potato from seed is less than from the tuber.

The planting of two Magdeburg acres with tubers cost:—

	th.	gr.
For 20 bushels of tubers, at 12 groschen a bushel ..	10	0
Four women to plant the same after the plough.. ..	0	12
	10	12

For planting from seed the following was the cost:—

	th.	gr.
For a half ounce of seed for sowing two acres	4	18
For 12 women, employed in transplanting, &c.	1	12
	6	6

6. The plants produced from seed generally resembled the parents, but sometimes entirely new varieties are produced.

At the end of this Report is a note by Mr. Isensee, in which he says, "I hold the renovation of the Potato from seed as a highly important matter. I can confirm the statement that the Potatoes yielded by plants grown from seed have an especially beautiful and sound appearance, a remarkably powerful development of the root, and generally a luxuriant vegetation. I have also seen that the small and very smallest Potatoes of the crop grown from seed in 1844, and which were planted in the spring of 1845, yield extraordinarily fine and sound tubers, combined with an incredible productiveness, so that I believe large Potato cultivators would find it greatly increase the produce of their harvests if they from time to time renovated their crops by raising Potatoes from seed. I believe also that some of the plants after the transplanting of the others, and thinning, might be left in the place where they were sown, and would there yield tubers whose produce would be good both in quantity and quality, and which would serve for planting a subsequent year.

The appendices alluded to in the report consist of various reports and papers bearing on the question of the value of the crops of Potatoes procured from Potato seed. The first five papers consist of reports given by committees of agricultural and other societies on this subject. They are drawn up in the form of question and answer, and the principal results have been given in the preceding remarks.

One of the papers in Appendix A is upon the chemical composition of tubers produced from seed and from Potatoes. This paper is by Dr. Dobereiner. He submitted the several sorts of Potatoes obtained from seed to a chemical examination, which had for its object, more particularly, the ascertaining the quantities of starch, fibrine (Faserstoff), and water. The results were as follows, in 1000 parts:—

	Potatoes from Albert.	Potatoes from Krause.	Potatoes from Greger.
Water	714.4	756.2	810.9
Starch	115.9	110.5	107.0
Fibrine, starch-like	70.9	52.5	50.0
Substances soluble in water	98.8	80.8	32.1
	1000.0	1000.0	1000.0

The quantitative analysis of substances soluble in water was not made; from the researches of other chemists they are as follows:—

Albumen	Tartaric acid)
Gum	Salts
(Sugar	Asparagin
Phosphoric acid	Solanin
Citric acid	

The published analyses of Einhof, Henry, and Lampadius, are then given, which were made on Potatoes produced by tubers. The following analysis by Dobereiner is given of a large sort grown in the year 1845:—

Water	740.0
Starch	120.0
Fibrine	48.9
Albumen .. .. }	90.2
Gum, &c. .. .. }	
	1000.0

The most important elements may be seen in the following comparison: —

Substances.	Potatoes from tubers after the researches of Einhof, Henry, and Lampadius.	Potatoes from seed by Dobereiner.
Starch	15 per cent.	11.3 per cent.
Fibrine	7 „	5.7 „
Water.....	73 „	76.0 „
Gum	4 „	7.2 „
Albumen ..	1 „	

Of the remaining elements of Potatoes, Henry, in his researches, gives 3.3 of sugar and 0.1 of fat; Vauquelin 0.1 of asparagin, a highly nitrogenous substance found in Asparagus; 1.2 of citrate of lime; and an undetermined quantity of pure citric acid, citrate and phosphate of potassa, and phosphate of lime—substances which, in their quantitative analysis, determine the greater or less value of the Potato. In addition to these, Buchner, Barry, and Otto, have pointed out the existence of solanin, a poisonous substance, which is found in largest quantities during the germination of the Potato, and is the cause of the paralysis which comes on in the extremities of animals which have been fed upon Potatoes that have been used by the distillers.

The following Table gives the result of the chemical examination of Potatoes at various seasons of the year. 240 lbs. of Potatoes contain, of starch—

	lbs.	lbs.	
In August	23 — 25 or	9.6 — 10.4	per cent.
„ September ..	32 — 08 or	13.3 — 16.0	„
„ October	32 — 40 or	13 3 — 16.6	„
„ November ..	38 — 45 or	16.0 — 18.7	„
„ April	28 — 28 or	16.0 — 11.6	„
„ May	28 — 20 or	11.6 — 8 3	„

From which results it will be found that Potatoes ought to be protected against frost, heat, and germination.

Payen found starch and water in the following proportions in various sorts:—

	Starch.	Water.
Rohan Potatoes	16.6 —	75.2
Large yellow do.	23.3 —	68.7
Scotch do.	22.0 —	69.8
Irish do.	12.3 —	79 4
Suganzak do.	20.5 —	71 2
Siberian do.	14.0 —	77.8
Distillers do.	13.8 —	78.3

From this Table it appears that starch and water exist in Potatoes always in an inverse proportion; where there is most starch there is least water, and *vice versa*. It will also be found that starch and water together constitute from 91.7 to 92 per cent. of the mass of all Potatoes.

Appendix B. Upon the regeneration, or profitable propagation of Potatoes from seeds, by Inspector Tinzmann, of Laasnig, in Silesia.

The variety of opinions which exist with regard to the proper culture of the Potato, determined me to undertake experiments for myself, which I have now carried on for 10 years; and as the results of their propagation by means of seeds appear to be important, I have determined to give them to the public. In the commencement only a few plants were tried, but as the result was good, this plan of culture has been continued till now. The propagation of Potatoes from seeds is attended with many advantages. The Potatoes are by it regenerated, their produce is increased, and, what is of most importance, the Potato itself is very much improved. The tubers, also, of Potatoes produced from seed are able to resist the influences of weather, &c., much better than those grown from eyes, germs or peels in the usual way. It has also the advantage of a saving in the sowing, as, although small Potatoes are used when the crop is grown from the tubers, yet these may be employed more profitably for feeding animals. In the growing of Potatoes from tubers there is no certainty with regard to the crop, as a fine-looking Potato may have weak vital powers, or the germs, on account of imperfect nutrition, may not be able to develope healthy plants. The following is the history of my experiments:—

In the autumn of 1833, the seeds of an ordinary variety of field Potato (Futter-Kartoffel) were collected and sown in a garden on the 16th of April, 1834. From mismanagement, only 12 plants made their appearance, and of these 9 were transplanted in the middle of June. They were then 5 inches high, and were placed a foot apart from each other. This was an exceedingly unfavourable year for this experiment, on account of the drought that prevailed. When these plants were dug up, they yielded only 73 Potatoes. The largest were the size of a hen's egg, the smallest as big as a Hazel nut.

In the year 1835, these 73 Potatoes were planted out in a field, and the whole of them, even the smallest, produced plants. They were easily distinguished from the old sorts by their vigour, their dark-green leaves, and more luxuriant growth. The produce in 1836 was 1042 tubers, or 1½ bushel. These were again planted, and in 1837 produced 21 bushels, which were again planted, and produced 447 bushels; of these, 223 bushels were planted, and yielded 3140 bushels—the rest were sold. We may calculate from this that in five years 9 plants yielded 6000 bushels of Potatoes. The produce of the new Potatoes, as compared with the produce of the parent Potato, was as 14 to 8½, and the bushel of the new variety weighed 91 lbs., whilst the old weighed only 81 lbs. [These are German weights and measures.]

The second experiment was made with the German table Potato (Speise Kartoffel). The seeds were sown on the 26th April, 1836, which came up, and 60 plants were transplanted on the 20th of June following. The produce was 5½ metze (a metze is the 16th part of a Scheffel or Prussian bushel). The tubers were small, not any larger than a dove's egg, and were 1382 in number; or 23 on an average to each plant. These were planted in 1837, and yielded 8 bushels of perfectly formed Potatoes, with an excellent flavour. In the year 1838, 3 bushels were planted out, and 56 bushels obtained. The produce of this variety was always greater than the last, as it afforded, on an average, from 60 to 70 tubers on each plant. Although in the first produce many of the tubers were very small, this was found to be no disadvantage in using them as seed-tubers, the very smallest frequently having the largest number of eyes, and yielding the greatest produce.

The propagation of Potatoes from seed having been found so valuable, I have adopted the plan, and now possess a large assortment of different varieties. The following Table has been drawn up for the purpose of affording a view of the relative merits of Potatoes grown from seeds and from tubers:—

Kind of Potato.	Quantity. Acre gave	Bushels weighed	Quality. Starch.	Fibrine.	Water.
	lbs.	lbs.	p. ct	p. ct	p. ct
1. Field-Potatoes from tubers	82	81	6½	25	68½
2. The same from seed	140	92	9	30	61
3. German Garden-Potatoes fm. tubers	82	82	6½	19	74½
4. The same from seed	104	91	8	23	69
5. Early Kidneys from tubers	93	90	6	20	74
6. The same from seed	106	94	9½	25	65½

As these three sorts of Potatoes were grown on a soil of equal goodness, and received the same treatment, they prove very satisfactorily the advantageousness of the raising the Potatoes from seed. I might communicate the result of experiments on other kinds of Potatoes, but they are all equally favourable to the plan of culture now recommended. I will now say a few words on the obtaining, treatment, and sowing of the seed.

In order to obtain good seed, not more than from two to three of the fruits or Apples of the Potato plant should be allowed to come to maturity. For these the most perfect should be selected, and all the rest cut away. In the neighbourhood of the plants selected for seed, no other sort should be allowed to grow, because the pollen of the other plants may mix with those intended for seed, and the sort will thus be changed. Of this I have had ample proof, and have sometimes had the varieties of Potato spoiled by such a mixture. It is well known that a change in the variety of a plant can only thus take place by the application of the pollen of other varieties. Sometimes this mixture of other pollen exerts a powerful influence, and I have found that sorts of Potatoes which would not bear seed from impregnation with the pollen of their own flowers, would bear it when impregnated with pollen from other flowers.

The ripeness of the seed may be known by the softening of the Apple, or should not this come on in late varieties, then, when the vegetation dies. I collect the Apples generally at the time the tubers are dug up. They should be then placed in a damp, not a wet place, as in a cellar, till decomposition takes place. The pulpy parts should then be separated by squeezing, and the seeds washed with luke-warm water, the seeds should then be picked out, and washed carefully several times, until all the mucus is got rid of. This is a point of great importance, and it was from not properly separating the seed from the investing mucus that I did not succeed so well in my first experiments. When left on, the mucus prevents the seed from germinating. The seeds after washing should be dried in the air, and kept in a well ventilated place.

When varieties are wished to be produced, a fine dry still day, when the plants are in full blossom, should be chosen, and the pollen of the one plant be carefully applied to the stigma of the other with a camel's-hair pencil. This process it is very desirable to adopt where none of the Potatoes of a district will bear Apples at all, as it frequently happens that Apples are borne after this artificial impregnation.

In the cultivation of Potatoes from seed the following notes may be of service. The seed of the Potato should either be sown at the latter end of April or the beginning of May, in a loose soil, which, during the previous autumn, had been well manured. The ground should be sown thinly and in rows 4 inches apart. The young plants will have appeared within 10 days. The ground should be carefully cleared of weeds. At the end of about eight weeks they will be 4 or 5 inches in height, when they should be dug up and planted out in a well worked field, about 18 inches apart in breadth, and 7 inches in a line. In the course of time the soil should be loosened with a hoe, and later dug up and housed in the same way as other Potatoes.

The Potatoes obtained from seed the first year do not attain their perfect size, and are watery and not agreeable as food; they seldom attain the size of a hen's egg, and the majority are not bigger than a hazel nut, but in the second year the Potatoes grown from these attain a large size and deliver as fine and perfect a fruit as possible.

(To this statement of the Herr Tinzmann, Justiz-rath Isensee appends a note, stating that the results of his observations differ from those of the author. In the previous report from Herr Albert, and in the reports in Appendix A, it will be seen that the first crop of Potatoes was large, free from any large amount of water, and eatable. This was the case, not only with the early sorts of Potatoes, but with the later sorts, the same as those referred to by Herr Tinzmann.) An important point to be attended to is the preservation of the seed tubers during winter. They should be carefully stowed before heating takes place, so as to produce germination, and this should be done as soon as possible after the taking up of the Potatoes. If the seeds are sown in February on a hotbed, then the Potatoes which are produced may be employed for food, but I prefer the second year's produce. (It will be seen from preceding parts of the reports that it is not necessary to take this precaution to secure as useful a crop the first year.)

Since obtaining the foregoing results from the propagation of Potatoes by seed, I have not only always had abundant crops, but they have all been free from the various forms of Potato disease.

Appendix C. In Number 245 of the "Berliner Zeitung," of the 20th of October, 1845, the following occurs. The Minister of the Interior is induced to lay the following communication before the public:—The prevalence of a disease in Potatoes in various parts of the world has led some to the conclusion that it is desirable again to raise Potato-plants from seed. There appears, however, to have been but few experiments performed upon this subject, and, consequently, persons have been led to doubt its value. An experiment has however, lately been performed by Herr Zander, of Boitzenburg (Count Arnim's gardener), in which he not only obtained Potatoes from seeds, but when all others were attacked with disease these were found free. The following is the plan pursued. The berries of the Potatoes are collected in the autumn, and are squeezed with the hand into a pot or other vessel, in which they should remain six or eight days, to decompose, by which process the pulpy part separates from the seeds; the seeds are afterwards washed with water and treated in the same manner as the seeds of Cucumbers. They are then dried, and kept in a warm and dry place. At the end of March, or the beginning of April, the seeds are sown in a hotbed, and are treated generally in the same manner as Early Peas. The young plants should be protected from the frosts to which they are exposed at the season of year in which they are planted. In the month of May he transplanted and planted in a light soil at the distance at which Potatoes are usually planted. Zander's plants were sown on the 11th of April, and transplanted on the 26th of May. The plants at the harvest yielded largely, and one plant gave 280 tubers. Zander has grown Potatoes thus for the last five years, and while the Potatoes all around have been subject to attacks of disease, those grown from seed have been free. The success of these experiments ought to induce persons, wherever the Potatoes are not got in, and berries have been produced, to collect the seed for the purpose of sowing in future years, should the crop turn out to be a failure. The space required for sowing seeds, in order to plant an acre of land, is not more than a square rod, so that persons with only a small amount of land may successfully pursue the plan.

Appendix D is a short report made on the 7th October, 1845, by C. Berendt, on the merits of the Potatoes grown by Herr Albert, from seed; which is very favourable.

Appendix E.—The president of the Agricultural Society of Rosslau and Cöthen, in consideration of the importance of the subject, had been induced to allow the collection of seed under the superintendence of an experienced farmer, for the purpose of supplying those who may wish to have it.

Appendix F.—Potatoes from seed by Von Blacha, of Jaschine, near Kreuzburg. In consequence of the marked diminution in the germinating power of the Potatoes of this district, I three years ago obtained, by means of washing, an ounce and a half of seeds from sound Potato berries. These were sown, for the sake of experiment, the first year in a hotbed, and when the plants were up, and no frost to be feared, they were planted in the open field. From these I had the first year one sack and a half, the next year 12 sacks, and the present year, 95 sacks of perfect and good Potatoes. All my Potatoes are at present infected with the prevailing disease in a high degree, except the 95 sacks obtained from the seeds, and they are all perfectly sound.

Home Correspondence.

The Amaranthus oleraceus, which you describe as a new esculent under the name of Chusan Han-tsi, is one of the most common native vegetables in India, and of which there are two or three kinds in use, either varieties of this or different species of Amaranthus. The two most frequently met with are, one with stem-branches and leaf-stalks of a light green, a shade lighter than the leaves; in the other, the whole plant is of a brownish green, or rusty colour; in other respects, the plants are apparently the same. The time at which they grow in the greatest perfection as a vegetable is just after the first fall of the tropical rains, when the air is saturated with moisture, and the direct action of the sun broken, but not wholly intercepted, by a thin covering of clouds, accompanied by a generally calm state of the atmosphere, and a temperature ranging from 70° to 80°, but with variations exceedingly small between day and night, as compared with other seasons of the year. At this time the plants grow very rapidly, and arrive at a state for use in a month or less from the sowing of the seed, rising from 1 to 1½ foot in height, with stems as thick as the forefinger. In this state of rapid growth, the whole plant is used, being cut off about 2 inches above the ground, and the most delicate part of the vegetable is decidedly the succulent

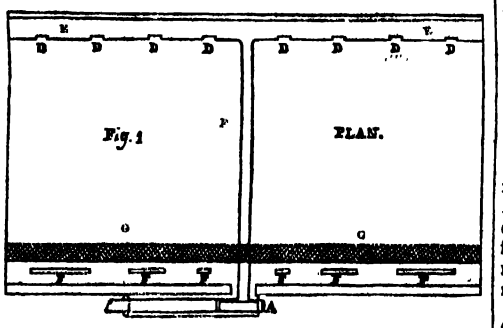
stems and branches; but when the plant is allowed to mature its growth, the stem and branches become stringy and fibrous, and the leaves and foot-stalks are alone capable of being used, in the manner of the Chinese, as described by Mr. Fortune. This is mostly the case also when this vegetable is grown at other seasons. When the state of the atmosphere is dry, and the sun unclouded, the plants speedily become stringy, and do not attain the same size as in the rainy season; and unless they are pulled up when they are very young and small, the leaves alone are worth using. There is another kind by no means so common, whether a variety or distinct species I am unable to say, with milk-white stem and branches, of which I sent some seeds to the Horticultural Society three years ago. I am not aware that it is less hardy or less easily cultivated than the others; but, as a vegetable, it is equally succulent and more delicate in appearance, and I think in flavour; and I would recommend it to the notice of any one disposed to try the cultivation of this plant as a vegetable. From the preceding observations it may be inferred that the moist temperature of a Melon or Cucumber-frame will be the most suitable climate it can have; and I have seen very fine specimens grown in this manner.—*J. H. H.*

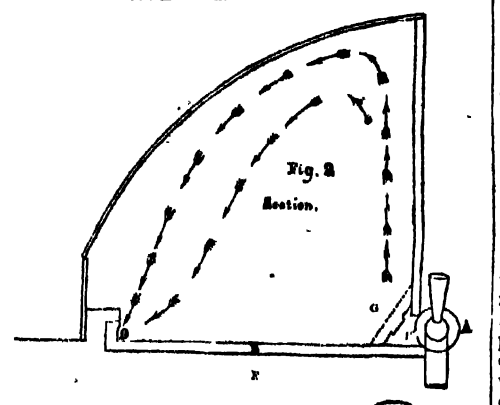
West Kent Garden-pot.—This contrivance, exhibited before the Horticultural Society on the 17th February, and noticed in a leading article of the same week, may be regarded as one of the best aids to cultivation which has been brought under the notice of practical men for a long time past. A similar plan has been in use here for two years past (but I must do Mr. Fry the justice of stating that he was not aware of that fact until after his plan was made known to several gardeners in this county), and therefore I can speak practically of the advantages which are likely to accrue from the invention. To amateurs I consider it will be of greater service than to practical men, inasmuch as the latter, from their daily experience, are more expert in the shifting of plants than the former can be expected to be, but the amateur will find the pot of immense advantage, by enabling him to examine the roots of his plants without any risk of doing them injury, and it will also facilitate very materially the shifting of large specimens, as the plants will require no capsising, and therefore are not so likely to be broken, while the dirt which generally in the old plan of repotting falls so plentifully among the branches and foliage, and which frequently is difficult to remove without considerable trouble, will in this plan do no harm at all. How frequently are valuable plants lost from the want of water, because from the surface-soil being wet the cultivator imagines that they are all right in point of humidity, while in reality, when they come to be turned out after they are dead, half of the ball, sometimes the bottom and sometimes the side, is found to be as dry as dust; but when the West Kent pot comes into use, we have nothing more to do than place the ball on the shifting block to make every necessary examination. In the shifting of large Pine plants (for I imagine that the pot-cultivation of these plants will not be abandoned quite so soon as Mr. Hamilton and some of his disciples imagine), this pot will be of immense advantage by facilitating the operation; and it will also effect a considerable saving in the number of pots which are now obliged to be broken in shifting large specimens of all kinds of plants. For my own part, I will purchase no other kind of pot after Mr. Fry's are in the market.—*W. P. Ayres, Brooklands.*

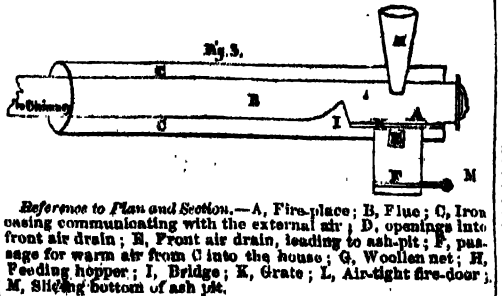
Maize.—Amongst the advantageous uses to which Maize may be put, is that of feeding poultry. The poultry of Toulouse is remarkable for its delicacy of flavour, and of texture of flesh and fat: it is fattened on Maize. A person accustomed to fowls so fed can immediately distinguish them in the market from any that may have been fattened on other kinds of corn. So, also, Maize is esteemed, in the south of France, the best food for fattening pigs, insomuch that in parts where Maize is dearer than Barley, still Maize is purchased to finish the fattening of a pig.—*M. C.*

To keep Trees from Wind-tearing.—A description appears (p. 101) of a mode of supporting newly transplanted large trees, and where supports are absolutely necessary, the mode recommended is possibly as good as any. Nevertheless, as all such supports have a clumsy and unsightly appearance, it would be a saving of labour and expense to dispense with them altogether; which, with the exception perhaps of "Poplars in a marshy soil," might easily be done. I can assure "F. H. S." that I have transplanted some hundreds of large trees in my time, into park and similar scenery, and have never had recourse to artificial support in any instance. My mode is this: to take up the tree, with all the roots that can possibly be preserved, with great care, completely denuding them of all the earth, and when placing the tree in a previously prepared pit, carefully packing all the larger roots in their natural position, with the strongest turned towards the point most exposed to the most prevalent winds; when the tree is up, I generally thin the head a little, by way of preserving the balance of reciprocity—with disturbed, and in some degree unavoidably mutilated roots. Following the above natural mode, I think my success has been equal to most men's in that department—as the general luxuriance of the trees in question can testify. I candidly acknowledge, however, that I have had instances of trees getting a little on one side in soft soils, when it has happened that high wind and much rain assailed them before the ground got settled; but I never found it necessary to use supports such as are described by "F. H. S." I may mention my mode of preparing the pits or holes: we strike a circle 10, 12, or 15 feet wide, as the case may be; remove the turf, and then work the soil well over by deep digging or shallow trenching, laying out just enough to pack in, and cover the roots to their natural depth, and no more; replace the turf, and the work is done.—*Quercus.*

Polmaise Heating.—I propose to supply the furnace with air from the house, and to replace its loss with fresh air, heated in its passage through the stove. It will be seen by the woodcut that it is intended the cold air shall first come in contact with the flue at some distance from the fire; it will then become warmed in its passage towards the fireplace, passing which, it will be sufficiently heated to enter the back drain, from which I propose to make several openings into the house, increasing in dimensions as they recede from the entrance. Instead of conducting the air under a wet blanket, and allowing it to enter the house at each end, I would substitute for the blanket a net made of large soft woollen yarn, like that used for mops; this being kept moist by turning some loose ends into the tank of water above it; the number of these yarns would regulate the degree of moisture. The heated moist air would then enter the house through the meshes of the net, and would be so equally diffused that little danger might be anticipated of scorching any plant near it. It is intended that the fireplace shall be air-tight, except the opening from the front drain into the Ash pit, through which the draft may be accurately regulated by a small damper. The fire-place should be of cast iron, the casing might be of plate; but to prevent loss of heat by radiation, it should be covered about 2 inches thick with a compound of charcoal-dust, mixed with about 1-6th of pipe-clay, and kneaded into a paste, this would be prevented from falling off by a few studs inserted into the iron tube, and further secured by a calico bandage moistened with clay, and wrapped round the whole; this will effectually prevent any escape of heat. I propose to feed the fire by a hopper closed at top, and would recommend as fuel either anthracite alone, or mixed with an equal quantity of gas coke. When the Ash pit requires emptying, a box placed under it will receive the contents on withdrawing the sliding bottom. I think that by an arrangement like the above, a constant circulation of fresh warm air will be kept up, the fire abstracting foul air from the house, and causing its replacement by fresh air on the same principle as the ventilation is kept up in coal mines.—*Luxor.*







Reference to Plan and Section.—A, Fire-place; B, Flue; C, Iron casing communicating with the external air; D, openings into front air drain; E, Front air drain, leading to ash-pit; F, passage for warm air from C into the house; G, Woollen net; H, Feeding hopper; I, Bridge; K, Grate; L, Air-tight fire-door; M, Sliding bottom of ash pit.

Draining Ground for Planting.—Can any of your correspondents give me information from their own experience of the best mode of underdraining woods, or what is better, land intended to be planted. It is my intention to plant 10 acres this spring with Larch, Scotch and Spruce Fir, and Oak; the land is such that the three first grow very well in it, but the Larch, when about 30 years old, begin to decay at the root, which I attribute to a wet subsoil; I therefore propose to underdrain the land before planting as deep as the outfall will allow, from 2½ to 3 feet. I do not imagine that the roots of any of the Fir tribe will find their way down to the drains, and the Oaks will not be planted near them. I should be glad to know from anybody who has underdrained Larch woods of a certain age, whether their trees have derived all the advantage expected from it. What forest trees will grow without much injury near a brick kiln, the Larch and Scotch Fir having been killed by the smoke; the wood is on the west side of the kiln.—*Eddiva.* [Defer your planting till autumn, or ——.]

Natural Razor Strops.—I beg to enclose a razor strop which, perhaps, may be considered to be a curiosity when the facts are explained, as to how, or in what way, it was produced. It will require to be placed on a piece of wood of convenient width and length, and a little sweet oil should be occasionally applied to it in the same way as is done to others; then, by a proper application of the razor, it will produce as beautiful a sweet cutting edge as any body could possibly wish for. This production is, in texture and softness, equal to the finest velvet, and is as elastic as a piece of leather. It was cut from a fungus that grows on our English Oak. The trunk of the old hearty fellow from which it was taken is, at 4 feet from the ground, 21 feet 6 inches in circumference, branching off at 10 feet into several large limbs. Four of these Oaks measure respectively 10 feet 2 inches, 9 feet 3 inches, 12 feet 10 inches, and 9 feet 5 inches in circumference, the former tree being 100 feet in height; another, growing within 200 yards of the above, measures, at 4 feet from the ground, rather more than 21 feet in circumference, and above 110 feet in height, branching off into two limbs at the height of 10 or 11 feet, the circumference of those limbs being 13 feet 7 inches, and 14 feet 3 inches. Along with the strop I send green leaves and branches, gathered on Saturday, the 7th February, from another old fellow of the same variety, growing; yes, I say growing, in February. The first appearance of the fungus on the trunk of the Oak is similar to the small round Puff-ball which grows on pastures. In colour it is of a greenish-white, with a smooth surface which feels cold and hard, something like that of marble. They grow very slowly, and assume different shapes and sizes, some coming round and rough, having a rocky appearance externally; others assume the shape of cocks'-comb and other curious forms as they get old, and to kick against them when four or five years of age, is something like kicking against the old Oak itself. The one out of which the inclosed strop was formed was about the size of my head, and possibly about three years old. To obtain them you have only to go to the tree, take a fungus off with a sharp knife, cut it in slices as a cook would liver (which it very much resembles in colour), and you have at once so many razor strops. People may talk about leather for razor strops, or for the fortification of a town, but I contend there is nothing equal to this production of our old English Oak.—*James Barnes, Bicton Gardens.* [The fungus that produces Mr. Barnes's razor strops is the Polyporus fomentarius, the true Amadou of commerce. When young the plant smells exactly like the common Mushroom. Mr. Berkeley informs us that Polyporus betulinus is sometimes used for razor strops in the north of England, and is said to make fine ones.]

Orange Toothpicks.—These are not all made of Orange-wood. At Naples the wood of Common Elder is split up and pared away for the purpose.—*S.*

Retarding Flowers.—In Italy the large scarlet Ranunculus (Alep) and the double pink Picotee are successfully kept back for flowering in October. It is said no other Ranunculus succeeds under the same treatment, and even that has not, it is believed, succeeded in England when kept back for the purpose. What is known to gardeners on this subject?—*S.*

Polmaise Heating.—It was not my intention to have interfered further in the discussion of this question, had my name not been prominently brought forward by Mr. Meeke in a way I cannot pass unnoticed. I stated in this Paper, in 1844, that I did not consider the Polmaise mode of heating better than the old flue system. From the subsequent discussions which are before the public, and from an example of it which I have frequently examined, I now pronounce it a great deal worse. It is totally inefficient for the great proportion of garden purposes where heating apparatuses are required. Mr. Meeke states that "previous study of this branch of physics had placed him in a position to aspire to this investigation." I also aspire to such, but on different grounds. For many years I have been investigating various modes of heating, and practically carrying them into effect. At this moment I have more than a score of hothouses in course of erection, and if I could heat them more effectually and more economically by the Polmaise arrangement than by a good system of hot water, I should think myself culpable in not recommending its introduction in preference to the latter. It has been stated in a Leading Article that "we cannot too often repeat that the importance of the Polmaise heating consists in its cheapness." I have taken the trouble to calculate this, but not relying exclusively on my own acquaintance with the value of materials, I applied to those whose business it is to erect all kinds of warming apparatuses, and I find that such a one as that given at p. 115 of this volume—which, by the way, is materially different from that at Polmaise—would cost considerably more than a good and efficient hot-water apparatus; so much for its cheapness. Now for its efficiency. No one has said, as far as I have observed, that it has done more than ripen Grapes in September. But, says one correspondent, look at the climate of

Polmaise; why, I saw myself in the vicinity of that place as fine a crop of Peaches in the open air, in 1823, as I ever observed in the warmest parts of England. Ample time has been allowed since this subject was first mooted, for its advocates to show what it is really capable of effecting; for, after all, that is what is wanted. Let us see Grapes at our next May exhibition of the London Horticultural Society, ripened by a Polmaise stove, running away with the gold medal. I shall then admit that to be a very great fact. In an article on this subject by Mr. Ayres, he questioned whether the house at Polmaise was heated at all. The scorching of the leaves was then adduced as an evidence of this, but a hand lantern would have a similar effect. Mr. Meeke complains that I have only stated two objections, and not denied the facts. What are the facts? are they so marvellous? Are ripe Grapes in September of good quality so extraordinary and unusual? There has been exhibited this season already, before the Horticultural Society of London, from Mr. Fleming, of Trentham, not the warmest part of England certainly, a beautiful sample of ripe Grapes, and there is within an hour's walk of where I am writing, 1000 lbs. of Grapes in one establishment finely swelled and colouring beautifully. One of my objections was the admission of cold air from without, and Mr. Meeke asks, "Is it possible Mr. Glendinning used these words 'That if the house had been heated by hot water it would be unnecessary to admit fresh air from without.'" It is quite possible I did say so; for in every Grapery which I build I putty the laps, as well as use every other precaution to obviate this as much as possible. Mr. Meeke may perhaps tell us to what extent the air of a Grapery is rendered impure by a hot-water apparatus, or to what extent it differs from the external air, other than being warmer. A great philosopher told me it did not differ except in temperature, at least as far as regards its purity; but he may have been wrong, and hence I have been misled. If he was not wrong, then the admission of cold air is so much heat wasted. That the air of such a house heated by a Polmaise stove would readily become polluted and require a constant stream of cold air from without to keep up a healthy atmosphere is apparent enough. The next objection is that of introducing the heated air in the first place at the back, and of course the warmest part of the house; had I mentioned no other objection I should look upon this as fatal to the system, and it would not have been the first system that such an arrangement of the heating power has destroyed. I had something to do with the first fair trials of Fowler's Thermosiphon in 1829. I at once pronounced that for horticultural purposes such an appropriation of the heating power could not be effective, and must necessarily explode. I adduced my reasons; all I got in return was a sneer at my philosophy; but after drawing largely upon the exchequer of the ingenious gentleman, the thing proved a failure and was no more heard of. Therefore to introduce the heat at that part where it is least of all required, and where also before it can reach, if it ever reaches at all, that part of the building where the difficulty of warming in severe weather has always been felt, and causing the current at the same time to descend in opposition to a well known natural law, is too absurd for discussion. An objection may with great propriety be urged against the mere arrangement of the Polmaise house; for as far as the economical appropriation of such structures are concerned, the whole of the back border is destroyed for any useful purpose; but supposing that none of these objections existed, and that a gardener was caught in the middle of January with the external air at zero, and his house of Grapes in full bloom, need I ask any practical man what would be the fate of his crop? Why, if he got his stove up to a white heat, he could not possibly keep the frost out and save his Grapes; and besides what kind of heat would be generated under such conditions? But to render it congenial to vegetable organisation, a current of air must be admitted at the zero point. In a well-constructed hot-water apparatus, during intense frost, the gardener retires in the evening to rest, feeling perfectly satisfied in his mind that he will find all safe next morning. Even supposing the fire to burn out—a not unusual occurrence—there remains in the water itself an ample magazine of heat, sufficient for all contingencies. Not so in the Polmaise; the moment the fire goes out, the only source of supply is dried up, and, what is worse, the current of cold air provided to supply the stove must continue to rush in—thus driving out at a rapid rate the little heat that remains. Mr. Meeke seems to think no reasonable objection has yet been urged likely to affect the general introduction of the Polmaise system, and that it must ultimately supersede all others. How he can possibly imagine such a result I cannot comprehend. Objection rises upon objection, without one redeeming point. Finally, if the great men on whose axioms the Polmaise system is founded, which is avowedly based on principles opposed to all we know—are forgotten, it will be no loss to successful practical gardening.—*R. Glendinning.*

Potato Disease.—I am sorry to state that the whole of my crops of early Potatoes which were looking well on Saturday last are now a complete wreck. They were planted in rather a dry soil, the remains of an old Melon bed, and grew as well as could be desired. I made sure of gathering a fine crop in about a fortnight, but now they are quite worthless. The lights have not been taken off since the Potatoes were first planted, and I began to think that protection from cold rains had saved them, but now my hopes are blighted. Old Potatoes here are now rotting very rapidly.—*W. P. Ayres, Brooklands, March* 10, 1846.

Potatoes in Cornwall.—It will be interesting to know that in my own parish, whence some of the earliest Potatoes from the open ground have always appeared at Covent-garden, we have as yet no signs of anything being wrong. A sharp frost in the beginning of February had cut down the stems, which had reached the height of 8 or 9 inches; but notwithstanding this check, they are again of the same height, without disease showing itself, even on the most careful examination. The branches are strong, the stems perfectly sound, the sets as fresh as when put into the ground, and the young tubers already formed vigorous and healthy, at least, so far as the eye can judge. Our sorts are Cornish and Axbridge Kidneys; but the same may be said of our later crops; the seed planted about two months since is perfectly sound, and making strong shoots, though, of course, it is too early to speak with any confidence as yet. A large extent planted in this parish presents this favourable appearance; nor can I learn of any reappearance of the disease in the early crops in this neighbourhood. This escape as yet from the disease, which has shown itself in so many places, is the more surprising, as our own neighbourhood suffered as much, if not more, from its ravages last year, than any district that I am acquainted with.—*W. W. Wingfield, Gulval Vicarage, Penzance, Cornwall, March* 16*th.*

The Season.—Vegetation has already made considerable progress in Dorsetshire. The trees and shrubs included in the following list have each produced young shoots from 2 to 4 inches in length, viz.—the common Laurel, which is in some places in full flower; the Portugal Laurel, the Privet, the Alder, the Dog Rose, the common Bramble, and the common and Irish Yew. Common Larch (particularly some upwards of 20 ft. high, planted in Nov.); Cedar of Lebanon, Scotch Pine, Weymouth Pine, and Tree Box, which is in full flower. The common Laburnum is in leaf. Arbutus Unedo, L., is still in flower, with fruit the size of a common marble. Laurestinus is still covered with flower. The Horse Chestnut is bursting its waxy buds, and in more sheltered places the leaves are visible. Phillyrea angustifolia, in sheltered places, has shoots 1 inch long. P. media buxifolia has done flowering. Daphne Laureola has been in flower all winter. The different varieties of Salix are in full flower. Peaches, Apricots, Plums, and Cherries are also in full blossom, and in some parts of the garden in leaf. Pears on the walls are in full flower with leaves. Apples in some parts of the garden are showing flower; and our woods present a gay and lively appearance, with Primulas, Myosotis, Narcissus, Anemone, Vincas, &c. &c.—*J. M'Intosh, March* 9.——Near Inverness vegetation is as forward now as it was on the 20th of May last year. Potatoes in the open ground, on a south aspect, are very strong, and 3 inches in height. We never saw the Potato disease here. Cauliflower and Lettuces are vigorous. Jargonle Pear-trees are in flower. Peaches, Apricots, and all fruit trees also promise a rich bloom soon. Ribes sanguineum, Violets, &c. are in flower. Poplar trees and Hawthorn hedges are green, and the Grass lawns require mowing —*J. Ross, March* 9. —— As the result of the unusually mild season may affect the next harvest, the annexed memorandum may be interesting:—The following plants and weeds were flowering in the garden of the rectory, at Ripton, Hunts, or adjacent fields, on the 24th Jan., 1822, viz., Laurestinus, Periwinkle, Stocks, Primroses in abundance, Chinese Roses, Polyanthuses, Anemones, Pheasant's Eye, Snapdragon, Aconite, Chrysanthemum, Alyssum, Marigold, Gentianella, Carnation, Cowslip, Bearsfoot, Violet, Wallflower, Kerria and Pyrus japonica, Antirrhinum, Sweet Pea, Dandelion, Venetian Vetch, Passionflower, in bud. I need hardly observe that the autumnal flowers named in the list, and mixed up with those of spring without order, have stood the winter. My notes go on to state the hay harvest began on June 22d of that season; the Wheat ditto on July 24th. Both were very good, and about 14 days before the usual time.—*T. B.*——On the 10th ult., Rhododendron atrovirens, Ribes sanguineum, and Saxifraga oppositifolia, were in flower. The Ivy-leaved Toad-flax, Linaria Cymbalaria, and Escallonia rubra, unprotected, flowered all through January. At present I have in flower a bloom of the London Glory Pink, and one of the crimson Ranunculus, which were quite unprotected during the winter. The Ranunculus roots were kept out of the ground a season.—*W. J., Ballykilbeg-house, Downshire, March* 10. —— The middle of last month my gardener found a robin's nest in a water-pot in the garden tool-house. She has duly hatched, and the family are "going on well."—*C. C.* [And now, while we are writing, the ground is covered with snow, the wind N. E., and reports from the north speak of snow knee-deep at Newcastle.]

Potato Disease began in 1844.—I think it would be impossible for any one having heard the evidence which I have, not to come to the conclusion that the disease existed in this neighbourhood (East Sussex), in 1844. I suspect, that in no part of the kingdom has it been so severe. So early as September, tons of Potatoes were brought from London to supply the Irish, who, as usual, had here congregated, for the purpose of gathering the hops. I know of two plantations of Potatoes which were annihilated in June, the ground cultivated, and Swede Turnips sown. In the last week in July, the gardener of Mrs. Monypenny, of Rolvenden, in Kent, planted in a double Cucumber frame, some seed of 1844, and at the same time he put some of the same in pots, and placed them in the hothouse. I had several opportunities of witnessing those in the frame being smitten similarly to those in the gardens; those in the hothouse continuing to flourish and arrive at maturity. I asked the gardener how he accounted for the Potatoes on the eastern side of the frame being more affected than those on the northern? I had by my observation anticipated his answer. He replied, "because there are many more panes of glass broken," meaning that the atmosphere had thereby a free access. In the month of July, and early in August, I observed the disease gradually extending from parish to parish, in a direction from south to north, after which you are aware that it made rapid strides. In vain have I attempted to impress on my neighbours the vast importance of the impending danger. Some benevolent farmers are sending to a distance for sound Potatoes to distribute to their labourers for seed; I tell those whom I have met with, that their benevolence would have a tenfold effect if, instead of distributing the Potatoes they would plant a field, well adapted, promising their labourers that they should have a due proportion of the produce at a moderate charge, conditionally that they would not plant a single Potato in their gardens, but lime and well cultivate them till the time of sowing of Turnips. I grieve to say, that my Parsnips, which have been delicious, are many of them become totally unserviceable, their appearance being similar to that of diseased Potatoes.—*W. P. L.*

Daisies on Lawns.—I have a cottage in the country, situate in a prettily dressed garden, with a little lawn of close shaven turf in front of the windows of the principal rooms. On this lawn I last year perceived that a great number of Daisies (Bellis perennis) had located themselves, and to dislodge them I employed an army to fork them out. I afterwards gave the turf a top-dressing of soot and sandy loam, and the consequence was, my domain looked green and grateful throughout the summer; and I fancied that I had effectually removed the enemy. To my surprise, however, when I visited the spot about a month since, I saw such a camp as I never saw before; these pests, more numerous than the Sikhs, seemed literally to spring up under one's feet, and bid me defiance. They won't yield, I am afraid, to treating, and to make war with the scarifier, would be a sad pity. What can I do? Just now they disturb my equanimity more than the Americans in their possession of Oregon. I really want your advice. Your distressed ally — *Belligerent.* [You must keep the war with the Daisies alive. It is of no use to cut their heads off once a year; they require decapitation as fast as a new head forms. With a sharp spud, and perseverance, they will take to flight.]

Bees.—I was persuaded from the favourable report I received from a friend who buried some bees last winter in dry leaves, to try the same plan with a hive this year. I placed it on the pebbled floor of a summer house on the 4th of November, well covered over, about 1 foot deep in dry leaves, it then weighed 18¾ lbs., on December 25, it weighed 18 lbs, on January 26, 17½ lbs., and in February 23, 16¾ lbs., when I liberated them from their confinement, and they appeared lively and healthy. Have any of your readers tried this plan, and with what result?—*J. W.*

Polmaise Heating.—In the 10th edition (1706) of the "Kalendarium Hortense," written by John Evelyn, is an engraving and description of a method of heating hothouses, said to have answered remarkably well, which resembles the Polmaise as much as the separate inventions of two ingenious men can be expected to do. The principle of both is the same, and the air is drawn out in the same manner, viz., by an underground drain, and a close furnace outside the house; but in Evelyn's the external air is admitted and warmed by means of short pipes made of crucible earth, open at both ends, which pass through the brickwork and furnace, and project both within and without the house. Perhaps pipes, either of flannel, as one of your correspondents suggests, or of porous earthenware, might be socketed into the firepipes, and serve, when wet, the purpose of a wet blanket. The stove is also engraved and described in the "Transactions of the Rl. Society," Vol. 18, No 212, p. 191.—*Suffolcensis* ——I have read with interest and without prejudice the articles which have appeared on this subject; but I must say, hitherto, without being at all convinced of either the efficiency or economy of the plan. I have no desire to maintain the present system; if a more efficient system, or one equally so, and less expensive, can be devised, the sooner the whole apparatus of hot-water pipes, boiler, &c., are swept away the better. But I do not think the cause of truth likely to be served by the course pursued by the advocates of Polmaise heating, who (perhaps inadvertently) allow their zeal to lead them to exaggerate the defects of the old system, and to claim merits for the new one, which nothing short of actual experiments on a sufficiently large scale can prove it to be entitled to, and to which, in the absence of such proof, its claim appears to many to be very questionable; and till such actual proof, or at least some stronger arguments than have yet appeared, can be adduced, it is too soon to call upon us to renounce the hot water system as "comparatively unnatural, unphilosophical, inefficient, and expensive." There is at least a *possibility* that if any should be induced by such representations to throw aside their hot-water pipes, they *may* be glad to resume them; and after making a rotary movement, something like what Mr. Murray has succeeded in imparting to the atmosphere of his house, may find themselves once more at the point from which they

started. I confess I can see no nearer approach to nature in the Polmaise system than in the one which we are called upon to relinquish. If we inquire into the *modus operandi* by which any particular spot of the earth's surface is heated, we shall find, without undervaluing the importance of currents of air in modifying temperature, that it is mainly effected by caloric emitted in direct rays from the sun, striking upon, and radiated by the whole of that surface, and every body on that surface. Thus, if the Polmaise system claim to be the nearer approximation to nature, as producing a current of air (which, however, may be done sufficiently for all practical purposes in houses heated either by hot water or by flues), and which currents, be it remembered, in nature are not perpetual, neither is their force always proportioned to the temperature at the time. The hot-water system seems to approach nature more nearly in providing a larger radiating surface, while the means commonly employed for producing atmospheric moisture are at least as perfect as any yet suggested by the advocates of the Polmaise system. The comparative efficiency of the two systems is a question which can only be decided by proof, but it is difficult to conceive how the heat can be as effectually and equally distributed over every part of a house, by means of a current of air entering at one place, and allowed immediately on its entrance to follow its natural course, which is to rise to the top of the house, as, by the hot water, which is compelled to make the circuit of the bottom of the house, while the air which becomes heated by contact with, or radiation from the pipes, naturally rises to the top of the house, thus having to traverse the whole of the inclosed space. The comparatively slow transmission of the caloric which has to make its way first along the inside of the pipes, and then through the particles of which the pipes are composed, is an advantage, as it renders the house less liable to the sudden fluctuations of temperature, which it is to be feared would take place in a house heated on the Polmaise plan, unless the fire were always kept at about one pitch. The comparative cheapness of the Polmaise system is a point upon which its supporters lay great stress, and a most important point it is. But before anything can be positively affirmed on the subject, the amount of work to be effected by one fire upon the plan in question must be fairly tested. It costs much more to put up a hot-water apparatus than to build a flue. Yet, as with the old flue system, two fires were generally required to one house if of considerable size, while with the hot-water system one fire is made to work two, three, or more houses, every one who is conversant with t e two systems knows that the latter is the more economical. Thus it is quite possible that the hot-water system may prove cheaper than the most simple application of the other. But Mr. Mecke has proposed an apparatus including every expense involved in the common hot-water plan, except the pipes to surround the house, which would cost about *4s.* per yard, while the trough for water, the iron plate, dampers, stone slab, &c, go far to counterbalance that; and if it should be found necessary to build two furnaces where, with the hot-water system, only one is required, the latter will be found to have the advantage even in the cost of first fitting up. These are a few objections to the Polmaise system on a large scale.—*W. H. M., Walton, near Liverpool.*

WEEKLY PRICES OF POTATOES per ton, in *Covent Garden Market*, in 1845, and 1846.

	1845.			1846.	
Feb.	15	50*s.* to 80*s.*	Feb.	14	70*s.* to 160*s.*
	22	50 80		21	70 160
March	1	50 80		28	70 160
	8	50 90	March	7	70 170
	15	50 90		14	70 170
	22	60 100		21	70 180

Also at the waterside, *Southwark*.

Feb.	17	55*s.* to 80*s.*	Feb.	16	50*s.* to 120*s.*
	24	55 80		23	50 120
March	3	55 80	March	2	60 140
	10	55 80		9	60 140
	17	55 80		16	60 140

Societies.

HORTICULTURAL SOCIETY.

March 17.—Sir P. G. EGERTON, Bart., in the chair. Mr. J. Glenny and Mr. T. A. Perry were elected Fellows. Of Orchids, Messrs. Veitch and Son, of Exeter, sent one of the many varieties of Gongora maculata, from South America; and two Cypripediums from Java—one a very dark purple, and the other a paler variety—both referable to *C. barbatum*.—From Mr. Rae, gr. to J. J. Blandy, Esq., were two fine specimens of the old Phaius grandifolius, one of Dendrobium Pierardi, and another of Lysaste Skinneri. The beauty of these was, however, considerably destroyed by the travelling; a Banksian Medal was awarded.—Of other plants, Messrs. Henderson, of Pine-apple-place, sent Acacia diffusa, a small Boronia triphylla, producing numerous little rose-coloured, star-like flowers; Trillium erectum, a hardy North American herbaceous plant, with dingy chocolate blossoms; and a beautiful collection of Hyacinths, for which a certificate was awarded.—From Mr. Green, gr. to Sir E. Antrobus, Bart., were three seedling Azaleas, all of them good; but one named alba magniflora, having large white blooms, in which was a shade of pink, especially so, promising to be a considerable improvement on the kinds now in cultivation; a certificate was awarded it.—A pale rose-coloured seedling Camellia came from Messrs. Lane and Son, of Great Berkhampstead. The plant had only one bloom on it, which however served to show that it possessed considerable merit in point of form, the petals laying nicely over one another, in the way of imbricata. It was named Beauté Suprême, and was awarded a certificate.—Several fine specimens of Cape Heaths were produced from the garden of C. J. Dimsdale, Esq. These were vernix rubra, an early sort, covered with round orange blossoms; a large plant of transparens, nitida picta, Willmorei, and hæticolor; the latter covered with small white flowers; a Banksian Medal was awarded for them.—Finally, several cut specimens of half-hardy plants were produced from the open walls of the gardens at Curraghmore, the seat of the Marquis of Waterford, with the view of illustrating what kind of climate they have in Ireland, in the county of Waterford. Some of the specimens were from a south east aspect, and the plants from which they were cut were stated to be of the following dimensions:—Edwardsia microphylla, in full bloom, covering 250 square feet, the stem, a foot from the ground, measuring 13 inches round; E. grandiflora, showing flower, covering 210 square feet, the stem measuring 15 inches round; Acacia verticillata, in full flower, covering 400 square feet, the stem measuring 21 inches round; Clianthus puniceus, stated to have been in flower for these three months past, covering 200 square feet; Pittosporum tobira, covering 130 square feet, has been in flower all winter; Eucalyptus robusta, covering 100 square feet; Solanum crispum, covering 300 square feet, has been in flower a month ago, as has also been Ribes speciosum, covering 200 square feet of wall; Magnolia conspicua, covering 160 square feet, has 100 open flowers on it; Fuchsia gracilis is showing flower, and F. microphylla was stated to have been in flower all winter. On a south aspect the following plants, portions of which were sent, had stood two winters unprotected; the following were not in flower: Mimosa prostrata, White Indian Azalea, an Aster, Grevillea armata, and Metrosideros floribunda. The following three were in flower, viz.: Grevillea rosmarinifolia, a small red Camellia, and Coronilla glauca. The following were mentioned to have stood last winter unprotected: Leonotis leonurus, Eutaxia myrtifolia, Veronica speciosa, Nerium Oleander, Abutilon striatum, Goodia lotifolia, a Teucrium fruticosum, and Acacia armata; the three last were in blossom. These were all somewhat damaged by travelling, but they nevertheless bore conclusive evidence of the unusual mildness of the climate of Waterford. From the same gardens also came fruit of Physalis edulis, or Cape Gooseberry, which has considerable resemblance to the winter Cherry, but paler and less attractive to the eye; and a branch with a half-ripe fruit on it of the Le-quat of the Chinese (Mespilus Japonica), which, when ripe, somewhat resembles a small Apricot. This evergreen tree will survive our winters in the open air, in sheltered situations; but it will not fruit except under glass in a tolerably high temperature.—Of FRUIT, Mr. Higgs, gr. to J. H. Barchard, Esq., sent a basket of fine-looking Keen's Seedling Strawberries, for which a certificate was awarded; and from Mr. Cuthill, of Camberwell, were good specimens of his Black Spine Cucumber. The plants were stated to have been only 4 inches high when they were planted out, which was on the 20th of January; they were planted 2 feet below the trellis. The first Cucumber was cut eight weeks after the plants had been put out, and measured 15 inches in length. Cucumbers of the Syon House variety, and also a hybrid between it and the Manchester, came from Mr. Fish, gr. to H. H. Oddie, Esq. These were mentioned to have been cut from plants which had borne profusely since last October, and which are now very vigorous. They were planted in small wooden boxes, which were placed on the kerb wall in a stove, and consequently have had no bottom heat beyond what the atmosphere of the house afforded. They were grown in equal parts of turfy loam and peat, and were watered frequently with clear soot water, and top dressed repeatedly with burned earth. For winter work, Mr. Fish finds wooden boxes to answer better than pots, as the soil in the former is kept at a higher temperature than in the latter, more especially when a slight covering is put on the surface of the soil towards evening.—Of MODELS, Mr. Hurwood, of Ipswich, Suffolk, sent a small Vinery, and different forms of windows, for the purpose of showing how his patent apparatus for opening and closing lights worked. The principal feature in this contrivance is the application of an endless screw working on a rack, and turned by a winch inside the house, by which means all pulleys, weights, and cords are dispensed with. The lights are quite free from all risk of breakage by wind, for they are kept quite fast in any position to which they may be moved. The moving power, with a little variation, may be applied so as either to lift the lights perpendicularly, or to make them slide on an incline, as in the case of the roof sashes of the Vinery, in which two lights move at once.—From the Garden of the Society were the larger variety of Oncidium sphacelatum, Epidendrum auranticum, remarkable for its peculiarly bright orange blossoms; the rare Chysis bractescens, Francisceæ Hopeana, a fine bush of Acacia Riceana, Rhododendron arboreum, the showy Pimelea spectabilis, a blue Cineraria, the pretty little hardy Primula denticulata which was shown at last meeting, and two Tropæolums—tricolorum and brachyceras—exhibiting the appearance of a bush. This loose and natural habit, which certainly has a much better appearance than when they are trained stiffly to a trellis, is effected by placing the top of a young Larch tree with the lateral twigs attached, close to the bulbs before they spring, and leading the young shoot to the stake, round which it continues to twine until the whole support is closely covered with foliage and flowers, presenting an exceedingly graceful appearance, and entirely dispensing with the trouble of training and tying.—Cuttings of Apples and Pears were distributed; the former consisting of the Early Harvest, an American variety, very early, ripening about the beginning of August, and in some seasons in the last week in July; and the Cockle Pippin, a late sound-keeping sort, a description of which appeared at p. 148. The Pears were Shobden Court, a hardy variety, raised by the late Mr. Knight, possessing a rich sugary flavour, and ripening in January and February; and the Eyewood, also one of Mr. Knight's seedlings, a middle-sized sort, melting, buttery, and rich. It ripens in October and November, proving very good even in unfavourable seasons, when other varieties do not attain their usual excellence.—Seeds of sweet Indian Corn, a New York kind, from Mr. Floy, said to ripen very early, were also distributed to such Fellows as wished to receive them.

CALEDONIAN HORTICULTURAL SOCIETY.

March 5.—The spring meeting was held in the Experimental Garden, and the weather being propitious, there was a large attendance.—For the prize offered for the six finest varieties of Camellia blooms, there were five competitors. The first premium was voted to Mr. Cruickshanks, gr. to Professor Dunbar, for Carswelliana, Press's Eclipse, imbricata, Gray's Invincible, Old White, and Colvillii; second, Mr. Hopkirk, gr. to Mrs. Wilson, for Gray's Invincible, Double White, Double Red, Anemoneflora, James's Blush, and French Blush.—For the four finest specimens of Epacris, either species or distinct varies, in pots and in flower, a first prize was assigned to Mr. Reid, gr. to Professor Syme, for E. onosmæflora, Millbankiana, hybrida, and splendens; second, Mr. Cruickshanks, for E. campanulata rubra, impressa, nivalis, and Cunningham's hybrid.—Double Primroses were produced in great variety, the early season being highly favourable. A first prize was voted to Mr. Watson, gr. to D. Anderson, Esq., for P. violacea, sulphurea, carnea, cuprea, rubra, alba, atropurpurea, elatior fl. pl., double crimson, sinensis fl. pl. albo; second, Mr. Young, gr. to T. Oliver, Esq., for double crimson, white, lilac, yellow, flesh-coloured, French white, French black, and mottled purple.—The show of Dutch Hyacinths was very rich. The first prize was voted to Mr. Young, for Tubiflorus, Paganini, Blochberg, La Tour d'Auvergne, Laurens Koster, and Prince Albert; all of very strong growth, the plants having been cultivated in flower-pots filled with a mixture of hypnum and sphagnum mosses, which had been steeped for some time in cow-house drainings. A second premium was awarded to Mr. Fargie, gr. to Mrs. Gregory, for Grande Vidette, Voltaire, Paix d'Amiens, Lord Gray, Monarque du Monde, and tubiflora, which were also very well flowered.—Awards were on this occasion made for admirably grown specimens of single plants, to Mr. Cruickshanks, for Erica hyemalis, and to Mr. Young for Kennedya Marryattæ.—The only culinary article produced consisted of excellent Mushrooms from Moredun Garden; and Mr. Carstairs exhibited some beautiful specimens of the Long Island Newton Pippin.—A number of very fine plants were sent for exhibition only. Mrs. Haig showed some choice Cinerarias, Cape Heaths, and Pelargoniums; with Bletia Tankervilliæ, Brassia maculata, Begonia hydrocotylifolia, coccinea, and maculata. Miss Gibson-Craig sent a beautiful plant of Camellia Sasanqua plena, finely flowered, and two varieties of Primula sinensis.—Captain Falconer, of Carlowrie, contributed a seedling Epacris, raised from seed of E. grandiflora.—Messrs. Dickson and Company exhibited a large hamper filled with choice plants, including Epacris coccinea, Camellia ochroleuca, Amaryllis psittacina hybrida, and Rhododendron caucasico-arboreum.—Messrs. J. Dickson and Sons, a rich collection of greenhouse plants, including Cape Heaths, Epacrises, Azaleas, a bright purple variety of Primula denticulata, Andromeda floribunda, and the Cloth of Gold climbing Rose.—Messrs. Carstairs, Kelly, and Company, produced a stand of Camellia blooms, and another of mixed flowers, among which were Tropæolum Lobbianum, and Saxyrochium grandiflorum, with plants of Camellia tricolor and Enkianthus quinqueflorus.—From the Society's Garden, were various Ferns growing in balls of hypnum and sphagnum moss, suspended in the air, such as Polypodium iridifolium, P. vaccinifolium, Cheilanthes repens, Pteris vespertilionis, Davallia canariensis, Darea cicutaria, and Acrostichum alcicorne, the last very large and fine. A suspended specimen of Strelitzia reginæ, growing in a ball of Moss, kept constantly moist by means of a worsted syphon, was in full flower; and it was mentioned that the plant thus treated yields its flowers every season, or much more frequently than when cultivated in earth in a flower-pot. An Epacris nivalis, trained in the balloon form, and densely clothed with its snow-white blossoms, was much admired.

LINNEAN SOCIETY.

March 17.—The President in the chair. A box of insects, from Cape Palmas, was presented by the Rev. F. W. Hope, from Dr. Savage. Among them

was a specimen of the rare Goliathus Polyphemus. One of these insects existed formerly in the Fabrician collection, in the possession of the Society, but was abstracted, and its place has never been supplied till now.—A collection of Fruits, consisting chiefly of various forms of Proteads, with specimens of fungi, and the egg probably of a species of shark, were presented by J. S. Bowerbank, Esq.—A collection of dried plants, chiefly obtained by Mr. Hunt, was presented by the Botanical Society of London.—A paper was read by Dr. Golding Bird, on the structure of the siliceous stomatic apparatus of Equisetum hyemale. On submitting a portion of the stem of one of these plants to the action of nitric acid, and placing it under the field of a microscope, a beautiful siliceous structure is revealed. Situated in very regular rows are a number of tubercles of a siliceous structure, in each of which is a transverse fissure, and at the bottom of this fissure is situated a stomate, with its fissure at right angles with that of the tubercle. The stomates are also siliceous, and each limate portion exhibits on its inner edge a pectinated structure. Viewed from the under side, the stomate alone was visible; in the limate bodies of which the stomate is composed, are frequently, but not constantly observed, three perforations. The author thought this structure well-adapted to supply the internal parts with the air necessary for the life of the plant. The paper was illustrated by a diagram, and microscopic preparations of the structure.

BOTANICAL SOCIETY OF LONDON.

March 6.—E. Doubleday, Esq., V.P., in the chair. Donations to the library were announced from the American Philosophical Society, Mr. G. Rich, and Mr. W. Pamplin. Doctor G. M'Nab presented some plants from Jamaica. The following specimens were exhibited:—1. *Sisyrinchium* (anceps?).—Communicated by the Rev. H. L. Jenner, by whom it had been received as an indigenous Irish plant, collected in a wood, near Woodford, county of Galway. The specimens were past flowering, but the genus is certain, and the species probably correct. If truly native, this will be another added to the short list of plants common to America and the British Isles, but unknown in Europe, unless as naturalised plants. 2 *Ranunculus Lenormandi*, Schultz.—Communicated by Mr. James Backhouse, from the head of Coniston Lake; also by Mr. Hewett Watson, from Esher Common, Surrey. This has been long known; but has usually (and, perhaps, correctly) been considered a variety of R. hederaceus. The Esher specimens are larger and less like R. hederaceus than are those of Coniston. It is the variety "partitus" of the London "Catalogue of British Plants." 3. *Erica Mackayi*, Hook.—Seven specimens, selected from others communicated by Mr. Mackay. These were selected in order to show that Mackayi passes into tetralix by intermediate forms, which illustrate the gradual change of habit and character. 4. *Glyceria fluitans*, Br., and *G. plicata*, Fr.—Communicated by Mr. Moore, from a field near Hampstead, to illustrate the differences between the (reputedly two) species. 5. *Saxifraga umbrosa*, Linn.—A numerous series, selected from others, communicated by Mr. Mackay and Mr. Andrews, illustrating the gradual change in the character of the leaves, from the crenate form, found in Yorkshire and on the Pyrenees, to the very acutely serrate form named serratifolia. Of this latter there is a duplicato-serrate sub-variety, which Mr. Andrews sends under the name of "Ogilby's Saxifrage." 6. *Œnanthes*.—A selection from the specimens collected by the Rev. A. Bloxam and Mr. Lees in 1845. The specimens of Lachenalii sent by Mr. Lees had the roots broken short, so that no thickened or tuber-like portion appeared. The roots of Mr. Bloxam's plants of Lachenalii were whole, and mostly showed a very decided thickening at one to three inches below the base of the stem. One of these had short and fusiform roots, precisely of the same character with the roots of Mr. Lees's examples of peucedanifolia or silaifolia, showing indisputably that the root alone would not distinguish the two species. Two of Mr. Lees's specimens of pimpinelloides (Linn.) had most different roots, although both were in the early flowering stage; in one the knobs were numerous, and so fully grown, as to look like large beads on a thread; while in the other the roots might have passed for slender forms of Lachenalii, except for a single half-grown tuber on one of them. Internally the roots of pimpinelloides are tough and fibrous at maturity, requiring an effort to break them; while those of Lachenalii are very brittle. The Society has now a very full series of these three species. Read, "Remarks on the roots of Œnanthe Lachenalii from ditches near Yarmouth, Norfolk," by Mr. G. Pitt; specimens were presented.

Reviews.

The Vegetable Kingdom; or the Structure, Classification, and Uses of Plants, illustrated upon the Natural System. By John Lindley, Ph.D., F.R.S. 8vo. Bradbury and Evans, London.

As it will probably be expected that we should give some account of this book, we shall do so by means of a few extracts from its preface, and by a short description of its contents.

"The work originated in a desire, on the part of the author, to make his countrymen acquainted with the progress of Systematic Botany abroad during the previous quarter of a century. When it first appeared, the science was so little studied, that the very names of some of the best writers on the subject were unfamiliar to English ears. In our own language there was nothing whatever; and the Natural System of arranging plants, although occasionally mentioned as a something extremely interesting, was currently regarded as the fond speculation of a few men with more enthusiasm than sound judgment; and this, too, was the opinion expressed by persons who stood at the head of English Botany, in the estimation of many British naturalists."—

"The importance of the Natural System in a practical country like Great Britain was too manifest to leave any doubt in the mind of the author, that the good sense of his countrymen would lead to its universal reception when once placed within their reach. Nor has he been disappointed. Fifteen years have sufficed to render the once popular, but superficial and useless, system of Linnæus a mere matter of history. *Fuit Ilium.*"—

"The Natural System of Botany being founded on those principles, that all points of resemblance between the various parts, properties, and qualities of plants shall be taken into consideration; that thence an arrangement shall be deduced in which plants must be placed next each other which have the greatest degree of similarity in those respects; and that consequently the quality of an imperfectly-known plant may be judged of by that of another, which is well known, it must be obvious that such a method possesses great superiority over artificial systems, like that of Linnæus, in which there is no combination of ideas, but which are mere collections of isolated facts, having no distinct relation to each other. The advantages of the Natural System, in applying Botany to useful purposes, are immense, especially to medical men, who depend so much upon the vegetable kingdom for their remedial agents. A knowledge of the properties of one plant enables the practitioner to judge scientifically of the qualities of other plants naturally allied to it; and, therefore, the physician acquainted with the Natural System of Botany may direct his inquiries, when on foreign stations, not empirically, but upon fixed principles, into the qualities of the medicinal plants which have been provided in every region for the alleviation of the maladies peculiar to it. He is thus enabled to read the hidden characters with which Nature has labelled all the hosts of species that spring from her teeming bosom. Every one of these bears inscribed upon it the uses to which it may be applied, the dangers to be apprehended from it, or the virtues with which it has been endowed. The language in which they are written is not, indeed, human; it is in the living hieroglyphics of the Almighty, which the skill of man is permitted to interpret. The key to their meaning lies enveloped in the folds of the Natural System, and is to be found in no other place."—

"The plan of the work is to give a concise view of the state of Systematical Botany at the present day, to show the relation or supposed relation of one group of plants to another, to explain their geographical distribution, and to point out the various uses to which the species are applied in different countries. The names of all known genera, with their synonyms, are given under each Natural Order, the numbers of the genera and species are in every case computed from what seems to be the best authority, and complete Indices of the multitude of names embodied in the work are added, so as to enable a Botanist to know immediately under what Natural Order a given genus is stationed, or what the uses are to which any species has been applied. Finally, for the convenience of Students, an artificial analysis of the system is placed at the end."—

"In offering to the public a view of the present state of Systematical Botany, the author has pursued the plan developed in the succeeding pages, of first taking certain characters common to very extensive assemblages of plants, by means of which classes have been constituted; and secondly, of breaking up those classes into minor groups called alliances, whose common characters are also more extensive than those of Natural Orders, and under which the Natural Orders are themselves assembled. Very short characters have been proposed, under the name of Diagnoses, for both Alliances and Orders; these are intended to express the prevailing tendency observable in each group, but do not include casual exceptions, for which the reader is referred to the descriptions immediately following the diagnoses. The alliances are the most important feature in the arrangement; and it is to be hoped will be found much better limited than they formerly were. The name alliance has been preserved in preference to that of class, family, circle, cohort, &c., because it is not susceptible of two interpretations, as is the case with all the others; it is employed as an English equivalent for the Latin term *nexus*, which some have imagined was a misprint for *naxus*, but which was used in the sense of Cicero, and intended to express a tendency to assume some particular form of structure. If any one should inquire why no synonyms have been quoted to these alliances, concerning which so many botanists have lately occupied themselves, the author's answer is, that they have hitherto been much too little agreed upon, except in a few very special cases, and that an examination of their history would involve an inquiry which must extend back to the Anthemides of Cesalpinus, and which belongs to the history of Systematical Botany rather than to its actual condition."—

"In pointing out the affinities of plants, the opinions of the most judicious systematists have been consulted; among these the names of Arnott, Auguste de St. Hilaire, Bennett, Bentham, A. Brongniart, Brown, Cambessedes, Decaisne, the De Candolles, Endlicher, the Hookers, the Jussieus, Martius, Miers, and Richard, stand in the first rank."—

"The uses to which plants are applied has been re-examined with great care, and principally re-written. This part was originally intended as a mere sketch of so vast and important a subject, and in truth it is little more even now. It is, however, materially enlarged, and the author hopes, better arranged. In preparing it, great numbers of works have been consulted, and most especially the special treatises of Dierbach, Fée, Geiger, Guibourt, Martius, Nees von Esenbeck, Pereira, Richard, and Royle, together with the capital condensation published by Endlicher in his 'Enchiridion.'"—

"There is still another point in which the author has endeavoured to effect some improvement, and that is, the nomenclature. Since the days of Linnæus, who was the great reformer of this part of Natural History, a host of strange names, inharmonious, sesquipedalian, or barbarous, have found their way into botany, and, by the stern but almost indispensable laws of priority, are retained there. It is full time, indeed, that some stop should be put to this torrent of savage sounds, when we find such words as Calucechinus, Oresigenesa, Phaustrina, Kraschenninikovia, Gravenhorstia, Andrzejofskya, Mielichoferia, Monactineirma, Pleuroschismatypus, and hundreds of others like them, thrust into the records of botany without even an apology. If such intolerable words are to be used, they should surely be reserved for plants as repulsive as themselves, and instead of libelling races so fair as flowers, or noble as trees, they ought to be confined to slimes, mildews, blights, and toadstools. The author has been anxious to do something towards alleviating this grievous evil, which at least need not be permitted to eat into the healthy form of botany clothed in the English language."

The book consists of 974 pages, very closely printed, and is filled with wood and glyphographic cuts, illustrating the structure of the plants which are spoken of. These cuts are numbered as high as 526, but as some of the numbers occur more than once, and as each cut contains on an average at least four distinct objects, the real number of illustrations is somewhere between 2000 and 3000. The Index alone consists of 106 pages, each page containing 3 columns, and refers to about 28,000 genera or species. The number of natural orders is 303, arranged in 7 classes, comprising 56 alliances, and 20,806 genera. The number of economical or medicinal species mentioned is nearly 5000.

In the present instance, as in that of "School Botany," it has been a principal object with the author to have the work sold at the smallest possible price, so that it may be within the reach of those against whom illustrated works of Natural History are in general sealed up. And in order still further to accommodate those who have very limited means, the publishers have undertaken to issue it in monthly Numbers, which will be sold at the same rate as if the entire work were purchased at once.

CALENDAR OF OPERATIONS.

(For the ensuing Week.)

Although atmospheric moisture to hothouses in general has been so much insisted on of late (the want of a due proportion of it having been the chief error in the old systems), yet there are bounds in this respect that cannot be exceeded with impunity. We are now likely to have the assistance of a good hygrometer, and the time is not far distant when moisture will be imparted to the atmosphere of hothouses with as much precision as heat. My principal object in naming this subject is to caution inexperienced persons from indulging in too great an amount of atmospheric moisture in their Vineries in the day time. I know a case in which an early Vinery has the bottom pipe lying in a cemented brick trough or trench, of 16 inches in width. The house has fruiting Pines beneath the Vines, and the gardener, in attempting to carry out the amount of moisture which the Pines would revel in through the day, lost in the last summer most of the main leaves of his Vines. The consequence is, that his Vines, although in an excellent border, have broken weakly and "blind." Moist air is more sluggish than dry; and of course in a hot sunshine, ventilation cannot so speedily be carried out. The gardener above alluded to, now very wisely empties this trench by means of a plug every morning, as early as possible.

CONSERVATORIES, STOVE, &c.

Conservatory.—The climbers in this structure will now want attention at least once a week, whether round the roof or pillars, or on trellises in tubs or pots. Prune off superfluous shoots, stop or pinch the points of gross leaders, to induce a flowering habit in those which produce blossom from the axils of their leaves, and keep them neatly tied and trained. Large Acacias, or gross climbers, will now require abundance of water; those growing beneath the floor level, or under stone covers, should, when watered, have a thorough soaking. *Stove Plants and Orchids.*—Attend to regular shifting, watering, and a free and healthy circulation of air early in the morning to stove plants—air without draft. Continue to cut down, discroot, and repot those which have been flowering through the winter. These would be better removed to a bottom-heat of 80° in some spare pit or frame, and shaded, treating them as young Pines until they break, when they may, if necessary, be returned to the stove for awhile. Follow up the shifting, top-dressing, &c. of Orchids in general; syringe freely those on blocks or baskets. Let this be done early on lively and sunny mornings, giving extra air, with a little fire-heat, on

such occasions, to correct any excess of moisture. Growing Orchids should now be carefully shaded for two or three hours on bright days, more especially those which have been disturbed at the root; these would be far better removed to a house or pit by themselves, as the established plants which have remained undisturbed will enjoy more sunshine. *Mixed Greenhouse.*—Keep up a lively circulation of air all the early part of the day, and dispense with fire heat as much as possible. Where a house of this character has stove as well as common greenhouse plants in it, a climate superior in point of heat to the common greenhouse must be maintained; and in order to do as little mischief as possible through the compromise necessary, let all the advances in point of extra heat be made at all times, during a considerable degree of light. To this end practice the early shutting up, so much insisted on by all good gardeners; and on such occasions take care that the fire has been very low, or out for an hour or two previously. The heat thus secured for the evening, if accompanied by sufficient atmospheric moisture, will establish a healthy and short-jointed growth. Make a sowing of tender annuals, if not already done. Pot off Balsams, Cockscombs, &c.: these things will do better by far, however, in a frame, with fermenting materials, close to the glass, and well matted up at night. *Cold Pits:*—Continue potting off stock for the flower-garden, also making cuttings constantly of Verbenas, Fuchsias, Petunias, Dahlias, Geraniums, &c.; they will all be wanted for some purpose. Shade newly-potted Stocks, and more especially cuttings, carefully; and remember, that in making cuttings, the leaf should not be first allowed to flag, and then an attempt made to restore it by abundance of water; the leaf must never be allowed to droop.

KITCHEN GARDEN FORCING.

Pines.—Little new can be added at present; attend well to former Calendars about "burning," shading, syringing, &c: &c. Give free air day and night to growing successions in dung-pits; teach them to grow more in bulk than in length. *Vineries.*—Endeavour to avoid the consequences of indulging in too much atmospheric moisture in the day time. No doubt many berries are scalded, as well as leaves injured, by a surplus of atmospheric moisture in the morning, or too early in the afternoon, in an endeavour to accelerate the forcing by shutting up unreasonably early. Night is the period established in the order of nature for copious dews. During day, sufficient to prevent desiccation, or rather an undue amount of perspiration in the leaf, is all that is required. See that your late Vines that have been laying out all the latter part of the winter are introduced immediately. If they bleed scrape and dry the wounds, and instantly apply the late Mr. Knight's plaster; which is scraped cheese and finely-powdered oyster-shells, kneaded into a fine paste. *Peach Houses.*—Persist in stopping at all times every gross shoot on all the upper parts of the tree—allowing such, however, to ramble when they grow towards the extremities of the lower parts; this is the best way of equalising the sap. Syringe freely—especially in the afternoon—and at that period endeavour to create atmospheric moisture for the night, by sprinkling all available surfaces, except flues or pipes. Follow up stopping of Figs; give manure-water very freely; Cherries should have free syringings, with abundance of air early. The syringing, however, must cease the moment any change of colour is perceived. Keep up successions of Strawberries; do not suffer those swelling to be dry for a moment; use plenty of liquid manure according to former directions, viz., constantly, clear, and weak. A late Mushroom-bed may now be made on a limited scale.

FLORISTS' FLOWERS.

The period has now arrived, when the amateur will begin to be busy. Though premature, most collections of Polyanthuses are in full bloom; seedlings should now be strictly scrutinised, and reference made to the properties that constitute a good flower, which are given at length in our last year's volume. Accounts from the north state that everything is in an unusual state of precocity; whilst in the environs of the metropolis, plants are still more forward. In giving directions it will sometimes be necessary to recapitulate those things which are proper to be done through a series of weeks. We would still urge the necessity of protection not only from late spring frosts, but from cutting winds. Tulips never stood in more need of screening than they do just now. Many florists have potted out a great portion of their stock of Carnations and Picotees, and there appears to be a much greater disposition to spindle amongst the layers this year than usual. Keep seedling Ranunculuses from frost, and throw mats over the beds containing choice Pansies, the hoops over which ought to be at least a yard high in the centre. Propagate Dahlias in a gentle heat; the most slender cuttings strike root most readily.

KITCHEN GARDEN AND ORCHARD.

A sowing of all the late spring Broccoli may now be made; they will, however, be sufficiently forward for general purposes if sown a fortnight later. See to your early Horn Carrots—the slugs have devoured two crops of mine, although followed up with liming and sprinkled over with coarse sand. Nothing is better, that I am aware of, than cinder-ashes riddled extremely fine, and the mere dust taken out; these sown thickly over the surface present such a sharp macadamized kind of surface, that the snails and slugs are at the last point of starvation before they will venture on them. Be sure to salt all Asparagus and Seakale-beds—little and often is my maxim. The time is approaching for planting Asparagus; it should not be planted until six or eight inches high. Those who have time would do well to try the Spanish method, as recommended in a Leading Article of March 7. I will next week say more on this head. *Orcharding and Fruit-trees.*—Continue to protect blossoms, and to eradicate insects by all possible means. See that all the winter and early spring work amongst fruit-trees is brought to a close forthwith. Finish root-pruning with all luxuriant trees; most persons may have observed the effect of moving a large Pear-tree very late in the spring—it generally becomes covered with blossom-buds. Such in degree will be the effect of root-pruning at this period.

FLOWER-GARDEN AND SHRUBBERIES.

See that rolling, mowing, &c., proceed in due order. Now is the period to lay the foundation of a fine lawn, the pride of English gardening. Let all fresh turfing be completed forthwith; it is a good plan to scatter rough old tan thinly over it as a screen from the sun, until it gets hold; some waterings are also essential. Early herbaceous plants overgrown may now be divided, the exterior portions of the stools should be reserved and the interior rejected. Be sure in planting them again to introduce fresh soil. Cut in all coarse evergreens or shrubs before the bud becomes too much advanced; this is a good time to cut in Holly hedges.

COTTAGERS' GARDENS.

It is not impossible that the Potato murrain may break out again in the young crop; if such should occur, I would recommend the cottager to give his plants a heavy dusting with fresh lime in a dewy morning. Sow good beds forthwith of Green Kale, with a few Savoys, and where a cow is kept the Thousand-headed Cabbage; also a patch of Leeks. Make edgings of Parsley forthwith, soot is a good manure for it. The Asparagus bed should have a slight dressing of salt about once a month; it will keep down the weeds and prove of great benefit to the plants; also Seakale beds. Divide and transplant Phloxes, Asters, and other herbaceous plants. Sow a good breadth of Broad Beans directly, for the main crop.

FORESTING.

It is to be hoped that all planting is now finished; the chance of success is small after this period. See that the directions in former Calendars are carried out, and bring up all arrears.

State of the Weather near London, for the week ending Mar. 20, 1846, as observed at the Horticultural Gardens, Chiswick.

Mar.	Moon's Age.	Barometer. Max	Barometer. Min.	Thermometer. Max	Thermometer. Min.	Thermometer. Mean	Wind.	Rain.
Frid. 13	○	30 424	30 330	51	39	45 0	W	.03
Sat. 14	16	30 155	30 091	56	47	51.5	S.W.	
Sun. 15	17	29 943	29 862	57	48	51.0	W.	.02
Mon. 16	18	29 570	29 47	55	31	43.0	S.W.	.19
Tues. 17	19	29 447	29 396	48	38	36 5	N.	
Wed. 18	20	29 576	29.513	47	33	35.0	N	
Thurs. 19	21	29 578	29 563	47	33	35 0	S.W.	
Average		29 89?	29 707	51.5	35.5	43.4		.18

Mar. 13—Clear; slight haze, overcast; rain
14 Cloudy; windy, overcast
15—Small close rain, showery; clear at night
16—Cloudy; boisterous; storm of hail in afternoon; heavy showers
17—Overcast; much dryness in the air; clear and frosty at night
18—Frosty; uniformly overcast, remarkable dryness in the air; clear and foggy at night
19—Frosty, overcast; fell ℳ snow in the night.
Mean temperature of the week 1 deg below the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Mar. 28, 1846.

Mar.	Aver. Highest Temp.	Aver. Lowest Temp	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 22	50 5	36 5	43.5	6	0.25 in.	3	1	1	1	4	4	4	2
Mon. 23	50.2	36.0	43 1	10	0.60	4	2	2	1	2	4	3	2
Tues 24	49 9	33.6	41.7	7	0.11	2	4	2	—	2	2	5	2
Wed. 25	51 1	35.1	43.1	6	0.30	2	4	5	—	2	1	5	1
Thur. 26	51.8	34 0	42.9	7	0.19	—	2	4	2	4	1	2	5
Fri. 27	54.1	35.7	44 9	7	0.87	1	1	2	1	1	2	7	—
Sat. 28	53 9	30.6	41.7	7	0.08	3	5	4	1	2	1	3	1

The highest temperature during the above period occurred on the 27th, 1830—therm. 75°; and the lowest on the 24th, 1839—therm. 22°.

Notices to Correspondents.

The Third Edition of PAXTON'S COTTAGERS' CALENDAR being exhausted, a New Edition is preparing, and will be ready in about ten days

To our CORRESPONDENTS—We have every wish to oblige you by answering all questions relating to the subjects treated of in this Journal; but we must entreat you to be reasonable. We have had before us a letter containing 17 questions, upon as many different subjects, every one of which have been either answered repeatedly, or can be determined by a very cursory glance at our columns for the last month; and we regret to say we have many such cases. To spare time or space for answering these demands is impossible; it is not fair either to ourselves or our readers. Correspondents should, in common justice, only apply to us for information upon points which they have previously taken reasonable pains to examine for themselves in documents accessible to every body.

BULBS—*M A G*—The failure of your Hyacinth bulbs may doubtless be attributed to the bad state in which they have been received this season from Holland.§

BOILERS—*J C*—You will have remarked that when muriate of ammonia is used to prevent incrustations, two substances are formed; namely, carbonate of ammonia, or smelling salts, and muriate of lime. We do not apprehend danger in employing such minute quantities of these salts as can be formed by adding an ounce of sal ammoniac to 90 gallons of water; but the muriate of lime is an irritating substance, and must not be taken into the system except in minute doses. If the water in your kitchen boiler is not used for cooking or drinking, there can be no harm in using the remedy.

GAS—*J B J*—Mr. Meeke speaks of heated air which has access to an unlimited supply of moisture, supplied in the Polmaise system by the wet blanket or some equivalent contrivance. A room heated by gas is in quite a different condition. Moreover, the air is burnt. We should not choose to place ourselves in a room heated by gas: it would be an unhealthy place.

HABROTHAMNUS FASCICULATUS—*C D*—This grows freely in sandy loam and peat; it is naturally a somewhat shy bloomer. When the plants have attained a tolerably large size, they should be kept pretty dry, and rather stinted in pot room. This may possibly have the effect of making your plant flower more freely.‡

HOLLY-HEDGES—*P J*—Certainly, cut it all down to the ground as soon as growth commences. Your plan cannot be improved.

INSECTS—*D M*'s caterpillar is the offspring of the yellow underwing moth, the Triphœna pronuba. It is often injurious to Cabbages and other vegetables. *E.*—*D R*—You need not apprehend any mischief from the web and little grains you found on the Pine-apple leaf. They were not eggs but the deposit of some insect which had been living under the web. *R.*

JERUSALEM ARTICHOKES—*J W*—These may be planted either by sets or by whole tubers, exactly as the Potato. Rely upon it, their value is infinitely beyond what is commonly supposed.

LEMONS—*W C*—Keep them in stone jars, in a cool place, and well covered from the air.

MILDEW—*R W*—We fear that this is incurable by any known means. Saltpetre, water, and free ventilation promise best.

NAMES OF PLANTS—*H H*—Luzula pilosa—*S E*—Fevlza cochleata; it is sometimes sold as Morels, and is not reputed to be unwholesome—*F H*—643 L B is Oncidium luridum; 600, Brassavola grandiflora. We regret our inability to undertake the task of naming a Guatemala herbarium—*O P Q* Madder—*A Z*—A much bruised Lycoste, apparently lanipes.—*M A G*—1, apparently Physalis pubescens; 2, Bignonia australis; 3, Lachenalia pendula.‡—*Anemone*—Ageratum conyzoides.

PEACHES, &c.—*J G*—Three good varieties of Peaches in succession are the Royal George, Noblesse, and Bellegarde. Of Nectarines you may plant the Newington, Violette Hâtive, and Elruge.‡

POTATOES—*J W*—We believe that cut sets will be more likely to perish this year than whole Potatoes, because they will more readily absorb water through their wounded surfaces; at the same time it is clear that whole sets are not to be relied upon. The natural skin of the Potato is a slow filtering apparatus, provided to guard the tuber against too much and improper food. Cut surfaces, having no such protection, will absorb water greedily. It may be worth while to try the effect of Mr. Shepherd's steep, and that of sulphate of copper, both of which are named in another part of this day's Paper. We prefer the former. As to vitality, who can explain it? Life is—life, and that is all that can be said about it. It is universally diffused through organic beings, although it may be concentrated more in one place than another, as, for example, in the eyes (or buds) of the Potato. You will see what the Prussians think of the scoop in another column; we *hope* it may be a good instrument, but, in the present condition of the Potato we dare not predict anything about it.

POLYANTHUSES—*A B*—A list of the best Polyanthuses was given at p. 572, 1844, in which vol. are papers—pp. 35, 115, and 149—descriptive of many of the best flowers, which we recommend to your perusal. We do not recommend dealers.*

RHODODENDRONS—*W C*—Layer these, and common Laurels, in July.

STOVES—*G M*—We see nothing in the stove beyond what is found in all *good* Arnott's. Its performance is far from remarkable. We have an Arnott which burns for 18 hours and more without feeding. The pipes do not seem to us of any importance, and they necessarily increase the price.

TRAILING PLANTS—*X Y*—The following are hardy and evergreens, viz.—Cotoneaster microphylla and marginata, Berberis empetrifolia, Arctostaphylos uva-ursi, Juniperus prostrata and nana, Vinca major, Daphne cneorum, Crataegus pyracantha, and Gaultheria Shallon.¶

TRANSMUTATION OF CORN—*C W*—Thanks. The paragraph you have been so good as to send was published in this Paper a year or two ago.

WARD'S CASES—*W M*—We never recommend tradesmen. Any man with a grain of cerebral matter can make them. Your best plan in your difficulty is to put Mr. Ward's book into the hands of a common workman.

MISC—*One whom a Garden makes Happy*—Thanks for the seeds, which will be reared with care, if they are rearable. Make a pit with turf-walls, which are easily repaired; and cover it with an awning of varnished calico stretched upon a frame (glass is better, but dearer). This will be an extremely small cost, and in the west of Ireland it will preserve most greenhouse plants during winter. If it faces the north so much the better for the latter, but if you wish to raise seeds in it, it must have a southern exposure. Take care that its floor is well raised above the surrounding soil. Hollies are best planted in November. Probably your Salvia patens was not stout enough to bear a winter. In such a pit as is above described it may be preserved through winter, if kept in its pot and not watered. We presume that your Dahlia-roots were not properly ripened, or perhaps they are grown in soil over manured, or they may have been too damp. Last year was not well suited to these plants. We do not at all wish to disturb your *incognito*, unless you send facts; which, if for publication, must be authenticated. Questions come as well in masquerade as in any other dress. As to the poor peasantry, just read a Leading Article of last week, and the notes upon mixed crops. By all means plant Beans with Potatoes, if the latter are planted at all. We are sorry, but not at all surprised to hear that your Ash-leaved Kidneys are going off.—One shilling each will be given for the following Numbers:—1841: 3, 5, 7, 9, 10, 12, 21, 35, 37, 38, 40, 41, 42, 43, 50—*F M N*—Apply to a Fellow of the Horticultural Society (*a moi par exemple*). Laurels do no harm.—*M C K*—Cut back Fuchsias a little beyond the dead wood. Give Roses liquid manure as soon as they are growing.—*Horley*—Early Peas which have been sown in turves should be transferred, turves and all, to the place where they are intended to be grown, without raising the individual plants. An article at some length on root grafting will appear soon.‡—*Anemone*—The quantity of guano to sow per acre varies from two to four cwt. according to the nature and quality of the soil. For a small piece of ground like yours it may be more convenient to use it in a liquid state. In that case, mix 4 lbs. of guano with 12 gallons of water, and let it stand for 24 hours before it is used. The same guano will do for mixing again with the same quantity of water, after the first is drawn off.‡

SEEDLING FLOWERS.

CAMELLIA—*R S, Cobham*—It is impossible to form an opinion of your seedling; the specimen sent was not half expanded, and in that state it remained.*

CINERARIAS—*R S, Cobham*—Your seedlings are flowers of good colour; but they are deficient in form; the petals are too narrow.—*D K*—The prevailing faults in your varieties are their want of size, and the narrowness of the petals. No. 3.3 is the best; but this is surpassed both in colour and size by flowers several years in cultivation. 3 is very pretty in colour, but also too small.*—*J W*—The colours of your seedlings are very varied and pretty. 4, 5, and 7, we consider too small. No. 1, bright crimson, and 3, crimson purple, are both fine in colour and compact in form. 2 and 11 are the best blues; the others appear to be too loose and long in the petals. 10 is a lively flower, and worth preserving for its colour.*—*X*—Your specimens of seedling Cinerarias are the largest we have seen; they also combine with size, fine colour, and the flowers are composed of broad and well rounded petals of great substance. No. 1 a deep rich mazarine blue, the flowers of which measure 1¼ inch in diameter; this is a very striking variety. 2, rich purple-maroon, 3, similar in colour, with the blue prevailing, and 4, bright maroon, are three fine and rich-coloured varieties; 5, a large bright blue, is also showy and attractive. With the increased size of these flowers there is also united a slight degree of coarseness, and the petals are not placed round the disk with that regularity which is observable in the best specimens of the Cineraria.*

CHEAP AND DURABLE ROOFING,
AND THE BEST RESISTER OF FROST FOR GARDEN PURPOSES.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, Manufacturers and only Patentees of THE PATENT ASPHALTED FELT FOR ROOFING, and which for many years has been in extensive use for Roofing Houses, Verandahs, all kinds of Farm Buildings, Sheds, and for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, *which has been exhibited at the Great Agricultural Shows of England, Scotland, and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c.*, and is also patronized by Her Majesty's Board of Ordnance, Commissioners of Woods and Forests, the Hon. the East India Company and the Botanical Gardens, Regent's-park. It is extensively used in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference is made. This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET). NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'s, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy. — Price ONLY ONE PENNY PER SQUARE FOOT.

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The new Vice-Chancellor's Courts, the Offices attached, and Passages leading to Westminster-hall, Dr. Reid's Offices, and other Buildings at the New Houses of Parliament, are roofed with F. M'NEILL and Co.'s Felt, and is known by its having the appearance of lead roofs.

☞ The Public is respectfully cautioned against misrepresentation, as the only Works in Great Britain where the above Patent Roofing is made is F. M'NEILL & Co.'s Manufactories, Lamb's-buildings, Bunhill-row, London.

IMPROVED DIBBLING MACHINE.

JOHN WEATHERSTONE begs to inform the Agricultural Public that his PATENT HORSE-DIBBLING MACHINE is now ready, whereby the greatest regularity may be insured in the deposition of all Seeds. A team of four horses will be found sufficient power to draw one of the largest size.

Price of Machine, with six rows..... £35
" eight rows..... 40
" ten rows..... 45

Applications for further particulars may be made to Mr. JOHN WEATHERSTONE, Cassington, near Oxford; or to Messrs. GILL and WARD, High-street, Oxford.—Agents wanted in all parts of country.

DINGLE'S HAND DIBBLING MACHINE, for depositing all kinds of Seed. It is so constructed that it will at the same moment make the hole and deliver the exact quantity of Seed with extreme regularity, nor is the soil liable to choke the point.

Agent in London:—Mr. MARK FOTHERGILL, 40, Upper Thames Street, where the Machines may be seen.

SUPERPHOSPHATE OF LIME, 7*l.* per ton, at MR. LAWES'S FACTORY, DEPTFORD CREEK.

THRASHING MACHINES, made Warranted not to Damage the Straw.—Mrs. MARY WEDLAKE, Widow of the late Mr. THOMAS WEDLAKE, of the original Fairkytes Iron Works, Essex, and 118, Fenchurch-street, opposite Mark-Lane, City, established upwards of 40 years, begs respectfully to remind Agriculturists that she continues to manufacture these excellent Machines, made, and first introduced, by her late husband these 30 years, and now much improved. Warranted not to damage the Straw. Numerous references to parties using the Implement may be had.

Patent light Ploughs, and Superior Dressing Machines, also patent Chaff-cutting Machines made on scientific principles, may be seen at 118, Fenchurch-street, repository opposite Mark-lane; also, Horse-Rake, and DINGLE'S new Hand Dibbling-Machine so much approved of. City Repository for Agricultural Implements, 118, Fenchurch-street, opposite Mark-lane.

The Agricultural Gazette.

SATURDAY, MARCH 21, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Mar. 25—Agricultural Society of England.
THURSDAY, — 26—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, April 1 { Agricultural Society of England. Highland and Agricultural Society.
THURSDAY, — 2—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.

Ross—E. Lothian—Taunton—Fifeshire—Leyland Hundred—Wooler—Co. Cork—Sarrahmore—Portarlington.

FARMERS' CLUBS.

Mar. 25—Plympton St. Mary—Newton
— 26—Otterey St Mary—Bolsover
— 27—Rhins of Galloway
— 28—Melrose—Hertford
Mar. 30—Darlington
April 2—Hawick
— 3—Clayden—Wrexham
— 4—Durham — Columpton — London

AT the outset of our REMARKS UPON DRAINAGE, we drew attention to an error latent in the commonly received notion of its purpose, as being "to lay land dry;" we ventured to submit, as a more comprehensive definition of its object, *the equal distribution of surface moisture;* and we endeavoured to illustrate the difference by placing in contrast the superficial drainage of a road on the one hand, and the downward percolation of the rain through a *naturally* free subsoil on the other. This led us to confine the subject under present consideration by the rejection of all that relates to the tapping of underground springs, as belonging to a different question altogether, and, generally speaking, to a different description of soils; and we marked the above mentioned error as the parent of shallow drainage, or, we might perhaps rather say, the grandparent, for its immediate progeny was the old fashioned high ridged furrow, from which, through the intermediate stage of the shallow drain, the declension has been gradual and hard contested, theory and practice fighting their way inch by inch, down to the pipe tile laid three or even four feet deep.

We cannot help pausing for a moment to contemplate the silent perseverance (if one may so speak) with which Nature patiently vindicates her admirable truths, and reveals the matchless perfection of her most hidden and unostentatious processes, through the slow medium of human discovery. How little is the agriculturist, who "babbles of green fields," calling this "good land," and that "bad land," conscious, generally speaking, of the *underground work* that has been going on through the lapse of ages, by percolation and filtration during the winter half of the year, and by capillary attraction during the summer half, to constitute and support that perfect combination of mechanical texture and chemical quality which characterise what are called the "best soils." And it may, perhaps, be added, how little idea have we in our present infancy of knowledge and practice, whilst humbly following that wholesome natural process which drainage imitates, of the effects which its constantly ameliorating influence upon the character of the soil may ultimately attain.

If the rain do not sink through the subsoil one of two things must happen: either it must lie stagnant upon the surface, saturating the soil the whole winter through, starving and rotting the roots of plants it was intended to refresh and nourish; or, if the declivity be sufficient, it will flow off superficially, down the furrows or any other channel it can find, carrying away with it all the most valuable part of the soil, and the manure which it has cost such labour and expence to apply, and leaving the field, to use ARTHUR YOUNG'S not inapt similitude, "like an overboiled joint, with all the *gravy* run out of it." But the damage does not end here; for upon clay soils, which retain the wet during the winter, a further mischief happens, for, when spring and seed time arrive, and other lands are beginning to get warm from the returning rays of the sun, undrained land is only beginning *to get dry*: that is to say, the water which could not get off in any other way is beginning to go off by evaporation. Now we all know by experience that nothing produces so intense a degree of cold as evaporation from a wet surface. The familiar experiment of wetting one hand and holding out both for the air to blow upon them, has been often adduced in proof of this; the degree of cold which the wet surface will endure, in comparison with the dry one, would remove any doubt upon the subject. In the East Indies, the common method of cooling rooms during the most intensely hot weather is by hanging wet blinds outside the open windows; the evaporation from these "Tatties," as they are called, reduces the temperature with a rapidity that nothing else will effect. A still more striking instance is afforded in the manufacture of ice during summer by the simple means of rapid evaporation. And such precisely is the phenomenon that occurs in spring upon the surface of an undrained field: the warmer the first rays of the returning sun, the colder the land will be until it has parted with its superfluous moisture. The inevitable consequence is a delayed, and, therefore, hurried sowing, aggravated by the untractable state of the soil, which no mortal implement can reduce into the semblance of a seed bed, nor any manure, English, African, or Peruvian, coax into reasonable temper or fertility.

Such were the evils attempted to be cured by the *plough-suggested*, but otherwise very artificial, device of the ridge and furrow, which, in meeting very imperfectly one evil introduced another. Stagnation of water being the disease, it was conceived that anything that would get rid of it would be the remedy. It was clearly decided, *nem. con.*, that the clouds were in the wrong for sending so much rain, and that the earth in lying level was lying under a mistake. The Gods themselves must have laughed to see the world under them, once smooth and flat, dressed up suddenly in corduroy stripes by the solemn sagacity of man; and, as he chose to take the regulation of Nature into his own hands, they left him to pay for it. The rain, which was sent to fertilise his soil, became the cause of its infertility, and the channels that he had made became the path by which the robber took away, not only the good that he was sent to deliver, but a pretty strong solution of the farmer's property likewise.

In the explanation of this lies the chemical history of drainage. There is not an animal that breathes, nor a fire that burns, nor a particle of vegetable or animal matter that decays unburied upon the earth, that does not yield to the atmosphere certain gases which are, in fact, the essence of everything which we include under the general name of manure. We see them rise in the smoke from a fire, in the steam from the dungheap, and from our own breath in frosty weather; and though the effluvia from decaying matter is invisible to the eye, we have another sense that distinguishes it plainly enough. Where do they go? Are they lost? There is no such word as "lost" in the vocabulary of Nature. The ammonia which the farmer permits to depart unquestioned, Nature receives and economises in her universal storehouse. That inestimable essence which constitutes the animating and fertilising principle of every organic manure, under whatever name or in whatever form we may apply it to our fields, whether from the farmyard or stable, or from the distant islands of the Pacific, is too precious to be wasted by Nature as it is by man. The atmosphere receives it; its affinity for pure water disposes it to unite with the vapours already existing there, and it returns to the earth in every shower that falls. "Ammonia," says LIEBIG in his valuable work on the "Chemistry of Agriculture," "rises from putrified substances in the form of a gas, which is extremely soluble in water; but it cannot remain long in the atmosphere, as every shower of rain effects its condensation, and conveys it to the surface of the earth; hence, also, rain water at all times contains ammonia, though not always in equal quantity. It must contain more in summer than in spring or winter, because the intervals of time between the showers are in summer greater; and when several wet days occur, the rain of the first must contain more of it than that of the second; and the rain of a thunderstorm after a long protracted drought for this reason contains the greatest quantity conveyed to the earth at one time. It may likewise be detected in snow-water." And he goes on to mention some experiments made in the month of March at Giessen, in Germany, in which the *lower layers of snow*, on being separately analysed, were found to contain a larger quantity of the gas, whilst the upper ones had scarcely a perceptible trace.

The value of this discovery in reference to the filtration of rain through the ground, by which every shower becomes a tribute of natural fertility to the soil, and of regeneration to the subsoil, and the consequent importance of the means by which we are able to open this passage, and thus prevent its superficial escape, it is needless to insist upon. But the subject of drainage viewed in all its relations is one whose, we had almost said, national importance is such, and so daily more obvious, that we shall take an early opportunity of entreating again the patience of our readers with its details.—*C. W. H.*

A FEW WORDS ABOUT A SAVINGS' BANK.

HAVING advocated in the *Agricultural Gazette* savings' banks, as improving the condition of the industrious classes, I trust you will give insertion to the following plain address which I have drawn up, in the hope that it may be published in a separate distributive form, and circulated by those of your readers who feel an interest in the well-being of our rural labouring population.—*J. H.*

Address:—So you are a poor man willing to lay by a shilling a week, but want to know first a little about a savings' bank!—well, then, it shall be told you.

A savings' bank is an institution for receiving small savings, established by wealthy people, who would like to see you better off in your circumstances, and more respectable in your condition. They neither receive profit nor advantage from it—on the contrary, they devote much of their time and attention to its management: they would rather you should save your money by depositing it in a savings' bank, than by spending it in a wasteful way, at the ale house or at home. They would wish you to save what part of your hard earnings you can spare, against a time when it will stand a friend to you—when you may want it more than you do now—when every shilling may be worth to you as much as two shillings are at the present moment. This they would have you do for your benefit, and then by-and-by you will be able to help yourself in a time of scarce employment—in a time of sickness—in a time of old age—when it will comfort and relieve you instead of having starvation at home, poverty at your sick bed, and your old days ended in a workhouse.

A savings' bank is a place of profit, as well as a place of deposit. This is a great advantage to you, because if there were no such institution as a savings' bank, you could receive no such profit for your money, whereas a savings' bank gives you interest for small sums, which you could receive nowhere else.

A savings' bank is a place of security—better in fact than any other security you could get elsewhere. Remember this, that as soon as you place money in a savings' bank, you become by the possession of your deposit book the creditor of the nation—that is, the Government who represent the nation are your debtors. In short, your money is just as safe there as if you placed it in the Bank of England, because your money eventually forms a part and parcel of the money in the Bank of England, and you have as much right to recall it as any nobleman who may have fifty thousand pounds there, with this difference only, that you apply for it through the agency of the gentlemen at the savings' bank who are your trustees in the matter.

Lastly, at a savings' bank you receive back your

money when you wish it, without being asked what you want it for. If at any time you should desire ten shillings or a pound, you have merely to take your deposit book and apply for it, and it is paid you immediately. Remember, too, that in a savings' bank you are subject to no income-tax, nor any other tax. You are not obliged to take all your money when you want only a part; you may take out what you please. If you do not receive your money at the end of every half-year, you have added to your account interest in proportion to the amount you have in the Bank. If it please God that you may not want to receive any part of it, and still keep on adding to it, you will in a few years have in the bank something to comfort you in sickness—provide for you in old age—or befriend you in a time of need. If nothing of this sort should happen, you will have the comfort of leaving to your family a few pounds, at a time when it will be most needed. Think on these things—consider well for whose benefit savings' banks were established—if for yours fail not then to embrace the advantages held out, and begin immediately by depositing your first shilling.

THE NORTHUMBERLAND HIND SYSTEM.

[The following passage is extracted from a paper in an early volume of the "English Agricultural Society's Journal," by Mr. Grey, of Dilston.]

Look into one of our north country cottages during a winter's evening, and you will probably see assembled the family group round a cheerful coal fire — which, by the way, is an inestimable blessing to all classes, but chiefly to the poor of this country—females knitting or spinning — the father, perhaps, mending shoes—an art almost all acquire—and one of the young ones reading for the amusement of the whole circle; and contrast this with the condition of many young men employed as farm servants in the southern counties, who, being paid board wages, club together to have their comfortless meal cooked in a neighbouring cottage, with no house to call their home, left to sleep in an outhouse or hay-loft, subject to the contamination of idle companions, with no parent's eye to watch their actions and no parent's voice to warn them of their errors; and say which situation is best calculated to promote domestic comfort, family affection, and moral rectitude. The possession of a cow is to the northern hind an object of endeavour and ambition. He cannot marry and establish himself in life without one; at least, he knows that he ought not to marry till he can purchase one—and this is the first step towards independence that is generally aimed at; salutary alike as a check and a stimulus. This point gained—a cottage respectably furnished, and a situation obtained under a good master—he brings home his bride; feeling that he is a useful and, comparatively, an independent man. The situation of a hind living upon the premises, and hired for the year, possesses this decided advantage—that in seasons when employment is scarce, when day labourers are turned adrift, however unproductive his services may be to his master, his wages go on—even months of confinement from ill health produce no diminution in his income; and thus it is, that though his wages per day may seem but small, yet, at the end of the year, he is found in better circumstances than those artisans or labourers by the piece, who, though obtaining nominally higher wages, are liable to much loss of time and uncertainty of employment. It may seem hard, at first sight, that the farmer, whose servant, after having entered upon his service for a year, has fallen ill and become unable to work, should still have to make good his bargain; but such is the custom; and were it otherwise, the family would soon, in many cases, be thrown on the parish funds. The farmer may as well then take the chance of supporting his own for a while as be compelled to contribute to the support of all who might fall into similar circumstances throughout the parish. But by far the best reason for the custom is, that it gives rise to a feeling of gratitude to a master for having afforded gratuitous relief, and a desire, which I have often heard expressed by servants, to make up for the loss he had sustained by the best services they could bestow; and surely the sacrifice is not too great, if it saves an honest man from the feeling of degradation, which ought, and still sometimes does attend the application for parochial support. This mode of engaging and paying farm servants is not only more conducive to their welfare and social comfort than the weekly payment of money wages, which go but a little way in purchasing the necessaries for a family—are injudiciously laid out, and sometimes wastefully squandered—but it has besides a strong and apparent influence upon their habits and moral character; it possesses the advantage of giving to the peasant the use of a garden and a cow, with the certainty of employment; it gives him a personal interest in the produce of his master's farm, and a desire to secure it in good condition; it produces a set of local attachments which often lead to connexions between master and servant of long continuance. It is not a comfortable or convenient thing for a man to move from place to place with his furniture and family; and, when he finds himself well situated, he has a strong inducement to conduct himself respectably, and give satisfaction to his employer. While, on the other hand, such removals being attended with expense and loss of time to the farmer, who always sends his carts to bring the family and furniture of a new comer, it is his interest to encourage and retain a respectable servant; and thus mutual accommodation and respect are produced. Orderly habits and respectable conduct on the part of the servants produce consideration and kind treatment from their masters; and in this way the great majority of this class of our population come to the end of their days without having once suffered the degradation of being on the list of parish paupers. Perhaps the foregoing statements may be best proved by annexing a list of the servants, being householders, at this time resident upon a considerable farm* in Northumberland, with a table showing the length of time that each has lived under the same master, and the sum of money that remained due to each at the half-yearly settlement of their accounts at Martinmas last (11th November), being a surplus, arising from the labour of all the members of the families who remained at home, which they had not found it necessary to call for in the course of the half-year, but left in their master's hands till the final settlement of the half-year's account:—

	Years' Service.	Cash due upon his account at Martinmas. £	s.	d.
George Cranston	25	8	3	6½
Alexander Tunnah	12	15	0	4½
John Redpath	1	9	7	11½
Samuel Ewart	30	5	5	9½
Andrew Gray	9	7	14	4½
Andrew Elliott	14	23	2	2
Thomas Robson	4	4	3	11
James Cranston	20	6	12	4½
Andrew Young	12	7	2	5½
Edward Davison	16	5	15	1
George Chirnside	10	5	16	7
John Middlemas	3	4	9	10½
Thomas Fullerton	18	In debt to his master		£ 7 9 8

Average 13 years.

In the case of Thomas Fullarton, who, instead of having money due to him, stood indebted to his master in the sum of 7*l.* 9*s.* 8*d.*, it is necessary to remark, that he had had the misfortune to lose a valuable cow by death; and being unable to purchase another, having a large family, was favoured by his master with the loan of 10*l.* to enable him to do so, which loan, it is understood, he is to pay off by instalments, or as he can afford; which, as his family gets up to be useful, he will have it in his power to do. The existence of this kind of confidence and accommodation may be adduced as one of the beneficial effects of the system herein explained. A master, in such a case, frequently gives the servant the use of one of his cows until he can procure one for himself; but the servant is always anxious to have the credit of having a cow of his own, and it would be absurd not to give every encouragement to the maintenance of so laudable a spirit.† It may further be worthy of remark, that only two in the foregoing list ever received parochial aid—one John Redpath, who was disabled by illness from working for nearly three years; and George Chirnside, whose father died, leaving a widow and four very young children, of whom he was the eldest; but since the time that he was 16 years of age, the whole family have been supported by their own industry. He was at first assisted by his master in the purchase of a cow, which is now cleared off, and the family are in good circumstances. In contrasting the condition of the peasantry in the southern with that of the northern parts of the kingdom, it would be highly improper to pass over unnoticed the superior education of the latter, and the effect which is produced by it upon their worldly circumstances, as well as upon their moral and religious character. No greater stigma can attach to parents than that of leaving their children without the means of ordinary education, and every nerve is strained to procure it. In the school attached to almost every village, one finds children not only able to read and write at a very early age, but most expert in all the common rules of arithmetic, and not unfrequently capable of extracting the square and cube root with great expedition and accuracy. And even the young men who labour in the fields all the day often spend a couple of hours in the evening in school, to advance themselves in such acquirements. If occupation alone is a valuable antidote against idle and vicious habits, the acquirement of useful knowledge and the cultivation of the mental faculties must be still more so. And when these are prosecuted, not by gratuitous means, but by the produce of economy and toil, it bespeaks a state of society where sobriety is habitual and intelligence is held in estimation.

ON THE STATE OF HUSBANDRY IN LOWER BRITTANY.

WITH INCIDENTAL OBSERVATIONS ON THE CONDITION OF THE FARMING POPULATION THERE, COMPARED WITH THE SOCIAL STATE OF THE ANALOGOUS CLASSES IN IRELAND.

By Martin Doyle.

(*Continued from p.* 171)

We shall here make a digression from the general subject under consideration, in order to compare the results of our own operations on a tract of bog-moor in Ireland, on which we tried the two methods pursued by M. Rieffel, the only material difference being that the plough was used in both cases, the hoe having been unnecessary from the nature of the ground. This wild hill farm, which was ecclesiastical property, and held by me under a *tolies quoties* lease, contained 240 acres, and had never been cultivated when it came into my possession; and of the entire portion at least 40 acres were full of bog-holes and of no value, except for the small supplies of indifferent turf which it yielded for the farm-bailiff and a few of the labourers—the estimated value of the whole was then 6*s.* per acre. The necessary ring-fence being completed and main drains cut, the work of reclaiming was commenced in three modes, regulated by the varied qualities and circumstances of three separate lots.

No. 1 contained 40 acres, gently sloping to the west, and presented an even surface of very coarse sour herbage, in which Crowsfoot (Ranunculaceæ), Plantain (Plantago), and Carexes prevailed, intermixed with Heath, and a considerable portion of Rushes, sure indications of excessive moisture. The better Grasses were varieties of the Agrostis and the Nardus stricta. The depth of peat before its subsidence from draining, averaged 18 ins., and rested on a subsoil of bluish argyl resembling marl, but totally deficient in calcareous matter, with an intervening stratum of thin brownish earth on the higher parts.

No. 2 consisted of the same quantity of land, and more inclined, with a better sward, though abounding in Rushes; the subsoil the same as in No. 1; but with a greater proportion of loose brownish earth over it.

The Treatment of No. 1.—After the fences had been made, and main drains cut, the Rushes were mown, and the large tufts of Heath dug out; a light wooden two-horse plough, with very sharp irons, was then employed straight up and down the slope, to turn the sward in furrow-slices, 12 ins. wide, and 3 ins. deep, in lands about 18 feet wide, the plough commencing at the centre of each land, and backing the first furrow-slice, so that no hollow appeared in the middle. The necessary effect of ploughing the ley in shallow and relatively wide slices, was that these were laid quite flat, as at Grand Tuan. Some irregularities, however, occurred in the work by the collision of the plough with sturdy tufts of Rushes, which refused to give way, or from being choked with Heath or long Grass; but such sods as were thus prevented from being laid evenly, were easily arranged by men who followed to close them up, and when necessary to skim a spade along the edges of the slices to level off a sufficiency of soil to fill up chinks, so that the lands presented a perfectly level surface. The next operation was that of digging and chopping into small portions the peat in the furrows down to the clay bottom, and this was tedious, from the toughness of the materials to be subdued. While this labour was being performed, a very liberal allowance of lime in a caustic state was laid down at convenient distances on the lands, and spread, when slaked, over the whole surface.

The summer was pretty far advanced when this lot was in this state for the reception of hay-seeds, which were sown and lightly harrowed in. The expence of the above operations may be thus estimated:—

	£	s.	d.
Ploughing 40 acres, at 10*s.* per acre	20	0	0
240 men arranging this displaced, at 10*d.* per day	10	0	0
480 men digging the furrows and shovelling them	16	13	4
Rent	12	0	0
	£58	13	4

The Treatment of No. 2—*Paring and Burning.*—There was less attention necessary as to the regularity of the ploughing; the lands were wider, and consequently the quantity of unturned sward less. After the first ploughing was over, the plough divested of the share, but furnished with an extremely sharp coulter, was yoked with a single horse to cut the furrow-slices across, at intervals of about 3 ft., after which the share was put on again, and (still with one horse) the sections were subdivided and turned over to facilitate the labour of the women and children, who tossed about nearly five-sixths of the sods with forks, to take their chance of weather.

The remainder was coited up on edge for the purpose of becoming a certain supply of inflammable material to ignite the heaps, or renew the fires in case of their extinction through the dampness of the other sides in a flat state after rain; when all the sods were sufficiently dry, they were collected in equi-distant heaps and in rows, on the unploughed sward in the centre of each land. This arrangement answered a two-fold purpose: first, the parts of the grassy strips under the burning heaps were incinerated without the labour of paring; and secondly the remaining unploughed parts were useful to prevent the too rapid incineration of the heaps—a most important matter towards increasing the quantity of ashes—for, by paring off part of the sward, and laying a sufficiency of it on the burning heaps at night, the fires were checked and kept in a smouldering state.

The ashes were then evenly spread, and the ground was ploughed lightly into ridges, and let on the con-acre plan, at the rate of 2*l.* 10*s.* per acre to the labourers, who executed all the remaining work at their own cost. They first levelled the ridges perfectly with spades, preparatory to the planting of Potato sets, which were stuck with the same implements into the ground, after the primitive practice pursued in parts of Munster and Connaught. The manual labour executed by them on this lot was considerable; because, in addition to what

* In the township in which the farm referred to is situated, the poor's and county-rates amount to 1*s.* 3*d.* per pound per annum on the rack-rent. The greatest portion of the poor's-rate, however, is occasioned by the inhabitants of a village, containing some tradespeople and artisans, who obtain settlements by servitude or occupation; and a very small proportion, indeed, by the agricultural population. The writer never knew an instance of a regularly-hired farm-servant, or hind, applying for parochial aid in time of health, however large his family; and though, in the case of widows and orphans, assistance must be given, we would say that, in townships where the population is purely agricultural, 6*d.* in the pound would cover, on an average, the amount of the poor's-rate.

† Cow-clubs are now established in various parts, to purchase cows for the members who have the misfortune to lose them. The farmers subscribe according to their number of hinds, and each hind, to enjoy the benefit, subscribes 1*s.* per quarter.

has been mentioned, it was necessary to dig the furrows between the ridges sufficiently deep to carry off all the surface water, and raise some of the subsoil for admixture with the Peat. A second, but much shallower digging and shovelling succeeded from the furrows, when the Potato-sets appeared over ground.

Expenditure on the 40 acres.

	£	s.	d.
Ploughing	20	0	0
Cross-cutting	5	0	0
Burning and spreading ashes	20	0	0
Ploughing into ridges	15	0	0
Rent	12	0	0
	£172	0	0

No. 1 attained such luxuriance, that, in the ensuing year, 70 tons of hay were obtained; and so great was the quantity of seed, that I deemed it prudent to give a light threshing to the hay, which yielded 40*l.* worth of seeds. The hay, being sapless from the weakness of the soil and from having fully matured its seed, was sold for 1*l.* per ton. No cattle or sheep were allowed to tread on the aftermath, though it was so luxuriant that, in its decomposition from the winter's frost, it left several parts of the ground on which it had lodged scalded, in familiar phrase; a circumstance which proved that it would have been doubly advantageous to have turned on some light stock, when the ground was quite dry. The rolling of the Grass, on land containing a great quantity of humus and its elements, was in this instance superfluous and prejudicial.

In the second year of produce, this lot of shallow peat, which had subsided some inches and acquired considerable solidity, yielded another heavy crop of hay, of which the seeds were lightly shaken out; but, as some natural Grasses had sprung up, they were neither so pure nor so abundant as before. I have no memorandum or recollection of the sum received for these seeds; but estimating it at half the amount, and the hay (most of which was used for the fodder and litter of cattle on the farm), at half the quantity of the first season; and, at the same price at which it was sold in the previous year, the account would stand thus:

	£	s.	d.
Hay	35	0	0
Hay seeds	20	0	0
	£55	0	0

Immediately after the removal of the hay from the field, a furrow-plough was set at work to clear and deepen the furrows, and the lands were top-dressed with the pulverised mould shovelled out from them.

3d year:—There was no mowing, and as the ground was sufficiently compressed to bear cattle during the summer, it was grazed accordingly.

4th year:—As the sown Grasses (especially the Holcus lanatus) were failing and giving way to the natural plants, this field was ploughed up for Oats and Potatoes. The cereal crop abounded in straw, but much wanting in the weight of grain. The part designed for Potatoes was very lightly limed before the sets were planted, except a small portion which was manured with farm-yard dung. The part so treated was let at 3*l.* per acre, and the other at 2*l.* 10*s.*; the produce from the dunged part was much better than that from the other, confirming an opinion that the greatest amount of Potatoes is obtained from a soil (not deficient in vegetable matter) to which both lime and animal (or mixed putrescent) manures have been applied.* Immediately after the removal of the Oat crop, late in September, hay seeds were sown on the stubbles (including a little White Clover), to which the drier parts of the moor showed a predisposition, though Florin Grass had already sprung up, and in the spring following the Potato-land was laid down with Oats thinly sown and Grass seeds, open furrows being left as at first.

I now advert to No. 2. During nearly the same period, this lot yielded for two years coarse Potatoes (which in the second year were better than the first, from the more advanced decomposition in the soil) not deficient in quantity, but so bad in quality, that they were unfit for the sustenance of man. As seed for other soils they were, however, valuable, as Potatoes raised on peat moors generally are; Oats succeeded, of little value; and a distribution of Grass seeds completed the course.

Without entering into any lengthened discussion as to the advantages or disadvantages of the system of paring and burning generally, which I believe to be sometimes both expedient and beneficial, though frequently otherwise, it is sufficient to remark that as the alkalies producable from the incinerated surface were not in the present case absolutely wanted as principals of fertilisation, it would have been better not to have destroyed the organic vegetable matter, which by the agency of lime was easily reducible to humus, that great element of sustenance to plants. The salts of ashes are fertilising, but they are very evanescent in their effects, and, therefore, when the surface herbage was easily convertible into humus by the agency of the plough, instead of being for the most part dissipated, it was more prudent, I conclude, to adopt the conservative practice. Had there been no calcareous manure available the case would have been different, and paring and burning expedient. A surface, abounding in Heath, Bent Grass, and Rushes, or any such tough insoluble plants, may, however, be pared and burnt with advantage, not only where (as in the case at issue) there is an abundance of organic substance. But even where there is little of it in the soil, on account of the difficulty with which those strongly fibred plants are reduced to mould and rendered reproductive of other vegetables, they are more quickly brought into useful activity by burning than by any other mode of treatment. Since the excess of humus injures vegetation, the burning of elevated moors to which lime cannot be conveyed at all, or if so, in quantities insufficient to decompose the humus, and produce the effects so remarkable in No. 1, may, on the whole, be considered indispensable to their improvement. On moory soil, resting on a calcareous bottom, or much combined with lime or other calcareous substance artificially, the burning of the surface has the best effects, if it be judiciously executed, and not followed by exhausting cropping, for this is the principal evil of the practice; with insufficiency of fertilising manure, it will on the whole be found the most cheap and expeditious preliminary to their amelioration.

The deep mosses often abound in Heath, which is most cheaply got rid of by simply setting fire to it. In autumn, when in a growing state, the application of fire reduces the entire plant to ashes, which allows the natural Grasses to vegetate the ensuing year. Deep bogs, which are not to be subjected to the terribly expensive process of claying and cultivating, cannot so easily and quickly be brought into condition for yielding Grass by any other method. Even a sprinkling of lime on land so cleared (if sufficiently drained), will with the ashes cause an immediate springing up of Grasses. If Grass seeds be harrowed in, so much the surer will be the supply. But as the fertility occasioned by the deposits from ashes is of extremely short duration, burning the surface of any soil merely for the sake of its ashes, without any real necessity for doing so, and a certainty that the ashes are good in their qualities, appears to me a wanton destruction of vegetable matter. Then peat produces hardly any ashes; its combustion, therefore, effects but little towards yielding manure, and unless the object be to clear the ground of plants that are decidedly prejudicial and obstructive of culture, or that they cannot be removed so readily by any other means, or that no other manure than what arises from the burning of the surface-soil can be obtained, it is gross mismanagement to pare and burn; and if this assertion be generally true in the case of peat soil which abounds in organic matter and humus, it is, *à fortiori*, more injudicious to reduce to ashes the comparatively small proportions of vegetable substances contained in light gravelly or sandy moors as some farmers in England persist in doing with far less satisfactory excuse than the Breton husbandman may plead for the same practice.

* Half the full allowance of dung, with half the proper quantity of lime judiciously afforded, will produce a far better crop of Potatoes than a full allowance of either of those manures singly. The lime, however, must be applied some months before the dung is used.

Home Correspondence.

Entailed Estates.—There can be little doubt that, under present circumstances, the most energetic cultivation of our farms is necessary. Certain retarding causes, however, exist, which (unlike the malt-tax) might, I conceive, be removed without injury to any single interest; whilst their concession would be a valuable boon to the agriculturist, whose prosperity for a few years is, to say the least of it, dubious. In particular, I beg to mention two concessions which my own experience justifies me in saying would be of great benefit. The first is, that farmers be allowed to malt their Barley for cattle feeding, suitable precautions being taken by the excise that such malt be rendered unfit for illegal purposes. The second, that holders of entailed estates be empowered to burthen them with the cost of draining and other improvements of permanent benefit. As a reader of your Paper from its commencement, I am well aware that whilst theory is treated with the most liberal courtesy, actual practice is the test to which you insist upon its being subjected; you will, therefore, I trust, excuse my giving my own case as an illustration of the injuries done by the restrictions of entail, the prohibition from malt being common to every stock feeder. I hold under a gentleman who is restrained from letting his farms for terms longer than 7 years, who is a widower without male heir, and whose landed property passes from his family in the event of his dying and leaving no son to inherit. A considerable portion of my farm would be greatly improved by thorough-draining, subsoil-ploughing, and liming, but under present circumstances these improvements cannot be prudently undertaken by my landlord or myself. It would be preposterous in me to attempt it unassisted, as the nature of the subsoil renders draining here a laborious and most expensive operation, and being confined by lease to a five course shift of husbandry, no probable increase of crop could indemnify me during my lease for my outlay upon at any rate three-fifths of my land. Situated as my landlord is, he (however willing) cannot be expected to incur expence; he is but a life-renter, and naturally demurs to laying out capital, which by his decease must be for ever alienated from his own family. But were he allowed to burthen the estate with the expenditure, judicious improvements might be effected, which I think, I may venture to say would ensure a proportionate increase in future value; I, as tenant, should be enabled to contribute my mite of increased supply, and possibly with profit to myself; and my poorer neighbours, being employed in the work, would gladly become increased consumers of increasing produce, at the same time that they would for so many years be drawn from competition in an overstocked labour market.—*Curly Tail.*

Land Draining Company.—Observing a question asked in a late *Gazette*, by a gentleman at Leominster as to the expence of erecting a tilery, with sheds, kilns, pipe-machine, &c., it occurs to me that it may be of use to him, as well as to others of your readers who are wisely intending effectually to drain their properties, if I direct their attention to the operations of the "West of England Land Draining Company." The purpose of this company is to undertake the whole trouble and cost of effectually draining farms or properties at so much the acre, the company supplying the necessary engineering skill, the best workmanship, and the draining materials, and thus being enabled to offer the landlord, his tenants, and land agents the utmost security that the work will be thoroughly and permanently executed. They have been hitherto acting on a small scale, experimentally, but their operations have given such great satisfaction to both landlords and tenants, and they have received such pressing invitations to extend their operations, that they are now prepared to embrace a wider sphere of action. The course pursued by the company is, when offered a certain number of acres to drain, to send down their own engineer (Mr. Parkes, of the Royal Agricultural Society, is the chief) to make a survey of the land, and an estimate of the cost according to the nature of the soil, &c., a copy of which report is forwarded to the applicant, and when approved of by him and by the directors of the company a contract is entered into by which the company bind themselves to execute the work at so much per acre, to be repaid either on the completion of the work, or by future instalments. Thus without risk of failure from unskilful workmanship, &c., and without trouble to the landlord, tenants, or land agents, the work is performed in the most permanent and effectual manner. The pipe-tiles are either manufactured by the company at a tilery erected for the purpose, or contracted for at some existing tilery, and the draining work is conducted by labourers living on the spot under the control of an experienced foreman sent down by the company, the whole being superintended by the company's engineer or inspector. The first report of the company will shortly be published, and will show the great satisfaction which their work has hitherto given. If public money is lent for the promotion of draining, the security offered by such a company for the due application of the public funds, will greatly exceed that which private individuals can offer. Further information, with a list of directors, &c., would be supplied by the secretary, Thomas May, Esq., 9, Bedford-circus, Exeter; or J. Parkes, Esq., Engineer to the Royal Agricultural Society, Great College-st, Westminster.—*A Drainer.*

Wages of Agricultural Labourers.—If it would not interfere with your fixed arrangements, I would suggest that since you have succeeded in gaining such a correspondence with Farmers' Clubs as abounds in matter directly touching their interests, that you should, from time to time, request the correspondents of Farmers' Clubs to add to their contributions the wages of the agricultural labourers of their respective neighbourhoods.—*Archibald Irving, Border House.*

Mixed Crops.—For the last two years I have adopted a system of mixed cropping on a portion of my early Potato crop, which I have found to answer remarkably well. The plan pursued was as follows:—The Potatoes were planted in the usual way, in rows, about 21 inches apart, horse-hoed twice, and earthed up about the latter end of May, with a double mould-board plough; immediately after they had been earthed up, rows of Drumhead Cabbages were planted (2 feet 6 inches from plant to plant) between every second and third row of Potatoes, leaving a space between the rows of Cabbages of 3 feet 6 inches, and giving nearly 5000 plants to the imperial acre. In planting the Cabbages, only just sufficient earth was scraped together to cover their roots, consequently they made but little progress during the growth of the Potatoes, which were not at all injured by them. After the Potatoes were taken up, which was about the beginning of August, the Cabbages had the benefit of all the soil, their growth was very rapid, and the result was a very fair crop—a great many of them weighing from 15 to 20 lbs. each. Last year I had about 25 acres planted with Potatoes, from the produce of which I have not sold 50 bushels, and all I have remaining sound is about enough to plant the same extent of land which I purposed doing this year but for the alarming accounts of the disease. In consequence of the disease having made its appearance in this year's crop, I have come to the determination of lessening my Potato tillage to about 15 acres, and recollecting the old adage, "that half a loaf is better than no bread," I shall try the following plan, which I think will be preferable to the one I have hitherto pursued. I intend to prepare, manure, and to ridge up the land in the usual way at 21 inches apart, but only to plant every alternate ridge with Potatoes, leaving the intermediate ridges to be filled up with the Drumhead Cabbage between the earlier crop of Potatoes, and the remainder with Mangold Wurzel and Swedish-Turnips between the later varieties. Whether the Potato crop fails or not I confidently expect that the Cabbages will average from 10 to 12 lbs. each, which will give a crop, independently of Potatoes, from 22 to 26 tons per acre. Mangold Wurzel or Swedes singled out to 1 foot apart from plant to plant, and 3 feet 6 inches from row to row, averaging 3½ lbs. each, will give upwards of 19 tons per acre. If the Potato crop fails (which seems very probable at present) the advantages of this system must be apparent, but supposing our worst fears should not be realised, and the Potato crop is not diseased, even then I imagine that the system will be a profitable one, and that 2 acres planted in alternate rows with different

crops, will produce more than 2 acres planted with the same crops distinct from each other in the usual way. I shall acquaint you with the result of my experiments. —*A Cornish Farmer.*

Experiments with Manures.—In your answer to the queries of a correspondent lately, you say "Effects in agriculture are very difficult to affiliate with accuracy." This is a truth which the farmer should bear well in mind. It has often occurred to me, on reading reports of the result of experiments with different kinds of manures, of how little value they were without a knowledge of the previous state of the land, and likewise of the state in which it is left after the harvesting of the crop, for which the experimental manure had been used. For instance, land in a rich state is sown for any given crop, and one portion is manured with guano, and another portion with nitrate of soda, and the land being previously supplied in abundance with the different ingredients in the composition of guano, perhaps yields the largest return on that portion to which the salts only had been applied; and a superficial observer concludes, that the salts are the better manure. Under such circumstances, and with certain limitations, they are a very suitable manure; but even here, it must be borne in mind, that the application of the easily soluble salts, provides only one or two out of the many ingredients removed by the crop, and consequently impairs the previous fertility of the soil; whereas the guano yields to the soil nearly every ingredient to be found in the ashes of the crop, and some ingredients in a much larger proportion, improving instead of impairing the soil. The application of manure, if performed with judgment, will restore to the soil all the ingredients removed by the ash of the crop; and if the fertility of the land is to be improved, in a large proportion, the judicious farmer will ascertain by careful experiments, how far an augmentation of any particular ingredient is prudent and economical. Increased fertility is of course to be obtained by draining, and otherwise ameliorating the texture of the soil. The foregoing remarks are only intended to apply to the application of manures.—*G. B. C.*

Amount, not Price of Produce, the Main Point.—The editor of the *Agricultural Gazette* may be assured that some readers of that publication utterly differ from "Q. E. D." in their opinion respecting the Leading Article in the Paper of Feb. 7. To them it appears a truly excellent article, stating a principle as just as it is important, but a principle very much overlooked, while for the interest of the cultivator as well as of the community it ought to be considered one of the first rules of agricultural science and practice. "C. W. H." is entitled to high praise for suggesting such an important consideration at a period when despondency or alarm are too prevalent among that important class of society, the farmers. The strangely different rate of wages for agricultural labour in various districts, as noticed by "Falcon" in the Paper of last week, deserves a very close investigation, with strong and continued appeals to the understanding and feelings of tenants and landlords in the districts where an unrighteous and impolitic rate of payment prevails.—*H.*

Farm Stables.—As the preservation of health ought to be considered of more importance than the mere curing of diseases, and as this can only be accomplished by proper management in respect to feeding, exercise, and general economy of the stable, I consider it proper to offer a few remarks on constructing and ventilating farm-stables. In the construction of the stable there is nothing so deserving of attention as ventilation, *i.e.*, having proper contrivances for the ready admission of fresh air, and for the escape of that which is noxious. Let any one for a moment consider the foul atmosphere which is generated in a close stable where several horses are kept, by the constant exhalation of unwholesome vapours from the litter, the noxious air from the lungs, &c., and he will not be surprised at the long catalogue of diseases to which improper treatment has subjected the horse. Let him enter a stable early in the morning, and it will afford him ample proof of the noxious state of the atmosphere. Farm stables are in general built too low; the ceiling should never be lower than 13 or 14 feet, so that the foul air may circulate in the higher part, and find its escape through apertures made in the ceiling. These apertures should be made so as not to admit rain, and to be readily opened and shut inside by means of a cord and pully. Fresh air should be admitted by the windows, which should be large and on different sides of the building; so that when a cold wind blows from one side, fresh air may be admitted by the one opposite. By this means the temperature also of the stable can be regulated according to circumstances, and the more accurately if a thermometer is kept—a very necessary instrument in all buildings where animals are kept. Light is also of great importance in the stable; for there can be no doubt that horses' eyes are often injured by being kept in dark stables. Nothing injures that delicate organ more than being brought out of a dark stable into the light, particularly if brought immediately into sunshine. Though a light stable is desirable, the sun's rays should not be allowed to fall upon the horse while standing in his stall; this may be easily prevented. Nor should the walls or ceiling be whitewashed, for under such circumstances the eyes of horses are liable to be rendered weak. The best colour for the ceiling and walls is a stone colour, which can easily be made by mixing a little lamp-black with the common whitewash. The walls of all buildings, as well as stables, should be built hollow; less material will be required, and the building will be rendered drier and warmer, and will not cost half as much in building as if built solid. [!] The doors should be high and wide—what are termed folding doors are preferable, *i. e.*, doors which open in the middle. In fitting up the interior, particular attention should be paid to the size of the stalls, which should never be less than 6 feet wide, and the sides should be sufficiently high and long to prevent any communication between the animals. I have no doubt it will be argued by some, that horses are sociable animals, and stalls are not requisite. But I am convinced, that when horses are separated by stalls they thrive much better, and numerous accidents are prevented, as kicking, biting, and otherwise injuring each other. Horses should not be too much deprived of the liberty of motion, as they too often are; close confinement after hard labour will too suddenly abate circulation, stiffen their joints, and make them chilly. The halters should be long enough to allow the animal to reach any part of its body with ease. Long halters are disapproved of by some farmers, because of the animals entangling themselves in them; but accidents of the sort rarely occur. The floor of the stable should be laid with hard bricks, as a smoother surface can be obtained than by flints, and the horses are not so liable to injure their knees in the act of lying down and rising up. Very little declivity is necessary to drain off the urine. Great inconvenience often occurs from suffering a horse to stand where the fall in the stall is considerable. It has, however, been recommended, and is in use in many stables, to place the gutter in the middle of the stall, so that the fore and hind legs of the animal may stand on a level. This is the best plan for horses. In whatever way the stall is made, the fall should never exceed 1 inch in 10 feet. The gutter if placed behind should be broad and very shallow. Where a stable is properly attended to scarcely any gutter is necessary. Iron racks are preferable to wooden ones, which should be fitted up so that the animal can feed with the greatest ease; or, what is preferable, fit the racks in one corner on a level with the manger, so that the animal may feed as he does in a state of nature. The manger should be so constructed as to slide into the wall like a drawer, and should be rather deep and wide, which will prevent them from throwing out their food with their noses, which often occurs where shallow mangers are used, particularly when chaff or cut hay is mixed with their Oats. I hope the above remarks will induce some of your readers to come forward on this subject, for it is shameful in some parts of the United Kingdom to see the manner in which the companion and co-labourer of man is fed and sheltered.—*John M'Intosh.*

Rye an Exhausting Crop.—It is a generally received opinion that Rye, when allowed to ripen its seeds, is a very exhausting crop, and that no other corn will grow for some time after it. I have for several years cultivated it without finding it so injurious as many assert, but still am not quite satisfied as to its not very much impoverishing the land. Now, if it be so exhausting, what is the cause? It generally produces the same quantity of corn as Wheat (viz. about 5 qrs.), and rather more straw; and upon referring to the analyses of the different kinds of corn by Sprengel, I find that in 100,000 parts of the grain and 100,000 parts of the straw, Rye contains of lime 300 parts, whereas Wheat contains 336 parts, and Barley 660. Again, of Magnesia, Rye contains 56 parts, but Wheat 722, and Barley 256, and Oats 89. Of phosphoric acid, Rye contains 101 parts, Wheat 210, and Barley 370. Of silica, Rye contains 2461 parts, Wheat 3270, Barley 5038, and Oats 6564. On the other hand, Rye contains 575 of potash and soda, while Wheat contains only 514; but Barley 796, and Oats 1154; and of sulphuric acid, Rye contains 193, Wheat 87, Barley 117, and Oats 114. Therefore, of lime and phosphoric acid, Rye contains less than either Wheat or Barley; also less magnesia and silica than Wheat, Barley, or Oats—more sulphuric acid than either, and more potash and soda than Wheat, but less than either Barley or Oats. When, however, we consider that very frequently Oats and Barley produce twice as much per acre as Wheat, we shall have to double the component parts of each, which will make it appear that Rye is far less exhausting of each component than either Oats or Barley, and in most instances less than Wheat.—*B. J. W.* [Rye is generally grown on poorer soils than either Wheat or Barley or Oats—that is, on soils which, having less of all those fertilising matters to spare, will suffer more from the abstraction of any of them. The opinion to which you allude may have arisen in that way.]

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held at the Society's house in Hanover-square, on Wednesday last, the 18th of March; present, Thos. Raymond Barker, Esq., in the chair; Sir John V. B. Johnstone, Bart., M.P.; F. Burke, Esq.; F. C. Cherry, Esq.; J. W. Childers, Esq., M.P.; H. Gibbs, Esq.; W. G. Hayter, Esq., M.P.; W. Fisher Hobbs, Esq.; Geo. Kimberley, Esq.; John Kinder, Esq.; Prof. Sewell; W. Shaw, Esq.; R. A. Slaney, Esq.; W. R. C. Stansfield, Esq., M.P.; J. H. Aylmer, Esq.; H. Bullivère, Esq.; S. Bencroft, Esq.; Rev. J. Bonham; Dr. Calvert; W. Cuthbertson, Esq.; A. E. Fuller, Esq., M.P.; J. Greene, Esq.; W. Leveson Gower, Esq.; A. Majendie, Esq.; A. Ogilvie, Esq.; E. Parkyns, Esq.; H. Price, Esq.; Capt. Rushout; Rev. T. P. Slapp; S. Solly, Esq.; J. Swinburne, Esq.; T. Turner, Esq.; and T. R. Tweed, Esq.

The following new members were elected:—

Duncan, William George, Great Houghton House, Northamptonshire
Levi, William, Newport-Pagnel, Bucks
Smedley, Charles E. B., Edlamouth, Kelso, Roxburghshire
Parkyns, Thomas, Ruddington, Nottinghamshire
Haveford, Viscount, Tregoyd, Hay, Herefordshire
Clayton, John, Chesters, Hexham, Northumberland
Ogden, William Bernard, Newcastle-on-Tyne
Longridge, William Smith, Bedlington Iron Works, Northumberland
Hawdon, Robert, Morpeth, Northumberland
White, John Brown, Little Bedwyn, Marlborough, Wilts
Bolam, William, Newcastle-on-Tyne
Redman, John, Froxfield, Marlborough, Wilts
Hinde, John Hodgson, M.P., Acton House, Felton, Northumberland
Ogle, Charles, Newcastle-on-Tyne
Cresswell, Oswyn Baker, Cresswell, Morpeth, Northumberland
Commerell, William Augustus, Stroud, Horsham, Sussex
Scarth, James, Newcastle-on-Tyne
Dawson, William Edward, Plumstead Common, Kent
Littlewood, Wildam, Dramley Moor Farm, Chesterfield, Derbyshire

The names of 20 candidates for election at the next meeting were then read.

Prize Essays.—Mr. Pusey, M.P., Chairman of the Journal Committee, communicated to the Council the mottoes of four essays, which the Judges have declared to be the winners of the Society's Prize, in each of the respective classes in which they had competed; and the sealed motto papers containing the author's names, being delivered to the Chairman, and opened in the presence of the Council, the adjudications were found to stand as follows:—

I. To George Nicholls, Esq., of 17, Hyde Park-street, London: the Prize of 30*l.* or a piece of Plate of that value, for the best Essay on the Improvement of the Condition of the Agricultural Labourer, so far as it may be promoted by private exertion, without legislative enactment.

II. To W. C. Spooner, Esq, Veterinary Surgeon, of Southampton: the Prize of 10*l.* or a piece of Plate of that value, for the best account of the use of Super-phosphate of Lime as a manure.

III. To Thomas Cooke Burroughes, Esq., of Gazeley, near Newmarket: the Prize of 10*l.* or a piece of Plate of that value, for the best account of the Cultivation of White Mustard.

IV. To Thomas Rowlandson, Esq., of 59, St. Ann-street, Liverpool: the Prize of 50*l.* or a piece of Plate of that value, for the best report on the Farming of North Wales.

Miscellaneous Communications.—1. A letter from Lord Portman, the President of the Society, informing the Council, that the Potatoes raised by his lordship from diseased tubers, in dry heat, and in pots well drained, had been examined by Dr. Lindley, and pronounced to be quite sound.

2. A letter from Mr. Moyle, of Western Canada, addressed to Lord Portman, on circumstances connected with the prevalence of the Potato disease, and the presumption that the malady has had its origin in the presence of an excess of acid matter generated under peculiar conditions in the Potato, especially in the coloured varieties.

3. A statement from Mr. Thomas Wilmot, of Coundon, near Coventry, on the raising of Potatoes from seeds, in this country and in Australia; with specimens of the result of his cultivation, and an offer to send a supply of such Potatoes for any experiments the Council might direct to be made with them.

4. A Report from Mr. Cherry (Veterinary-Surgeon to the Army) of the directions given by Marshall in his "Rural Economy of Yorkshire," (vol. 2, page 51) published in the year 1788, for raising Potatoes from seeds.

5. A communication from Mr. Greene, of Greneville, Co. Kilkenny, of the directions for saving the Potato-apple for seed, issued at Berlin by the Prussian Minister of the Interior.

6. A letter addressed to Mr. Fuller, M.P., by the Rev. James Williams, of Llanfairynghormy, in Anglesey, on the result of his Potato crop; on his long experience that single Potato-sets, if they grow, give a far better crop than whole Potatoes; and on the fact that 40 years ago, Capt. Jones introduced to his notice a scoop sent him from London, with which the eyes were taken out singly, leaving the bulk of the Potato for use.

7. A statement from Mr. T. R. Tweed, of the success which had attended the trials he had recommended to the occupiers of the allotments at Woolwich, of planting the peeling of the Potato in which the part near one of the eyes was cut deeper than the rest.

8. Remarks on the Potato disease, from Mr. John Hull, of Tarleton, near Ormskirk.

9. A suggestion from Mr. Williams, of Glamorganshire, that some economical mode should be devised for applying the decayed Potatoes, when dried, to the feeding of cattle, instead of allowing them to be thrown away entirely to waste.

10. Mr. Curtis presented a French work on the part of M. Guérin-Méneville, the author, relating to the insects observed to the present time in diseased Potatoes, and containing engraved illustrations of their character and structure.

11. A notice from Sir John Johnstone, Bart. M.P., that he had been requested by a friend to obtain for M. Ouvrard, the distinguished French Financier, at present in this country, leave to submit to the Council his statement of a new mode of managing farm-yard manure. The Council accordingly appointed such statement to be laid before them at the ensuing weekly meeting.

12. A letter on draining, from Mr. Harrison, of Devizes.

The Council then adjourned to Wednesday the 25th inst.

AGRICULTURAL SOCIETY OF IRELAND.

March 5.—The secretary having addressed letters to the parties who had competed for the gold medals for thorough draining last year, relative to the effect produced on the land by the process, the following answers were read in reply thereto :—

"THE MARQUIS OF WATERFORD'S ESTATES, LONDONDERRY.

"Drumagosker, Newtownlimavady, 17th February, 1 46.

"Sir, I have been requested by J. B. Beresford, Esq., to make out a report for the Royal Agricultural Improvement Society of Ireland, of the effects produced and increased value of the land thorough drained on the estate of the most noble the Marquis of Waterford, county of Londonderry, and shown for competition for the gold medal, presented to that Society last year by Sir Richard O'Donnell, Bart.

"In order to avoid any doubt of exaggerated statements being made by me, I requested as many of the tenants as I had an opportunity of communicating with to send me a just statement of the effects thorough-draining had produced on their farms, and also to state, to the best of their opinion, what their drained land was worth to them now, above what it was previous to that improvement taking place ; but there seems to be a great reluctance on their part to admit freely the benefit they have derived ; for although I requested a great many to send me an account how their drained land had paid them, I have only received returns from 15, all of which are highly satisfactory, but only 12 of them give the improved value of their land ; but as returns were asked from tenants without any selection, I consider the statements of the 12 may be justly applied as an average of all. The following abstract is taken from their reports :—

No. of Report.	In what year Drained.	Increased value of Land.	OBSERVATIONS.
1	1842	½	Cropped since with Potatoes, Oats, and Flax, all of which were excellent crops, and particular reference is made to the quality of the Flax as being the best ever raised on the same farm, and previous to draining the sowing of Flax would not have been attempted.
2	1844	⅕	Cropped with Potatoes, 270 bushels per statute acre.
3	1843	½	Ditto with Oats, worth 5*l.* per statute acre, and Flax value for 8*l.* per ditto.
4	1842	½	Ditto with Flax and Potatoes, both of which were good.
5	1842	⅔	Ditto with Potatoes, Oats, and Flax, all of which were good crops.
6	1844	½	Ditto with Oats, and quality of ground very much changed.
7	1844	⅓	Ditto with Flax, crop worth 9*l.* per statute acre.
8	1843	⅓	Ditto with Oats and Potatoes, ground formerly rough and marshy.
9	1844	⅓	Ditto with Oats, worth 6*l.* per statute acre, and Flax worth 8*l.* 8*s.*
10	1844	⅓	Ditto with Potatoes, a good average crop.
11	1842	½	Ditto with Potatoes, Oats, and Flax, all good crops where formerly the same ground could scarcely be cultivated.
12	1842	⅓	Same kind of crops and reference as No. 11.

"Although there is a great change on the land that has been drained, still the full benefit of it has not been realised, as the subsoil plough has only been used on some few farms—few small farmers having horses sufficient to do that important part of improvement ; still it is pleasing to see most of all those who plant Potatoes on their drained land making their ridges across the drains, and digging up the furrows between the ridges, being the only method the small farmer can adopt to effect his purpose. I may also mention that the crops growing on the drained land last year were much superior to those on the undrained, and could easily be pointed out by their uniform appearance, not having that short and scalded look about the furrows that the crops growing on the undrained land had. There was a good deal of Flax grown on drained land on this estate last year, and some of it on land which, before being drained, was not considered worth ploughing, but the Flax has yielded a return of 10*l.* per statute acre. —WILLIAM M'LEISH, Agriculturist.

"Edward Bullen, Esq., Secretary, &c."

"THE EARL OF ERNE'S ESTATES.—CROM CASTLE, COUNTY FERMANAGH.

"27th February, 1846.

"Sir, in reply to your communication of the 4th of February instant, requesting me to state the nature and effects produced upon the lands drained upon the demesne of the Earl of Erne, which were in competition for the Society's gold medal last year, I beg to state that I have found the results from it in every instance most satisfactory ; so much so, that I have found the first outlay repaid by the two succeeding crops. I never drained land that I did not subsoil from 16 to 18 inches deep in the months of October and November following, which is indispensible in my mind on all varieties of soil ; however, I prefer subsoiling two years after draining, particularly on weighty clay lands. The last two years I have drained all the lea lands that were intended to be broken up ; the previous year I break them, thus leaving the subsoiling to be done the second year after the draining. With regard to the increased value of land, I consider, after the draining and subsoiling, the value of the land is increased one-half. The extent of the land drained under my inspection for the last 12 years, has varied, according to circumstances, from 20 to 100 acres yearly ; all of which were done with tiles, and in most cases the tiles were laid upon soles, which method of draining I consider equal, if not superior, to the best stone drains. Where land has been thoroughly drained, deeply wrought, and well manured, the most unpromising sterile soil becomes a deep rich loam, rivalling in fertility the best natural land in the country, and from being fitted for raising only scanty crops of common Oats, will bear good crops of from 12 to 18 barrels of Wheat ; 24 to 30 barrels of Barley ; and from 27 to 36 barrels of early Oats, per Irish acre, besides superior crops of Potatoes, Turnips, and Mangold Wurzel. It is hardly possible to estimate all the advantages of dry and deep land, where every operation in husbandry is facilitated and cheapened by requiring less seed and less manure to produce full effect, and with the great advantage of having the land early in a condition for sowing, which is a matter of great importance in this precarious climate.—PETER COWAN, Steward to the Earl of Erne.

"To Edward Bullen, Esq., Secretary, &c."

Farmers' Clubs.

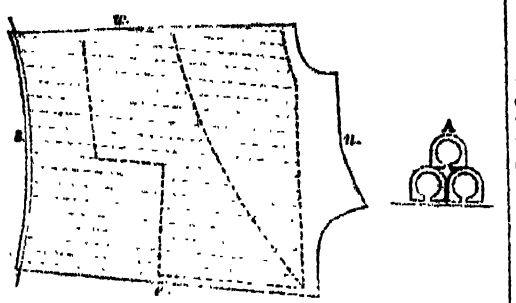
DARLINGTON.—*The best mode of preparing the Land, planting, rearing, and preserving the Potato Crop.*—*Feb.* 2.—H. Dean, Esq., in the chair. Mr. Pearson, who proposed the subject, said : For the last six years I have been a Potato grower, and tried various methods, but with little success ; but latterly I determined to change my system, and will now give you an outline of the plan I have adopted. I give my land intended for Potatoes the first ploughing in the autumn to the depth of at least 7 inches ; a second ploughing is then given in January or February ; then, after the land is properly worked and cleaned I apply two chaldrons of lime per acre, and when ready for planting I have my manure carted on and spread evenly over the surface, at the rate of about 12 loads per acre. I then commence planting as follows : after one bout with the plough, the sets are planted in the bottom of the furrow, at 9 inches apart in the furrow, and the manure which was previously spread over the surface is raked into the furrow upon the sets from off the width of about 2 feet ; the ploughing is then proceeded with, the sets are ploughed in the first bout, then another bout is ploughed, in which furrow other sets are planted, and the manure raked in as before. By this means, the distance betwixt the rows is about 2 feet, that is taking a foot at each furrow slice, and the land instead of being in ridges according to the usual method, is left with a flat surface, and by this means I conceive it will bear a droughty season much better, besides the crows cannot so easily pull out the sets. My sets are always cut on the day they are used ; they are planted, manured, and ploughed in immediately ; the plants when up are cleaned in the usual way, but in consequence of their being planted level, I think they take less cleaning than when in ridges. I afterwards, when the plants are of a proper size, mould them up with the plough in the usual way, and when in flower I have about half the flowers plucked off, which has, I believe, a tendency to increase the growth of the Potato, as in consequence of the flower being gathered there is less support required for the top seed or apple. Last October, when I took up my crop, which was remarkably good for the description of land, it being at least 300 bushels per acre (and this upon land that had been previously considered incapable of growing Potatoes at all) ; they certainly had the prevailing disease of last season, though slightly ; the Potatoes at the lower part of the root being comparatively sound, whilst those that were diseased were near the top, but there were very few diseased at all. In storing my Potatoes I am in the habit of putting them up in pies in the field, but conceiving that Potatoes do not keep so well when the air is entirely excluded, I place rows of draining tiles through the bottom of each pie whilst storing them, and by that means currents of air are continually passing through the heap ; in frosty weather I keep the outer ends of the tiles stuffed with straw, so as to prevent the frost from entering those air flues to the injury of the Potatoes.—A lively discussion followed, into which several of the members entered pretty largely, and detailed their usual practice, but most of them had been occasionally subjected to partial failure from the disease called dry rot, of which no one seemed capable of clearly explaining the causes, or of tracing it satisfactorily to its source : as also the blight of last season, which was still less understood.—Mr. Wilson, of Urleynook, was of opinion that the blight of last season originated from the effects of a very strong wind which took place when the Potato tops were full of sap and vigour, and which so far injured and enfeebled the plant as to render them unable to resist the influence of any gas or vapour detrimental to their healthy growth, and by this means the disease of last season had been generated ; he also stated that, in this opinion, he had been borne out by a very extensive Potato grower. Other members of the club attributed it to the early frosts which had attacked the plants at a time when wet, and unable to resist their influence.—Mr. Walton, the vice-chairman, gave it as his opinion that the falling off in the constitution of the Potato had been going on imperceptibly for a number of years, perhaps long before it began to show itself ; and now when the constitution had become so much impaired as to render Potatoes a really hazardous crop to cultivate, it became very important that the greatest possible care should be taken in the cultivation ; and he was glad to see so spirited an inquiry into the cause as had taken place that afternoon.—Mr. Thomas Dixon, the honorary secretary, supported Mr. Walton in his views, and gave it as his most decided opinion that the main cause of failure in the disease called dry rot, proceeded from the impaired constitution of the Potato, brought on by injudicious and improper treatment ; the principal part of which was by cutting Potatoes for seed, and by late planting. He considered it a bad plan to cut Potatoes for seed at all, it being much safer and better to pick out and plant the smaller sized Potatoes ; for, by cutting Potatoes for sets, and more particularly in a late season, a very serious injury frequently takes place from the evaporation of the natural juices of the Potato, and more particularly when exposed for some hours to a dry atmosphere. Now, although this mode might have been adopted year after year for some time without any perceptible disadvantage, yet from the experience he had had as a Potato grower, he felt quite convinced that each time that Potatoes were cut for planting, it had a tendency to weaken the constitution, until at last it became so far injured as to be incapable of vigorous and certain vegetation when cut, or when placed under any other, even the slightest unfavourable circumstances. But although the constitution might be injured to rather a serious extent, yet his impression was, that if care was taken in ordinary seasons, there was little fear of failure ; and the method that he would recommend was, to plant whole Potatoes instead of cut ones ; to plant early, say in March or April ; to plant pretty deep, and always to lay the manure upon the sets in the rows. If these matters were strictly attended to in all cases, he believed there would be few complaints of failure from dry rot.—At the conclusion of the meeting no resolution was come to on the subject ; but Mr. Pearson's method was considered well worthy of the attention of the members, and the Chairman recommended it to be further tried, in order that its general merits may be better known. The subject fixed for discussion on the 2d of March is, "The best Mode of Treatment for Breeding Ewes, particularly during the Lambing Season."

Farm Memoranda.

ISLAND OF ISLAY.—*Feb.* 2.—The 1st month of spring commenced yesterday with a calm, clear, cool day. Since the middle of October there had not been three consecutive dry days, and never any frost or snow lay for one whole day, except on the tops of the highest hills. The land is very wet, and ploughing far behind. There is a prejudice in Islay against early ploughing of stubble land, and it is said that the land is so weak that it is hurtful to plough too early. However, as agriculture is improving fast in Islay, perhaps that idea may be changed, especially as respects land full of rooted weeds. This morning was clear and sunny, and the small birds began to chirp cheerily. The common Whin or Furze, and the common Daisy, with its crimson-tipped flowers, are the only wild plants that as yet are in bloom to welcome the spring. On the 3d, there was rain after mid-day ; 4th, snow on the tops of the highest hills, and showery, dull, and dreary ; 5th, clear and cold ; 6th, cold and damp ; 7th, very high wind last night and this morning ; 8th, showers of hail. Two vessels of from 50 to 80 tons left Lochindal with Potatoes, for Ireland, last week, being the first cargoes from that Loch this season. The price of one is 10*s.* and of the other 12*s.* per Islay boll ; 3 bolls are reckoned to make a ton. The cargo at 12*s.* was of picked quality, and reckoned to be fit for seed. On the 9th and 10th, there was fine clear hard frost, being the only whole days of frost that have been in Islay this season. 11th, a fine dry thaw ; ploughing has now fairly commenced on the leas, and there is much land with seaweed spread over it ready for being turned over. 19th, a ploughing match of the Islay Agricultural Association took place this day, on a lea field upon the Islay House home-farm. Thirteen competitors ploughed in one class, and six in another ; and the work in both classes was executed in a style that would not discredit any like number of ploughmen of any district in the kingdom. On 20th, the wind veered round by the west, to the south-west, and still the weather continued fine till the morning of the 23d, when some rain fell. During last week some Wheat was sown, and Potatoes planted. 24th, wet and stormy, and the wind south. 25th, wet in morning. 26th, 27th, and 28th, wind still southward, and the weather has been damp, but not very wet ; yet it has prevented those who had begun to sow Wheat from finishing. Wheat growing has been only lately introduced amongst the tenantry of Islay ; but when properly managed, and on soils adapted to that grain, it has succeeded well, and great returns from the quantities sown have been reaped ; nay, even immense produce of grain has been in some places talked of. Spring sowing seems as yet to have succeeded best. Several cargoes of Potatoes have left the island during February for England and Ireland. The prevailing epidemic attacked Potatoes here and elsewhere. Many intelligent growers say they have had a half diseased, and of that half they might get some use, previous to this time, for cattle or otherwise ; but on many farms, and with many cottars, and people who rent small lots, there has been a total loss of large quantities of Potatoes. However, it is expected that there will be plenty for seed, and that no famine will take place in this island.—*P. C. J.*, *March* 2, 1846.

DRAINING AT STREATHAM.—I beg to hand you the particulars of a field lately drained on the estate of John Bowes, Esq., M.P., where this system of draining

is now carried out to a great extent. Upwards of 700,000 tiles are laid in per year. The subsoil in this instance was very strong and retentive, so much so that the workmen were often obliged to hack it. By the accompanying sketch you will see the manner in which the field has been done :—



The whole of the drains are delivered at one outlet in the north-east corner of the field. The first drain, 2½ feet deep, was started at 20 feet from and parallel with the east fence, and so continued at a distance of 18 feet apart or nearly so, taking advantage of the inclination of the furrow for each drain to the west fence, where the ridges begin to butt. The cross drains are the mains, varying in depth, according to the level of the land, from 3 to 4½ feet, so as to insure a perfect outlet for the furrow drains. The tiles used for the furrow drains are from the No. 1, are 15½ inches long; and for the main drains, from the No. 2, are of Mr. Charnock's "Economic" Machine; the supply of which (No. 2) being short, the main drains were completed with two, and in some parts three tiles thus (A). The drains were cut, laid, and filled in at the prices below stated, at per rood of 21 feet; contents of the field 16 acres.

					For rood.	£	s.	d.
47 roods of treble tile drain,			4 ft.	deep, at	1s. 2d.	1	11	6
21	,,	,,	3½	,,	at 1s. 0d	1	1	0
28½	,,	,,	3	,,	at 0s. 10½d.	1	3	9
113	double	,,	3	,,	at 0s. 9d.	4	4	9
18	,,	,,	4	,,	at 1s. 0d	0	18	0
169½	,, single	,,	2½	,,	at 0s. 6d.	42	9	3
33,940 No. 1 drain tiles, at 13s. per thousand						32	4	10
1296 No. 2	,,	at 28s.	,,	.....		1	16	3
470 Soles	,,	at 16s.	,,	.....		0	7	6
						£85	16	10

The above was done by the landlord under the superintendence of his bailiff, on which a per centage is charged. The following are the charges borne by the tenant in addition to the per centage on the above. In this case, the tenant not having time he let the leading; the tiles to be laid down alongside of each drain within reach; length of lead about four miles :—

Leading 30,706 drain tiles at 7s. 3d. per thousand ..	£12	18	10
Leading Spruce tops and branches to cover tiles	2	8	0
Covering tiles with ditto, at 6d. per acre	0	8	0
Tenant's proportion of cost	15	14	10

Thus making a total cost of £101 11s. 8d., or £6 6s. 11¾d. per acre.

The field was in Oat stubble for fallow, since ploughed with four horses at an average depth of 9 inches, 1 draught ploughing 1¼ statute acres per day. It is intended to stir it across with four horses, and, if the season be favourable, to take a crop of Turnips off it. It is anticipated from the above outlay of capital that an increase of full one-third will be obtained in the produce and bulk of crop, thus securing the means of further improving the land by the increased quantity of manure made in the fold yards, &c., consequent on the increase of crop. Other great advantages will be gained—the land will be easier worked and kept clean, green crops grown instead of bare fallows, also a greater surface for the growth of some crops will be obtained, as Wheat, Barley, &c. The land being laid as flat as possible, water furrowing, as practised on heavy undrained lands, will not be required, say gain of surface on every ridge of 9 feet to be 6 inches at the least, or for every 18 acres one acre gain. It has been invariably observed in this neighbourhood that when the land has been laid flat after draining, the crops have looked better when standing, and when thrashed out have yielded best; it was tried on a field on this farm, one half laid flat and the other half left in ridges, and found as I have stated, but no particular account was kept at the time. The object in view of drainers on entering a field should be to ascertain the depth by which the greatest lateral descent will be obtained, which will vary according to the retentiveness of the subsoil, and having ascertained it he will be able to set out the drains at the distance apart required to thorough drain it, perhaps saving many roods per acre, thus lessening the cost, the great objection to draining. The present agitation for deep draining will end, I doubt, in uselessly burying a great amount of capital. I cannot think that 1 or 1¼ inch pipes can act with efficiency at the depth of 5 feet without any covering, and in some instances with the clay trampled on them, or how can they run so trampled sooner then a good tile drain at a depth of 2½ or 3 feet. It is or ought to be known to all drainers, that the descent of water is perpendicular, and that the rapidity of its descent will vary according to the retentiveness of the material it has to filter through, but that it must sooner reach a 3 feet drain and run than a 5 feet drain, unless there be water lodged or hanging in the subsoil, which is merely displaced by the mechanical pressure from above, thus causing the 5 feet drain to run sooner; if so, draining to that depth must be money thrown away; and take it in another point of view, the land drained at a depth of 2½ or 3 feet must be sooner accessible to the farmer for sowing and cultivating his crop than at 5 feet deep, not an unimportant object with our precarious climate, and on a majority of our land which is cold and retentive.—*J. D., Streatham.*

Miscellaneous.

Cultivation of Flax.—I invite all thoughtful, prudent, and philanthropic persons to visit Trimingham, in order that they may see how far I have carried out the spirit of my resolution, that Flax-culture, as a means of employment to the poor, ought to be vigorously promoted by every true lover of his country, and witness the realisation of the above statements, with the happy effects of constant work at adequate wages. They will discover that if Flax had been cultivated to the extent, and in accordance with the plans I recommended, every parish in the county might, at the present time, have been rendered as free from rates as Trimingham; where one quarter's poor-rate, only, of the past three, at 3d. in the pound, has been required for the support of the infirm, and for Union charges: all hands being employed in dressing Flax, that would otherwise have been maintained in idleness. As a proof, Mr. Brown, who has greatly contributed towards the elucidation of this subject, left his farm at Michaelmas, engaged another at Rackheath, and took his Flax with him. In consequence, several young persons were thrown out of employment; some of whom were lately obliged to take refuge in the workhouse, where they must still have remained, had I not received them in my Flax establishment. To remove all prejudice would be to alter the construction of human nature; a thing impossible! so innumerable are the secret springs of opposition. But, justice to the poor, whose cause I advocate, and for whose sake the Norfolk Flax Society was formed, demands the strictest investigation. I would, therefore, just observe, that the system of preparing Flax for market is reduced to so great a certainty upon my premises, that I am now able to afford assistance to any part of the kingdom; and that, under the instruction of Belgians from the celebrated Courtrai district, young men, women, and children have become expert Flax-dressers, earning from 3s. 6d. to 10s. per week. For instance, the wages of Thomas Sicly, aged 13, exceed, upon the average, 6s. a week. In conclusion, allow me to subjoin the copy of a letter addressed to a nobleman on another part of my advocacy, of the utmost importance to the agricultural interests of the country; and to say, that I, this week sold seven bullocks, fattened, according to the system recommended, from the resources of my own farm, that paid 77*l.* for less than six months' keeping. [The following is a portion of the letter alluded to] :—"I wish to observe, for the instruction 'of those parties who admit that your bullocks are doing well, and who will not allow the cheapness of the food upon which they are fattening,' that Linseed can be purchased at less money per ton than the best oil-cake. For instance, I was offered on Saturday, at Norwich, Linseed at 43s. per quarter, weighing 30 st., while oil-cake was 11*l.* 10s. per ton. Now, where farmers are so prejudiced against the new system as not to perceive the superiority of the pure seed over the refuse formed into cake with all kinds of rubbish, no arguments can produce a contrary convic ion; and they must be left till compelled by circumstances, like many in Norfolk, to try the experiment. Your lordship will discover by the above prices, that Linseed and cake are about 1s. 5d. per stone each; and that, if compound of Barley and Linseed is made consisting of one-quarter seed and three-quarters Barley at 9d per stone (at which price thousands of quarters may be purchased), it will amount to 7*l.* 7s. per ton, exclusive of the water; but, when that all-important ingredient is incorporated according to the receipts in my book, the price will be reduced to 43s. per ton; and those who adopt only this part of my system, obtain five tons and a half of the incomparable cattle compound at the same sum, which others give for a ton of comparative rubbish. I do not say that the same effect will be produced from a ton of compound as from a ton of cake; but I know of no instance where the superiority of the former has not been acknowledged, without taking into calculation the advantages derived by consuming so large a proportion of native produce."—*Trimingham, Feb. 17th.*—[*Extract from a Letter by Mr. Warnes, in the Norfolk Chronicle.*]

CALENDAR OF OPERATIONS.

MARCH."

Barley should now be sown—three bushels per acre drilled in rows 8 inches apart are sufficient; and, following the drill, the (hand) broadcast Clover-sowing machine should come. The light harrow, or the bush-harrow, or Smith's web-harrow, should cover all up immediately. Set the machine to sow about 14 lbs. of seeds per acre, mixed as we directed last week. If Grass seeds are to be sown in addition, the sowing-machine must travel a second time over the field, followed by the harrow as before. One bushel of Italian Rye-grass per acre is as good a seeding as can be grown; and along with the Clovers, if sown on good land sufficiently damp at the time, it will ensure a good crop of Grass for one year. When the Grass is to remain down more than one year, it will be better to adopt the following rules, which we extract from Lawson's "Agriculturist's Manual."

By substituting 3 lbs. of Italian for 8 of common Rye-grass in the following table, it will be improved. These seeds may be sown in two lots, as we have suggested, immediately after the Barley; or you may delay it for three weeks, and let the young Barley up, and then sow and hoe in; this affords an opportunity for hoeing and cleaning the land somewhat later in the season.

	Light and Medium Soils.			Heavy Soils.		
	1 Year's Hay.	1 Year's Hay and 1 Year's Pasture.	1 Year's Hay and 2 Years' Pasture.	1 Year's Hay.	1 Year's Hay and 1 Year's Pasture.	1 Year's Hay and 2 Years' Pasture.
Common Rye-grass .	18	18	18	18	18	18
Meadow Cat's-tail .	..	..	..	1	1	1
Common Red Clover.	8	6	3	8	6	3
Cow Grass	..	..	3	..	..	3
White Dutch Clover .	2	4	4	2	4	4
Yellow Clover . . .	..	2	2	..	2	2
	28	30	30	29	31	31

Get the land for Carrots scuffled or scarified 3 inches deep, harrowed and rolled hard. It is supposed that it was ploughed deeply in autumn. If it was not manured *then*, you must either cart on manure now, ploughing it in very shallow, for deep ploughing *now* makes a cloddy surface; or use no farm manure, and not plough at all, but sow guano, seaweed ashes, or some other soluble fertiliser broadcast over the land during the first wet weather. Damp the sand in which your Carrot-seed is lying, but not so much as that a handful on being squeezed shall remain clung together when the hand is opened. It will do to sow next week, in rows on the flat surface 18 inches apart. Use the Suffolk drill, and sow 2 bushels per acre, in which 5 lbs. of seed have been mixed.

Get the land for Potatoes and Mangold Wurzel cross-ploughed. Cross-plough deeply the land you intend for Flax; and carefully remove with the fork all patches of Couch-grass. If the land is in good order and clean, an Oat stubble will make a good Flax field. Harrow, or hoe, and roll the young Wheat crop, carrying off the field all Docks, Coltsfoot, and Chickweed. There is nothing like beginning your campaign against weeds early in the season.

With regard to your fatting stock, you should now consider whether it be not your interest to begin drawing from your sheep for the butcher, while the present high price of mutton lasts.

Are you intending to break up any Grass lands this spring? Now is the time to commence paring the sward for burning. It will cost from 10s. to 14s per acre. It should be pared at least 1 inch thick, especially if the land be clayey. More on this subject next week.

Notices to Correspondents.

BARLEY SOWING—*Northampton*—It should be sown about an inch under the surface.

DISEASE IN LAND—*G. S. C.*—Next week.

DRAINAGE—*West Suffolk*—You may depend upon it that tiles will answer the purpose infinitely better than turf. If the drains are properly filled in, *i. e.*, firmly filled in above, there is no fear of their silting up.

LUCERNE—*A Natt*—We had not received your letter. Lucerne will not succeed well on land subject to flood; but it will do there as well as any other ordinary farm-crop you can grow. The land should be drained, so as that the water shall flow off as soon as it can. Your sample is not marine glue, which has a strong empyreumatic smell.

MANGOLD WURZEL—*Clericus*—The Orange Globe is what we always grow. The question which you put we have in past years referred to our cattle, and they seemed to prefer that variety. There is often a greater difference between individuals of one breed than there is between different breeds however, the Alderney for rich, and the Ayrshire for abundant milk, are pretty well established sorts.

OATS—*J. H. M.*—It is bad policy to grow Oats on a white stubble. The Hopetoun is as good a variety as you can select.

PIGEON DUNG—*A Constant Reader*—It will not have been hurt if it has not heated much in an exposed place. You are using it very properly.

POULTRY—*J. A.*—Buy a little book called "The Poultry Yard," published in Glasgow, and read the chapter on the Diseases of Poultry.

RATS—*A Constant Reader*—They will be worth about half as much as bonedust, for equal weights. You may rot them as you propose in sandy soil, and make a valuable compost.

SCOURING IN SHEEP—*Yeoman*—Drain the field and lime it; that will probably remove the fault.

SMOKED HAM, &c.—*H. M., Notts*—We do not know. Consult the tariff tables for the duty.

TO REMOVE WARTS—*A Constant Reader*—Cut them off, and mildly sear with a hot iron.

TRANSPLANTED SWEDES—*X. Y.*—They will answer in a moist season, but you cannot depend on them as on a *sown* crop. The practice is "a sort of safeguard against the fly;" but it will not do to depend on it for your main crop.

TURNIPS—*R. Cosens*—"A Turnip in the middle of its growth." Do you mean one pulled, say in August or September, or one pulled in March? for either may be considered in the middle of its growth. Neither of these, however, would be equal in nutritiveness to a full grown Turnip harvested in October, and pitted for early spring keep.

Markets.

SMITHFIELD, MONDAY, Mar. 16.—Per stone of 8 lbs.

Best Scots, Herefords, &c	4s	4d	to	4s	8d	Best Downs & Half breds	4s	4 to 5s 0
Best Short Horns	4	0		4	4	Best Long-wools	4	10 5 2
Second quality Beasts	3	8		3	8	Ewes and second quality	4	4 4 8
Calves	4	8		5	8	Pigs	3	8 5 0

Beasts, 2822. Sheep, 17,700. Calves, 50. Pigs, 300.

Our supply of Beasts to-day is tolerably good, both as to numbers and quality; trade is rather dull, but the best qualities are selling dear.—There are rather more Sheep to-day, and trade is not so brisk. Price scarce somewhat lower, but the supply being still limited, very little reduction is to be observable in the most selling qualities. We have now a considerable quantity of shorn Sheep; also several Lambs, which meet a ready sale.—Good Veal in scarce and dear.—Pork trade is steady.

FRIDAY, Mar. 20.

There is a pretty good show of Beasts to-day; the trade is heavy; still the best Scots, &c., make nearly 4s 6d, and the best Short horns nearly 4s 4d; Inferior qualities are a heavy sale at a reduction of about 4d per 8 lbs.—Sheep are not very plentiful, but enough for the demand, which is very moderate. Best Downs, &c., make about 5s 6d, and best Long-wools rather over 5s; Ewes and 2d rate quality 4s 8d to 4s 10d. The shorn sheep are very much affected by the severity of the weather, they are much chilled, and must be queued fully 4d per 8 lbs. lower than on Monday. For the same cause Lamb is not so much in demand; prices range from 5s 6d to 6s 8d.—Veal and Pork the same as on Monday.

Beasts, 835. Sheep, 2800. Calves, 119. Pigs, 310.

Cl. West Smithfield.

HOPS, FRIDAY, MAR. 20.

The market is about the same as for some time past. The demand, although not extensive, is continual, and prices remain steady. The supply of fine-coloured samples is very limited.

PATTENDEN & SMITH, Hop-Factors.

POTATOES.—ROUTHWARK, WATERSIDE, Mar. 16.

The arrivals since this day se'nnight have been very limited from the northern districts; and those samples of Scotch Reds that arrived on Monday and Tuesday last were very ripe, so as they were sold as from 90s to 100s per ton, after which the arrivals became so large, that lower prices were submitted to, but the whole has been more seasonable, and the demand for Scotch and York Reds has been considerable, at the following quotations:—York Reds, 60s to 140s per ton; ditto Regents, 80s to 110s per ton; ditto shaws for plants, 60s to 100s per ton; Scotch Reds 70s to 85s per ton.

ENGLISH TIMBER AND BARK.—Mar. 17.

Round Timber, per load.				Plank, per foot cube.		Inch board pr. ft. sup.
Oak	5l	0s	to 8l 0s	0s 0d to 0s 0d		4½d to 6d
Ash	4	10	7 15	0 0	0 0	3½ 4
Elm	2	15	3 15	1 6	2 0	2 3½
Beech	2	5	3 15	1 6	2 0	2½ 3
Lime	3	10	4 0	2 0	2 6	3½ 5

Oak Bark (per load of 40 cwt.) 18l. to 19l.

J. S.

COVENT GARDEN, MARCH 21.—In consequence of the sudden change in the weather Vegetables are, generally speaking, a little dearer than they were last week. Fruit is sufficient for the demand, and has altered but little in price since our last account. Trade is tolerably brisk. Pine-apples are good in quality, and, considering the season, tolerably plentiful. Foreign Grapes are sufficient for the demand; and a few hot-house Grapes have also made their appearance. Some fine-looking samples of the Roseberry and Keen's Seedling Strawberries have been offered at 2s. an ounce. The best samples of Dessert Apples bring about 20s. per bushel; but inferior sorts may be obtained from 6s. to 12s. per bushel. Pears remain nearly the same as they were last week. Oranges are still scarce, and rising in price. Nuts are sufficient for the demand. Of Vegetables, Asparagus is good and tolerably plentiful; and the same may be said of French Beans, which are abundantly supplied. Seakale and Rhubarb are excellent in quality. The supply of Broccoli, Savoys, Cabbages, and other winter Greens, is good. Large white Broccoli from Cornwall fetches from 1s. to 3s. per dozen heads. Excellent Celery may be obtained at last week's prices. Potatoes, of the best quality, meet with a brisk sale at 9l. a ton; but in consequence of the abundance of other vegetables, trade for inferior samples is dull, and the prices remain unaltered. Chicory continues to be supplied. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Poinsettia pulcherrima, Jasmines, Lily of the Valley, Pentas carnea, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Rhododendrons, Cinerarias, Gardenias, Moss, and other Roses.

FRUIT.

Pine Apple, per lb., 6s to 10s	Lemons, per dozen, 1s to 2s
Grapes, Hothouse, per lb., 30s	— per 100, 6s to 14s
— Spanish, per lb., 2s to 4s	Almonds, per peck, 6s
— Portugal, p. lb., 1s to 3s	Sweet Almonds, per lb., 2s to 3s
Apples, Dess., per bush., 7s to 20s	Filberts, English, p. 100 lbs., 50s to 60s
— Kitchen, 5s to 10s	Nuts, Cob, per 100 lbs., 30s to 90s
Pears, per bush., 6s to 15s	— Barcelona, 80s
Oranges, per dozen, 1s to 2s 6d	— Brazil, 12s to 16s
— per 100, 4s to 18s	— Spanish, 14s
— Nevilles, per 100, 6s to 16s	Walnuts, per bushel, 14s to 20s
— per dozen, 2s to 3s 6d	Chesnuts, per peck, 2s to 3s

VEGETABLES.

Cabbages, per doz., 6d to 1s	Parsnips, per doz., 3d to 1s
— red, per doz., 4s to 8s	Horseradish, per bundle, 1s to 1s 3d
Savoys, per doz., 6d to 1s 3d	Salsify, do., 1s to 1s 6d
Broccoli, Brown, per bdle., 6d to 1s 3d	Onions, per bushel, 1s 6d to 3s 6d
— White, 9d to 2s 6d	— pickling, per half-sv., 2s to 3s
Greens, per doz. bunches, 1s 6d to 2s 6d	— Spanish, per doz., 1s to 4s
French Beans, per 100, 1s 6d to 2s 6d	Shallots, per lb., 6d to 8d
Sorrel, per half-sieve, 6d to 1s	Garlic, per lb., 6d to 8d
Potatoes, per ton, 70s to 130s	Endive, per score, 6d to 1s 6d
— cwt., 4s to 7s	Lettuce, per score, Cab., 4d to 6d
— bushel, 3s to 4s 6d	— Cos, 6d to 1s
— Kidney, per bushel, 3s to 4s	Radishes, per 12 bunches, 1s to 1s 6d
Turnips, per doz., 1s to 2s	Mushrooms, per pottle, 6d to 1s
Red Beet, per doz., 2d to 1s 6	Small Salads, per punnet, 2d to 3d
Carrots, per doz. bchs., 2s to 3s	Fennel, per bunch, 2d to 3d
Horse Radish, per bundle, 1s 6d to 3s	Savory, per bunch, 4d to 6d
Seakale, per punnet, 6d to 1s 6d	Thyme, per bunch, 6d
Rhubarb, per bundle, 2d to 1s 3d	Watercress, p. 12 sm. bun. 6d to 8d
Asparagus per bundle, 2s to 3s	Parsley, per bunch, 1d to 3d
Cucumbers, each, 2s to 3s	— Roots, per bundle, 1s
Spinach, per sieve, 1s to 1s 6d	Tarragon, per bunch, 6d
Leeks, per doz bunches, 1s to 1s 6d	Mint, green, per bunch, 6d to 8d
Celery, per bunch, 6d to 1s 6d	Marjoram, per bunch, 6d
Cardoons, each, 6d to 9d	Chervil, per punnet, 2d to 3d

HAY.—Per Load of 36 Trusses.

SMITHFIELD, MAR. 19.

Prime Meadow Hay	80s to 92s	New Hay	— to —	New Clr.	— to —
Inferior New & Rowen	60 75	Clover	80 to 105	Straw	30 36

JOHN COOPER, Salesman.

CUMBERLAND MARKET, MAR. 19.

Prime Meadow Hay	90s to 97s	Old Clover	110s to 115s		
Inferior do.	70 94	Inferior do.	92 98	Straw	35s to 36s
New Hay	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, MAR. 20.

Fine Old Hay	80s to 88s	Old Clover	115s to 120s		
Inferior Hay	65 70	Inf. ,,	80 95	Straw	30s to 34s
New Hay	— —	New Clover	— —		

MARK-LANE, MONDAY, MAR. 16.

The supply of English Wheat from Essex, Kent, and Suffolk, this morning, was very small; fine dry samples of White being much in request, commanded an advance of 1s. per qr., but this improvement was not obtainable upon the general runs, with the exception of an occasional buyer for the inferior, and a small parcel or two taken by the Millers, there was nothing doing in Bonded. Best Barley is 1s. higher; other qualities and also Beans remain unaltered in value. White Peas continue difficult of disposal, but Grey and Maple find a ready sale at fully last week's prices. Fine Oats are the turn dearer, but the trade is slow for inferior qualities.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	White	56	60	Red	50 62
—— Norfolk, Lincolnshire, and Yorkshire		50	53	White	59 63
Barley, Malting and distilling 28s to 30s	Chevalier	31	36	Grind.	23 25
Oats, Lincolnshire and Yorkshire	Polands	27	27	Feed	21 25
—— Northumberland and Scotch				Feed	22 25	Potato	28 28
—— Irish				Feed	21 24	Potato	24 27
Malt, pale, ship					54 60		
—— Hertford and Essex					60 63		
Rye					34 36		
Beans, Mazagan, old and new	38 to 40	Tick	30 42	Harrow	38 44
—— Pigeon, Heligoland	38 to 46	Winds	40 46	Longpod	40 38
Peas, White	34 to 36	Maple	36 38	Grey	37 39

FRIDAY, MAR. 20.

The arrivals of Foreign Wheat during the week amount to 25,000 qrs. but the supplies of British Corn of all kinds are moderate. White Wheat is in demand, and Monday's prices are readily realized; Red sells less freely, and there is little doing in Bonded; a few cargoes of 62 lbs. Rostock have found buyers at 46s. to 48s. per qr. f.o.b. Barley of all sorts is fully as dear—also Beans. Maple and Grey Peas scarce, and much in request, with some inquiry for White, but at prices below what holders are inclined to accept. The show of Oats is small, and where sales are effected, an advance of 6d. per qr. is insisted upon.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Feb. 7 per Quarter.	54s 8d	30s 10d	21s 7d	34s 8d	35s 2d	35s 6d
— 14	54 0	30 6	21 3	33 7	34 9	35 7
— 21	55 0	29 11	21 2	33 10	34 9	34 5
— 28	54 6	29 7	21 5	33 4	34 3	35 2
Mar. 7	54 10	29 3	21 10	33 6	34 11	35 4
— 14	54 2	29 4	21 9	34 2	34 2	34 9
6 weeks' Aggreg. Aver.	54 7	29 11	21 8	33 6	34 11	35 0
Duties on Foreign Grain	18 0	9 0	6 0	9 0	6 0	6 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Mar. 14.



SEEDS, Mar. 20.

Canary per qr	44s to 48s	Linseed Cakes, Foreign, p. ton	8l to 8l
Caraway per cwt	48 60	Mustard, White p. bush.	— —
Clover, Red, English	86 100	— Superfine ,,	— —
— Foreign	80 86	— Brown ,,	— —
— White, English	80 94	Rapeseed, English, per last	28l 28l
— — Foreign	68 84	Rape Cakes per ton	— —
Coriander	10 16	Saltpetre	— —
Hempseed per qr.	38 38	Tares, Kng. winter p. bush.	— —
Linseed per qr	42 48	— Foreign	4 6
— Baltic	42 46	Trefoil per cwt	30 30
— Cakes, Eng. per 1000	12l 13l	Turnip (two variable for quotation)	

EDMONDSON AND LAY.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, FLORISTS, and Others. MESSRS. PROTHEROE and MORRIS will submit to public competition, at the Auction Mart, Bartholomew Lane, on Tuesday, March 24, 1846, at 12 o'clock, a first class collection of CARNATIONS, PICOTEES, and AURICULA, comprising all the leading varieties (the property of Mr. WILLMER, Sen., of Sunbury), and on Thursday, March 26, a very rich collection of Carnations and Picotees, with a splendid assortment of Pinks, Heartsease, choice Dahlias in dry roots, &c. May be viewed the morning of sale, and catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

MESSRS. C. B. TAIT AND T. NISBET will sell by Auction, at their Great Room, 11, Hanover-street, on Monday and Tuesday, April 6th and 7th, 1846, at one o'clock, the VALUABLE BOTANICAL LIBRARY AND EXTENSIVE HERBARIUM of the late ROBERT GRAHAM, F.R.S., Regius Professor of Botany in the University of Edinburgh, including among the Books, Flora Fluminensis, 9 vols. folio; Hooker and Greville's Icones Filicum, 2 vols. folio; Greville's Cryptogamic Flora, 3 vols.; Curtis's Botanical Magazine, and Edwards' Botanical Register, by Lindley, complete; Roscoe's Monandrian Plants, Decandolle; Astrologia; De Lessert; Icones Selectæ Plantarum, 2 vols.; Labillardiere; Nova Hollandiæ Plantarum, specimen, 2 vols. folio Bennett; Plantæ Javanicæ Rariores; Smith's English Botany, 31 vols.; Roxburgh's Flora Indica, 3 vols.; Decandolle's Prodromus Regni Vegetabilis, 11 vols.; Transactions of the Linnean Society, &c.

The HERBARIUM consists of an extentive general Collection of European, African, South and North American, East and West Indian and Australian Plants. Orders from gentlemen who cannot attend the sale, addressed to Messrs. C. B. TAIT and T. NISBET, will meet with the strict attention; from whom also Catalogues of the Sale can be had on application.

TO BE LET, EDMONTON NURSERY.—In consequence of the Proprietor being about to retire from the Nursery business, this desirable Nursery is to be let, with immediate occupation. The whole may be taken at a valuation, or by private contract, and accommodation will be given in the terms of payment, if desired.—Apply personally, or by letter, to Mr. HENCHMAN, at the Nursery, Edmonton, or to Mr. HUGH LOW, Clapton Nursery.—March 21.

TO BE DISPOSED OF, A SEED BUSINESS, principally Garden, old-established, with a wide light country connexion; a good House, Stable, Coach-house, &c. Low rented, coming in easy. Age and declining health is the reason for advertising the above. Direct to Mr DAVIES, Seedsman, 8, Great Dover street, Borough, London.

TO GARDENERS, NURSERYMEN, BUILDERS, &c. FOR SALE, in the Field east of Kingston House, Knightsbridge, several thousand loads of EXCELLENT BLACK MOULD, YELLOW LOAM, and SAND; also a quantity of Beautiful Turf. Apply to Mr SEARCY, at the Kingston House Estate Office, adjoining Rutland Gate.

A COLLECTION OF VEGETABLE GARDEN SEEDS, consisting of all the newest and most approved sorts for 1l. 1s. as follows—4 qts. Peas, 2 qts. Windsor Beans, 2 qts. Kidney Beans, 1 oz. Beet, 1 oz. Scotch Kale, 4 oz. Broccoli, 1 oz. Brussels Sprouts, 2 oz. Cabbage, 2 oz. Carrot, 1 oz. Cauliflower, 2 oz. Celery, 1 qt of Cress, 1 packet of Frame Cucumber, 1 oz. Endive, 2 oz. of Lettuce, 1 packet of Melon, 1 qt. Mustard, 4 oz. Onion, 1 oz. Parsley, 1 oz Parsnip, 1 pt. Radish, 1 oz. Savoy, 1 pt. Spinach, 2 oz Turnip, of sorts.

A collection of the best Annual Flower-seeds, containing 65 varieties, for	10s. 6d.
A collection do. do. do. 30 varieties, for	5 0
A collection of 36 vars. of splendid German Stocks	5 0
A collection of 24 vars. of splendid German Asters	3 6

Per packet.		Per packet.	
Mixed German Larkspur	6d.	Cockscomb, from prize flowers	6d.
,, ,, Balsams	6	Geranium, do do.	6
,, ,, Stock	6	Mesembryanthemum Tricolor	6
,, ,, Asters	6	Schizopetalon Walkeri	6

All other sorts of Genuine Seeds as cheap as any house in the trade. Seed Potatoes, warranted free from disease. True Ash-leaf Kidneys 7s. per bushel. Catalogues forwarded on application.

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CUCUMBER AND MELON BOXES AND LIGHTS.—One Hundred 1, 2, and 3-light Boxes and Lights of all sizes ready for immediate use. Warranted best materials, packed and sent to all parts of the kingdom; 2-light Boxes and Lights from 1l. 6s. Garden Lights of every description. Conservatories, Green and Hot-houses made and fixed to all parts of the Kingdom. Reference given to the Nobility, Gentry, and the Trade, in most of the counties in England.

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SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO. (by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND." Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

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HORTICULTURAL GLASS OF BRITISH MANUFACTURE, at J. WELCH, jun., PHILLIPS, and Co.'s Warehouse, 12, Panton-street, Haymarket.—Having made arrangements with a British Manufacturer, they are enabled to offer the above article in unlimited quantities at the following terms, in Squares not exceeding 40 inches long:—

No. 0—(equal to Foreign Sheet)	.. ..	4½d. per foot.
1—averaging from 16 to 18 oz. to the foot		5½d. ,,
2 ,,	21 to 23 ,,	7d. ,,
3 ,,	28 ,,	10. ,,

J. WELCH, jun., having been many years with Mr. Drake, of 9, Jermyn-street, and 315, Oxford-street, and at the time of the glazing of Chatsworth Conservatory, has devoted himself to the Horticultural Glazing Department, begs to call the attention of Horticulturists generally to the above prices for Glass, which they undertake to glaze in any part of the United Kingdom.

They also beg to recommend for Pits and Garden Lights small size squares, which they offer at the following low prices, packed in 100 feet boxes, not particular to thickness.:—

Under 5 in. by 3	..	1½d. per foot.
5 in. by 3 and ,,	6 in. by 4 ..	2d. ,,
6 in. by 4 and ,,	9 in. by 7 ..	3d. ,,

J. W. & Co. solicit inspection of their stock of Stained and Ornamental Glass at their Warehouse, as above.—12, Panton-street, Haymarket.

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C. JARVIS having just imported a large quantity of the above articles, in quality and substance hitherto unequalled, can offer them at a lower price than any other house in the trade, for ready money only, at his old established WINDOW GLASS WAREHOUSE, 38, Grant Castle-street, a few doors from Regent-street, where orders, forwarded with reference, meet with prompt attention. Every other description of WINDOW GLASS equally low in price.

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per gross.	per gross.	per gross.
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7 in. by 4½ .. 9s.	8 by 6 .. 14s.	10 by 8 .. 26s.

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FOREIGN SHEET GLASS.

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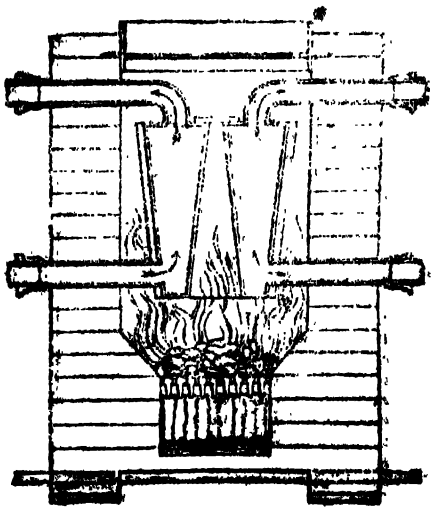
Propagating Glasses for plants, 6½ inches by 3½, 6d. each.

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Averruncators	Garden Scrapers	Pruning Bills
Axes	Grape Gatherers and Scissors	,, Knives, various
Bagging Hooks	Gravel Rakes and Sieves	,, Saws
Bills	Greenhouse Doors and Frames	,, Scissors
Borders, various patterns	Hammers	,, Shears
Botanical boxes	Hand-glass Frames	Rakes in great variety
Cases of Pruning Instruments	Hay Knives	Reaping Hooks
Chaff Engines	Hoes of every pattern	Scythe Stones
Chaff Knives	Horticultural Hammers and Hatchets	Shears, various
Daisy Rakes	Hotbed Handles	Sickles
Dibbles	Labels, various patterns, in zinc, porcelain, &c.	Sickle Saws
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Flower Scissors	Mattocks	Thistle Hooks
,, Stands in Wire and Iron	Mensographs	Transplanting Tools
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Galvanic Borders and Plant Protectors	Milton Hatchets	Turfing Irons
Garden Chairs and Seats	Mole Traps	Wall Nails
,, Loops	Mowing Machines	Watering Pots
,, Rollers	Pick Axes	Weed Extractors and Hooks
	Potatoe Forks	Wheel Barrows
		Youths' Sets of Tools

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BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Vines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—190, Fleet-street, London.

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Illustrated upon the Natural System.

BY JOHN LINDLEY, Ph.D., F.R.S.,

PROFESSOR OF BOTANY IN UNIVERSITY COLLEGE, LONDON, AND THE ROYAL INSTITUTION OF GREAT BRITAIN.

*** To suit the convenience of Students and others, it is proposed to issue the above Work also in 12 Monthly Parts, price 2s. 6d. each, the first of which will appear on the 31st instant.

[SPECIMEN OF THE WORK.]

The roots of some are emetic. According to Deslongchamps, the powdered root of E. Gerardiana vomits easily in doses of 18 or 20 grains. The root of Euphorbia Ipecacuanha is said, by Barton, to be equal to the true Ipecacuanha, in some respects superior; and not unpleasant either in taste or smell. E. Pithyusa in the Mediterranean is also esteemed. Euphorbia thymifolia is somewhat aromatic and astringent, and is prescribed in India in the diarrhœa of children, and as a vermifuge. In the same way is employed E. hypericifolia, a plant of tropical America, which is astringent and somewhat narcotic. Nevertheless E. balsamifera has no such qualities, and is eaten when cooked. E. mauritanica is also employed as a condiment, but its acridity is by no means inconsiderable; they say it is used to adulterate Scammony. The sap of E. phosphorea shines with a phosphorescent light in a warm night in the ancient forests of Brazil.

The genus Pedilanthus stands nearest to Euphorbia, and is not less potent in its quality; P. tithymaloides has an acrid bitter milk; a decoction of the dried shrub of it and P. padifolius (called Jewbush) is employed in syphilitic cases, and in amenorrhœa; the root is emetic. Some of the trees again are among the most poisonous of all that tropical countries produce. The juice of Excœcaria Agallocha, and even its smoke when burnt, affects the eyes with intolerable pain, as has been experienced occasionally by sailors sent ashore to cut fuel, who, according to Rumphius, having accidentally rubbed their eyes with the juice, became blinded, and ran about like distracted men, and some of them finally lost their sight. This juice is described as being thick, nauseous, and a violent purgative. The smoke of the burning branches is said to injure the eyesight. Agallochum or Aloes wood, an inflammable, fragrant, resinous substance, has been supposed to belong to this plant, but is really produced by quite a different race. *See* Aquilariaceæ. The famous Manchineel tree, Hippomane Mancinella, is said to be so poisonous that persons have died from merely sleeping beneath its shade. This is doubted, indeed, by Jacquin, who, however, admits its extremely venomous qualities; but it is by no means improbable that the story has some foundation in truth, particularly if, as Ad. de Jussieu truly remarks, the volatile nature of the poisonous principle of these plants is considered, and the various degrees of susceptibility of such influences in the human constitution. The juice of Manchineel is pure white, and a single drop of it falling on the skin burns like fire, forming an ulcer often difficult to heal. The fruit, which is beautiful, and looks like an apple, is turgid with a similar fluid, but in a milder form; the burning it causes in the lips of those who bite it guards the careless from the danger of eating it. The juice of Hura crepitans is stated to be of the same fatal nature as that of Excœcaria; its seeds are said to have been administered to negro slaves as purgatives, in number not exceeding 1 or 2, with fatal consequences. The juice of Sapium aucuparium is reputed poisonous. A case is mentioned by Tussac of a gardener whose nostrils became swollen and seized with erysipelatous phlegmasis, in consequence of the fumes only of this plant. The sap of Commia cochinchinensis is white, tenacious, emetic, purgative, and deobstruent. Cautiously administered, it is said to be a good medicine in obstinate dropsy and obstructions.



Fig. CXCIV.

The juice of this Order is not, however, always as dangerous as in the instances just given. That of Siphonia elastica, a tree inhabiting Guayana and Brazil, yields the bottle India Rubber, which is known in Europe; in preparing it the natives smear clay moulds with repeated layers of the juice, at the same time drying it in smoke. Aleurites triloba, whose seeds will be mentioned presently, exudes a gummy substance which the natives of Tahiti chew; A. laccifera furnishes gum lac in Ceylon; and the secretions of certain Crotons, viz. Draco and sanguiferum, become a similar red substance in the tropical parts of America.

Among the crowd of emetic and purgative plants having more or less reputation

Fig. CXCIV.—Fruit of Hura crepitans.

Order CLVII. DROSERACEÆ. Sundews.

Droseraceæ, *DC. Théorie*, 214. (1819); *Prodr.* 1. 317. (1824); *Endl. Gen.* clxxxix.; *Meisner*, *p.* 22.

Diagnosis.—*Berberal Exogens, with regular symmetrical flowers, parietal placentæ, and stamens alternate with the petals, or twice as many.*

Delicate herbaceous plants, often covered with glands. Leaves alternate, with stipulary fringes and a circinate vernation. Peduncles, when young, circinate. Sepals 5, persistent, equal, with an imbricated æstivation. Petals 5, hypogynous, imbricated. Stamens distinct, withering, either equal in number to the petals and alternate with them, or 2, 3, or 4 times as many. Ovary single; styles 3-5, either wholly distinct, or slightly connected at the base, bifid or branched. Ovules 00, parietal, or attached to a placenta at the base, anatropal. Capsule of 3 or 5 valves, which bear the placentæ either in the middle or at their base, and sometimes turn in their edges so as to form almost perfect dissepiments. Seeds either naked or furnished with an aril. Embryo minute, in the base of fleshy albumen.

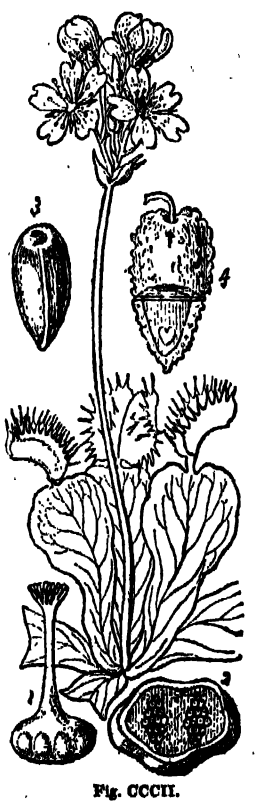


Fig. CCCII.

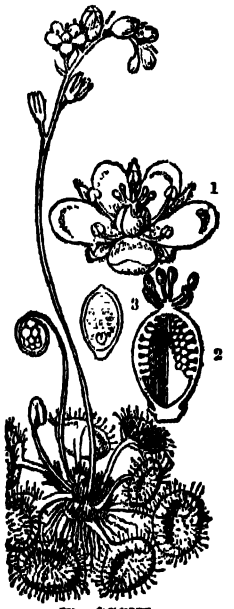


Fig. CCCIII.

These plants are generally supposed to be nearly allied to Violetworts, from which their circinate vernation, several styles, and exstipulate leaves, distinguish them. They are also no doubt related to Tutsans, among which Parnassia accords with Sundews. Rock-roses (Cistaceæ) are also named as approaching Sundews, and so are Turneras, the parietal placentation of these Orders having led to the comparison. But if we regard the minute embryo and copious albumen of Sundews as the first point of importance in their structure, then they must be removed from immediate relation to all the Orders already mentioned, and will fall into either the Berberal or Erical Alliance. They will correspond with the former in the number of parts in their ovary not agreeing with that of the surrounding parts, and with Fumeworts in their parietal placentation; on the other hand they will claim affinity with Ericals in their general appearance. Aldrovanda, a water plant, inhabiting the ditches in the South of Europe, is remarkable for its whorled, cellular, shell-like leaves.

At the Cape of Good Hope, in South America, North America, New Holland, China, Europe, Madagascar, the East Indies, wherever there are marshes or morasses, these plants are found. Drosophyllum lusitanicum grows on the barren sands of Portugal.

The common Droseras are rather acid, slightly acrid, and according to some, poisonous to cattle. The Drosera communis of Brazil is said by A. de St. Hilaire to be poisonous to sheep. Drosera hunata has viscid leaves with glandular fringes, which close upon

Fig. CCCII.—Dionæa muscipula. 1. its pistil; 2. a sectional view of it showing the placentæ; 3. a seed; 4. the same without its crustaceous skin, and opened so as to show the embryo.
Fig. CCCIII.—Drosera longifolia. 1. a flower; 2. a perpendicular section of the ovary; 3. a perpendicular section of a seed

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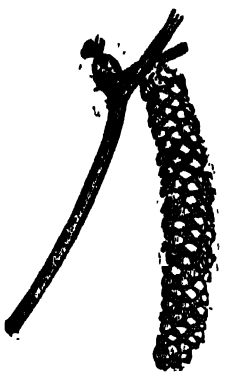
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BY JOHN LINDLEY, Ph.D., F.R.S.,

PROFESSOR OF BOTANY IN UNIVERSITY COLLEGE, LONDON.

[SPECIMEN OF THE WORK.]

ORDER XL. PRIMULACEÆ—PRIMWORTS.

Essential Character.—*Calyx* divided, inferior, regular, persistent. *Corolla* monopetalous, hypogynous, regular; the *limb* 5-cleft, seldom 4-cleft. *Stamens* inserted upon the corolla, equal in number to its segments, and opposite them. *Ovary* 1-celled; *style* 1; *stigma* capitate.

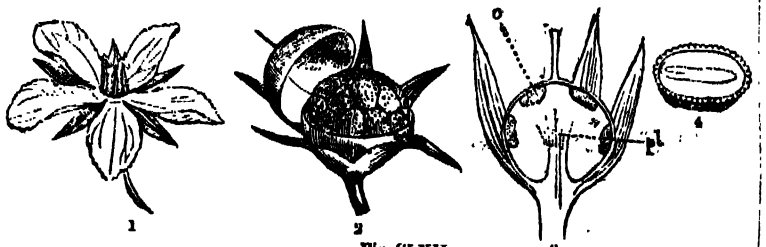


Fig. CLXII.

Capsule opening with valves; *placenta* central, distinct. *Seeds* numerous. —*Herbaceous* plants. *Leaves* usually opposite, either whorled or scattered.

*** No other monopetalous European plants with one style have the stamens opposite the lobes of the corolla, unless they are more numerous than the lobes.



Fig. CLXIII.

LYSIMACHIA.

Calyx 5-parted. Corolla rotate, 5-cleft. Stamens 5. Capsule globose, with 5 or 10 valves.

1. L. *vulgaris*. Clusters panicled, terminal. Leaves ovate-lanceolate, acute.——*Woods.*

2. L. *nemorum*. Leaves ovate, acute. Flowers solitary. Stem procumbent. Stamens smooth.——*Woods.*

3. L. *Nummularia* (*Moneywort*). Leaves somewhat heart-shaped. Flowers solitary. Stem prostrate, creeping. Stamens glandular.——*Woods.*

ANAGALLIS.

Calyx 5-parted. Corolla rotate, 5-lobed. Capsule globose, dehiscing by a transverse incision.

1. A. *arvensis* (*Pimpernel*). Leaves ovate, dotted beneath. Stem procumbent. Corolla minutely notched.——*Fields.* This is also called the Shepherd's Weather-glass, because it closes its scarlet blossoms on the approach of rain.

PRIMULA.

Calyx 5-toothed. Corolla hypocrateriform; the limb 5-lobed, usually emarginate; the orifice dilated; the tube taper, as long as the calyx or longer. *Anthers* usually tapering to the point. *Capsule* ovate, dehiscing at the apex, with 5 or 10 teeth. Seeds minute, very numerous.

Fig. CLXII.—Anagallis arvensis. 1. A flower; 2. a ripe fruit, with the lid falling off; 3. a section of the same, to show *pl.* the placenta; 4. a section of the seed.
Fig. CLXIII.—Anagallis arvensis.

3. S. *Russelliana* (*Bedford Willow*). Leaves lanceolate, tapering at each end, serrated throughout, very smooth. Foot-stalks sometimes glandular. Ovary tapering, stalked, longer than the scales. Style as long as the stigmas.——*Woods.* A tree.

4. S. *purpurea*. Branches trailing, decumbent. Leaves partly opposite, obovate-lanceolate, serrated, very smooth; narrow at the base. Stamen 1. Stigmas very short, ovate, nearly sessile.——*Woods.* A small shrub.

5. S. *viellina*. Leaves lanceolate, acute, with cartilaginous serratures; smooth above, glaucous and somewhat silky beneath. Stipules minute, lanceolate, deciduous, smooth. Ovary sessile, ovate-lanceolate, smooth. Scales linear-lanceolate, acute, fringed at the base, longer than the pistil.——*Osier grounds.* A tree with yellow branches.

6. S. *alba*. Leaves elliptic-lanceolate, narrow, serrated, silky on both sides; the lowest serratures glandular. Stamens hairy. Ovary smooth, almost sessile. Stigmas deeply cleven. Scales rounded.——*Woods.* A large tree.



Fig. CCV.



Fig. CCVI.

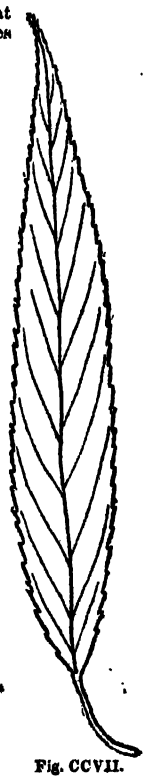


Fig. CCVII.

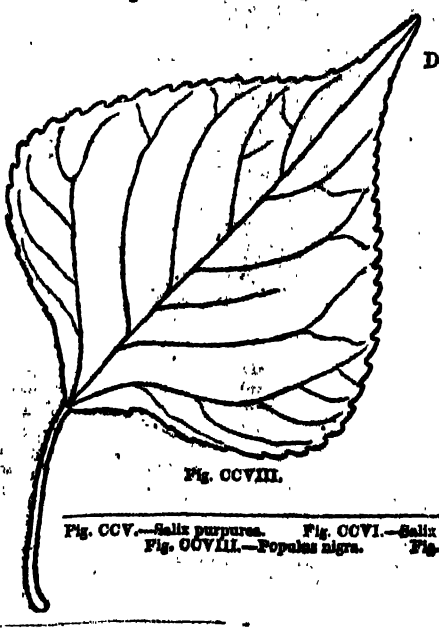


Fig. CCVIII.

POPULUS.

Dioecious. Catkins cylindrical with lacerated bracts.—*Male.* Stamens from 8 to 30, arising out of a little oblique cup.—*Female.* Fruit a follicle, almost 2-celled by the rolling inwards of the margin of its two valves. Seeds comose.



Fig. CCIX.

Fig. CCV.—Salix purpurea. Fig. CCVI.—Salix alba. Fig. CCVII.—Salix Russelliana.
Fig. CCVIII.—Populus nigra. Fig. CCIX.—Populus alba.

LONDON: PRINTED AND PUBLISHED FOR THE AUTHOR BY BRADBURY AND EVANS, WHITEFRIARS.

EXHIBITIONS AT THE GARDEN

OF THE

HORTICULTURAL SOCIETY OF LONDON,

FOR THE YEAR 1846.

THE EXHIBITIONS WILL TAKE PLACE ON THE FOLLOWING SATURDAYS, VIZ.:—

MAY 9, JUNE 13, and JULY 11.

MEDALS AND REWARDS.—The Society distributes the following Medals and Rewards; namely—

C. The Certificate	value—£0 10 0	S G. Large Silver Gilt Medal	value—£4 0 0
SB. Silver Banksian Medal	1 0 0	G B. Gold Banksian Medal	7 0 0
S K. Silver Knightian Do.	1 5 0	GK. Gold Knightian Medal	10 0 0
LS. Large Silver Medal	1 15 0	L G. Large Gold Ditto	20 0 0

All Persons, whether Fellows of the Society or not, will be at liberty to send subjects for Exhibition.

Exhibitors are earnestly requested to notify in writing, previous to the day of meeting, what plants they intend to supply, in order that due provision may be made for the proper distribution of the specimens on the exhibition tables. As it is necessary that the Judges should proceed to consider the respective merits of the exhibitions by 10 A. M., and, as it is absolutely indispensable that the tables should be arranged by that time, it has been determined that *no subject for exhibition shall be admitted into the Garden after half-past Eight o'clock in the Morning*, and if the owners of any locked up boxes, or other cases, should not be in the Exhibition Tent at the said hour, such cases or boxes must be excluded from competition for Medals. All specimens, whether of fruit or flowers, will remain untouched until after Six o'Clock, when they will be delivered into the hands of the Exhibitors.

Bona fide Exhibitors, or persons really required to assist in bringing in the objects for exhibition, or Gentlemen's Gardeners bearing a note from some Fellow of the Society, will be admitted before half-past Eight in the morning at the Carters' Yard Entrance Gate; all other persons are absolutely excluded. AT TEN O'CLOCK THE GARDEN WILL BE CLEARED OF ALL PERSONS not officially detained there. Exhibitors having passes may re-enter the the Garden after One o'Clock, when they will be required to give them up to the Police at the Carters' Yard Gate.

Exhibitors of cut Flowers must SUPPLY THEIR OWN BOXES OR STANDS. No box or stand should exceed eight inches in height at the back, or eighteen inches in depth from front to back. The lids of all boxes MUST either be loose or made to unhinge.

If any Exhibitor shall obtain the award of a Medal, and it shall be afterwards ascertained that he has gained it by exhibiting plants not *bona fide* his own property, or that of his master, such award shall be cancelled, in favour of the Exhibitor next below him, whose medal shall in like manner be transferred to the person immediately following him in the award, and so on.

SUBJECTS OF EXHIBITION will be divided into Classes as explained further on. No articles not of Horticultural produce will be allowed to be placed upon the tables. Exhibitors will do well to make themselves acquainted with the arrangements described in the following List, as they will IN ALL CASES BE REQUIRED TO SIGN A PRINTED FORM OF DECLARATION TO BE FURNISHED TO THEM IN THE GARDEN, stating under what letter their plants are to be shown; and they are particularly requested to TAKE NOTICE, that if errors in the awards of the Judges should occur, in consequence of mistakes on the part of Exhibitors in filling up such declarations, the Society cannot undertake to rectify the errors afterwards.

Names fairly written are to be attached by Exhibitors to all Florists' Flowers; and the Judges are restrained from awarding any Medal to such Exhibitions, whatever their merit may be, if this regulation is not complied with. By Florists' Flowers are meant not only flowers usually so named, but also Fuchsias, Pelargoniums, Roses, and Calceolarias. It is also hoped that all other subjects of Exhibition will be neatly and legibly labelled with their names.

Every Exhibitor will be required to deliver, upon first entering the Garden, a fairly-written statement of the Letter in the following Classes under which he intends to exhibit; he will not be permitted to pass beyond the Carters' Yard till this is done; and no alteration in the entries will be afterwards permitted upon any pretence whatever.

Class I.—FLOWERS; for which Nurserymen and Private growers exhibit independently of each other.

A Pelargoniums; in collections of 12 new and first-rate varieties, cultivated with superior skill, in 8-inch pots. GB—SG—LS

B Pelargoniums; in collections of 12 varieties, in 8-inch pots. GB—SG—LS

C Pelargoniums; in collections of six varieties, in 12-inch pots. LS—SK—SB

D Roses, in pots; Amateurs to show in collections of 12, Nurserymen in collections of 18, distinct varieties. GB—SG—LS

NB. The Judges are required to disqualify any collection which shall be found to contain a plant which has been recently placed in the pot from the open ground.

E Roses, in pots; single specimens displaying superior cultivation. SK—SB—C

F Moss Roses in loose bunches, each consisting of three trusses as they are gathered, so as to exhibit, as far as possible, the habit of the variety; in 12 varieties. SK—SB—C

G Other Roses, exhibited as in the last letter, and in 50 varieties. LS—SK—SB

NB. No one who exhibits in this letter can also compete in the following.

H Other Roses, exhibited as in the letter F, and in 25 varieties. SK—SB—C

NB. Higher Medals than those here offered for Roses cannot be given by the Judges; and if Roses are brought for exhibition without attention to the regulations here explained, they will not be allowed to compete.

I Cape Heaths; in collections of 20 entirely distinct varieties. GK—GB—SG

NB. It is expected that the same plant shall not be exhibited on more than one occasion.

K Cape Heaths; in collections of 12 entirely distinct varieties. GB—SG—LS

L Cape Heaths; in collections of six entirely distinct varieties. SG—LS—SK

NB. No person will be allowed to show in more than one of the classes *I*, *K*, and *L*.

M Cape Heaths; single specimens displaying very superior cultivation. LS—SK—SB

N Calceolarias, in sizes; in 8-inch pots. LS—SK—SB

O Carnations, in pans of 24 distinct varieties. LS—SK—SB

P Picotees, in pans of 24 distinct varieties. LS—SK—SB

Q Pinks; in pans of 24 distinct varieties. SK—SB

R Ranunculuses, excluding Turbans; in stands of 12 distinct varieties for private growers, and 24 for Nurserymen. LS—SK—SB

Class II.—FLOWERS; for which all persons are admitted to equal competition.

S Stove or Greenhouse plants; in collections of 40 plants. LG—GK—GB

NB. Calceolarias, Fuchsias, Orchidaceæ, and Pelargoniums to be excluded from *S*, *T*, *V*, and *W*.

T Stove or Greenhouse plants; in collections of 20 plants. GK—GB—SG

NB. Exhibitors cannot show in more than one of the classes *S*, *T*, *V*, and *W*.

V Stove or Greenhouse plants; in collections of 12 plants. GB—SG—LS

W Stove or Greenhouse plants; in collections of six distinct species. SG—LS—SK

X Greenhouse Azaleas; in 12 distinct varieties. GB—SG—LS

Y Greenhouse Azaleas; in six distinct varieties. SG—LS—SK

NB. No one can show in both classes of Azaleas.

Z Collections of New Hardy Evergreens in pots; LS—SK—SB

AA Exotic Orchids; in collections of not fewer than 20 species. LG—GK—GB

NB. Exhibitors cannot show in more than one of the classes *AA*, *BB*, *CC*.

BB Exotic Orchids; in collections of 12 species. GK—GB—SG

CC Exotic Orchids; in collections of six species. GB—SG—LS

DD Scarlet Pelargoniums; in six distinct varieties, in pots not less than 11 inches in diameter. LS—SK—SB

EE Pelargoniums; in six DISTINCT SPECIES. SG—LS—SK

NB. By the word species is meant the wild kinds imported from the Cape of Good Hope, or New Holland, tuberous species inclusive, and not garden cross-breds.

FF Achimenes; in collections of six species, grown in pans not less than a foot in diameter. LS—SK—SB

GG Distinct varieties of Tall Cacti in flower. GB—SG—LS

NB. The GB and SG Medals are not to be given if fewer than six varieties are exhibited.

HH Fuchsias; single specimens. SK—SB—C

NB. No person can receive more than one prize under this head.

II Hardy Orchids in pots, in collections; exclusive of Cypripediums. SK—SB—C

KK Hardy Cypripediums. SK—SB—C

LL Hybrid Alstræmerias; cut specimens. LS—SK—SB

MM Statices; in collections of six species. SG—LS—SK

NN New or extremely rare ornamental plants. SG—LS—SK

NB. These Medals will be awarded by the Society's Officers, and not by the usual Judges. Exhibitors will particularly observe that none but new or rare plants can be exhibited under this letter. *Nothing will be regarded as new which has been exhibited in the Garden in a previous season.*

OO Single specimens of very superior cultivation. SG—LS—SK

PP Miscellaneous subjects. SK—SB—C

NB. Exhibitors under *PP*, will not be thereby *entitled* to a pass ticket. Cockscombs, Hearts-ease, Hydrangeas, and bouquets, are altogether excluded from exhibition.

RR Seedling Florists' flowers. SK—SB—C.

NB. Every seedling must be shown singly, and marked with the name it is to bear. The same seedling cannot gain a prize more than once in the season. Pelargoniums are to be shown in pots, and not in a cut state. No person will be allowed to exhibit more than 6 seedlings at each meeting. Exhibitors under this head will not be thereby *entitled* to a pass ticket. For seedling Pelargoniums exhibited the first year no higher prize shall be given than a certificate, and this is to be awarded to flowers of decided merit. Seedling Pelargoniums of the second year must be shown in pots not smaller than 6-inch pots, and each exhibitor may produce 6 of them, but not a larger number.

IN ADDITION to any Medals assigned to the classes, *I*, *S*, *T*, and *AA*, the SK, SB and C are offered for the collections in those classes which shall be best named by the Exhibitor.

N.B. The Society's Officers, who will make this award, will be guided in their judgment by a consideration not only of the correctness of the names, but of the accuracy of the spelling, and the neatness of the writing.

Class III.—FRUIT; for which Market Gardeners, Fruiterers, or Persons in the habit of regularly supplying the Market, and Private Growers, exhibit independently of each other.

N.B. All Fruit must be FULLY ripe and WELL COLOURED, and PROPERLY NAMED by the Exhibitor as far as practicable; if the contrary, it will be disqualified.

SS Miscellaneous collections of fruit, consisting of at least three different kinds, Peaches and Nectarines being considered as only one kind. GK—GB—LS

NB. Cucumbers, Tomatoes, Gourds, and similar Kitchen Garden produce, are excluded from this letter. Exhibitors of collections of Fruit should bear in mind that however fine one or two of the kinds in this collection may be, they cannot gain a prize unless they furnish at *least* three different kinds of fruit of *first rate quality*.

TT Grapes. SG—LS—SK—SB

VV Pine Apples. SG—LS—SK—SB

WW Peaches or Nectarines, in dishes of six specimens. SK—SB

XX Other kinds of fruit. SK—SB—C

The Garden will be opened, on each day, to Fellows and to Visitors, at ONE o'clock, under the following Regulations:—

All Fellows of the Society will be admitted without tickets, from One till Six o'clock, on signing their names in a book at the entrance.

Visitors can be admitted only by tickets, to be obtained by the personal or written orders of Fellows of the Society. Upon this subject the Council would observe, that the interests of the Society require Orders for Tickets to be filled up with the NAME and ADDRESS of the parties to whom they are given. The Council also express a hope that the Fellows of the Society will not give orders for tickets to persons with whom they are unacquainted. NB. *The presentation of the visiting card of a Fellow of the Society cannot be regarded as an authority to receive tickets.*

All Fellows who shall apply on or before Tuesday, the 21st of April, may obtain, at the rate of Three Shillings and Sixpence each, any number of tickets not exceeding TWENTY-FOUR; but no applications for such tickets will be received after that day. *Fellows of the Society subscribing for tickets at this price will be allowed a clear fortnight from the 21st of April, during which they may claim them.* AFTER THAT PERIOD ALL THE 3*s.* 6*d.* TICKETS SUBSCRIBED FOR, BUT NOT ISSUED, WILL BE CANCELLED.

After the 21st of April any further number of tickets will be delivered to Fellows on their personal application or written order, at the price of *Five Shillings* each ticket.

Each ticket will be available for the admission of one Visitor, after One o'clock, to either of the Three Exhibitions, at the option of the Visitor.

All applications for tickets must be made at the Society's Office, 21, Regent Street.

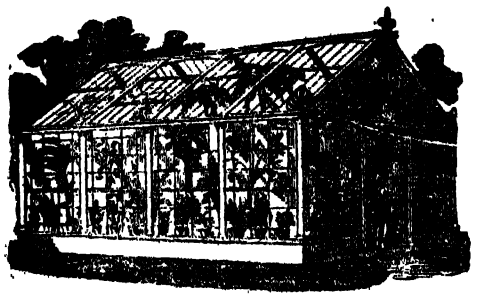
NO TICKETS WILL BE ISSUED IN REGENT STREET ON THE DAYS OF EXHIBITION; but, on those days, Two Offices, near the Garden Gates, will be opened at noon for the issue of tickets at 7*s.* 6*d.* each; but strictly under the regulations above stated.

*** Further particulars can be had upon application at 21, Regent Street.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN BREWER, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth; Mr. Henderson's Pine-apple-place; and in the Horticultural Society's Garden.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.
BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

SMITH AND CO.



ESTABLISHED NINE YEARS.
HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, AND GENERAL GARDEN FURNITURE MANUFACTURERS;
GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA, LONDON.
FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and, Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HEATING BY WARM WATER.—An improved method of HEATING, by the CIRCULATION OF HOT WATER, may be seen in operation daily, at J. L. BENHAM & SON'S Stove Grate Manufactory, 19, Wigmore-street, Cavendish-square. Estimates given for warming Churches, and other Public or Private Buildings, in town or country. A great variety of Warm Air Stoves of every description, from 15s. to 20l.—19, Wigmore-street, Cavendish-square.

GUANO, PERUVIAN AND AFRICAN, warranted Genuine to Analysis: also Gypsum, and all other Manures of known value, on sale by MARK FOTHERGILL, 40, Upper Thames-street.

BRITISH GUANO, equal in quality to Peruvian, at 9l. per ton. Pamphlets gratis on 6 Stamps being forwarded, being amount charged for postage. Agent for DINGLE'S HAND SEED DIBBLE.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS,
ANTHONY GIBBS AND SONS, LONDON;
WM. J. MYERS AND CO., LIVERPOOL;
And by their Agents,
COTSWORTH, POWELL, AND PRYOR, LONDON;
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
7, Lime-street, Mar. 21.

TO FARMERS AND OTHERS.
LAND WOOLLENS FOR MANURE ON SALE, at 65s. per ton, cash.—JAMES CRAIG, Rag merchant, 36, Fleet-lane, Old Bailey, London.

POTTER'S GUANO FOR TURNIPS.
Result of an Experiment tried by Professor DAUBENY, communicated to the Royal Agricultural Society, and published in their "Journal," Vol. vi. Part 2.

PRODUCE PER ACRE.

No.		Weight of Bulbs.
		lbs.
1	Unmanured	14,208
2	Bone Shavings, 10 cwt.	19,239
3	Manure Company's Guano, 260 lbs.	26,058
4	Nitrate of Soda, 1½ cwt.	28,459
5	Phosphorite, 12 cwt.	28,630
6	Ditto, with Oil of Vitriol	30,869
7	*Peruvian Guano*, 260 lbs.	31,114
8	Bones, with Vitriolic Acid, 11 cwt.	31,898
9	Graham's Animal Compost, 260 lbs.	32,109
10	Sulphate Ammonia, 1 cwt.	32,670
11	Bones, finely powdered, 12 cwt.	36,185
12	POTTER'S GUANO, 260 lbs.	37,201

Oxford, Dec. 8, 1845.

NOTE.—It thus appears, that by the application of POTTER'S GUANO, the productive power of the land was nearly trebled; and when tried against *eleven* other artificial manures, it *beat them all*, producing a greater weight of BULBS, at a much less cost.

Its superiority over the Peruvian is evident in this trial, the latter applied at a cost of 25s. giving 31,114 lbs.; while POTTER'S, costing 21s. gave 37,201 lbs.

A similar result on GRASS was obtained by LORD ZETLAND in 1842. See his Testimonial.

☞ Wanted, a few active intelligent AGENTS.

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FOR TURNIP SOWING, &c.
BONE MANURE mixed with SULPHURIC ACID by far exceeds all other Manures that have been tried against it, and may be had in any quantity, either together or separate, by applying to JOHN HUNT, Bone and Sulphuric Acid Works, High-street, Lambeth.

BRITISH GUANO, warranted equal to Foreign, at 4l. per ton, and may be paid for when the result is known.

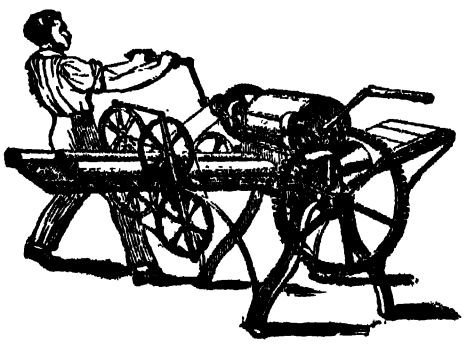
THE URATE OF THE LONDON MANURE COMPANY, FOR TARES, TURNIPS, WHEAT, &c., at Four Guineas per Ton.—The above Manure having stood the test of many years' experience, is recommended with the greatest confidence; being uniform in its manufacture, it may be relied upon at all times, thereby preventing those great disappointments which frequently occur from the difficulty of obtaining Guano and other Manures in a pure state. It will be found most useful for Wheat on all soils, where it is requisite to procure a full plant early in the autumn. Full particulars and testimonials forwarded on application. The Company also supply genuine Peruvian and African Guano, Sulphuric Acid, Gypsum, and every artificial Manure, at the lowest market price, and warranted of the best quality.
40, New Bridge-st., Blackfriars. E. PURSER, Secretary.
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The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

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AINSLIE'S PATENT IMPROVEMENTS.—For MAKING and DRYING Draining Tiles of the 1st CLASS. Gentlemen having works in operation, or who are about to erect them, will find the above worthy their attention.

The PROCESS combines EFFECT with ECONOMY, as Tiles can be made ready for RUBNING at all seasons; generally from ten to thirty hours, according to the nature of the clay. To be seen at Alperton, Acton, Middlesex; Mr. HOWE, Engineer, 119, Great Guildford-st., Southwark; the Polytechnic Institution, Regent-street, London. Particulars may be had from JOHN AINSLIE, Alperton, Acton, Middlesex.

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose—1s. An improved Clothes Brush, that cleans in a third part of the usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian bristles, which do not soften like common hair. Flesh Brushes, of improved graduated and powerful friction. Velvet Brushes, which act in the most surprising and successful manner. The Genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at METCALFE'S Sole Establishment, 130a, Oxford-street, one door from Holles-street.

Caution—Beware of the words "From Metcalfe's," adopted by some houses.

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JOHN MORTLOCK, 250, Oxford street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

ORNAMENTAL WIREWORK FOR THE GARDEN.
G. B. THOMPSON AND CO., beg respectfully to announce that they continue to prepare at their Manufactory, 390, Oxford-street, London, all kinds of Fancy Ornamental Wirework suited for the Garden, Greenhouse, or Conservatory, consisting of Flower Trainers, Stands and Borders, Garden Arches, Seats, and Vases, Improved Garden and Hothouse Engines, Syringes, Fumigating Bellows, and other Floricultural Implements.

Also, G. B. THOMPSON'S Improved Waterpot, which possesses considerable advantages over all others, the smaller sizes being suitable for ladies' use. They have now on sale a novel folding portable Wooden Garden Chair, at 3s. 6d. each, or 36s. per doz., which quantity is packed in a small space.

PHOSPHORIC RAT POISON.—This preparation is offered to the Public with the greatest confidence, being decidedly superior to all those poisons containing arsenic and other mineralls. It is most greedily eaten by rats and mice as long as it is offered to them and invariably proves certain destruction. Prepared only by EDWARD PURSER, 40, Bridge-street, Blackfriars, London. Sold in pots, with full directions for use, at 4s., 8s., and 20s. each.

THE POPULAR REMEDY.
PARR'S LIFE PILLS.—The extraordinary success of this medicine is the wonder of the age; it has been tried by hundreds of thousands as an aperient, and has in every instance done good; it has never in the slightest degree impaired the most delicate constitution. Tens of thousands have testified that perseverance in the use of PARR'S LIFE PILLS will completely cure any disease, and are living witnesses of the benefit received from this invaluable medicine.—Testimonials are received daily, and it would be impossible, in a newspaper, to publish one-half received; and the following are selected as people well known in their respective neighbourhoods, and whose testimony is unquestionable. Further sheets of Testimonials and the "Life and Times of Old PARR" may be had gratis of all Agents.

The following important testimony to the efficacy of PARR'S LIFE PILLS has just been received by the Proprietors:—"To Messrs. T. Roberts and Co., London. Athlone, Dec. 7, 1844. Sirs,—You will please to send me six dozen more PARR'S LIFE PILLS; I am just out. They are taking well, and, I can assure you, they are doing an immensity of good; every one who has tried them in affections of the Liver and Stomach derives a great deal of benefit. Yours, &c., WILLIAM GILCHRIEST, Apothecary and Surgeon."

"Long Benton, near Newcastle, August 11, 1845. Sirs,—I beg to thank, and inform you of the wonderful effect of your PARR'S LIFE PILLS. I was long subject to Shortness of Breath, with Cough, &c., but after taking your Pills a short time, I am not only cured but feel quite young again, and, although an old man of 60, I feel so much better that I think I shall live to be 90 at least. If you think this will be of service you are quite welcome to print it. Yours, with much respect, PETER MURPHY."

Beware of spurious imitations of the above medicine. None are genuine unless the words "PARR'S LIFE PILLS" are in WHITE LETTERS ON A RED GROUND, engraved on the Government Stamp, pasted round each box; also the fac simile of the Signature of the Proprietors, "T. ROBERTS and CO.," Crane-court, on the directions.

Sold in boxes, at 1s, 1½d., 2s. 9d., and family packets at 11s., by all respectable druggists and patent medicine retailers throughout the kingdom.

☞ Full directions are given with each box.

TO THE NOBILITY, GENTRY, NURSERYMEN, IRONMONGERS, AND OTHERS.
LINGHAM BROTHERS, 170, Little Hampton-street, Birmingham, sole Manufacturers of the IMPROVED MENOGRAPH or Labels for Garden Borders, Flower Pots, &c. Engravings of the same, with prices attached, sent per Post to all parts of the Kingdom, on application as above.

Sole Agents in London, G. and J. DEANE, Horticultural Implement Warehouse, 46, King William-st., London Bridge.

PASSAM SMITH & CO'S FINE CONGOU—rich, strong, full Pekoe-Souchong flavour—at 4s. 4d. per pound, continuing to give such universal satisfaction, the Proprietors can strongly recommend it to Families requiring an economical and serviceable article.—No 1, COVENTRY STREET, LONDON.

BED FEATHERS.—

	Per lb.		Per lb.
Mixed	1s 0d	Best Pur. Grey Goose	2s 0d
Grey Goose	1 4	Best Irish White Goose	2 6
Foreign Ditto ..	1 8	Best Dantzic	3 0

Warranted sweet and free from dust.

A List of every description of Bedding, containing Weights, Sizes, and Prices, sent free by post on application to HEAL and SON, Feather Dressers and Bedding Manufacturers, 196, Tottenham-court-road, opposite the Chapel.

UNDER THE PATRONAGE OF ROYALTY AND THE AUTHORITY OF THE FACULTY.
KEATING'S COUGH LOZENGES.—A remedy for all disorders of the Pulmonary Organs—In difficulty of Breathing—in redundancy of Phlegm—in Incipient Consumption (of which Cough is the most positive indication) they are of unerring efficacy. In Asthma, and in Winter Cough, they have been never known to fail.

KEATING'S COUGH LOZENGES are free from every deleterious ingredient; they may, therefore, be taken at all times, by the most delicate female and by the youngest child; while the Public Speaker and the Professional Singer will find them invaluable in allaying the hoarseness and irritation incidental to vocal exertion, and consequently a powerful auxiliary in the production of melodious enunciation.

Prepared and sold in Boxes, 1s. 1½d., and Tins, 2s. 9d., 4s. 6d., and 10s. 6d. each, by THOMAS KEATING, Chemist, &c., No. 79, St. Paul's Churchyard, London.

Sold by SANGER, 150, and DIETRICHSEN and HANNAY, 63, Oxford-street: BLAKE, SANDFORD, and BLAKE, 47, Piccadilly.

GOOD BLACK TEA, 3s. 6d., 3s. 8d., and 4s. per lb. Gunpowder, 5s.; Young Hyson, 4s. 10d.; Good Colonial Coffee, 1s. 4d.; Fine Plantation, 1s. 8d. These articles, of strong good quality, much recommended, are respectfully offered to notice. Samples, or other quantities, forwarded on receipt of post-office order or other order of payment.

SWEET and BAILEY, Purveyor to the King of Hanover, 38, South Audley-street, London.

ANOTHER CURE of 15 YEARS' ASTHMA, by DR. LOCOCK'S PULMONIC WAFERS.—"Garden-place, Cheetham-hill, Sept. 6, 1845. Gentlemen: For the last 15 years my wife has been afflicted with severe asthma, and during that time has never been able to obtain more than temporary and partial relief. Since she has taken two boxes of the wafers her cough has quite left her, and her breathing is now as free as she could wish. In fact, such is the inestimable benefit she has derived from them, that she is anxious to make her testimonial as public as possible, in order that others similarly afflicted may participate in the comfort and the relief she now enjoys. J. HEYWOOD." Dr. LOCOCK'S WAFERS give relief, and a rapid cure of asthma, coughs, and all disorders of the breath and lungs. They have a most pleasant taste. Price 1s. 1½d., 2s. 9d., and 11s. per box. Agents: DA SILVA and Co., 1, Bride Lane, Fleet-street, London. Sold by all medicine vendors.

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London LONGMAN BROWN GREEN AND LONGMANS

HARRISON'S FLORICULTURAL CABINET, AND FLORIST'S MAGAZINE —The above Work is published Monthly price 6d and may be had by order of any Bookseller The Magazine each month contains a Plate of coloured Figures of the newest and best Flowers with 24 pages of letter press on Floricultural subjects, &c The April Number will be published on the 1st thereof and will contain a fine plate of a very splendid new Pentstemon Vol XIII for 1845, bound in cloth, is now ready, price 7s 6d, as well as the volumes of previous years

J. HARRISON also respectfully refers readers hereof to his advertisement of splendid varieties of GERMAN FLOWER SEEDS at much reduced prices inserted in the *Chronicle* of Feb 28 Packets can be sent by post at a trifling expense

EDINBURGH REVIEW, No CLXVIII — ADVERTISEMENTS for insertion in No 168 of 'The Edinburgh Review," are requested to be sent to the Publishers by Saturday next and BILLS on or before Tuesday the 31st instant —39 Paternoster row March 21 1846

In April will be published,

A DICTIONARY OF MODERN GARDENING By GEORGE WM JOHNSON Esq Author of Principles of Practical Gardening The Gardeners' Almanack &c

*** This Work is designed for all garden cultivators whether for profit or pleasure Though containing nearly 700 closely printed pages, it is in form a most convenient hand book for ready reference on every horticultural subject It contains an epitome of the practice of the best modern gardeners, with all the necessary information relative to kitchen Vegetables Fruits, Flowers, Manures Predatory Insects &c The science as well as art, of gardening is fully detailed and the whole illustrated with references to other authorities and Drawings of Edifices Tools, Modes of Pruning, Training Grafting, &c The price will not exceed 10s 6d

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 13.—1846.] SATURDAY, MARCH 28. [Price 6d.

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Further particulars can be obtained of R. S. Mountjoy, Nurseryman, Ealing, Hon. Secretary.—March 28.

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Schizopetalon Walkerii.	Viscaria oculata.
Finest German Asters.	Finest German Stocks.

A useful Chart has just been published, giving the height, colour, and mode of raising the principal sorts of Flower Seeds, gratis, with each order. A General Catalogue can be had on application. A remittance is not required from known Correspondents, or those who give reference in London.

Union-road Nursery, Plymouth, Mar. 28.

FUCHSIAS.—Pride of Peckham, Ivery's; Duchess

of Sutherland, Gaines'; Nobilissima, Coronet, Modesta, Vesta, Smith's; Norfolk Hero, Barkway's; Expansa, Queen Victoria, Miller's; Candidate, Girling's; Robustii, Hope, Goldfinch, Cassandra, at 12s. per dozen.

Duke of Wellington, Monarch, Kentish Hero, Kentish Bride, Magia, Epps'; Queen Adelaide, Holmes; Euterpe, Gaines'; Queen Victoria, Princess Royal, Lady Walsingham, Prince of Wales, Yousell's; Aurantia, Smith's; Aurita, Iveryana, Fosterii, Pumosa elegans, Stanwellana, Blanche, Harrison's, at 6s. per dozen.

Colossus, Cormackii, Adonis, Paragon, Floribunda magna, Hogarti, Lansii, Exoniensis, Transparens, Blanda, Victory, Sanguinea, Britannia, Venus Victrix, Arborea, Smith's; Yaxy, Majestica, Sippii, Brockmanii, Gem, Conspicua arborea, Principe, Speciosa, Flora, Tricolor, Mirabilis, Magnifica, Hayesii, Invincible, Magnificent, Racemifera, Brewerstii, Victoria, at 3s. per dozen.

PETUNIAS.—Girling's new striped and other kinds, 3s. per per dozen.

VERBENAS.—The best scarlets, blue, white, and rose, 3s. per dozen.

HELIOTROPIUMS, 3s. per dozen.

Good rooted plants, true to name, at the above prices, 6d. per dozen being added for postage, will be sent free by post, carefully packed in the cases, on the receipt of postage stamps or a Post-office order.

James and Spencer Smilling, Nursery and Seedsmen, Northwoodside, near Odiham, Hants.

SEED POTATOES.

WARNER AND WARNER, SEEDSMEN, 28, Cornhill, opposite the Royal Exchange, London, have just received a large supply of the following early and sound POTATOES:—

Chinese Round, very early and prolific, introduced by Messrs. Dickson, of Chester, 5s. per peck.

Ash-leaved Kidneys, 2s. per peck.

Somersetshire Prolific, very early and fine flavour, 7s. per bush.

Where a large quantity of the last-named is taken, an allowance will be made in price.

N.B. See previous page for an abridged list of Choice Flower and Vegetable Seeds.

IMPROVED GIANT ASPARAGUS.—This favourite Vegetable may now be cultivated at less than half the customary expense, by having the Improved Giant variety, which may be cut the following spring the beds are made. Plants, 5s. per 100, with printed particulars for cultivation, may be had of WARNER & WARNER, Seedsmen, 28, Cornhill, London. Fine Seakale, Rhubarb, &c.

SELECT AND CHOICE FLOWER SEEDS, with full directions for sowing, treatment, height, colours, &c.

					s.	d.
100 varieties choice Annuals, including the most approved new					15	0
50 vars.	ditto	ditto	ditto		8	6
30 vars.	ditto	ditto	ditto		5	6
20 vars.	ditto	ditto	ditto		4	0
20 vars. best dwarf kinds, in larger packets, suited for filling beds on lawns					7	6
12 vars.	ditto	ditto	ditto		5	0
20 vars. best greenhouse Annuals					7	6
20 vars. choice greenhouse Perennials					10	6
20 vars. choice hardy Biennials and Perennials					5	0

The above sent free by post at the prices affixed.

Remittances in franks or Post-office orders from unknown correspondents.

Catalogues of Flower and Vegetable Seeds, embracing the best in cultivation, will be sent pre-paid to applicants.

BASS and BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.—Mar. 28.

SPLENDID AND DISTINCT NEW SEEDLING FUCHSIAS.

JOHN HALLY, NURSERYMAN and FLORIST, Blackheath, begs to announce that the following distinct and beautiful FUCHSIAS are now ready.

1. EMPRESS, this is, by all judges who have seen it, allowed to be the best light Fuchsia of the season. For description see *Gardeners' Chronicle*, Sept. 27, 1845. "J. Y. B.—Your seedling is a beautiful specimen of a light variety, tube and sepals white, the latter slightly tipped with delicate green; it is smooth, shiny, and waxy in texture; the sepals expand well, fully showing the corolla, which is a clear rosy purple. This is the best and most decided of the light varieties we have seen, there being no tinge of pink in the tube." Gardeners' Gazette, Sept. 20.—"J. H.—Very pretty, indeed, and, if not too much like some others, will be a great acquisition. It is as pretty as any light one we have." Again, in answer to B. R. D.—"Hally's is pretty nearly, if not quite, the best we have seen this season." See also, in the same paper, a report of the West Kent meeting of Philanthropic Society of Gardeners, where it was exhibited. This has been challenged against any Seedling Fuchsia of the past season—10s. 6d.

2. CANDIDISSIMA, tube and sepals clear paper white, having no disposition to turn red under any circumstances. Corolla, a bright rose, a most abundant bloomer. This, though small, is a most beautiful and distinct thing: was exhibited and greatly admired, although a bad plant, at the last July show in the Regent's Park. 7s. 6d.

3. MARCHIONESS OF CAMDEN, a large light flower, with well expanded sepals, and a large rich crimson corolla, resembling Smith's Queen Victoria, but of strong robust handsome habit.—7s. 6d.

4. SILVER GLOBE, a compact globe-shaped flower, expanding well, colour of "Nymph," but tube and sepals more silvery, and corolla more lilac; of very compact habit. 7s. 6d.

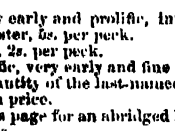
*** The Set for 30s.

FUCHSIA SERRATIFOLIA, 5s. each.

SMITH'S QUEEN VICTORIA, 5s.

A large collection of Camellias, and general assortment of Nursery Stock.

HOLMES'S CALCEOLARIAS.



SUDBURY NURSERY, DERBYSHIRE.

Under the distinguished Patronage of

HER MOST GRACIOUS MAJESTY QUEEN VICTORIA,

HER MAJESTY THE QUEEN DOWAGER, AND

HER ROYAL HIGHNESS PRINCE ALBERT.

W. H. HOLMES, F.H.S., respectfully announces that he is now sending out his Collection of fine seedling Calceolarias. Catalogues of which, and of those raised and sent out by him in 1845, 1844 and 1843; also Geraniums (including Mr. Beck's New seedlings), Fuchsias, Dahlias, Cinerarias, Pansies, Phlox, Verbenas, Petunias, &c. &c., may be had on application.

AURICULAS, POLYANTHUSES, PINKS, CARNATIONS, AND PICOTEES.

JOHN SLATER, FLORIST, Cheetham-hill, near Manchester, respectfully calls the attention of the admirers of the above-named Florists' Flowers to his large healthy, and select collection, which he is selling at moderate prices; Catalogues of which may be had on prepaid application. 12 varieties of Show Auriculas for 18s.; 20 pairs of 20 varieties of Show Carnations and Picotees 20s., package included.

N.B. Nurserymen and others wanting from 100 to 500 pairs of Carnations and Picotees will be supplied at very low prices.

DAHLIAS, FUCHSIAS, PANSIES, AND VERBENAS.

ROYAL NURSERY, SLOUGH, BUCKS.

W. C. BROWN'S DESCRIPTIVE CATALOGUE is ready, and will be forwarded immediately on application. It contains every novelty of the season—each DAHLIA has the grower's description attached. Amongst the first-rate ones are Beauty of Hants, Bohemian Girl, Captain Warner, Lady Charleville, Marquis of Bath (true), Marchioness of Cornwallis, Marchian, Newington Rival, Princess Radziwill, Queen of Perpetuals, Sir E. Antrobus, and Brown's Rose d' Amour. The FUCHSIAS are also very select, and contain Newberry's Bellonata, Hally's Empress, Epps' Nymph, Lady Julia, and Queen of Virgins, Cassandra, Cleopatra, Duchess of Sutherland, Mrs. Lane, Prince Albert, Pomona, Queen Victoria, Serratifolia, &c. Amongst the PANSIES (for which and Dahlias this Nursery is famous), Brown's Cassandra and King of Saxony, Brown's Aesthusa, Curion, Hannibal, Maid of the Mill, [illegible], &c., Cloth of Gold, Rolla Juno, Middleton, Orion, [illegible], Pizarro, Sulphurea Elegans, Tom Pinch, Dido, [illegible], Bryant's Perfection, &c. All plants will be [illegible] strong. A remittance expected with distant orders, or the package will be allowed.

[illegible] to observe, he can supply every article connected with the Nursery business. His collection of Pinuses [illegible], Osmunda Regalis, just imported from Ireland; [illegible] this magnificent Fern, 5s. each; larger, [illegible] cwt., 3l. 3s.—March 28.

NURSERYMEN AND FLORISTS TO HER MAJESTY THE QUEEN.

NEW AND SUPERB WHITE FUCHSIA. "SANSPAREIL," 10s. 6d. per plant.

YOUELL AND CO. beg to call the attention of cultivators of FUCHSIAS to the above Seedling, which they will guarantee is not surpassed by any light variety yet raised, and will give general satisfaction, and refer to the following remarks upon it:—

"A *correct* representation of it may be seen at the Nursery."

"An elegant flower, light tube and sepals, with purple crimson corolla."—See *Gardeners' Chronicle*, *Sept. 20th*, 1845.

"A NEW WHITE FUCHSIA.—We have just seen a magnificent white seedling Fuchsia, raised by the Messrs. YOUELL. The flower is about 3 inches in length, the tube and sepals white, and resembles 'Venus Victrix,' but is three times its size, and is much more brilliant and fair in colour. It should be called 'Sanspareil,' as it is most assuredly one of the most beautiful of its species.—*Editor of the Cambridge Advertiser*, *Oct 1st*, 1845.

Their 5 other fine Seedlings (for particulars of which see their Advertisement of the 17th ult.) will be ready for sending out with the above in the early part of May, and when the set is taken, will be charged 1*l.* 11*s.* 6*d.*

FUCHSIAS.

(Now ready for sending out, per post free or otherwise.)

12 Ex. fine Varieties,	12*s.*	Selection left to Youell & Co.
12 Ditto ditto	21*s.*	Selection left to Purchaser or do
50 Fine Varieties	40*s.*	Selection left to Youell & Co.
50 Extra fine ditto	60*s.*	Selection left to Purchaser or do

SELECT SEEDLING VERBENAS (raised 1845.)

Exquisite, 5*s.*; Grandissima, 5*s.*; Helena, 3*s.* 6*d.*; Celeste, 5*s.* 6*d.*, Aurora, 3*s.* 6*d*; Auberon, 5*s.* 6*d.* For description of the above, see their Advertisement of March 1st. They will be ready for sending out, per post, free, or otherwise, the first week in May, at 21*s.* the set.

12 fine varieties	6*s.*	per dozen.
12 Extra ditto, very superior	10*s.*	,,
PANSIES, 12 fine varieties	10*s.*	,,
,, 12 Extra ditto, very superior, first-rate show flowers	18*s.*	,,
PETUNIAS, 12 ditto	9*s.*	,,
CINERARIAS, 12 ditto	12*s.* to 18*s.*	,,

ERICAS, fine and free-flowering sorts, by name, 9*s.*, 12*s.*, and 18*s.* per dozen.

Superb new heavy-edged PURPLE PICOTEE, "BURROUGHES'S PRESIDENT," 15*s.* per pair. For particulars, see *Gard. Chron.* of 11th Oct.

Also, "BURROUGHS'S DUKE OF NEWCASTLE," the best light-edged Purple Picotee, 15*s.* per pair.

CARNATIONS AND PICOTEES.

			£	s.	d.
12 pairs extra fine and very superior first-class Show Flowers, by name			2	10	0
25	ditto	ditto	5	0	0
12	ditto	Fine Show Flowers ditto	1	10	0
25	ditto	ditto ditto	3	0	0

12 pairs Showy Border Flowers ditto, 12*s.*

Extra fine Show Pinks, by name, per dozen pair, 12*s.*

HERBACEOUS PLANTS, fine sorts, 6*s.* to 9*s.* per dozen.

RIBES SANGUINEUM FLORE PLENO, 7*s.* 6*d* per plant.

30 Packets of New and Choice FLOWER SEEDS, per post free, for 6*s.*

True CASTOLFE RASPBERRY, 24*s.* per 100.

The finest Mixed RANUNCULUSES, all from named flowers, 12*s.* per 100.

*** For Town Orders carefully executed so as to ensure safe transmission.

N.B. Steam Ships to London three times a week; to Hull, twice a week: and per rail to London every eight hours.

The CATALOGUE for 1846 is just published, containing a list of prices of the very best Fuchsias, Verbenas, Select Plants, Camellias, Ericas, Coniferous Plants, Petunias, Cinerarias, Pansies, Chrysanthemums, Antirrhinums, Polyanthus, Herbaceous Plants, Carnations, Picotees, Pinks, &c. &c., which will be forwarded on application by enclosing two postage stamps.

Great Yarmouth Nursery, Mar. 28.

FOR SALE.—A LARGE QUANTITY OF SPLENDID TURF.—Apply to J. HAMILTON and SON, Keppel-street, Chelsea.

FLOWER SEEDS.

ARTHUR MACKIE begs to announce that his DESCRIPTIVE LIST OF FLOWER SEEDS is now ready, and can be had upon application. For the convenience of the purchaser A. M. has enclosed them in printed envelopes, and he trusts that the information which will be found therein will be both interesting and instructive.

The annexed is subjoined as a specimen of the plan he has adopted:—

SCHIZANTHUS RETUSUS.

Blunt petalled Schizanthus.

Dimdria Monogynia. Nat Ord.—Scrophulariaceæ.

Half-hardy biennial. Height, 2 to 3 feet.

Flowers, crimson and orange. June to October.

A native of the Andes of Mendoza. Introduced 1831.

Derivs.—(*schizo*, to cut; and *anthos*, a flower; from the irregular form of the corolla.)

For the country use of purchasers at a distance the above will be forwarded free through the post.

Norwich Nursery, and No. 10, Exchange-street.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, and Others.

ABIES CANADENSIS, or HEMLOCK SPRUCE, of GEORGE BARTH, Nurseryman, Bagshot, having the largest stock of the above in Europe, of all sizes and in fine condition, can with confidence recommend this noble tree to the notice of the Public, and having so large a stock (viz. 200,000 large plants, 3 feet high, besides smaller sizes), can dispose of them at very low prices: also, with a General Nursery Stock. He begs to offer at unusually low prices, in all sizes, the largest assortment of Kalmia latifolia ever offered to the Public.—Prices can be had by letter, and shall be attended to forthwith.

GIANT ASPARAGUS PLANTS, 1 year 2*s.* 6*d.*, 2 years 7*s.* 6*d.*, 3 years 5*s.* per 100.

Green Top Do., 1 yr. 1*s.* 6*d.*, 2 yrs. 2*s.* 6*d.*, 3 yrs. 3*s.* 6*d.* per 100.

SEAKALE plants, 2 years 5*s.* per 100.

J. & S. SHILLING have a large stock of the above good plants, and grown in a very healthy soil, to which they beg to invite the attention of the public generally. Carriage paid to either terminus of the South-western Railway.

Northwarnlow Nursery, near Odiham, Hants.

KINGSTON NURSERY, SURREY.

T. JACKSON'S SUPPLEMENTARY CATALOGUE OF PLANTS, with prices, for 1846, may be obtained free on pre-paid application.

Kingston Nursery, Surrey, March 28.

BATH NURSERY.

JAMES SALTER returns his grateful acknowledgments to the Nobility, Gentry, Clergy, and his numerous Friends of Bath, and the surrounding country, for the extensive patronage received by him during the lengthened period he has conducted the Nursery business at Bath; and, having disposed of the same to Mr. JAMES GRIFFIN, feels pleasure and confidence in introducing him as his successor, in whose behalf he respectfully solicits a continuance of the favours so liberally bestowed upon himself.

JAMES GRIFFIN, in succeeding to the Nursery business carried on by Mr. SALTER for the last 30 years, begs most respectfully to assure the Nobility, Gentry, Clergy, and Inhabitants generally of Bath and its vicinities, that every exertion will be made by him to ensure and to deserve the transfer of their confidence from his predecessor (who has so long enjoyed it) to himself; and trusts, from his knowledge of the Nursery business, and Horticulture in general, his efforts will secure the permanence of the patronage by which the above Nursery has hitherto been distinguished.

The recent reduction in the price of Glass having materially lessened the expense of erecting Horticultural Buildings, J. G. intends devoting a considerable share of attention to the cultivation of choice and rare Exotic plants.

J. C. BALL, successor to Mr. JOHN YOUNG, begs to announce that he is prepared to execute orders immediately, in strong plants, for any of the undermentioned; with the exception of Mr. Beck's Pelargoniums, which will be ready in May. Early orders are solicited to secure fine Plants.

NEW SCARLET PELARGONIUM "HONEYMOON," very dwarf, spreading habit, and well adapted for bedding. For Dr Lindley's opinion, see *Gardeners' Chronicle*, 1844, p. 508, "Your Seedling Scarlet is of a very rich and intense colour. * * * The trusses are very large and compact, the one sent containing from 70 to 80 buds and flowers." Plants 3*s.* 6*d.*

RHODODENDRON "CAMPANULATUM PICTUM." See *Gardeners' Chronicle*, 1845, p. 398. "Your hybrid from Campanulatum is a large and handsome flower, white ground, having the margin of the segments tinged with delicate lilac, and the interior of the upper division of the corolla strongly spotted with maroon. The blooms sent indicate a very ornamental variety." Strong plants 21*s.* each.

PELARGONIUM "MARIA," very fine, large, rosy-purple. See *Gardeners' Chronicle*, 1845, p. 532.—"Your Seedling is an improvement on many of the same rosy-purple colour, and is a bright and pretty variety." Fine plants 5*s.*

LOBELIA FULGENS MULTIFLORA. See *Gardeners' Chron.*, 1844, p. 532. "Your Seedling Lobelia is a very handsome variety. The lip is large and broad, of a rich and dazzling scarlet," some of the spikes of flower measuring from 12 to 18 inches in height. Plants 1*s.* 6*d.* each, 15*s.* per doz.

Taxodium sempervirens, 6 to 9 inches	10*s.* 6*d.*
Lygeria pinnatifida	5 0
Alona cœlestis	2 0
Veronica speciosa	2 0
Cryptomeria Japonica	7 6
Fuchsia serratifolia	3 6
Calceolaria floribunda, for bedding	2 6
Roses, two species, Chusan, each	3 6
Do. one do. Amoy	3 6

The repeated and successful exhibition of the undermentioned PELARGONIUMS by Mr BECK, both as "Seedlings" and in the collections of "New and First-rate varieties," renders a description unnecessary:—

Desdemona	10*s.* 6*d.*	Sunset	10*s.* 6*d.*
Isabella	10 6	Rosy Circle	10 6
Juno	10 6	Arabella	10 6
Marc Antony	10 6	Favorita	5 0
Mustee	10 6	Margaret	5 0
		Zenobia	5*s.*

Or the set of 11 for 4*l.*

With a few plants to compensate for carriage. An allowance to the Trade. Taunton Nurseries, March 28.

RHODODENDRONS, AND THE TRUE "DURMAST" ENGLISH OAK (QUERCUS SESSILIFLORA),

The most valuable species, producing Timber of the largest dimensions and the highest price

W. ROGERS AND SON, NURSERYMEN AND CONTRACTING PLANTERS, Southampton, having for many years paid particular care and attention in obtaining a stock of this splendid Oak, by procuring seeds from the finest specimens in the New Forest (their establishment being near its borders), beg now to state they have a fine Stock of Plants for sale, and that this is the best season for their removal and planting, as also for the Rhododendron, which from the particular adaptation of the soil of a large portion of their grounds, they grow to a great extent, and can offer at the following low scale of prices:—

OAK: The true English "Durmast" of the New Forest (Quercus sessiliflora),

1-year seedling, 5*s.*; 2-years, 7*s.* 6*d.*; 3-years, 10*s.* per 1000.

Transplanted, 1, 2, 3 years, 20*s.* 40*s.* 60*s.* per 1000.

RHODODENDRON PONTICUM (excellent for cover),

4 inches, 40*s.*; 6 inches, 60*s.*; 9 inches, 80*s.* per 1000.

1-foot, 20*s.*, 2 feet, 40*s.* per 100.

Roseum, 1 foot, 50*s.* per 100.

Hybridum, 1 foot, 12*s.* per dozen.

SEA PINE (Pinus maritima), excellent for exposed aspects.

1-year seedling, 7*s.* 6*d.* per 1000; transplanted, 20*s.* per 1000.

RHUBARB, the Common Tart (Rheum raphonticum), 10*s.* per 100.

Myatt's Victoria, 40*s.* per 100.

If ordered in less quantity than the above quotations, the charge will be at retail prices.

*** Planting contracted for to any extent from 5*l.* to 20*l.* p. acre.

TURNIP SEEDS.

W. DRUMMOND AND SONS, STIRLING, N.B., and DUBLIN, have on sale a large and select stock of TURNIP SEEDS. Terms particularly moderate. The following are the most approved sorts, viz.:—

SWEDISH, Skirving's improved Purple-top.
Do. East Lothian, Purple-top.
YELLOW ABERDEEN, with Green top.
Do. do. with Purple top.
Do. do. do. Improved.
YELLOW IMPROVED EARLY, now much esteemed for sowing late in the season.
WHITE GLOBE.
GREEN TOP GLOBE.

N.B. Delivered free in London, Liverpool, Hull, Newcastle, Cork, Belfast, and Londonderry, when not less than 40 lbs. are ordered.

*** Priced Catalogues of Implements, Garden and Farm Seeds, Nursery Plants, &c., on application.

Agricultural Museum, Stirling, and 58, Dawson-st., Dublin.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea; by Appointment to HER MAJESTY and H. R. H. PRINCE ALBERT.—Ornamental Water-fowl, Black Swans, White do.; Egyptian, Canada, China, Barnacle, Brent, Bean, and Laughing Geese; Pintail, Widgeon, Gargany, and Common Teal; Labrador, Shoveller, Gold-spot tufted, Dun Diver, Carolina, and Call Ducks, &c.; pinioned and domesticated. Great variety of Poultry, Pea-fowl, &c.—And 3, Hallmoon-passage, Gracechurch-street. China Pigs.

HORTICULTURAL SOCIETY OF LONDON.—Notice is hereby given, that the EXHIBITIONS of FLOWERS and FRUIT, in the Society's Garden, in the present season, will take place on the following SATURDAYS, viz., May 9, June 13, and July 11; and that Tuesday, April 21, is the last day on which the usual Privileged Tickets are issued to Fellows of the Society.

NEW AND SUPERB CINERARIAS.
Woodlands Nursery, Maresfield, Uckfield, Sussex.

WM. WOOD AND SON have an extensive Stock of the above desirable Spring Flowering Plants, well established, and now coming into bloom, which they beg to offer as under:—

12 fine varieties, for	6s.
12 superior ditto	12s.
12 superb new ditto	18s.
25 extra fine ditto	16s.
25 superb ditto	25s.

W. W. & Son are still issuing their new and much enlarged Catalogue of GREENHOUSE, STOVE, AND HERBACEOUS PLANTS; Camellias, Fuchsias, Verbenas, Petunias, Cinerarias, Chrysanthemums, and other plants suitable for bedding. To which is added, a choice selection of Roses, Conifers, Shrubs, and Climbers, cultivated in pots.

Copies of the above will be sent, GRATIS, on application; and those friends who have hitherto favoured W. W. & S. with their commands will receive the same in due course.

The Gardeners' Chronicle.

SATURDAY, MARCH 28, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday,	April 1	Society of Arts	8 P.M.
Friday,	— 3	Botanical	8 P.M.
Monday,	— 6	Entomological	8 P.M.
Tuesday,	— 7	Horticultural, Linnean	1 P.M., 8 P.M.
Saturday,	— 11	Royal Botanic	4 P.M.

WE have very great pleasure in announcing that Sir ROBERT PEEL has granted Mrs. LOUDON a pension of *one hundred pounds* for her life, "in consideration of the merits and services of her late husband." We are sure that the public will agree with us in thinking that pensions thus worthily bestowed reflect great honour upon the government from which they proceed.

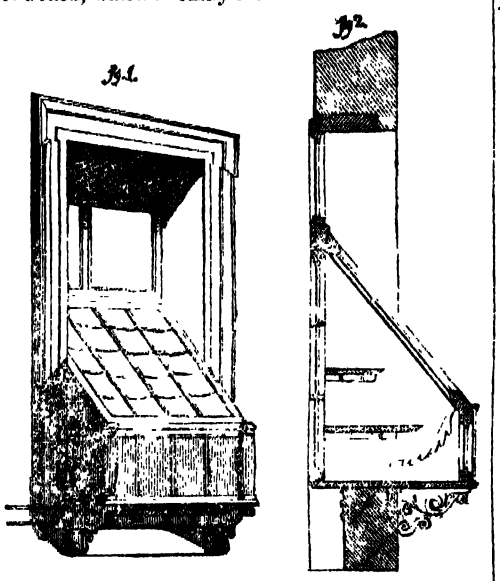
OUR readers will be glad to know that, notwithstanding the evils produced by the most deplorable of local governments, their friends in NEW ZEALAND have leisure to attend to the amenities as well as necessities of life. In a letter, dated Wellington, Sept. 13, 1845, we learn that flower-gardens are forming, flower-seeds, bulbs, and roots of all kinds, in request, and that even a botanic garden is contemplated by Mr. SWAINSON, who is well known in this country as a distinguished naturalist.

It would seem as if the supplies of seeds to New Zealand had hitherto been confined to esculents or merely useful plants, for our commonest flowers are asked for; as, for instance, Crocuses, Irises, Salvias, Foxgloves, Lilies, Syringas, Heliotropes, and all sorts of Cape and European bulbs. The only tree requested, in a list of desiderata now before us, is the Abele, or other Poplars. To those who have connections in New Zealand, this information may be useful.

THOSE who are debarred from the enjoyment of a GARDEN by sickness, residence, or fortune, should take a leaf out of the book of the French and Belgian ladies, who succeed, by means of double-glazed windows and other contrivances, in providing themselves with an ample supply of fresh flowers at all seasons of the year. With us, the first object of the dwellers in towns is to buy plants, the next is to provide for them. Elsewhere it is thought more advantageous in the first instance to secure the means of keeping a plant in health, and that being accomplished, to obtain it. We will not be so uncivil as to reproach our fair countrywomen with herein indulging in that sort of caprice which is vulgarly called putting a cart before a horse; but we shall confine ourselves to an explanation of the manner in which other persons proceed, leaving all who are concerned to form their own judgment in the matter.

"In Belgium," says M. VICTOR PAQUET,* "wherever you go, you see spaces between double-sashed windows filled in the winter time with the most charming flowers. Elsewhere the balconies are turned into greenhouses, and you may find on the fifth or sixth floor a miniature stove gay with the brightest flowers and the greenest foliage. In Paris there are many such contrivances, especially two on the fourth floor of a house in the Boulevard de la Madeleine, at the corner of the Rue Caumartin. Here are to be found the rarest plants. Camellias grow in the open ground. Passionflowers cling to the columns; the creeping Fig forms a carpet upon the walls, and water-plants start up from tiny basins curiously contrived in the solid brickwork. By turning a screw a stream of limpid water flows down a rock, from whose crevices start up Ferns and Lycopods and such things. And what is it that adjoins this little paradise but a bed-room! The first beams of the morning sun throw upon the bed of the owner the shadows of Palm-leaves and Bananas, or of garlands of Passionflowers."

This sort of garden, though on the fourth floor, is, however, rather too ambitious for everybody's taste, and therefore we agree with M. PAQUET that the little Belgian window-gardens are upon the whole more likely to meet the means, if not the fancy of the mass of mankind. We therefore borrow from him the following figure and description of one of them, which has now become extremely common. Let Figure 1 represent the outside of this window-garden, and 2, a section of it, together with the window to which it belongs. A sloping roof of glass is carried outwards from the middle cross bars of the sash in such a way that the upper sash allows light to enter the room freely. The lower sashes open as usual by a pair of folding leaves as wide as the window frame. A pair of brackets carries the floor which projects beyond the walls of the house. Shelves are fixed to uprights next the window-leaves, and the sloping roof is raised or depressed by means of a rack, which is easily reached from the inside."



It is obvious that this contrivance possesses all the advantages of a WARD's case, without its inconveniences. Being placed on the outside of a house, it occupies no space that is otherwise required. As the glass next the room will always be warm, there will be no condensation upon it to conceal the plants which the window-garden contains. The folding leaves render it easy to get at the interior, and in towns water could be readily laid on for the purpose of moistening the plants when it is required. Such little contrivances would suggest themselves to any ingenious mechanic. A place of this kind might even be heated in severe weather by a pan of boiling water, or protected by a woollen covering thrown over it at night. In short, it seems to be of all things the best adapted to the purposes, as well as means, of those to whom window gardens would be acceptable. In such a place it would be perfectly practicable to have all sorts of forced flowers in spring and winter; Roses in summer, Pelargoniums in autumn. A thousand pretty plants might be selected for variety, and the whole would be a most agreeable amusement for those who are neat, careful, and skilful. To this, however, we must return hereafter.

THOSE of our readers who are growers of ORCHIDS will be glad to have their attention called to a very large collection from Guatemala, which is advertised for sale in another column. The specimens are, in general, in excellent condition. Laelia superbiens, Cælia macrostachya, and various species of Odontoglossum, Oncidium, Brassia, Barkeria, Cattleya, and Lycaste, are there in perfect health. But the cream of the collection consists of two kinds of the curious genus Arpophyllum. These plants, which are of the greatest rarity in this country, and have never flowered, form large tufts of slender stems, each of which is terminated by one long leathery curved leaf, from the bosom of which rises a spike of charming rose-coloured or purple flowers, not very unlike a long row of Dendrobium secundum. One of them appears to be Arpophyllum giganteum, the other A. squarrosum.

SINCE our last, despatches from Bermuda have reached the Colonial Office, the contents of which are so important with respect to the POTATO CROP, that, with permission of Government, we hasten to give them immediate publicity.

Colonel REID, the Governor of Bermuda, reports that the disease has reached that station, although it has extended itself in a very small degree; and he adds that *in every case in which it has occurred it has been from imported seed Potatoes from some part or other of North America.* The evidence on which this opinion is founded is contained in the following extracts from returns obtained from various cultivators in the island:—

1. In 1844, an imported American Blue Potato was much infected with disease when landed, which began to appear when the crop was about half grown.—*James M'Coll.*

2. I had 5 bushels of Black Kidney Potatoes sent me last year from New York, for trial. On opening them they were found much decayed, and were supposed to have been from a diseased crop. The parts which appeared sound were cut off and planted, but many of them failed. Those which made their appearance above ground came to maturity, were good, and kept well.—*Francis Peniston.*

3. Last year, a part of my Potatoes were attacked by a disease, which caused the tree to die off when about two-thirds grown. The seed came from Prince Edward's Island.—*John A. Skinner.*

4. The Potatoes (Pink-eyes) were imported from the United States, December, 1844, being *then in a perfectly sound state.* They sprang quickly, and from their flourishing condition an unusually large crop was expected. About 60 days after being planted, began to be diseased, &c. &c., until the whole were decayed.—*Jas. W. Tudor Boule.*

5. A gentleman imported from New York 27 bushels for seed. They appeared to flourish beautifully for eight weeks, when they suddenly began to droop, &c. &c. He only reaped 6 or 7 bushels, the remainder being of good size, but perfectly soft and rotten.—*Augustus Wm. Harvey.*

We can hardly overrate the importance of these very precise details, which require no comment.

It also appears that in Bermuda the disease is ascribed to damp weather, and has been worst in marshy ground, where Arrowroot also decays. One planter is reported to have lost about 3000 lbs., which he attributed to unseasonable rains.

We have also been favoured with a sight of despatches from the Governor of New Brunswick, from which we gather the valuable information that in no case has a crop following diseased Potatoes presented any symptom of suffering in consequence. The disease has been known in New Brunswick, more or less, for some years, though never to such an extent as last year. Dryness, and dryness only, is supposed to be the remedy. The least injury has been experienced in dry light soil, recently cleared of forest by burning.

ROOT GRAFTING.

THIS operation is performed in two ways, either by grafting on the already established roots of young plants, or on pieces taken from the roots of older ones; but much depends upon circumstances and the kinds of plants to be operated upon, as to which is the most suitable plan. The former is the easiest method for obtaining strong plants, and is best suited for Conifers and such-like plants, in which the stem or trunk is an object.

In grafting upon already established roots of a young plant, first clear the soil away from the collar or neck of the plant intended for the stock, and cut the head off as much below the surface of the soil as possible, but at the same time observing that a sufficient length of the neck or collar must be left to receive the graft. The graft should be cut wedge-shaped, and inserted in the slit or crown-graft method, tied tightly with a soft worsted thread, and afterwards covered with the soil, leaving only a portion of the graft exposed to light and air. It will greatly increase the chances of success if the worked plants can be kept close, and in a rather moist atmosphere for a few days, until they commence growing, but much depends upon the operation being performed at a proper time and season, which in most cases is just before a new growth commences.

In grafting on pieces of roots taken from an older plant, such pieces should be selected as are of sufficient size to receive the scion, and also such as have some small fibres attached to them. In grafting, the roots may either be at once worked and afterwards potted or planted, or the roots may be potted a short time previous to being worked, and afterwards worked like those of the preceding ones, and then treated according to the nature of the plants to which they belong, whether stove, greenhouse, or hardy; but even plants belonging to the latter class are the better for a gentle moist heat for a few days to start them.

In this way many kinds of plants may be increased, such as Clematis, Berberis, Roses, Combretums, Moutan Paonies, &c., where the roots of the more common kinds are easily procured, and where suitable accommodation can be afforded; but under ordinary circumstances the chances are very great against the success of the system, and it should only be resorted to by the amateur in the case of very rare and curious plants. —*G. G.*

THE AMATEUR GARDENER.

THE CULTIVATION OF ASPARAGUS.—From my former papers no one will suspect me of thinking that the finest production of the garden is a Cauliflower, since I have not yet even alluded to vegetables, and have almost

* Almanach Horticole pour l'an 1846, p. 58, a clever and useful book.

warranted the conclusion that floriculture is my exclusive study. This, however, is by no means the case, for I have had considerable experience in most kinds of gardening—from the growth of pot-herbs to the culture of acres of Potatoes and of corn. I think, generally, amateur gardeners patronise the whole circle of horticultural pursuits, if they have the means. Limited plots of ground often compel them to curb their tasks, but give them room, and the housewife will not have to complain that, in the care of floral beauties, the culinary delicacies are neglected. All these matters will be treated of in due time in the same *con amore* method pursued in reference to flowers. As this is the time when Asparagus beds require attention, the present paper will be devoted to that subject.

In the formation of new beds of this delicious vegetable, by all means follow the directions so frequently given in the *Chronicle*, and which need not here be repeated. By approximating our methods of growth to those adopted by Nature, or by those countries where Asparagus attains the highest perfection, we shall insure the greatest success. In laying out a new garden, or enlarging your Asparagus beds, adopt the new modes of growing this vegetable; for the wisdom of our ancestors it is not always wise to follow. But as most gardens have already a bed or two, it will be serviceable to show how they should be treated, so as to make the most of them when in a flourishing state, or to renovate them when they have become old and unproductive. How common it is to see a large portion of a kitchen-garden devoted to Asparagus, and yet when you congratulate the owner on the advantages you presume he possesses with his lamb-chops in spring, he tells you his beds are worn out. I once came into possession of a bed which had this character of decrepitude, and succeeded in making it very prolific, and I have no doubt others may do the same.

As it is true in gardening, as well as in philosophy, that *ex nihili nihil fit*, you must take care that your Asparagus bed is well supplied with plants, before you proceed to a treatment which will make the plants robust and productive. Sometimes there are gaps of several square feet, or the plants are thinly spread over the whole bed. Rectify this as soon as you can, by marking, in the growing season, all such vacancies, and filling them up in the autumn or the spring. About 9 inches apart is a good average distance, although probably a foot would secure a larger product. Having secured a good plant, as agriculturists express it, the next thing is to make it vigorous. Lay down this rule as having no exception—that if your beds have not a vigorous growth in the summer, you will look in vain for fine Asparagus in spring. As the succulent shoots proceed from the buried root, their size must be in direct proportion to the healthfulness of that root, or to the quantity of organisable matter that root has stored up. How, then, can the root be brought into a proper state for producing large shoots? By giving every advantage to the plant during the summer and autumn; so that if your beds this summer are covered with a tall and strong vegetation, the abundance of solar light, &c., will convey a proper supply of matter to the root for next season, and you will cut fine Asparagus; but, on the other hand, if there appears only a stunted and weak growth, your produce will be small.

If the principle just laid down is correct, the mode of treatment must consist in judicious cutting, and the application of proper manure. I know many beds which have been ruined almost by an unsparing cropping, and in cases where there has been no deficiency of manure. If the bed has been injured in this way, or if from any cause the shoots appear thin and spindling, do not cut them at all, but let the bed have a rest during a whole season. The next spring the advantage will be manifest. Nothing would tend more to bring exhausted beds round than this generous treatment, and by the sacrifice of a few dishes now you will secure an abundance next year. What is true of a whole bed applies also to individual plants. I always leave the weak shoots in the beds, on the presumption that by cutting them they will become weaker, but that they will make robust shoots by being allowed to grow and bask in the air and the sun. My remarks also lead to another practical conclusion—to leave off cutting in time. Fine shoots must not be looked at with a longing eye, as though it were waste to let them run to branches and flowers. They are the parents of a future race, and ought to be kindly and respectfully treated.

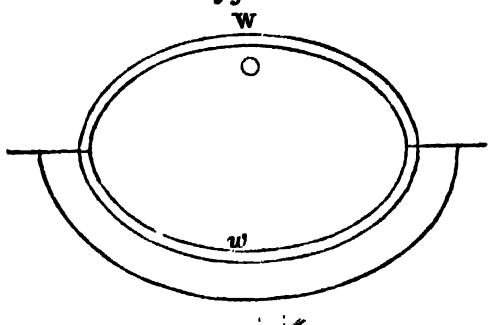
Manure must be plentifully given in conjunction with the above mode of treatment. It should be applied at such times that the growing plant may receive the benefit. It is possible for a top-dressing put on in autumn to have all its valuable properties washed below the reach of the roots, before they begin to exercise their vital powers. However, cover the beds with good dung in autumn, but do not neglect to furnish a fresh supply in spring. Salt and liquid manure should be used at the latter period, as they become immediately available. I have just dressed my beds in the following manner, and it is not too late for others to adopt the plan. I covered them with salt, so that on a dry day the whole surface looked as though it had been snowing; they were then watered with about 60 gallons of liquid manure saved from a stable during the winter. When this had sunk in the beds were raked, stones picked off, and a neat appearance given them. If you have no liquid manure, make some by diluting good stable dung with soapsuds, &c. As the roots will soon begin to move, the soil will be furnished with those materials which will ensure a quick and strong growth, and, if the beds were healthy last year, you may depend on a crop.

As I have been able by this treatment to make old beds of Asparagus produce fine crops, I can recommend it, and I hope amateurs will themselves study the *rationale* of the practice. It is to be regretted that so many gardeners are contented with the "light of other days," and fail to use modern improvements and scientific principles. Although the *Chronicle* has so large a sale, and has for years been endeavouring to enlighten the public mind on these matters, the greater number by far of those who take an interest in gardens never see it. I endeavoured lately to explain to a friend the reason of the success of my Asparagus beds, and I could see I was listened to almost as an expounder of magic. Digging and manuring are the specifics with most persons, while science is neglected, and the result is, an accidental and occasional success, but at the same time repeated and provoking failures.—*H. B.*

NEW PLAN OF GROWING THE VINE IN THE OPEN AIR.

MR. HOARE'S Vine pillars are, I think, generally understood to have proved a failure. I beg to offer a plan for growing the Vine in the open air, in some respects the converse of his system, which, whether regarded with reference to the concentration of solar heat, protection from adverse atmospheric or other influences, as cold, excessive rain, and wet subsoil, and the generally favourable situation and circumstances of the entire plant, root and stem, for ripening its wood, will, I think, be found to present every requisite for ensuring success in more northerly situations than it has been attempted to grow the Vine in. It is not too late in the season for any one to try it, who has a Vine which can be transferred, without disturbing the roots, as from a pot or tub, to its new situation. The accompanying figures 1 and 2 will enable it to be understood without

fig.1.



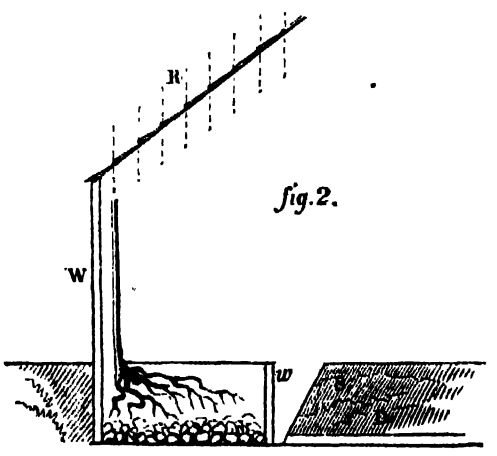


fig.2.

much explanation. A good site being chosen, open to the south, and sheltered on the north by the neighbourhood of a garden wall, trees, or shrubbery, let the earth be dug out to the depth of 2½ or 3 feet, the bottom paved, or rendered impervious to the roots of the Vine by concrete, and an underground drain D be made to carry off any rain that might otherwise accumulate in the bottom. A curved brick wall (*w*) is to be built on the north side of the excavated space, rising about 6 ft. above the surrounding ground in the middle, but considerably higher towards each end, and supporting a cover or roof (R), declining from front to back. A low curved retaining wall (W), in front, encloses an oval space of about 9 feet by 6, within which the Vine is to be planted near the wall, and trained on it. The bed or border is to be formed, first by a layer of calcareous stones for drainage, and above them a mixture of lime rubbish, bones, and earth, which constituting a compost the roots of the Vine are said to delight in, the former materials abounding most below, and the earth most towards the surface. The roof R is a wooden frame, with overlapping leaves in the manner of a Venetian blind, which being connected together by a rod in the middle can be opened and brought into a vertical position (as represented by the dotted lines in fig. 2) for the free admission of rain to the Vine and border whenever desired, though generally kept closed.

The pitch or angle of the roof corresponds with the altitude of the sun at midsummer, so that it may never intercept the rays of the sun from any part of the wall. The outline of the frame corresponds with the form of the border, but projects beyond it, so that a vertical line let down from it will fall outside the low wall (*w*.) The ground outside may be formed into a slope (as S) leaving a level space at bottom, a foot or more in width. This trench in winter may be filled with leaves, spray, or other vegetable refuse, which will both protect the border from frost, and, by the slow decomposition going on in it, communicate a certain degree of artificial warmth to it.—*J. H. H.*

THE POLMAISE HEATING.

YOUR readers will remember that one of the first objections stated against the Polmaise system, was that it "involved a waste of power," and that when I first addressed them, and contended that it was the system of nature, I especially brought to their notice this consideration—that if (as I contended) the Polmaise principles were those of Nature, it was extremely unlikely we should find them to involve any waste, but that such would more probably attach to those systems for diffusing atmospheric heat by other means than those Nature employs. In my subsequent remarks on the philosophy of the distribution of atmospheric heat, and the manner in which heat passes through the three forms of matter, I stated that a great amount of radiant heat was probably lost in the hot-water system, while all, in the Polmaise mode, was available for the general purpose; and I am now about to prove that my prediction of the waste in the non-natural system is abundantly correct, and does not belong to any particular form of the apparatus, but is common to them all, and is easily tested by anybody who possesses an apparatus of the kind, if he will place a thermometer in the boiler-chamber or stoke-hole, another in the house, and another externally; the following is a table of returns of temperature taken in this manner and procured by a horticultural friend, and made by a party with whom I am totally unconnected, and who probably was not even aware of the purpose for which they were taken, and it may be relied upon for correctness:—

TEMPERATURE IN THE IRON-ROOFED STOVE, IN THE STOKE-HOLE, AND OUT OF DOORS.

Feb. 16	Iron-roofed Stove.						Stoke-hole.				Out of Doors.			
	Morning.		Noon.		Night.		Morning.		Noon.		Night.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
16	58	58	68	58	59	58	74	74	80	67	83	79	40	40
17	64	58	63	62	60	60	82	77	83	74	84	80	40	43
18	63	60	68	62	62	60	84	80	84	73	89	82	40	43
19	65	60	69	65	61	61	87	82	89	86	89	84	42	42
20	61	60	66	60	62	62	87	82	85	80	84	79	40	40
21	65	60	68	63	60	60	87	79	89	86	90	80	44	44
22	60	58	70	60	64	64	90	87	91	88	90	87	46	44
	436	414	507	432	428	425	561	531	601	554	609	511	295	293
													333	293
													322	316

By this table your readers will perceive, that while the temperature of the house was raised about 20° above the external air, the stoke-hole was raised 40° and occasionally more.

I must also draw attention to the fact, that the external temperature was singularly high, consequently a very small amount of fire was employed, and that, surprising as the figures now are, there would have been, in all probability, a still greater comparative difference between the stove and stoke-hole had such not been the case. Since these returns were taken I have inspected the place; the stoke-hole is 6 feet by 5, and 12 feet high; the top is boarded and slated, but there is abundant room for the air to escape, as the edges of the boards do not nearly touch. The thermometer was not suspended in the hottest part of the place; the temperature of the stove was much assisted by the bottom heat being supplied by a separate boiler; the stove is 50 feet by 21, and 13 feet high, so that I am fully persuaded the statement is greatly below the average, in proof of which I may mention, that in the last severe winter the temperature of the stoke-hole was almost suffocating. I will not weaken the case by many remarks of my own; it wants no comments. It is for horticulturists to decide whether they prefer to heat ex-

travagantly, to waste fuel to a great and indeed to an unknown extent, or to endeavour, by the adoption of some more natural and philosophic means, to provide against such useless waste. And these returns at once explain the reason why Mr. Murray and Mr. Sheard have both found the use of the Polmaise system so eminently economical, and afford us a most practical reason for believing that the use of the method will prove as proportionately economical as its first erection, into the detail of which I propose shortly to enter when replying to your correspondents of last week.

Is this the perfection of the hot-water system, after all the years of labour expended upon it by practical men? I will not cast the slur upon their labours that was last week cast upon those of men of science; I will rather believe that they have exerted their great ingenuity upon a system defective in principle, and consequently incapable of perfection in practice. Should the principles of diffusing atmospheric heat by the simple means of the circulation of the atmosphere itself prove equally effective when employed artificially, as they prove when employed naturally, what may we not hope that the next 10 years of practical ingenuity (exerted on a sound system) will accomplish, when it has done so much to render a system unsound in principle available in practice? Practical men have truly an ample field presented to them, on which they may exert their ingenuity in distributing heat by aerial currents; and great is the success promised to their efforts by the attempts hitherto made. But there is a subject closely connected with the diffusion of atmospheric heat, which is daily attracting increased attention from practical men, on which I wish to add a few words. It is the subject of ventilation. A correspondent of last week still maintains his original position, "that if a house is warmed by hot water there is no necessity for supplying fresh air." I apprehend it is the opinion of the generality of scientific and practical horticulturists, that there are other causes by which the atmosphere of the greenhouse is deteriorated, without ascribing it to the heating apparatus. It is contended that a very free supply of fresh atmosphere is essential to keep greenhouse plants in health, and that the health of such plants is greatly increased by the atmosphere being freely moved by currents, and if this be so, the real question to be considered is, what quantity of fresh air plants really require to keep them in a high state of health, and then to provide the means of heating that quantity. This quantity is probably not uniform in all plants, nor yet in the same plants in different states of growth, or at different seasons of the year; but it at once proves that the plan of glazing with open laps is a bad one, for this reason, that the ventilation so produced is not under control; that the same, or indeed a far greater, amount of ventilation takes place in winter than in summer through the open laps, while it is more than probable only a smaller amount is required.

Still it must not be forgotten that open laps provide a more uniformly diffused ventilation than can easily be secured by other means, and obviate the difficulty of cold local currents rushing in at any particular point; no system can be more easily adapted to free ventilation than Polmaise; it might almost be called the ventilating system. Fresh air can be brought in and warmed before passing to the house, but the best method of providing for the escape of air deteriorated by the action of the plants upon it, without sacrificing a great quantity of atmospheric heat, is a subject well deserving attention, and it has so great a practical influence on the question of economy, that I have ventured to bring it before your readers in the above hasty remarks. It does not concern either system exclusively, but is equally important to both.—*D. B. Meeke, Holmedale House, Nutfield.*

GERMAN PAMPHLETS ON THE POTATO DISEASE AND ITS REMEDIES.

No. 3.—*The so-called Potato Rot. (An investigation undertaken by desire of the Minister of the Interior.)* By A. Petzholdt. Dresden.

The objects of the author, as expressed in a condensed form at the conclusion of his book, were to reply to the following five questions:—

1. How does the disease manifest itself?
2. What is the nature of the disease?
3. What are the causes of the disease?
4. How is the recurrence of the disease to be prevented? and
5. Can the diseased Potatoes be used, and in what manner?

With regard to the first question, the author observes that the disease manifests itself in the commencement by a discoloration of the substance of the tuber, a brown matter appearing, which disappears again after a time. In the second stage of the disease, the Potatoes generally emit an odour resembling old cheese, which, however, like the brown colour, disappears in the last stage of the disease. Examined under the microscope, it is found that, in the commencement, the fluid in the cells becomes turbid; after a time a brown matter deposits on the sides of the cells, which are gradually destroyed; so that in the last stage they can only be found here and there, as little shreds and fragments; the fluid gradually evaporating, and the tubers becoming hard and dry. In the early stage of the disease, the proportion of water and inorganic matter was larger, whilst the proportion of starch was less than usual. By an examination of the ashes, it was found that the diseased tubers contained less alkali, sulphuric acid, and chlorine, but more phosphoric acid and magnesia than healthy ones.

The nature of the disease is described as being an increased formation of azotised matters, and a diminished production of non-azotised organic matter.

The causes of the disease are divided into the fundamental and the accidental, a distinction, on the importance of which the author insists very strenuously. The fundamental cause, according to him, is the preponderance of magnesia and phosphoric acid over the proportion of alkali, chlorine, and sulphuric acid; the accidental, or special causes, are, however, as yet unknown, and entirely the subject of speculation.

As a necessary deduction from this view of the subject, the author then proceeds to show, that if the one great primary cause of the disease be deficiency of alkali, chlorine, &c., or the excess of magnesia and phosphoric acid, it may best be prevented by a new system of manuring, and by supplying to the plants the substances in which the soil is deficient.

In reply to the fifth and last question, the author goes at considerable length into the subject of the use of diseased tubers for food. He is of opinion that in the early stage of the rot they may be used with perfect safety as food either for men or for cattle; and that in the more advanced state of decay, they may be used with the greatest advantage in various processes in the arts, particularly in the manufacture of starch and brandy.

WEEKLY PRICES OF POTATOES per ton, in *Covent Garden Market*, in 1845, and 1846.

	1845.			1846.	
Feb.....22	50*s.*	to 80*s.*	Feb.....21	70*s.*	to 160*s.*
March 1	50	80	28	70	160
8	50	90	March 7	70	170
15	50	90	14	70	170
22	60	100	21	70	180
29	60	100	28	70	180
Also at the waterside, *Southwark*.					
Feb.....24	55*s.*	to 80*s.*	Feb.....23	59*s.*	to 120*s.*
March 3	55	80	March 2	60	140
10	55	80	9	60	140
17	55	80	16	60	140
24	55	80	23	60	140

Home Correspondence.

The Jerusalem Artichoke.—This is superseded by the Potato, and therefore is seldom seen, except in the gardens of the wealthy. Mr. Forsyth, speaking of its culture (page 164) observes, that "it yielded of eatable stems, a standing crop of 12 feet." This must be an oversight, for when the stems have attained that height they are tough indeed. Mr. F. seems to be aware of this, for he also mentions that, "in growing it for the tubers, the stems must be topped at 3 feet, and it is only when young that cattle could eat the stems; it can be used if better is not to be had as food for man, and if it fails in this it will fatten pigs, and feed milk cows." I cannot say what sort of dish the young stems in question would make, but they certainly will not fatten pigs, which are not even fond of the raw tubers, though they greedily eat them when boiled. I have tried the plan of topping the stems; but I found that it only increased shade, to the injury of the tubers. I prefer growing them on light and rather poor soil, from cut sets or whole tubers, planted in rows about 2 feet apart, and the rows about 3 feet apart. By allowing only single stems to grow from the sets their natural height, the sun and air get amongst them to mature the tubers; if not, they will be watery and insipid, especially on rich damp soil. Some advise planting the roots in question near preserves for game, but that will be of little use if hares and rabbits get to them, for they would be sure to eat the stems and destroy the crop.—*J. Wighton.*

Lead Tanks.—More than 12 months ago we wrote to inquire if you knew of any objection to using a lead boiler for heating a house upon the tank system. You advised to try it upon a small scale first. We beg now to state that we have had it in operation for 10 months, in a house 33 feet by 15, and have found it to answer very well; it can be got up much cheaper, and the heat is sooner generated than in the cast or wrought-iron boiler.—*Carstairs, Kelly, and Co., Edinburgh.*

Roses.—Being a resident in Paris, an ardent lover of Roses, and possessing a collection of 200 of the best sorts grown in France, and therefore well acquainted with the French practice, or at least with the practice of the nurserymen in Paris and its environs, which I presume may be considered the principal district in France for Rose culture, I beg to rectify an error in your vol. for 1844, page 68, under the head of the "Rose Garden," where the author says "the French are in the practice of budding in hedges, and of removing the plant from thence for sale," and tells his readers to bear this in mind in choosing Roses sent from France. Now, he must have never been in France, and, moreover, must have been very much misinformed, and, I would add, must have inserted this part of the information without due consideration. In the first place, hedges are not so common in France, or at least in the district I have mentioned, which is the most probable one from which Roses would be sent to England. Although I have been living in Paris several years, I never heard of one instance of a nurseryman budding Roses in hedges; to use a common phrase, he would not get salt to his porridge by such an itinerant mode of Rose-culture, independent of which it must be admitted that it would be a very disagreeable, nay "piquant" business, and would subject the "wandering nurseryman" to be robbed of his standards just at the time he would perhaps be wanting them. I will conclude by making an appeal to Mr. Rivers, who I know has been over to France, and who knows, if not all, at least the greater portion of the French nurserymen who grow Roses, to say if he ever knew a single instance of Roses being budded in hedges for sale in France.—*N. A. P. B.*

The Weather.—On Tuesday, the 10th inst., the thermometer stood at half-past 9, A.M., at 95°; at 12 it dropped to 60°, the glass outside an east window, but the glass faced the south; and to-day, the 18th, as snow was falling, it stood at 55°, and dropt to 45°; my Lilies of the Valley are nearly in flower, and many heads of Asparagus are out of the ground. —*J. B. H., Abergele.* —— The late Mr. Loudon (Enc. Gard. 1288) tells us, that "the study of the weather from precedent affords useful hints as to the character of approaching seasons, and that certain general results may thence be deduced." And he quotes from Kirwan (Trans. Ir. Acad. v. 20) the following observations:—"That when there has been no storm before or after the vernal equinox, the ensuing summer is generally dry, at least five times in six. That when a storm arises on the 25th, 26th, or 27th of March, and not before in any point, the succeeding summer is generally dry four times in five. If there be a storm at S.W. or W.S.W. on the 19th, 20th, 21st, or 22d of March, the succeeding summer is generally wet five times in six." Will any of your correspondents inform me whether any, and what dependence is to placed on these rules? and with what limitations the words "before and after" in the first rule are to be received.—*G. W.*

Large Mushrooms.—I pulled a mushroom from a bed this day of the following extraordinary dimensions:—It measured 2 feet 6½ inches in circumference, and 10 inches in diameter; the circumference of the stem was 8 inches; and the weight was 1¾ lbs.—*James Reid, gardener to Hon. J. T. Leslie Melville, Roehampton, Surrey, March* 19.

Early Grapes.—I have now (March 17) on one Vine 10 bunches of Grapes almost ripe, and I may mention that the same Vine produced a good crop last summer. Some years ago, I was not a little proud to have my first crop ripe by the 25th of June; but this year I will be able to cut ripe fruit by the 25th of March. Grapes fit for table in March, April, and May, are very valuable, for during these months all other kinds of fruit are either done, or very scarce.—*R. H., gr., Bodlondeb, Conway, Carnarvonshire, North Wales.*

The Mulberry.—Cuttings of new wood, with a little of the old left, and potted, answer admirably for forcing, producing fine large fruit, the plant remaining of a size fitted for the table, and bearing between one and two hundred fruit. A friend of mine brought a plant from Shropshire the other day; it is now in his house full of flower.—*T. E., March* 20.

Potato Disease in Ireland.—In writing from the south of Ireland on the 3d inst. respecting the disease attacking my frame Potatoes, I promised to report the result of a four-light pit of Ash-leaved Kidneys which looked very healthy then, but which are now very much diseased. The stems are cankered, rusty, and brittle, close to the old tuber; but the produce is better than that from the former, which I account for by their being planted later and on fermenting material, which from its general warmth produced rapid growth. As regards the autumn Potatoes, I had about 40 bushels which the disease attacked in the ground. I had them dug up, carefully picked the bad, and spread the good thinly on a stable loft. In a day or two they were perfectly dry, and continued so. I picked them out several times, and after all there is not a sound tuber among them. Some of the bad ones are sprouting however, and I will plant a few for trial; but it is my opinion that the application of lime and other agents will not stop the disease nor make a bad tuber produce a good one.—*D. R.*

Polmaise Heating.—I observe in your last *Chronicle*, a violent attack by Mr. Glendinning, on the Polmaise heating, in answer to Mr. Meeke's statement in your Paper of the preceding week. I do not know who Mr. Glendinning is, although I remember his former letter in 1844. He says he has frequently examined an example of it, but he does not say where; I know of none except Lord Kinnaird's, near Dundee; but there the stove was not one of Hayden's, but an imitation of it by an ironmonger, at Perth. I wish he would mention where he saw it tried. On this examination he pronounces it "worse than the old system," and says "it is totally inefficient for the great proportion of garden purposes where heating apparatuses are required." I stated to the public the facts I had observed; and before I erected my hothouse, I had the experience of what a stove of Hayden's would accomplish in the parish church, near St. Verners, seated to contain from 1700 to 2000 people; for my gardener placed thermometers in various parts of the church, most distant from where the heated air was introduced, which was from one end, the stove being in the session house; and as a proof of the heat being equally spread over the church, there was not more than 2° of difference in the thermometers, and the heat was kept up to 75° for the whole night, and I think [illegible] was the month in which the trial was made, at least it

was during winter. This fact, which my gardener Michael Carmichael vouched for, satisfied me; and I accordingly built my hothouse contrary, I confess, to his opinion, and that of all the scientific gardeners near this, among whom I may mention Lord Abercromby's gardener; and in spite of Mr. Glendinning's assertions, I think the Polmaise system will gradually make its way.—*Wm. Murray, Polmaise, March* 24.

Foreign Correspondence.

PARIS CAMELLIA SHOW, 1846.—It is to the lady patronesses of the Société Royale and Cercle Général d'Horticulture that we are indebted for an exhibition of these splendid plants, which, moreover, they propose to continue every spring. It certainly is a fortunate thing that ladies, moving in the highest circles of rank and fashion, should take so great an interest in horticulture, otherwise we must have been content with one annual show from each society, as heretofore. It is incomprehensible how the directors of these societies (which, by-the-bye, are most liberally patronised by the public) can rest satisfied with remaining stationary while all the world beside is progressing at railroad pace; but such is the fact. It must be obvious that exhibitions, when honourably conducted, conduce perhaps more than anything else to the prosperity of horticulture; this has been the case both in England and Belgium, and would be the same here, were the *status quo* got rid of. Let us hope the spirited conduct of the ladies may be the dawn of a new era. Upon the present occasion they offered a gold medal for the finest and most numerous collection of seedling or new Camellias in flower, and another gold medal for the finest and most numerous general collection; also a silver medal for the finest and most numerous collection of Rhododendrons, and another for Azaleas; beside other prizes for the second best in each class. It is to be regretted that the programme was indefinite as to the number of plants; because it has too frequently happened that the most numerous collection has been rewarded, and a smaller one, every way superior, altogether passed over. The show was held in the grand gallery of the Palais du Luxembourg, from the 18th to the 22d of this month (March); unfortunately, estimation was only given to growers within the last three weeks, and the collections were not so numerous as might have been wished. No doubt, Camellias would have been better 10 days or a fortnight ago, but that would have been too early for Azaleas; perhaps there may have been other reasons, otherwise how shall we account for the fact, that only ten exhibitors could be found among the multitude of public and private growers round Paris. It is but too notorious that a spirited collector, with a long purse, is in a far better position to gain a prize than the most skilful cultivator of a moderate-sized collection; this system would not be tolerated in England; here it is openly practised, and plants gain a prize which have been purchased but a few days previously. On the whole, considering the shortness of the notice, both the public and exhibitors have reason to be satisfied, there were some fine specimens, and not a few beautiful new things; the awards were, moreover, strictly just. The competitors of Camellias were Messieurs. Cels, Courtois, Durand, Gontiers, Hardy, Margottin, Paillet, and Souchet; for Rhododendrons, Messieurs. Durand, Guérin, and the Barons James and Salomon de Rothschild; for Azaleas, Durand and Margottin. It was expected that the Abbé Berlèze, so well known by his splendid "Monographie du genre Camellia," would have been among the exhibitors; his collection was considered the finest private one in Paris; it appears, however, that he has, within the last week, disposed of it to the proprietors of the new winter-garden of the Champs Elysées for the sum of 1200*l*. The Gold Medal for the finest general collection of Camellias was awarded to Mr Paillet, who is one of the best Parisian growers. In his collection were some fine large plants from 6 to 8 feet high, especially delicatissima, alba fonestrata, Clowesiana, Chandleri, Henri Favre, picturata, imbricata alba, and Wardii de Eloy; among the smaller plants, Cockii, imbricata rubra, Gousonia, Lincata, Queen Victoria, magniflora plena, Reevesii, eximia, and Chandleri elegans, were conspicuous for their perfection of form or colour; but the gem of this collection was Preniland, a most beautiful cupped flower, large, very double, and the colour a delicate pink; to which may be added Marguerite de Gouillon and Pirzio, two pencilled flowers of great beauty.—Mr. Souchet gained the Gold Medal for the finest collection of new varieties; among them I noticed two or three of extraordinary beauty, and perfectly distinct from anything yet out. I regret not being able to give the names or numbers; they were almost entirely without either. The flower which was most admired was of a pale pink, rather veined and regularly bordered white; it was large, of good substance, and double, and no Camellia grower will be without it; another was in the way of minata, but far better; another like Lord Ker, but the stripe more distinct. He also gained the second prize for a general collection. The plants were not large, but well blown, particularly imbricata rubra, Marguerite Gouillon, Henri Favre, Juliana, Augustina superba, Colvilli, King, Decus Italicum, picturata, Lord Ker, Chandleri, Duchesse d'Orléans, and Queen Victoria.—Prizes were also awarded to Messrs. Courtois and Goutier.—The Silver Medal for Rhododendrons was awarded to Mr. Grison, gr to Baron Salomon de Rothschild, for a large collection of well grown plants, among which I noticed Smithii elegans, Lady Warrender, Duchess of Wurtemberg, speciosum, &c.; the only thing wanting was a greater diversity of colour.—The second prize was awarded to Mr. Guérin, for a smaller collection; his plants of Smithii roseum, Lady Warrender, formosissimum, and superbum, were everything that could be wished.—It was evidently too early for Azaleas. The Silver Medal was gained by Mr. Margottin; his best flowers were Smithii coccinea, variegata, liliflora, Youngii, and lilacina triumphans.—The second prize was awarded to Mr. Durand, for a small collection, consisting of coccinea grandiflora, variegata, Orange pink, liliflora alba, Mazeppa, phœnicea, Danielsii, and two or three others; to which he added about 20 varieties of A. pontica, of no particular merit.

Societies.

MICROSCOPICAL SOCIETY.

March 18.—J. S. BOWERBANK, Esq., in the chair. Mr. C. M. TOPPING was admitted an associate, and Mr. Z. D. HUNT a member. A paper was read by Mr. J. QUEKETT on the structure of the bones of mammals, birds, reptiles, and fishes, with a view to their identification when occurring in small fragments in a fossilised state. The author referred to Professor Owen's researches on the teeth of animals to show that the structure of the hard parts of animals might be employed for the identification of families if not of species. His attention was first called to the subject by a portion of a claw of an animal being put into his hands by Dr. Falconer, from the structure of which he was induced to refer it to the class of reptiles and the order Chelonia. It turned out to be a portion of the osseous structure of the enormous tortoise of the Sewalik hills. After describing the structure of bones generally, the author stated that the structure of the bone cells would alone distinguish between mammals and birds, as compared with reptiles and fishes. In birds and mammals they are of the same form, but much smaller in the former than the latter. The birds may, however, be distinguished from mammals by the tortuous character of the Haversian canals. In the reptiles, the bone cells are elongated, whilst in the fish they are either absent altogether, or round and very large. The President remarked on the value of this paper, and stated that by means of a knowledge of the structure of the bone cells in reptiles, he had been able to refer a fossil bone to the genus Pterodactylus, which had hitherto been supposed to belong to a bird.

BOTANICAL SOCIETY OF EDINBURGH.

March 12.—Dr. BALFOUR in the chair. Several donations to the library and museum were announced. The following communications were read:—

1. On the altitudinal range of the Mosses in Aberdeenshire. By G. DICKIE, M.D., Lecturer on Botany in the University and King's College of Aberdeen.

2. Remarks on the state of the Sibthorpian Herbarium at Oxford, suggested by the announcement of a new edition of the "Flora Græca." By Dr. R. C. ALLEXANDER.

3. Botanical Excursion in Lower Styria in 1842. By the same.

Dr. ALEXANDER stated, that he had been persuaded by his friend, Dr. Maly, of Gratz, to take a tour through Lower Styria in 1842. "A country that had been little explored by botanists, though seeming to claim their especial notice. Situated in a degree of latitude almost the same as that of the middle of France, at the base of the great central Alpine group of Europe, three branches of which terminate in this province; and on the eastern side exposed to the influence of the great plain of Hungary where the winter is as cold as the steppes of Russia, and the summer as hot as the warmest parts of Italy or Spain, it might be expected to evince in its vegetation the effects of a climate so modified." The excursion commenced about the beginning of May and lasted till the end of July; during which time Dr. A. was enabled to make a large and valuable collection of plants, including several species new to Styria. Specimens of the more interesting species were exhibited to the meeting, the Society's herbarium having been enriched by a very complete set through the kindness of Dr. Alexander.

A letter from Dr. BIDWELL, Albrighton, was read, announcing the discovery of Vaccinium macrocarpum near Mold, in Flintshire, in August last; and from Mr. W. A. STABLES, noticing the discovery of Neottia nidus-avis in Cawdor Woods, Nairnshire.

Dr. BALFOUR exhibited specimens of disease in plants caused by insects; one of these consisted of stipitate excrescences on the leaves of a N. American tree; concerning which Dr. B. read some extracts from a letter which he had received from Mr. White of the British Museum:—"The swellings on the leaves of the plant seem to be caused by some species of plant louse; one kind is very hurtful to the Peach tree, but attacks the leaves in a different way to the insect on your specimen. Dr Harris in his admirable work on the insects of Massachussetts injurious to vegetation, speaks of some aphides, 'the punctures of which affect plants in a most singular manner, producing warts or swellings, which are sometimes solid and sometimes hollow, and contain in their interior a swarm of lice, the descendants of a single individual, whose punctures were the original cause of the tumour. I have seen reddish tumours of this kind as big as a pigeon's egg, growing upon leaves, to which they were attached by a slender neck and containing thousands of small lice in their interior.' Possibly the excrescences may be caused by some minute moth (Tortricidous or Tineidous), as there are evidences of some little larva that has eaten away the parts between the cuticle at the base of some of the excrescences. Your specimens I have examined, but do not find any fragments of the insects, although there are traces of dung, and a small part of a web, certainly remains of a moth, and there is no reason why the excrescences may not be the nidi for the eggs of an Eriosoma (an aphidious insect), and the web, dung, and eaten part, evidences of some tines. Mr. Doubleday has observed similar warts on leaves, but knows not how they are produced."

Reviews.

Memorials of John Ray; edited by Edwin Lankester, M.D. *On the Alternation of Generations*; by J. J. Steenstrup, translated by George Busk, Esq. *The Nudibranchiate Mollusca of Great Britain*; by J. Alder and A. Hancock: Part II. Ray Society.

THERE are none of the publishing societies that occupy a field of more importance and usefulness than that of the Ray Society. Natural history does not receive in this country, in our seats of learning, or from the public, that encouragement which would generally lead booksellers to publish works expensively illustrated, or profoundly written, and needs a society like this both to develop a taste, and supply the material for its study. How well it has executed this task must be judged of by the books it has published. We noticed the first two volumes with approbation, and the three now before us are worthy of their predecessors. Amongst illustrated works on natural history we know of nothing more beautiful than the work of Messrs. Alder and Hancock. Part II. is an improvement on the former fasciculus, both in the drawing and colouring of the animals. In addition to 10 plates, consisting of figures of the animals, it contains three devoted to anatomical details. At a period when the structure and functions of these animals have been a subject of so much discussion between French and English naturalists, these minute investigations by such accurate observers of the family are of the highest interest. We hope the council will be induced, from the successful manner in which they have brought out this work, to publish works equally well illustrated devoted to the science of botany.

We could have wished to have had a more imposing volume devoted to the memory of Ray. It consists of "Ray's Life" by Dr. Denham Sir J. E. Smith's "Notice" from "Rees' Cyclopedia," a translation of the article "Ray" by Cuvier and Dupetit Thouars in the "Biographie Universelle;" the "Itineraries" of Ray, and a paper on the "Number of Plants," by Ray. There are a number of biographical notes by the editor, Dr. Lankester; and Mr. Babington, of Cambridge, has supplied the modern names of the plants mentioned by Ray in his "Itineraries." The letters, which it appears the council intended originally to publish, will appear in a future volume. Although we should have liked to have seen a good original life of Ray, which is still a desideratum in our language, we think the council has done quite wisely in publishing these memorials, some of which are not to be purchased, and others generally inaccessible, in preference to a life written hastily, or by an incompetent person. Through these memorials only a very faint glimpse will be obtained of the true greatness of the man to whom they are devoted, as little or nothing is said, if indeed it were even known or guessed at, of the influence of the genius of Ray on the science of botany, by those who have devoted most attention to his biography. The "Memorials" are illustrated by a very pretty sketch of the tomb of Ray, and Black Notley Church, from the pencil of Professor Edward Forbes.

The remaining volume is a translation of a work which appeared originally in Danish, and subsequently in German, and which has produced a considerable sensation amongst the naturalists of the Continent. The author points out the fact that certain animals, before they complete the cycle of their development, pass through various forms, and that many of these forms have been regarded by naturalists as perfect species. The intermediate forms between the perfect animals the author calls "nurses," or "nursing generations." This peculiar form of development has been only observed in the lower forms of animals, although a modification of the law might, perhaps, be found in the higher animals where the offspring are sometimes found to resemble, in peculiarities of form, those of the grand-parents, and not those of the parents. We believe that there are some facts amongst the lower orders of plants which would admit the application of such a theory, and think that the subject deserves further inquiry. This volume is illustrated with three plates, two of which have been executed by the Anastatic process, which promises to be of value in the republication of illustrated works.

The third volume of the second year is, we understand, in a state of forwardness for publication, and will consist of a report by Professor Link, on the progress of botany; a paper by Dr. Zuccarini, on the morphology of the Conifers, with plates; reports on the progress of botanical geography, by Professor Grisebach; and a paper by Dr. Nægeli, on the structure and developments of cells in vegetable tissue; all translated from the German.

We are surprised to find with what limited means the Council has been enabled to publish these works. Members are entitled for their first two years' subscription to the six volumes we have mentioned, and yet the number of the members has not reached 1000. With the present number of members the works are cheap, but with an increase in their numbers the Council would be able to publish more works; and we feel

that we cannot do a better service to natural history than by recommending all who love its study, or would promote it, to enrol themselves members of the Ray Society.

New Garden Plants.

19. Ficus virgata. Rod-branched Fig. *Half-hardy Shrub.* (Morads.) North of India.

In general appearance this shrub resembles the common eatable Fig, but it seems to form a much smaller bush. The young shoots, leaves, and fruit are covered with fine short hairs. The leaves are roundish-ovate, from three inches to four inches long, regularly serrated all round, except at the very base, and seated on taper stalks rather less than half their own length; they are slightly wrinkled on the upper side, but very much so on the lower. The Figs are seated on short stalks, have a pear-shaped figure, and seem to be as large as the fruit of the sorb; usually they appear singly, but in some instances two have grown from the same axil. It is a deciduous shrub, capable of withstanding an ordinary winter, if planted in a dry situation. It was killed to the ground by the last severe winter. It grows freely in any good garden soil. It has no beauty as an object of cultivation, and is only interesting as a distinct half-hardy species.—*Journal of the Horticultural Society.*

20. Pleurothallis crenata. Crenelled Pleurothall. *Stove Epiphyte.* (Orchids.) Mexico. Messrs. Loddiges, No. 82.

Sp. Char.—Leaves oblong, obtuse, narrowed towards the base, three-toothed though rounded at the point, much longer than the very short stems. Racemes loose, about as long as the leaf, dull purple, bearing the distant flowers from the very base on long nodding pedicels. Flowers dull green closely spotted with dull dark purple. Sepals about half an inch long, ovate, acute, equal, somewhat keeled at the backs, very minutely downy, the two lower united beyond the middle. Petals lanceolate, acute, shorter than the sepals. Lip oblong, fleshy, obtuse, a little broader in the middle, slightly cordate, very concave, dull purple with a marginal row of dark purple spots, and within them a narrow hairy space. Column slightly hooded, with the anther-bed crenelled and extended on each side in front into a tooth. Anther crested, crenelled.—*J. L.*

This is one of the larger flowered species of Pleurothall, and is not very unlike P. restrepioides and Mathewsii, near which it must be placed in the arrangement. It is not a plant of any beauty.

Garden Memoranda.

S. Rucker, Esq., West Hill, Wandsworth.—This place has long been celebrated for its fine and valuable collection of exotic Orchids, and justly, for at few places are they grown to such perfection. The bright green of their foliage, and the immense size of many of the specimens, bear ample testimony to the judicious treatment they receive. Few of them were in bloom; but of those that were may be mentioned Galeandra Devoniana, a pretty species, with greenish brown petals, and a large pink streaked funnel-shaped lip, the rare white-flowered Phalænopsis amabilis; a large and pretty specimen of Pleione Wallichii; the finely formed Dendrobium aggregatum, with short pendent spikes of light yellow flowers, having orange centres; and Calanthe veratrifolia, and Barlingtonia venusta, both with delicate white blossoms. In the same house was a specimen of the New Holland pitcher plant (Cephalotus follicularis) with 18 pitchers on it, and many more making their appearance; it was growing in a 6-inch pot, in a mixture of loam and peat. This curious little plant is generally grown under a bell glass; but we were informed that in this instance it has never been covered at all; but fully exposed to the atmosphere of the house. The curious Nepenthes distillatoria was growing here in the most robust health, and covered with pitchers; and N. ampullacea was also producing pitchers considerably larger than those of the former, and differing from them also in being spotted with bright brown, and in being furnished at the back with a pair of wings, edged with a tooth-like fringe. Close to these was a thriving plant of the Stag's horn Fern Platycerium grande. This was growing on a thin board about a foot square, suspended from the roof by one of its sides. The house close to the Orchid house (45 feet in length and 14 in width) has been recently very much altered, and is now well adapted to the growth of such plants, presenting an extremely clean and light appearance. The old smoke flues have been pulled down, and it is now heated by hot water flowing in 4 inch iron pipes, which entering at the end of the house close to the back wall, pass round to the front, where they are made to traverse a brick and cement tank, 45 feet in length and 3 feet in width, or the length and breadth of the front shelf. This tank has 6 inches in depth of water in it, which covers the pipes, and it is closed in by slate covers, which are not cemented together, but laid loosely so as to allow moisture to ascend between them. On these covers are laid about 4 inches in depth of sand, on which the plants are placed, and through which the heat and moisture pass, affording a moist bottom heat to the plants. Moreover, means of supplying moisture to the atmosphere of the house is provided in the shape of small openings in the side of the tank or front shelf; these are fitted with little slate slides, which can be opened or closed, as it is desired that vapour should escape or be withheld. The centre bed is not heated, and it may be mentioned that the flow pipe which heats the atmosphere immediately after entering the house, branches off into another pipe of the same size, which, passing along *above* the first pipe, unites with it again where the latter enters the tank or front shelf. On this top pipe little troughs are cast, to hold water for supplying moisture to the atmosphere. This house is also filled with Orchids, among which were many magnificent specimens of first-rate cultivation. Those in flower were Dendrobium Cambridgeanum, producing 13 spikes of dark brown spotted orange blossoms; the curious little Leptotes bicolor, with from three to seven flowers on a spike; Erica densiflora, having 17 spikes of cream coloured blossoms; several fine plants of Dendrobium nobile and Wallichii; and an enormous mass of Oncidium altissimum, throwing up 13 blossom spikes; together with the showy Lycaste Skinneri, which has been in bloom for these three months, and which still promises to produce its gaudy blossoms for some time to come. In the greenhouse, which was gay with the different kinds of forced flowers, we particularly remarked a pretty standard Azalea, with a fine head of red and white blossoms, strikingly contrasting with one another, and rendering the plant a very attractive object. This has been effected by inarching A. lateritia and Gladstonesi together on a straight stem, about 3 feet in height, of the old A. phœnicea, which forms an excellent stock for the purpose. The small conservatory attached to the mansion was also exceedingly gay for the season of the year with Pelargoniums and other forced flowers, especially Azaleas, among which was a fine plant of lateritia 4 feet high, whose bright red blossoms contrasted well with the lilac flowers of pulchra and other paler-blossomed varieties. These were all placed very closely together, and formed a dense bank of flowers of various shades and colours, having a very imposing effect. In conclusion, it is but justice to Mr. Mylam to mention that the whole place was in excellent keeping—everything evincing the very best management.

Miscellaneous.

Probable Effects of the Frost on Vegetation.—Vegetation has seldom been so far advanced in this country in the month of March as it was this season. The Pelargonium and many a tender exotic stood out in the open flower-garden three days ago with "lively green," that indicated unwonted exuberance and bloom for the coming summer to the lover of flowers. The first (and perhaps only) fruit of the Gooseberry had been tasted in "the tart," and the orchards and the garden walls were covered with expanding blossoms and embryo fruit. The forest was already bespangled with the soft spring tints of the Larch and the Balsam Poplar. The moth and myriads of insect tribes danced in the shades of night and beams of the morning in their summer transformations. The vegetable and insect kingdoms were teeming with life on the morning of Wednesday, but that severe night came and threw the icy mantle of death and destruction over the throbbing bosom of nature. The sun arose next morning, and removed the icy garment, but it was only to show the wreck and ruin—the symbols of a departing world! The entomologist saw the earth incrusted with the slain. The school-boy lifted the thrush from its frozen young. The florist wept o'er his withered flowers, and the gardener looked sad on a desolate and fruitless garden. What the full effects of the frost may be it is perhaps premature to estimate. From personal observation, however, during a walk in the country, I would calculate something like the following results. We shall not have one-twentieth of an average crop of those home grown fruits which now form such an important portion of the food of both rich and poor. Scarcely a Gooseberry, Pear, Cherry, Peach, or Apricot remain in the open garden; Apples and Plums will also be few. Strawberries and Raspberries are the only probable fruit of the season, hence they deserve extended cultivation. It is not only the loss of blossoms and fruit for the present season, but the trees themselves (especially inland) may not recover for many years, and many will die. Every Gooseberry bush and fruit tree that was getting old, and may have been damaged by the frost, ought at once to be removed, as they will only engender insects, and prove "cumberers of the ground." Young plants ought to be planted so soon as the weather is mild, to supply their loss. The tops, as well as all others that remain, ought to be pruned well in this season. The withered flower buds of trees that remain ought also to be cut off, to induce the reserve buds below to form a succession. This is a law which Nature teaches, if we observe fruit trees generally, or the Poplar of the forest; but the Larch tree, for instance, does not readily recover its wonted vigour by the growth of its reserve buds. I fear that noble tree has received a check from the last three nights' frost, which may retard the increasing growth of its trunk for years, if not destroy three-fourths of its extent in the forest. Wherever the buds are much damaged with the frost, it is more commendable to clear the ground of it before the first peeling season goes by, and get advantage of the ground for Potatoes, &c. Should the present extent of injured Larch remain to propagate the disease and insects which Nature provides to carry off interrupted and diseased circulation, the woods as well as the fields may soon be infested with a plague to both the animal and vegetable kingdom.—*R. A., Edinburgh Evening Courant.*

Asphalted Flower Stakes—It having been stated that Seyssel Asphalte would prevent Dahlia and other stakes from decaying under ground, the following experiment was tried. Stakes thoroughly dry, and consisting of Birch, Elm, Ash, Hazel, &c., were coated with boiling asphalte sufficiently high up to allow for one foot being above the surface of the ground. The portion of the stakes just above the ground soon began to decay, and by the end of the season all were quite rotten. This application proves injurious. Some of the stakes treated as above mentioned, and not driven into the ground, rotted in the same manner. That portion of the stake which is under ground, and covered with the asphalte decays faster than when driven into the ground without any such preparation. — *Journal of the Horticultural Society.*

CALENDAR OF OPERATIONS.

(For the ensuing Week.)

CONSERVATORIES, STOVE, &c.

The classification of business is at all times of the utmost importance, more especially at this period. There are maxims in gardening established by long practice, which, if borne in mind by the amateur or the tyro, would save, in no small degree, the tedium of repetition in Calendars. For instance, in sowing operations, there are certain vegetables for which, in order to produce a continuous succession, no better rule can be offered than to sow a succession as soon as the preceding sowing is fairly above-ground. Such may be said of Peas, Beans, Horn Carrots (for drawing young), Radishes, Spinach, small salads, &c. Again with regard to plants for early forcing purposes, the budding or shooting of one set introduced to the forcing-pit, should be the signal for the introduction of a succession. In matters of propagation, likewise, the cuttings of various flowers for a summer's display should be collected at all possible simultaneously, struck in a frame or pit together, and nursed together afterwards. They always meet with more steady and uniform treatment under such a course, and it conduces likewise to the easy dispatch of business. *Plant-houses in general.*—A thorough revision of all the various tribes in the different houses where plant growing and forcing are carried on in a mixed way, is necessary at one period or other during spring, the shutting up of late Vineries or Peach-houses generally offering facilities for this arrangement, and of course for relieving the other structures. It is of great importance to keep things classified, or in families, as much as possible, which, as well as facilitating business, will add a zest to these structures. Exhausted forcing stock should, by all means, have a pit, or frame, fitted up especially for them. They should by no means be allowed to mix with the general stock. The amateur may carry out this principle with a small frame. A bed of fermenting material of a mild character, covered 6 or 8 inches deep with tan, and well topped up with linings and matted at night, is the thing required. A bottom heat of 80° with frequent syringings, and the plants plunged (of course), will restore them to perfect health, and prepare them for another campaign. *Stove Plants and Orchids.*—Orchids should now be allowed a slight advance in temperature, especially by shutting up early. *Mixed Greenhouse.*—Fuchsias will be benefited by the application of clear liquid manure. Very liberal shifts will be necessary at this period, more especially with those intended for very large specimens. Cinerarias for late blooming should, if pot-bound, be shifted likewise. Let plants in need of water have immediate attention; nothing conduces more to the encouragement of insects than suffering plants to become checked through drought. Follow up matters of propagation, and see that cuttings and young stock, are carefully shaded when necessary.

KITCHEN GARDEN FORCING.

Pines.—It is to be hoped that the cautions so oft-repeated about root-burning have been sedulously attended to. It is absolutely impossible to attain even moderate share of success where this sad evil is allowed to take place. What is called a lively bottom-heat is at all times an insecure one. This, by common consent, is allowed to be from 90° to 95°, and is, in my opinion, but a dangerous game to play at. Mr Haudton assured me last summer that he had no doubt that over-excitement of this kind tended, amongst other evils, to greatly increase the crown. *Vineries.*—Thinning and shoulder-tying being finished in early Vineries, little is necessary to be done, except to pursue an even course in regard to heat and atmospheric moisture. See that all the principal leaves, on which so much depends, have fair play as to a free exposure to the light, and endeavour to prevent their coming in contact with the glass; most houses are wired too close to it. Follow up stopping, more especially with the grosser shoots, and allow lower branches to ramble a little, to equalise the sap. Late Vines as before; keep the wood moistened at least twice a day. *Peach-houses.*—The early fruit will in many cases be stoning. Remember that this process will not bear pushing. If such be attempted, the trees will cast their fruit. See that young wood is carefully trained to the trellis; this is a most important point at all times. The true way to accelerate the ripening period is to endeavour by all means to promote the healthy secretions of the plant. No plant requires more sun-light than the Peach, and abortive blossoms commonly spring from bad attention to the summer training. *Figs, Cherries, &c.*—More Figs are lost through drought than by any other evil. A constantly moist state of the soil is indispensable to their success, when confined in boxes or pots. They succeed admirably when a pit of leaves in a state of fermentation can be given up to them. Plunged in a bottom-heat of 70° or 75°, in this way, and allowed to ramble at the root, with close stopping in the wood, and a humid atmosphere of 65° or 70°, they will be everything that can be desired. Cherries and Strawberries as before. *Cucumbers and Melons.*—Get out successional crops, if not done; take every precaution to avoid burning at the roots. To this end, when making the hills for them, form a hole three parts the depth of the bed in the centre of each light; half fill it with raw turf chopped slightly, and on this place the compost for the hills. Never finally soil

over the beds until all danger from burning is past, and then only half at a time, taking care that the linings are in good order at that period, or an injurious depression of the temperature will suddenly take place.

KITCHEN GARDEN AND ORCHARD.

Proceed with the business of former Calendars. I will this week say a few words about Asparagus planting. I hold it of the utmost importance in kitchen gardening to give every attention to a proper rotation of crops. I make it a point to grow all my Celery (which occupies, I imagine, about a tenth part of the whole kitchen garden), in what are called Scotch beds. These beds with me are from 5 to 6 feet wide, and I every year break up an old Asparagus bed or two, in order to force it. I make it a rule to plant at least an equal quantity. Part of this Celery ground is prepared in a special way, with a view to its being laid down with Asparagus. The preparation consists in trenching it much deeper than the rest, and in burying a considerable quantity of raw vegetable matter in the bottom of the trench.—Old refuse, vegetables, Cabbage stalks, weeds, or what is very good (if it can be obtained) half-rotten leaves, with which some little manure has been blended for linings in the previous year. The upper part of the beds have some rotten manure of course for the Celery. In taking up the Celery for use, the bed is broken up a great depth and the alleys with it, and thrown into a ridge, which ridge remains as a fallow until planting time, when it is merely levelled for planting. It should not be planted until the early part of April. *Orcharding and Fruit-trees.*—See last Calendar.

FLOWER-GARDEN AND SHRUBBERIES.

This is an excellent time to sow a good collection of Annuals, whether hardy or tender. For the latter, a slight hotbed is requisite. The more choice hardy Annuals should be sown in patches, and covered with a garden pot, taking care to remove it when they are coming up in the day time, covering them again at night. If any rude or unimportant shrubbery borders require a little gaiety, and business presses, a mixture of some of the hardier sorts might be made, such as Collinsias, Clarkias, Escholtzias, Malopes, Larkspurs, and Candytufts, and strewed at random over the open parts of the border, after a thorough cleaning. Dahlias should be increased without delay, and an early batch of Chrysanthemum cuttings, or suckers, put out. Lobelias should be potted, and put into a dung bed. German and Ten-week Stocks should be sown in fresh soil, in a cold frame, or one that will soon cool down; and a few early German Asters on a slight heat. Let walks in ill condition be turned forthwith, and fresh coated with gravel, filling them nearly brimful: they harmonise better with the surrounding scenery than when deep.

FLORISTS' FLOWERS.

Auriculas.—Give air on every possible occasion, as the effect is very much diminished when the flower-stems are drawn up weak; a finely-grown Auricula ought to support its truss without assistance. Whilst the blooms are unexpanded, slight showers will be of service, when not accompanied with boisterous or cutting winds; but as soon as they open, moisture over head should be avoided, as it is apt to disturb the paste of the eye, and to give the flowers a smeared appearance. *Polyanthuses.*—If not parted last autumn, may now be divided advantageously; if the plants are required for exhibition, of course this operation may be deferred. *Tulips.*—Canker to a considerable degree has made its appearance in many collections; effectual means must immediately be taken to eradicate it, by removing the soil, and cutting away the diseased part to the quick, and allowing it full exposure to the air. *Seedling Tulips* must be carefully attended to, and kept free from weeds, and their growth encouraged as much as possible. *Carnations and Picotees* should immediately be put out in their blooming pots, and placed in a sheltered situation on a layer of coal-ashes, to prevent the ingress of worms, &c. In order to make "assurance doubly sure," place a piece of fresh-cut Potato in the soil by the side of the plants; and should there be, by any chance, a wireworm overlooked, it will generally prefer the former, and may thus be caught. *Dahlia* plants, potted off after they have taken root, may be gradually hardened by occasionally tilting the frame lights. Continue to put in fresh cuttings, as they get sufficiently long. *Pinks and Pansies* must be attended to as previously directed, taking especial care to entrap snails, &c.

COTTAGERS' GARDENS.

Continue planting Potatoes; scoop out the eyes, or make very small sets; they will answer exceedingly well if they escape the disease. Both lime and sulphur are recommended for dusting the sets with before planting. Get in plenty of Parsnips and Carrots, in lieu of part of the Potato crop; and try a few Jerusalem Artichokes on any inferior plot; a very slight manuring will suffice; they must be topped when about 5 feet high: plant on level ground, like Potatoes, or in drills 18 inches apart, and 1 foot between the plants. Sow plenty of Green Kale, early Cabbage, Savoys, &c., and a small bed of early Swede Turnips.

FORESTING.

See to all water courses, scour out all lodgements, and secure a perfect escape for superfluous waters. Stagnation is as prejudicial in the forest as the field. The time is probably at hand, when the modern deep draining will be applied to land for plantations; until such, however, takes place, the surplus must be got rid of. Keep a watchful eye to the seed-bed, for fear of the depredations of vermin.

Errata.—Under head "Cottagers' Gardens," March 14th, for "Rags" read "Hogs." Under head "Cold Pits," March 21st, for "newly potted Stocks" read "newly potted Stock."

State of the Weather near London, for the week ending Mar. 26, 1846, as observed at the Horticultural Garden, Chiswick.

Mar.	Moon's Age.	Barometer. Mar.	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain.
Frid. 20	(	29.781	29.548	44	30	38.0	N.W.	.10
Sat. 21	23	29.663	29.956	46	35	40.5	S.W.	.09
Sun. 22	24	29.902	29.177	53	29	41.0	S.W.	.09
Mon. 23	25	29.317	29.169	55	37	46.0	S.W.	.03
Tues. 24	26	29.338	29.310	55	38	46.5	S.	
Wed. 25	27	29.387	29.361	55	36	44.5	W.	.10
Thurs. 26	28	29.710	29.443	54	37	45.5	W.	.02
Average		29.585	29.329	51.1	31.7	41.4		.43

Mar. 20—Snow early a.m., nearly 2 inches deep; cloudy; very clear; frosty
21—Sharp frost; densely clouded; boisterous, with heavy rain at night
22—Clear and fine; sunshine and rain at intervals; showery at night
23—Rain, cloudy and fine, clear
24—Overcast, cloudy and fine; clear
25—Fine; overcast; showery; clear at intervals
26—Cloudy and fine; showery; clear.

Mean temperature of the week 2 deg. below the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending April 4, 1846.

Mar.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 29	53.7	34.5	44.1	4	0.12 in.	1	3	4	2	1	4	2	3
Mon. 30	53.6	33.6	44.0	6	0.30	3	4	2	—	3	3	3	2
Tues 31	54.7	35.2	45.5	9	0.36	2	5	3	2	1	2	4	2
April													
Wed. 1	53.9	35.4	44.6	10	0.76	2	2	3	2	2	2	1	4
Thur. 2	54.6	37.1	45.8	9	1.19	3	2	2	1	2	5	2	3
Fri. 3	56.1	34.4	45.2	9	0.07	4	3	2	1	—	4	4	2
Sat 4	55.6	36.4	46.0	7	0.14	3	5	2		5	2	1	2

The highest temperature during the above period occurred on the 3d, 1836—therm. 78°; and the lowest on the 1st, 1838—therm. 16°.

Notices to Correspondents.

The Third Edition of PAXTON'S COTTAGERS' CALENDAR being exhausted, a New Edition is preparing, and will be ready next Wednesday.

BACK NUMBERS OF THE GARDENERS' CHRONICLE.—The Volumes for 1844 and 1845 can be had, bound in cloth, price 1*l.* 10*s.* each. The following Numbers in the respective years can also be had. Any Subscriber who will forward to the publisher post-office stamps equivalent to as many Numbers as are requested, will have them sent free by post.

1841—1, 6, 8, 11, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 34, 37, 38, 44, 45, 46, 47, 49.

1842—1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 34, 35, 38, 40, 41, 42, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53.

1843—4, 10, 11, 12, 13, 14, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 48.

1844—All but Nos. 36 and 46.

1845—All but Nos. 24, 34, 35, 38, and 48.

BOOKS—*A Young Gardener* We are unacquainted with Mr. Boag's Dictionary. Any modern English Dictionary answers ordinary purposes.——*L M G*—Now is the time to begin with "School Botany;" you should not delay for a single week. ——*A Young Beginner*—The "Tree Rose" may be procured through any bookseller, price 4*s.* 6*d.*——*R M*—"Roberts on the Vine."‡

CALCEOLARIAS—*Newport*—Several excellent articles on the treatment of the Calceolaria, have appeared in former vols., particularly at pp. 67 and 341, 1841. The only secret is to get the plants strong in autumn; grow them gently with plenty of air through the winter; put them into their blooming pots in the first week in February, and then push them along in a gentle heat, keeping them free from insects, until they show bloom in April, after which they must be grown in a cool, airy place, to prevent the flower-stems from becoming too much drawn.‡

CAMELLIAS—*C D*—Your plants are probably kept too wet at the roots, or they may require fresh soil, in order to enable them to expand their flower-buds.§

CHICORY *Inquirer*—Sow this in the latter end of April or beginning of May, in a rich, deep, loamy soil. If you double drill it, the rows should be from 16 to 18 inches in width; the drills, 3½ inches apart.‡

CONIFERS—*A H*—Juniperus pendula is apparently hardy.

COUVE TRONCHUDA *Tweedside*—Sow this in May. It possesses considerable merit as an autumn vegetable; but being rather tender, it requires protection from severe frosts. Slight frosts, however, are said to render it more palatable, by removing the bitter taste which it otherwise possesses. The stalks of the leaves are eaten like Seakale.‡

GLAZING—*C A T*—Good gardeners are of opinion that laps are needless in sheet-glass, and we have little to object. The fear is that water will draw in at the joints during winter, expand, and chip the edges. We should think that it would have been far better to leave the bees in their winter quarters till the beginning of April.

GRAFTING. *Northwood*—It is not necessary to cut away all the branches of a tree when it is grafted; but it is better to do so.

GREENHOUSES—*P J*—Nothing will *thrive* in your passage. You may compel Camellias, Scarlet Geraniums, New Holland Acacias, and Nepal Rhododendrons, to grow there; but the want of light and free ventilation are insuperable obstacles.

HARDY CLIMBERS—*Charlotte*—The following will possibly answer your purpose viz.—the Pyracantha, Clematis montana, azurea, and Hendersoni, Caprifolium sempervirens, gratum, and flexuosum; Chimonanthus grandiflorus; Glycine sinensis; Bignonia radicans major; Jasminum officinale and revolutum, Passiflora cærulea; Magnolias, and Climbing Roses.‡

HOTBED—*Sigma*—Pigeon-holed walls are constructed by leaving out what bricklayers call the "headers." Carry the Pigeon-hole work all round.

INSECTS—*J T C*—The animal is a minute Podura, which may be destroyed by fumigation. Employ Tobacco for that purpose, and if it does not succeed, use sulphur moderately. *R.*——*L J V*—It is a Thrips, but so injured by the gum that it is impossible to tell you the species. What is it doing? *R.*——*E G*—There is no special receipt for killing ladybirds, and we hope there never will be. They are the gardener's best friends, next to toads.

MAIZE, &c.—*A H*—We know of no variety of Indian Corn hardy enough to be fit for *profitable* cultivation in this country. All experience is against it. The hardiest kind is the 40 days' corn of Lombardy. The Convolvulus Potato is certainly not cultivable in this country in the open air. We never saw the tubers of Cyperus esculentus offered for sale in England; and we doubt if it is to be found unless in Botanic Gardens. *Cui bono* its cultivation?

NAMES OF PLANTS—*Jas. Rollins*—We see nothing unusual in the Yew you have sent us.——*Cork*—Narcissus Tazzetta var. *J W*—1, Gnidia simplex; 2, Acacia armata.——*R X A*—Seedling Acacias cannot be named.——*W May*—Abies rubra.¶ ——*S Warnford*—Distinct double varieties of Ajax Pseudo-Narcissus of Haworth.

NARCISSUS—*Silenus*—Much obliged: but we have no room at present for silly stories from the heathen mythology.

PELARGONIUMS—*Q A*—One-half turfy loam, one-fourth peat, and one-fourth silver sand, well mixed with decomposed cowdung, will form a suitable compost for Pelargoniums.§

PINE-APPLES—*A B*—The depth of pits for succession plants depends on the sorts; for example, that absolutely necessary for Queens would be insufficient for the taller kinds. You may allow 2½ feet for the former. Without knowing the arrangement of your heating apparatus, it is hazardous to give an opinion about planting out of pots; for precautions must be taken to guard against the liability of baking the roots.‖

POLITICS—*G W*—We never meddle with them. If we did we should take our side without reserve. As to printing correspondent's questions as well as our answers we have tried the plan, and abandoned it in consequence of the enormous length to which it would extend this part of our Paper.

POLMAISE HEATING—*G E H*—If we had a greenhouse to heat we should adopt this plan; but as it will be next winter before you will have to use it, you had better wait a little while till you have heard the end of the discussion. We hold fast to the statements made about it in our first Leader on the subject. Precautions must no doubt be taken with Polmaise as with everything else.

POTATOES—*P G*—We shall be most happy to find ourselves mistaken; but everything confirms our present views. As to calling us alarmists, why—we accept the name. It is our *business* to alarm people when there is cause for it; and we should desert our duty if we wavered or hesitated in the least. When the Potato disease first broke out we were then called alarmists—and had we not reason? Does anybody fancy that a public journalist does his duty by meekly raising his palsied hands in dismay at disasters, the probability of which he ought to have pointed out in order to warn the country in time. We are not of that mind.——*G A*—We will enter into no disputes about this matter. What statements we have really made we are ready and able to justify completely. But it is useless to attempt to deal with the assertions of A B and C. For example, we have just seen an assertion cut out of some Irish paper, that we estimated the loss of the Potato-crop in that country at 5-6ths. Such a statement is absolutely false. The estimate alluded to was roughly made on the 20th Sept., 1845, at a time when it was only just known that the Irish crop had been attacked. It had reference only to Holland, Belgium, N. France, and the South of England, and was, we fear, very near the truth; for the loss in Holland alone is officially stated to have been ⅓ or ¼, and the Belgian estimates, although not official, are to the same amount.——*P W S*—The tendency which diseased Potatoes have to form clusters of young ones is well known. But we have no warrant for saying that such young ones will produce a healthy crop; in fact they are often diseased, or mere abortions. However, the experiment is well worth a trial, when such Potatoes root freely as yours do.

ROSES—*A Young Beginner*—All tender sorts should be protected in winter. If, however, you could pack them well in thatch or mats in winter, that plan is better than taking them up or keeping them in tubs.——*J C L*—The following have been found to force well:—Torrida, Bernard, Billiard, and Comte de Paris, Bougère, Pactolus, Celina, Hebe's Cup, Bouquet de Flore, Ne plus ultra, Madame Plantier, Beauté Vive, and many other perpetuals and hybrid Chinas.‡

SEA WATER—*E B*—If your marshes are completely soaked by sea water, they will not carry good Grass till the saline particles are removed by drainage or by artificial means. Fresh-water Grasses will not thrive till something has been done.

SHADES—*S*—We know of no particular contrivance for moving roller shades inside a house—but of course it could be done if it were not for the plants trained over the roof. Those in the Garden of the Horticultural Society are external, and very inconvenient they are.

SMOKY CHIMNEYS—*Smoke*—The person who could infallibly cure smoky chimneys would soon make his fortune. It is always difficult to form an opinion on such a subject without actual inspection; but, in general, such a case as yours is cured by raising the chimney. We presume that the westerly winds blow your smoke down the chimney. Can you not lengthen it? To lower it would only increase the evil.

TREE VIOLETS—*Ignoramus*—In forming these train them to a single stem, and afterwards cut off all suckers and low lateral shoots as soon as they appear. The mere pinching off the flowers will not effect the end in view.¶

VINES—*A H*—You may train the old wood of your Vines up the rafters without wires; but you cannot dispense with them, and do justice to the training of the young shoots, even although you adopt the spur system. An outside screen, and that a thin one, will be amply sufficient. Putty the laps.‖——*T. O'Reilly*—For a small house, Black Hamburg, Royal Muscadine, Black Frontignan, White ditto, Roberts's.‖——*D*—Better plant those you have in pots.‖

WOOD ANEMONE—*A M D*—The blue wood Anemone grows in Wimbledon Woods; in the Duke of Somerset's Park, Wimbledon; near Harrow-on-the-Hill; at Luton Hoo, Bedfordshire; near Berkhamstead, Herts; and also near Canterbury. The double white wood Anemone has not hitherto been found in a wild state. *W. W.*

MISC—*Epicurus*—We know nothing of the art of making Bass's Pale Ale. As to French Coffee, the whole secret consists in making it directly after the Coffee is roasted. We do not publish almanacks.——*Jas Clapp*—You must apply to officers who are in command of ships. The appointment rests with them, unless you can get some Lord of the Admiralty to interfere, in which attempt you will hardly succeed.——*L J V*—We were anxious to see the Orobanche, supposing it to have been some Brazilian species imported with the Gesnera roots: that not appearing to be the case, our anxiety is diminished. Pinus Gerardiana is a 3-leaved species; Abies Smithiana and Khutrow are the same; Pinus insignis is from California. Hereman's Dilutium was advertised at p. 66. You are mistaken; Gesnera rutila is not a species with large bulb and foliage: yours is probably that species. To flower Francisceas well, they should have three months *rest*, that is indispensable.——*Ignoramus*—The power possessed by plants of adapting themselves to climate and new situations is generally very limited, and seems to depend mainly upon the fact that all plants demand a certain length of time for repose. If you *compel* a plant to grow in our summer, although it naturally prefers our winter, you oblige it to go to rest in winter in order to recover from the effort it had just before unnaturally made; and this change, once effected, seems to go on. ——*Anon*—Old Celery plants are only fit for the manure heap. What writing receipt do you refer to? You give no page.——*Reader*—From the appearance of the roots you have sent, your Tulips are suffering from the depredations of mice. Your only remedy will, therefore, be to trap them, or they will make sad havoc in your bed in a very short time.‡——*L B N*—As we supply the Trade in sheets we can only recommend you to complain to your news-agent of the careless manner in which the paper is folded.

SEEDLING FLOWERS.

CAMELLIA—*T D & Co.*—Your seedling is a compact and desirable flower, of a light rosy red colour; it is of a medium size, neatly formed, the petals gently recurve; the flower is full and rises in the centre; the foliage is large and handsome, of a rich glossy green, contrasting finely with the colour of the flowers, which it displays to great advantage.*

CINERARIAS—*C*—Your seedlings present considerable variety in the tints, and generally the flowers are well formed. They, however, display no great novelty, and are not equal to the best varieties in cultivation. No. 5 appears to be the most desirable and novel.*

. As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

ERRATA—In the report of the last meeting of the Horticultural Society, two brace of Cucumbers are said to have been sent by H. H. Oddie, Esq. It should have been from the garden of Colonel Sowerby.——In J. G. Waite's advertisement of last week, p. 177, col. b, for "Crested Dog's-tail Grass, 24*s.* per cwt.," read "24*s.* per bushel."

POTTER'S GUANO FOR TURNIPS.

Result of an Experiment tried by Professor DAUBENY, communicated to the Royal Agricultural Society, and published in their "Journal," Vol. vi. Part 2.

PRODUCE PER ACRE.

No.		Weight of Bulbs.
		lbs.
1	Unmanured	14,298
2	Bone Shavings, 10 cwt.	19,239
3	Manure Company's Guano, 260 lbs..	26,058
4	Nitrate of Soda, 1¼ cwt.	28,459
5	Phosphorite, 12 cwt.	28,639
6	Ditto, with Oil of Vitriol	30,869
7	*Peruvian Guano*, 260 lbs.	31,114
8	Bones, with Vitriolic Acid, 11 cwt	31,898
9	Graham's Animal Compost, 260 lbs.	32,109
10	Sulphate Ammonia, 1 cwt.	32,670
11	Bones, finely powdered, 12 cwt.	36,185
12	POTTER'S GUANO, 260 lbs.	37,201

Oxford, Dec. 8, 1845.

NOTE.—It thus appears, that by the application of POTTER'S GUANO, the productive power of the land was nearly trebled; and when tried against *eleven* other artificial manures, it *beat them all*, producing a greater weight of BULBS, at a much less cost.

Its superiority over the Peruvian is evident in this trial, the latter applied at a cost of 28*s.* giving 31,114 lbs.; while POTTER'S, costing 21*s.* gave 37,201 lbs.

A similar result on GRASS was obtained by LORD ZETLAND in 1842. See his Testimonial.

☞ Wanted, a few active intelligent AGENTS.

☞ Observe, Mr. POTTER'S present address is 28, Clapham-road-place, London.

The Agricultural Gazette.

SATURDAY, MARCH 28, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, April 1 { Agricultural Society of England. / Highland and Agricultural Society.
THURSDAY, — 2—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, — 8—Agricultural Society of England.
THURSDAY, — 9—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.

Loyland Hundred—Wooler—Co. Cork—Strathmore—E. Forfar—Portarlington.

FARMERS' CLUBS.

March 30—Darlington
April 2—Howick—Selby
— 6—Claydon—Wrentham
— 4—Durham — London — Colnmpton
— 6—St. Columb — Newark — Great Oakley — Wemlock — Exminster — Markethill — W. Market — Cirencester — Yeadon
— 7—Wooton Basset — Wivelscombe—Abergavenny
April 7—Rochford Hundred—Framlingham — Watford — Jedburgh
— 8—Harleston — Brainsree and Bocking
— 9—Tavistock—Northampton
— 10—Northallerton—Chelmsford—Hadleigh — Lichfield — Wakefield
— 11—Swansea—Cardiff—Winchcomb—Dartford

ACCORDING to an official paper lately laid before Parliament, the importation of GUANO has increased from 1733 tons in 1841, to 220,934 tons in 1845; employing a fleet of 683 sail, and 11,486 men. This quantity of guano must have sufficed to manure between two and three millions of acres; and proves beyond all possibility of doubt the great importance of the article to farmers.

We fear, however, that many who have used it, have met with no small disappointment in the result of its application; partly because they have suffered themselves to be cheated by the swindlers whom we formerly exposed, and partly because they have purchased, for the sake of a low price, an article very inferior in quality, although really of foreign origin. It is this, indeed, which constitutes the whole objection to the use of guano, that ordinary persons cannot tell whether it is good or bad, genuine or fraudulent. It is as easy to fabricate analyses as to compound a false guano; and we fear that many of the buyers, in whose hands *bona fide* analyses are placed, but little understand their true import. As to frauds, we have no doubt that they are as numerous as ever; they are so easy to commit, so difficult to detect, and so very profitable, that it is hard to say in what way they can be guarded against effectually. At this moment there is in the West India Docks a ship-load of precipitated gypsum, probably the refuse of some tartaric acid manufactory, so dexterously coloured brown that it is impossible to detect its presence in guano by the eye, and this is no doubt intended by some of the honest guano dealers as a new (?) material for swindling farmers.

To us it appears that there are but two means of guarding against this monstrous evil. The one is to buy Peruvian guano in preference to all others, and to obtain that directly from the importers Messrs. GIBBS and Co., of London or Liverpool, who, although they will not themselves sell less than 30 tons at a time, would, we are persuaded, direct applicants to their agents who could be relied upon. The other is for farmers to agree among themselves to have their own Inspector of artificial manures, through whom every purchase should be made, whose sole business it should be to watch the operations of the manure trade, to collect evidence of fraud, and to preserve samples of everything bought, so that in case of roguery being suspected he might furnish evidence that would be irresistible in a court of law, to which it is high time that farmers should betake themselves.

Times are at hand when a great alteration in the operations of farming will be inevitable, and among the changes must be the certain prevention of all frauds upon the part of manure dealers. Farmers will, in fact, stand in relation to their land in the same position as a manufacturer to his mill, factory, or laboratory. A manufacturer does not buy lead for silver, or thistle-down for cotton, or cobwebs for flax; but he takes care that every article purchased by him is not only cheap but pure. Neglecting such precautions, his road to the *Gazette* is quick and certain. Why, then, should farmers purchase cinder-ashes for soot, limestone for bonedust, or Epping loam for guano? Such folly or misfortune can, in the long run, lead to only one result, and we earnestly commend the matter to the most serious consideration of the agricultural interest. It is one in which newspapers can do little, but in which combined spirit and good sense on the part of buyers can do everything.

WE are constantly receiving inquiries as to THE QUANTITY AND NATURE OF MANURES SUITABLE FOR PARTICULAR CROPS. If readers will refer to "Notices" in back Numbers of the Paper, they will find that such inquiries have almost uniformly been answered by recommendations to apply 3 cwt. or 4 cwt., per acre, of Peruvian or African guano, or other quantities of various animal and compound fertilisers. And we have no doubt that many inquirers have been dissatisfied with the very general answers they have always in these cases received; and some, perhaps, seeing the uniformity of our replies, notwithstanding the variety of the crops they referred to, may have doubted their trustworthiness. We beg the attention of such to two considerations, which, as they possess *general* interest, we make no apology for alluding to *here*:—1. Plants certainly do exhibit specific differences of mineral composition; the ashes of different crops do vary, sometimes in the nature and always in the relative proportions of their ingredients. A crop of Turnips removes from the soil a remarkably large quantity of potash; grain crops are distinguished by their abstraction of large quantities of soluble silica; and the Clovers require an abundant supply of lime. Whatever differences there may be among scientific men as to the actual amounts of the different substances thus removed, there is none as to the existence of the specific distinctions we have referred to. And it is, doubtless, an acquaintance with this which has given rise to the questions of our correspondents; but they forget that, though the knowledge of a plant's composition will enable us to supply it with suitable food, further information is required before we can do this with economy. Nature supplies even an artificial vegetation with much the larger proportion of what it needs—both atmosphere and soil are full of the food of plants; the latter only is under *our* control; but, besides the *wants* of a particular crop, the *supplies* which, in the soil, are naturally at its command must also be told us before we can say what is needed to ensure its productiveness. And on the latter point we are always, and perhaps unavoidably, left in the dark; we are thus unable to state what substance, if any, the soil under the circumstances requires. What alternative, then, is there left open to us? simply to name some compound manure, such as guano, which, as it contains many ingredients, is most likely to contain that or those in which the soil may be deficient. 2. But there is another point, and a more important one, to which we beg the attention of our correspondents; for we consider their questions to indicate an entirely erroneous agriculture.

It may, under extreme uncertainty of tenure, be *expedient* to consider the soil as the mere vehicle of nourishment to plants; but that, in our opinion, only shows how tenancy at will tends to bad farming. The soil is not a mere vehicle for the food of plants; to a great extent it is the food itself, and the more it is made so, the better the cultivation which is indicated. Farmers should possess a dormant capital, so to speak, invested in their land. Plants should not live, as it were, from hand to mouth; to make them do so involves a great risk of failure. If you have security of tenure you should be a cultivator not of Wheat, not of Oats or Barley, Beans, or Peas, not of Potatoes or Carrots, Turnips or Mangold Wurzel, &c., but of *the soil*. Do not let your crops depend on the specific manuring of the current year; they should rather be dependent on *the fertility of the soil*. And *that*, though attainable, for the sake of establishing a curious and useful theory,* by the application of definite quantities of particular compounds, is rather to be sought for by means of thorough cultivation and the consumption on the land of the crops raised from it. Do you want to grow a good crop of Wheat? The way to do it, if your climate be no hindrance, is to make your soil fit for growing *anything*. Drain and cultivate it thoroughly, and thus bring atmospheric influences to bear upon it. Apply guano, or night-soil, or bone-dust, or sulphuric acid and bones, and *force* a crop of Turnips; consume them on the land, and you will thus confer fertility on *the soil*. And this will exhibit itself, whatever be the crop you may choose to take next. It may look like extravagance to recommend such a treatment as shall lay up in the land stores of food for plants sufficient for many years; but in the present state of agriculture as an art, we may depend upon it that this is true economy. It tends to improve the texture of the soil, as well as its richness, and till we can leave this wholly to the agency of machines, and till we are able perfectly to carry out a true theory of agriculture, we must be content to act according to a plan proved profitable, however exceptionable it may be in the eyes of scientific men.

* See Mr. Huxtable's letter to Lord Portman in the current Number of the "English Agricultural Society's Journal." We shall transfer it to our columns next week, if possible.

AMONG the prizes for Implements to be awarded at the next annual meeting of the Royal Agricultural Society is one of 10*l.* for the best WEIGHING MACHINE for live cattle and farm produce generally. Although a prize has been already awarded, on a previous occasion, to an implement of this class, the judges reported (Journ. Ag. Soc. vol. 6 p. 318) that "a greater degree of portability is desirable than has yet been accomplished by Mr. JAMES, or other makers, in order to realise all that is wished for by the Society and farmers generally." To this prize, and to these remarks, we beg to call the attention of our agricultural engineers and mechanicians.

It is singular what very little *exact* knowledge exists even among practical men, of the details and results of their art; we much need a more general use of the weighing machine; all published illustrations of farm experience should be *quantitative*; the nature of the means used, and the character of their results, may be useful things to know, but the influence of the one, and the value of the other, depend upon their quantity, weight, extent, as well as upon their tendency, and these, therefore, should also always be made known. Statements thus useful, though still few in number considering the extent and variety of the subjects requiring illustration are rapidly accumulating. All our best agricultural periodicals are more exclusively devoting themselves to their dissemination—witness the current Number of the "English Agricultural Society's Journal." It is in the increase of information which such statements convey that the progress of agriculture as an art consists. One difficulty in the way of this progress has hitherto been the want of means sufficiently simple and efficient by which the generality of farmers might be enabled accurately to ascertain and then contribute their experience. Let us hope that the offer of the Agricultural Society may be successful in bringing out an implement of the kind required. It must be cheap, simple, and efficient for obvious reasons; and it must be *portable*.

This last feature is essential; the farmers' crops are bulky, and his stock being migratory are often at inconvenient distances; they cannot easily be brought all to one place, there to suffer the test of weight. Our Turnip crops, in the great majority of cases, are consumed on the land; they are, in fact, fixtures; the mountain cannot come to Mahomet, and therefore Mahomet must come to the mountain; portability in a weighing machine for farm produce is, in short, a *sine qua non*. And this portability must be unaccompanied by complexity, for that is incompatible with cheapness, which is also essential. What we want is an implement possessing such facility of use and such cheapness as shall ensure its being extensively purchased and employed.

It is the opinion we entertain of the high utility of which this machine is capable to the enlightened farmer, and of the good service which so simple an agent may do to the art of cultivation, that has induced this appeal to our agricultural machinists. If practical farmers participate in our sentiments; if they individually feel the want of the implement, and can consequently believe that in all cases it will soon pay for itself, and in some be the means of adding to the stock of permanent knowledge connected with the cultivation of the soil; if, in fact, they are prepared to become purchasers, we have no doubt makers will come without "calling." We say this on the strength of the fact that not only has the supply of implements of an improved construction up to this time been adequate to the demand, but in many cases our spirited mechanists have placed before us improvements and machines which we have neither asked for nor expected. Anticipating our wants in these cases, the supply has in fact created the demand. And thus, whether the farmer is, or is not, fully alive to the value of the implement to which we have so particularly alluded, the manufacturer will, we are sure, not fail to execute

the commission now entrusted to him—an implement which is profitable to the purchaser is a "safe speculation" to the maker. And the possession of a machine cheap and portable, capable of weighing live stock and farm produce, is calculated to benefit the farmer directly, by enabling him to ascertain the real weight of his fat stock—nearer than by any other means—indirectly, by giving him the means of testing many doubtful or disputed points of practice or theory, and generally, by enabling him to experiment easily and correctly, and thus to obtain facts which can be made use of to the advantage both of the theory and the practice of the art.

PROFITS ON FLAX CULTURE IN IRELAND.

As the season for Flax sowing is now coming on, the best time for committing the seed to the ground being from the 10th to the 20th of next month, it may neither be uninteresting nor out of place to bring before the readers of your Journal the average value of our importations of Flax, oil-cake, and Flax seed, which I have taken from the Government returns for 1844. I regret having allowed a statement I observed at page 5 in Mr. J. Sproule's Pamphlet, on the subject of our importation of oil cake and seed, to be so much my guide as to cause me to represent that we pay annually from 10 to 12 millions. I cannot but regret this, as exaggerated statements are always certain to injure any cause, and as my only hope of seeing Flax culture more general is, and will be, from placing facts and experiments before the British farmers through the public press, I shall, to the utmost of my power, follow that course, and that they may know the real value of our importations of Flax, oil-cake, and seed, I must beg their attention to the following:

Having, in my Letter, No. 14, to the editor of the *Leeds Intelligencer*, on the 25th September, computed the value of our importations in 1840, 62,660 tons at 4,018,115*l.*, I shall reckon the importation of 1844 at the same rate, although Flax is at this moment from 10*l.* to 12*l.* per ton higher in price, and to that I shall add the increase in our importations, viz., 16,763 tons in 1844, which makes the

Total cost of imported Flax	£5,389,155	0	0
We Imported seed for sowing, &c., in 1851, 616,947 qrs., which I average (as the greater part sold for seed at 52*s.* 6*d.* per barrel, or 5*l.* per qr.) at 4*l.* per qr.	2,467,788	0	0
We also imported 55,890 tons of oil-cake, which I average at 9*l.* per ton	774,010	0	0
Total	£8,529,953	0	0

Now, as it appears we paid the foreign farmers 1,341,040*l.* more for Flax in 1844 than we did in 1840, and as the Belfast Flax Society tells us plainly Ireland produced fully a fifth more in 1844 than was done in 1840, and Flax is higher in price at this moment than it has been for years, I cannot imagine that farmers in this country will continue in their prejudiced views respecting this important and profitable crop, as the day has arrived (as I expected when I first drew their attention to the subject) when other articles as well as corn must be raised by the producer for rent paying, and remuneration for time and capital employed.

How is it that British manufacturers have contrived (with everything taxed and wages double what is paid by their brethren on the Continent), to meet them in the American and other markets, and flourish under such disadvantages?

I answer, Those men have had for their motto "Nothing impossible;" they have been driven from hand labour to steam power and science, until the manufactures of this country have risen to a magnitude unequalled in any other part of the globe. Have they stood still even in the most depressed times? No; depression has only served to stimulate them to experiments, inventions, and enterprize; and to those alone are they indebted for their high commercial character: and the increased exports of the country prove the success attending such persevering habits of business.

With these facts before the eyes of British farmers, will they allow themselves to be so insulted as to be told that men possessing nerve to try experiments are only to be met with in our manufacturing towns? I do not think so; and in order to convince them what can be done, and what has been done by their brethren in the sister kingdom by attention to the neglected subject, to which I wish to draw notice, I will here lay before them some encouraging results of Flax culture, and as a first experiment by Sir Rich. A. O'Donnell, Bart., in Mayo, Ireland, has been successful, I shall quote his letter, to the Secretary of the Flax Society, first.

He says:—"I had 150 stones of Flax off 2 acres, for which I was offered 8*s.* per stone at the Show in Ballinasloe, but many of my tenants had a far greater produce than this. Several have sold to me a stone of Flax for each quart of seed sown, which is the complement of seed sown on a perch of ground. A man of the name of Patrick Gettus got from me 14 quarts of Flax-seed, from which he sold me 14 stones of Flax, at 6*s.* 6*d.* per stone. A man named Ned Burk had at the rate of 101 stones to the acre, for which I gave him 6*s.* per stone, producing the enormous profit of 31*l.* 4*s.* per acre. Permit me to assure you, and the members of the Society, that I feel deeply indebted for all your strenuous exertions, and that no one can more fully appreciate the benefit you are conferring upon the poor of Ireland, and Society at large, by these exertions, than.—*R. A. O'Donnell.*

"To Jas. McAdam, Esq., Belfast."

Another instance of what can be done in cultivating this valuable plant has been ably described by a gentleman whose practical farming is well-known to every member of the Agricultural Society of Ireland, John Andrews, Esq., Comber. Mr. Andrews, in writing to the Secretary of the Flax Society, says:—"I had on 3 roods and 20 perches, Cunningham measure, about 19 bushels of Flax-seed, which I sold at 9*l.* 8*s.* 9*d.*, being for the Cunningham acre about 22⅝ bushels. 11*l.* 6*s.* 6*d.* The produce of Flax was 33¼ stones of 21 lbs., or 56¼ Armagh market stones, of which I sold 6 stone at 16*s.*, and the remainder at 15*s.* per stone. At this rate the amount was—

For 33¼ stones	£25	4	9
Equal for an entire acre to	£28	16	10
To which add the seed	11	6	6
And the result is	£40	3	4

For the gross produce of a Cunningham acre—the entire expense of rent and labour of all kinds being under 10*l.*, which leaves me a clear profit on my Flax crop of 1844, of above 30*l.* the Cunningham acre, a return by far exceeding anything I ever derived from land before."

Although Mr. Andrews has had for his seed at the rate of 11*l.* 6*s.* 6*d.* per acre, he sold it at 10*s.* per bushel. At the same time Riga Flax-seed sold in Belfast at 52*s.* 6*d.* per barrel of 3½ bushels, or 15*s.* per bushel; and Mr. Andrews proves by this (and several experiments by others), that home-saved seed is equally good for sowing. To this I shall add particulars of another experiment made on a model farm of Lord Caledon's; as it is well known that work done for noblemen in general is not done with the same views as to economy in labour that farmers would have it done, an allowance can be made accordingly on the expenses paid for preparing what has been produced off 1 acre 1 rood 39 perches in this farm.

"In answer to yours of the 24th I have much pleasure in furnishing you with an account of the Flax crop and expenses thereon, grown on the Earl of Caledon's model farm, crop 1845:—

Produce of 1 acre 1 rood and 39 perches, sold at 11*s.* 9*d.* per stone	5	19	7½
Tow	0	8	0
130 bushels of bolls, which I consider well worth 8*d.* per bushel	4	6	8
	£50	14	3½

Expenses of Crop

	£	*s.*	*d.*	£	*s.*	*d.*
Five bushels seed	2	16	6			
Weeding	0	10	0			
Pulling, rippling, and steeping ..	4	3	8			
Taking out and spreading	2	1	1			
Lifting and tying	1	2	8			
Scutching	4	9	4½			
				15	3	6
Leaving a balance of				£35	11	9

Or, at the rate of 29*l.* 13*s.* 10*d.* per acre, after deducting all expenses; 1*l.* 10*s.* of additional expenses was incurred, which from the Flax being carried on barrows to the steep, would have been saved if carts could have carried it.—*John Barr, Manager.*

"To J. McAdam, Esq."

The report also says, that although a branch society was formed at Drogheda at a late period last year and little done, what was grown turned out most satisfactory, and one lot brought for the fibre alone upwards of 34*l.* per acre.

Having now placed experiments before those who may consider the subject worthy of attention, that should convince the great Flax is one of the most profitable articles that can be produced, I hope it may be the means of carrying a few more experiments this spring, as I have much pleasure in being able to say that what has been sent me from several quarters of the country of last year's growth, proves to be a strong, and in some instances, a fine article.—*J. H. Dickson, 29, Broad street Buildings.*

THE NATURE OF STARCH.

[We are indebted to the kindness of Dr. Mateer for the following notices, taken from a paper on the "Natural History, Properties, Uses, and Degenerations of Fecula," which was lately read at a meeting of the Belfast Natural History Society.]

Starch, or, as it is otherwise called, Fecula, appears to be merely a modification of common cellular tissue, where the cells, instead of being aggregated and comparatively empty, are isolated and filled with gummy matter. With both, the cells or vesicles take their origin in the same way, and grow by cytoblasts. Wherever the cellular tissue occupies an organ, or part intended ulteriorly to be developed, there it is found to assume the state of fecula, and in this form has stored up within it the materials of future growth. Fecula or feculine matters, such as gum and sugar, are to be met with, in greater or less quantity, in all plants; most so, however, in the esculent ones. The former is the more highly organized form, and is found in the more important organs—fruits, seeds, and stems, particularly the underground ones: the latter oftenest occurs in herbage, and in true roots, as Turnips, Carrots, Parsnips and others of the Umbelliferæ, where the pivoting shape oftenest obtains. The Turnip seems to be a real root, like these others; but with the tendency, like others of the genus to which it belongs, of becoming caulescent at its upper part.

The uses of fecula are either physiological or dietetic. The first concerns the plant's own uses; the latter, its uses to animate nature. Fecula in its proper form, along with a substance (diastase) capable of converting it when required into sugar, or in the state of sugar itself, is found near buds, embryos, and every growing part. The use it serves, when taken as food, is to supply the carbon which is consumed in the lungs during respiration; and as the fecula contains this carbon ready formed, as it were, and only with the elements of water, it is very easily assimilated for these purposes by the digestive organs. The azotized substances with which fecula is associated in farina, and other products, are not in their composition so similar to the matters they are to form, nor as much so as animal substances, when used as food, would be; so that, to make the digestion for these as easy as it is in the case of fecula for the respiratory functions, it would be requisite to have part of the diet animal. The fat in animals has the same uses (physiological and dietetic) as the fecula in plants; and it is the more important to notice this resemblance, as it helps to an explanation of the deranged states of fecula, and of feculine matters, in plants.

Fungi develop and grow on the fecula just as the embryo in the seed does, or buds on branches. The fecula is, in consequence, altered either in quantity or quality, or both. This fact accounts for the occurrence of entophytes on plants during autumn, when the grains of fecula are fully formed, and ready to be carried to the parts where it is to be stored up. It accounts, besides, for the circumstance, that plants which have underground stores in form of rhizomes, to which the fecula as soon as formed is conveyed, should more rarely be attacked; and of this kind are the land endogens, not the aquatic ones, for these nearly all want fecula, and very generally so in their seeds. When the fecula and feculine matters are thus attacked by fungi, disease results, and of this nature are the most widely-spread epidemics; still, the occurrence of fungi, though in a sense the cause, is itself the effect oftenest of a certain predisposition in the plant, a disorganised state or incomplete development of parts—the fecula in particular, resulting from a lowered vitality variously induced. From the researches of Hunt, Reichenbach, and others, on the agency of magnetism in directing the forms of crystals, and in controlling the movements of organic life, it may be inferred that where it acts on plants, it gives direction and form to growth, and movements to the sap. The solar rays, it is well known, impart colorific, calorific, and chemical effects. The chemical are perhaps mainly due to electricity, and this, with the magnetic fluid then operating, causes the actions of digestion in the leaves, and of direction in growth. But both these fluids exist in the atmosphere at all times, and are the necessary excitants of the functions of respiration and of circulation; they are the agents by which the vital principles carry on their great functions, and anything which impedes their free transit through the atmosphere, or that tends to lessen their quantity and due proportion, must lower the vitality. To show the way in which it will thus act: the solar rays being transmitted through an altered atmosphere, fewer of the colorific and chemical rays will be given, whence there will be less or none of the alkaloid of Potatoes—solanine. But while these rays are withheld, the others of another kind (the electric ones concerned in the true respiratory actions) will be the more active, and carbon being thus abstracted for the formation of carbonic acid in this function, the fecula will be converted into sugar, and the albumen into caseine; and this coincides with what Liebig observes of the diseased products in the Potato. A moist atmosphere, or one dense from vapours, or possessing but little electricity or magnetic fluid, may induce incomplete formation of parts, and thus predispose to the growth of fungi. Parts in this state will be like mixtures of organic substances (gummy, saccharine, or fermented), which once out of the limits of vitality, are invaded by fungi. But if sporules are abundant in the atmosphere or in the soil, they will, by attaching themselves to even healthy parts, directly excite the disease: this, no doubt, oftenest occurs. Then it is interesting to study the mode in which the fungi as instruments bring about destruction of parts. In the disease of Potatoes, spots only of the tuber are affected which are of a dark colour, and have a tendency to fall into decomposition, and to spread in this way exactly like gangrene, which by some it was considered to be. The spots are oftenest hardish and prominent: by the microscope I had early noticed that the cellules of the part were emptied of their fecula, and this accords with the observations of others since. Payen confirms this by the test iodine. The discoloured parts are growths filamentous, or membrane like, covering fecula, granules, and the interior of cellules, and finally exhaust the cellules of the fecula. There are formed as products, water, carbonic acid, sugar (noticed by Dr. Ure to exist in more than ordinary proportion), oils, and an acid, probably the acetic acid found in germinating seeds—in fact, all the products of germination; which shows that the fungus or the fungi grow here in the same way as the embryo in the seed or buds on the fecula. The fermentation, however, is not, as here, altogether saccharine, but rather putrefactive, owing to the decomposition of the fungi themselves, which from the large quantity of azote they contain, are almost of an animal nature. The same phenomena as these occur in diseased Cereals; with these, however, the nature of the disease is more obvious, for the fungi are seen to grow in the diseased parts, but in the diseased tuber of the Potato it is difficult to say whether it be a fungus, or the product of many fungi. There is here the same difficulty as with ergot in determining the exact nature of the evil. Those who, with Fries, suppose the ergot to be the Spermœdia Clavus, might also, from similar evidence, conclude that the growth in

the Potato was a fungus; a perisla, it may be, which has usually its habitat here, and is, besides, very closely allied to the Spermoëdia. The general opinion, however, is that the ergot is caused by a perverted growth of the ovary, owing to the growth on its surface of myriads of sporidia of an Ergotæia, or what might rather be viewed as an Oïdium; and of a like nature may be that of the Potato. The ergotized grain has been noticed by Mr. Latham to be of late extending very much, and I have found it in habitats (Poa fluitans, for instance,) not formerly considered such. Among other predisposing causes, some have mentioned, as giving rise to the disease, exoticism, and the tendency of plants, when cultivated otherwise than by the seeds, to wear out. The former cannot be the cause, since the disease was as prevalent in the country where the Potato is indigenous as it was here, and that this plant, cultivated by buds, divisions of stems, &c., should on that account wear out is not more probable than that our fruit trees, which are cultivated by precisely the same means, should also wear out, and this, the experience of many centuries shows not to have been the case. As fungi, in themselves and their sporules, are evanescent in their nature, as they grow and develope in a different way from all other vegetables, and have their existence apparently often from extraneous causes, and, most of all, the meteorological or other conditions of the atmosphere, there are no grounds for fearing a renewal of the disease by planting the diseased tubers If the disease should re-appear, it must be from the recurrence of the varied circumstances, atmospheric and others, that act in causing it.

Home Correspondence.

Drainage.—A few months ago, a tenant requested that I would drain for him a Lea-field of about 6½ acres; I consented, but at the same time desired that the drains should be 3 to 3½ feet deep—he paying 5 per cent. on the cost. I have lately received a letter from him, in which he states "I have men draining the field at present, and we find a very bad subsoil, it being a very hard hungry sand. We are using 3 inch tiles open at the bottom, and for the main drains 4 and 6-inch tiles. We have no pipe-tiles in our neighbourhood; where there is a soft place we flag them at the bottom; we find most water about 2 feet 3 inches deep; we have bored 4 or 5 feet deep, but found no water. The pasture here mostly lies on a hard bottom, and will not dry far. We are draining every 8 yards 2 feet 6 inches deep; to cut them any deeper the men would want a great price; several of the men have left us on account of its being so hard, and, I think, we would not benefit by it. The surface soil is mostly a blackish sand, but there are two or three different kinds in it, and it is about 6 inches in depth." I wrote to a gentleman supposed to have considerable experience in that neighbourhood, to look at the land and give me his opinion, as I thought my tenant was not draining deep enough. His reply is "The field has a very indifferent sub-soil—white sand mixed with a black roach; it is a hard cinder, and 2 feet 6 inches is quite deep enough." There is another field of a similar description, only having a deeper surface-soil, drained a few years ago, 18 inches deep and 14 yards apart, which I am asked to re-drain, the old ones being useless. I have consented, provided the drains are laid from 3 to 4 feet deep between each of the old ones. But here again I am met with the objection that "2 feet deep is quite enough; there is not subsoil to go any deeper, nor would it be any more improvement by bringing any more sand to the face; it has too much, being a black top mixed with sand." Pray, sir, can you advise me what I should do? If 18-inch drains are nearly useless, will 24-inch ones be much better, and worth the cost, and would not 40-inch drains have been better in the first case?—*A Small Cumberland Landowner, but no Farmer.* [It may be depended on as true (1), that, wherever practicable (the expense of the operation in some cases may make it impracticable), drains should be at least 3 feet deep; (2), that drain-tiles should always (except when lying on rock) be placed on soles; and (3), that the tiles used need not be of a larger section than will suffice to carry off in a day—say twice the largest known fall of rain during that period. Now, as regards the first point, we cannot give an opinion on the impracticability of the subsoil without seeing it. Are the men required to use the pickaxe? if so, 30 inches may be as deep as, considering the expense, it may be expedient to go; but we would let nothing that could properly be designated only "hard sand" hinder us from getting at least 3 feet. As regards the second, you should insist on soles for your tiles throughout, except where they rest on rock. As regards the third point, we consider that for your wet climate a tile of 3 or, at most, 4 square inches in the section amply sufficient; 3-inch tiles open at the bottom, will be of 6 or 7 inches' section, and are unnecessarily large.]

On Soiling Cattle, &c.—In No. 11, there is a sensible paper by Mr. Baker, of Whitehaven, upon soiling. The writer fully agrees with every word that gentleman has said upon that most important subject; he last year kept 21 steers and cows in the house all the summer; these beasts consumed the produce of 4 acres of Vetches, half an acre of Cabbage, and 7 acres of middling Grass, between 2d May and 1st September. Some 30 years ago the writer was in Cumberland, and went to see the large herd of cattle, &c., at Mr. Curwen's farm, Workington Hall; as far as he recollects Mr. C. kept 60 milch cows (short horns) to supply the town of Workington with milk; there were upon the same farm nearly 200 young cattle and oxen, and he was told by the bailiff that the number of horses at the collieries supplied with food from this farm was upwards of 200; the whole stock was kept in the house all the year round, and the writer well remembers the beautiful condition the horned stock, except the working oxen (which were made to work two in a team at plough, and were overworked) were in, when he visited the farm in the month of August. All the Grass land upon this farm of 1000 acres was 6 acres of water meadow. Now, as Mr. Baker lives so near this farm, will he be kind enough to tell us if the same system is adopted at the present time, with the result. One word upon thin sowing: the writer feels greatly indebted to Mr. Hewitt Davis for his manly and straightforward manner in stating his practice, and cannot but lament to see a gentleman coming forward to serve his country as Mr. D. has done, attacked by men who really do not understand his system, or will not condescend to try to farm as they ought, by keeping their land clean, and in a high state of cultivation. The writer has for a great number of years planted early in the season about the same quantity as Mr. Davis, and uniformly with satisfactory results. Some years ago, his then bailiff was an advocate for thick sowing, and asked to sow an acre of Wheat with 3 bushels of seed, against the quantity he was then planting, which was 1 bushel per acre, the writer feeling convinced that even half a bushel, or 4 gallons per acre dibbled was sufficient, he had an acre between the other lots planted with that quantity; soon after harvest, his bailiff in a sorrowful mood brought in the account that the 4 gallons dibbled beat his 3 bushels by 2 bushels, but that the 8 gallons beat the dibbled by just the same quantity; he, however, admitted, that had the dibbled not been so repeatedly eaten off by rabbits in the winter, and been hoed thrice instead of once, the result would have been in favour of the dibbled.—*R.*

Electro-Culture, and the Potato Disease.—By Dr. Forster's remarks in the *Agricultural Gazette* of the 11th inst., upon the statement of the Rev. Edwin Sydney, I am led to make a few observations. Last year I tried various experiments upon the application of electricity to various crops, and am much pleased with the result of those made upon Potatoes. I found a considerable increase, in tubers, and in haulm in particular. The haulms were from 6 to 8 inches longer than others not electrified. The difference was so much greater, that many people doubted at the time whether the increased produce was not owing to some other cause: consequently, I did not feel disposed to publish any account of my experiments until after I had again given it another trial. As regards the statement, however, made by the Rev. Edwin Sydney and Dr. Forster, that the electrified ground had been found to protect the Potatoes from the ravages of the late disease, in my experiment I certainly found it to be quite the contrary. The Potatoes I had under experiment grew remarkably fast, until the disease showed itself in the neighbourhood, when nearly every Potato in this particular patch were simultaneously attacked; but not so with others adjoining and in immediate connection with them, until some weeks after, and the latter never were diseased to the extent of the electrified portions of the crop. Both lots were the same sort. From one experiment, we cannot fairly say that electricity was the cause of the Potato murrain; but it undoubtedly appears to influence rather than prevent it, for these Potatoes showed the disease almost as soon as any in the neighbourhood. I made many inquiries as to the probable cause of the Potato failure last year, but there appears so many conflicting accounts, I apprehend we shall never know the true cause; I find in this locality that where rich animal manure (refuse-sprats), or soot were used, that the crop was protected from the prevailing disease.—*Richard Mason, Weston-super-mare.*

The Potato Murrain.—The great mass of the public seem disposed to hunt for far-fetched causes in order to account for this serious visitation. Not so myself: I cannot but think that Ossa has been piled upon Pelion in this case, as in many others, or, in other words, that abuse has been heaped upon abuse, until this valuable root, although still producing great crops under high stimuli, no longer possesses the constitutional vigour originally belonging to it. The abuses I allude to, are principally two, viz.:—late planting, and, by consequence, imperfect seed; and high fermentation in "hogs" or pits. I am perfectly aware that those gentlemen of the "olden time," who still smart under the very remembrance of the "curl," will back late planting (or, in other words, unripe seed) as the only panacea for all the ills that the Potato is heir to. I, however, beg to differ from them; planting unripe tubers, or, in other words, stems with badly elaborated sap in them, in order to get rid of the curl, is about as sapient a manœuvre (in my way of thinking) as that of the man who set fire to his house to get rid of the rats. Why not unripe Wheat or other grain for seed? Why not unripe Lettuce or Cauliflower seed in our gardens, in order to get rid of the grub, or to avoid "buttoning," and a host of other evils, which our gardeners would well describe! Why not unripe shoots of the Vine, the Peach, or other natives of warm climes and sunny skies, to furnish the garden! As to high fermentation in pits, I am persuaded that if one of our farmers could be compelled to spend one night only in the centre of a huge Potato pit, composed of unripe Potatoes recently taken from the field, he would never more store those intended for seed in that way. Surely a temperature of 90° to 100° or more in October and November is not the way to give the Potato its necessary quietus; at least it is not Nature's own way of doing the business. If the gardener were to bury the shoots of his forced Vines in fermenting matter at a pitch of 90° or 100° the moment they were removed from his forcing-house, what would be said? Yet our great physiologists seem to argue that a bud, whether on an underground stem, a surface one, or even a seed, are all amenable to certain general laws which cannot be long transgressed without serious consequences. Another evil, of no mean character, connected with the fermentation affair, is the total loss in many cases of the first sprouts. Now this of itself would be enough to cause many plants to degenerate. When, then, I say, in conclusion, the above circumstances are taken fully into consideration, with the addition of the cloudy and damp weather of the past summer, all tending to immaturity and weakness of constitution, who can wonder that these accumulated evils have at last reached a crisis? Potatoes for seed should be planted especially for seed, should be housed for seed, and should be reared on no account in low, damp, or shaded fields. Depend on it, the hill-tops are the most legitimate seed nurseries. Indeed, in my opinion, causes are at work, which before many years have passed away, will show the high lands in general to be the situation for all green crops, and the valleys for pasturage.—*A Voice from the Gardens.*

Sale of Corn by Weight.—In the small markets of some parts of this country, the law which regulates the sale of corn by measure and not by weight is utterly despised, and dealers refuse to purchase, except with the guarantee of 70 lbs. to the bag (or bushel) of Wheat. The farmers being poor, and the competition great, they yield to the great corn-dealers' wishes, and make him a present of a peck of corn on each bag of Wheat sold. The Liverpool market also appears to be regulated by weight and not by imperial measure, but there the price is always in proportion. In this neighbourhood (North Devon) London prices are quoted by corn merchants, and country prices given for corn, always allowing handsomely for loss, &c., and the extra peck taken as a matter of course. How can this be prevented? The small farmers of the country would be under an obligation to you if you could tell them how to prevent the imposition. They cannot unite, for they are too numerous and too poor; the corn merchants are few, and have the game in their own hands.—*E. W.*

Land Flooded by Sea Water.—Your correspondent, "C. H. B.," asks advice, and you invite a statement of your readers' experience as to the treatment of land which has been overflowed with salt water. In January, 1833, the sea broke in upon a piece of land in my possession, which remained covered with salt water from 30 to 40 hours. The soil was a strong alluvial deposit, which had been formerly reclaimed from the sea. It was about 30 acres in extent, and was occupied, to the best of my recollection, thus: about a fourth, 3 years' Grass; a fourth newly laid down Clover and Rye-grass; a fourth Wheat; and the remainder an Oat stubble. The latter was slightly ploughed; I knew that the Wheat would go when spring came, I therefore ordered the land to be ploughed very thinly as soon as it was possible to get upon it, and also the Oat stubble. The portion upon which the Wheat was growing was sown with Oats and Clover, and Rye-grass; the Oat stubble was planted with Mangold Wurzel; the Clover had a small quantity of Rye-grass thrown on in addition, and never better crops were seen than those which followed this treatment. The early part of the spring was wet, and so far favourable. The experience of the neighbourhood is, that if the land be stiff clay, no crop succeeds well until the land has been under Grass. If I possessed land of that nature which had been recently overflowed with salt water, I would sow it with Oats and Clover, and Rye-grass, giving a good allowance of White Clover seed. The land already in Grass will recover during the present season.—*W.*

Barley the best substitute for Potatoes.—Mr. Ewing is quite mistaken in supposing the disease of the Potato to have been occasioned by atmospheric influence. If you wish I will send you the most indubitable evidence that the disease of the Potato was occasioned solely by the heavy rains and the cold weather [are not these atmospheric influences?] which is an invariable accompaniment of heavy and continuous rains. Thus, as the disease was caused by wet and cold, consequently the evil being external, the tubers will be found generally to be free from the disease, as they spring from the core of the Potato; hence there will be abundance of sound seed found at home, without having recourse to foreign countries for it. Turnips, Cabbages, Parsnips, and Carrots, are unfit for human food, as they contain too little nutrition, and too much elastic air, causing flatulence in the stomach, and gripes in the intestines. None of these should even be given to cattle, without being previously put into or immersed in boiling water, with a small quantity of salt to counteract the causes herein assigned. By this simple process cattle are much fonder of this kind of food, will yield a much larger quantity of milk, and will thrive much better than if used in their raw state. There is no difficulty in finding a substitute for Potatoes. Barley is more productive, consequently cheaper, and more nutritious, and can be cultivated with less expense. An acre of good land in Ireland [What is your acre?] produces 20 barrels of 16 stones, or 7424 lbs. of good grain; the straw is good fodder, and the chaff, when boiled with Turnips or Potatoes, is nutritious food for horses and cattle. Of 7,424 lbs. of

Barley, there may be about 925 lbs. of dust, or refuse from the manufacture of the said quantity, leaving 6,499 lbs. of nutritious food, and the 925 lbs. of dust is readily consumed by horses, cattle, and pigs, and on no other food will cows thrive so well, and yield such a quantity of rich milk. A few years ago there was a scarcity of Potatoes in this neighbourhood, when the workmen employed at the Duncormick limestone quarries gave up the use of Potatoes, and used Barley-meal for stirabout in the morning and evening, with Barley-bread and milk to dinner, and they admit they never at any time wrought so well, were so strong, or enjoyed such good health, as during the time they substituted Barley for Potatoes. Were Barley mills established in this country, as in Scotland, they would be of immense utility to the poor, as I am convinced that 1½ lb. of "pot Barley" would be better and more nutritious than 1 stone of Potatoes. I hope this hint will be sufficient to induce millers in this country to introduce Barley mills for the manufacture of pearl and common Barley. —*Robert M'Call, Wexford.*

Liming Potatoes.—As I know that my authority has been extensively circulated in favour of quick-lime as a protection against the consequences of the Potato disease, and as I have heard from the Duke of Rutland that his experiments have not been equally successful, I feel it a duty to society to prevent people from being misled by the general terms in which I have circulated the result of the experiments conducted here. It is quite true that the lime used here has been invariably successful, but it is the magnesian lime which abounds in this neighbourhood. In its caustic state, it is fatal to vegetation. Barren spots are to be seen in many places on the forest, where lime heaps were placed more than 30 years ago. It is, therefore, easy to account for the effect of this lime in stopping the propagation of this disease. The lime used by the Duke of Rutland I understand to have been the crich-lime, which is very pure lime, and has no such destructive qualities. It is, therefore, only necessary to state the distinction to account for the difference. Charcoal is quite as effectual as the magnesian lime.—*Scott Portland, Welbeck, Mar.* 18.

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A WEEKLY COUNCIL was held at the Society's House in Hanover-square, on Wednesday last, the 25th March; present, His Grace the Duke of RICHMOND, K.G., in the chair; Sir John V. B. Johnstone, Bart., M.P.; Thos. Alcock, Esq.; Thos. Raymond Barker, Esq.; John Benett, Esq., M.P.; F. Burke, Esq.; Col. Challoner; F. C. Cherry, Esq.; H. Gibbs, Esq.; Prof. Sewell; H. S. Thompson, Esq.; S. Bencraft, Esq.; H. Burr, Esq.; A. E. Fuller, Esq., M.P.; G. Vernon Harcourt, Esq., M.P.; E. Hussey, Esq.; C. Miles, Esq.; O. Ogilvie, Esq.; A. L. Potter, Esq.; H. Price, Esq.; G. H. Ramsay, Esq.; and T. Turner, Esq.

The following new members were elected:—

Nixon, William, Union Hall, Newcastle-on-Tyne
Combs, Richard, Tiverton, Devonshire
Taylor, Hugh, Cramlington, Newcastle-on-Tyne
Mansel, Lieut.-Colonel, Smedmore, Corfe Castle, Dorset
Hawks, George, Newcastle-on-Tyne
Cuthbert, William, Beaufront, Hexham, Northumberland
Armstrong, Joseph, Higham-place, Newcastle-on-Tyne
Cookson, Thomas, Swinburne Castle, Hexham
Davison, William, Seaton-Delaval, North Shields, Northumberland
Mansel, John Clavel, Smedmore, Corfe Castle
Lax, William, Kirkbridge, Stanwick-park, Darlington
Mitchell, John Hoffe, Deans-Leaze, Witchampton, Wimborne, Dorsetshire
Gibson, John, Hayes-terrace, Newcastle-on-Tyne
Haselwood, William, Hoddesdon, Hertfordshire
Sowery, Stephen, Shieldfield-house, Newcastle-on-Tyne
Haddon, Thomas, Hampton-Lucy, Warwickshire
Potts, Forster Charlton, Whorlton, Newcastle-on-Tyne
Malbas, George Wallington Rich., Chelsford, Wellesbourne, Warwickshire
Burton, Thomas, jun., Thurton, Norwich
Taylor, Charles H., Bamburgh, Belford, Northumberland.

The names of 10 candidates for election at the next meeting were then read.

PRIZE ESSAYS.—Mr. PUSEY, M.P., Chairman of the Journal Committee, having reported the essay to which the judges had awarded the Society's prize for a Report on the Farming of Cambridgeshire, the sealed motto-paper containing the name of the author of the successful essay was opened, by the Chairman in the presence of the Council, and the adjudication found to stand as follows:—

To SAMUEL JONAS, Esq., of Ickleton, near Saffron Walden, the Prize of 50*l.*, for his Report on the Farming of Cambridgeshire.

FARM-YARD MANURE.—Sir JOHN JOHNSTONE, Bart., M.P., agreeably with the arrangement of the Council, as proposed at their last meeting, then introduced to the notice of the members present, M. Ouvrard, the French financier, at present on a visit to this country, and who had been introduced to Sir John Johnstone by a friend who was desirous that M. Ouvrard should have an opportunity of laying before the Council a plan of managing farm-yard manure, submitted to him by M. Emile Encoutre, at present residing at No., 48 in the Haymarket, London.

M ENCOUTRE having remarked that the greater number of farmers left their manure-heaps exposed to the rain, while the smaller number covered them with earth but imperfectly, and without entirely preserving them from injury and loss, was led to conceive that this object would be most effectually attained by covering the whole of their surface with a layer of tar, mixed with lime. This covering, he imagined, would not only be a complete protection against the rain, but would also tend to the attainment of the following objects. 1. The retention of those exhalations which have nitrogen for their chief element, and, in a manuring point of view, are of the greatest value. 2. The watering of the heap by different manuring liquids produced on the farm, or furnished from other sources, should a deficiency exist. 3. The acceleration of the fermentation and decay of the heaps by passing through them different pipes heated by means of steam to a temperature ranging from 60° to 70° F., and supplied by a boiler, of which the original price would not be more than 2*l.* or 3*l.* M. Encoutre also stated that the grain, before being sown, was immersed in a solution of gelatine and starch, diluted with brine, and then sprinkled with the manure reduced to a dry and powdery state. Having given this account of his plan, he proceeded to detail the practical results which had been obtained in France by its adoption; from which it appeared:—1. That only one-sixth of manure thus prepared would be required in comparison with the quantity of common farm-yard manure usually applied for the same extent of surface. 2. That the produce of corn was found to be one-fifth greator where his manure had been used. 3. That after two years the same land was found to require only one-half of the orignal manurings to keep it in the same condition. 4. That the expence attending the application of this new manure was 8*s.* per acre. M. Encoutre, in conclusion, requested the Council to appoint one or more farms in different parts of the country, where his experiments might be repeated, and the value of his plan brought to the test of practical trial, expressing his willingness to give his personal attendance at each of the places selected, and to instruct the parties appointed to make the trial in the proper mode of proceeding.

M. OUVRARD then received of the Council their thanks to M. Encoutre, for his attention in submitting this plan to their notice; and availed himself of a suggestion that was made to him, that on the experimental farm connected with the Royal Agricultural College, at Cirencester, it might probably be at once submitted to the practical trial required by its inventor.

GORSE FOR SHEEP.—Mr. SANDHAM ELLY, of Elly Walks, near New Ross, in Ireland, the author of a paper on Gorse as food for cattle, in the last part of the Society's Journal (p. 523), communicated to the Council the result of an experiment he had made in feeding sheep on that substance—the first instance he believed either in Ireland or England, of sheep sold in market fattened on Gorse. The sheep, wedders of two years old, were put into a stall in the bullock-house in the last week of December, in fair average condition. They had a feed of Beet in the morning, and three feeds of prepared Gorse in the evening of each day, until the last week in February, when they were sold fat to the butcher and realised 30*s.* on the lot. The Beet was given as a variety of food, and occupied the time during which the Gorse was undergoing preparation. The mutton proved to have an excellent flavour, of the wild mountain kind, and its chief excellence consisted in the abundance of rich gravy it contained. Mr. Elly expressed himself so well satisfied with this result of his experiment, that it was his intention next year to go more largely into the speculation.

MISCELLANEOUS COMMUNICATIONS.—1. From Mr. Thompson, giving notice at the monthly meeting of the Council on Wednesday next, he intended to propose some arrangements regarding the lectures to be given to the members at the ensuing country meeting at Newcastle.

2. From Sir Trayton Drake, Bart., reporting that on his farm at Nutwell Court, in Devonshire, Swedish Turnips, cut into slices by the Turnip-cutter, were employed in their raw state as an excellent food for his horses; and that, boiled in a copper and mashed into a pulp, his pigs thrived on them very well.

3. From Mr. Johnson, of Farnham, stating that land sown with White Mustard, and fed off with sheep, had become perfectly free from moles and wireworms, with which it had previously been constantly infested.

4. From Mr Fisher Hobbs, Mr. Jonas, Capt. Garland, Mr. White, Mr. R W. Baker, Mr. Fuller, M.P., and Mr. H. Manning, undertaking to make trial of the Australian Wheat and Barley sent to the Society for that purpose, and to report the result to the Council: Mr. F. S. Dutton undertaking to furnish to the Council the result of Dr. Ure's analysis of each of those supplies.

5. From Mr. John Townley, papers on the Potato disease; and on the question, whether varieties of plants, propagated by extension, wear out.

6. From the Royal Agricultural Society at Prince Edward Island: a copy of their Annual Report, transmitted through His Grace the Duke of Richmond.

7. From Mr. Milberg, of Jever, Hanover: a notice of the new cultivator invented by him.

8. From Mr. Pusey, M.P., transmitting the thanks of the honorary members elected at the previous monthly Council, for the honour of the election, and their desire to promote the objects of the Society; also Professor Graham's especial wish to promote the views and investigations of the Society in those branches of science to which he is himself more particularly attached.

9. From Mr. Raymond Barker, a notice, that at the next meeting of the Council, he should move an adjournment over the Easter Recess, from the 1st to the 22d of April.

The Council then adjourned to Wednesday, the 1st April.

HIGHLAND AND AGRICULTURAL SOCIETY.

AT the late monthly meeting of this Society Mr CAMPBELL, of Auchendarroch, read a short report on raising improved varieties of Oats, by Mr. Archibald, overseer at Champfleurie, in West-Lothian. The reporter, after alluding to the possibility of obtaining from growing crops improved varieties of Oats, which may have been engendered by impregnation, states, that in August, 1841, he collected 25 distinct sorts, all differing from the crops among which he found them. Out of these he selected eight for culture: 1st, The Hanginside, or Yellow Oat; 2d, The Blue Early; 3d, The Hopetoun Brown; 4th, The Champfleurie; 5th, The Small Fly; 6th, Peter's Oat; 7th, The White Wild; and 8th, The King's Evil. In April, 1842, he sowed a few seeds of each in his garden; they came up well, producing good grain and straw. The Blue Oat was first ripe, followed by the Fly; the Hanginside was last. In 1843, the eight varieties were sown after Turnips, in a field of northerly exposure; they all yielded very fine grain and straw—the Blue Oat still took the lead: but all were cut in the last week of August and the first of September. In 1844, they were tried after lea, on a piece of cold loamy soil, lying to the north, and not in a high state of culture. The seeds were sown in drills, with from 4 to 5 inches between each drill. The Blue Oat in this soil still kept the lead in earliness, as well as in grain and straw; the White Wild Oat did remarkably well; the whole were cut by the end of August. In 1845, the different varieties were again tried after Turnips, on a drained field with a good exposure and in high order; the Early Angus, the Hopetoun, and the Early Reed Oats were sown along with them. These various experiments have led Mr. Archibald to form the following opinions of his varieties:—*Blue Early Oat*—A very free grower, well adapted for most soils, yields abundance of straw, and fine Oats for horses; ripens with the Early Angus. *Hanginside, or Yellow Oat*—A very hardy Oat, and productive in grain, requires strong dry soil; ripens with the Hopetoun. *Hopetoun Brown Oat*—A very prolific bearer, and strong in straw; resembles the Hopetoun. *Champfleurie Oat*—Yields fine straw, but a little deficient in grain to the others. *Small Fly Oat*—A good bearer, but liable to shake before quite ripe; should be cut early. *Peter's Oat* yields most excellent grain and strong straw, and ripens with the Potato Oat; it requires a strong, loamy, and well-manured soil to bring it to perfection. *White Wild Oat.*—The grain is coarse, but the straw is very good; it is early, and answers on poor light soils. *The Reed Oat* is very early, but deficient in grain and straw compared to the others. *King's Evil Oat* requires a dry early situation; it is like the Reed, but rather later.—Mr. GRANT, of Kincorth, then read a report of a plantation of Scots Fir and Larch, formed by him on his own property. The plantation is situated on the outskirts of the extensive range of sandhills of Culbin, which so strongly attract the notice of strangers in passing through Morayshire, and which are so conspicuous to the north of the town of Elgin. These sandhills occupy a very extensive space of ground (perhaps 4000 or 5000 acres), and are chiefly composed of small hills, varying from 50 to 150 feet in height, of loose white sand, perfectly void of vegetation, and liable to be drifted with every gale of wind. It is well-known that these hills cover what was formerly a large and fertile estate (that of Culbin), which was destroyed by the blowing of the sand from the westward about 170 years ago. Bordering this desolate waste on the south, and separating it from the cultivated country, is a range of lower sandhills; their surface is partially covered with Bent, interspersed with coarse Grass, and in particular places with Whins and Broom; the soil, however, to a considerable depth consists entirely of sand which has been blown from the adjoining waste. Mr. Grant is the proprietor of part of this tract, and as his residence is in the neighbourhood, he was naturally anxious to adopt means to diminish the dreariness of the aspect. It was long, however, before he could bring himself to believe that trees would grow in a soil so sterile. In spring, 1837, he made the experiment of inclosing and planting a portion of 20 acres with the Pinus sylvestris and Larch, in nearly equal proportions. Encouraged by the success which attended this attempt, he has since made yearly additions, and has now the satisfaction of having established a vigorous plantation of 70 acres, giving an ornamental appearance to the neighbourhood, and promising to conceal, in a few years, the waste behind. Though the soil was uniformly sand, the surface varied considerably. In one part it was sparingly covered with Bent; in another, the Bent having rotted, had given way to a thin wiry Grass; and in a third, the progress of vegetation being farther advanced, the surface was covered with Furze. The plants were chiefly of one year's transplanted growth. Seedlings, and some of two year's growth, were also used. The smaller plants did very well in the Bent, provided the weather was not too dry, and the larger succeeded among the Whins and Broom, where proper pits were made for them. On the whole, the greatest difficulty to establish vegetation was experienced in that part of the sand where the surface was grassy. Mr. Grant does not take credit to himself for having been a very economical planter. The nature of the soil necessarily entailed a great loss of trees from failure, and the experiment was originally made, not with a view to profit, but embellishment. In that it has been entirely successful. Shelter and ornament have been obtained, and the monotonous aspect of the

Culbin Sands will soon be excluded from the view. The plantation is thriving, as well as others in its neighbourhood; the trees in the older portions are upwards of 6 feet high, and there is every prospect that in time the undertaking, besides satisfying the original object, will pay the proprietor in a pecuniary respect. It is gratifying to observe, that Mr. Grant's example has not been thrown away; Mr. Grant of Glenmorriston, the proprietor of the Culbin Sands, stimulated by his success, has planted a considerable portion of that district, and it is to be hoped that other proprietors will bestir themselves in a similar manner to improve the sandy tracts that occur so frequently on the coasts of Scotland.—Professor Balfour informed the meeting, that on Lord Palmerston's estate, near Sligo, on the west coast of Ireland, the maritime variety of the *Pinus Pinaster*, and other species of Pines, had been planted to a great extent in sand near the sea. These Pines had succeeded, and by their agency the inroads of the sand had been checked, and nearly 800 imperial acres reclaimed.—Mr. Forbes Irving, yr. of Drum, read a report of experiments instituted by Mr. Bruce, Waughton, near Prestonkirk, for the purpose of ascertaining the value of linseed cake, both as an article of food for cattle, and as a manure when consumed upon the land. The first experiment was attempted with 27 polled heifers, divided into three lots—one put on a liberal allowance of foreign made cake, another on the same of home cake, and the third on Turnips alone. The experiment was generally satisfactory, both as to the improvement effected on the animals, and the saving of food by the use of cake, but some of the heifers having turned out to be in calf, no precise results could be given. Two lots of dung made, one by the cake fed, the other by the Turnip fed animals, of equal quantities, and similarly treated, were applied to equal portions of three different fields sown with Turnips. When the crop was lifted and stripped of tops and roots, the cake manure was found, on the average of the three fields, to have produced 5090 lbs. to 4650 lbs. produced by the common manure. Two experiments of the same nature were tried with sheep; 60 half-bred Dinmonts were divided into three lots. The 1st lot, fed on foreign made cake gained 286 lbs. in weight; the 2d, on home-made cake, gained 227 lbs.; and the 3d, on Turnips, 77 lbs. 60 Cheviot Dinmonts, of inferior quality, were similarly divided and fed: the 1st gained 233 lbs.; the 2d, 273 lbs.; and the 3d, 68 lbs. It is to be remarked that the improvement produced by the home and foreign made cake respectively, was in these experiments exactly reversed, a circumstance for which Mr. Bruce does not pretend to account. The three inclosures being of equal size, on which the half-bred Dinmonts had been fed, were sown with Wheat, and the result as to the value of the respective substances as manures, when consumed on the ground, was as follow:—The extent of each portion of land was 1.041; that on which foreign cake had been consumed yielded 288 lbs. of grain, 817 lbs. of straw, more than that on which Turnips had been eaten; and the portion on which home-made cake had been consumed gave an increase also over the latter of 263 lbs. of grain and 600 lbs. of straw. A third experiment was instituted for the purpose of trying the comparative qualities of the following articles in the fattening of sheep: — Linseed, Linseed-cake, Poppy-cake, Beans, and a mixture of Beans and Linseed. Five lots of sheep were selected, and were fed respectively on Linseed, on Linseed-cake, on Beans and Linseed-cake, followed by Poppy-cake, on Beans, and on a mixture of Beans and Linseed. The mixture of Beans and Linseed was the most successful; the Beans alone the least so. The sheep fed on the former showed a weekly improvement of 28 5-16 oz.; those on the latter of only 13 9-16 oz. As Linseed contains 25 per cent. of oil, it was feared that it would operate too powerfully on the sheep, but no such result was experienced. It was used in a ground state; but, owing to the difficulty of grinding it, experiments were carefully made, with the view of ascertaining the amount of loss when used whole; this was found to be under one per cent. An average animal was killed out of each of the last mentioned five lots, and the result again was—that the mixture of Linseed and Beans produced the best carcase in point of weight, Beans the worst. Mr. Bruce concludes by stating, that the experiments having been carried on with a view to personal information, a strict regard to accuracy was observed in every detail, and though on rather a limited scale, that they clearly establish the fact that mutton can be produced at a lower rate per lb. from a liberal use of foreign keep in connection with Turnips, than from Turnips alone—taking, of course, the increased value of the manure into account; and that of the articles used, Linseed is the most valuable, and Beans the least so; but that a mixture of the two forms a useful and nutritious method of feeding.—Mr. Girdwood considered that the paper was of importance; the experiments had evidently been conducted with care, and they related to a subject which is a *questio vexata* among agriculturists. He hoped to see the paper, and all the relative tables published in the Transactions. His own experience had taught him that a moderate use of oil-cake enhanced the price of an animal. It was true that one so fed might not agree with travelling, but the rapid extension of railways was doing away with that objection. — Mr. Goodsir, F.R.S.E., then addressed the meeting upon the diseases in corn called smut and ergot. In introducing the subject Mr. Goodsir adverted to the account he had given at a former meeting of the Society on the Potato disease, in regard to which he was most anxious to be understood as holding the opinion, not that it depended on fungi alone, but on a previous condition of the plant affected, which rendered it liable to the attack of fungi; these, however, being essential to the full development and ultimate characters of the murrain. Mr. Goodsir then described the smut-ball in Wheat—a disease resembling the Potato disease—inasmuch as it is now admitted by the most competent authorities to consist essentially in the attack and destruction of the grain by a parasitic fungus. This parasite, which presents the appearance of minute globules attached to ramifying cottony filaments, attacks the ear only—appearing at an early period of the formation of that part, feeding on the sap which should nourish it, and using up also the starch and gluten which may already be deposited in it. The parasite at last occupies the whole cavity of the pericarp, and constitutes the dark green or brown powder which exhales the characteristic fishy odour of the disease. A remarkable circumstance connected with the smut in Wheat, is the great size and vigour of the plants attacked by it. This Mr. Goodsir is inclined to attribute, not as has hitherto been done, to circumstances of soil and weather, but to what has been called the *stimulus* of the disease, increase of bulk and alteration in development being produced in parts of plants by the attacks of parasites—as in ergot, galls, &c. This parasite (uredo fœtida) is peculiar to Wheat. Another very similar (uredo sagitum) attacks the Oat, Barley, and other Grasses, not confining itself to the ear, but appearing on various parts of the ear, leaf, and stem. Mr. Goodsir then proceeded to show, from the researches of various observers on the disease in Rye and Barley called ergot, that it is also induced by the attack of a fungus, resembling generally the smut fungus. There is, however, this difference between the fungus in each corn, that whereas in the smut it is internal, appearing at first in the substance of the plant infected—in the ergot it attacks, and is found on the surface only. The large hard dark-coloured projecting mass, called the ergot, is not the fungus itself, as is sometimes stated, but only the enlarged, altered, and poisonous embryo or seed of the Grass, contaminated and stimulated to increased growth by the parasite. It is satisfactory to know that these diseases, having been proved to be capable of being inoculated into sound or unaffected corn plants, may be effectually prevented if the seed employed be thoroughly cleared of the spores of the fungus by washing in certain solutions.—Professor Balfour, after alluding to the interesting and correct observations of Mr. Goodsir, remarked that the cause of the appearance of fungi in large quantities, at particular seasons, was still involved in obscurity. No light had been thrown on the subject by the recent researches of botanists. The mycelium or spawn of many fungi often lies dormant for a long time, in the form of filamentous threads, which only develope perfect plants, and produce spores (equivalent to seeds), when a certain concatenation of circumstances occurs. He agreed with Mr. Goodsir in stating that the fungi producing the diseases of smut-balls and smut (uredo fœtida and segetum) are developed from within the ovary or grain of the plant, and grow at the expense of its contents, while the fungus causing ergot appears first on the outside of the ovary, and produces a change in the state of the ovary itself, which becomes dark-coloured and enlarged. Ergot occurs in many Grasses besides the cereal grains, such as sweet-scented Vernal Grass, and Canary-Grass, &c. The disease has been produced in Grasses, according to Mr. E. J. Quekett, by applying water containing the spores of the fungus diffused in it. It is not easy to prevent these diseases in all cases. One of the chief modes of prevention, according to Professor Henslow and others, is steeping the grain in a weak solution of the sulphate of copper or blue vitriol.—Mr. Girdwood stated that he had found smut very general in 1843, which might be attributed to the great dryness of the previous summer. He had since been in the habit of steeping a boll of Wheat in ¾ lb. of sulphate of copper dissolved in water, and he had hitherto found the measure an effectual preventative.

Farmers' Clubs.

Bromsgrove: *March* 17. — *The application of Capital to Agriculture.* — The following resolutions were adopted unanimously: "That there is abundant scope for the employment of a large additional capital in the cultivation of the soil; and that it is highly desirable that such capital should be applied."—"That the expense of permanently improving the land by erection of commodious buildings, drainage, &c., should be undertaken by the landlord, a per centage on the outlay being charged in the rent."—"That when the land shall have been permanently improved in the manner specified, the tenant will in almost every case find room for the employment of more capital in cultivation, at a far greater advantage to himself than under the present system."

Maidstone.—*The extent to which Soils in Kent may be improved by the Expenditure of additional Capital.* —The Secretary, in introducing the subject, said he had proposed it because he deemed it a very suitable one at the present time. The geological formations of the Wealdon clay, which comprised more than 100 square miles, of the gault clay below the chalk, and of the plastic and London clays above the chalk, were almost wholly undrained. The average produce of these clays was, perhaps, not more than from 2½ qrs. to 3 qrs. of Wheat per acre, lying a third or fourth of the time in fallow. If the fields were enlarged, and the hedge-row timber which shaded and impoverished them were removed, if better buildings were erected and better roads made on them, they might probably be made to double their present productive value. Fallows might be dispensed with, and farmers might get upon their land at any time, so that even in such a season as the present one, they would have no difficulty in getting out their manures. The great impediment to these and other improvements had hitherto been—the want of capital. It is not to be expected that tenants who required more than their present amount of capital in their trade, could effect these improvements. It might perhaps be said that all tenants were not sufficiently impressed with a conviction of the value of some of them, and the landlords of entailed estates, having only a life interest in them, could not be expected to effect them at their sole expense. Now that a proposition had been made by the Government to advance capital on the security of rent-charges for permanent improvements, the present was perhaps the best possible time for a consideration of this subject by the club. The opinions of a body of practical farmers on this point might, at this particular juncture, serve not only to stimulate and encourage other farmers of the district in the adoption of these improvements, but might also act beneficially as a guide to those owners of land, who, not being practically acquainted with the subject, might be undecided respecting what were and what were not practical and permanent improvements. The clays of the Weald only required draining and clearing to render that district one of the most valuable in England. The best samples of Wheat which came into the Maidstone market were grown on this clay, in the parishes of Staplehurst and Marden. He had seen, on this clay, after being drained and dressed with guano, the best crop of Turnips he had met with, in travelling through several counties in the last summer; and also Carrots and Mangel Wurzel of first-rate character. The speaker moved a resolution, declaring the importance of draining these clays. A farmer from the Yalding district suggested that one great point was to procure leases, with provisions suitable to the present improved system of farming. The present form of leases had been made out to suit an old-fashioned system and were inapplicable to the present modes. The timber on a farm was also of great injury to the farmer. One Oak tree on his farm he had calculated had destroyed 50 hills of hops every year, and he would willingly give 10*l.* to have it cut down. He thought that much good might be done by grubbing useless hedgerows. As to draining and subsoiling that portion of his land (on the ragstone rock), he did not think it would be of any benefit. At another part of the county, on clay, he was, however, now draining, the landlord finding the tiles, and he finding the labour. A Hunton member said that as respected draining, the best land of the last speaker was naturally drained, and very different from the clays alluded to by the secretary. There was a large portion of land in this county which it was impossible either to keep clean or to manure without draining. A member from Staplehurst said that, in the application of increased capital to the permanent improvement of land, it must always be recollected that their present circumstances had grown up with their fathers and themselves, and that their farm buildings and most of their farm arrangements were in accordance with an old system. Their homesteads in the Weald of Kent were in accordance with the state of agricultural knowledge of a century past, and were erected at a period when the value and nature of their manures were not so much considered as at present. He had observed, with great regret, that in almost every farmstead of the district, a very large portion of the most valuable parts of their manures were permitted to run to waste. The first thing to be attended to in erecting buildings, to accord with their present system, was to have comfortable cattle lodges for the fattening and keeping of their cattle. One thing from which he suffered much, in common with all his neighbours of the Weald, was the dripping from the eaves of their large buildings into their yards. He could not cross his yards without going to a considerable depth in water, and much of the best of his manure washed into his ponds. Now, if water shoots were put round all the eaves of their buildings, there was little fear of their manure having too much moisture. He believed one load of manure which had not been so saturated was worth two loads that had been constantly wetted. It unfortunately happened that nearly all their yards had been originally formed on a slope, for the purpose, he supposed, of draining the superfluous water away from the yard, and consequently they might sometimes see the ponds at the bottom of the slope as black as ink with the richest portions of the manure, which was only made available when the pond was cleaned out, the mud of which was almost worthless. He believed that where a landlord was erecting new buildings, steam-engines might be placed in a building apart from the others, which would thresh their corn at a cost of 2*s.* per quarter. Small farms would not pay for steam-engines, but he thought that farms of from 200 to 500 acres would do so. The necessity of judgment in the improvement in their lands was, perhaps, almost as great as their want of capital. The next step would be under-draining. He believed that the requirements in this respect of the Wealds of Kent and Sussex would beneficially absorb almost any loan which the Government might be likely to grant, and the improvement resulting from which operation would be as permanent as the soil on which it was made. He thought the landowner should do this, and that it should always be done under the superintendence of his agent,

any whilst it was done ineffectually, much of the advantage of it would be lost. He had himself just completed the thorough draining of 80 acres, at a cost of about 300*l.*, making about 500 rods of drains. This, with the exception of a small portion, he had done at his own cost, being under an agreement to be paid the value of any improvement which he might leave on the land. For that portion which had been done at the landowner's expense, he was to pay 6 per cent. on the outlay. He had drained something like 200 acres before this year, and all he had to say about the result was, that it had paid him sufficiently well to induce him to go on with it. (Cheers).—Some further conversation ensued. The following resolution was unanimously adopted :—"That by the application of additional capital on a large breadth of land in this county, the productive power of the soil might be greatly increased, and the cost of production be diminished, through the means of tile-draining, increasing the inclosures, and grubbing up hedgerow timber; that great advantage would be derived by the tenants from the erection of improved farm buildings, with such yards as would preserve the manure from superfluous moisture, and from the erection of thrashing and cutting machines, driven, on farms of large extent, by water-power or by steam. In addition to these improvements, the security of a lease formed on such conditions as shall permit of an improved system of agriculture, as also a desideratum with a large number of tenant farmers."

Moreton Hampstead.—*Tenant Right—Resolution :* That existing leases are not only injurious to landlord and tenant, but to the community at large, as they retard improvement of the land, and consequently diminish production. That tenancy at will, with a notice to quit of only six months, is highly objectionable, and needs the interference of the Legislature to extend the time beyond that period, to enable the tenant to reimburse himself for the outlay of capital invested in the soil, or compel the landlord to take the interest of the tenant at a fair valuation.—That all permanent improvements ought to be borne by the landlord, who should charge the tenant a fair interest for the capital expended; and where the tenant is at the whole expense, by the landlord's consent, he ought at least to be allowed 14 years to repay him for the outlay, or be allowed in proportion to the time unexpired for compensation; and all improvements of the soil belonging to an outgoing tenant should be taken by the owner at a fair valuation, and charged to the incoming tenant as an improved rent.—That a legal system of "tenant rights" in accordance with the above would promote the interest of both landlord and tenant, and materially conduce to the advancement of practical agriculture, by giving confidence to the tenant to lay out his capital in improvement of the soil, thus causing a vast increase of production.

CALENDAR OF OPERATIONS.

MARCH.

The wet weather of the past week will have delayed many operations, such as Barley, Clover and Carrot sowing, which may be resumed as soon as the land is dry enough. The rain will have facilitated the paring of old sward, and this should be proceeded with wherever Grass land is to be broken up. The laying down of turf by the method termed inoculation may also be proceeded with while the land is wet. Fragments of turf, of about 3 inches square, taken from a field of *good* pasture, are to be shovelled and scattered out of a cart over the surface of a well-tilled and manured field, at the rate of about 70,000 pieces per acre; and women following are to place them right side up, in rows about 5 inches apart, and at intervals of 5 inches in those rows; each piece on being placed should be pressed home by the foot. A heavy roller should follow, and then a lot of earth or compost should be carted on and spread out of the cart at the rate of 20 or 30 loads per acre. Quarter cwt. of mixed Grass seeds should then be sown, but harrowed in and rolled, and the field left till the autumn. During wet weather the cattle boxes, sheep yards, and courts should be cleaned out and the manure carted to the field. In forming heaps in the fields, the carts should not now as in autumn be suffered to travel over the heap, thus compressing it and delaying its fermentation, but they should be backed up to the heap and the manure thrown up with a fork.

Notices to Correspondents.

Beans—*Tom Beanstalk*.—You want to get them dry. Open up your stack some fine morning, and let a dry March wind through among the stooks for 18 hours, and see if you cannot thresh them then. You will do your horses no good by giving them damp Beans. If you like, you may put your Beans in the straw through the chaff-cutter, and serve them up as fodder thus. In any case, they will be the better for being dried.

Books—*A Z*—The new edition of Rural Chemistry will be ready on 10th April. Order it of your bookseller.

Bones and Sulphuric Acid—*A Yorkshireman*—We recommend the application of the mixture before sowing the Clover seeds. Harrow it in, and then sow the seeds, and bush harrow.

Bran—*B*—The only analysis of the ashes of bran with which we are acquainted, is that of De Saussure. He obtained rather more than five per cent of inorganic matter; 100 parts of this contained 46 parts earthy phosphates, 30 parts of silicaline phosphates, 14 parts of carbonate of potash, and small quantities of chlorine, sulphuric acid, and silica. *E.*

Carrots—*J. L.*—They are good food for pigs. You need not boil them; give them raw. About liquid manure, see our "Calendar" No. 2. Your asphalted-felt roof is imperfect probably at the joining; you should apply to the parties from whom you bought the material.

Clay-mill—*D H* will be obliged if any one will inform him whether there is a clay-mill for grinding the clay with rollers and worked by horse power to be had, that can be moved from one heap to another, without much difficulty and expence; and, if so, where it can be procured.

Concrete—*Northwoods*—Was it to form the foundations of the buildings, and the surface of the yard too? Your statement is not quite clear. For the former, the buildings being merely a cow-shed and piggery, we should have considered it unnecessary. There will be no great weight on the foundation of such buildings, and but little trouble need have been taken to secure a good one. For the surface of the yard we should consider the chalk rammed into it the best remedy; we cannot speak from experience as to the gas tar, and therefore print your question:—Will gas tar, boiled and poured over a dry loose mixture of mortar and gravel, harden and form an asphalte paving? Perhaps some correspondent will kindly answer this.

Disease in Lambs—*G T C*—You do not mention the appearance of the liver which you say is diseased. In the absence of this, it is difficult to give an opinion as to the nature of the disease. Presuming that there is no diseased appearance otherwise than in the liver, we would recommend you to try salt as a preventive, which will supply the soda required in the formation of the bile, and which perhaps the food may not contain in sufficient quantities. Half a teaspoonful daily will be about enough for a lamb.—*W. C. S.*

Forward Wheat—*W Marshall*—You may use Crosskill fearlessly in dry weather. But had you not better try and pull some of the plants out of the ground first, by a harrowing across the drills. Forward Wheats are generally the better for a thinning. We have already seen specimens of the red rust to which you allude: it has appeared very early in the season. We should be glad to have an account of your experiments.

Grass Seeds—*J R*—The Grass seeds will grow the better for the Barley being somewhat thin, and therefore 2½ bushels of the latter is a sufficient seeding. 37 lbs. of the mixed Grass seeds are abundantly sufficient.

Grazing—*Enquirer*—We do not know how many pounds of beef or mutton may be made out of a given weight of hay. The loss or otherwise from early feeding off pastures intended for hay depends upon the after weather. If you closely fed a dry pasture in March and April, it would injure it for hay provided you had a dry May, but not if you had a wet one.

Parsnips—*Sigma*—They will keep about as long as Carrots in spring and summer. The seed ought to be sown early in March.

Permanent Pasture—*Young Farmer*—You propose sowing Barley, and therefore we conclude your soil is light. For such land the following seeds will do:—Meadow Foxtail, 1 lb.; Rough Cocksfoot, 4 lbs.; Hard Fescue, 2 lbs.; Meadow Fescue, 1 lb; Creeping Fescue, 2 lbs.; Common Rye-grass, 5 lbs.; Italian do., 4 lbs.; Smooth-stalked Meadow-grass, 1 lb.; Yellow Clover, 1 lb.; Cow-grass, 3 lbs.; White Dutch Clover, 4 lbs. Total, 28 lbs. per acre.——*F Fairbank*—For a "rich vale soil" the following seeds will answer:—Meadow Foxtail, 2 lbs.; Rough Cocksfoot, 4 lbs.; Hard Fescue, 2 lbs.; Spiked Fescue, 1 lb.; Meadow Fescue, 2 lbs.; Common Rye-grass, 5 lbs.; Italian do., 1 lbs.; Catstail Grass, 1 lb.; Rough-stalked Meadow-grass, 2 lbs.; Yellow Clover, 1 lb.; Cow-grass, 3 lbs.; White Dutch Clover, 4 lbs. Total, 31 lbs. p. acre.

Sheep-keep—*T W L*—The market value of this, like that of everything else, depends upon its abundance and the demand for it. We have known 8*l.* to 10*l.* per acre given for Turnips, to be consumed on the land, and we have known similar crops rotting on the ground, or going to seed, for want of stock to consume them, though offered gratis. How is keep with you this year? With us it is abundant to excess. Ewes and lambs on forward seeds have generally paid 6*d.* to 8*d.* per couple weekly, but nothing like that could be obtained in our neighbourhood this year.

Small Mountain Farm—*Shirgar*—Sheds roofed with tiles, with burnt clay or broken stone floors, may generally be put up for 1*s.* per square foot of the ground they stand upon. Stables furnished and paved for 1*s.* 6*d.*, and two-storied barns for 2*s.* 6*d.* You will require for the buildings of your 60-acre farm—stable-room, covering, say 300 square feet, and costing, 22*l.* 10*s.*; barn-room and straw-house, 600 do., 75*l.*; and shed-rooms, if you feed every thing in the house and yards, covering 2200 square feet, and costing, 110*l.*; add for yards, roads, &c., 22*l.* 10*s.*, and your buildings may, we think, be erected for 230*l.* Suppose you want 40 acres drained, the cost of doing it may be put at 200*l.* Thus, as a landlord, you will need to lay out about 430*l.*; and, besides this, if you farm highly, you will need a capital of 9*l.* or 10*l.* per acre as a farmer. Leicestershire sheep and short-horned cattle, if you feed in the house, or Cheviot sheep and Galloway oxen, if you feed in the field and in yards, will be the best stock for you to keep. Buy at fairs, the former in Yorkshire and the latter at some of the border fairs. We do not know any work exclusively on hill-farming; Professor Low's "Practical Agriculture" is an instructive book.

Superphosphate of Lime—*An Amateur*—For sulphuric acid you must apply to the nearest chemical works; *bd.* per lb. is an ordinary price. You may depend on the first person you name—we do not know the second. The former can doubtless either supply you with all you ask about, or direct you.

The Hydraulic Press—*W B N*—This was used as an illustration of the penetrability, so to speak, of water and all other fluids; so that a pressure, however produced, existing anywhere in or on a body of water, shall exhibit itself in equal force anywhere in that body, however distant, if on the same level, and shall be there (minus the effect of friction on its passage) as efficient for the production of motion as it is where immediately applied. A five feet column of water which may exist in wet weather in deep drained land is *thus* much more efficient in forcing the water out of the land into the drains than the two or three feet column can be, which alone can obtain in land drained only two or three feet deep. Of course the force of any individual press must depend, *ceteris paribus*, upon the relation between the section of its "force pump" and that of its "cistern," but the principle on which the action of all depends is that penetrability or mobility of parts in a fluid which "C. W. H." wished to illustrate.

To Crop 1½ Acre or Land—*Constant Reader*—You had better sow ½ an acre to Carrots, ½ an acre to Mangold Wurzel, and ½ an acre to Lucerne. You will need to buy straw and hay.

To Drill Carrots, &c.—*P Q*—The common Suffolk drill will do.—See Calendar. As regards the mixed crop, we should prefer, instead of having the alternate row mixed Parsnips and Beans, to let it be wholly Beans—a row of Parsnips and then one of Beans time about.

Urine—*R G*—If it has lain in the tank for a month or two it may safely be used without dilution.

Markets.

SMITHFIELD, Monday, Mar. 24.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	2s	to	4s	4	Best Long-wools	4s	10	to	5s	2
Best Short Horns	3	10		4		Ditto (shorn)	4	6		4	8
Second quality Beasts	3	0		3	8	Ewes and second quality	4	4		4	8
Calves	4	8		5	0	Ditto (shorn)	4	0		4	4
Best Downs & Half-breds	5	2		5	4	Lambs	6	4		7	4
Ditto (shorn)	4	8		4	10	Pigs	3	8		5	0

Beasts, 3745; Sheep and Lambs, 17,070; Calves, 68; Pigs, 320.

We have a good supply of Beasts to-day, the trade is also brisk, but at rather lower prices. In some instances the best Scots have very nearly realised last week's quotations, but 4s 4d is the more general price for good qualities.—Sheep are rather more plentiful, and trade is heavy at reduced prices.—Lamb in much in demand.—Good Veal continues dear.—Pork trade is steady.

Friday, Mar. 27.

The supply of Beasts to-day considerably exceeds the demand—many remain unsold. Best Scots, &c., 4s to 4s 4d; Short-horns, 3s 10d to 4s 2d; Second quality, 3s 10d to 3s 8d.—Although the number of Sheep is not large the trade is exceedingly heavy. Best Downs, &c., with difficulty make 5s 4d, and Long-wools, 5s; shorn Sheep are proportionably lower.—Lambs continues as dear.—Veal is lower; it must be a choice Calf to make 5s 4d.—Pork is rather lower.

Beasts, 650; Sheep and Lambs, 2800; Calves, 49. Pigs, 300.

61, West Smithfield.

HOPS, Friday, Mar. 27.

We have much more doing in Hops. During this week prices for fine and middling sorts are fully supported.

Farebrother & Ruffe, Hop-Factors.

POTATOES.—Southwark, Wednesday, Mar. 25.

The weather during the past week has been very cold, which is favourable to the consumption of Potatoes, and has increased the demand. The wind continuing favourable brought up the loaded ships from the northern districts, therefore the supply has been equal to the demand, but there was considerable business at the following quotations:—York Reds, 120s to 140s per ton; ditto Regents, 70s to 100s per ton; Shaws for plants, 70s to 80s per ton; Scotch Reds, 60s to 90s per ton.

COVENT GARDEN, March 28.—In consequence of the sudden change in the weather Vegetables still continue to advance in price, and the supply of some things has been rather short. Fruit is not plentiful, but sufficient for the demand, and has altered but little in price since our last account. Trade is tolerably brisk. Pine-apples are good in quality, and, considering the season, tolerably plentiful. Foreign Grapes are sufficient for the demand; and a few hot-house Grapes have also made their appearance. Some fine-looking samples of Strawberries have been offered at 2*s.* an ounce. The best Dessert Apples bring about 20*s.* per bushel; inferior sorts may, however, be obtained from 6*s.* to 12*s.* per bushel. Pears remain nearly the same as they were last week. Oranges still continue scarce. Nuts are sufficient for the demand. Of Vegetables, Asparagus is somewhat scarce, and rising in price. French Beans are pretty well supplied. Seakale and Rhubarb are excellent in quality, the former rising in price. The supply of Broccoli, Cabbages, and other winter Greens, is good. Large white Broccoli from Cornwall fetches from 1*s.* to 3*s.* per dozen heads. Excellent Celery may be obtained at last week's prices. Potatoes, of the best quality, still continue to meet with a brisk sale at 9*l.* a ton; but trade for inferior samples is dull, and the prices remain unaltered. Chicory continues to be supplied. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Tropœolums, Jasmines, Lily of the Valley, Pentas carnea, Stephanotis floribunda, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Rhododendrons, Cinerarias, Gardenias, Moss and other Roses.

FRUITS.

Pine Apple, per lb., 6*s* to 10*s*		Lemons, per dozen, 1*s* to 3*s*	
Grapes, Hothouse, per lb., 30*s*		— per 100, 6*s* to 14*s*	
— Spanish, per lb., 9*d* to 1*s*		Almonds, per peck, 6*s*	
— Portugal, p. lb., 1*s* to 3*s*		Sweet Almonds, per lb., 2*s* to 3*s*	
Apples, Dess., per bush., 7*s* to 30*s*		Filberts English, p. 100 lbs., 30*s* to 60*s*	
— Kitchen, 3*s* to 10*s*		Nuts, Cob, per 100 lbs., 80*s* to 90*s*	
Pears, per hf.-sv., 6*s* to 18*s*		— Barcelona, 90*s*	
Oranges, per dozen, 1*s* to 3*s*		— Brazil, 12*s* to 16*s*	
— per 100, 4*s* to 16*s*		— Spanish, 14*s*	
— Seville, per 100, 6*s* to 16*s*		Walnuts per bushel, 16*s* to 20*s*	
— per dozen, 2*s* to 2*s* 6*d*		Chesnuts, per peck, 2*s* to 3*s*	

VEGETABLES.

Cabbages, per doz., 6*d* to 1*s*		Parsnips, per doz., 2*d* to 1*s*	
— red, per doz., 4*s* to 8*s*		Mushrooms, per bundle, 1*s* to 1*s* 3*d*	
Broccoli, Brown, per bdle., 6*d* to 2*s*		Salsify, &c., 1*s* to 1*s* 6*d*	
— White, 1*s* to 3*s*		Onions, per bushel, 1*s* 6*d* to 3*s* 6*d*	
Greens, per doz. bunches, 1*s* 6*d* to 2*s* 6*d*		— Spanish, per doz., 1*s* to 4*s*	
French Beans, per 100, 1*s* 6*d* to 3*s* 6*d*		Shallots, per lb., 6*d* to 8*d*	
Sorrel, per hf.-sieve, 2*d* to 1*s*		Garlic, per lb., 6*d* to 8*d*	
Potatoes, per ton, 70*s* to 180*s*		Endive, per score, 6*d* to 1*s* 6*d*	
— cwt., 4*s* to 9*s*		Lettuce, per score, Cab., 4*d* to 6*d*	
— bushel, 3*s* to 4*s* 6*d*		— — Cos, 6*d* to 1*s*	
— Kidney, per bushel, 3*s* to 4*s*		Radishes, per 12 bunch, 1*s* to 1*s* 6*d*	
Turnips, per doz., 1*s* to 2*s*		Mushrooms, per pottle, 3*d* to 1*s* 6*d*	
Red Beet, per doz., 6*d* to 1*s* 6		Small Salads, per punnet, 2*d* to 3*d*	
Carrots, per doz. bchs., 2*s* to 3*s*		Fennel, per bunch, 2*d* to 3*d*	
Horse Radish, per bundle, 1*s* 6*d* to 3*s*		Savory, per bunch, 4*d* to 6*d*	
Seakale, per punnet, 1*s* 6*d* to 2*s*		Thyme, per bunch, 4*d*	
Rhubarb, per bundle, 6*d* to 1*s* 3*d*		Watercress, p. 12 sm. bun., 6*d* to 9*d*	
Asparagus per bundle, 4*s* to 14*s*		Parsley, per bunch, 1*d* to 3*d*	
Cucumbers, each, 3*s* to 4*s*		— Roots, per bundle, 1*s*	
Spinach, per sieve, 1*s* to 1*s* 6*d*		Tarragon, per bunch, 6*d*	
Leeks, per doz. bunches, 1*s* to 1*s* 6*d*		Mint, green, per bunch, 6*d* to 8*d*.	
Celery, per bunch, 6*d* to 1*s* 6*d*		Marjoram, per bunch, 6*d*	
Cardoons, each, 6*d* to 9*d*		Chervil, per punnet, 2*d* to 3*d*	

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Mar. 26.

Prime Mead. Hay	85*s*	to	95*s*	New Hay	—*s*	to	—*s*
Infr. New & Rowen	60		70	Clover	80		116
				New Clr.	—*s*	to	—
				Straw	73		86

John Coupar, Salesman.

CUMBERLAND MARKET, Mar. 26.

Prime Mead. Hay	90*s*	to	97*s*	Old Clover	110*s*	to	118*s*
Inferior -	80		80	Inferior do.	95		100
New Hay -	—		—	New Clover	—		—
				Straw	33*s*	to	36*s*

Joshua Barns, Hay Salesman.

WHITECHAPEL, Mar. 27.

Fine Old Hay -	80*s*	to	86*s*	Old Clover	110*s*	to	120*s*
Inferior Hay -	63		70	Infr.	90		100
New Hay	—		—	New Clover	—		—
				Straw	30*s*	to	34*s*

Trade extremely dull at the above prices.

MARK-LANE, Monday, Mar. 23.

The supply of English Wheat from Essex, Kent, and Suffolk, was moderate this morning, and late prices were realised with difficulty; transactions in free Foreign and bonded were limited.—Fine Barley is wanted, and all sorts support our quotations.—Beans are fully as dear. There were very few Peas at market, and these sold quickly at rather higher prices.—A good business has been done in Oats at 6*d.* to 1*s.* per quarter advance.

BRITISH, PER IMPERIAL QUARTER.

	s.	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White	58	66	Red	50	62
—— Norfolk, Lincolnshire, and Yorkshire		50	63	White	59	68
Barley, Maltsme and distilling	to 31*s* Chevalier	31	34	Grind.	23	25
Oats, Lincolnshire and Yorkshire	Polands	23	27	Feed	21	25
—— Northumberland and Scotch	Feed	23	26	Potato	25	29
—— Irish	Feed	21	24	Potato	24	27
Malt, pale, ship		54	60			
—— Hertford and Essex		50	55			
Rye		34	36			
Beans, Mazagan, old and new	38 to 40	Tick	30	42	Harrow	32	44
—— Pigeon, Heligoland	35 to 48	Winds	40	48	Longpod	32	36
Peas, White	34 to 36	Maple	28	32	Grey	27	30

ARRIVALS IN THE RIVER LAST WEEK.

Flour.			Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	45·0	Sks — Brls.	8578	3351	6697	6858	7	1018	482
Irish	—	" — "	—	—	—	90	17358	—	—
Foreign	110	" 43·7 "	26782	—	—	690	—	1800	—

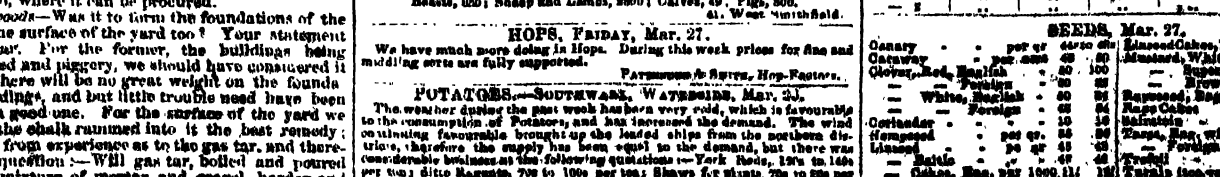
Friday, Mar. 27.

There was only a small attendance at market this morning, and the business transacted quite of a retail character. We observe no alteration in the value of Wheat, Barley, Beans, or Peas, but there is a tendency to advance in the prices of Oats, and a rise of 6*d.* per qr. on Monday's quotations was generally established.—During the week occasional sales of Baltic Wheat f.o.b. have been effected, good red, 62 lbs., being generally held at 52*s.* per qr. f.o.b. freight included, and Dantzic at 54*s.* to 55*s.* per qr.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Feb.	14 per Quarter.	54*s* 9*d*	30*s* 6*d*	21*s* 9*d*	32*s* 7*d*	34*s* 9*d*	35*s* 7*d*
—	21 "	55 0	29 11	21 6	33 10	34 9	36 3
—	28 "	54 6	29 7	21 5	33 4	34 2	35 2
Mar.	7 "	54 3	29 8	21 10	33 6	34 11	35 6
—	14 "	54 3	29 6	21 9	34 2	35 3	34 9
—	21 "	55 1	29 10	22 0	33 10	34 4	33 4
6 weeks' Aggreg. Aver.		54 9	29 9	21 9	33 4	34 5	34 5
Duties on Foreign Grain		19 0	9 0	6 0	9 6	6 0	6 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Mar. 21.



SEEDS, Mar. 27.

Canary -	per qr	44*s* to 48*s*		Linseed Cakes, Foreign, p. ton	8*l*	to	8*l*
Caraway -	per cwt	40	50	Mustard, White - p. bush.	7*s*		8*s*
Clover, Red, English		80	100	— Superfine	9		—
— — Foreign		80	88	— Brown	5		—
— White, English		80	90	Rapeseed, English, per last	28*l*		29*l*
— — Foreign		68	84	Rape Cake - per ton	—		—
Coriander -		15	16	Rapeseed, Foreign, per last	—		—
Hempseed -	per qr.	38	39	Tares, Essex, winter p. bush.	—		—
Linseed -	per qr	48	48	— Foreign -	5		6
— Baltic -	"	47	48	Trefoil - per cwt.	22		30
— Cakes, Eng. per 1000, 11*l*				Turnip (see variable quantities)			

Linseed and Rape Cake.

Sales by Auction.

ORCHIDACEÆ FOR SALE BY AUCTION.

MESSRS. J. C. AND S. STEVENS beg to announce they will SELL BY AUCTION, at their Great Room, 38, King-street, Covent-garden, on WEDNESDAY, 1st April, at 12 o'clock, a consignment of very valuable ORCHIDACEOUS PLANTS, from the interior of central America. This collection, which was gathered in the latter part of last December, is in the finest state, and will be found to comprise magnificent specimens of a new Arpophyllum, Lælia superbiens, Cœlia macrostachya, Barkeria spectabilis, Sobralia macrantha, and other rare species well deserving the attention of Amateurs.—May be viewed the day prior, and morning of sale, and Catalogues had of the Auctioneers, 38, King-street, Covent-garden.

TO NOBLEMEN, GENTLEMEN, FLORISTS, and Others.

MESSRS. PROTHEROE and MORRIS will submit to public competition at the Auction Mart, Bartholomew Lane, on Tuesday, March 31st, 1846, at 12 o'clock, a very fine assortment of FUCHSIAS, VERBENAS, DAHLIAS, PETUNIAS, CINERARIAS, CHINA ROSES, TROPÆOLUMS, GREENHOUSE AND HARDY CLIMBERS, &c. May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

IMPORTANT SALE OF FIVE HUNDRED PAIRS OF CARNATIONS AND PICOTEES.

MESSRS. PROTHEROE and MORRIS are instructed by a much esteemed amateur to submit to public competition by auction, at the Mart, Bartholomew-lane, on Thursday, April 2, 1846, at 12 o'clock, a very rich assortment of CARNATIONS AND PICOTEES, amongst which will be found (in the Carnations), Tomlyne's Briseis, Brook's Flora's Garland, Hogg's Colonel Blues, Gregg's Mary, Puxley's Prince Albert, Calcott's Brutus and Juba, Jones's Brilliant, Headley's Achilles, Robinson's Joe Langdale, Ely's King of Scarlet, Col. Wainman, North Midland, &c. The Picotees comprise Crask's Prince Albert, Burroughes's Duke of Newcastle and Mrs. Bevan, Barnard's Mrs. Barnard, Wildman's Isabella, Wood's Princess Alice, Garrett's Lady Dacre, Sharp's Jemmy Gordon, Lalla Rookh, Lady de Grey, and Agitator, Gilden's Miss Desborough, &c. &c. Also a fine collection of DAHLIAS in dry roots. May be viewed the morning of sale, and Catalogues had at the Mart and of the Auctioneers, American Nursery, Leytonstone.

TREBARTHA FARM STOCK.

Important Sale of Farm Stock, at Trebartha, Cornwall, consisting of 40 North Devon Bullocks and Cows, 120 Southdown Ewes and Lambs, Horses, Agricultural Implements, &c., &c.

MR. WILLIAM RALPH has received instructions to offer for Sale by Public Auction, at Trebartha Farm, in the parish of North Hill, in the County of Cornwall, on Tuesday, the 21st day of April, 1846, at 11 o'clock in the Forenoon, (for 12 o'clock precisely,) the undermentioned LIVE AND DEAD FARM STOCK, the Property of Francis Rodd, Esq., who is about to lessen the above Farm. Bullocks and Cows: 7 Fat Cows, 13 Fat Oxen, 16 Cows in Calf, 10 Heifers, 2 years old; the above are of the pure North Devon Breed, and of very superior choice and quality. Sheep and Lambs: 60 Ewes, 60 Lambs; the above are all of the pure Southdown breed. Horses: 2 Splendid Bay Carriage Horses, "Munster" and "Chairman," by "Royal William," and "Coronet," 5 years old, standing 16¼ hands high, warranted sound, staunch in harness, and free from vice, they are well matched in colour and pace, and have been driven together constantly during the last 3 months; a Handsome Bay Filly, "Lunette," by "Royal William," 5 years old, 15¾ hands high, well broke for the Saddle, warranted sound, and perfectly good tempered; a Pair of Handsome Goss Moor Ponies, 12 hands high, 4 years old, perfectly sound, well matched, and admirably adapted for a small Carriage. Farm Horses and Maltese Donkies: 3 Excellent Cart and Waggon Horses, 1 Colt coming 3 years old, 1 Colt coming 2 years old, 2 Donkies, Male and Female, of the Maltese Breed, standing 14 hands high, 1 Mule, by Maltese Donkey, 4 years old, standing 15 hands high. Agricultural Implements: 4 Scotch Iron Ploughs, 1 Iron Harrow, 3 Wooden ditto, 2 Harvest Waggons, 1 Chest Waggon, 6 Carts, 1 Corn Drill, 1 Turnip Drill, 1 Tormentor. The whole of the above is well worthy the attention of the Public, and will be sold without reservation. Refreshments will be provided at 10 o'clock, Sale to commence at 11 for 12 o'clock precisely.—Trebartha, March 28, 1846.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy the Honey Bee are respectfully informed by G. NEIGHBOUR & SON, that they have prepared, for the season, an extensive supply of their various improved BEE-HIVES; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a postage stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

NUTT ON BEES, (6th Edition) just published.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

HORTICULTURAL GLASS OF BRITISH MANUFACTURE, at J. WELCH, jun., PHILLIPS, and Co.'s Warehouse, 12, Panton-street, Haymarket. — Having made arrangements with a British Manufacturer, they are enabled to offer the above article in unlimited quantities at the following terms, in Squares not exceeding 40 inches long:—

No. 0—(equal to Foreign Sheet)	.. ..	4½d. per foot.
1—averaging from 16 to 18 oz. to the foot		5½d. ,,
2 ,,	21 to 28 ,,	7d. ,,
3 ,,	32 ,,	1s. ,,

J. WELCH, jun., having been many years with Mr. Drake, of 8, Jermyn-street, and 315, Oxford-street, and at the time of the glazing of Chatsworth Conservatory, has devoted himself to the Horticultural Glazing Department, begs to call the attention of Horticulturists generally to the above prices for Glass, which they undertake to glaze in any part of the United Kingdom.

They also beg to recommend for Pits and Garden Lights sashbar squares, which they offer at the following low prices, packed in 100 feet boxes, not particular to thickness:—

3 in. by 3 and	Under 3 in. by 3	.. 11d. per foot.
3 in. by 4 and	3 in. by 4	.. 2d. ,,
3 in. by 4 and	3 in. by 7	.. 3d. ,,

J. W. & Co. solicit inspection of their stock of Stained and Ornamental Glass at their Warehouse, as above.—12, Panton-street, Haymarket.

FOREIGN SHEET GLASS AND GLASS TILES.

C. JARVIS having just imported a large quantity of the above articles, in quality and substance hitherto unequalled, can offer them at a lower price than any other house in the trade, for ready money only, at his old established WINDOW GLASS WAREHOUSE, 38, Great Castle-street, a few doors from Regent-street, where orders, forwarded with reference, meet with prompt attention. Every other description of WINDOW-GLASS equally low in price.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

per gross.	per gross.	per gross.
6 in. by 4 .. 6s.	8 by 5 .. 13s.	9 by 7 .. 18s.
7 in. by 4½ .. 9s.	8 by 6 .. 14s.	10 by 8 .. 26s.

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists, apply to R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square, London.

GLASS AT VERY LOW PRICES.

WILLIAM E. RENDLE AND CO., at the solicitation of many of their most influential customers, have determined to enter into the GLASS TRADE. Arrangements have been made with some of the most extensive manufacturers, so that they will be enabled to supply the best quality Glass, *at the lowest remunerating prices for Cash.*

Delivered free of Carriage in London or Plymouth.

SMALL SQUARES.

4 inches by 3,	and under 5 inches by 3,	1½d.	per foot.		
5 ,,	3, ,,	6	,,	4, 2d.	,,
6 ,,	4, ,,	9	,,	7, 3d.	,,

LARGE SQUARES, not exceeding 40 inches long.

Cylinder ..	No. 0, 11 oz. to the foot,	4½d.	per foot.
Sheet ..	No. 1, 16 oz. ,,	5½d.	,,
,, ..	No. 2, 21 oz. ,,	7d.	,,
,, ..	No. 3, 32 oz. ,,	1s.	,,

Packed in Boxes containing 100 feet.

Cash remittance or reference in London.

Plymouth, Mar. 28, 1846.

THE ARTICLE GLASS.

MESSRS. DAINES AND BRADDOCK have made arrangements to supply the Public with GLASS for Sashes and Horticultural purposes of superior quality and substance, and at much lower prices than that which may have been obtained through the medium of any previous advertisements, as the sizes therein quoted at 1d. per foot, may be obtained at 3s. per 112 lbs., upon application, 6, Farringdon-street, London. N.B. A Stock of Patent Plate and Stained Glass constantly on hand.—March, 1846.

FOREIGN SHEET GLASS.

MESSRS. EDWARDS & PELL, 15, Southampton-street, Strand, direct Importers of BELGIAN GLASS, supply Glass strong and of excellent colour, at 3½d per foot, for any dimensions under 1 foot in length. Figured Glass in every variety of pattern. Contracts for Stained and Painted Windows, in any design and size, Armorial Bearings, &c. executed by the first Artists in Belgium.

Propagating Glasses for plants, 6½ inches by 3½, 5d. each.

SUPERPHOSPHATE OF LIME, 7l. per ton, at MR. LAWES'S FACTORY, DEPTFORD CREEK.

RAIN.

HENRY BAKER, 90, Hatton-garden, London, has invented a RAIN GAUGE, upon an entirely new principle, for persons connected with Agriculture and Horticulture. This instrument is very simple in its construction, and requires no calculation to ascertain the quantity of Rain fallen upon the land in gallons per acre. Price 12s. 6d.

LACTOMETERS, for ascertaining the quality of Milk, price 5s.

HYDROMETERS, for Sulphuric Acid, 5s. and 6s.

THERMOMETERS, for registering the extremes of Heat and Cold, from 10s. 6d.

BAROMETERS, from 1l. 10s.

All the above articles warranted, and will be forwarded upon the receipt of a Post-office Order, or a Town reference.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists, and all interested in Gardening pursuits, are invited to examine G. and J. DEANE'S extensive Stock of GARDENING AND PRUNING IMPLEMENTS, best London made Garden Engines and Syringes, Coalbrookdale Garden Seats, and Chairs.

Averuncators	Garden-Scrapers	Pruning Bills
Axes	Grape Gatherers and Scissors	,, Knives, various
Bagging Hooks	Gravel Rakes and Sieves	,, Saws
Bills	Greenhouse Doors and Frames	,, Scissors
Borders, various patterns	Hammers	,, Shears
Botanical boxes	Hand-glass Frames	Rakes in great variety
Cases of Pruning Instruments	Hay Knives	Reaping Hooks
Cluff Engines	Hoes of every pattern	Scythes
Chaff Knives	Horticultural Hammers and Hatchets	Scythe Stones
Daisy Rakes	Rothied Handles	Shears, various
Dibbles	Labels, various patterns, in zinc, porcelain, &c.	Sickles
Dock Spuds	Ladies' Sets of Tools	Sickle Saws
Draining Tools	Lines and Reels	Spades and Shovels
Edging Irons and Shears	Marking Ink	Spuds
Flower Scissors	Mattocks	Switch Hooks
,, Stands in Wire and Iron	Monographs	Thistle Hooks
Fumigators	Metallic Wire	Tran-planting Tools
Galvanic Borders and Plant Protectors	Milton Hatchets	Trowels
Garden Chairs and Seats	Mole Traps	Turfing Irons
,, Loops	Mowing Machines	Wall Nails
,, Rollers	Pick Axes	Watering Pots
	Potatoe Forks	Weed Extractors and Hooks
		Wheel Barrows
		Youths' Sets of Tools

G. and J. DEANE are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with the Illustrated List of Horticultural Tools, can be sent post paid to any part of the United Kingdom. DEANE'S Horticultural Tool Warehouse, opening to the Monument, 46, King William-street, London-bridge.

HORTICULTURAL TOOL WAREHOUSE.

GREEN AND CONSTABLE, WHOLESALE and RETAIL IRONMONGERS, 36, King William Street, (four doors from London Bridge,) beg to announce they have a large assortment of New and Improved GARDEN TOOLS, including Lord Vernon's Patent Hoe, Dr. Yelloley's Patent Garden Fork, Lyndon's Patent and other improved Spades, solid head Garden Rakes, Ladies' Light Garden Forks, Transplanting Tools, Jointed Hothouse Syringes, Fumigators, Improved Garden Shears, Edging Irons, &c. Ladies' Horticultural Chests fitted with every implement requisite for the Garden.

BENTALL'S BOTANICAL DRYING-PAPER.—Two years having now elapsed since this PAPER was first submitted to the notice of the Public, it is now in general use amongst Botanists, and is allowed by all to be far superior to everything previously employed for drying Specimens of Plants. It preserves form and colour in the best possible manner, and has also the advantage of rapidly absorbing moisture, thereby obviating, in most instances, the necessity of a change of sheets whilst the plants are being dried, and consequently effecting a saving of the vast amount of trouble attending the use of ordinary paper. It is also stout and durable, and must therefore be considered as the cheapest as well as the best paper that can be employed.

The following eminent Botanists have kindly allowed the use of their names as strongly recommending it:—SIR W. J. HOOKER, Director of the Royal Gardens, Kew; DR. LINDLEY, Professor of Botany, University College, London; DR. BALFOUR, Professor of Botany in the University of Edinburgh; MR. BABINGTON, Author of the admirable "Manual of British Botany;" MR. WATSON, Author of the "New Botanist's Guide," &c. &c.

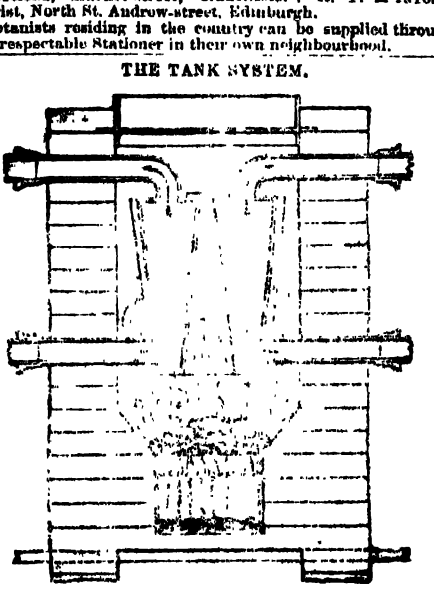
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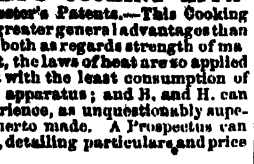
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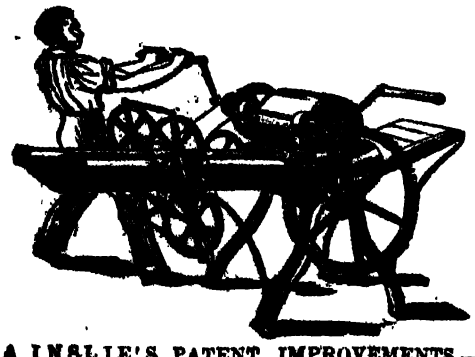
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DOUGLAS JERROLD'S SHILLING MAGAZINE (for April), will contain the continuation of the Editor's HISTORY OF ST. GILES AND ST. JAMES, Chapters XXIII., XXIV., and XXV., illustrated with Two Etchings by Leech.
THE HEDGEHOG LETTERS, and various other Contributions.
London: Published at the "Punch" Office, 85, Fleet-street.

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London: Bradbury and Evans, 90, Fleet-street.

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No. IV. will be published on the 31st instant, price 1s. To be completed in Ten Numbers.
London: Published for the Author, by Bradbury and Evans, No. 90, Fleet-street, and Whitefriars.

On the 31st of March will be published, No. IV. price 6d., of the
ALMANACK OF THE MONTH.
A REVIEW OF EVERYTHING AND EVERYBODY.
Edited by Gilbert Abbott à Beckett.
Principal Contents of the April Number.—Some Account of April, with an illustration by R. Doyle.—Railway Committees of the Month, with an illustration by R. Doyle.—The Crusaders at Drury Lane, with 5 illustrations by R. Doyle.—Domestic Parliament. Debate on Supplies.—The Beggar on Horseback.—The Romance of Advertising.—Portrait Clubs, with an illustration by R. Doyle.—The Plague of Dwarfs, with an illustration by R. Doyle.—The Pattern Wife.—A Card for the Ball-Room, with an illustration by R. Doyle.—30 Original Articles and 13 illustrations.
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THE QUARTERLY REVIEW.—No. CLIV. is published THIS DAY.
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II. SIR R. MURCHISON'S GEOLOGY of RUSSIA.
III. REID. VENTILATION.
IV. NEWMAN on DEVELOPMENT.
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Houlston and Stoneman; and all Booksellers.

On the 1st of April will be published, Vol. II. Part 2, gratis to Fellows of the Society, and price 5s. to the Public.
THE JOURNAL OF THE HORTICULTURAL SOCIETY OF LONDON.
Article Original Communications.
XI. On the Influence of Electricity on Vegetation. By Edward Solly, F.R.S., F.L.S., Hon. Memb. Royal Agricultural Society, Professor of Chemistry to the Hort. Soc., &c.
XII. On the Ventilation of early Forcing-houses. By Mr. Thomas Moore.
XIII. A Note upon the Wild state of Maize, or Indian Corn. By the Vice-Secretary.
XIV. Some Account of the Jefferson Plum. By Mr. Robert Thompson, Superintendent of the Orchard and Kitchen-Garden Department, in the Society's Garden (*with a Coloured Plate*).
XV. Outlines of a Natural History Calendar at Foo-chow-foo, the capital of the Chinese province of Fokien (lat. 26° 4′ S., long. 119° 4′ E.). By the late G. Tradescant Lay, Esq., F.C.M.H.S., Her Majesty's Consul at that place.
XVI. Memorandum concerning the Pine-apple Soil of the Bahamas. In a letter from the Hon. John Campbell Lees, C.M.H.S., dated Nassau, New Providence, Feb. 8, 1845.
XVII. A Notice of Simmons's Patent Hygrometer. By the Vice-Secretary.
XVIII. On the Culture of Epiphyllum truncatum. By Mr. John Green, C.M.H.S., Gardener to Sir Edmund Antrobus, Bart., F.H.S.
XIX. The Method pursued in managing Erica hiemalis. By Mr. W. P. Ayres, C.M.H.S., Gardener to James Cook, Esq., F.H.S.
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XXII. Remarks on the Culture of the Pine-apple. By John Povey, Gardener to the Rev. J. Thorayoroft, of Thornycroft Hall.
New Plants, &c., from the Society's Garden:—19. Plumbago zeylanica.—20. Cochlearia acaulis.—21. Primula involucrata.—22. Daphne Fortuni.—23. Edgworthia chrysantha.—24. Azalea ovata.—25. Fortunea chinensis.—26. Azalea obtusa.—27. Azalea squamata.—28. Jasminum nudiflorum.—29. The Cholwell Pear.—30. The Calabrian Raisin.—31. The White-stemmed Amaranth.
Memoranda:—Manures.—Broccoli.—New Peas.
Proceedings at Meetings of the Society, from June 15, 1844, to February 18, 1845.
London: Published for the Society, by Longman & Co., Paternoster-row, and sold by all Booksellers.

Twenty-four Quarto Pages, price Sixpence, free by post.
The Railway Chronicle
Of Saturday, March 21, contains articles on
SIR ROBERT PEEL'S ALARUM—Mr. MORRISON'S MOTION—SELECT COMMITTEES ON OPPOSED BILLS—STANDING ORDERS COMMITTEE—PARLIAMENTARY BUSINESS—WITHDRAWAL of the EASTERN COUNTIES BILLS—LAIRD v. JACKSON—OBSERVATIONS on the REPORT of the GAUGE COMMISSIONERS FAILURE of the DERBY, UTTOXETER, and STAFFORD COMPANY—FRUITS of AMALGAMATION in MERCHANDISE ARRANGEMENTS—JUDGMENT upon the GAUGES.
REPORTS OF MEETINGS.—South Western—South Eastern—South Eastern and Continental Steam-Packet Company—Gravesend and Rochester—Glasgow, Paisley, Kilmarnock, and Ayr—Glasgow, Paisley, and Greenock—Wishaw and Coltness—Namur and Liège—Jamaica South Midland—Projected Lines.
OFFICIAL PAPERS—Sixth Report from the Classification Committee—South Eastern; Directors' Reports—Southampton and Dorchester; Directors' Report—Manchester and Leeds; Statement of Accounts—Edinburgh and Glasgow; Statement of Accounts—Glasgow, Paisley, and Greenock; Directors' Report.
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CORRESPONDENCE.—Parsey's Air Locomotive—Ellis v. Ormerod.
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THE JOURNAL OF AGRICULTURE AND TRANSACTIONS OF THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.—No. XII., price 3s., was published on March 1st; containing the Report of the Committee of Management of the Agricultural Chemistry Association of Scotland—On the Electro-Culture of Farm Crops—On the Radical Excretions of Plants—On the Construction of Tanks—Proceedings of the Agricultural Chemistry Association—Agricultural Report, &c.
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Printed by William Rickerby, of No. 5, York-place, Baker Street-bridge, and Frederick Mullett Evans, of No. 2, Church-row, Upper Rowley, in the county of Middlesex, Printers, at their office in the Precinct of Whitefriars, in the City of London; and Published by the said William Rickerby, at the office, in the parish of St. Mary-le-Strand, in the county aforesaid. Agents for Scotland, Messrs. Bell and Bradfute, Edinburgh. Agents for Ireland, Messrs. Gilbert and Hodges, Dublin. Advertisements and Communications to be addressed to the Editor.—Saturday, March 22, 1845.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 14.—1846.] SATURDAY, APRIL 4. [PRICE 6*d.*

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ARCHÆOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

The next MEETING of the Subscribing Members will be held on FRIDAY, the 1st of MAY, at the Rooms of the Institution of Civil Engineers, 25, Great George-street, Westminster.

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The ANNUAL MEETING of the INSTITUTE will take place at York, under the patronage of his Grace the Archbishop; President, the EARL FITZWILLIAM, commencing TUESDAY, JULY 21st.

RAY SOCIETY, INSTITUTED 1844.—The Members are informed that the "MEMORIALS OF JOHN RAY," being the third volume for the first year, STEENSTRUP "ON THE ALTERNATION OF GENERATIONS," being the first volume for the second year, and PART II. of ALDER and HANCOCK'S "BRITISH NUDIBRANCHIATE MOLLUSCA," with 18 Lithotinted Illustrations, are now ready. Members will receive copies of these works on forwarding the Subscriptions due to the Secretary, 22, Old Burlington-street, London

As soon as the number of members amounts to 1000, the Council have determined to reprint the first volume of the first year's issue, which is now out of print. The number of members is at present above 800. Persons desirous of becoming Subscribers for the first year, may obtain immediately Part I. of Alder and Hancock's "British Nudibranchiate Mollusca," and the "Memorials of John Ray." The Works for the second and third year, including Meyen's "Geography of Plants," Burmeister "On the Organisation of Trilobites," with the original plates of the author; a volume of Botanical Reports and Papers translated from the German, with numerous plates, are in a state of forwardness, and will be speedily ready for distribution.

The Council have determined on publishing the following Works:—1. A Continuation of Alder and Hancock's Nudibranchiate Mollusca, with lithotinted and coloured illustrations.—2. Reports on the Progress of Natural History.—3. The Bibliotheca Zoologica of Professor Agassiz.—4. The Published and Unpublished Letters of John Ray.—5. A Translation, with Notes, of Aristotle's History of Animals.—6. Linnæus's Travels in Sweden, from the Swedish.

Subscribers of One Guinea annually are entitled to copies of all the Works published. Persons in the country, on sending their Subscriptions by post-office order or cheque to the Secretary, with directions how the Works may be sent, will have them forwarded. EDWIN LANKESTER, M.D., Secretary.

22, Old Burlington-street.

GIANT ASPARAGUS PLANTS, 1 year 2*s.* 6*d.*, 2 years 3*s.* 6*d.*, 3 years 5*s.* per 100.

Green Top Do., 1 yr. 1*s.* 6*d.*, 2 yrs. 2*s.* 6*d.*, 3 yrs. 3*s.* 6*d.* per 100.

SEAKALE plants, 2 years 5*s.* per 100.

J. & S. SHILLING have a large stock of the above good plants, and grown in a very healthy soil, to which they beg to invite the attention of the public generally. Carriage paid to either terminus of the South-western Railway.

Northwarnbro' Nursery, near Odiham, Hants.

POTATO SEED in packets at 5*s.*, saved from variety EARLY SHAW, to be had of W. J. NUTTING, SEEDSMAN, 46, Cheapside.

POTATOES FOR SEED.—TRUE EARLY ASH-LEAVED KIDNEY, and other varieties, free from disease, may be obtained at moderate prices from CHARLES FARNES, Esq., 84, John-street, West Smithfield, London.

A general collection of Kitchen-garden Seeds, from 10*s.* to 30*s.*

Do. do. Flower do. do. 5*s.* to 20*s.*

April 4, 1846.

DAHLIAS.

J. KEYNES, FLORIST, Salisbury, respectfully announces, that his Select CATALOGUE of all the leading DAHLIAS is now ready, and will be sent on application. J. KEYNES'S splendid Seedling SIR EDMUND ANTROBUS—the most perfect Dahlia ever raised—with Edwards's Queen Mary, and Dodd's Enterprise, will be indispensable in all collections. Also Cook's Queen of the Fairies, and Dodd's Punch, two beautiful fancy flowers, with all the approved varieties in cultivation. Plants fine first week in May.

Salisbury, April 4.

TRUE HIGHLAND OR MOUNTAIN PINE.

WILLIAM MAY, F.H.S., begs to announce to planters that he possesses a few thousands of the above highly recommended FIRS of various sizes, viz. 1 to 1½ ft. at 20*s.*, 1½ to 2 ft. at 30*s.*, 2½ to 3 ft at 40*s.* per thousand. In habit it is much more robust than the P. sylvestris, and of much quicker growth, and attains a much larger size as a timber tree. The present is the most approved month for planting it, and all other Evergreens.—Hope Nursery, Bedale, April 4.

TRUE TRANSPLANTED FIELD TURNIP SEED,

SOLD BY

J. G. WAITE, SEEDSMAN, &c., 4, Eyre-street-hill, Hatton garden, London.

White Round,	18*s.* per bushel.	Cream Globe,	24*s* per bushel.
Green do.	18*s.* do.	Dale's Hybrid,	22*s.* do.
Red do.	20*s.* do.	Purple Topped Scotch,	22*s.* per bushel.
Stubble,	20*s.* do.	Green do.	22*s* do.
White Stone,	20*s* do.	Purple Topped Swede,	20*s.* do.
White Tankard,	22*s.* do.	Improved do.	21*s* do
Green do.	21*s.* do.	Green do.	20*s.* do.
Red do.	21*s.* do.	Skirving's Improved Liverpool Swede,	20*s.* do.
White Globe,	20*s.* do.	Laing's do.	24*s* do.
Green do.	20*s.* do.	Matson's do.	24*s.* do.
Red do.	20*s.* do.		
New White Decanter (very large),	42*s.* do.		

J. G. W. has a splendid collection of Lawn, Pasture, and all the most useful Grasses in cultivation, of which a separate Catalogue may be had His assortment of Garden and Flower Seeds is upon the most extensive scale, Catalogues of which may be had on application.—April 4, 1846.

POTATOES.

J. G. WAITE begs to offer the following SEED POTATOES, free from disease—

Early Ash-leaf Kidneys	5*s* 0*d*	per bushel.
Red do. do.	5 0	,,
Early Shaws	3 6	,,
Early Prolific	4 0	,,

4, Eyre-street-hill, Hatton-garden, April 4.

AN ABRIDGED LIST OF
NEW AND CHOICE FLOWER SEEDS
SOLD BY

WARNER AND WARNER, SEEDSMEN AND FLORISTS,

No 28, CORNHILL, OPPOSITE THE ROYAL EXCHANGE, LONDON.

GERMAN SEEDS IN COLLECTIONS.

Asters, 24 vars. imported, very beautiful	5	0	the collection.
,, 12 do.	3	0	,,
Balsams, 12 do., very fine and double	3	0	,,
Cockscombs, 12 do, beautiful	3	6	,,
Hollyhocks, 12 do, do.	3	0	,,
Larkspurs, 12 do., splendid	3	0	,,
Pæonies, 12 do.	3	0	,,
Poppies, 12 do.	3	0	,,
Scabious, 12 do., splendid	3	0	,,
Stocks, 36 do., most beautiful and double	6	0	,,
,, 12 do., Wall-leaved	3	0	,,
,, 12 do., Giant Brompton	3	6	,,
Wallflower, 8 do., very handsome	3	0	,,
Zinnias, 12 do., beautiful	3	0	,,

The above German seeds are all of the very best quality, and can be confidently recommended.

For General Catalogue, see "Harrison's Floricultural Cabinet," for March.

ERICAS OR CAPE HEATHS.

YOUELL AND CO. having a fine and beautiful healthy Stock of the following ERICAS, beg to offer them at 9*s.* per dozen. The usual discount to the trade.

Willmoreil, cruenta, hybrida, gracilis, concinna, ignescens, abetina, hiemalis, flamea, verticillata Bonplandia, Boweana, ventricosa brevifiora, dichromata, and assurgens.

Great Yarmouth Nursery, April 4, 1846.

NOW READY.

NEW FUCHSIAS AND VERBENAS.

12 Fine New Fuchsias	£0	7*s.*	6*d.*
12 Superior, all new last year	0	15	0
18 Do. do. do	1	1	0
12 Superior New Verbenas	0	6	0

Descriptive and Priced Catalogue may be had of WILLIAM MILLER, Providence, Ramsgate.

P.S. The following Letter is a certain proof of the safety with which these plants travel to any distance, WHEN PROPERLY PACKED:—

"LISMORE, 27*th March*, 1846.

"SIR,—I this day received the little tin case containing the Fuchsias, which are indeed extremely nice plants, and arrived in great perfection. I now inclose for the same a Post-office order for 21*s*, and you will please let me have an acknowledgment. "I am, Sir, your obedient servant,

"Mr. Wm. Miller." "W. H."

SPLENDID NEW IMPORTED FUCHSIA FROM PERU.

MESSRS. VEITCH & SON beg to inform growers of FUCHSIAS that they hope to exhibit, on Tuesday next, at the Horticultural Society's Meeting in Regent-street, A NEW SPECIES, perfectly distinct in habit and colour from any before introduced Messrs. V. & Son have adopted this mode of giving it publicity from a desire that the public may see and judge for themselves.—Exeter, April 2d, 1846.

HENRY GROOM, CLAPHAM RISE, near LONDON (removed from WALWORTH), BY APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY, begs to say his Catalogue of GERANIUMS, AURICULAS, LILIUM LANCIFOLIUM, and NEW PLANTS is ready, and will be forwarded by post on application.

He has a fine stock of CARNATIONS and PICOTEES.

*** Foreign orders executed.

THE NEWEST AND VERY BEST FUCHSIAS, VERBENAS, PETUNIAS, &c.

YOUELL AND CO. are now sending out per post free, the newest and very best FUCHSIAS, including

Serratifolia, (if required) at	21*s.* per doz.
Very fine first-rate Show Varieties	12*s.* ,,
Fine ditto	9*s.* ,,
VERBENAS, first-class Show Varieties	10*s.* ,,
Ditto, fine	6*s.* ,,
PETUNIAS, Extra Fine	9*s.* ,,
CINERARIAS, ditto	12*s* to 18*s* ,,
PANSIES, Extra fine and first-class Show flowers	18*s.* ,,
Ditto Ditto	10*s.* ,,

Those favouring Y. and Co. with their orders for the above, are respectfully requested to state the varieties they already possess, that a repetition may be avoided, every care being observed in making improvements, by adding such varieties as will give satisfaction.

CARNATIONS AND PICOTEES.

			£	*s.*	*d.*
12 pairs extra fine and very superior first-class Show Flowers, by name			2	10	0
25	ditto	ditto	5	0	0
12	ditto	Fine Show Flowers ditto	1	10	0
25	ditto	ditto	3	0	0

12 pairs Showy Border Flowers ditto, 12*s.*

Extra fine Show Pinks, by name per dozen pair, 12*s.*

Also a few pairs more of the Superb Picotees "President" and "Duke of Newcastle," at 15*s* per pair.

HERBACEOUS PLANTS, fine sorts, 6*s.* to 9*s.* per dozen.

RIBES SANGUINEUM FLORE PLENO, 7*s.* 6*d.* per plant.

30 Packets of New and Choice FLOWER SEEDS, per post, free, for 6*s.*

CALCEOLARIAS, for bedding 6*s.* per doz.

GERANIUMS, for bedding 6*s.* 9*s.* and 12*s.* ,,

For particulars of their new and beautiful White Fuchsia, "SANSPAREIL," with Five other Seedlings, see Advertisement of last week Also their Splendid Verbenas.

Great Yarmouth Nursery, April 4, 1846.

HUGH LOW AND CO. inform their friends and the public that their CATALOGUE OF DAHLIAS, containing most of the new and approved varieties, is now ready, and may be had on application.—Upper Clapton, April 4, 1846.

TO BE DISPOSED OF VERY CHEAP.—About 10,000 very handsome ENGLISH OAKS, 4 to 5 feet high, with good bushy roots.—Apply to Mr. JEFFS, Nurseryman, Northampton.—April 4.

E. F. FAIRBAIRN begs to inform the public he will commence sending out his beautiful collection of striped ANTIRRHINUMS and two light Seedling FUCHSIAS, on the 6th inst, descriptive lists of which can be had on application. The whole set of 12 Antirrhinums 1*l.* 10*s.*, 6 best 1*l*, discount on 2 sets

	s.	*d.*
Fuchsia Delicata (Fairbairn's), approved by Dr Lindley	7	6
,, Lady Salt (Fairbairn's), 1 of the best light vars.	10	6
,, Giantess (Jennings's), the largest light yet raised	10	6
,, British Queen (Jenning's), very fine variety	7	6
,, Serratifolia (Veitch's), species	3 6*d.* to	7 6

E. F. F. is desirous of recommending his Antirrhinum Seed saved under glass from the collection he is offering at 2*s.* 6*d.* and 5*s.* per packet

General collections of Cinerarias, Verbenas, Petunias, Roses, Geraniums, Chrysanthemums, Pinks, Phlox, Carnations, Picotees, Dahlias, Fuchsias, &c., having a large stock of the latter, E. F. F. begs to offer them at 6*s.*, 9*s.*, to 12*s.* per dozen. Fine varieties by post (free), or otherwise.

Siphocamphylus coccinea 7*s.* 6*d.* each; Calceolaria floribunda 18*s.* per doz., 2*s.* each; Rose, Queen of Virgins (new Bourbon), 7*s.* 6*d.* each. Money orders to be made payable at Clapham.

Foreign orders attended to.

Albion Nursery, Wandsworth road, London, April 4.

ELLETSON'S SUPERB APRIL WHITE BROCCOLI, AND USHER'S NEW AND UNIQUE MARIGOLD SEEDS

WILLIAM MAY, F.H.S., begs to call attention to the above superior articles (see *Chronicle*, March 7th), which are being sent out in sealed packets, the Broccoli at 5*s.*, and the Marigolds in 20 vars. at 7*s.* 6*d.*, post free.—To be had in London of Messrs. WARNER and WARNER, Cornhill; and Mr. C FARNES, 84 John's-street; in Manchester of Mr. WATKINSON, Market-place, and of the Advertiser, Hope Nursery, Bedale, Yorkshire.

NEW SEEDLING VERBENA, FUCHSIA, PETUNIAS AND ANTIRRHINUM.

WM. IVERY, NURSERYMAN & FLORIST, Peckham, near London, begs to inform his Friends and the Public that he purposes sending out after the 21st inst., the undermentioned, which he can with confidence recommend:—

VERBENA WONDER OF SCARLETS: colour of Rosle de Rose, and stamens sanguine, habit—see *Chronicle* of September 26, 1843: "W. I.—The seedling you have named Wonder of Scarlets, is a very fine variety, the individual flowers are large, brilliant in colour, and form a fine head of blooms." 7*s.* 6*d.* each. No discount unless two are taken.

FUCHSIA TRAFALGAR. tube red, sepals green, corolla dark purple, and very large, showing it much below the sepals, quite distinct from any other variety. 7*s.* 6*d.* each.

PETUNIA PAINTED LADY: white ground, margined pink, with beautiful pencilled eye. 5*s.* each.

PETUNIA UNIQUE. lilac ground, beautifully pencilled and black eye, fine round flower and substance. 5*s* 6*d.* each.

PETUNIA VANGUARD: rosy purple, with large black eye. 5*s.* 6*d.* each.

PETUNIA METEOR: rosy red or purple ground, very dark eye and round flower. 5*s.* each.

PETUNIA PET SUPERB: light red ground, margined with purple, and beautiful dark eye, good shape. Awarded a certificate of merit at Surrey Zoological Gardens.

ANTIRRHINUM PICTA IVERYANA.
,, ROSEA ALBA.
,, KING OF THE SCARLETS.

Catalogues may be had on application.

SPLENDID NEW SHRUBBY CALCEOLARIAS.

HENRY MAJOR, Knowthorpe, near Leeds, begs to remind the admirers of this beautiful tribe of plants, that he intends sending out his New Seedlings, of acknowledged beauty, brilliant colour, and variety, the first week in May, in two sets of eight each—1st set, 2l.; 2d, 1l. 10s. Twelve of his best Calceolarias sent out last year, he offers for 1l. 5s. To meet the wishes of numerous applications from friends and others, who, in their attempts to raise seedlings of their own, have frequently failed in the earliest stages of the growth, H M is raising a quantity of Seedlings saved from fine varieties, which he purposes sending out in May in parcels of 20, at 7s. 6d. per parcel, or 3 parcels for 1l., post free. They will all bloom the same year. Printed directions for the general management of the Calceolaria throughout the year will be forwarded to every purchaser. Two or three sets of H. M.'s five superior Seedling Pansies still remain at 1l. the set, post free. Also a few plants of his "Purity" and "Duke of York" Pansies 5s. the pair. "Bridal Ring" is sold out. An extensive stock of the leading Pansies at moderate prices. Twelve very choice kinds for 1l., post free Select Pansy Seed, 2s. 6d. per packet. The stock of some varieties, both of Calceolarias and Pansies, is limited, the earliest orders therefore will secure the whole. A Descriptive Catalogue of the Seedling Calceolarias and Pansies may be had on prepaid application From unknown correspondents a remittance is respectfully requested with the order.

CARNATIONS AND PICOTEES.

MESSRS. NORMAN continue to supply a few pairs from their most select collection of show varieties grown. Also, some fine yellow ground Picotees. Catalogues can be had on prepaid application.—Bull Fields, Woolwich.

E. BECK informs the Public that the various Articles manufactured by him in Slate for Horticultural purposes, may be seen in use at Worton Cottage, Isleworth, upon application to the gardener (*Sundays excepted*)

GREENHOUSE PLANTS.

WM. JACKSON AND Co., NURSERYMEN, being in possession of a large and beautiful stock of the following plants in the healthiest condition, beg to offer them on the most reasonable terms, as annexed:—

18 INDIAN AZALEAS, fine bushy plants, for 30s.—Alba superba, Extans, Eximium, Gladstanesii, Ribbertii, Lateritia, Magnifica, Magniflora, Macrantha rosea, Smithii coccinea, Splendens, Speciosissima, Semiduplex rosea, Phœnicea alba, Do superba, Triumphans, Variegata, Woodsii.

20 EPACRISES, very fine plants, for 30s.—Attenuata rosea, Cames, Campanulata alba, Campanulata rubra, Do do. grandiflora, Coriflora, Coruscans, Cupidii, Coccinea, Elegantissima, Impressa, Impressa alba, Lævigata, Nivalis, Onosmeflora, Purpurascens, Pulchella, Rosea purpurea, Variabilis, Willmorea.

12 ERICAS, fine healthy plants, for 12s. Colorans nova, Cliffordii, Hismalis, Jasminaeflora, Neilli, Odora rosea, Propendens, Rubra calyx, Ventricosa superba, Vestita alba, Westcottii, Willmorii.

All goods are delivered free on the Great North of England Railway. A reference or remittance respectfully solicited from unknown correspondents.

Cross Lanes Nursery, Bedale, Yorkshire. April 4.

CINERARIA BLADUA.

THE GREATEST NOVELTY OF THE SEASON.

S. WALTERS, FLORIST, Hilperton, Wilts., has much pleasure in offering to public notice the above truly beautiful variety. See *Gardeners' Chronicle*, May 27, 1845, under the initials H D.—"Your Cineraria is the most novel in appearance which has come under our notice this season; the dark disk, with petals equally even, divided into white and crimson, with the colour breaking off abruptly, gives it a singular and gay appearance."

Plants are now ready, 7s. 6d. each; large specimens in 6-inch pots, 10s. 6d.

Agents in London—Messrs. Hurst & M'Mullen, 6, Leadenhall-street, where specimens can be seen.

Descriptive Catalogues of select Geraniums, Fuchsias, Dahlias, Verbenas, Roses, Petunias, Chrysanthemums, Calceolarias, Phloxes, Cinerarias, &c., on application.

LAURELS, COMMON AND PORTUGAL, RHODODENDRONS, ANDROMEDAS, AZALEAS, &c.; EVERGREEN PRIVET, SCOTCH AND SPRUCE FIRS, &c.—The undersigned having a large stock of the above, of various sizes, and well-furnished plants, beg to offer them to the Trade, and to the public in general, on very reasonable terms.—Apply to I. & J. GAITSKELL, NURSERYMEN, Hall Santon, near Whitehaven.

NEW AND SPLENDID SEEDLING ERICAS.

WM. PAMPLIN begs to inform the Nobility, Amateurs, and the Trade, that he is prepared to send out orders of his new and splendid Seedling ERICAS, which obtained the first class prizes at the Royal Botanic Gardens, Regent's-park, July 2, 1845, and much admired by all who have seen them.

W P has great pleasure in offering his two matchless Seedlings of their kinds, being of beautiful habit and abundant bloomers, at the following prices:—

Erica Ventricosa Splendens, in 60 sized pots, 7s. 6d.; in 48s, 15s.; in 32s, 1l. 1s.

Do. do. Grandiflora, do. do. do.
The larger sizes are well set with bloom.

Do. do. Superba, Globosa, and other sorts, well set with bloom, from 18s to 30s. per doz

Do. Obbata, a few fine plants 2l. 2s., with usual discount to the trade for Obbata.

Geraniums, fine strong plants, from 9s. to 30s. per doz

W. P also begs to call attention to his extensive collection of Ericas, all of which are worthy of cultivation, and may be had on most reasonable terms. A remittance or reference is respectfully solicited from unknown correspondents.

Paradise Nursery, Hornsey-road, Islington, near London.

DISTINCT AND SHOWY HERBACEOUS PLANTS.

Woodlands Nursery, Maresfield, Uckfield, Sussex.

WM. WOOD AND SON having for several years paid particular attention to the cultivation of HERBACEOUS PLANTS, have now much pleasure in offering collections from their very extensive stock on the following terms; the selection of sorts being left to themselves.

*** W. W & S pledge themselves that none but showy and distinct kinds shall be sent.

Select sorts, one of each, named	6s. per doz.	40s. per 100.	
Superior do.	do.	9s. "	60s "
Superb New do.	do.	12s. "	75s. "

Catalogues of the above may be had, POST FREE, on application.

TO CALCEOLARIA GROWERS.

JNO. STANDISH, NURSERYMAN, Bagshot, begs to inform his Friends and the Public that he has a large Stock of splendid spotted CALCEOLARIAS, now ready to send out at unusually low prices, ranging from 12s. to four guineas per dozen; those at 1s. to 2s. 6d. each are really fit for show flowers, and the other sorts, at higher prices, are great novelties. He has now ready some Seedling Plants, raised from some of his best varieties, at 12s. per dozen, which will no doubt produce some splendid new sorts. Also now ready to send out Fuchsia "Alfred the Great" and P. monstrosa, at 5s. each, the former having a deep red calyx with reflexed sepals, and a fine cupped rich purplish crimson corolla: the latter, an immense large flower, the colour of Standishii, but more than twice as large.

Catalogues of the above can be had on application.

KINGSTON NURSERY, SURREY.

T. JACKSON'S SUPPLEMENTARY CATALOGUE OF PLANTS, with prices, for 1846, may be obtained free on pre-paid application.

Kingston Nursery, Surrey, April 4.

TURNIP SEEDS.

W. DRUMMOND AND SONS, STIRLING, N.B., and DUBLIN, have on sale a large and select stock of TURNIP SEEDS. Terms particularly moderate. The following are the most approved sorts, viz.—

SWEDISH, Skirving's Improved Purple-top.
Do. East Lothian, Purple-top.
YELLOW ABERDEEN, with Green top.
Do. do. with Purple top.
Do do. do. Improved.
YELLOW IMPROVED EARLY, now much esteemed for sowing late in the season.
WHITE GLOBE.
GREEN TOP GLOBE.

N.B. Delivered free in London, Liverpool, Hull, Newcastle, Cork, Belfast, and Londonderry, when not less than 40 lbs. are ordered.

*** Priced Catalogues of Implements, Garden and Farm Seeds, Nursery Plants, &c., on application.

Agricultural Museum, Stirling, and 58, Dawson-st, Dublin.

BATH NURSERY.

JAMES SALTER returns his grateful acknowledgments to the Nobility, Gentry, Clergy, and his numerous Friends of Bath, and the surrounding country, for the extensive patronage received by him during the lengthened period he has conducted the Nursery business at Bath; and, having disposed of the same to Mr. JAMES GRIFFIN, feels pleasure and confidence in introducing him as his successor, in whose behalf he respectfully solicits a continuance of the favours so liberally bestowed upon himself.

JAMES GRIFFIN, in succeeding to the Nursery business carried on by Mr. SALTER for the last 30 years, begs most respectfully to assure the Nobility, Gentry, Clergy, and Inhabitants generally of Bath and its vicinities, that every exertion will be made by him to ensure and to deserve the transfer of their confidence from his predecessor (who has so long enjoyed it) to himself; and trusts, from his knowledge of the Nursery business, and Horticulture in general, his efforts will secure the permanence of the patronage by which the above Nursery has hitherto been distinguished.

The recent reduction in the price of Glass having materially lessened the expense of erecting Horticultural Buildings, J. G. intends devoting a considerable share of attention to the cultivation of choice and rare Exotic plants.

SELECTION OF CHOICE FLOWER SEEDS.

WILLIAM E. RENDLE & CO. have a small Stock of the following choice Flower Seeds. Many of the sorts, such as MARTYNIA FRAGRANS, PHLOX DRUMMONDI, and others of equal value, have been saved under the inspection of their Foreman, the Seed, therefore, can be warranted to be quite new, and correct to name.

SCALE OF PRICES, SENT POSTAGE FREE.

50 Choice Flower Seeds, including the following		...for	12s.
30	do	do.	.... " 8s.
20	do.	do.	.... " 6s.

Brachycome Iberidifolia.	Rhodanthe Manglesii.
Clintonia pulchella.	Phlox Drummondi.
Martynia fragrans	Dianthus latifolius.
Didiscus cæruleus	Lobelia erinus
Eschcardium grandiflorum.	Mesembryanthemum tricolor.
Nemophila discoidalis.	Nemesia floribunda.
Podotheca capitata.	Schizanthus retusus.
Schizopetalon Walkerii.	Viscaria oculata
Finest German Asters.	Finest German Stock.

A useful Chart has just been published, giving the height, colour, and mode of raising the principal sorts of Flower Seeds, *gratis*, with each order. A General Catalogue can be had on application. A remittance is not required from known Correspondents, or those who give reference in London.

Union road Nursery, Plymouth, April 4.

THE FINEST FUCHSIA OF THE SEASON

R. NEWBERRY has a great aversion to the system adopted at the present day respecting Fuchsia Challenging. R NEWBERRY intends exhibiting a specimen of his "DELICATA" at the shows in London, and if any of the Challenging Fuchsias beat it in colour or beauty, he will pay Five Pounds to the Benevolent Society. Strong plants in May at 10s. 6d. Reference or Post-office order will ensure plants by post. Mr. Glenny's opinion—"One, if not the very best Fuchsia we have ever seen."

Upway Nursery, near Dorchester, April 4.

NOW READY.

MILLER'S UNRIVALLED SEEDLING VERBENAS.

Samye	7s. 6d.	Sunbeam	5s. 0d.
Comet	7 0	Sappho	3 6
Coquette	5 0	Alba purpurea	3 6
Turban	5 0	Glantess	3 6

The set for 1l. 11s. 6d.

Gardeners' Chronicle, Aug. 30.—"J. Z.: Your seedlings are large and good flowers. 'Comet,' French white, with purple centre; 'Samye,' pink, with a blotch of light purple in the centre, is a large, handsome, and distinct flower."

Gardeners' Chronicle, Sept 6.—"W. M.: 'Coquette,' when fully blown, has the newly-opened flowers on the crown of a beautiful rosy pink, while those below are nearly white. When bloomed in the style of the present specimen it forms a very handsome object. The same observation applies to the 'Comet,' which is large, having a tinge of lilac on the face of the flower, which is ornamented with crimson, purple centre. We have lately seen one somewhat similar to this, but not quite so large and distinct."

Land Steward's Journal, Sept. 6.—"Mr. Miller: Your seedlings are very good ones, and possess the character of distinctness; the blooms and trusses are large, and the colours pleasing. We prefer 'Coquette,' a delicate pink, with deep pink eye; and 'Samye,' rather deeper pink, with a tinge of purple in the dark colour about the eye; the others, 'Turban,' deep pink, with rose eye, and 'Sunbeam,' rose colour, are less novel, though equally good in other respects."

Gardeners' Gazette, Oct. 4.—"Mr. Miller: All are pretty because of the dark eyes, but 'Comet' is by far the best in all qualities; 'Samye' is the next best, and 'Coquette' third."

Floricultural Cabinet Nov.—"W. M.: The Verbenas are very handsome, and distinct from any we have seen."

The entirely new character of these Verbenas, the mass of first-rate opinions given of them by all the leading Floricultural works, and the numerous orders taken for them when in flower, render any further remarks altogether unnecessary. The usual allowance when three sets are taken. Descriptive and priced Lists of all new Seedlings can be had of WILLIAM MILLER, Providence Nursery, Ramsgate.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea; by Appointment to HER MAJESTY and H. R. H. PRINCE ALBERT.—Ornamental Water-fowl, Black Swans, White do.; Egyptian, Canada, China, Barnacle, Brent, Bean, and Laughing Geese; Pintail, Widgeon, Gargeny, and Common Teal; Labrador, Shoveller, Gold-eyed tufted, Dun Diver, Carolina, and Call Ducks, &c.; pinioned and domesticated. Great variety of Poultry, Pea-fowl, &c.—And 3, Halfmoon-passage, Gracechurch-street. China Pigs.

TO SEEDSMEN AND AGRICULTURISTS.

R. WHITE & CO. beg to offer the following sorts of TURNIPS, which they can confidently recommend, and of which they hold large and genuine stocks. They beg, also, to inform their Customers that this branch of their business is now managed entirely by Mr. C. SCOTT, late of Manchester, who was the raiser of the Swedish Turnip named by the Secretary of the Royal Agricultural Society of England "Scott's Improved Manchester Swede," and with which he gained the first prize of the Agricultural Society of Manchester three times, viz., in 1842, 1843, and 1844. The following sorts are recommended:—Scott's Improved Manchester Swedes, Skirving's Improved ditto, Laing's ditto ditto, Large Swedish Yellow Purple-top, Large Scotch Yellow Green-top, Large Scotch Yellow Purple-top, Dale's Hybrid, Swedish and White and Red Tankard, and Pomeranian.

R. W. & Co. have also a large and well selected stock of Grasses, Mangold Wurzel, Clover, &c.; also Genuine Bone, Sulphuric Acid, and other Manures.

They also offer Vegetable Seeds in collections, comprising the newest and best of all descriptions, in sufficient quantity for a year's supply, for 2l. 2s.

100 varieties of Flower Seeds, containing all the newest and best sorts, for £1 1 0
50 ditto, ditto 0 10 6

Verbenas, Petunias, Geraniums, &c., for bedding out, 8s. and 6s. per dozen.—Poole Nursery, Dorset.

MESSRS. WESTMACOTT and CO., SEEDSMEN and FLORISTS, 156, Cheapside, opposite St. Paul's, London, give the following prices of their Potatoes, free from disease:

Ash-leaved Kidneys	.. ..	7s. per bushel.
Chapmans, ditto	.. .. ..	7s. "
Shaws (round)	.. .. ..	7s. "

See our SEED CATALOGUE in "Paxton's Magazine of Botany," "The Horticultural Magazine," "Gardener and Practical Florist," and "Harrison's Floricultural Cabinet," for February last. Experienced Gardeners recommended.

156, Cheapside, opposite St. Paul's, London.

JOHN WALLACE, Gabriel's-hill, Maidstone, has still a good Stock of the Perpetual TREE VIOLET, to dispose of at 5s. per dozen. The plants raised last summer, and are now growing in the open air. These will make fine plants for flowering next autumn and winter. Apply, as above, or to Mr. G. Charlwood, 14, Tavistock-row, Covent-garden.

GENUINE HARE RABBITS.—THE LARGEST AND FINEST BREED IN THE KINGDOM. This large, beautiful, and scarce variety (precisely the colour of the hare) has great length and depth of carcase, great width and substance of loin, long erect ears, and weighs, when at maturity, from 16 to 17 lbs. Are as hardy and prolific as the common or wild rabbit; from one to two months old, 12s. per pair; three to four months, 18s. Free to London.

Apply to Mr. JOHN BRETT Market-place, Great Yarmouth.

BENTALL'S BOTANICAL DRYING-PAPER.—Two years having now elapsed since this PAPER was first submitted to the notice of the Public, it is now in general use amongst Botanists, and is allowed by all to be far superior to everything previously employed for drying Specimens of Plants. It preserves form and colour in the best possible manner, and has also the advantage of rapidly absorbing moisture, thereby obviating, in most instances, the necessity of a change of sheets whilst the plants are being dried, and consequently effecting a saving of the vast amount of trouble attending the use of ordinary paper. It is also stout and durable, and must therefore be considered as the cheapest as well as the best paper that can be employed.

The following eminent Botanists have kindly allowed the use of their names as strongly recommending it:—SIR W. J. HOOKER, Director of the Royal Gardens, Kew; DR. LINDLEY, Professor of Botany, University College, London; DR. BALFOUR, Professor of Botany in the University of Edinburgh; MR. BABINGTON, Author of the admirable "Manual of British Botany;" MR. WATSON, Author of the "New Botanist's Guide," &c. &c

The following are the sizes in which the Paper is prepared:—

16 by 10 inches, folded	.....	15s. per Ream.
18 by 11 "	"	18s. "
20 by 12 "	"	21s. "
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Sold by the Manufacturers, W. & T. BENTALL, Halstead, Essex; E. NEWMAN, 9, Devonshire-street, Bishopsgate (sole Agent for London), G. DAVEY, Broad-street, Bristol; H. WHITMORE, Market-street, Manchester; R. T. M'INTOSH, Florist, North St. Andrew-street, Edinburgh.

Botanists residing in the country can be supplied through any respectable Stationer in their own neighbourhood.

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Aerunicators	Garden Scrapers	Pruning Bills
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Borders, various patterns	Hammers	" Shears
Botanical boxes	Hand-glass Frames	Rakes in great variety
Cases of Pruning Instruments	Hay Knives	Reaping Hooks
Chaff Engines	Hoes of every pattern	Scythes
Chaff Knives	Horticultural Hammers and Hatchets	Scythe Stones
Daisy Rakes	Hotbed Handles	Shears, various
Dibbles	Labels, various patterns, in zinc, porcelain, &c.	Sickles
Dock Spuds	Ladies' Sets of Tools	Sickle Saws
Draining Tools	Lines and Reels	Spades and Shovels
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Flower Scissors	Mattocks	Switch Hooks
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Garden Chairs and Seats	Mole Traps	Turfing Irons
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" Rollers	Pick Axes	Watering Pots
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		Wheel Barrows
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G. and J. DEANE are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with the Illustrated List of Horticultural Tools, can be sent post paid to any part of the United Kingdom. DEANE'S Horticultural Tool Warehouse, opening to the Monument, 46, King William-street, London-bridge.

HORTICULTURAL TOOL WAREHOUSE.

GREEN AND CONSTABLE, WHOLESALE and RETAIL IRONMONGERS, 36, King William Street, (four doors from London Bridge,) beg to announce they have a large assortment of New and Improved GARDEN TOOLS, including Lord Vernon's Patent Hoe, Dr. Yelloley's Patent Garden Fork, Eyndon's Patent and other improved Spades, solid head Garden Rakes, Ladies' Light Garden Forks, Transplanting Tools, Jointed Hothouse Syringes, Fumigators, Improved Garden Shears, Edging Irons, &c. Ladies' Horticultural Chests fitted with every Implement requisite for the Garden.

HORTICULTURAL SOCIETY OF LONDON.—Notice is hereby given, that the EXHIBITIONS of FLOWERS and FRUIT, in the Society's Garden, in the present season, will take place on the following SATURDAYS, viz., May 9, June 13, and July 11; and that Tuesday, April 21, is the last day on which the usual Privileged Tickets are issued to Fellows of the Society.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The EXHIBITIONS in the Gardens of this Society will will take place on

WEDNESDAY, MAY 20th.
WEDNESDAY, JUNE 3rd.
WEDNESDAY, JULY 1st.

Prizes to the amount of 1000*l.* for PLANTS, FLOWERS, and FRUIT, will be competed for.

Tickets for admission may be had at the Gardens, by presenting an order signed by a Fellow or Member of the Society; price, on or before Saturday, May 9th, 4*s.*, after that day 5*s.*, except on the day of Exhibition, when they will be 7*s.* 6*d.* each.

Fellows are privileged to take 30 Tickets at one time for 3*l.* 5*s.* until May 8th.

The Exhibitions will be wholly under cover, connected with a gate at the north side of the Garden. The gates open at 2 o'clock.

ARAUCARIA IMBRICATA, OR CHILIAN PINE. YOUELL AND CO.'s Stock of the above magnificent hardy tree will be found unequalled in this country or the Continent either for extent or luxuriance of growth; and they beg to call the attention of planters in general to the fact that those they offer are not nursed plants or drawn up in close pits, but fine sturdy plants possessing dark rich green foliage, and such as have stood the severity of the winter for several years in this the most eastern point of England, proverbial for its excessive cutting winds. The following is the scale of prices for plants in pots, and may be planted out with advantage at the present season.

2 years old	9*s.*	per dozen.
3 ,,	12*s.*	,,
4 ,,	18*s.*	,,
5 ,,	30*s.*	,,
6 ,,	60*s.*	,,
Cedrus Deodar, 1 year, fine	18*s.*	,,
,, ,, 1 foot	30*s.*	,,
Pinus excelsa, 3 inches	9*s.*	,,
,, ,, 4 to 5 inches	18*s.*	,,
,, ,, 18 inch, fine bushy plant	42*s.*	,,
,, Gerardiana, 2 years	30*s.*	,,
Abies Khutrow, 2 years	9*s.*	,,

Also fine specimen plants of older growth from 10*s.* 6*d.* to 2*l.* 2*s.* per plant.—Great Yarmouth Nursery, April 4.

The Gardeners' Chronicle.

SATURDAY, APRIL 4, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

TUESDAY,	April 7	Horticultural	3 P.M.
		Linnean	8 P.M.
SATURDAY,	— 11	Royal Botanic	4 P.M.
WEDNESDAY,	— 15	Microscopical	8 P.M.

"How am I to sow my flower-seeds?" "I have had some beautiful seeds given to me, but I have no gardener, and I don't know what to do with them." "I don't know how it is, but my gardener never *can* get his seeds to grow. What *shall* I do?" "How deep, sir, *would* you advise me to bury my seeds?"

Such are the sounds of woe with which our ears are not uncommonly assailed. That information is much wanted in this matter is most certain; that endless mistakes follow in the train of all vague directions nobody can doubt; that seed-sowing does demand some "knack" and practice we readily admit, and therefore we shall on this occasion utter no *vox ambigua*, but cut the matter short by saying, "Don't bury your seeds at all!"

We can quite imagine the surprise that this announcement will occasion in some minds; but we presume to hope that when we have been heard to an end, the recommendation will not be thought so paradoxical as it appears to be.

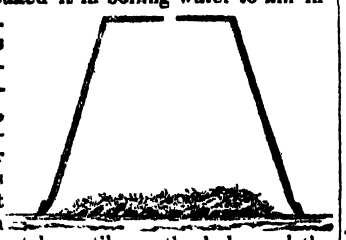
Let us, in the first place, ask why seeds *are* buried alive under clods of earth? Does Nature thus inter them? And if so, who or what is her grave-digger? When the acorn falls it has no power of wriggling into a hole in the ground, and when the Chickweed scatters its tiny seeds they lie and grow where they fall. What reasons, then, *can* gardeners have for making themselves seminal sextons?

"Reasons!" says the man of learning, "I will give you fifty; firstly, a seed must have darkness and oxide of hydrogen in order to germinate; under these influences its C combines with the O of the latter, and forms CO_2 which is extricated; then diastase comes into play, and the amylaceous particles are saccharified; thirdly"—but hold—enough of that. "Reasons!" says Mr. POLYANTHUS, the gardener. "Why how are you to keep the birds off if you do not bury seeds? or the mice? or such vermin. How are you to keep them moist when they first chip the shell? How are they to hold to the soil when they have got a root? Reasons enough are these, I think."

Certainly. But, then, cannot all these objects be secured by other means than burial? Let us see.

We want fine dry soil. First provide that; get the ground level, and press it gently with a piece of tile or glass. If it contains stones or clods remove them. If your seeds are very small, sift over it a little silver sand, or peat; upon this scatter the seeds *thinly*. If they are excessively small mix them before sowing with dry sand or peat in order to separate them; and again with gentleness press all flat.

Then provide some coarse Moss—any sort will do; but Bog-moss or Sphagnum is the best—having previously soaked it in boiling water to kill insects or their eggs. Press it till its wetness is exchanged for dampness, and then, while warm, scatter it *loosely* over the seeds. Press it down, invert over the Moss a common garden-pot, lay a tile on the hole, and the operation is performed.



But the little apparatus thus contrived must be watched. In a day or two lift up the pot, raise the Moss, and examine the seeds. If the Moss is dry, which is not likely to happen, again damp it with *warm* water. If all is still, have patience. Thus go on until you find your seeds *beginning* to grow. Then remove the tile from the hole in your pot, and leave them for another day. At the end of that time you will possibly find that the seeds have grown much more; if so, take away a part of the Moss, so as to give the young things more air and light. The next day, raise the pot on one side, so as to open it to the south. This may be done with a stone placed beneath its front edge; but do not raise it all round, because if you do the strong current of air setting over your seedlings and through the hole in the pot will chill them. As soon as you find the seedlings green and plump and stout, the Moss may be entirely removed and the pot raised higher. And very soon that, too, may be quite dispensed with, unless there are frosts at night, or bitter dry easterly winds by day. In the former case, replace the pot every night and take it off again in the morning; in the latter, it is wise to place a little screen between the plants and the wind. For this purpose a pantile is a capital thing, but a piece of board, or any such matter, will do.

In this way you secure all that you want in order to get a hardy seed to grow:—Darkness, moisture, air, warmth; and afterwards moisture, air, light, and shelter.

Let no one say that large seeds cannot thus be raised. The finest Oaks spring from Acorns dropped in the forest and covered by a few leaves. The Sycamore, the Ash, the Beech, the Horse Chesnut will all sow themselves wherever their seeds can stick to the ground until a coverlet of leaves is moistened by an April shower and warmed by an April sun. Neither have such seeds any difficulty in steadying themselves by their roots; a long fang is driven by vital impulse into the earth, and it is to that, and not to a bit of the buried neck of the stem that the seedling trusts for support and nourishment.

We will only add one word. Those who have ever attempted to sow seeds upon rockwork, know to their cost how very difficult it is to make such seeds take root. The method now proposed answers the end completely, and it is the only plan which, in difficult cases, does succeed. *Experto crede Roberto.*

THE sale of ORCHIDS from Guatemala which we lately announced, has just taken place, and the lots have produced very large sums. We can now state that a further supply from the same country has since arrived, and will be brought to the hammer soon after Easter. If we are not misinformed, the present consignment is again in excellent order, and includes a new Peristeria, from a district into which neither Mr. HARTWEG nor Mr. SKINNER were able to penetrate, together with large masses of Lycaste Skinneri, Odontoglossum pulchellum, and Lælia superbiens.

A FEW nights since Sir JAMES GRAHAM produced to the House of Commons the following official Irish return:—

Number of Electoral Divisions in which the annexed Proportions of the Potato Crop were returned lost, condensed from Constabulary Reports of January 15, 1846:—

Between 8-10ths and 9-10ths	3
,, 7-10ths and 8-10ths	97
,, 6-10ths and 7-10ths	124
,, 5-10ths and 6 10ths	11
,, 4-10ths and 5-10ths	640
,, 3-10ths and 4-10ths	613
,, 2-10ths and 3-10ths	283
,, 1-10th and 2-10ths	156
Not exceeding 1-10th	113
No loss	9
Not returned	3
	2052

This may be taken to represent the amount of *loss* in the crop as being about 8500 out of every 20,000 bushels. A day or two afterwards the Duke of WELLINGTON, with that noble frankness which, no less than his illustrious deeds, has won for him the affection as well as admiration of all ranks of people, is reported to have stated to the House of Lords, that he had been one of those who in November last doubted the extent the evil would reach: he was sorry now to say that those who were of a different opinion then were entirely right,—while those who did not think the evil would be of such magnitude were entirely wrong, and he was one of them.

It is, therefore, unnecessary to go into any proof of the accuracy of the estimate made in the beginning of November last by Professors PLAYFAIR and LINDLEY, when they stated that in their opinion one-half of the Irish crop was either lost, *or unfit for human food.* The best of all proofs in such a case is to be obtained by time, and time alone. It now turns out that the proof is ample, and that the charges of great exaggeration which Lord GEORGE BENTINCK and Mr. SHAW have ventured to make, fall to the ground.

We shall assume, then, that the loss of the Irish crop is proved to be one-half. It is, in fact, proved by later returns to be much more—but, to avoid all possibility of misrepresentation, except from crazy partisans, we shall take it at only half. And now let us ask those who complain of the undue importance that we give to the Potato question, whether they have any notion of what half the Irish Potato crop amounts to? In the absence of better evidence, we have formerly estimated the quantity of land under Potatoes in Ireland at 800,000 acres, the produce of which may be taken at 6,400,000 tons. Half this will be found, by a little calculation, after deducting 75 per cent. for water or waste, to be 1,767,000,000 pounds, which are equal to 3,612,000 quarters of corn, of 62 lbs. to the bushel! And if we take the value of this to be represented by the lowest grain now in the market, the loss will be equal to at least as many pounds sterling.

If, then, the loss to Ireland is called 3,500,000*l.*, we should be glad to know how much the total loss will have been when the destruction in England, Wales, and Scotland, is taken into account. To place the latter at 1,500,000*l.* is no very extravagant assumption; and if so, this country has lost five millions of money by the Potato murrain. But all Potato land might have grown Wheat; and if in this computation we exchange the price of inferior Oats for good Wheat, we shall double the amount of loss. May we now inquire, how the country is to bear such prodigious waste, and whether there is any common sense in pretending that dangers are exaggerated, until a new crop of Potatoes shall have been planted, and a second five or ten millions have followed the first to destruction.

Granting that the Irish Potato-fields do not amount to 800,000 acres; granted that they are but half so much—and we do not pretend that a rough estimate is a guide to be relied upon—still, reducing the amount of loss to 1,500,000*l.* or 2,000,000*l.*, the misfortune is fearful beyond all power of description in such a country as Ireland.

THE AMATEUR GARDENER.

ON THE CULTURE OF ANNUALS.—From the numerous advertisements of annual flower seeds, we may presume there are vast numbers of buyers, and when the beauty of this extensive tribe is considered, we cannot wonder this should be the case. To depreciate Annuals would, indeed, be a tasteless and a hopeless task, since they are worthy the best treatment, and are of such essential service in most gardens. My object will rather be to direct and regulate, and not to discourage the growth of Annuals. I shall therefore make some general remarks of annual flowers themselves, and then lay down a few rules for their successful culture.

In gardens of great extent, there is a capacity for growing almost everything to advantage. Some plants are attractive anywhere; others make the best appearance in situations where a close inspection is possible; but many are not fit for confined situations, and when they are admired it is confessed that "distance gives enchantment to the view." The common Sunflower is ungainly and awkward in a little suburban garden, but it tells well in a plantation, or when it can be seen afar off. The same may be said of the Orange Erysimum; its colour renders it invaluable when grown in clumps for general effect, but how miserable it looks when found in a small mixed flower-bed! In growing Annuals, therefore, their size and habits should be diligently studied, as well as the extent of the garden which they are intended to adorn. If this rule is neglected, Amateurs will be disappointed when they purchase seeds which may have been justly commended. When grown and in flower, it may be true they are individually beautiful, but they may not be in keeping with objects around them. Great care should, therefore, be used in selection, if the time and money of the amateur are not to be wasted.

For small gardens, shrubby and compact greenhouse plants which do well in the open ground in our summers are much to be preferred to many Annuals. Pelargoniums, Fuchsias, Calceolarias, Verbenas, Petunias, &c., may be preserved with ease through the winter,

and by careful management may be turned out in May and June in a blooming condition. Every observer of gardens must see the vast superiority in point of beauty and finish which these exotics possess over most Annuals. If, then, you are limited for room, select only those annual flowers which grow compactly, and which continue long in bloom. The Mesembryanthemums are admirable in these respects, but they require more sun than we generally get in England. However, I cannot recommend the sorts to be preferred, since tastes so much differ. Some seedsmen send out catalogues, which give the heights, times of flowering, colours, &c. of all the seeds they sell; and the amateur will do well to use one. That published by Carter, of Holborn, is admirably arranged, and I only discharge a debt of gratitude when I confess how serviceable it has often been to myself.

Annuals should have plenty of room for the development of their peculiarities. They are generally planted too closely, and thus their beauty is not seen. As to the method of raising them, I would decidedly recommend a seed-bed for most varieties, in preference to sowing them where they are to remain. Many sorts are too tender for early sowing. Then insects torment you; for if your stock is dispersed through the borders, you cannot keep your eye on the scattered portions as you can when it is together in a bed. Besides, transplanting is, in most cases, an advantage, and secures greater vigour to the plant, provided it is properly done. Raise your seeds, then, on a gentle hotbed, and when they are developed in strong plants, remove them to their destined quarters. When you are anxious to have them flower early, or where the seedlings are impatient of removal, it is a good plan to pot them when only half an inch high into small pots, two or three in a pot. You can then get them forward in a frame, and turn them out when frosts are over, without the plants receiving the slightest check.

There is an Annual, the beauty of which cannot be too highly spoken of, I mean the Phlox Drummondi. Its habit of growth makes it very desirable for small gardens, as it is compact, and may be pegged down with advantage. Its varied shades of crimson are truly gorgeous when seen in masses. It continues in flower very late, and a slight frost will not much injure it. Sow the seed now. Sixpenny-worth will stock a large garden. By adopting the plan of potting the seedlings, by June you will have a supply of bushy plants, which will immediately flower and continue gay till October or November.—*H. B.*

SELECT PLANTS FOR BEDDING OUT IN FLOWER GARDENS.

A WELL arranged flower-garden constitutes the *multum in parvo* of floriculture, the principal object being to produce the highest ornamental effect in the most limited space. The perfect cultivation of plants consists in obtaining the greatest amount of flowers from the greatest extent of growth of which the plants are capable, and which can only be obtained under the most favourable conditions, previous to the formation of flower-buds, or by removing the latter when prematurely formed.

A premature disposition to form flower-buds arises from either of, or a combination of, the following causes:—

1st. From an exhausted and attenuated state of growth, in those plants from which they are multiplied.

2d. From an excessive but necessary stimulus of growth given to all young plants, by exposing them to a higher temperature than is required for their natural conditions of growth.

3d. From the opposite extremes of drought and moisture to which young plants are necessarily subject, by being retained in small pots.

4th. From a neglect of checking attenuated growth at stated periods, equal to their rapid formation of flower-buds.

5th. From the absence of a greater stimulus to robust growth, an efficient method of potting, and a modified exposure to light, air, &c., and the restriction of their growth.

Free growth, adaptation to common soils, profusion and continuance of bloom, ready increase, and sufficient hardihood to withstand cold, by the protection of a pit, or frame, with external covering, are the most desirable qualities in plants for ornamental effect in flower-beds. Amongst those which possess peculiar interest, in connection with the varieties of Verbenas, Petunias, &c., perhaps there are none which answer more fully to the features described than Lobelia Erinus, and its varieties, of which, L. Erinus grandiflora may be regarded as the most valuable. It is distinguished from others by its more compact, perennial, and branching habit, and thickly set flowers of a rich ultra-marine blue. Its prolific and decumbent growth render it superior to all others for cultivation in large masses, and it is admirably adapted for a summer-edging to parterres or borders, when the extremities of its shoots are uniformly shortened at stated periods, in order to induce a close growth. It is also very useful for table specimens in pots, or sculptured vases, or for square slate boxes, to be placed on the ascending steps to drawing-room entrances. For marginal effect to sloping banks, or along the base of ornamental rock-work, it may also be planted with effect. It forms a succession of autumn bloom after the beautiful Mesembryanthemum tricolor, and Portulaca splendens, and looks well in front of borders of herbaceous perennials.

The following practical illustration will show the result of obtaining a prolonged accumulating vigour of growth previous to the season of bloom.

In the spring of 1843 four vigorous young plants, in 3½ inch pots, from cuttings of the same year (forming premature flower-buds at the time), were removed from a cold frame, and shifted to pots of 6 in. diameter, preparatory to their next final potting. The proportions and kinds of soils used were, one-half friable, sandy, yellow loam, with three remaining parts of partially dried, highly fermented manure, in a pulverized state, and one part of sandy heath-mould, adding about one-sixth of white sand to the whole. A heavy stratum of partially dried, coarse manure of similar quality, selected immediately from a large heap, was placed as sub-drainage over the potsherds. The plants were placed upon the front platform of a forcing-house (west-aspect), with exposure to bright light, in a temperature varying from 70° by day to 55° by night. The first removal of the premature flower-buds was made a fortnight after the plants had been potted, by uniformly cutting off the extremities of the principal shoots, or stems, three or four joints shorter, and the smaller ones in proportion to their vigour. As the plants advanced in growth, a uniform position of the stem was secured by placing small temporary stakes against the curve of each, without tying. The plants remained in this position until the second week in June, at which period they were shifted to pots of 9, 12, and 13 inches diameter, using similar soil as before, but adding a heavier intermediate stratum of dry, coarse manure, firmly pressed; and promiscuous flakes of the same material was intermixed, or progressively added with the compost in potting. After this operation, the plants remained a week in the forcing-house, and from thence were removed to a cold frame (south aspect), appropriated to similar plants, where a temperature was maintained, when practicable, of 65° by day and 55° by night.

Growth was induced during the day by tilting the lights sideways a few inches, with a slight shade from excessive sunlight until one or two o'clock; on the removal of which, an increase of air was given until three. They were then fully exposed by drawing off the lights for half an hour, to promote a free evaporation, after which the plants were watered, and remained exposed until the foliage was partially dried, and in this state the frames were closed. For the morning treatment, air was given early by moving the lights downward from the back 9 to 12 inches, for an hour after which the plants were again fully exposed for the same period, and about 8 o'clock they were reclosed for one or two hours, according to the brightness of the atmosphere. The full exposure of the plants, and admission of air, was regulated by the variations of the external temperature.

During the progressive growth of the plants, from the first week in May until the second week in July, the extremities of the shoots were uniformly cut shorter at four stated periods. By thus retarding the formation of flower-buds until a definite period, a dense and accumulated vigour of growth was obtained in each plant, varying from 12 to 18 inches in diameter, without any apparent tendency to bloom. From the above period in July the plants were gradually exposed, and finally placed upon an east border, and each pot was placed within a pan to admit an occasional supply of water to the roots. In this position, throughout August, September, and October, they excited general admiration by their brilliant effect, being thickly studded with thousands of lovely blue blossoms, so numerous that, to a stranger, would imply a very limited duration, but which were kept up in a repeated succession for the above period. The four specimens were of different sizes; of the two largest, when in mature growth, one was a foot and a half, and the other two feet in diameter, and they were sold at 5*s.* and 7*s.* each! The finest of these plants formed one of a collection (adverted to in a previous Paper) chosen to ornament her Majesty's dining-table at Windsor Castle.—*William Wood, Pine-apple-place.*

POLMAISE HEATING.

BEFORE I proceed to notice the latest objections made to the Polmaise system of Heating, I must be permitted to call the attention of your readers to the fact, that among its various opponents, no one has yet attacked the great principles on which I believe it rests, on which I have defended it, and on which I augur its success; the structure is assailed, the foundation is left in peace. When, however, your correspondent of the 21st ult. stated, that he also aspired to the same investigation of this system with myself (my expressed object being to trace step by step the accordance of this system with nature and philosophy), I naturally expected to find its principles assailed, to see at least an attempt made to show that the laws I had stated, as regulating the diffusion of heat through different media, were untrue; that the arguments I had founded on them were untenable, and the conclusion I had drawn from them were consequently erroneous. I might well expect from such a declaration, to find the ground disputed step by step, but the investigation ceased with the aspiration; the ground is changed from the high one of the principles, to the lower one of the detail, and here I propose to follow your correspondent, still maintaining, however, that though one person cannot see that the system is natural or philosophical, and though another doubts it, no one has fairly attempted to prove that the arguments on which I have supported this system are unsound.

Your correspondent states, that it was not his intention to interfere more in this question, but that I compelled him to do so; I simply detailed his share in this discussion, in the same manner as that of others; I commented on the effect it had produced, namely, delay in this investigation, but it was with no wish to induce him to resume the discussion against his will; he states, that the opinion he formerly entertained against the success of Polmaise is strengthened from the discussions; and from an example he has frequently examined, he now pronounces it a great deal worse than the old smoke flue! but he subsequently states, that what is now wanting, is a trial, to see what the system can effect: what need of the trial may I ask? If, after the lengthened period of your correspondent's experience in these matters, he has proved Polmaise a failure, it seems strange that he should have intended not to interfere any further in this matter, all the time knowing that he had a proof by which to establish the correctness of his first hostile opinion. I hope he will excuse my asking, for the sake of the number of your readers who are deeply interested in this subject, the same question Mr. Murray asks, namely, "where" it was tried. May I add, how long? when? and could your correspondent procure a sight of the failure for some of those persons who are able to judge how far the principles of this system have been carried out in this alleged failure? Mr. Murray has detailed his success, let the failure be chronicled, and your reader judge between. He then states, that he has taken the trouble to calculate the relative expense of the two systems as to their first erection; he does not give the calculation, but only the result, that my plan is far more expensive. I have made every possible inquiry, and the calculation consequent on this I will endeavour to give, and having already demolished the charge against Polmaise being wasteful in the use, having fixed that waste on hot water, I will show a like waste in the first cost. I presume we have a stove house and adjoining chamber for each apparatus, that each requires ash and fire doors, fire bars, check cistern, fire bricks, &c., the question is, what are the separate charges to heat this house up to a stove temperature? say it is 30 feet by 18.

POLMAISE.	£.	s.	d.
500 extra bricks for hollow floor supports, drains, &c.	1	0	0
¼ inch iron plate, 6 ft. by 5, at 15*s.* per cwt.	4	0	0
Small boiler to produce moisture	2	0	0
Pipe to gutter	0	10	0
Iron gutter with cover, 6 yards	3	0	0
Wooden screen, with perforated zinc	1	10	0
Extra cost of laying hollow floor	1	10	0
Stone slab	0	10	0
	£14	0	0

HOT WATER.	£.	s.	d.
Boiler (various prices) taking the medium of different makers, say	7	10	0
104 yards of iron pipe, at 4*s.* 6*d.* per yard	23	8	0
	£30	18	0

Means for diffusing moisture extra.

The first expences of Polmaise may be economised by many contrivances; moisture may be produced in a much more economical way, but the hot water must be confined in iron pipes and heated in an expensive boiler. The simple truth I believe to be this, that whatever the pipes cost, that is the extra expense of water over air heating.

Your correspondent then revives the question of its efficiency. How far this had already been proved, I may leave to your readers to judge; but I should think, after Mr. Murray's letter of March 28, stating that a Scotch church was heated in a winter night up to 75°, that there was not more than 5° difference at different points of the building, no one will again question the efficiency of the apparatus at Polmaise; and thus your correspondent's objections to hot air coming in at the back or the end are disposed of in a most complete and summary manner. Fowler's thermosiphon may have failed; Hayden's Polmaise did not, but has survived the "fatal error."

I am next asked, how the air of a house is rendered impure by a hot-water apparatus? I never stated it to be so, but I maintain that it is rendered impure by the vegetable life within it, and that if that vegetation is to flourish fresh air must be admitted; and Mr. Ayres states, in support of this, that but for the expense of fuel, he would always keep the ventilation open; if it be otherwise, we had better construct our houses on the principle of a Ward's case. The next objection I have to notice is the enquiry, what should I do if the fire went out, with a house full of Grapes, and the outside temperature at zero? I reply that mechanism is now so perfect, that it is at our option to let out the fire; but even should such an accident occur, I maintain that in the hot chamber would be a reservoir of heat quite equal to that of the water; let your readers remember that the hot chamber and furnace are the boiler of the Polmaise system; that the currents would still flow long after the fire went out, in the one case as in the other; besides, the great reservoir of heat is not in the water, but in the temperature existing in the house at the time the fire expired, and that a long time must elapse for this to cool down to a dangerous point; in fact this is the real point of safety, and attaches equally to both systems; and finally I reply, that I should be better off with the fire out than with a split boiler on a winter's night, for I could relight the one but not heat the other. And lastly, your correspondent wonders how I can possibly think this system likely to supersede others. When my reasons for thinking so are refuted I will alter my opinion. His concluding remark, casting a slur upon the researches of scientific men, it can do no good to notice.

The next opponent states, that truth is not served by

the course pursued by the advocates of Polmaise. I deny that I have exaggerated the defects of the hot-water system, and I appeal to the returns of last week; as to what is claimed for the new system, it is a fair trial; and, to insure this, I have pointed out what advantages it has displayed, but more especially what we may expect from it, considering the principles on which it is based; and I reassert, that the hot-water system is unnatural, unphilosophical, and comparatively inefficient and expensive. I would not wish to induce any person to pull down their hot-water apparatus, but I would induce them to pause before erecting another, and I have given them facts and reasons for doing so. Your correspondent sees no nearer approach to Nature in one system than in the other; I can only reply that I find no iron pipes full of water passing up into the atmosphere, but I do find the earth's atmosphere passing in successive currents over the hottest portion of the earth's surface, that surface having been heated by the direct process of radiation. Aerial currents passing over a body heated by radiation seems to me to be the principle of atmospheric heating, both in nature and Polmaise. Your correspondent says, that atmospheric moisture is equally well provided for in the one system as the other; considering the element employed in the hot-water system, it would be strange if otherwise. Your correspondent cannot understand the diffusion of the heat; but if he will reflect on the manner in which heat is diffused through a liquid, and then consider with what infinitely greater rapidity it is diffused through a gas; if he will only fancy the circulating liquid of the one system turned into the circulating gas of the other, he will be at no loss to comprehend the diffusion of the heat, and when he will tell me how often every particle of water passes through the boiler, I will also tell him how often every particle of air will pass through the chamber. He speaks of the advantage arising from the slow transmission of caloric; this I have already answered. He next inquires, if one fire will do more work in the one system than in the other? in fact, whether the system can be adapted to heat two houses with one fire? There seems to me no impediment, and I look upon the working economy of Polmaise as fully proved. But then the expense of my own plan is stated as equal to hot water. It would set the matter at rest if some of your correspondents would state the actual sum paid for heating a stove-house with hot water: no names need be mentioned. Having replied to your correspondents, I must also state that I agree with them in considering that the thing now wanting is, not discussion, but actual experiment, with a view to extend the application of the principles. One object I had in view is completed, namely, the examination of the system by the light of nature and science. It is for your readers to judge how far they think such examination should lead them to fulfil another object—its actual trial. During the summer I propose to erect a stove-house, heated according to my own plans, at page 145, with this exception, that I shall supply the fire with air from without. The results of this experiment, whether favourable or otherwise, I will faithfully report in your columns; but I trust that its capabilities for different purposes will be tested by others far better able to judge. To ascertain what it is really capable of, we require the skill of the first horticulturists. Surely, when we think of the money, time, and energy, they often expend on the introduction of a single plant, a system of heating which has done so much, and promises to do more, will not be suffered by them to go unexamined. We have got cheap glass; we are to have cheap timber. Let us not be content till we have a cheap mode of heating. Had I not so important an object as this in view, I should apologise for the large share of the *Chronicle* I have so long occupied. Many of your readers, perhaps, loathe both Polmaise and Potatoes, and it is not my present intention to notice any further communications on the subject, unless they relate to those points of science on which I first defended the system. Its practical difficulties, experiment will solve.—*D. B. Meeke, Holmsdale House.*

CULTURE OF THE JERUSALEM ARTICHOKE.

Amongst the whole of our esculents there is not another that will yield a more certain and abundant increase than the Jerusalem Artichoke, being liable to no disease, thriving with impunity in almost any soil, and braving with considerable productiveness the worst possible situations. It is an astonishing tuber. The frosts of this country have no effect upon it. It does not even require litter to protect it in any way, while Potatoes may be destroyed to any extent by one night's frost. Its nutritive properties are greater than those of the Potato, which we all so much admire, and which it is to be lamented is likely to perish without any efficient remedy being discovered to prevent the calamity. Let us therefore meet the evil in the best possible way, with the most palatable substitutes.

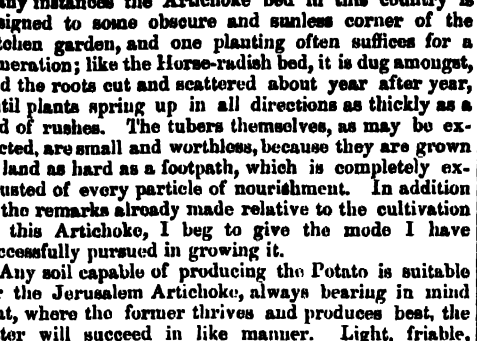
Previous to the general cultivation of the Potato, the Jerusalem Artichoke, as an article of food, was extensively planted in small gardens. With the French it is in much higher repute than with us, even amongst the middle and lower classes. About a century and a half ago, great attention and care were employed in its cultivation in France, as De la Quintyne informs us, and no doubt much of the success attending these early efforts may be attributed to the well manuring of the ground, to which no small degree of attention was paid, and to giving ample room between the rows, and between the sets in the rows, thus admitting sun and air freely amongst the plants. These particulars were evidently fully understood at that period; let us not overlook them now, but apply them in conjunction with our more extended experience and knowledge in the art of cultivation which has been effected in more recent times. Rely upon it, this root will liberally reward us for all the care we may bestow upon its culture. In many instances the Artichoke bed in this country is assigned to some obscure and sunless corner of the kitchen garden, and one planting often suffices for a generation; like the Horse-radish bed, it is dug amongst, and the roots cut and scattered about year after year, until plants spring up in all directions as thickly as a bed of rushes. The tubers themselves, as may be expected, are small and worthless, because they are grown in land as hard as a footpath, which is completely exhausted of every particle of nourishment. In addition to the remarks already made relative to the cultivation of this Artichoke, I beg to give the mode I have successfully pursued in growing it.

Any soil capable of producing the Potato is suitable for the Jerusalem Artichoke, always bearing in mind that, where the former thrives and produces best, the latter will succeed in like manner. Light, friable, loamy soil will always yield the best flavoured tubers. The soil should be deeply dug or subsoil ploughed, and a good dressing of farm-yard manure applied. It is quite useless to plant on poor, barren land, if a good crop is to be expected. They should be planted in rows, alternately 2 feet and 4 feet apart, and at least 18 inches apart in the row. The rows should extend north and south, thus allowing the sun to shine freely upon the soil; for, unless sufficient room is afforded for this in planting, their great luxuriance of foliage will completely exclude it; when planted in lines east and west, the soil is totally excluded from the rays of the sun, the want of which is clearly a matter of great importance.

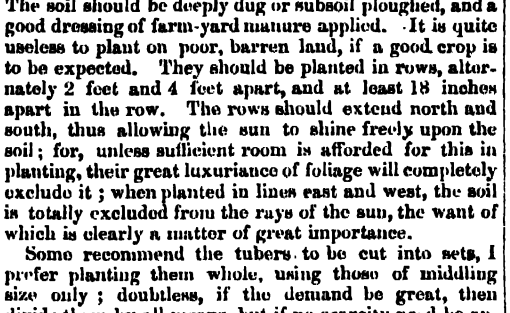
Some recommend the tubers to be cut into sets, I prefer planting them whole, using those of middling size only; doubtless, if the demand be great, then divide them by all means, but if no scarcity need be apprehended, then use whole tubers. I have always found the latter more productive. Plant immediately; not a day should be lost, as our short seasons scarcely admit of sufficient time for the complete maturition of the tubers. An intelligent correspondent recommends cutting off the stems at 3 feet from the ground. I should, in this case, allow Nature to run her course; and with all plants having tuberous roots this course is preferable; if we wish to make the most of the tubers, they should both be allowed to ripen together—the one for food, the other for fuel. During the summer, the soil should be well worked over with the hoe, keeping it open and free from weeds. The crop will be fit for use about the same time that our late Potatoes come in; they do not require to be dug up as the Potato and protected, but may remain in the ground to be taken up as required for use; although, should frost set in, it will be advisable to have a supply housed in sand, where they can be easily come at.—*Helianthus tuberosus.*

Home Correspondence.

Greenhouse for Amateurs.—Last autumn cheap glass induced me to pull down and remodel my greenhouse. I wished under one roof to winter plants, to force, and to grow Grapes, and I proposed to ventilate with warm air; for this I built a house adapted to my amateur fancies, according to the accompanying representation-



Section 1.



Reference to Plan.—*a*, hot-water tank; *b*, flue; *c*, boiler; *e*, tubes to convey external air over flue; *f*, tubes to convey heated air to tank and greenhouse; *g*, chamber for Mushrooms, or fermenting material; *h*, apertures from chamber to allow escape of carbonic acid gas to plants, Vines, &c. Hot-water pipes are fixed over the openings at *f*, to be used if required.

The tank is heated by one of Stephenson's boilers, the flue of which passes under the tank in an arched chamber; pipes convey air to the bottom of this chamber, and openings are made into the house and tank from the top; by these means a constant current has been obtained of warmed air. The tank is separated from the house by sliding sashes, and is now in full operation with Strawberries, cuttings, &c. Having observed in all cases the great difference between the luxuriance of plants, Vines, &c., when grown over tan-pits in large establishments, and the inferior vegetation where this material is not used; and wishing to obtain the known effect of the gas from decomposing vegetable matter, I formed a chamber under the stage, with openings to allow this gas to escape, and on this point I would be thankful for some information. In giving up the use of dung or tan, do we not lose an important agent of vigorous growth? and how far is it necessary, with the new arrangements for heating, to attempt an approximation (consistent with the health of the cultivator) to results that we witness in tropical and other climates, where decaying vegetable matter abounds?—*M., Deptford.*

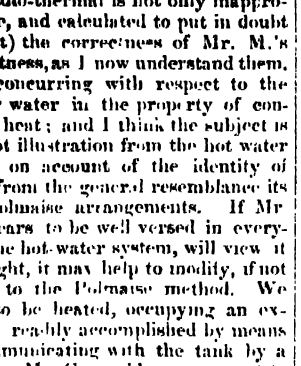
Brewing.—I do not know whether the following is the recipe for Bass's pale ale or not, but it is quite as good. To make 100 gallons, use 9 bushels of malt, or 10, if strength is desired; 23 to 27 lbs. Kentish Hops, according to the required degree of bitterness; 3 lbs. of Camomile flowers, strewed in a jar and strained. Put the Camomile flowers and the hops in at the same time. Boil the malt and water till the liquor begins to fine itself; and that is the time to add the hops and flowers.—*Anon.*

Arbutus Andrachne.—It may be interesting to know that this tree has been thickly covered with flowers for these six weeks past, and promises to continue to bloom for the same time to come. Although the flowers, individually, are not very attractive in colour (greenish white), yet the abundance of large panicles of bloom, united with a handsome foliage, renders the tree an interesting object. At Redleaf, a fine specimen was destroyed in the severe winter of 1837-8; others, however, escaped. I well recollect a fine tree, which met with an accident a year or two ago, that caused it to present the character of a large branch rather than a tree. It measured 28 feet in height; girthed 3 ft. 6 in. at 3 ft. from the ground; and 2 ft. 6 in. at 10 ft. from the ground where the first branch started, which measured 1 ft. 9 in. in girth at its base. The cinnamon coloured trunk, with its characteristic fragments of bark, which it sheds annually, forms a striking contrast with the foliage.—*C. E. W., near Gloucester.* [Arbutus Andrachne is far hardier and handsomer than A. Unedo; but it seldom produces fruit in this country.]

Hedge Budding.—I observe that "N. A. P. B." seems to doubt the custom, said to prevail in France, of budding Roses in hedges and removing them thence to the garden as for sale, when the bud has taken. There may be little probability, as "N. A. P. B." states, that in the immediate neighbourhood of Paris, such a practice is followed, on account of the difficulty of preserving the fresh budded stems from depredators. Any one accustomed to the suburbs of French towns, however, must have remarked the retirement of such places, so different from similar places in England; so that, though your correspondent seems to have seen no hedges in France, there may be plenty of Briars, and opportunity enough for pursuing experiments in floriculture unmolested. I know not what the general practice of Rose budders may be, but I have already been successful in budding in the hedge. I find a double advantage in this method of propagation. First, I save time; second, I get for my new bud a more vigorous growth, which it requires in order to overcome the difficulties of its new situation. A proof of these advantages I offer in the fact, that I removed in last February, into my garden from my hedges, 20 wild Rose stems, on which the buds of last season's French Roses, are in full vigour. According to the general practice, indeed the only one recommended by the author of the "Tree Rose," nearly two years must elapse between the first selection of the stock and the effectual growth of the new plant. My plants have passed only four months and a half between their natural and their complete artificial condition. Nor have I had more failures than in general occur to the budders on the approved plan; and I find no difficulty in trying the same stock a second year in case of a failure, as I have but to cut off a few inches in autumn and trust to the formation of a new shoot next spring. I have thought this year of carrying on the same process with a difference. I mean to bud during August and September as usual, having headed back some of my straightest wild Roses, in order to have plenty of fine young shoots of this year's growth for budding on; but, instead of taking them up next February, I shall let them stay till February, 1848, and then, if spared, remove them. The advantage of allowing this length of rest is, that I shall have the full growth of the wild stem in its native locality, and shall transplant the budded Rose when it has acquired growth and vigour to stand the removal. The only chances against me are these, the interruption of mischievous or dishonest persons, and the chance of destruction by cattle. The first I can avoid, by budding in one of my fields which is retired from any thoroughfare. The second I can scarcely fear, as few cattle like to interfere with even the tenderest leaves of a briar. Like my native Thistle, each of my budded Roses may say, "*Nemo me impune lacessit.*" I have to acknowledge my great obligations to the author of "The Tree Rose." The remarks of the author respecting the time of day for budding I have found very use-

ful. The whole process of Rose budding seems to me so simple, that I doubt not the universal introduction into cottage gardens of the most elegant and delicate French Roses, and their exclusion of the Daffodil and the Polyanthus.—*Ockham Rectory, Surrey.*

Polmaise Heating.—I have to acknowledge my misconception of Mr. Meeke's train of reasoning, in which, however, I do not appear to have stood alone; and I may add that the designation of radio-thermal system which he adopted as distinctive of the Polmaise method of heating, helped to lead me away from the clear perception of his views and meaning. It appears to me that the designation radio-thermal is not only inappropriate, but misdirective, and calculated to put in doubt (without cause, I admit) the correctness of Mr. M.'s views. In their correctness, as I now understand them, I have no difficulty in concurring with respect to the superiority of air over water in the property of conducting or distributing heat; and I think the subject is susceptible of a very apt illustration from the hot water tank system, not only on account of the identity of principle in both, but from the general resemblance its details bear to the Polmaise arrangements. If Mr Glendinning, who appears to be well versed in everything connected with the hot-water system, will view it for a moment in this light, it may help to modify, if not remove, his objections to the Polmaise method. We have a body of water to be heated, occupying an extensive area; and it is readily accomplished by means of a small boiler communicating with the tank by a flow and a return-pipe. Mr. G. would never expect to succeed so well by applying the fire directly to the body of the tank. On what, then, does the effect depend but on the circulation brought into play by means of the flow and return-pipes. The Polmaise method is precisely similar to this. Substituting air for water, the small chamber in which the stove is placed is the boiler; the hothouse is the tank, and the under drain is the return-pipe by which the circulation is effected, and the heat rapidly diffused through the body of air in the house in the same manner that it is diffused through the water in the tank, with this difference only, that the effect will be produced sooner in air than in water, by the degree in which the particles of air possess greater mobility than the particles of water. Mr. Glendinning will perceive, then, that the objection which he makes on the ground of the current of air being made to descend or move in a direction contrary to its natural tendency, has really nothing in it. The descending current is merely one side of the circle, or revolution, which the moving air describes, and depends on the position of the heating body. In Mr. Shearer's arrangement, the heating body is placed in front of the house, and the ascending current is near the glass, and the descending at the back of the house; but the principle does not differ from Mr. Murray's, at Polmaise. I have not adverted to the draft through the stove, which powerfully increases the current, though I believe at the expence of a considerable portion of heat. This, I am inclined to think, lies at the foundation of Mr. Glendinning's objections to the Polmaise system, from the manner in which he refers to his own practice of making his house tight, and excluding the entrance of cold air. But I do not consider it essential to the system, the principle of which remains the same, though all communication with the interior of the stove be cut off. Mr. G.'s own hot water practice may be taken and shown that it may not only be made consistent with, but greatly improved by engrafting on it the Polmaise principle. Let the annexed figure represent a hothouse closed as perfectly as possible against the entrance of the external air; T, section of a hot-water pipe running along the whole front of the house, and communicating with a boiler and furnace outside, which have no connection with the interior of the house; let the pipe be surrounded by a case C, open at both ends, and communicating with one or more under pipes or drains D. No change whatever is made in Mr. G.'s hot water arrangements and practice, but the house is now on the Polmaise principle, much to its benefit in having a healthy circulation of air, while the heat is more rapidly diffused through every part of the interior.—*J. H. H.*



[The length of this communication has compelled us to omit a portion of it, relating to the name of radio-thermal. We keep to that of Polmaise, which does not involve any question worth discussing.]——I have no experience in forcing, but I have some with domestic stoves; and I venture to say, a fuel-hopper, such as represented at p. 181, will not answer. Materials so coarse and angular of any sort of fuel will choke the narrow part at the bottom. The proper form is nearly a cylinder, only widening a little downwards—thus giving at all times free descent to the fuel, and perfectly obviating the occurrence dreaded by Mr. Glendinning (p. 185), the burning out of the fire. Walker, of Oxford street, Birmingham, has adapted to his patent stoves for domestic use such a hopper as I have mentioned, with entire success; and I think his stove (with modifications) would be found a good one for Polmaise heating. As constructed by him, the cavities for heating air surround the hopper, and rise rather too high for convenient use in heating a forcing-house; and the requisite modification would consist in placing the air-cavities and smoke-flue in the horizontal, instead of the upright, position, leaving the hopper only upright. On his plan, the quantity of fuel in a state of ignition is always the same; the quantity of air admitted being regulated at pleasure by a hand-valve; and the temperature produced nearly equable, while the valve continues unaltered. Self-regulation, on Dr. Arnott's principle, could easily be adapted, however, if a still more perfect equability were thought requisite. The hopper is filled by means of a large funnel, which is then removed, and the top is closed by a cover fitting into a sand-joint. Walker's price-list has an engraved section of his stove, showing clearly the arrangement of fire-place, fuel, hopper, &c., which will, I think, enable any tolerably mechanical head to judge how far, and with what modifications, it might be usefully adapted to the purposes of forcing.—*S. P. W.*

Virginian Nightingale.—In reply to the query (p. 152) "Whether the Virginian Nightingale was ever known to sing in this country?" I beg to say that I possess one that sings a great deal, and I have had several others at different times that have done so. They generally continue in song till the latter end of summer, when they begin to moult.—*A Subscriber, Yorkshire, North Riding.*

Snow a Substitute for Ice.—Having written to you some years ago about the preservation of snow as a substitute for ice, and which you published, I may just state that the whole plan has continued to answer most admirably. In the present season many are, no doubt, entirely without ice; in this part of the country there has been none. Two days ago we had a considerable fall of snow; and on uncovering the heap, to renew it, I estimated that the remainder of last year's stock could not be less than 100 cart loads. The plan may, therefore, be recommended with the most perfect confidence.—*John Wilson, Millichope Park.*

Repair your own Glass.—The following process of removing hard putty from the astragals of sashes, &c., may be useful, for by it no risk is incurred of extending the breakage. Heat the bolt of an Italian iron, or that which is commonly employed by plumbers in soldering, and draw it gently along the putty until the heat of the iron softens it. By this means much labour will be saved, and putty, which the chisel and hammer could scarcely clear off without injury to the astragals, can be softened so as to be easily removed by the gardener's knife.—*P. Lowen, Fingask Castle, Perth.*

Kitchen Garden Cropping.—It may be an interesting fact to record that at our Norfolk and Norwich Horticultural Exhibition last year, a cottager residing at Baxton, in this county, raised four crops of Potatoes on the same piece of ground in that year. He has just written to me, under authority of Rev. Mr. Jarvis, the clergyman of the parish, to say that he intends this year to grow four crops of four different sorts, on four distinct pieces of land, four times. As I can certify to this man's production of Potatoes last year, I shall be happy to let you have any further information.—*Chas. Gilman, Norwich.*

Destruction of Wasps.—I have practised the following method for five or six years with the greatest success; it destroys them in a few hours effectually, without danger and with little trouble:—Anoint the entrance to the nest with gas tar, which prevents the wasps from taking wing or flying any more. Those entering are also disabled from returning, and a few hours completely disables the whole colony. I have many letters of thanks from apiarians in this neighbourhood, who have experienced the benefit of my method, which is equally good for hornets' nests in hollow trees and in buildings.—*W. Buck.*

Weekly Prices of Potatoes per ton, in *Covent Garden Market*, in 1845, and 1846.

	1845.			1846.	
March	1	50s. to 70s	Feb.	28	70s. to 160s.
	8	50 90	March	7	70 170
	15	50 90		14	70 170
	22	60 100		21	70 180
	29	60 100		28	70 180
April	5	60 90	April	4	70 180

Also at the waterside, *Southwark*.

March	3	55s. to 80s	March	2	50s. to 120s
	10	55 80		9	60 140
	17	55 80		16	60 140
	24	55 60		23	60 140
	31	55 60		30	60 140

Societies.

CALEDONIAN HORTICULTURAL SOCIETY.

We formerly gave (p. 186) an account of the prizes awarded at the spring meeting of this Society, and shall now briefly mention the substance of the communications read on that occasion. There were two on the improvement of boilers for heating fruit and plant houses by means of hot water, each illustrated by a model. The first, by Mr. Christie, gr., Dundas Castle, recommended an oblong square vessel, the top, sides, and back of which formed also the top, sides, and back of the furnace. The fire has thus full play on every part of the surface of the inner area formed by the boiler. The water between the plates varies from 3 to 6 inches in depth, and is therefore soon heated for circulation. The other communication was by Mr. R. Macintosh, of Edinburgh, who exhibited a model taken from a boiler now in use at Dalvey, in Morayshire, the seat of N. Macleod, Esq. It also is so constructed as to have the full benefit of the fire; and, indeed, resembles in every respect the form recommended by Mr. Christie, except in its being rounded both on its upper and under surface, the rounding being calculated to give additional strength, and also to simplify the construction.—A letter from Mr. Murray, gr., Taymouth Castle, was read, giving an account of the restoration to health of a Shaddock tree by means of what he styled under-grafting. The tree had been all but killed by some animal completely eating off the bark and alburnum of the stem for the space of some inches. Mr. Murray planted a seedling Orange tree, three years old, in the same tub with the Shaddock, and afterwards cut the top off the young Orange tree, and inserted the point of the stem into the Shaddock above the wound, when a union was soon effected. Into the opposite side of the tub he stuck the shoot of an old Orange tree, and grafted the upper portion of this shoot into the stem of the Shaddock, at two places, or both above and below the wound. These nurses, by the transfusion of their sap, evidently assisted the Shaddock in recovering its vigour.—A letter from Mr. Gow, of Tulliallan Castle, mentioned his having observed at Rochampton, in 1823, a disease in the Potato crop, similar to that which now prevails. In regard to the general culture, Mr. Gow gave it as his opinion that our farmers in general are not sufficiently attentive to the breaking up or the pulverising of the soil before planting; being often satisfied with ploughing in autumn, and giving a turn or two of the harrows, before making the drills for planting in the spring. He thought that the planting is commonly too long delayed, and that it ought to be accomplished by the end of March, and not left till the middle or end of April. He condemned the way in which the seed-tubers are frequently managed, when, after being cut into sets, they are thrust into large bags, and allowed to stand for several days till wanted at the field; thus they are apt to get heated, and to lose the power of vegetating, or to be capable, at best, of only producing enfeebled shoots. Seed-tubers, he observed, whether cut or uncut, ought always to be kept in a dry well-ventilated place till required for planting. In the storing of the crop he recommended the forming of long narrow heaps, with a good covering of earth, but using no straw, and selecting a cool shady place. He added that a farmer near Tulliallan had successfully employed drain-tiles for ventilating his Potato pits. The next communication consisted of an account of experiments on the culture of the Jerusalem Artichoke (Helianthus tuberosus), by Mr. Morrison, agricultural foreman at Golden Acres Nursery. The experiments were made on several rows of equal lengths, being about 60 yards each. The tubers were planted in March, 1845, in the ordinary soil of the nursery garden, which is a light sandy loam. On one row the experiment of topping, or cutting over the stems, was tried. This row was divided into four portions. The first portion was cut over, 1 foot from the ground, on the 8th June; the next portion was cut on the 2d July, 1½ feet from the ground; the third on the 20th July, at 2½ feet; and the fourth on the 17th September, about 5 feet from the ground. The produce of the first and second portions was equal; that of the third and fourth considerably better; but, on the whole, the topping, instead of producing any advantage, proved injurious to the crop; the weight of tubers produced on the entire row being only 144 lbs.; while another row, immediately adjoining, being left uncut, yielded 163 lbs. of tubers. Neither of these rows had guano or any other manure applied to them. A third row had 8 ounces of Peruvian guano applied to the surface of the soil, when the shoots were 3 inches tall, and this row afforded 188 lbs. of tubers. A fourth row, at the same stage of growth, had 8 ounces of guano put 1 inch deep into the soil, near the roots of the plants; and the produce amounted to 210 lbs. of tubers. This last, therefore, is the most advantageous mode of applying guano to such a crop.—Professor Balfour communicated an extract of a letter from W. F. Campbell, Esq., of Islay, describing flower-pots formed out of very porous peat moss. These pots are found exceedingly useful in the raising of all sorts of rare seeds, as well as others that are more common, such as Russian and German Stocks, Asters, &c., intended for transplanting. The roots penetrate the porous sides and bottom of the pots, and the plants may be lifted about at pleasure, without suffering from the change. When it is wished to add manure to any plant growing in one of these pots, the pot is dipped in the following mixture, which Mr. Campbell recommends as an excellent fertiliser:—1 gallon blood, 2 lbs. of sulphate of soda, 10 gallons of cow-house drainings, and 9 gallons of water.—A communication from Mr. Street was read, on the acclimating of exotic plants. Mr. Street, enjoying a very favourable situation at Biel, near Dunbar, has been in the practice, for about 30 years past, of saving the seeds of various exotic plants generally regarded as tender, but which ripened their seeds in the open air with him, and he has succeeded in rearing successive generations of several of them. For example, the Cedar of Goa (Cupressus lusitanica), perfects its seeds and sows itself on the open border; and last year Mr. S. gathered nearly two imperial bushels of cones from one old plant. Edwardsia microphylla, as a standard, ripens its seeds, and has sown itself. Lavatera triloba, a native of the coast of Spain, grows about 10 feet high, and has yielded

10 ounces of clean seed in one season, and often sows itself. Pancratium illyricum generally perfects its seed, and several self-sown plants endured the hard winter of 1845 without protection. Narcissus Tazetta (or Polyanthus-Narcissus), also ripens its seed, and from these Mr. S. has obtained numerous seedling varieties.—Mr. R. Melville, of Glasgow, exhibited to the meeting a curious sun-dial, calculated to indicate, at the same moment of time, the hour of the day at nearly a hundred different and distant places.

New Garden Plants.

21. Sedum Kamtschaticum. Kamtschatka Stonecrop. *Hardy Perennial.* (Houseleeks.) Soongaria.

A handsome herbaceous plant, with yellow flowers like those of Sedum Aizoon, which it much resembles in habit. The leaves are obovate and toothed at the upper half only, but they narrow in a wedge-shaped manner to the base. They are red edged, and the stem has also a strong stain of that colour; most of them are alternate, a very few only near the summit being opposite to each other. It requires a light soil and dry situation. It is easily increased by cuttings any time during the summer or autumn, and flowers from June to August. It proves to be a fine showy plant for rock work, where it blooms freely and remains long in succession.—*Journal of the Horticultural Society.*

22. Rhynchospermum jasminoides. Jasmine-like Rynchosperm. *Greenhouse Climber.* (Jasmineworts.) Shanghai.

A slender climbing evergreen shrub, rooting along its branches, wherever it touches a damp surface, like Ivy. When wounded, its branches discharge a milky fluid. The young shoots are slightly downy; the leaves opposite, oval, deep green, quite smooth, sharp pointed, with minute scale-like glands in the place of stipules. The flowers are white, deliciously sweet-scented, and produced in small irregular corymbs on the ends of peduncles considerably larger than the leaves. Their calyx consists of five narrow smooth convex sepals, rolled backwards, and much shorter than the tube of the corolla, with a very shallow-toothed glandular ring surrounding the base of the latter. The corolla is about three quarters of an inch long, pure white, salver-shaped, contracted in the middle of the tube, with a partially spreading border, whose five divisions are wedge shaped, truncate, and twisted obliquely. The anthers are five, arrow-headed, placed just within the orifice of the tube, and separated by five slightly elevated hairy lines. The ovary consists of two separate carpels, and is surrounded by five oblong green emarginate hypogynous scales, which sometimes are slightly united at the edge. The structure of this plant is not precisely that of the genus Rhynchospermum, as given by M. Alph. De Candolle, for the scales beneath its ovary are not exactly united into a cup. But they are partially so; and as there is no other difference as far as can be ascertained from the plant in a state of flowering only, it may be referred to the genus. In habit it is more like an Aganosma, but its corolla has not the taporing lobes of that genus, nor do the nectary or stigma correspond with it.—*Journal of Horticultural Society.*

Garden Memoranda.

F. G. Cox, Esq., Stockwell.—The chief feature of attraction at this place is its small but good collection of exotic Orchids, which is, however, about to be increased, and a new house for their accommodation is being built. This is a span-roofed erection of about 30 feet in length, 11 feet in width, and 11 feet in height. The south side and ends are glazed with ground plate glass, with a view to equalise the light by excluding the too powerful rays of the sun in the summer time, and thereby obviating the necessity of using shades. It may be mentioned, however, that this sort of glass is only employed by way of experiment, and that some doubts are entertained as to its answering perfectly the end in view. The north side is glazed with plate glass, and the panes on this, as well as on the south side, are 18 inches in length and about 7 inches in width. Two hot-water tanks of galvanised iron, 3 feet in width, 25 feet in length, and 9 inches in depth, are being put up on each side of the house, with a path up the centre. The tanks are not connected one with another, and they have no division in the middle, the flow-pipes leading the water from the boiler, discharging themselves in the end of the tanks, near the surface of the water; and the returning currents being conducted back to the boiler by pipes, placed in the ends of the tanks level with the bottom. In some arrangements we have seen in which the tanks were not divided, the pipes conducting the water from and to the boiler were fixed in the end of the tank at the same level; but this is evidently a mistake, inasmuch as the colder water, or returning current, at the bottom of the tank, does not meet with a ready egress, and can only be made to rise to the outlet at a greater expenditure of fuel than is required in the above arrangement, or is compatible with the economical use of fuel, of which it is always desirable the most should be made. These tanks are to be closed in with slate slabs, on which about two inches of sand is to be laid, on which the plants are to be placed. The boiler is one of Weeks's tubular boilers, which, besides heating this new house, warms an Orchid house about 20 feet in length, and two greenhouses of nearly the same size. In another Orchid house we observed a contrivance for supporting large Dendrobiums at exhibitions, or in drawing rooms. This was in the shape of a wire stand, painted green, in which the pot is placed at any desired height from the ground, with a fancy frame-work spreading out from the rim of the pot, something in the form of an umbrella; over this the shoots are neatly disposed, so as to exhibit the blossoms to the best advantage. All the plants looked clean and healthy, but few were in bloom, and the whole place was in good keeping, much to the credit of Mr. Don, who is gardener there.

Miscellaneous.

Death of Mr. Wickham.—On Monday last, at Winchester, aged 77, died W. N. Wickham, Esq., the founder and secretary of the Hampshire Horticultural Society, distinguished by his love for gardening, and respected by all the members of the Society for his zeal and urbanity. He was a chief instrument in sustaining it during many difficulties, and we hope the members will be equally judicious in the selection of his successor. On the exertions and discretion of their officers the success of such societies is chiefly dependent.

Price of Orchids.—As our readers may be interested in seeing what the prices are which imported Orchids are now fetching, we subjoin the amount paid for some of the more remarkable lots sold the other day by Messrs. Stevens:—Cœlia macrostachya, 2 plants, 5*l.* 15*s.*; ditto, 2 fine plants, 10*l.*; ditto, very fine specimen, 12*l.* 10*s.*; ditto, 6 plants, 7*l.* 5*s.*; white-flowered ditto, distinct species, 8 plants, 7*l.* 5*s.*; Lælia acuminata, 2 plants, 2*l.* 8*s.*; Sophronitis pterocarpa, 3 plants, 2*l.* 17*s.* 6*d.*; Mormodes (?), from a new district, may possibly be pardinum, 2 plants, 5*l.*; Cœlia (?), supposed to be the white-flowered species, fine specimen, 8*l.*; Epidendrum, new species, (?), 6 plants, 2*l.* 15*s.*; Cycnoches maculatum (?), 1 plant, 4*l.* 15*s.*; Lycaste cruenta, fine specimen, with Epid. aurantiacum attached, 5*l.*, Arpophyllum, supposed to be giganteum, very fine mass, 10*l.*; ditto, distinct species (squarrosum) 15*l.*; Barkeria spectabilis, splendid mass, 6*l.* 5*s.*; ditto, 1 plant, 17*l.*; Epidendrum rhizophorum, fine mass, 2*l.* 4*s.*; Lælia superbiens, a most magnificent specimen, in fine health, 15*l.*; ditto, fine specimen, 13*l.*; Arpophyllum, new species, in robust health, 1 plant, 10*l.* 10*s.*; Sobralia macrantha, two magnificent specimens, in fine health, 10*l.* 10*s.*; Odontoglossum, new, with an Isochilus, and Epidendrum Stamfordianum, 5*l.* 5*s.*; Odontoglossum, 3 plants, 5*l.* 15*s.*; ditto lævo, 2 plants, 5*l.* 12*s.* 6*d.* Total amount of sale nearly 600*l.*, for 108 lots.

Manuscript of Linnæus.—A daily paper states on the authority of the *Frankfort Gazette des Postes*, that an unpublished work of Linnæus has been discovered in Sweden after having been long sought in vain. It is entitled the "Nemesis Divina." In this labour of the last years of his life the great naturalist recorded, for the instruction of his son, a number of observations and facts, deduced, in a great measure, from the private life of the persons with whom he was acquainted, in order to demonstrate that Divine justice punishes and rewards even in this world. The manuscript is composed of 203 sheets. In a short preface, placed at the head of the work, the author recommends in the most formal manner that it should never be published. It was this recommendation which, no doubt, caused the manuscript to be laid aside and forgotten. The University of Upsal purchased it a short time since at the sale of the library of a physician, whose father was employed to arrange the papers of Linnæus. At present, when the persons referred to in the work have ceased to exist, there remains no objection to print extracts from it, which M. Fries, the well-known Swedish botanist, has been appointed by the Academy to prepare for publication.

Immense Natural Beehive.—We are indebted to the courtesy of a correspondent for the following extract from an American paper. It reminds us of an instance of an enormous collection of bees found in a Spanish house, and related by Capt. Waddrington, c. 542, 1841.—In a cavern on the right bank of the Colorado, about 7 miles from Austin, there is an immense hive of wild bees. The entrance of this cavern is situated in a ledge of limestone, forming a high cliff which rises almost perpendicularly from the river bank to the height of about 150 feet from the water's edge. This cliff fronts partly on a small stream named Bull Creek. The mouth of the cavern is about 10 feet from the top of the cliff. In a warm day a dark stream of bees may be constantly seen winding out from the cavern like a long, dark wreath. The stream often appears one or two feet in diameter near the cliff, and gradually spreads out like a fan, growing thinner and thinner at a distance from the cavern, until it disappears. The number of bees in this cavern must be greater than the number in a thousand or ten thousand ordinary hives. The oldest settlers say that the hive was there when they first arrived in the country; and it is quite probable that it existed in the same state many years previous to the settlement of this country. The bees, it is said, have never swarmed, and it is not improbable that the hive has continued for more than a century to increase year after year, in the same ratio that other swarms increase. The cave appears to extend back many rods into the ledge, and probably has many lateral chambers. The bees, doubtless, occupy many of these lateral chambers, and it is not improbable that new swarms annually find new chambers to occupy; and thus they are prevented from going off to a distance in search of hives. Some of the neighbouring settlers have repeatedly, by blasting the rocks, opened a passage into some of these chambers, and procured, by this means, many hundred pounds of honey. But the main deposits are situated too deep in the ledge to be reached without great difficulty, and perhaps danger. A company was formed at Austin, a few years since, for the purpose of exploring the cavern and removing the honey; but some untoward event prevented the accomplishment of the undertaking. It was estimated that there are many tons of honey and wax in this immense hive, and if its treasures could be extracted readily, they would doubtless be far more valuable than the contents of any silver or gold mine that adventurers have been seeking for years in that section.—*Texas Telegraph.* [Where is the difficulty?]

CALENDAR OF OPERATIONS.

(For the ensuing Week.)

CONSERVATORIES, STOVE, &c.

Propagation by cuttings is one of the most important parts of the gardening profession; and the principles on which it is based should be constantly present to the mind of the operator. Selection of wood may be termed the first point. The wood, as a general principle, should be short jointed, somewhat mature, and for plants in an active state, possessing leaves perfectly developed. The due care of the leaf (on which so much depends), is the next great object; this should never be allowed to flag or droop, from the moment it is taken from the mother plant. Hence the propriety of using striking glasses, which although inclosing a somewhat vitiated atmosphere, prevent any undue perspiration in the leaf; which circumstance is of more importance than the character of the atmosphere. In making cuttings, the more of sound healthy leaves that can be retained the better, provided they can be carefully preserved; but in order to find room for the crowding multitudes of modern plant-tops, it often becomes absolutely necessary to reduce these organs. In doing this there is no occasion to strip the cutting like a hedge Poplar—every stump of a leaf, and even footstalk that can be left without crowding the adjoining cutting, contributes its quota to the success of the cutting. *Conservatory.*—Under this head I will say a few words about the Camellia. Those who desire to have this noble plant in blossom from October until May, which is quite easy, must of course force their plants into wood successively. If a given stock were divided into three portions, and one portion subjected to this process in February, a second in March, and a third in April, this object would be thoroughly accomplished, provided the subsequent treatment was what it ought to be. The limits of a calendar will not permit me to enlarge on these points sufficiently; I will, however, state that my Camellias, which can be excelled by few, are in a house by themselves, and are now growing like Willows. They have a canvas screen on the roof continually at present, and are syringed three or four times a day; in fact, they are almost constantly moist. They have a temperature of about 65°, with a circulation of air day and night. Abundance of weak and tepid liquid manure has been given them all the spring; but the moment they cease to make wood, I subject them to a considerable amount of drought at the root; still syringing and shading. The use of liquid manure is resumed as soon as the blossom buds are of a decided character. *Stove Plants and Orchids.*—Both heat and moisture may now be increased in a corresponding ratio to stove plants in general; but, above all, abundance of atmospheric moisture of a permanent character. Have shading always at hand, to ward off intense sunshine for an hour or two in the day. Use liquid manure constantly to stove plants in general. *Mixed Greenhouse.*—Amongst the various dressy flowers which should find a place here, a shelf, or portion of the house, should be reserved for some of the free blooming Hybrid Roses. Cuttings of these struck last summer, and kept through the winter in store pots, will, if potted immediately and put under high cultivation, make nice bushes for next autumn and the ensuing spring. They should be got forward in doors for a month, and, when established in 5-inch pots, receive their final shift at once. All blossom buds should be kept pinched off through the summer, if intended for winter or early spring bloom. Cuttings of young wood struck now will flower nicely late in the autumn, provided they are duly cultivated. Encourage afternoon or evening warmth, but give air freely all the early part of the day. Take care to fumigate little and often in all plant-houses or pits, provided the green-fly makes its appearance.

KITCHEN GARDEN FORCING.

Pineries. Secure good linings to those in dung-pits. The young stock will now be in rapid growth; take care to air them most freely night and day, by all means, if the thermometer can be kept above 60°. In the afternoon, however, syringe and shut up at 90°, if possible, for a couple of hours, when a sash or two may be tilted for the night. Swelling Pines will, of course, now require liberal waterings of warm liquid manure; it will be found beneficial, perhaps, to let soot-water alternate with the stronger ammoniacal mixtures. Those who can find time should syringe the surface of their tan slightly, both morning and evening. It is absolutely impossible to possess too much atmospheric humidity in the average of Pine structures at this period. *Vineries.*—Those who started at the earliest period of forcing will soon have Grapes in their last swelling. A very erroneous notion (at least in my opinion) prevails with many folks, that in order to produce well-coloured

Grapes, the laterals, at a given period, should be reduced so as to admit the sun to shine on the berry. The most powerful sunshine will not colour Grapes in perfection, unless the Vines possess a fair proportion of leaf, with a safe and steadily acting root. Some of the blackest Grapes I have ever seen, and possessing the finest bloom, were in situations in which I might almost say the sun's rays never shone on them. *Peach-house.*—Nothing fresh at present. Carry out the maxims of former Calendars. See that the trees are in a wholesome state of moisture at the root. *Melons, Cucumbers,* &c.—Give free airings all the early part of the day, partly in order to facilitate the "setting" process. As long since asserted by Mr. Paxton (in spite of gardening traditions), tropical fruits require a dry and lively atmosphere in order to promote fecundation.

FLOWER-GARDEN AND SHRUBBERIES.

Those who force Neapolitan Violets, should, for the next three weeks or a month, propagate a stock, either by cuttings or runners. Young stock of choice Pansies, of last autumn's striking, should now be got out in the Flower-garden beds, or on borders. If the soil is in any way exhausted, a little fresh should be put in every hole; viz., such as old rotten loamy turf, mixed with old leaf soil, a little soot, and a little coarse sand. Too much manure may enlarge the blooms for awhile, but soon renders the plant unruly. Sow Sweet Peas and Mignonette. If the former are required early, soak them in warm water for six hours previous.

FLORISTS' FLOWERS.

The late severe frosts have much retarded vegetation, and where former directions have not been attended to, some injury has been the result. The water which is apt to lodge in the cavity formed by the advancing Tulip leaves, ought to be scrupulously removed, as at this season it is of the first importance that every part of the plant should be dry when frosts occur. It appears that the best means of preventing injury from hail-storms, so prevalent at this season, is to keep the beds covered with nets of a small mesh, but these should be sufficiently high to prevent the plants being drawn. *Ranunculuses* are now beginning to make their appearance above ground; as they advance, it will be a necessary precaution to keep the soil well round the crown of the plant; when this is neglected, the bloom is sure to suffer; though if the surface of the bed is composed of sand to the depth of half an inch (as before advised), there will not be much danger. In consequence of the severity of the late spring frosts, it will be advisable to throw mats over the beds, unless they are in very sheltered situations. *Auriculas.*—Take especial care that the frames are well covered during the night; should the expanding blossoms receive a check, they become in florist phraseology "set," and they will have great difficulty in expanding their flowers. Seedlings will now be blooming in the more southern counties; see that they come up to the standard as laid down by Emmerton, whose work, though objectionable in some respects, gives a tolerably correct idea of what a good Auricula ought to be. Look back through the few past Calendars, and lose no opportunity of bringing forward work there recommended.

KITCHEN GARDEN AND ORCHARD.

Follow up sowings of Peas, Beans, Radishes, Horn Carrots, Salading, &c. according to directions in last Calendar. Rampion beds may now be sown; a light, sandy soil suits this, in common with most of the Campanula family. Sow a little Hamburgh Parsley, some early Beet, Purslane, &c., and look well after some good and forward seed-beds of Celery. That sown early in boxes will soon want pricking out. The old plan is very good, viz., some very rotten and mellow dung, on a sound bottom. On this, the plants, pricked 3 inches apart, will produce many fibres, and will remove with the trowel, in balls, with the most trifling amount of check. The chief reason why Celery "bolts" (if I may be allowed a rough technical term), is when sudden luxuriance is succeeded by sudden checks. The "buttoning" of the Cauliflower is wholly traceable to the same cause, as also premature fructification in many other plants. *Orcharding and Fruit Trees in General.*—Do not forget to take all the wasps possible: this is most important. Now is a good time to use sulphur, mixed with soft soap and clay, as a paint, daubing it with a brush between the Peach, Nectarine, or Pear shoots to prevent the breeding of the red spider.

COTTAGERS' GARDENS.

Let all Potato planting be finished by the middle of this month at the latest, at least those of the late kinds intended for seed for the next year. If the Potato is degenerated in constitution, it is undoubtedly through high manuring and late planting. The very early kinds, however, as Ash-leaved Kidneys, &c., should not be set too early for seed, or the probability is, that they will lose their first sprout; the end of April is a good time for this purpose. Let all Potatoes for seed be planted on high, airy, and unshaded ground; boys, if possible, and without a particle of manure. Break away all Rhubarb stalks running to seed; cover Scakale springing with a mound of soil, if not done before. Those who possess good sticks should sow a row of Cormack's British Queen Pea on a rich ground; they will continue bearing all the autumn.

FORESTING.

Weeds will soon begin to bestir themselves among the young forest-trees, whether in beds or rows; let these have early attention; some watering will, perhaps, be necessary here. Seeds when once disposed to germinate, must receive no stoppage. Shade tender or newly-planted stuff with Fir boughs. Fill up all cart or other roads; level ruts, and make a thorough clearance.

State of the Weather near London, for the week ending April 9, 1846, as observed at the Horticultural Garden, Chiswick:

Mar.	Moon's Age	Barometer. Max.	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain.
Frid. 27	●	29.720	29.784	58	27	42.5	S.W.	
Sat. 28	1	29.577	29.505	52	27	39.5	W.	.07
Sun. 29	2	30.097	29.807	57	35	46.0	W.	
Mon. 30	3	30.116	29.858	54	30	42.0	E.	
Tues. 31	4	29.706	29.606	62	41	51.5	S.	
April								
Wed. 1	5	29.591	29.468	62	45	54.0	S.W.	.03
Thurs. 2	6	29.694	29.182	59	40	49.5	N.W.	.06
Average		29.894	29.603	57.8	35.0	46.4		.16

Mar. 27—Clear; fine; clear; frosty at night
28—Slight haze; very dark haze in forenoon; clear; frosty
29—Hazy clouds, cloudy and fine; clear
30—Fine, with slight haze; cloudy; clear
31—Slight dry haze, clear and fine
April 1—Fine; cloudy; fine; slight rain at night
2—Cloudy and showery; boisterous at night
Mean temperature of the week 1 deg. below the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending April 11, 1846.

April	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 5	56.1	37.0	46.5	9	0.56 in.	—	3	3	1	2	3	6	2
Mon. 6	58.4	36.6	46.5	7	0.18	2	5	2	—	4	6	1	—
Tues. 7	57.7	37.8	47.7	9	0.40	2	4	2	2	1	7	2	—
Wed. 8	56.3	36.2	46.2	6	0.30	1	4	4	—	2	4	3	1
Thur. 9	54.8	36.4	45.6	9	0.28	3	3	5	—	2	3	3	1
Fri 10	55.0	34.0	44.5	7	0.26	1	5	4	1	2	3	3	1
Sat. 11	55.2	35.4	45.3	9	0.51	2	4	2	1	1	7	2	1

The highest temperature during the above period occurred on the 5th, 1839—therm. 74°; and the lowest on the 11th, 1844, and 6th, 1845—therm. 22°.

Notices to Correspondents.

To our Correspondents.—We have every wish to oblige you by answering all questions relating to the subjects treated of in this Journal, but we must entreat you to be reasonable. We have had before us a letter containing 17 questions, upon as many different subjects, every one of which have been either answered repeatedly, or can be determined by a very cursory glance at our columns for the last month; and we regret to say we have many such cases. To spare time or space for answering these demands is impossible; it is not fair either to ourselves or our readers. Correspondents should, in common justice, only apply to us for information upon points which they have previously taken reasonable pains to examine for themselves in documents accessible to every body.

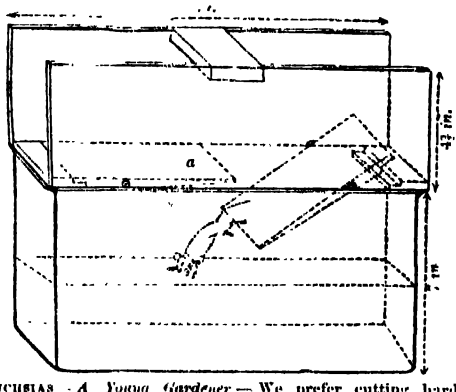
The Third Edition of PAXTON'S COTTAGERS' CALENDAR being exhausted, a New Edition is preparing, and will be ready in a few days.

Charcoal—*F L C* This owes its excellence either to its absorbing ammonia and then parting with it again to water, or to its decomposing and giving rise to carbonic acid, or to both.

Ferns—*E S*—We do not believe that there are so many as four dozen hardy Ferns. Procure Newman's book on Ferns, which will give you ample information.

Fire Mortar, &c.—*C M S*—"Alpha," p. 118, recommends the use of strong loam, mixed with a small quantity of good lime; but another correspondent, p. 150, thinks that this will not stand in a high heat, and says that pipe-clay, or Potter's clay mixed with a quarter of coke dust will stand high heat without cracking. For fish ponds use hydraulic cement, fresh made, such as can be had of Messrs. White and Co., of Milbank. For garden walls, fresh burned Dorking lime and sharp river sand is best.‡

Mice—*Alpha*—We should say that in your case the best trap would be a pitfall, such as is described at p. 126 of 1842, and of which the annexed cut is the representation. Place this in their track or run, and you will probably catch the whole drove.



Fuchsias—*A Young Gardener*—We prefer cutting hardy Fuchsias either quite down, or very close in, because they seldom preserve their stems in the open air in a sufficiently sound state to produce vigorous branches. If, however, the main stem is quite sound, finer plants may be obtained by closely siding in the branches than by cutting the stems to the ground.

Fungi *J M T*—We had always imagined that the notion that Peziza tuberosa sprung from the roots of Anemones was unfounded, but we are staggered at the fact of its growing in a garden amongst *double* Anemones. We have begged Mr. Berkeley to draw up something on the subject. He informs us that the black body from which it springs is to be found some months before the Peziza makes it appearance, and it is possible that this sclerotioid mass may spring from the root of the Anemone.

Glazing—*Juba*—Make your laps the width of ¼ inch, unless you prefer dispensing with them altogether, as is sometimes done when sheet glass is used. It is needless to putty the laps of a greenhouse. It is most absurd in your adviser to say that crown glass is dearer than sheet; it is exactly the reverse. For upright sashes it is better, because it is cheaper; their relative prices are as 7 to 9.

Heaths, &c.—*S P*—A list of greenhouse plants to keep up a succession of bloom throughout the year has been given at p. 4. The following six Heaths flower in May: Persicum nana, Cavendishii, ventricosa coccinea minor, ampullacea vittata, Hartnelli, and Linnæoides superba; depressa, jasminiflora alba, ampullacea, Irbyana, eximia, and Savileana, flower in July, and Cliffordiana, cruenta, Altoniana, and rupestris, flower in September.‡

Insects—*L S*—It is the young Thrips which infests your Cucumbers and French Beans. If you cannot suppress them by fumigating with Tobacco or sulphur, it is to be feared that you will not get rid of them by any other means. *R.*—*Entomologicus Junior*—The caterpillars that ate your feathers are the produce of one of the clothes moths; Tinea sarcitella possibly; but until they are bred, we cannot be certain of their specific name. *R.*—*An old Sub*—We cannot get your stick-caterpillar to feed, and unless we could breed the moth, it is difficult to say what it will change to; possibly Cerura vinula.

Names of Plants—*A Dorsetshire Country Gardener* should write in ink, not pencil. His plant is an Orobanche, but what species it is impossible to tell in its shrivelled state.—*Martha*—Rosa Lawrenceana.—*O P*—Some kind of Yam.—*J D L*—We do not recollect the Cactus, nor can we determine a species by the flower only.—*T L*—Thanks. We are not acquainted with either of the seeds. Neither name is mentioned in the copious Indices of the Vegetable Kingdom. *Bignonia Amarilla* seems to be a true Bignonia; *huelo de noche blanco* may perhaps be some Chenopod. The Horticultural Society has received a few of the Mexican Potatoes, and we shall see how they will turn out.

Phloxes *W E*—The following are late flowering kinds (July to September): they grow about 18 inches in height, and should be planted about 2 feet apart; P. tardiflora, white; Brownii, crimson; picta, lilac striped; Van Houttei, striped purple and white; reflexa, deep purple; omniflora, white; and Coldreyana, bright red.‡

Potatoes—*Killycomaine*—Mr. Shepherd commenced operations in the autumn, as we have stated. As he digs up his Potatoes, steeps them, dries them, and replants them, on the same day, the steeping cannot occupy more time than an hour or two. Salt and water will answer the same purpose we presume, if there is really any advantage in the steep. Salt and water is fatal to Potatoes that are to be stored; but it does not follow that it will hurt them when placed in the soil and set a growing. The best plan now to pursue is to adopt Mr. Shepherd's plan at once; to take up the seed-beds and replant them on some fine day next autumn, so as to provide for 1848, and at the same time to leave so much of the seed-beds undug as will provide seed for 1847.

Rhubarb—*Rheum*—In making wine from this, use the leaf-stalks, and proceed *exactly* as if you were making Gooseberry wine.

Roses—*A B*—For planting a sloping bank no Rose is so good in regard to effect as the common China, and it is the hardiest of all.‡

Wild Flower Garden—*Anne*—What is it that you propose to make? We do not clearly understand the term. If you mean a wilderness, why then the most likely means of accomplishing your purpose is to raise a variety of plants from their seed, to put them out indiscriminately, and leave them to nature. Hypericum calycinum will soon choke up all other things, unless they are as strong as Thistles, and will effectually prevent all seeds from springing up among its branches. We never heard of a shrubby Impatiens.

Wine *Rhombus*—Dr. M'Culloch's little book on Wine making explains the whole subject so well and fully, that we see no advantage in our taking up the subject. We can but repeat what he has said. The best wine Grapes are the Early Black July, Miller's Burgundy, and Black and White Cluster Grapes. The Black Hamburgh is good for nothing.

Misc. *N A P B* 1st. Camellias repotted in July, or at any other period, should be potted with the roots untouched, unless they are in bad condition; if so, remove the loose soil, thoroughly wash the roots, and repot in smaller pots if possible; treating the plants as cuttings for a month afterwards. 2d. The pots may be plunged in a bed of peat-earth, if a reason exists for doing so; I should prefer them on stone slabs however, the slabs kept moist. 3d. "Particular drainage" may be of several kinds; such, however, as will at all times cause the water to issue through the pot-bottom the moment after the plant is watered, may be considered for general purposes sufficient. "Unctuous loam" may be either yellow or brown; is of an adhesive character, possessing a slight inclination to clay. The residue from heating ovens would be good, although not pure charcoal; the finer particles should, however, be rejected. 4th. Guano: I am not prepared to say how much guano I use to a gallon; mine is mere "rule of thumb" work; a handful to a large water-can of water will, however, do no harm, if perfectly clear. 5th. If your Camellias are to remain where they are plunged, no potting will be needed in July or August; they will, amongst plenty of peat, fight for themselves. If, however, you wish to remove them, do it when they have done making their annual growth, and treat them as cuttings, in a close and damp atmosphere for a month after; shifting them at the same time, and keeping a shade on the house or pit, night and day, for that period. 6th. Greenhouse-sashes may either lift up or slide; either plan will answer. 7th. In giving air in warm weather, it signifies little whether by door or sash. Air without draught is the maxim with gardeners; a little thought will soon master this matter. 8th. The improvement of Rose, or other seeds, by keeping, is very problematical in the present state of science; one thing is certain, the young seedling is scarcely so gross in habit. I would sow directly, and rely on well-contrived crosses to improve the old stock. *E.*—*T H*—Your Aloe is or has been suffering from wet and cold; it will probably die.—*Sub*—There is no certain remedy for mildew. Rapid currents of air are as likely as anything to stop its progress, and want of ventilation to promote it. Bones are broken by mills made for the purpose; you are right in supposing that they must be crushed before mixing with sulphuric acid.—*W L*—Put your Fuchsia-leaf into a warm Cucumber frame, and expose it to all the light you can. We cannot tell by the seeds whether Antirrhinums will be white edged. Gentiana asclepiadea is quite hardy; sow the seed on peat, in the manner recommended in a Leading article to-day.—*A Walker*—Archangel tar remains sticky for a long time, and is apt to run in a very hot sun unless it has been applied for some years. We hardly expect much advantage from steeping timber in lime-water.—*C H*—Hart's Everlasting Rose is no doubt the Rose of Jericho of the old herbalists, a full account of which was given in our volume for 1842, p. 363. It is not a Rose at all, but a little gray leaved annual named Anastatica hierochuntina, having no resemblance to a Rose.‡

SEEDLING FLOWERS.

Camellias—*Eton*—Your seedling is of little value, and is not sufficiently good to send out. The best state of the flower is before it is fully expanded, when the irregularity of the centre petals are partly hidden. This part of the flower is very defective; the petals also are thin and not perfectly formed on their edges.*

Cinerarias—*J K*—The colour of your seedling is common, and the petals very narrow and flimsy; it is very inferior to those generally grown.*—*Y*—Of your specimens, 3 is not a pure white—it has a stained and dirty appearance; 4 is a showy variety, with the flowers rather irregularly formed; 5 is the best, being well formed and of a pleasing light crimson colour.*—*A B*—No. 1 is too small—it is inferior to sorts of the same colour in cultivation; 3 is too narrow in the petals; 4 is a pleasing variety; 2 is the most novel, being a crimson tip, upon a delicate lemon ground.*

AGRICULTURAL SEEDS.—

Large White Belgian Carrot	.. ..	1s. 6d. per lb.
Large Red Altringham	do.	2 6 ,,
Large Guernsey Parsnip	.. .. ..	1 6 ,,
Long Red Mangold Wurzel	.. .. ..	1 0 ,,
Long Yellow	do.	1 0 ,,
Globe Red	do.	1 0 ,,
Globe Orange	do.	1 0 ,,
Sutton's Large Red	do.	1 8 ,,

Spring Vetches, St. John's Day Rye, Clovers, Kohl Rabbi, Lucerne, Furze, Broom, True Italian Rye Grass, &c. &c., at lowest market prices, as see Messrs. SUTTON'S Priced Catalogue just published.

PERENNIAL GRASSES,

Selected from the best natural Pastures, and mixed in proper sorts and quantities to suit the soil for which they are required, 1l. 12s. per acre.—*See Descriptive* TABLE OF GRASSES *just published.*

JOHN SUTTON AND SONS

Have much confidence in offering the above kinds of Agricultural Seeds, as being the best sorts in cultivation, and all of the growth of 1845.

Reading Seed Warehouse, Reading, Berks, April 4.

CLARK'S METALLIC HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.

Proprietor, Mr. THOMAS CLARK.
Superintendent of the Works, Mr. JOHN JONES.

IN returning his grateful thanks to the Nobility, Gentry, and Public at large, for their liberal patronage of the above Establishment during a period of nearly 30 years, Mr. CLARK begs to state that the repeal of the duty on Glass, enables him to offer his METALLIC PITS and GREENHOUSES at a greatly reduced price. These Houses are glazed with British Sheet Glass, in panes of from 24 to 30 inches in length, and of such thickness as to preclude all danger of accidental breakage, whilst that which arises from the action of frost (frequently amounting to 25 per cent. per annum), is effectually prevented by the peculiar mode of glazing adopted. As a sample of his Metallic Hothouses, in which all the most recent improvements are happily combined, Mr. CLARK refers with pride and satisfaction to the magnificent range erected by him in the new Royal Gardens at Frogmore, which is admitted by all competent judges to be the most complete and perfect of its kind in the world.

The Agricultural Gazette.

SATURDAY, APRIL, 4, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

THURSDAY, April 9—Agricultural Imp Soc. of Ireland.
THURSDAY, — 16—Agricultural Imp Soc. of Ireland.

LOCAL SOCIETIES.—E. Forfar—E Cumberland.

FARMERS' CLUBS.

April 6—St. Columb — Newark — Great Oakley — Wenlock — W. Market — Cirencester — Yeaford Ruminster—Selby	April 9—Grove-ferry
— 7—Rochford Hundred—Framlingham — Watford — Jedburgh — Abergavenny—Wivelscombe—Weston Bissett	— 10—Northallerton—Chelmsford —Hadleigh — Lichfield — Wakefield—St. Germains
— 8—Harleston — Braintree and Bocking	— 11—Dartford — Wimborne — Cardiff—Northampton
— 9—Richmondshire—Tavistock	— 13—W. Hereford—Bakewell
	— 14—Dorking — Lewes — St. Peters
	— 16—Binfield and Waltham
	— 17—Wadebridge

By an oversight we last week, while speaking of GUANO, committed a great act of injustice to Messrs. MYERS and Co., of Liverpool, for which we hasten to apologise. Instead of saying that Peruvian Guano should be obtained directly from the importers, Messrs. GIBBS and Co., of London or Liverpool, it should have been "from the importers, Messrs. GIBBS and Co. of London, or Messrs. MYERS and Co. of Liverpool." We trust that this correction will prevent all mistake, for there is not the smallest difference in the respectability of these two great houses, who divide the privilege of importing Peruvian and Bolivian Guano between them.

THE MALT TAX produces somewhere about 5,000,000*l.* a year; that is to say, it forms more than one-third of the excise, and nearly one-tenth of the whole revenue of this country. This vast source of supply has for many years been a bone of contention between successive Governments and the agricultural interest, many persons of eminence in which have been of opinion that the repeal of the Malt Tax would be a prodigious advantage to farmers. We now find that this question is revived; it has already been raised incidentally in the House of Commons, and the Anti-Malt-tax Association, which had slept for some years, has been once more roused into action, for the purpose of applying the screw to the CHANCELLOR OF THE EXCHEQUER.

Two principal reasons are given why the Malt-tax operates prejudicially on the farming interest: the one is, that labourers would be better off if they could make their own malt and brew their own beer, or, in the absence of that, could buy it cheaper; the other is, that farmers themselves would be greatly benefited if they could use Malt for fattening cattle.

To the first of these statements no possible objection can be made; there is no doubt that labouring men are very heavily taxed in beer, and that it would be a great social as well as personal advantage to them if it were otherwise.

The second opinion is one upon which men's minds are not so generally made up. If malt is really a material upon which animals fatten much better than on Barley, it would of course be highly important to find some means of enabling farmers to use it; on the contrary, if it is no better, or worse, then the only ground for throwing away a vast source of revenue would be the gain of cheap beer. The present Ministers appear to have felt the importance of the question, and have most judiciously decided upon trying it by the test of direct experiment; in which they certainly have shown no disinclination to assist the agricultural interest. We learn, from an official paper just laid before both Houses of Parliament, that a very extensive and most important inquiry has been instituted by order of Government, with a view to the decision of this great question; and we trust that future Ministers will, in all such cases hereafter, follow the example thus set by Sir ROBERT PEEL.

When a man says that malt is a better food than Barley, it is equivalent to saying that four pecks of corn will fatten an animal sooner than five; for in the process of malting Barley loses on an average one-fifth of its nutritive contents. This is evident to any one who knows that the process of malting consists in making Barley germinate, and in afterwards breaking off the sprout. Whatever that sprout may be it is formed out of the materials in the Barley; when the sprout is removed, the grain is so far impoverished; and what is of great importance it loses in this operation a portion of its nitrogen; as much, indeed, as a third on an average. A man would, therefore, say *à priori* that malt is a worse kind of food than Barley. But it might, nevertheless, be proved in practice that much more is gained by the change of starch into sugar than is lost by the abstraction of a fifth of the organisable materials of Barley; and the prevailing opinion in favour of malt, founded upon its occasional use in bringing horses into condition, and upon the action of "grains," might be correct. It was for the purpose of determining this point that the experiments to which we have just alluded were instituted.

We find that in the spring of last year Dr. THOMSON, Professor of Chemistry at Glasgow, one of the most sagacious, learned, and honest of European chemists, and his nephew Dr. R. THOMSON, were authorised to purchase cattle, and commence experiments. These were carried on till the 20th of last February, and are now before the country in the form of a most elaborate report of 112 folio pages. It is impossible for us to go much into the details of these experiments; we can only say that we have read them attentively, and that in our judgment they have been conducted with all possible precautions against accidental error. The results are as follows:—

The first subject of inquiry was into the relative effect of Barley and Malt on the milk of cows.

"We procured two young cows, from Ayrshire, of the best breed of milk cows in Scotland. They were selected by Mr. Tennant, a large farmer at Shields, near Ayr. They had calved about six weeks before we got them, and they were supposed to be in calf again."—"Our object in getting two cows was to feed the one with Barley and the other with Malt, and observe what effect the food would have upon the milk and butter of each. But it became soon evident that the constitution of the two cows was so different that no fair conclusion could be come to by that mode of proceeding. We were obliged, in consequence, to give the same food to each, and to draw our consequences from the effects produced upon both. At first we gave the cows the Barley and the Malt entire, after they had been steeped for some time in hot water; but we soon found that it was better to grind them into meal, and to digest the meal in hot water."

"The result of the experiments is placed under the form of the following Table:—

	Brown Cow.		White Cow.	
	Milk. lbs	Butter. lbs.	Milk. lbs.	Butter. lbs.
I. Grass.. ..	26·604	0·735	21·868	0·516
II. Barley ..	20·420	0·7075	20·108	0·355
III. Malt	19·341	0·6332	20·417	0·6749
IV. Barley ..	22·610	..	22·000	0·790
V. Barley ..	23·187	0·791	21·763	0·678
VI. Molasses ..	20·558	0·730	22·703	0·654
VII. Malt	19·710	0 682	21·585	0·591
VIII. Barley ..	19·396	0·675	20·088	0·565
IX. Linseed ..	20·280	0·734	20·244	0·711
X. Linseed ..	20·814	0·687	20·814	0·682
XI. Bean Meal..	19·590	0·755	19·582	0·755

"These experiments leave *no doubt that Barley is more nourishing to cows than Malt*; at least, as far as the production of milk and butter is concerned."

A second report upon a further series of experiments, devised to ascertain the relative value of various substances as food for cows, is closed by the following important statement of the conclusions to which such experiments lead.

"The views which we have been discussing of the difference in the chemical composition of Barley and malt are sufficient to render it obvious that malt is a *much more expensive substance, irrespective of duty*, than Barley for feeding, inasmuch as it is in reality Barley deprived of a certain portion of its nutritive matter and salts. The only advantage which it seems to hold out in cattle feeding, is the relish which it gives to a mash; but as this depends entirely upon the sugar which it contains, and which has been produced from the starch of the Barley, it is obvious that the same flavour may be imparted by the addition of an equivalent amount of Molasses or sugar, should it be considered expedient. But we have always found steeped Barley to be highly relished by cattle. Malt, however, from the diastase it contains, has the power of speedily converting the starch of barley into sugar; a handful of malt would be sufficient to saccharise several pounds of Barley in the steep. The quantity required in this case would be so small as to obviate any necessity for a change in the duty."

And again—

"In the Miscellaneous Table No. 3. we have collected the amount of butter produced by five kinds of food during periods of five days each. But previous to these trials, thus arranged, the largest quantity given by the brown cow was under the Grass regimen. The first five days of the experiment yielded 4.93 lbs. of butter, after which the quantity diminished to the last five days of the trial, when the quantity yielded amounted to 3.75 lbs., a proportion not superior to what was produced in some of the subsequent experiments. The same law does not appear to hold with reference to the diminution of the butter as pertains to that of the milk, when the food has been continued for some time. We find, on the contrary, frequently the amount increasing towards the close of the experiment, even when it is continued for 10 or 15 days. The largest amount of butter was afforded in the brown cow by crushed Barley. During the third series of five days the amount was 3.935 lbs.; Bean meal gave the next greatest quantity, 3.69 lbs. in five days; then comes Barley and Linseed, 3.689 lbs. during the first five days; Barley and Molasses, 3.63 lbs.; and malt, 3.60 lbs. In the case of the white cow the quantity was—Beans, 3.76; Barley and Linseed, 3.421; crushed Barley, 3.376; Barley and Molasses, 3.26; and Malt, 3.126. With both animals we observe that malt is lowest in the scale, a fact which seems in some measure to militate against the idea of the origin of the butter being in the sugar of the food."

The last subject of inquiry was the value of malt in fattening bullocks.

"Two lean bullocks were procured, supposed pretty similar in their constitution; they were about three years of age each, the progeny of the same sire though by different mothers. We shall distinguish them by the letters A and B. The weight of bullock A, 9 cwt. 7 lbs.; B, 10 cwt. 106 lbs.; so that B was 211 lbs. heavier than A. They were both fed with the same food, both in kind and quantity; the only difference was that a certain number of pounds of Barley were given to the one and the same weight of malt to the other. By some preliminary trials it was found that Barley and malt alone could not be given as food; when it exceeded a certain quantity, they began to loathe it, and left it unconsumed. We found hay indispensable. At first they got it *ad libitum*, the amount being ascertained before it was given the bullocks, and the residue uneaten carefully weighed, and its weight deducted from the original weight. It was soon found that the weight consumed very seldom exceeded 15 lbs. During a considerable part of the experiments that was the quantity actually given the bullocks. B ate more hay than bullock A, but bullock A ate a good deal of the straw employed for bedding, while bullock B never touched the straw. How much straw bullock A ate could not be ascertained, but it probably compensated for the inferior quantity of hay consumed by that bullock. We began with 6 lbs. of Barley to bullock A, and 6 lbs. of malt to bullock B, which was speedily raised to 9 lbs., and then to 12 lbs., beyond which we could not with safety go. The hay consisted chiefly of the dried stalks and leaves of the Lolium perenne; sometime there was a mixture of Clover. It was observed that the Clover was always left untouched, while the Lolium was eaten."

"The hay consumed by bullock A, from the 1st to the 15th October inclusive, was 312.7769 lbs., and that by bullock B, 311.75 lbs., or very nearly the same by each. Bullock A consumed 198 lbs. of Barley, and bullock B the same weight of malt. I conclude that the relative fattening value will be proportioned to the increase of weight of the bullocks.

	Increase.	
	A. Barley.	B. Malt.
	lbs.	lbs.
From 1st to 4th October	3.	36.
,, 4th to 8th ,, ...	83.5	26.
,, 8th to 14th ,, ...	22.5	28.5
	109	90.5

"Here the bullock fed on Barley increased in weight 109 lbs., while the bullock fed on malt increased 90½ lbs. This shows a decided superiority of *Barley over malt* when employed, weight for weight, for fattening bullocks."

In another trial—

	A. Barley.	B. Malt.
	lbs.	lbs.
From 8th to 12th November	21	16
,, 12th to 15th ,, ...	18	6
,, 15th to 22d ,, ...	16	22
	55	44

After a time the bullocks became ill, and the experiments were interrupted. They were again renewed, occasionally with conflicting results; but

after a trial of three months Dr. THOMSON was satisfied that Barley is *superior to malt*, weight for weight, as far as fattening bullocks is concerned. In conclusion he makes the following statement :—

"We thought it worth while now to try whether any difference would be perceptible if each bullock was fed for a week with Barley, and then malt substituted, the other articles of food remaining unchanged. Bullock A was fed for a week (from 17th to 23d January), on the following articles of food :—

Hay	78.8716 lbs.
Malt	70.
Oil Cake	6.75
Good Turnips	98.
Bean Meal	6.75
	256 37

"The food of B during the same time was—

Hay	92.79 lbs.
Barley	70
Oil-cake	6 75
Good Turnips	98
Bean Meal	6 75
	274 29

"The result was—

A (malt) increased in weight	9 lbs.
B (Barley) increased in weight	6

"The trial was repeated.

A (malt) increased in weight	4
B (Barley) increased in weight	24

"Here the Barley was found superior to the malt. In the first trial there was a slight superiority in the malt. The increase of weight after a week's feeding was now so small that I became sensible that the fattening process could not be carried farther in a cowhouse, and neither the season of the year nor the nature of the experiments made it possible to give them the superior influence of a Grass field. On consulting several experienced cow-feeders and butchers they assured me that the bullocks were in very good condition, and that I could not increase their weight much farther."

We make no further comment at present upon these extremely important papers. They contain other facts of great interest in cattle feeding, and we shall soon return to a consideration of them.

COMPLAINTS have been made that the forward CROPS OF TARES are suffering much in certain districts from a mould which entirely destroys the upper shoots, and in some cases appears likely to kill the plant altogether. We have had an opportunity of examining, in Huntingdonshire and Northamptonshire, very forward crops of Tares, which are affected in this manner, and of comparing the parasite by which the disease is caused with specimens communicated to the Editor of the *Agricultural Gazette*, and find them perfectly identical. The progress of the disease has been very rapid, establishing itself in the course of about eight days. The little parasite which produces it is figured in the "Journal of the Horticultural Society of London," under the name of Botrytis vicieæ, a species nearly allied to Botrytis infestans, with which the Potatoes of last year were attacked, but differing in its mode of ramification, in its threads being at length of a reddish grey, and in its spores not being apiculate. It is curious that the scattered plants of Wheat which accompany the Tares are also much affected by the true Uredo rubigo; indeed, to an extent which we have never before witnessed. The leaves are powdered all over with orange dust. We do not find the Wheat crops themselves, even the earliest, so affected. —*M. J. B*

SWEDES RAISED UPON BARREN LAND WITH ARTIFICIAL MANURE

"THE problem which I sought to solve is contained in the question—'Can we by supplying to the soil the constituents (so far as at present known) of a plant, cultivate that plant on any land, however in itself sterile?'

"The portion of ground chosen for the testing of the principle here implied was, as your lordship will recollect, situated in the parish of Sutton Waldron, in Cranbourn Chase, very steep, exposed to the south, but sheltered in some degree by the hills of which it forms a part, almost covered with white rubble, forming a portion of the 'upper chalk.' The precise spot, consisting of five acres, was selected because it appeared the most barren and 'unlikely' of any in the immediate neighbourhood. In truth, the endeavour to grow Swedes on such land appeared to all observers an *experimentum crucis*. So long as it lay in down, scarcely any herbage whatever covered this hill-side. On the failure of the hay crop in 1841, a party of poor men from Shaftesbury came to me soliciting employment. They were set to dig this piece of land, but the soil proved too thin and stubborn for the spade; they therefore, in their own phrase, knocked it over with the pickaxe. Twice in the season afterwards it was sown with Rape, but the produce was nothing. A soil of this constitution seemed a fair field for the experiment on a pretty large scale and in a *popular* way. I say 'in a popular way,' because to satisfy the requirements of rigid science, a strict analysis both of the soil and manure would be asked for, before any inference would be permitted to be drawn from the result. Yet for practical purposes it may seem enough to show that on land growing nothing a large crop can be raised by adding certain ingredients which the chemist tells us are necessary for the fruitful cultivation of that crop. Accordingly in the latter part of April, 1845, I determined on this hill, as above described, to see whether it were possible to produce a crop of Swedes weighing 20 tons per acre. To effect this object, chemical analysis, as given in Professor Johnstone's Lectures, acquaints us that there would be required for the bulbs and tops of such a return (*i. e.* for 20 tons of bulbs and 5½ tons of tops) inorganic matter weighing more than 500 lbs.; consisting of about 146 lbs. of potash, 76 lbs. of soda, 69 lbs. of sulphuric acid, 30 lbs. of phosphoric acid, 103 lbs. of lime, 22 lbs. of magnesia, 23 lbs. of chlorine 23 lbs. of silica, as well as a certain proportion of organic matters in the form of ammonia and carbonic acid. It was expected that if these were sufficiently supplied to the plant in its early stages, the remainder of the carbonic acid and ammonia necessary to the perfect Swede would be furnished, whether as Mulder affirms, from the decaying matter in the soil (especially the sawdust mentioned afterwards), or from the ammonia brought down by the rains according to Liebig. The quantities of inorganic substances above enumerated are not constant, but vary, as is well known, within certain limits, according to the soil; they must be considered only as an approximation to the quantities and proportions required.

"Now as potash and soda may to a great extent replace each other, I calculated that 30 bushels of wood-ashes would give those alkalies in sufficient measure. I made no provision for the alkaline earths, for the chalk soil would plainly yield lime enough; to this I trusted to replace the minute dose of magnesia demanded. The phosphoric and sulphuric acids would be found amply in the 2 cwt. of Ichaboe guano, 50 lbs. of burnt bones treated with 25 lbs of sulphuric acid in addition to the sulphates and phosphates contained in the wood ashes. The guano would also yield sufficient ammonia to the *young* Swede-plant; whilst two pot-load of sawdust already in a rotten state, having been fermented by pigs' manure and salt, would give out a constant supply of carbone, as well as conduce, according to Mulder, to the constant formation of ammonia in the soil. The great affinity of decaying sawdust for moisture would prevent the effects of drought so formidable to Turnips on our high chalk-lands. The opposite danger of excessive rains washing the manure away from the growing plants was guarded against by pouring over the guano and ashes employed 10 lbs. of sulphuric acid in a diluted form, thereby converting the highly soluble carbonates into the comparatively insoluble sulphates of ammonia and potash.

"In order that every portion of the manure thus calculated might, as far as possible, be duly apportioned to each plant, it was determined to bury both the seed and manure in holes at measured distances; but the looseness of the soil, filling up each hole as soon as made, defeated this experiment. The labourers were then instructed to begin at the highest point, and working downhill to strike down with their hoes small drills 2 feet apart. The manure having been previously hauled to the summit, a large wheelbarrow, loaded with a sufficient quantity for two drills, was wheeled down the interval between the two drills, and a handful of the contents placed at distances of one foot in each drill. Children followed dropping upon each deposit of manure three fingers full of seed mixed with fine soil, which served to prevent the manure from burning the seed. In descending the hill they trod on their work, and so buried both the manure and seed together. This operation completed the process; the only subsequent cultivation consisted in the singling by children of the Swedes as they came up in bunches.

"The issue of this experiment has exceeded my most sanguine expectations. Forty perches of the best part of the crop yielded of *clean* roots after the rate of 22 tons per acre, whilst 40 perches of the poorest gave 12 tons. On comparing the relative quantities of the heaviest and lightest produce, competent persons have estimated the crop at 21 tons per acre of clean roots, the samples of which were weighed in dry weather. Some of these when topped and tailed weighed 11 lbs., measuring severally 29 and 30 inches—many hundreds of them exceed 10 lbs. in weight. One remarkable circumstance presented itself to the observer. Between Swedes of 8 lbs and 5 lbs weight would be seen every now and then a starveling plant in bulb not bigger than a marble. This arose from the carelessness of the children, who occasionally dropped the seed at a distance from its appointed food. But the accident served to prove beyond all doubt at once the efficiency of the manure and the intrinsic poverty of the ground.

"When I began this experiment the men employed on it and every eye-witness who passed by smiled incredulously at what appeared at the time an act of well-meant folly—but *now* the success can no longer be denied, and the last refuge of scepticism betrays itself in the question so often put to me—'But what was the cost?' You may buy gold too dear.' Of course this is a most important part of the subject, and I rejoice for the sake of the labourer begging for work and the nation for food, that I can answer the inquiry most satisfactorily. Thus stands the cost per *acre* :—

	£	s	d
30 bushels of wood-ashes *at* 6*d*.	0	15	0
2 cwt of Ichaboe guano at 7*s*. 6*d*	0	15	0
50 lbs. of burnt bones and 25 lbs. of sulphuric acid	0	7	0
30 bushels of sawdust	0	2	6
Labour account in hoeing, drill, dropping seed (the surface of the land being otherwise untouched)	0	19	6
10 lbs. of sulphuric acid poured over ashes ..	0	1	3
Rent 5*s*., rates, &c., 2*s*.	0	7	0
Seed 5 lbs per acre, 1*s*.	0	3	6
A mare of horses hauling the artificial manure to the summit of the hill	0	7	0
	£3	17	9

"It will be observed that no charge is made for pulling the Swedes, because four or five tons per acre of green food (though some of the leaves were in a state of decay), which have with the addition of a little straw maintained a flock of 120 ewes for five days, must far outweigh that expense, and in truth ought to convey a considerable sum to the credit side of the account. I have thus given every item of cost that can be laid against 21 tons of Swedes per acre. The precise value of this root is, I am aware, an undecided question. In this neighbourhood I can sell them at the rate of 1*l*. per ton; but experiments made last year and others still in progress, lead me to value them at 9*d*. per cwt., *at the very lowest*—or 15*s*. per ton when employed in fatting sheep *in sheds* on boards; and this exclusive of the value of the dung made by the sheep under cover. Therefore I do not hesitate to express an opinion that to persons who know how to use *Swedes* they are worth 15*s*. a ton—an estimate which makes the crop worth 15*l*. 15*s*. per acre, at a cost of 3*l*. 17*s*. 9*d*., giving a return of more than 300 per cent. for the outlay.

"I hope that it will not be thought an instance of too rapid a generalisation when I draw from this experience the inference that with a *skilful* employment of labour, reliance on the principles of chemistry, and adequate capital, there is no soil, however poor, which will not abundantly repay the costs of cultivation.

"I am well aware that the estimate of '10*s*. a ton, or of 15*s*. at the very outside,' is that given in many books. Nor would I presume to express my own higher sense of their worth, but that continued experiments made by myself have left me no doubt on the subject. Will you permit me to observe that the want of accurate weights and measurements, and therewith of just valuation, is the great opprobrium of English agriculture. In this respect it is far less scientific than either the French or German. I have never yet met with a farmer who could tell me with any degree of exactness how much of food per day, an animal, whether sheep, or pig, or ox, will eat, under given circumstances of age, breed, condition, and shelter; and how much flesh he will put on by the consumption of so much food. Therefore I have determined to seek out the information for myself; and am prepared to prove, by repeated weighings of the food, that a full-mouthed south-down wether or ewe will, when confined to a shed upon boards, as in Journal V. Part 1, eat on an average from 16 to 18 lbs. a day of cut Swedes, with 1 pint of Oats and ½ lb. of Barley-straw cut into chaff and salted and that upon this food the animal will increase 3 lbs. in live weight per week. Now I assume that this live INCREASE (in a *full*-grown animal) is to the dead weight :: 4 : 3, because skin, head, bones, and entrails will be nearly a constant quantity—

	d.
Dead weight 1 of 4 lbs. 2 lbs 4 oz at 7*d*. ..	1 3½
Deducting 7 pints of Oats at 3½*d*., attendance 5*d* ..	0 4½
	0 11

"Thus 11½*d*. will represent the value of the Swedes consumed per week, that is 7 + 17 119 lbs.

∴ if 119 lbs 11*d*.
112 lbs. 10½*d*.

or a ton is worth 17*s*. 6*d*. *exclusive* of the manure.

"Nor, my lord, is this estimate unsupported by scientific authority. I beg to refer to an experiment detailed by Professor Playfair, *Agricultural Gazette*, p. 59, 1841—where it is shown that under certain conditions 100 lbs. of Swedes gave 3 lbs. of live weight. Also to the very interesting experiments of Mr. Curwen, in his 'Agricultural Hints,' showing that Mason's Leicesters, fed on Turnips, would make the crop worth 30*l*. per acre, meat being at that time 6*d*. per lb. in the year 1808.

"I confidently hope that you will excuse the length of this letter, as I am most anxious to secure the attention of the great agriculturists to this question—'What is the value of the Swede crop under given conditions?'"

[The above is a letter to Lord Portman from the Rev. A. Huxtable, of Sutton Waldron, Shaftesbury, in the "Journal of the English Agricultural Society."]

Mr. Huxtable furnishes the following postscript :—

To ascertain the Value of the Dung resulting from the consumption of a ton of Swedes by sheep under cover, eating a plot of Oats to every 17 lbs. weight of Turnips :—

The ash contained in one ton of Swedes ..	17 lbs.
The ash in the Oats is in weight about one-fortieth part of the grain, and as 75 lbs. of Oats will be eaten with the ton of Swedes ..	2 lbs. nearly.
The ash will amount to	19 lbs.
Now the whole weight of dung from Swedes will be about one tenth of weight of roots ..	224 lbs.
Weight of dung from corn is nearly one-half, therefore, from the Oats there will be ..	37 lbs.
or	261 lbs.

The nitrogen in this manure, according to Boussingault, "Economie Rurale," tome ii. p. 148, is one and one-tenth per cent. nearly, or in the above 261 lbs. will amount to 2⅞ lbs. nearly, which, at 7*d*. per lb. (its value when bought in good guano or sulphate of ammonia) .. .. 1*s*. 7½*d*.

The Ash, considering how large a proportion consists of potash and soda, &c., may fairly be estimated at 1¾*d*. per lb, or 19 lbs.	2	4½	
Nitrogen, as above	1	7½	
	3	11½	

"This being added to 17*s*. 6*d*. per ton as the value of the bulbs estimated by the amount of mutton they will produce, gives 1*l*. 1*s*. 3½*d*. as the whole value of a ton of Swedes consumed in the manner and under the conditions of the experiment."

ON LANDLORD AND TENANT RIGHTS.

At a late meeting of the Monmouth Farmers' Club, after an interesting lecture by Mr. Crawford on the

History of the Plants used in various Manufactures, J. G. George, Esq, made the following remarks on the above subject. He said,—Upon the temperate discussion of this question, and the clear understanding of the rights of Landlord and Tenant, as settled upon equitable principles, must chiefly depend the well-being of both classes. I wish, therefore, to call your attention upon the present occasion to the question of tenure. My object, as a landlord, is merely to raise the question, and to ascertain, as far as possible, from the practical farmers their opinion upon the subject. I am fully persuaded that the best chance for a landlord to obtain tenants with capital and skill, is to grant leases, say for 21 years; but before a landlord can be called upon to part with the control over his land for so long a period, he ought to be satisfied that the tenant has the required skill and capital. Now, I would call your attention to the fact, that the great bulk of the farmers in this part of the county of Monmouth, occupy small farms with small means, and I much doubt whether they would like to run the risk of binding themselves to pay a fixed rent for a long period of years. It may be asked—Why not turn three or four farms into one, and then offer leases of 21 years, and you will get a superior class of tenants? This may probably be the result, but then comes the important question—What will you do with the old tenants?—would it be right to deprive a great number of honest hard-working men of the means of getting a living? I am sure you will say, "certainly not." And I much doubt whether even if we could make arrangements to enlarge our farms, strangers to our soil would thrive amongst us, and I would quote the remarks of Mr. George Buckland, in his excellent essay "On the Farming of Kent," "Royal Agricultural Society's Journal," vol. vi. p. 283, upon this subject, as well worthy of your consideration.

"Amongst improvers of weald-clay land, Mr. Schreiber, of Henhurst Lodge, may be honourably mentioned. It is important to mention here, that when Mr. Schreiber commenced his improvements he brought with him most of the improved modern implements of the eastern counties, which, after repeated trials and untiring perseverance, he has by degrees almost abandoned, and has adopted the implements and modes of culture common to the district. This fact leads us to remark, whatever theorists may say to the contrary, how important it is that a man should practically understand the nature of his soil before he steps very far from the beaten path of cultivation. It is generally found that those who have been brought up to farming in the weald succeed much better than strangers."

My opinion is, that any lease for a less term than 10 years is a disadvantage to a tenant, as many landlords who grant leases, say for 7 years, consider they have a right to make a fresh bargain at the expiration of the term, and if the farmer has ventured to invest his capital in improving the land, he will run the risk of paying interest upon such capital in the shape of increased rent, and probably the same landlords would not on any account give a yearly tenant notice to quit, unless they had good reasons, such as great arrears of rent or negligent farming.

The farmers will probably say, "Having pointed out the difficulties in granting leases to us, tell us what system of protection you would propose for us if we are able and willing to invest our capital in permanent improvements of our farms." In reply to the question, I would state as my opinion that the best and most equitable system that could be introduced in this neighbourhood would be agreements by which the tenant's right to unexhausted improvements shall be fully provided for. This system has been found to answer exceedingly well in North Lincolnshire, and is also recommended by the Loughborough Agricultural Society, and I would direct your particular attention to two letters on this subject in the sixth vol. of the Roy. Ag. Journal, p. 44, the one by Mr. G. M. Williams, agent to the Earl of Yarborough, and the other by Mr George Stokes, and both directed to Philip Pusey, Esq.; and as probably some of my hearers may not have an opportunity of referring to these letters, I will, with your permission, read them, as they will fully explain the system which I venture to recommend to your serious consideration. And I would also call your attention to what Mr. Barugh Almack, in his Essay on the Agriculture of Norfolk, vol. v., Roy. Ag. Journal, p. 346, says upon this subject.

"Indeed, I would venture to submit, that if Great Britain were divided into three parts, and each let separately under one of the following agreements, all the land might be cultivated in the highest possible manner; for, although this division would allow each owner and each tenant to select the one agreement best suited to his own feelings, all would be so far founded on justice to the party who expended his capital for the improvement of the soil, as to insure the most liberal outlay of it.

"1st. Leases.

"2d. Insert a clause in the lease granted, under which the owner should have the power to cancel it, on giving 18 months' notice, and paying to the tenant such sum as two arbitrators (one for each party) should think a fair compensation to the tenant for his permanent improvements, bearing in mind all the circumstances of the case affecting landlord and tenant.

"3d. By giving the tenant a clause, under an agreement as a yearly tenancy, by which he would be entitled to a fair and equitable allowance, for all permanent improvements made at his expense, but with the sanction of the owner, on written notice of such intended improvements having been given to the latter or his agent, and not having been answered within a given period, or in time to prevent that outlay which the owner of the land would not sanction."

I have frequently referred to the "Royal Agricultural Journal," and I would earnestly request every farmer who wishes to go-a-head, carefully to peruse it. He will there find the very best system of farming different soils, clearly explained, and he will by a careful perusal of the valuable essays upon the agriculture of several counties in England, also discover what a vast improvement can be effected in the science of farming by energy and perseverance.

Before I conclude allow me to call your attention to a rock upon which many an industrious farmer has been wrecked, and just at the time that he has considered himself in smooth water. I mean the too great eagerness to get into a larger farm. I would caution every farmer before he much increases his farm, to calculate his increased liabilities, and clearly ascertain that he will be able to provide for such increase, not only in fair weather but in foul. Depend upon it that a farmer, in a moderate sized farm, with a few pounds at his banker's to meet his half year's rent, is much better off than he would be in a larger farm, with all his capital invested in his stock. In the former case it is true he has small interest, but it is certain, in the latter case, he may probably be compelled to sell, just at the time that he ought to hold, and these forced sales, by depressing the markets, not only injure the farmer himself, but his brother agriculturists.

Home Correspondence.

Manure Frauds.—I have for some time been of opinion that nothing will be effectual in putting an end to the gross frauds which daily take place in the artificial manure trade, except the appointment of some person as inspector of manures, whose sole business is to protect the interests of the agriculturists. There is not a respectable broker in the City of London who will not readily admit that more adulterations take place in artificial manures than in any other branch of trade, and the reason is this, that in this article the profits arising from such adulterations are greater, and the chance of being detected less, than in any other case. I have examined the nature of the cargo of so called guano, noticed by you last week, now lying in the West India Docks, and can state that such an article could be manufactured for 5*s.* or 6*s* per ton, and for this the owners are asking 11. 10*s.* per ton; *part has been sold*, the remainder will be probably applied to the soil in various parts of England in the course of a few months, without the slightest chance of the owners being called to account for having furnished a fraudulent article; and in the autumn we shall hear of farmers stating at the different clubs that guano is not a good manure, for they have tried it and have obtained no benefit from it. The loss which will fall upon the agriculturists in purchasing this one cargo would pay the whole expences of an inspector of manures for three years. But guano is not the only manure that is adulterated. Bones, nitrate of soda, soot, and every other substance used by farmers come in for a full share. And it is rather the exception than the rule when the farmer obtains the article that he pays for in a genuine form. The argument used by the dealers of manures in support of these adulterations is, that agriculturists will have these substances at so low a price that it is impossible to supply them genuine; but the fraud is in not telling the farmer that the article is cheap, because it is adulterated. If a farmer was told that nitrate of soda, as imported, was 16*s.* per cwt., and when adulterated with one third of salt it would be 12*s.*; and in this proportion; he would soon understand what to purchase. Boussingault, in his work on "Rural Economy," speaking of the adulterations in manures, says that in 1838, an inspector of manures was appointed by Government. While in England, with a trade in artificial manures infinitely superior in extent to what is carried on in France, the agriculturist is entirely unprotected. It is not the custom of the Government of this country to occupy itself with these matters, and the appointment of a person holding such an office must be carried out by the co-operation of private individuals whose interests are protected by it. If a sufficient number of agriculturists would signify to me their concurrence in the establishment of an inspector for London, I would draw up a statement of what I think to be the most effectual method of carrying out the plan, and would undertake all responsibility connected with it.—*J. B. Lawes, Rothamsted, St. Albans.*

Potato Disease.—I beg to forward a few plants of the Ash-leaved Kidney Potato, having the old and new tubers attached. The new tubers are perfectly smooth, and finely grown. I found, on opening the pit from which the sets were taken, that it was about a quarter diseased, although when the crop was pitted I could not discover any trace of the evil. The sets which produced the specimens sent were picked from among the diseased Potatoes in the pit, so that apparently no fear may be entertained of planting sound sets, even although they may have been selected from amongst diseased Potatoes. From the appearance of my crops under glass, I may with confidence state that there need be no fear that as good a crop of Potatoes as we have ever had in former years may be grown in the forthcoming season, provided the latter be favourable and choice be made of sound Potatoes for sets.—*P. Foy, Sandon Hall, Staffordshire, March* 25. [This letter is a good sample of what will happen when over-much zeal carries away the judgment. One of Mr. Foy's Potatoes was already diseased, and his haulm was distinctly attacked, as was shown by symptoms not to be mistaken. The young Potatoes were certainly fine ones, and that is all we can say.]——Having informed you about the beginning of this month that my frame Potatoes had escaped the disease of last year, and were in perfect health, I think it right to say that I have now reason to fear that I can say so no longer. There is a very conspicuous fungus on a piece of the old set which I inclose, that looks stouter and exhibits more filamentous roots than any which I remember to have seen before; but the specimens from the young tuber seem to be characterised by the same appearances of disease as those of last year.—*L. V. H., March* 30.

Potato Disease caused by Fungi in 1844.—When I sent you, a fortnight ago (p. 163), an account of the Potatoes which were grown in 1844, and not planted in the ground, but in boxes in sand, in November last, I stated that the produce was partly sound and partly diseased. After examining them, I left them at the top of the sand, and on examining them a day or two ago, I found those which appeared perfectly sound to be almost as bad as those which were unsound when taken up. In the summer and autumn of 1844 my attention was attracted to the unusual quantity of Mushrooms, as well as the variety of the fungus tribe, such as I never noticed before, and which were not visible last year; at any rate, if they were I did not notice them. The season of 1841 was also peculiar with respect to the Turnip crop, nor could I account for the failure, as it did not proceed from the ravage of the grub, or wireworm, or the mildew. I am led to suppose that the fungus attacked the Potato in 1844 at the time when so many of that variety appeared. Should a similar season recur, the fungus would be continued; but should it prove dry and warm, it is more than probable that the disease would disappear; but should it be as bad, or increased by an adverse season, the following one, if dry, would still eradicate the disease. Some people advance an opinion that the failure is occasioned by degeneracy, but if this was the case, they would have dwindled gradually, and not be attacked as they have been. It may be as well to remark, that those Potatoes which were grown last year without manure were the most free from disease, and which strengthens my belief of the existence of fungus. Will you kindly favour me with your remarks upon my opinion expressed in the above.—*Geo. Swan, Gamston, Retford, March* 30. [We have been, from the commencement, opposed to the fungus theory, not being able to reconcile it with the facts of the case; and we are every day strengthened in our opinion. As to our own views upon this unhappy subject, they have been so often given already, that we must refer our correspondent to former Papers.]

The Swedish Turnip a Substitute for Potatoes.—Under the gloomy prospect that the most perfect Potatoes used as sets are no security that the forthcoming crop may not be infected with the disease, I would beg to draw attention to the value of Swedish Turnips as a substitute, and to recommend their cultivation on the approaching season for next winter's consumption. Immediately I had found that in almost all the cottage gardens in this neighbourhood the crop of Potatoes had failed (not being a farmer), I purchased 10 tons of Swedish Turnips, which, being properly housed, are likely to continue for two months, at least, in good order. Some I have now given to my neighbours, who are very much pleased with them, and rather surprised to find them so good a substitute for the Potato; and I am sure, from their being so solid a root, that they contain much nourishment. In my own family I have not allowed a Potato to be used, and all my servants like the Turnips much.—*W. W.* [Swedish Turnips contain more sugar than common Turnips, and less water and gum. It is said, too, that their nitrogen is less abundant; but that does not seem to be clearly made out. That Turnips rank above Potatoes is shown conclusively by Mr. Solly's Tables, at p. 163.]

Landlords, Tenants, and Labourers.—A greater change has taken place in the relative positions of landlords, tenants, and labourers, than in any other ranks of the community. In former days amongst these different grades in the agricultural interest there was a reciprocity of feeling and good will [?] which banded them together in a manner at this time of day little understood. The proprietor of an estate considered himself the father of a large family, whose comforts and happiness it was as much his interest to look after as those of his own household, and such kindness was not lost upon those committed to his care, but was returned with ardour and affection, not by mere words, but by personal sacrifices (on both sides) which would be laughed at at the present time. The upper and middle classes have become more enlightened, and their condition has improved, but the labourer remains the same in body and mind, excepting perhaps that he may be less able to perform a day's work in consequence of low wages and scanty food. The application of science to the common emergencies of man, enable the landlord with ease, and at small expence, to leave his country seat for the amusements either of the metropolis or the continent; thus, during many months in the year, withdrawing his countenance and support from those persons dependent upon him. The tenant, from the facility of obtaining the accomplishments of education for his family, now holds his head higher, and looks upon his inferiors as merely fit for laborious occupation. It should, however, be recollected of what

service the working men are, and how essential and positively necessary their arms are to overcome all difficulties, both civil, military, commercial, and agricultural. We should not class them as mere machines to be used or abused as occasion may require. We should not grudge them fair wages, by which they can regain the strength they waste in our service; and we should not forget that money expended in labour brings in a high per centage. It is too much the custom to grind down the hedger and ditcher to the lowest fraction, taking advantage of an overstocked human market; but this is false economy and bad policy. If a horse is not properly fed, he cannot do his work as it ought to be done, neither can a human being! This fact appears to be acknowledged as to the quadrupeds; on a farm they are generally in better case than the bipeds. Putting the screw on is exceedingly injudicious; it destroys all neighbourly feeling and makes the servant denounce his master as a tyrant, and the master deem his man a slave. Although individuals living in different stations are not required to associate intimately together, which would be contrary to the desire of all parties, yet a kindness should exist amongst those who are dependent upon each other, irrespective of the sordid love of gold. But, on the contrary, I ask, is it not a common thing to hear the horrid expression of "the scum of the earth" applied to the lower orders of our brethren, made like ourselves in the image of our Maker. May we not, in a great measure, trace the depraved condition of the poor and ignorant to the neglect of both their moral and physical state, by those who are richer and better informed. Do the merchants and manufacturers ever ask themselves the following question? Have we, to the best of our power and ability, thought of the comforts and religious instruction of those to whom we are indebted for our wealth and luxuries. Do the landowners ponder on the opportunities they daily throw away in worshipping ambition, rather than in promoting the happiness of their people. The rich man often views his poorer neighbour too much in the light of a mechanical contrivance to carry out his schemes, taking little account of the moral responsibility attached to him as a master. It should be recollected that simply giving a man employment which is to turn to the profit of the capitalist is merely putting money out to exorbitant interest. The one party obtaining a bare existence, and the other enriching himself, and living upon the fat of the land. Wages will rise or fall according as there is a want or a superabundance of able-bodied men in the market, but it does not always follow that the articles they produce vary in the same manner. Therefore advantage should not be taken of lowering wages to the starving point. Then, again, the labourer has to contend with the weather. Suppose he receives in an agricultural district 12*s.* per week. It may be remarked, "Oh, these are capital wages!" so they are, if they continued all the year round; but what is the man to do if it rains, snows, or freezes? He is obliged to stop work, and the supply ceases; and how many bad days have we in our changeable climate out of the 310 on which a labourer toils? subtract them, and we shall find even at the best wages there will not be much for a family to live on for a twelvemonth, allowing the head to be in constant occupation, weather permitting: what must the case be where only 7*s.* or 8*s.* per week are received. The labourers' cottages are generally small, inconvenient, and out of repair, not admitting of sufficient accommodation to allow a separation of the sexes in a large family; in cases of fever or other contagious disease, the consequences are fearful. Where men, women, and children are huddled together, it cannot be imagined that their conduct will be very circumspect, or that they can live entertaining much respect for each other. Common humanity and decency call loudly upon landlords, and all persons owning small lodging-houses for husbandmen, to examine well into the state of this description of property, and cause alterations and additions to be made more in character with their own habitations; I mean that the working man, his wife, and children, should not be crammed together like pigs in a sty. I feel convinced that many noblemen and gentlemen are little aware of the wretched hovels which exist on their property, inhabited by the labourers.—*Falcon.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A MONTHLY COUNCIL was held at the Society's House, in Hanover-square, on Wednesday last: present, THOS. RAYMOND BARKER, Esq., in the chair; Sir John V. B. Johnstone, Bart., M.P.; S. Bennett, Esq.; T. W. Bramston, Esq., M.P.; W. R. Browne, Esq.; J. F. Burke, Esq.; Col. Challoner; F. C. Cherry, Esq.; J. Evelyn Denison, Esq., M.P.; H. Gibbs, Esq.; B. T. B. Gibbs, Esq.; S. Grantham, Esq.; C. Hillyard, Esq.; W. Fisher Hobbs, Esq.; W. H. Hyett, Esq.; S. Jonas, Esq.; J. Kinder, Esq.; F. Pym, Esq.; J. A. Ransome, Esq.; Prof. Sewell; H. S Thompson, Esq.; G. Wilbraham, Esq.; and G. H. Ramsay, Esq.

The following new members were elected:—

Greenfield, James, Brynderwyn, Usk, Monmouthshire
Johnson, T. C., Notton, Wakefield, Yorkshire
Lamothe, Frederick J. D., Ramsey, Isle of Man
Moor, J., Ackworth, Wakefield
Crosby, John, Kirk-by-Thore, Appleby, Westmoreland
Myers, Henry, Goldsborough, Knaresborough, Yorkshire
Maughan, William, Harewood, Yorkshire
Hannam, John, North Dalghton, Wetherby, Yorkshire
Firth, John, jun., Wentworth, Rotherham
Darby, George, Maskelye, Warbleton, Sussex

The names of 12 candidates for election at the next meeting were then read.

FINANCES.—The Report of the Finance Committee was read and adopted; from which it appeared that, at the end of the month just ended, the amount of stock invested in the public funds, in the names of the Trustees of the Society, stood at 7000*l.*, and the current cash-balance in the hands of the Society's bankers, at 1598*l.*—Colonel CHALLONER also laid before the Council the official return on the annual income of the Society, for which he had moved at a previous meeting.

PRIZE ESSAY.—Mr. PUSEY, M.P., chairman of the Journal Committee, transmitted to the Council the motto of the Essay on the "Drainage of Running Sands," to which the judges had awarded the Society's prize of 10*l.* for the best essay in that class; and the sealed motto-paper being opened by the Chairman in presence of the Council, it was ascertained that the author of the winning essay in question was Mr. William Linton, of Sheriff-Hutton, near York, who was declared by the Council to be the successful competitor for that prize.

NEWCASTLE AUTHORITIES.—The agreement between the Mayor and Corporation of Newcastle-upon-Tyne and the Royal Agricultural Society of England, in reference to the arrangements for the ensuing country meeting of the Society to be held at that place in the middle of July next, was received from Messrs. Clarke, Fynmore, and Fladgate, the solicitors of the Society; and having been read to the Council, and signed by the Chairman, the Great Seal of the Society was affixed to the document in the presence of the Council, and the Secretary authorised to complete the agreement by the addition of his signature in the name and on behalf of the Society, agreeably with the terms of the Charter.

NEWCASTLE LECTURES AND DISCUSSIONS.—Mr. THOMPSON then moved, agreeably with the notice he had given at the previous Council, for the appointment of a committee to make arrangements for lectures and discussions on agricultural subjects at the ensuing meeting at Newcastle. He stated that one of the main reasons that had induced him to make this motion was his conviction that, although the Society had been very successful in bringing together first-rate exhibitions of stock and implements, it had not yet succeeded in producing a free interchange of opinion amongst practical men, or anything approaching to adequate discussion on the disputed questions in agriculture- one of the principal arguments used to justify the laying out of so large a sum annually in premiums at the Show, having been that such outlay was absolutely necessary to induce practical men to assemble from distant parts of the country, and that when so assembled, they would assuredly both impart and receive benefit from intercommunication and discussion with each other. Mr. Thompson, however, need scarcely ask whether this expectation had been realised. In the Show-yard, or at the trial of implements, the little conversation that took place was, he believed, chiefly carried on accidentally, and between such parties only as were locally known to each other, from the circumstance of their having come to attend the meeting from the same county, or even from the same neighbourhood; whereas, he conceived, the object of the Society was to induce persons living at a distance from one another to practise different systems, and to compare their respective opinions, so that those who could satisfactorily show their practice to be the best, might induce others to follow their example, while they, on the other hand, might themselves be led to abandon such parts of their own system as could not rationally be defended against the advocates of other views. The arrangements which had already been made with a view to the attainment of that object, and the methods tried by the Royal Agricultural Society of England and other associations to render them successful, had been of three kinds, namely, 1. Lectures; 2. Discussions after dinner or breakfast (as practised by the Highland and Yorkshire Societies); 3. Sections: in the system followed by the British Association, where each of the great branches of science has a separate lecture-room allotted to it, in which papers approved of by a committee of selection are read, and followed by discussion. The plan first mentioned, that of giving lectures, though very useful in imparting to many the information possessed by the lecturer, was in Mr. Thompson's opinion, utterly inefficient in the equally important object of eliciting truth by the conflict of opinion and the comparison of facts: in other words, that discussion led to the acquisition of knowledge,—lectures to the diffusion of that already acquired. Attempts, he was aware, had been made to combine these advantages, by means of a discussion after the lecture, but in all cases that had come to his knowledge, that object had been defeated by the length of the lecture; the attention was fatigued by listening for an hour or even more; and with the exception of a few brief questions to the lecturer, the audience were found unwilling to recommence the subject. The second plan, that of discussions at table, though found to answer in cases where the numbers were limited to a moderate amount, would, he feared, be found impracticable on a large scale. The inconvenience of providing breakfast or dinner for a large and uncertain number of guests, and the difficulty of carrying on a discussion in a room large enough to accommodate 400 or 500 persons at table, were, he thought, sufficient objections to such an arrangement. The method followed by the British Association seemed best adapted to attain the object in view; and with some modifications, he thought the advantages of lectures might be combined with those resulting from the reading of papers and discussion. He considered that it would be one main point to have the lectures short, and to have it clearly understood that such lectures should be only the opening of the subject and commencement of the business of the meeting. These, however, he regarded as matters of detail only, which he would willingly leave to the committee; his main object was to obtain the sanction of the Council to the principle for which he contended, and the appointment of a committee for the purpose of working it out in its practical details. The following committee on this subject, agreeably with Mr. Thompson's motion, was then appointed, with instructions to report to the Council at the next monthly meeting, on the 6th of May; namely:

Lord Portman, President.	Henry Handley, Esq.
Duke of Richmond.	W. H. Hyett, Esq.
Lord Braybrooke.	G. Kimberley, Esq.
Hon. R. H. Clive, M.P.	C. E. Lefroy, Esq.
Sir Charles Lemon, Bart., M.P.	W. Miles, Esq., M.P.
Sir John V. B. Johnstone, Bart., M.P.	Philip Pusey, Esq., M.P.
J. F. Burke, Esq.	H. S. Thompson, Esq.
J. W. Childers, Esq., M.P.	W. Youatt, Esq.

The Council resolved that Mr. Pusey should be requested to accept the office of Chairman of the Committee.

ROTATION OF DISTRICTS.—The Report of the Committee on the Rotation of Districts for the Country Meetings of the Society having been read, Colonel CHALLONER, in the absence of Mr. Pusey, brought forward the motion of which Mr. Pusey had given notice at the last Monthly Council, on the inexpediency of holding a Country Meeting in the South-Wales District, in the year 1847, as originally intended by the Council, on account of the contiguity of that district to the one in which the meeting of last year was held at Shrewsbury, and of the total absence of that railway communication between South-Wales and the English counties, which the Council now regard as essentially connected with the success of the meeting, and the advantages to be derived from it by the farmers of the district. This motion having been seconded by Mr. S. BENNETT, was unanimously agreed to.

COUNTRY MEETING OF 1847.—That portion of the Report of the Rotation of Districts' Committee referring to the meeting of 1847, was then adopted; the schedule in reference to the districts proposed for the eight subsequent years being left for consideration at the next monthly meeting.

The district for the Country Meeting of 1847 was then declared to be that comprised by the counties of Northampton, Huntingdon, Bedford, Hertford, Oxford, Warwick, Berks, and Buckingham; and the Secretary was directed by the Council to communicate a statement of this circumstance to the authorities in each of the cities and corporate towns throughout the district. The Council also resolved, that the President should be requested to summon a Special Council for Wednesday, the 22d inst., at 1 o'clock, for the purpose of receiving memorials from the authorities of such cities or corporate towns in the district as were desirous that the Council should select one of their respective localities as the place of holding the Country Meeting of next year; and of referring the documents so received, with such instructions as the Council may decide, to a Committee for the inspection of the various sites proposed for the occasion by the authorities of the respective cities or towns making such application to the Council, by the date of that Special Meeting: the Committee to consist of the following gentlemen—

Earl Spencer	W. R. Browne, Esq.
J. V. Shelley, Esq.	B. T. B. Gibbs, Esq., or
T. Raymond Barker, Esq.	Humphrey Gibbs, Esq
S. Druce, Esq.	

The final decision of the question of the particular place of the Meeting for 1847 being left, agreeably with the bye-laws, to the Monthly Council, on the 6th of March.

PLEURO-PNEUMONIA.—Prof. SEWELL, at the request of the Council, reported on a communication received from Mr. Murray Blacker, in Suffolk, on the subject of the prevalence of the pleuro-pneumonia amongst cattle. Prof. Sewell and Mr. Simonds (Lecturer on Cattle Pathology at the Royal Veterinary College), had fully considered that communication, and were of opinion that the cases alluded to by Mr. Blacker as originating from the introduction among his stock of two newly-purchased cows, one of which became affected in one month and the other in two months after their purchase, were not the result of infection; for had infection taken place the attack would, in their opinion, have taken place in a few days. Prof. Sewell referred to the opinion he had stated on former occasions, that this disorder generally yields to early depletion, when recourse is had to that measure in due time.

Mr. D. ROBERTSON's letter "On the conditions under which it would be most desirable that the prize of the Society for thorough-bred Stallions should be offered," was ordered to be reserved for consideration until December, when the prizes for next year would be taken into consideration and decided.

Mr. AGNEW, of Manchester, presented to the Council a framed impression of one of the first-class proofs of his engraving after the painting of the "Country Meeting" of the Society, for which the Council ordered their best thanks to be returned.

Mr. BROWNE called the attention of the Council to sound new Potatoes grown by Mr. Fuller, M.P., in Sussex, from diseased Potatoes planted in frames.

Mr. HOLLAND, of Dumbleton Hall, presented copies of the form of lease proposed by a committee of the Vale of Evesham Agricultural Association.

The Council then adjourned, over the Easter Recess, to Wednesday, the 22d of April.

Reviews.

The Journal of the English Agricultural Society. Volume the Sixth. Part 2. J. Murray, Albemarle-street.

In our last notice of this volume we extracted Mr. Pusey's paper on superphosphate of lime. Let us now refer to a short article immediately succeeding it, communicated by Professor Daubeny. This also refers to the use of a manure whose principal constituent is phosphorus, viz. the Spanish phosphorite. In order to ascertain its fertilising influence relatively to other well-known manures, such as Potter's guano and others—

"A selection was made of thirteen different plots of ground, all of which might be regarded as in a great degree exhausted, having been cropped for ten or eleven successive years, without the application of any kind of manure, being the same upon which the experiments detailed in my memoir, "On the Rotation of Crops," published in the last Number of the "Philosophical Transactions," had been instituted. The kind and quantity of the several manures employed are stated below, showing that, whilst in every instance a considerable increase of crop was obtained by the addition of these fertilisers, the Spanish phosphorite, especially when its action was quickened by the addition of sulphuric acid, proved nearly as efficacious as bones themselves, unless indeed when the latter were very finely powdered.

"Now, as the Spanish phosphorite, which appears to act so beneficially, is wholly destitute of organic matter, it seems to follow that the more valuable portion at least of what is applied to the land, when bones are scattered over it, is the phosphate of lime, and not, as some have supposed, the oil or the gelatine.

"These experiments also may serve to illustrate the distinction, which I have pointed out in the Memoir referred to, between the *active* and the *dormant* ingredients of a soil. In the case of that experimented on in the Botanic Garden, it has been shown in page 243 of my memoir, that the amount of potash, of soda, and of phosphoric acid continued to the last amply sufficient for many successive crops of the most exhausting kinds of plants.

"Yet, notwithstanding this latent wealth, it will be seen by the following table that a considerable increase of crop was obtained, either by adding manures which contained the same ingredients in a more soluble form, such as bones, guano, stable dung, and phosphorite, or by substances, like nitrate of soda and sulphate of ammonia, the addition of which to the soil might favour the development of the organisation of the plant, and thus enable it to extract more nourishment from soil of a certain composition than it could otherwise do.

"It remains only to be seen, by carrying on the experiment, as I hope to do, for some time longer, whether the influence of the former class of manures will not continue to be felt, whilst that of the latter ceases after the year of its application."

TURNIPS.—Produce per Acre.

Manured with	Roots.	Gain.	Tops, including all the parts above ground.	Gain.	Loss.	Remarks.
1. Unmanured	14,298 lbs.		30,591 lbs.			Decaying. 2 lbs. dried by a water-bath weighed 1006 gr.; burnt, 101·5 gr.
	lbs.	lbs.	lbs.	lbs.	lbs.	
2. Shavings of Bones, 10 cwt. to the acre*	19,239	4,941	35,210	4,629	..	Decaying and small.
3. Chemical Manure — Company's Guano, 260 lbs. to the acre	26,058	11,760	28,300	..	2,291	Sound and tolerably equal, but smaller than those from Nos. 2, 6, and 7.
4 Nitrate of Soda, 1½ cwt. to the acre	28,459	14,161	45,302	14,711	..	Sound, but rather small 2 lbs. dried by a water bath weighed 996 gr.; burnt, 124·5 gr.
5. Spanish Phosphorite, applied alone, 12 cwt to the acre	28,639	14,341	42,016	11,425	..	Sound and tolerably equal. 2 lbs. dried as above weighed 996 gr.; burnt, 103 gr.
6. Spanish Phosphorite, with Sulphuric acid, 12 cwt. to the acre	30,869	16,571	34,476	3,879	..	Sound and tolerably equal.
7. South American Guano, 260 lbs. to the acre	31,114	16,816	47,060	16,469	..	Sound and tolerably equal. 2 lbs. dried as above weighed 1226 gr.; burnt, 95·5 gr.
8. Bones with Sulphuric Acid, 11 cwt. to the acre	31,898	17,600	44,421	13,830	..	Sound and tolerably equal.
9. Graham's Animal Compost, 260 lbs. to the acre	32,109	17,811	33,603	3,012	..	Sound and tolerably equal.
10. Sulphate of Ammonia, 1 cwt. to the acre	32,670	18,372	46,464	15,873	..	Sound, but of unequal size.
11. Bones finely powdered, 12 cwt. to the acre	36,185	21,887	45,446	14,855	..	Sound and tolerably equal. Tubers rather larger than those from Nos. 5 and 6.
12. Potter's Guano, 260 lbs. to the acre	37,201	22,903	42,564	11,973	..	Sound and tolerably equal. 2 lbs. dried as above weighed 955 gr.; burnt, 96·5 gr.
13. Stable Dung, 22 tons to the acre ..	39,476†	25,178	49,912	19,321	..	Sound but unequal. 2 lbs. dried as above weighed 1010 gr.; burnt, 102 gr.

—*Oxford, December* 8, 1845.

* The small increase of produce in this instance may perhaps be explained by the position of the bed, which was less favourably circumstanced with reference to sun and air than the remainder.

† The average of 10 years' successive crops of Turnips on the same plot of ground I find to have been about 16 tons to the acre. In my memoir on the "Rotation of Crops" it is stated somewhat higher, owing to a mistake in the measurement of this plot, which I have discovered since the paper went to press.

Farm Memoranda.

A Lincolnshire Lowland Farm.—The following outline will show the general mode of cultivation adopted on a Lincolnshire lowland farm. The one taken as an example is in the occupation of Mr. John Clarke, of Long Sutton. It is situated on the alluvial level near the sea, being about two miles from the mouth of the Nene. It consists of about 400 acres, 135 of which are pasture, and 265 arable. The soil is an alluvial loam of medium quality, the subsoil being a strong admixture of clay-loam and silt resting upon silt. The loam is nearly of uniform depth, averaging about 10 inches. The subsoil varies considerably—in some places it is not more than 5 or 6 inches thick, in others from 2 to 8 feet. The silt is so porous that the "soak," as it is termed, which comes from the sea, rises like a spring, and is subject to tidal influence, being higher at spring-tides than at neap. From this and various other causes, the nature of the loam, the long-neglected drainage, and the consequent loss of the best pasture Grasses, it is rendered inferior as pasture; but under good culture it is very useful as arable land. The farm-premises are tolerably convenient, for the district, which, as a whole, is lamentably deficient in farm-buildings. The dwelling-house is good, and sufficiently large for its purpose. The buildings consists of a moderate-sized barn, hovels for tying up 24 beasts, good open sheds to each of the three fold-yards, two root-houses, a cake-house, stables for 12 cart-horses, with a large open shed to the horse-yard, a chaff-house, two waggon or cart hovels, implement sheds and hovels for drill, &c., carpenter's shop, nag-stables, coach-house, brewing-house, and shepherd and farming-man's cottages. The fences are White-thorn hedges about 4 feet high, trimmed with a hook, and ditches about 3 feet wide. Considerable attention has been paid lately to the improvement of the drainage; but, owing to the bad state of the drains and outfalls between it and the sea, it is yet very imperfect. Under-draining has been more extensively practised upon this farm than any other in the neighbourhood, and the trial thus made in this dead-level district has proved highly satisfactory. About 50 acres of arable land have been drained with thorns, and these have accomplished their purpose extremely well. 30 acres of tile and pipe draining are now nearly completed; the principal part being done with 1½ inch bore pipes, and the remainder with common tiles and slate soles. This is the first tile-draining which has been done in the neighbourhood. The drains are about 27 inches deep, and at an average distance of 20 yards. This depth places them beneath the clay—except in occasional spots which are called "clay-holes"—this is not too retentive and tenacious to prevent the surface-water from percolating through it, and the silt being very porous readily conveys the moisture to the drains. 10 acres of pasture were drained some time ago with wedge or sod drains, but the subsoil not being tenacious enough, they have not been very successful; another piece of pasture, partially drained with tiles and soles, answers admirably. The farm is divided into 18 convenient fields, 12 being arable and 6 pasture. Owing to the laxative nature of the Grass and the brackish water in the ponds, the land is not well adapted for breeding cattle, and those grazed are nearly all bought in; Mr. Clarke, however, stands high as a breeder of sheep, and being a ram-breeder, his course of stocking is rather different from the general method. It is as follows:—The Ram pasture, containing about 10 acres, is grazed by 28 two and three-shear rams, and 5 drape cows. The Twenty acres, containing 23½ acres, is grazed by 70 shearling rams, and 12 fattening heifers. The Twenty-six acres, of 28 acres, by 75 fatting shearling wethers, 30 ewes, suckling pairs, 30 lamb-hoggets, and 12 two and a half years old steers. The Thirty acres, by 70 ewes and lambs, 50 hoggets, and 10 two and a half years old steers. The Crow-marsh, of 23½ acres, by 65 ewes and lambs, 40 hoggets, and 10 two and two-and-half years old heifers. And the Twelve-acres is grazed by 35 ewes, 20 hoggets, and from 8 to 10 yearling steers and heifers. When the Clover eddishes are ready for stocking, the lambs are put upon them, having been previously weaned on the old pastures, and the Grass lands are thus eased. The grazing land is kept clean from Thistles, and the droppings of the cattle are "knocked" twice during the summer. Mr. C. has 200 breeding ewes, which are put to the ram in the latter end of September; they run thinly over the pastures in the winter, and about six weeks before the lambing season have Turnips and Mangolds, as it is important that no change takes place in their food immediately before lambing. When the season arrives, they are supplied with a small quantity of Oats; small lambing-pens, made of hurdles wattled with straw, are placed in different parts of the field, and a convenient inclosure for them at night is made immediately in front of the shepherd's dwelling. In the management of ewes, in the lambing season, much care is taken. The shepherd does not unnecessarily interfere with the ewe, except to ascertain that all is right; she is then left to her own natural efforts, but should she become weak, and it appears requisite to give assistance, it is instantly afforded. In cases of protracted and difficult labour, a table spoonful of laudanum is given; this will soon cause a degree of quietude, and gives time to the lamb-pouch to resume its proper position, and no other internal applications are made upon any account. In consequence of this, the ewe ceases to pain herself, and speedy recovery is generally the result. Great care should be taken at all times to keep them in proper breeding condition, neither too poor nor too fresh; if the latter they should be bled, if the former they should be gradually brought to better keeping; too sudden a change of diet in breeding stock being always wrong. When out of danger they are driven on to Grass, or other keeping reserved and prepared for them. The shearling wethers are fatted off during the summer, their average weight being about 100lbs. per sheep, and the average weight of their fleeces about 9½ lbs. The flock has been bred with great care for many years, and are of the improved Lincolnshire long-woolled breed, with a slight intermixture of the large Leicester and the improved Gloucester blood. 100 rams are let annually in September at good prices. As the Grass is not rich enough to fatten an ox, the beasts (which are the improved short-horns) are made up in hovels during the winter, and sold early the following spring; they have 1½ bushel of Turnips, and from 8 lbs. to 14 lbs. of cake each. The store cattle in the yards have each 1½ bushel of Turnips, and 4 lbs. of cake. There are only a few cows kept, just for family use. The pigs are a cross between the Essex and Lincolnshire-wold breeds. From 30 to 60 are kept in the summer, to run on the fallow lands. Two litters are raised from each of the sows annually; the first sold off within three months, except such as are saved for fattening, and the others wintered. The cart-horses are 14 in number, and are fed principally on Lucerne and Tares, being liberally supplied with Swedes in winter. (*To be concluded next week.*)

Miscellaneous.

Application of Lime.—Our practical men in this part of Scotland are quite opposed to what they call "frosted lime," or lime laid on before winter, where spring crop is intended. Few trouble themselves about the "Why and Because;" but they soon meet us with the staggering argument—"I find the lime does no good!" Now, I am about to show that their "finding" is legitimate, or that to spread lime on the ground after harvest is the most effectual way to waste it. Little or no carbonic acid is formed in any but very low, warm, rich soils in winter. Unless when the soil is rich in alkaline matter, this acid is scarcely formed below 50° Fah. Hence, except what remains in the soil in autumn, there is no carbonic acid in it to carbonate the lime till the warmth of spring. Water at freezing cold dissolves twice as much caustic lime as water at boiling heat, and the warmer the water the less lime is dissolved. The larger part of the yearly rain commonly falls in the winter half year. Suppose 17 inches of rain to fall in the winter half year; how much lime will this dissolve on a statute acre? About 80 imperial bushels of unslaked lime, or 240 bushels of the light slaked powder. This is equal to about 130 imperial bushels of unslaked lime to the Irish acre; a very heavy dose, if the lime be pure. I have given double this quantity of very impure lime; but when the lime is nearly pure, I *think* this an over-dose, for any but very heavy soils. Now, suppose this ample dose is, at a heavy expense, laid on by the 5th October, and the field has a moderate slope; it is all or nearly all dissolved and washed out of the soil by the rain, before the 15th of next April! No lime remains but any little that was spread in lumps. It is all gone to the nearest stream before I get a single crop off it. Is this good economy?—*P. Garden, Glenæ, Dumfries.* (*Farmer's Gazette.*)

Agriculture in France.—Some time ago the Minister

of Agriculture and Commerce submitted the following question to the agricultural and scientific societies in the departments:—"Are agriculturists able to borrow, with ease, the capital necessary for useful labours of amelioration?" Forty-five of the departments have replied in the negative and in a positive manner; nine affirmatively and positively; and eight affirmatively, but as regards special cases. The answers of five of the departments, of the 67 who have replied, are doubtful, as the question does not appear to have been thoroughly understood.

CALENDAR OF OPERATIONS.

APRIL.

THE sowing of Barley and Clover, and the sowing of Carrots, must be completed now as soon as possible. Wheat should be harrowed and rolled wherever the land is dry enough, and hoed where foul. The land intended for Mangold Wurzel should be harrowed across the autumn ploughing, and then it may be "cultivated" or scarified preparatory to carting on the manure and ploughing it in. All Couch-grass, and other weeds should be gathered off the land after this operation.

The present is a convenient season for sowing soluble manures on corn crops or Grass land.

In inland situations, 20 bushels of soot, 2 cwt. of salt, and 2 cwt. of superphosphate of lime, would be a good dressing for Grass lands; and for Wheat, 2 cwt. of guano, and 1 cwt. of nitrate of soda, would probably be as efficient a manuring when the land is apt to grow but little straw as any that could be named. Heaps of Carrots, Swedes, and Mangold Wurzel, may now be uncovered, and turned occasionally until consumed; the last especially will be benefited by being exposed to drying winds.

Notices to Correspondents.

AMOUNT NOT PRICE OF PRODUCE THE MAIN POINT.—*A Farmer*.—We must refer you to what has already been said on this subject. Of course the statement is true only within certain limits; but who shall name these limits when, over a course of 20 years, we can gather from the evidence of trustworthy and experienced farmers, that 100*s*., 80*s*., 70*s*., 60*s*., and 50*s*. per quarter for Wheat have successively been named as prices below which nothing but ruin awaited the agricultural interest? Is it not perfectly fair to reason from other manufactures to that of beef, mutton, and "bread stuffs?" We find that the prices of most manufactured goods have been enormously reduced in amount by the employment of more efficient machinery, and yet the profits on those manufactures have not diminished, they have greatly increased, owing to the vastly extended production consequent on the use of that machinery. And why is all this inapplicable when one speaks of the profits of *farming*?

BARLEY EWES—*Inquirer*—They will fatten easily and profitably first on Mangold Wurzel and then on your earliest Vetches. Give them ½ lb. of Linseed and ½ lb. of Bean or Pea meal daily each. Their number per cent. in a flock varies exceedingly according to their age and *condition*, and that of the ram. Close feeding we should certainly consider injurious to Clovers, especially in a dry summer.

GREY COLOUR.—*A Y* asks, What is the composition that is used in Staffordshire for colouring the Italian tiles of a dark grey colour, which tiles are used for roofing buildings built in the Italian style of architecture? Is it done after the tiles are made, and coloured previous to burning? Is the clay with which the tiles are made worked in any particular manner, which gives to the tile extreme hardness and strength it possesses? Every information on this subject from any of your correspondents will much oblige.

GUANO AND OTHER SOLUBLE FERTILISERS—*Rev J Easton*—They may be applied *now*. See Calendar.

LENTIL—*G T*—Sow the common Lentil, Ervum Lens, as you would the Pea. Drill, now, two bushels per acre on *dry* and light soil, in rows a foot apart. They will ripen in July. Apply to any seedsman.

ON INCREASING THE DEPTH OF SOILS; ON STALL-FEEDING; ON THE MANAGEMENT OF SMALL FARMS—*Inon*—On the first, see an "Essay on Increasing the Depth of Soils," by C. W. Johnson. On the 2d, an Essay by G. Dobito, in the last vol. of the "English Agricultural Society's Journal," and, on the 3d, pamphlets by Mr. Blacker, and Mr. O. O. Roberts, the one "On Improvement of Small Farms," and the other "On Agricultural Economy as the Antidote to Agricultural Distress."

PLAN OF BUILDINGS FOR SMALL FARMS—*S N*. The efficient ventilation of the cow-house will be obtained, notwithstanding the loft, by your plan of gratings; but instead of placing them all at the bottom, it will be better to have three at bottom on one side, and two at the top close to the ceiling on the other. Should not your steamer be placed near to *both* the root stoves and the cattle and pigs? It would be better placed as an attachment to the side rather than to the end of the building. For a steamer, consult the Society's prize lists at Shrewsbury and Southampton.

THE DOCK—*G B C*—It indicates good, dry, open soil, and it is to be extirpated only by pulling it up before it flowers. The Earth-nut indicates a very light, dry, sandy soil.

*** Communications reaching town after Wednesday, cannot be answered the same week.

Markets.

SMITHFIELD, MONDAY, Mar. 30.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4s	2 to 4s	4	Best Long-wools	4s	6 to 4s	10
Best Short Horns	3	10	4	0 Ditto (short)	4	2	4	6
Second quality Beasts	3	6	3	8 Ewes and second quality	4	2	4	6
Calves	4	6	5	4 Ditto (short)	3	10	4	2
Best Downs & Half-breds	4	10	5	2 Lambs	5	4	7	4
Ditto (short)	4	6	5	0 Pigs	3	8	4	8

Beasts, 2188. Sheep and Lambs, 20,510; Calves, 70; Pigs, 280.

There is a considerable supply of Beef to day, and of excellent quality, trade is very heavy, 4*s* 4*d* being the top price for the best Scots &c., and 4*s* best Shorthorns. Several remain unsold. The supply of Mutton is also rather on the increase, and lower prices are obliged to be submitted to.—Lambs are rather in superplentiful, and of good quality; small best qualities are in demand, the heavier description are not so readily disposed of.—The best Veal sells tolerably well, but second quality is considerably lower.—Pork trade is heavy.

FRIDAY, Apr. 3.

We have a full supply of Beasts to-day, and trade continues heavy. Best Scots with difficulty make 4*s* 4*d*, and Shorthorns 4*s*; second-rate qualities are a heavy sale at rather lower prices.—Although the supply of Sheep is not very large, it is quite adequate to the demand, and moves off slowly at Monday's quotations.—Lamb is more plentiful, and rather lower; prices range from 5*s* to 7*s*.—Veal trade is hardly so good; the best qualities barely make 4*s* 6*d*.—Pork trade is heavy, small Porkers make about 4*s* 8*d*, but large Hogs are unsaleable.

Beasts, 749; Sheep and Lambs, 2151; Calves, 136; Pigs, 390.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Apr. 2.

Prime Mead. Hay	85s	to 95s	New Hay	—	to —	New Clr.	— to —
Infr. New & Rowen	70	80	Clover	95	to 115	Straw	26

JOHN COUPER, Salesman.

CUMBERLAND MARKET, Apr. 3.

Prime Mead. Hay	90s	to 97s	Old Clover	110s	to 118s		
Interior	60	80	Interior do.	95	105	Straw	30s to 36s
New Hay	—	—	New Clover	—	—		

JOSHUA BARBS, Hay Salesman.

WHITECHAPEL, Apr. 3.

Fine Old Hay	90s	to 88s	Old Clover	110s	to 120s		
Inferior Hay	63	70	Infr. "	90	100	Straw	30s to 34s
New Hay	—	—	New Clover	—	—		

HOPS, FRIDAY, Apr. 3.

We continue to have a considerable demand for fine-coloured Hops, at full prices.

FATTERSON & SMITH, Hop-Factors.

COVENT GARDEN, APRIL 4.—Vegetables still continue to advance in price, and the supply has been rather short. Fruit is not plentiful, but sufficient for the demand, and has altered but little in price since our last account. Pine-apples are good in quality, and, considering the season, tolerably plentiful. Foreign Grapes are sufficient for the demand; and a few hothouse Grapes have also made their appearance. Fine looking Strawberries have been offered at 2*s*. an ounce. The best Dessert Apples bring about 20*s*. per bushel; inferior sorts may, however, be obtained from 6*s*. to 12*s*. per bushel. Pears remain nearly the same as they were last week. Oranges are more plentiful than they have hitherto been, and prices for them are rather lower. Nuts are sufficient for the demand. Of Vegetables, Asparagus is somewhat scarce. French Beans are tolerably well supplied. Seakale and Rhubarb are excellent in quality, and Broccoli, Cabbages, and other winter Greens, are good. Large white Broccoli from Cornwall fetches from 1*s*. to 3*s*. per dozen heads. Excellent Celery may be obtained at last week's prices. Potatoes, of the best quality, still continue to fetch 9*l*. a ton; trade for inferior samples is dull, and the prices remain unaltered. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Tropæolums, Jasmines, Lily of the Valley, Pentas carnea, Stephanotis floribunda, Burchellia capensis, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Rhododendrons, Cinerarias, Gardenias, Moss and other Roses.

FRUITS

Pine Apple, per lb., 6s to 10s		Lemons, per dozen, 1s to 3s	
Grapes, Hothouse, per lb., 15s to 20s		— per 100, 8s to 14s	
— Spanish, per lb., 9d to 1s		Almonds, per peck, 6s	
— Portugal, p. lb., 1s to 5s		Sweet Almonds, per lb., 2s to 3s	
Apples, Dess., per bush., 7s to 20s		Filberts, English, p. 100 lbs., 30s to 60s	
— Kitchen, 5s to 10s		Nuts, Cob, per 100 lbs., 30s to 90s	
Pears, per bl.-sv., 6s to 15s		— Barcelona, 90s	
Oranges, per dozen, 1s to 2s 6d		— Brazil, 12s to 16s	
— per 100, 4s to 18s		— Spanish, 14s	
— Seville, per 100, 5s to 16s		Walnuts, per bushel, 10s to 20s	
— per dozen, 2s to 3s 6d		Chesnuts, per peck, 3s to 7s	

VEGETABLES.

Cabbages, per doz., 6d to 1s 6d		Parsnips, per doz, 3d to 1s	
— red, per doz., 4s to 8s		Scorzonera, per bundle, 1s to 1s 3d	
Broccoli, Brown, per bdle., 1s to 2s		Salsafy, do., 1s to 1s 3d	
— White, 1s to 3s		Onions, per bushel, 1s 6d to 3s	
Greens, per doz. bunches, 6d to 3s		— Spanish, per doz., 1s 6d to 6s	
French Beans, per lb., 1s 6d to 2s 6d		Shallots, per lb., 6d to 8d	
Sorrel, per hf.-sieve, 9d to 1s		Garlic, per lb., 6d to 8d	
Potatoes, per ton, 70s to 180s		Endive, per score, 6d to 1s 6d	
— cwt., 4s to 9s		Lettuce, per score, Cab., 4d to 6d	
— bushel, 3s to 4s 6d		— — Cos, 6d to 1s	
— Kidney, per bushel, 3s to 4s		Radishes, per 12 bunds, 6d to 1s	
Turnips, per doz., 1s to 2s		Mushrooms, per pottle, 9d to 1s 6d	
Red Beet, per doz., 6d to 1s 6d		Small Salads, per punnet, 2d to 4d	
Carrots, per doz. bchs., 2s to 3s		Fennel, per bunch, 2d to 3d	
Horse Radish, per bundle, 1s 6d to 3s		Savory, per bunch, 4d to 6d	
Seakale, per punnet, 1s 6d to 3s		Thyme, per bunch 4d	
Rhubarb, per bundle, 6d to 1s 3d		Watercress, p. 12 sm. bnc. 6d to 8d	
Asparagus per bundle, 2s to 12s		Parsley, per bunch, 1d to 3d	
Cucumbers, each, 1s to 3s		— Roots, per bundle, 1s	
Spinach, per sieve, 1s to 1s 6d		Tarragon, per bunch, 6d	
Leeks, per doz bunches, 1s to 1s 6d		Mint, green, per bunch, 6d to 9d	
Celery, per bunch, 6d to 1s 6d		Marjoram, per bunch, 4d	
Cardoons, each, 6d to 9d		Chervil, per punnet, 2d to 3d	

POTATOES.—SOUTHWARK, WATERSIDE, Mar. 30.

The supply to this market continues to be moderate, but it is fully equal to the demand. The first part of the week the Scotch salesmen increased their pretensions, and 95*s* to 100*s* per ton was asked for the Reds, but very few sales were effected at those prices, and at the close the prices ranged as follows:—York Reds, 100*s* to 140*s* per ton; ditto Regents, 70*s* to 100*s* per ton; Shaws, 80*s* to 90*s* per ton; Perthshire Reds, 85*s* to 90*s* per ton; Aberdeen Reds, 90*s* per ton; Montrose Buffs, 85*s* to 90*s* per ton. Several cargoes have been opened this day, and the prices have a downward tendency.

MARK-LANE, MONDAY, Mar. 30.

There was more Wheat offering from Essex and Suffolk this morning, and the supply from Kent was good, the whole being in better condition than of late, the finest Essex samples were taken at a decline of 2*s*. per qr. early in the morning, but inferior, and all the Kent, remained unsold at a late hour. Free foreign and bonded are nominally unaltered, with a very limited business.—Fine Barley maintains our late quotations, but secondary is a dull sale and rather cheaper. We observe no alteration in the value of Beans, White Peas are held firmly, and we raise our quotations for Grey 1*s*. per qr.—A fair business has been done in Oats at the advance of last week, being 6*d* to 1*s* per qr dearer than this day se'nnight.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk . . White	58	66	Red .	50	61
— Norfolk, Lincolnshire, and Yorkshire	50	63	White	60	68
Barley, Maltings and distilling 28*s* to 34*s* Chevalier	30	34	Grind	24	26
Oats, Lincolnshire and Yorkshire . . Polands	23	27	Feed	21	23
— Northumberland and Scotch . . Feed	25	26	Potato	25	30
— Irish . . . . Feed	21	24	Potato	24	27
Malt, pale, chip	54	60			
— Hertford and Essex	50	56			
Rye	34	36			
Beans, Mazagan, old and new 38 to 40	Tick	30	46	Harrow	32	48
— Pigeon, Hellgoland . 35 to 38	Winds	—	—	Longpod	—	—
Peas, White . . 34 to 38	Maple	28	32	Grey	24	31

ARRIVALS IN THE RIVER LAST WEEK.

	Flour	Wht.	Barl.	Malt.	Oats.	Rye	Bns.	Peas.
English	1019 Sks — Brls.	4850	1550	4010	2764	—	664	69
Irish . — . .	— . .	—	—	90	6695	—	—	—
Foreign . — . .	1500 . .	5014	—	—	8	—	2115	—

FRIDAY, Apr. 3.

With the exception of a good demand for Indian Corn for Ireland, which has been selling at 33*s*. to 34*s*. per qr. f. o. b. freight included, and 32*s*. to 34*s*. per qr. on the spot for Mediterranean qualities, business in each description of grain has been languid during the week, part of the Kent Wheat left over from Monday remained unsold at a late hour, free foreign and bonded are also in very limited request, and we have not heard of any f. o. b. sales.—Barley, Beas, and Beans, are unaltered in value.—The Oat trade is flat, and prices the turn lower.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English . .	6980	6540	7560	5680 Sks
Irish . .	—	—	3830	—
Foreign . .	3910	—	2810	—

IMPERIAL AVERAGES.

		Wheat	Barley.	Oats.	Rye.	Beans	Peas.
Feb.	21 per Quarter.	56*s* 0*d*.	29*s* 11*d*.	21*s* 6*d*.	38*s* 10*d*.	34*s* 9*d*	34*s* 8*d*
—	28 . . .	54 6	29 7	21 5	34 4	34 2	33 2
Mar.	7 . . .	56 10	29 3	21 10	33 6	34 11	33 3
—	14 . . .	54 3	29 4	21 9	34 2	35 2	34 9
—	21 . . .	55 1	29 0	22 0	33 10	34 4	33 4
—	28 . . .	55 5	30 2	22 1	34 0	35 0	33 3
6 weeks' Aggrav. Aver.		54 10	29 8	21 9	33 7	34 9	34 1
Duties on Foreign Grain.		18 0	9 0	6 0	0 0	5 6	5 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Mar. 28.

Price.	Feb. 21	Feb. 28	Mar. 7	Mar. 14	Mar. 21	Mar. 28
58*s* 6*d*	..	..	..	..	..	..
57 11	..	..	..	..	..	..
56 3	..	..	..	..	..	..
55 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
54 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 2	..	..	..	..	..	..

SEEDS, Apr. 3.

Canary . . per qr	40s	to 48s	Linseed Cakes, Foreign, p. ton	8l	to 9l
Caraway . . per cwt	46	48	Mustard, White - p. bush.	—s	—
Clover, Red, English .	80	100	— Superfine "	—	—
— — Foreign .	80	80	— Brown "	—	—
— White, English .	80	84	Rapeseed, English, per last	27l	30l
— — Foreign .	48	56	Rape Cakes . per ton	—	—
Coriander . . .	10	12	Saintoin . . .	—	—
Hempseed . per qr.	36	38	Tares, Sup. winter p. bush.	—	—
Linseed . . pe qr	46	48	— Foreign . .	4	5add
— Baltic . .	42	46	Trefoil . . per cwt	20	70
— Cakes, Eng. per 1000	11l	12l	Turnip (too variable for quotation)		

KINGSCOMB AND LAW.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, FLORISTS, and Others.

MESSRS. PROTHEROE and MORRIS will submit to Public Competition, at the Auction Mart, Bartholomew-lane, on Tuesday, April 7th, 1846, and following day, at 12 o'clock, a very rich collection of CARNATIONS and PICOTEES, consisting of all the approved varieties. Also, a splendid assortment of Fuchsias, Verbenas, Auriculas, Heartsease, Bengal Roses, Dahlias, and a variety of Plants in bloom. May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

*** Mr. Willmer's Stock, of Sunbury, on Tuesday, April 7th.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition, at the Auction Mart, Bartholomew-lane, on Thursday, April 9, 1846, at 12 o'clock, the remaining stock of CARNATIONS AND PICOTEES of a much esteemed amateur, consisting of about 700 pairs of all the new and rare varieties. Also a splendid assortment of Fuchsias, Verbenas, and Dahlias, and other plants in bloom. May be viewed the morning of sale, and Catalogues had at the Mart and of the Auctioneers, American Nursery, Leytonstone.

TO GROWERS OF ORCHIDS.

MESSRS. J. C. AND S. STEVENS, beg to announce they will SELL BY AUCTION, at their Great Room, 38, King-street, Covent-garden, on THURSDAY, 16th APRIL, a continuation of the IMPORTATION OF ORCHIDACEÆ (of which part was sold on the 1st inst.), just landed from the *Calista*. In this parcel will be found some splendid specimens of Lycaste Skinneri and Cattleya Skinneri; a new plant from a cold district, supposed a Peristeria (magnificent specimens alive, although many were dead); very fine specimens of Lælia superbiens; a fine Stanhopea from the Vera Paz; Odontoglossum grande in large masses, Arpophyllum squarrosum, and giganteum; some grand specimens of the large sweet-scented species of Odontoglossum pulchellum, in fine order, a few Cattlas (of a distinct species to those offered in the last Sale), from the Vera Paz; and several plants now introduced for the first time. Messrs. S. beg to add, that although the loss has been great, the living specimens are such as well deserve the attention of amateurs desirous of possessing prize specimens. Catalogues are preparing, and will be forwarded in due course.

38, King-street, Covent-garden, April 4.

GRAND SALE OF PINUS, ARAUCARIA, ABIES, CEDRUS, &c., comprising some of the finest specimens in the kingdom, in pots, tubs, &c. removed, at the request of the proprietor, to the Royal Nursery, near the Station, Slough, for absolute SALE BY AUCTION, on the 21st APRIL inst. Among the noble specimens may be mentioned:—Pinus Araucaria Excelsa, 15 feet high, A. Cunninghamii, do., A. Imbricata, A. Brazilliensis, many fine plants, Pinus Insignis, Rigida, Banksiana, Aberdeenii, Ponderosa, Serratina, &c. &c. Abies religiosa, fine, Taxifolia, do., Morinda, Nobilis, Amabilis grandis. Cedrus Deodara, many fine plants, many small; A. Cephalonica and Pinsupo; a large and many fine Damara Australis Dacbrydium Excelsa. Cupressina, Phyloclades trichmonoides, two Podocarpus latifolium, unique specimens, Taxus Mackii, Podocarpus totara, &c. Junipers, Cypresses, &c. in great variety. All are in pots, in the finest health, and stood out last winter.—Particulars and Catalogues, in a few days, at the Nursery, Slough, at the Horticultural Agency and Gardeners' Gazette Offices, 120, Strand; and 2, Tavistock-street, Covent Garden.

TO FARMERS AND OTHERS. SEED POTATOES.

TO BE SOLD, at LONG HEDGE FARM, Battersea-fields, 1 mile from the South-Western Terminus, upwards of 20 tons of EARLY SHAWS, in a sound state. May be seen at any time, on application at the Bailiff's Cottage. N.B. There will be planted on the farm this year, about 40 acres of the same seed.

TO FLORISTS, GARDENERS, AND OTHERS.

TO BE SOLD, a very convenient FREEHOLD COTTAGE RESIDENCE, with good Garden, Greenhouse, Pit, &c. Free right of Common and Marsh Land. Half of the purchase-money might remain. Within 8 miles of London, and near a Railway Station. For particulars, address to A. Z., at the office of this Paper, before Thursday next.

TO BE DISPOSED OF BY PRIVATE CONTRACT, with Immediate Possession, in a fast improving Neighbourhood, situated three miles from London, A GOOD FLORICULTURAL AND JOBBING BUSINESS, suitable for a person with a small capital. The Stock consists of three Greenhouses, well stocked with Choice Plants, and heated with hot water, together with Frames, Potting Sheds, and other conveniences. A good Four Room Dwelling House can be taken on lease if required. Rent under 20*l*.—Apply to Messrs. MAY, ANDERSON, and SANGSTER, Seedsmen, Newington Butts, London.

TO FARMERS, AGRICULTURISTS, & OTHERS.

£7510 to be advanced by Capitalists on the Security of Freehold, Leasehold, or Copyhold property, or on LIVE and DEAD FARMING STOCK and GOOD PERSONAL SECURITY, or on Reversions to Money in the Funds, Annuities, Life Interests, Advowsons, Policies of Assurance, &c.—Apply personally, or by letter prepaid, to Messrs. TURNER and ATHERTON, 1, Old Jewry, London.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. NEIGHBOUR & SON, that they have prepared, for the season, an extensive supply of their various improved BEE-HIVES; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a postage stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

NUTT ON BEES, (6th Edition) just published.

ORNAMENTAL WIREWORK FOR THE GARDEN.

G. B. THOMPSON AND CO., beg respectfully to announce that they continue to prepare at their Manufactory, 390, Oxford-street, London, all kinds of Fancy Ornamental Wirework suited for the Garden, Greenhouse, or Conservatory, consisting of Flower Trainers, Stands and Borders, Garden Arches, Seats, and Vases, Improved Garden and Hothouse Engines, Syringes, Fumigating Bellows, and other Floricultural Implements.

Also, G. B. THOMPSON'S Improved Waterpot, which possesses considerable advantages over all others, the smaller sizes being suitable for ladies' use. They have now on sale a novel folding portable Wooden Garden Chair, at 3*s*. 6*d*. each, or 36*s*. per doz., which quantity is packed in a small space.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

THE BEST EIGHT SEEDLING VERBENAS EVER OFFERED.

GEO. SMITH, in offering the following splendid kinds, feels assured that they will please the purchaser, as they have been so universally admired at the London Shows; seven of them have obtained First Class Seedling Prizes. To be sent out the 20th of April, at 30s. the set, or 5s. per plant; viz. Duchess of Sutherland, Duc de Nemours, Emperor, Lovely Ann, Modesta, Miss Watson, Merry Monarch, and Queen of Beauty. A Catalogue containing the description, with all the leading sorts of last year; also Fuchsias, Petunias, Dahlias, &c.

*** All orders from unknown correspondents must be accompanied with money orders.

Tollington Nursery, Hornsey-road, Islington, near London.

THE ARTICLE GLASS.

MESSRS. DAINES AND BRADDOCK have made arrangements to supply the Public with GLASS for Sashes and Horticultural purposes of superior quality and substance, and at much lower prices than that which may have been obtained through the medium of any previous advertisements, as the sizes therein quoted at 1d. per foot, may be obtained at 3s. per 112 lbs., upon application, 6, Farringdon-street, London. N.B. A Stock of Patent Plate and Stained Glass constantly on hand.—April, 1846.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

	per gross.		per gross.		per gross.
6 in. by 4	.. 6s.	8 by 5	.. 13s.	9 by 7	.. 18s.
7 in. by 4½	.. 9s.	8 by 6	.. 14s.	10 by 8	.. 20s.

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists, apply to R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square, London.

FOREIGN SHEET GLASS.

MESSRS. EDWARDS & PELL, 15, Southampton-street, Strand, direct Importers of BELGIAN GLASS, supply Glass strong and of excellent colour, at 3½d. per foot, for any dimensions under 1 foot in length. Figured Glass in every variety of pattern. Contracts for Stained and Painted Windows, in any design and size; Armorial Bearings, &c. executed by the first Artists in Belgium.

Propagating Glasses for plants, 6½ inches by 3½, 5d. each.

FOREIGN SHEET GLASS, GLASS TILES, &c. ... The cheapest, stoutest, and best quality imported and sold at C. JARVIS'S Old Established Window Glass Warehouse, 98, Great Castle-street, a few doors from Regent-street.

CROWN GLASS at 50s. per Crate; squares cut to size equally low in price; sashes glazed on the lowest terms. Country orders forwarded with reference will meet with prompt attention. *** The largest Discount allowed off all description of Glass for ready money only.

SEEDS.—CORNER OF HALF-MOON-STREET

THOMAS GIBBS and CO.

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

WANTED TO BORROW £53, by a Gentleman in business in the City, who will return £60 in three weeks, and deposit with any respectable person unexceptionable Security, of well-known value, to the amount of £200, if required; also the Advertiser will give his Bond for £50, at three weeks' date, the Advertiser having to complete an entered into contract. References of the first respectability if required.—Apply, by paid letter, with name and address, to A. B. C., 163, Saint Swithin's-lane, Cannon-street, City.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite noblemen, gentlemen, and the public to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

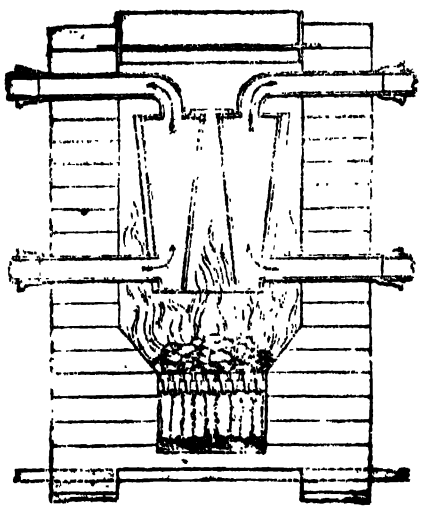
STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

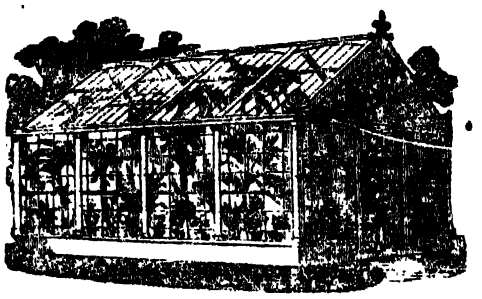
CONICAL BOILERS.—These excellent Boilers, invented by JOHN SHEWEN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth; Mr. Henderson's Pine-apple-place; and in the Horticultural Society's Gardens.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places.—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

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FOUNTAINS, VASES FIGURES, &c. &c., IN GREAT VARIETY.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON, WM. J. MYERS AND CO., LIVERPOOL;

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BRITISH GUANO, equal in quality to Peruvian, at 9l. per ton. Pamphlets gratis on 6 Stamps being forwarded, being amount charged for postage. Agent for DINGLE'S HAND SEED DIBBLE.

SUPERPHOSPHATE OF LIME, 7l. per ton, at MR. LAWES'S FACTORY, DEPTFORD CREEK.

POTTER'S GUANO FOR TURNIPS

Result of an Experiment tried by Professor DAUBENY, communicated to the Royal Agricultural Society, and published in their "Journal," Vol. vi. Part 2.

PRODUCE PER ACRE.

No.		Weight of Bulbs.
		lbs.
1	Unmanured	14,298
2	Bone Shavings, 10 cwt.	19,239
3	Manure Company's Guano, 260 lbs	26,058
4	Nitrate of Soda, 1½ cwt.	28,459
5	Phosphorize, 12 cwt.	28,639
6	Ditto, with Oil of Vitriol	30,869
7	*Peruvian Guano*, 260 lbs.	31,114
8	Bones, with Vitriolic Acid, 11 cwt	31,898
9	Graham's Animal Compost, 260 lbs.	32,109
10	Sulphate Ammonia, 1 cwt.	32,670
11	Bones, finely powdered, 12 cwt.	36,185
12	POTTER'S GUANO, 260 lbs.	37,201

Oxford, Dec. 8, 1845.

NOTE.—It thus appears, that by the application of POTTER'S GUANO, the productive power of the land was nearly trebled; and when tried against *eleven* other artificial manures, it *beat them all*, producing a greater weight of BULBS, at a much less cost.

Its superiority over the Peruvian is evident in this trial, the latter applied at a cost of 25s. giving 31,114 lbs.; while POTTER'S, costing 21s. gave 37,201 lbs.

A similar result on GRASS was obtained by LORD ZETLAND in 1842. See his Testimonial.

☞ Wanted, a few active intelligent AGENTS.

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BONE MANURE mixed with SULPHURIC ACID by far exceeds all other Manures that have been tried against it, and may be had in any quantity, either together or separate, by applying to JOHN HUNT, Bone and Sulphuric Acid Works, High-street, Lambeth.

BRITISH GUANO, warranted equal to Foreign, at 4l. per ton, and may be paid for when the result is known.

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No. 40, Bridge-street, Blackfriars. E PURSER, Secretary.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

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AND THE BEST RESISTER OF FROST FOR GARDEN PURPOSES.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

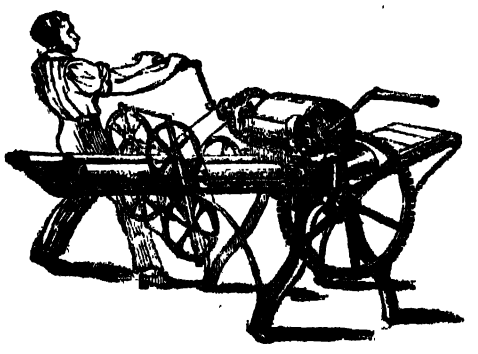
F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, Manufacturers and only Patentees of THE PATENT ASPHALTED FELT FOR ROOFING, and which for many years has been in extensive use for Roofing Houses, Verandahs, all kinds of Farm Buildings, Sheds, and for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, *which has been exhibited at the Great Agricultural Shows of England, Scotland, and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c.*, and is also patronized by Her Majesty's Board of Ordnance, Commissioners of Woods and Forests, the Hon. the East India Company and the Botanical Gardens, Regent's-park. It is extensively used in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference is made. This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET). NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'S, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy.—Price ONLY ONE PENNY PER SQUARE FOOT.

*** Samples, with Directions for its Use, and Testimonials of seven years' experience (which contain much useful information), from Noblemen, Gentlemen, Gardeners, Architects, and Builders, SENT FREE to any part of the Town or Country, and orders by Post executed.

The new Vice-Chancellor's Courts, the Offices attached, and Passages leading to Westminster-hall, Dr. Reid's Offices, and other Buildings at the New Houses of Parliament, are roofed with F. M'NEILL and Co.'s Felt, and is known by its having the appearance of lead roofs.

☞ The Public is respectfully cautioned against misrepresentation, as the only Works in Great Britain where the above Patent Roofing is made is F. M'NEILL & Co.'s Manufactories, Lamb's-buildings, Bunhill-row, London.

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"Long Benton, near Newcastle, August 11, 1845. Sirs,—I beg to thank, and inform you of the wonderful effect of your PARR'S LIFE PILLS. I was long subject to Shortness of Breath, with Cough, &c., but after taking your Pills a short time, I am not only cured but feel quite young again, and, although an old man of 60, I feel so much better that I think I shall live to be 90 at least. If you think this will be of service you are quite welcome to print it. Yours, with much respect, PETER MURPHY."

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☞ Full directions are given with each box.

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The Railway Chronicle

Of Saturday, March 28, contains articles on

CHESTER and BIRKENHEAD and Mr. LAIRD—GREAT WESTERN RAILWAY and the GAUGE REPORT—SELECT COMMITTEE on AMALGAMATIONS — PROVISIONAL COMMITTEES; WOOLMER v. TORY—Mr. MOFFATT'S DEPOSITS BILL—Mr. MORRISON and HIS FRIENDS—MONSTER FALLACY—RAILWAY STEAM BOATS.

REPORTS OF MEETINGS.—Lancaster and Preston—Chester and Birkenhead—Great Southern and Western—Irish Midland—Great Western—Paris and St. Germain—Fampoux and Hazebruck.

OFFICIAL PAPERS.—Statutes of the Paris and Lyon—Dublin and Drogheda; Directors' Report—Dublin and Belfast Junction; Directors' Report—Waterford and Limerick; Directors' Report—Huddersfield and Manchester; Engineer's Report.

RAILWAY LITERATURE.—Wordsworth's Law of Railway and other Joint Stock Companies—Chambers's Law relating to Railways—Lushington's Remarks on the Report of the Gauge Commissioners.

MECHANICAL IMPROVEMENTS.—Bodmer's Improvements in Crank-axles and Axle-boxes, designed for High Velocities (with Engravings).

PROCEEDINGS OF SOCIETIES.—Institution of Civil Engineers—Society of Arts.

CORRESPONDENCE.—The Gauge Question—Manchester Statistical Society and the Summit Tunnel.

PARLIAMENTARY PROCEEDINGS.—Progress of Bills in both Houses—Programme of Parliamentary Business—York and Lancaster—Railway Competition and Government Control—The Morrison Specific—Parliamentary Committees.

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Law Intelligence.
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*** This Work is designed for all garden cultivators, whether for profit or pleasure. Though containing nearly 700 closely-printed pages, it is in form a most convenient handbook for ready reference on every horticultural subject. It contains an epitome of the practice of the best modern gardeners, with all the necessary information relative to Kitchen Vegetables, Fruits, Flowers, Manures, Predatory Insects, &c. The science, as well as art, of gardening is fully detailed, and the whole illustrated with references to other authorities, and Drawings of Edifices, Tools, Modes of Pruning, Training, Grafting, &c. The price will not exceed 10s. 6d.

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Printed by WILLIAM BRADBURY, of No. 4, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Clapton-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Chester-street, in the parish of St. Paul's, Covent-Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, APRIL 4, 1846.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 15.—1846.] SATURDAY, APRIL 11. [Price 6d.

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ARCHÆOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

The next MEETING of the Subscribing Members will be held on FRIDAY, the 1st of MAY, at the Rooms of the Institution of Civil Engineers, 25, Great George-street, Westminster

The subject for special discussion will be—

"FICTILE MANUFACTURES, including Pottery and Porcelain of all countries and of every period"

Members who cannot personally attend, are invited to forward, by any friend, Articles which they may consider as likely to bear on the subject

Archæological Institute Apartments, 12, Haymarket.

Attendance from 12 to 2 daily.

T Hudson Turner, Secretary

The ANNUAL MEETING of the INSTITUTE will take place at York, under the patronage of his Grace the Archbishop, President, the EARL FITZWILLIAM, commencing TUESDAY, JULY 21st

TO THE SUBSCRIBERS OF THE GARDENERS' BENEVOLENT INSTITUTION.

—SECOND APPLICATION.—The favour of your Vote and Interest is earnestly solicited in behalf of ANN PRATT, aged 69 years She has been five years a Widow, without the means of support Her husband, the late Henry Pratt, was regularly brought up to the profession of Gardening, and was well known in the Horticultural world. He lived as Head Gardener with Sir G. Duckett, Bart.; then with W Wingfield, Esq., Master in Chancery, and, finally, 14 years with the late W. Harrison, Esq., Q.C., of Cheshunt, in whose service he died. He was a Subscriber to your Institution from its commencement to the time of his death.

The case is strongly recommended by the following Members of your Institution, who will kindly receive proxies —Mr Richard Atlee, Clapham-road; Messrs. Hurst and M'Mullen, Leadenhall-street, London; Mr. Hugh Low, Clapton, Mr George Mills, Cumberebury Park, Ealing, Messrs Noble, Fleet-street, Charles Palmer, Esq., Shacklewell, Messrs. Paul and Son, Cheshunt; Mr. Seward Snow, West Park, Beds.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

Under the Patronage of Her Most Gracious Majesty the Queen.—The FIRST EXHIBITION of the above Society will take place at the Horns Tavern, Kennington, on Wednesday, April 22; open to all Exhibitors In addition to the Prizes offered by the Society, the Royal Adelaide Cup, presented by Her Majesty the Queen Dowager will be given for the best Collection of Miscellaneous Plants; also a Silver Cup, value 5l. 5s., by Mr. James Dickson, will be awarded for the best Four Auriculas, viz., Green, Grey, White-edged, and Self-coloured. A Military Band will be in attendance Admission from 1 to 5 o'clock, at One Shilling each. List of Prizes, and the Rules of the Society, may be obtained from

John Tarlor Nevinson, Secretary.

Kennington House, Peckham.

BAKER'S PELARGONIUMS.

—It may save inquiries and myself some trouble to inform the public that I have NO PLANTS TO DISPOSE OF. Immediately after the Exhibitions have closed, I shall be prepared to supply the following varieties in 4-inch pots:—Arabella, Bellona, Master, Mary Queen, Dunfermline, Othello, and Marc Antony. My Descriptive List 1846 will be ready in October next.

T. Baker, Weston Cottage, April 11.

N.B. The whole of the varieties sent out by me in the autumn will be exhibited during this season.

SELECT AND CHOICE FLOWER SEEDS,

with full directions for sowing, treatment, height, colours, &c.

					s.	d.
100	varieties choice Annuals, including the most approved new	..	..	..	15	0
50	ditto	ditto	ditto	..	8	0
25	ditto	ditto	ditto	..	5	0
12	ditto	ditto	ditto	..	4	0
20	ditto, best dwarf kinds, in large packets, united for filling beds or lawns	..	..	..	7	6
12	ditto	ditto	ditto	..	5	0
20	ditto, best greenhouse Annuals	..	..	..	7	6
12	ditto, choice greenhouse Perennials	..	..	..	10	6
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Communications to Benham & Pratt-office orders from unknown correspondents must be accompanied by a remittance.

A Catalogue of Flower and Vegetable Seeds, embracing the best in cultivation, will be sent free on application.

Lion and Harrow Road and Horticultural Establishment, Kilburn, Middlesex, April 11.

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2 years old	.. ..	9s per dozen.
3 ,,	.. ..	12s ,,
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5 ,,	.. ..	30s. ,,
6 ,,	.. ..	60s. ,,
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,, 1½ ot	.. ..	30s ,,
Pinus excelsa, 1 inches	.. ..	9s ,,
,, ,, 4 to 5 inches		18s ,,
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Abies Khutrow 2 years		9s

Also fine specimen plants of older growth from 10s 6d to 21 2s per plant

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Great Yarmouth Nursery, April 11

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Carnations, 25 superb show varieties, 1 pair of each	..	3	0	0
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4. MRS. MAYLEE —For grouping, or planting as a Dahlia A large plant treated in this manner looks magnificent. 2s to 3s. 6d.

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6 PRINCE ALBERT.—For pots, 2s to 3s.

7. CYRUS'S QUEEN.—For pots; 1s 6d to 2s 6d.

A few large specimens of Nos 4 and 5, from 7s. 6d. to 21s each, also Curtis's COMET, 10s 6d.

Bull's MONEYMOON, 3s 6d.

For P. C's general List of Scarlets see Advertisement in *Chronicle* of Jan 24 Of the other variety of Pelargoniums, P C has raised a Seedling which for its very superior qualities he has named CONQUERING HERO P C is not offering this plant as new in colour, but for its beautiful habit, &c Colour deep rose with dark spot on upper petal, a good grower, splendid bold truss, fine shape, and possesses the desirable property of holding its truss of flowers complete above a fortnight after they are fully expanded A forced plant may now be seen in bloom, which will speak for itself. Fine plants in 5 inch pots, at 5s each.

A fine variety of bedding-out plants, consisting of Pelargoniums, Fuchsias, Verbenas, Petunias, Heliotropes, Ageratum Mexicana Calceolarias, Lobelia erinus grandiflora, Anagallis, Nierembergias, &c &c at very moderate prices.

Old Brompton, April 11

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W. DRUMMOND AND SONS, Stirling, N B., and Dublin, have on sale a large and select stock of TURNIP SEEDS. Terms particularly moderate The following are the most approved sorts, viz.—

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YELLOW ABERDEEN, with Green top.
Do. do. with Purple top
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Priced Catalogues of Implements, Garden and Farm Seeds, Nursery Plants, &c, on application

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50 ditto, ditto	.. ..	0	10 6

Verbenas, Petunias, Geraniums, &c, for bedding out, 3s. and 6s per dozen.—Poole Nursery, Dorset.

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HUGH LOW AND CO. inform their friends and the public that their CATALOGUE OF DAHLIAS, containing most of the new and approved varieties, is now ready, and may be had on application.—Upper Clapton, April 11, 1846.

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H. GROOM, Clapham Rise, near London (removed from Walworth), By Appointment Florist to Her Majesty the Queen, and to His Majesty the King of Saxony, begs to say his Catalogue of GERANIUMS, AURICULAS, LILIUM LANCIFOLIUM, and NEW PLANTS is ready, and will be forwarded by post on application

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*** Foreign orders executed.

KINGSTON NURSERY, SURREY.

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Kingston Nursery, Surrey, April 11.

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Woodlands Nursery, Marshall Vale, Chelsea, Sussex.

WM. WOOD AND SON having for several years paid particular attention to the cultivation of HERBACEOUS PLANTS, have now much pleasure in offering collections from their very extensive stock on the following scale; the selection of sorts being left to themselves:

*** W. W. & S pledge themselves that these are showy and distinct kinds shall be sent.

Select sorts, one of each, named	..	5s. per doz.	40s. per 100.
Superior do.	do.	9s.	60s. ,,
Superb New do.	do.	12s.	75s. ,,

Catalogues of the above may be had, price 2d., on application.

THE BEST EIGHT SEEDLING VERBENAS EVER OFFERED.

GEO. SMITH, in offering the following splendid kinds, feels assured that they will please the purchaser, as they have been so universally admired at the London Shows; seven of them have obtained First Class Seedling Prizes. To be sent out the ensuing April, viz. the set, or 5s. per plant; viz., Fuchsia or Ruth, Duke de Rousard, Emperor, Lovely Anne, Perfection, Miss Pelton, Mary Morrison, and Gem of Beauty. A Catalogue containing the description, price, &c., of the leading sorts of last year; also Fuchsias, Petunias, Dahlias, &c.

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SELECTION OF CHOICE FLOWER SEEDS.

WILLIAM E. RENDLE & CO. have a small Stock of the following choice Flower Seeds. Many of the sorts, such as MARTYNIA FRAGRANS, PHLOX DRUMMONDI, and others of equal value, have been saved under the inspection of their Foreman; the Seed, therefore, can be warranted to be quite new, and correct to name.

SCALE OF PRICES, SENT POSTAGE FREE.

50 Choice Flower Seeds, including the following,...for 12s.
30 do. do. do. .... „ 8s.
20 do. do. do. .... „ 6s.

Brachycome iberidifolia.	Rhodanthe Manglesii.
Clintonia pulchella.	Phlox Drummondi.
Martynia fragrans.	Nemophila insignis.
Nemophila discoidalis.	Manthus latifolius.
Podotheca capitata.	Lobelia erinus.
Schizopetalon Walkerii.	Mesembryanthemum tricolor.
Finest German Asters.	Finest German Stock.

A useful Chart has just been published, giving the height, colour, and mode of raising the principal sorts of Flower Seeds, gratis, with each order. A General Catalogue can be had on application. A remittance is not required from known Correspondents, or those who give reference in London.

Union-road Nursery, Plymouth, April 11.

TRUE STICKNEY'S HOLDERNESS RYEGRASS.

J. BACKHOUSE AND SON, York, the sole holders of this GRASS, which is unrivalled for Lawns and Permanent Pasture, have a few bushels on sale at a Guinea a bushel.

LAURELS, COMMON AND PORTUGAL, RHODODENDRONS, ANDROMEDAS, AZALEAS, &c. EVERGREEN PRIVET, SCOTCH AND SPRUCE FIRS, &c.—The undersigned having a large stock of the above, of various sizes, and well-furnished plants, beg to offer them to the Trade, and to the public in general, on very reasonable terms.—Apply to I. & J. GAITSKELL, NURSERYMEN, Hall Santon, near Whitehaven.

TRUE HIGHLAND OR MOUNTAIN PINE.

WILLIAM MAY, F.H.S., begs to announce to planters that he possesses a few thousands of the above highly recommended FIRS of various sizes; viz., 1 to 1½ ft. at 20s., 1½ to 2 ft. at 30s., 2½ to 3 ft. at 40s. per thousand. In habit it is much more robust than the P. sylvestris, and of much quicker growth, and attains a much larger size as a timber tree. The present is the most approved month for planting it, and all other Evergreens.—Hope Nursery, Bedale, April 11.

NEW DAHLIAS.

F. AND A. SMITH AND CO. have the pleasure to offer to the public the under-mentioned three most successful SEEDLING DAHLIAS of the season:—

NEWINGTON RIVAL (Smith).—Ruby purple. This variety is fully equal to Standard of Perfection in its best state, and decidedly an acquisition, on account of its constancy, very free habit, and being generally better up in the eye, always presenting blooms fit to show, and plenty of them. Although grown in an unfavourable situation, and planted but two feet apart, it obtained the following prizes:—First class, South Essex, Sept. 4, ditto, Chelmsford, Sept. 16, ditto, South London, Sept. 17; ditto, Metropolitan Grand Show, Cremorne House, Sept. 25; Slough, Oct. 7. Four feet.—10s. 6d.

SYLVIA (Smith).—A beautiful silvery lilac, of very fine form, exceedingly constant, and of good habit; a fine bloomer, the centre well up; altogether forming a first-rate flower. It obtained a first class prize at South Essex, Sept. 4, 1845; ditto, Chelmsford, Sept. 16, ditto, South London, Sept. 17, and was in the stand that obtained the first prize at the South Essex Show. This variety is a Seedling of 1815, and must therefore be considered fully proved as to constancy. Early orders are necessary to secure plants. Four feet.—10s. 6d.

The above are warranted first-class flowers, and have obtained prizes wherever exhibited.*

Also the following New Dahlias:—

BOHEMIAN GIRL (Proctor).—White, with rich purple edge. firm. Four feet.—10s. 6d.

CONQUEROR (Smith). Rich deep purple; obtained a seedling prize at South Essex, and in the first stand; seedling 1845. Four feet 10s. 6d.

FULWOOD GLORY (Tetbay).—Crimson maroon, ex fine. Four feet.—10s. 6d.

MILTON (Robert).—Ruby red, fine cupped petals, free and constant. Three feet.—7s. 6d.

NOBILISSIMA (Dawson).—Bright scarlet, cupped and globular, a very useful show flower. Four feet.—7s. 6d.

PURITY (Smith).—Pure light yellow, cupped, the centre well up, free, and of good habit; obtained a first class prize at South Essex, also in the first stand. Four feet.—7s. 6d.

ROSE PERPETUAL (Smith).—Fine shaded rose, constant, a most splendid habit, and immense bloomer; in the stand that obtained the first at South Essex. Four feet.—7s. 6d.

SANGUINEA (Roberts).—Deep red, large, and well formed; a useful back row flower, seedling 1845. Four feet.—7s. 6d.

F. & A. SMITH can supply all the new varieties of other growers. Catalogues of Flower and Vegetable Seeds, Dahlias, Fuchsias, Verbenas, &c. &c. may be had on application.

Hackney, near London.

WESTMACOTT & CO., SEEDSMEN, 156, Cheapside (opposite St. Paul's), have still a stock of the following (free from disease), to dispose of at very low prices:—

Ash-leaf Kidney Potatoes	Cambridge Kidney Potatoes
Chapman's do. do.	Shaw's do. do.

They have also an excellent collection of German Seeds, newly imported:—

24 vars. German Asters	5s. 0	24 vars. German Stocks	5s. 0
12 „ „ Balsams	3 0	8 „ „ Larkspurs	2 6

WESTMACOTT & Co. have always ready packages containing 36 varieties of Flower Seeds adapted for the border, 5s.; or 60 varieties, 10s., containing all the best hardy Annuals.

See our SEED CATALOGUE in "Paxton's Magazine of Botany," "The Horticultural Magazine," "Gardener and Practical Florist," and "Harrison's Floricultural Cabinet," for February last.—156, Cheapside, opposite St. Paul's, London.

NEW AND SUPERB FUCHSIAS.—Strong established plants, 12s. per dozen, consisting of the following beautiful varieties:—Serratifolia, Cassandra, Sir H. Pottinger, Salter's Sylph, Oberon, Queen of the West, Bonabella, Princess Alice, Mayii grandiflora, Duchess of Sutherland, Feigh-a-Ballagh, Hero, Hamlet, Imperialis, Junius, Epps's Fair Rosamond, Queen of the Fairies, Nymph, Queen of the Beauties, Attraction, Exoniensis, Prima Donna, Paragon, Roburta, Snowball, Unique, Victory, Vurburgh, Vesta, Kentish Bride, &c. The above will be carefully packed and forwarded to London carriage free. All orders from unknown correspondents to be accompanied with a remittance.

W. J. Epps, Bower Nursery, Maidstone.

THE NEWEST AND VERY BEST FUCHSIAS, VERBENAS, PETUNIAS, &c.

YOUELL AND CO. are now sending out per post free, the newest and very best FUCHSIAS, including

Serratifolia, (if required) at	21s.	per doz.
Very fine first-rate Show Varieties	12s.	„
Fine ditto	9s.	„
VERBENAS, first-class Show Varieties	10s.	„
Ditto, fine	6s.	„
PETUNIAS, Extra Fine	9s.	„
CINERARIAS, ditto	12s. to 18s.	„
PANSIES, Extra fine and first-class Show flowers	18s.	„
Ditto Ditto	10s.	„

Those favouring Y. and Co. with their orders for the above, are respectfully requested to state the varieties they already possess, that a repetition may be avoided, every care being observed in making improvements, by adding such varieties as will give satisfaction.

CARNATIONS AND PICOTEES.

		£	s.	d.
12 pairs extra fine and very superior first-class Show Flowers, by name		2	10	0
25 ditto	ditto ditto	5	0	0
12 ditto	Fine Show Flowers ditto	1	10	0
25 ditto	ditto ditto	3	0	0

12 pairs Showy Border Flowers ditto, 12s.

Extra fine Show Pinks, by name per dozen pair, 12s.

Also a few pairs more of the Superb Picotees "President" and "Duke of Newcastle," at 15s. per pair.

HERBACEOUS PLANTS, fine sorts, 6s. to 9s. per dozen.
RIBES SANGUINEUM FLORE PLENO, 7s. 6d. per plant.
30 Packets of New and Choice FLOWER SEEDS, per post, free, for 6s.
CALCEOLARIAS, for bedding .. .. .. 6s. per doz.
GERANIUMS, for bedding .. 6s., 9s., and 12s. „

An HERBARIUM of RARE EXOTIC FERNS (many species almost unique) to be DISPOSED OF. Price and particulars can be had on application.

For particulars of their new and beautiful White Fuchsia, "SANSPAREIL," with Five other Seedlings, see Advertisement of March 28. Also their Splendid Verbenas.

Great Yarmouth Nursery, April 11, 1846.

TO THE ADMIRERS OF THE FUCHSIA, CALCEOLARIA AND PETUNIA.

GEO. ROGERS (late WM. ROGERS & SON), SEEDSMAN AND FLORIST, Uttoxeter, Staffordshire, begs to offer the following, with the greatest confidence in their giving satisfaction to every purchaser:—

SEEDLING FUCHSIA.—No. 1-45. Rogers's "Lady Cotton Sheppard," plants 7s 6d. each.

United Gardeners and Land Stewards' Journal, August 10.—"The Seedling Fuchsia, 1-45, named 'Lady Cotton Sheppard,' is desirable; the tube is much longer than most others, and of a very delicate tint, with the sepals very nearly free from the green tips."

Gardeners' Chronicle, 1845.—"No. 1-45 is a unique variety."

SEEDLING CALCEOLARIA.—No. 1. Rogers's "Sir Thomas Cotton Sheppard," plants 15s. each.

Gardeners' Chronicle, May, 1845.—"G. R.: No. 1, is a good variety, pale yellow, with large spots, very distinct, showy."

Harrison's Floricultural Cabinet, July, 1845.—"G. Rogers: the Calceolaria sent is a very fine formed one, and being so beautifully marked, places it as one of the best."

SEEDLING PETUNIA. No. 1-45. Rogers's "Lord Talbot," plants 5s. each.

Gardeners' Chronicle, July 5th, 1845.—"G. R.: No. 1-45, this is a well-formed flower, of a good and bright colour."

United Gardeners and Land Stewards' Journal, Aug. 10, 1845.—"The Seedling Petunia, named 'Lord Talbot,' is a large flower, of good form, and a rich and bright purple rose colour."

G. R. begs to say (in addition to the above opinions) that his Seedling FUCHSIA is a very distinct and beautiful variety; the contrast in the colour of the tube, sepals, and corolla being very great, the sepals expand freely, exposing the crimson purple corolla to advantage; it is of a good and free habit, blooming profusely, altogether forming a most desirable variety. The Seedling CALCEOLARIA is one of the most splendid kinds ever offered to the public; its blooms are very large and of excellent form, and its markings being so much larger than any other, which are very distinct from the ground colour, forms a most superb kind. The Seedling PETUNIA is a good addition to this valuable tribe of plants, its colour is very bright and rich, and of a large size, good form and substance, never reflexing, but retains its fine circular form till the blooms fade; a beautiful variety for bedding or ornamenting the greenhouse.

Fine Strong Plants of the above will be ready to send out by the 20th of April.

The usual discount to the Trade on Fuchsia and Petunia, when not less than three are ordered at one time. As the stock of the Calceolaria is but a very few plants, there cannot be any discount allowed, which will make it as valuable next season as the present one; and early orders are requested, as the plants will be sent out in strict priority as far as they go.

The above can be safely transmitted in tin cases through the post. All orders containing a remittance will be sent free by post.

G. R.'s Descriptive Catalogue of Dahlias, Fuchsias, Pelargoniums, Pansies, Cinerarias, Verbenas, Petunias, Phloxes, and other miscellaneous plants, may be had by inclosing one Penny stamp.—Uttoxeter, April 11, 1846.

MELON AND CUCUMBER PLANTS.—Fine Plants of Pasaingham's Delicious GREEN FLESH MELON at 2s. a pot, two plants in a pot. Cuthill's Black Spine Cucumber Plants at 1s. 6d. each pot; these Cucumbers may be seen now in full bearing, and specimens can be sent to any distance by one or the dozen; also Cuthill's Splendid Scarlet Clove Carnation, the Prince of Denmark, a nosegay in itself, 12s. per dozen; also a Beautiful French Yellow Picotee, 12s. per dozen, with other first-rate sorts at 12s. per dozen.—J. CUTHILL, Florist, Denmark-hill, Camberwell, near London.

GARAWAY, MAYES, and CO., beg to apprise their Friends and the Public, that their CATALOGUE of DAHLIAS, FUCHSIAS, GERANIUMS, VERBENAS, PETUNIAS, CINERARIAS, &c., is now ready for delivery, which will be sent on application, most of the new and approved Varieties will be found in their list. This old-established Nursery affords great advantages to Noblemen and Gentlemen who may require Gardeners and Farm Bailiffs.—All communications will have prompt attention. Tree and Seed Catalogues with an extensive Catalogue of Roses.

Durdham Down Nursery, Bristol, April 9.

SPLENDID SEEDLING ANTIRRHINUMS, and FUCHSIAS.

J. FOWLE respectfully announces that he is now sending out his Collection of fine SEEDLING ANTIRRHINUMS, and also two SEEDLING FUCHSIAS, which are the admiration of all who see them.

J. F. has also a fine Collection of Verbenas, Petunias, Anagallis, Calceolarias, Geraniums, Dahlias, Herbaceous Plants, &c. &c., a Catalogue of which may be had on application.

12 fine Varieties of Fuchsias, including Serratifolia, or Queen Victoria, for 15s.

12 fine Antirrhinums, from 6s. to 12s. per dozen.

Remittances expected from unknown Correspondents.

Holland Nursery, North Brixton, Surrey.

FUCHSIAS.

A. J. STEWART having an immense stock of FUCHSIAS, fine healthy plants, is enabled to offer the following select varieties at the low average of 1s. 6d., provided that not less than 12 sorts are purchased at once; or they may be had separately, from 2s. to 2s. 6d. each, viz.;—*Duchess of Sutherland, *Nymph, *Snowball, Cleopatra, Cassandra, Lord Lewisham, *Queen of the West, *Queen of Sheba, *Sir H. Pottinger, *Sylph, *Unique, *Andromeda, *Lady of the Lake, Junius, Prince of Wales, Captivation, *Tiley's Prince Albert, *Hally's Rosabella, Miller's Queen Victoria, *Enchantress Superb, Luna, *Edina, *Eneas, *Turbau, *Picta, *Sir W. Magnay, *Admiral, *Conqueror, *Josephus, Splendida, *Amethyst, *Corintini, Highland Chief, Pomona, Magnifiora, and Rosea superba.

Those marked with an asterisk can be supplied to the Trade at 15s. per doz., when not less than six of each sort are taken.

Any of the following may be had at 1s. 6d. each, or 12s. per dozen sorts:—*Aërial, Helena, *Heroine, Norfolk Hero, Sanguinea, Formosissima, *Globosa pallida, Pulchella carnea, *Clara, *Delicatissima, *Fair Rosamond, Rosa Mundi, Amulet, *Zanoni, *Miller's Expansa, Elata, Juno, *La Polka, Colossus, Duke of York, Hector, Lord Ashley, Neptune, *Rhoderic Dhu, *Triumph, Erecta elegans, Great Western, Majestica superba, Mammoth, *Multiflora erecta, Othello, The Pet, Pillar of Beauty, Sir R. Sale, Harrison's Recurva, and *Vesta.

The Trade can be furnished with the sorts marked at 9s. per doz., if not less than six of each kind are purchased.

This Advertisement will not be repeated.

Salthill Nurseries, near Windsor.

GAINES'S SUPERB SEEDLING DAHLIAS FOR 1846.

PRINCESS RADZIWILL, GAINES.—White, edged with violet; decidedly the best light Dahlia ever seen, perfectly round in outline, two-thirds of a ball; the centre high, very full, double, symmetrical, and constant throughout the season. Has been awarded the following prizes:—First class prize, Stonehenge; first do., Bath; first do., Teddington; first do., Chelmsford, first do., Surrey Gardens; first do., Cremorne-house, the only places it was exhibited, and pronounced by Mr. Glenny a perfect gem. For Mr. Glenny's further opinion, see Gardeners' Gazette, No. 30. Height, 3 to 4 feet. 10s. 6d.

PRIDE OF SURREY, GAINES.—Rosy purple, of the finest form, warranted the best of its colour; perfect outline, the centre high, the petals beautifully cupped, forming two-thirds of a ball, and one of the most constant Dahlias in cultivation. Has been awarded two first class Certificates, and highly recommended as a first-rate flower. Height, 3 to 4 feet. 10s. 6d.

PULCHELLA, GAINES.—White, laced with deep rose; the centre high, fine cupped petals, large, round, and constant, pronounced by Mr. Glenny to be a very useful and handsome variety, being a colour much wanted, is highly recommended. Height, 3 to 4 feet. 10s. 6d.

QUEEN OF MAY, GAINES.—White, slightly laced or tipped with lavender, fine cupped petals, good centre, very delicate and pretty, a flower that will give satisfaction to the cultivator. Has been greatly admired. Height, 4 feet. 10s 6d.

A Priced Catalogue of Dahlias, Geraniums, Calceolarias, Cinerarias, Fuchsias, Auriculas, Chrysanthemums, Cornreas, Carnations, Picotees, Verbenas, Camellias, Azaleas, &c. &c., may be had on application at the Nursery, Surrey-lane, Battersea.

JOHN KERNAN begs to inform Ladies and Gentlemen that Copies of his VEGETABLE AND FLOWER SEED LISTS, as published in the *Gardeners' Chronicle* of the 24th January last, may be had on application.

4, Great Russell-street, Covent Garden.

WALTERS'S CINERARIA "BLADUD."—"J. P." in reference to your and other correspondents' requests, the above CINERARIA is now circulating in 5-inch pots, 7s. 6d., and 7-inch pots, 10s. 6d. each, in fine specimen plants coming into bloom. Strong plants in smaller pots full of roots. The usual discount if three or more are taken at once. Its habit is unique, and is without a match to pick for Bouquets. A Post-office order on Trowbridge post will ensure them.—S. WALTERS, Hilperton, Wilts.

SEED ESTABLISHMENT, 2, NEW BOND-STREET, BATH.

JAMES SALTER respectfully returns his sincere thanks to the Nobility, Gentry, and Inhabitants of Bath and its vicinity, for the distinguished patronage he has so long enjoyed; and having lately relinquished the Nursery Business, begs to announce that the SEED DEPARTMENT will continue to be conducted as above. In soliciting a continuance of esteemed favours, he trusts the exercise of the greatest care in the selection of Seeds of the best quality, and a uniform attention to the requirements of his patrons, will secure to him an increase of public confidence and support.

A printed list of Imported and other choice Flower Seeds may be had on application.

All private communications to be addressed to No. 21, Devonshire-buildings.

POTATO SEED in packets at 5s., saved from variety EARLY SHAW, to be had of W. J. NUTTING, SEEDSMAN, 46, Cheapside.

SEEDS.—CORNER OF HALF-MOON-STREET

THOMAS GIBBS and CO.,

(by Official Appointment) the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, LONDON, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

GRASS SEEDS.

GEORGE GIBBS AND CO., are now supplying their mixtures for laying down to permanent Grass, at 32s. per acre, allowing 2 bushels and 12 lbs. to each acre. This being an important branch of their business, having within the last few years supplied them for several thousand acres, with the most favourable results, they have been induced to lower the price to 32s. to meet the means of the plain farmer. G. G. and Co., therefore, confidently call the attention of those who may be desirous of converting land into a quick and durable meadow or pasture of the best quality, both for hay and succession of feeding; full directions for sowing and treatment will accompany the Seeds. Mixed sorts, for improving old Grassland, 1s. 3d. per lb.; fine sorts, for forming Lawns, &c., 1s. 4d. per lb.; large white Belgian Carrot Seed, 1s. 6d. per lb.; Italian Rye-Grass, true kind, 8s. 6d. per bushel. A general priced Catalogue of Turnips, and other Agricultural Seeds, forwarded on application.—Address to GEORGE GIBBS and Co., Seedsmen, &c. to the Agricultural Society, 28, Down-street, Piccadilly.

FOREIGN SHEET GLASS.

MESSRS. EDWARDS & PELL, 15, Southampton-street, Strand, direct Importers of BELGIAN GLASS, supply Glass strong and of excellent colour, at 3½d. per foot, for any dimensions under 1 foot in length. Figured Glass in every variety of pattern. Contracts for Stained and Painted Windows, in any design and size; Armorial Bearings, &c. executed by the first Artists in Belgium.

Propagating Glasses for plants, 6½ inches by 3½, 5d. each.

HORTICULTURAL SOCIETY OF LONDON.—Notice is hereby given, that the EXHIBITIONS of FLOWERS and FRUIT, in the Society's Garden, in the present season, will take place on the following SATURDAYS, viz., May 9, June 13, and July 11; and that Tuesday, April 21, is the last day on which the usual Privileged Tickets are issued to Fellows of the Society.

WILLIAM MASTERS, EXOTIC NURSERY, Canterbury, will be happy to forward, free of expense to any of the South-Eastern Railway Stations, the under-mentioned choice Hothouse and Greenhouse Plants, at the prices affixed, the selection being left to himself:—

	£	s.	d.
12 named Geraniums, of 12 fine sorts for	0	18	0
12 newer named ditto, of 12 superior sorts	1	5	0
12 Calceolarias, of sorts	1	1	0
12 Cape Heaths, of 12 different kinds	0	18	0
12 superior kinds of Cape Heaths	1	10	0
12 Plants of 12 species of New Holland Plants ..	0	15	0
12 do. do. of New Holland Greenhouse Plants, of larger size	1	4	0
12 Plants of 12 species, of newer kinds, do. do. ..	1	10	0
12 small Plants of 12 varieties of Camellia Japonica..	1	10	0
12 larger Plants, do. do. ..	3	0	0
12 Indian Azaleas, of 12 sorts	0	18	0
12 larger Plants of Indian Azaleas	1	10	0
12 newer kinds of Indian Azaleas	2	2	0
12 distinct species of Succulent Plants	0	18	0
12 choicer kinds of Succulents, one of each	1	10	0
12 Orchidaceous Plants of 12 species	6	6	0
12 do. of rarer kinds, 1 each	10	10	0
12 choice Stove or Hothouse Plants, 1 of each ..	1	10	0
12 Indian and Hybrid Rhododendrons, 12 varieties ..	2	2	0
12 China and Thé Roses, 12 varieties	0	15	0
12 superior Thé and China Roses, of 12 sorts	1	4	0

A large collection of the different varieties of Verbena, Calceolaria, Petunia, Anagallis, Mesembryanthemum, &c. for bedding, at from 4s. to 6s., in dozens.

ERICAS, OR CAPE HEATHS.

YOUELL AND CO. having a fine and beautiful healthy Stock of the following ERICAS, beg to offer them at 9s. per dozen. The usual discount to the trade.

Willmorei, cruenta, hybrida, gracilis, concinna, ignescens, abetina, hiemalis, flammea, verticillata, Bonplandia, Boweana, ventricosa brevidora, dichromata, and assurgens.

Great Yarmouth Nursery, April 11, 1846.

The Gardeners' Chronicle.

SATURDAY, APRIL 11, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Apr. 15—Microscopical . . . . . 8 P.M.
TUESDAY, — 21 { Horticultural . . . . . 3 P.M.
{ Linnean . . . . . 8 P.M.

Now that all Europe is speculating upon the possibility of procuring new kinds of vegetable food, it is not surprising that the hope of introducing ARRACACHA should be revived, especially since it is known to thrive in regions favourable to the Potato. For the sake of a few correspondents who have addressed us on the subject, of many who seem likely to waste money in the attempt to procure it, and in order that gardeners who will have to manage it if it arrives, as is probable, may know what it is that they have to deal with, a short account of the plant seems desirable.

The Arracacha is an umbelliferous plant, found wild in the elevated regions of Equatorial America, where it is extensively cultivated for the sake of its root. In the Andes of Popayan, Pasto and New Grenada, it is as extensively grown as the Potato. It is indeed far more productive than that plant; for, according to BOUSSINGAULT, 16 tons an acre are obtained from it; while the Potato does not yield more than 9 or 10 tons. It is, however, said to be somewhat less nutritious, because it contains a larger proportion of water.

The Arracacha root resembles a great Parsnip with many fangs, and in flavour is something between it and a sweet Chesnut when roasted; at least, that was the opinion formed of it by the writer of this notice, when it was grown in England about 20 years ago. Each root is said to weigh from 4 to 6 lbs. in good land, and it is certainly an excellent article of food. But can we grow it in the open air in Great Britain?

It is the opinion of some persons that we might. Arracacha is grown, they say, in places where the Potato is also a field crop; the mountainous regions of New Grenada have a climate quite different from that of the plains in the same latitude; and are really temperate like the British Islands. We cannot say that we agree at all in this opinion. The mean temperature of the Andes, where the finest Arracacha fields occur, according to M. GOUDOT, who lived in New Grenada for 20 years, is from 64° to 82°. There is no frost, no cold weather, no dry summer heats in those regions; and in truth we have not in our gardens one single hardy plant from thence, except the Potato which is a stranger there. How then can we hope to cultivate the Arracacha in the open air of this country? It will not bear frost, and dry weather is equally fatal to it. Besides, it must have six months of favourable weather to complete its roots; and where are such months to be found within the limits of these islands? Supposing, moreover, that a summer congenial to its growth could be found in Devonshire, or Cornwall, or the south-west of Ireland, further difficulties would have to be encountered. It is a difficult plant to preserve through winter, owing to its great proneness to decay. We remember that when the Horticultural Society possessed the plant, many years ago, the whole of the roots perished in the first winter, although they were packed in dry sand, and kept in a dry frost-proof shed.

That the peculiar climate of the regions where Arracacha grows has no parallel in Great Britain has been sufficiently shown by the difficulty experienced in keeping it alive when it was brought here many years ago. It was evidently unable to endure our open air, which was too cold, and too dry, and both. It was only in garden frames that it could be preserved. It is true that Mr. MURRAY, of Glasgow, is stated in the "Botanical Magazine" to have succeeded in keeping the offsets through the winter as the roots of Dahlias are kept, to have made them sprout readily in spring, and "to succeed in a warm situation *even* in the open air." But we believe that they were very soon found to disappoint his expectations.

In these opinions Messrs. SYLVESTRE, PAYEN, and BOUSSINGAULT, who have lately reported on the subject to the French Government, appear to agree with us; for they think that although, perhaps, the summer temperature of Paris may be high enough to suit the Arracacha, yet that the summer heats there would be injurious to it. And in this view of the case we are fortified by the experience gained in Jamaica, where Dr. BANCROFT found it impossible to manage it at Kingston, although it throve in St. David's Mountains, as well as by the failure experienced by Messrs. SOULANGE-BODIN, and VILMORIN, who have in vain endeavoured to cultivate it successfully in the neighbourhood of Paris. Some roots have now been sent to the French nurseries in Algiers, as a last resource; but nothing has yet been ascertained of their success.

If notwithstanding these facts any of our readers should desire further information, or to try experiments for themselves, we must refer them to the recent reports to the French Academy as published in the *Comptes rendus* of Nov. 24, 1845, and to an excellent article on the subject by Sir WM. HOOKER, in the "Botanical Magazine," for 1831, No. 3092, where the plant is figured.

MR. MEEKE having announced in our last Number that his valuable observations on the principles of what is called POLMAISE HEATING are brought to a close for the present, we may now offer a word or two on the subject ourselves.

We will, in the first place, beg of our readers to refer to p. 3 of this year's volume, where our own views of the matter are given and to see how far the controversy, which is now dying away, affects them. It will be found that, while all that we suggested or asserted is borne out by facts, we are called upon to retract nothing that is worth the ink that would be consumed in naming it. And we trust that those who are of opinion that what has answered perfectly in one place will not succeed in another, who measure the chances of success by degrees of latitude, and who cavil at petty details which in no way seriously affect the question, will endeavour to ascertain experimentally whether they are wrong or right. We profess our entire belief that they will report the result of their inquiry faithfully and without prejudice.

We can state that several houses will be thus constructed; that Mr. MEEKE is applying his own apparatus to a stove, and that we shall therefore be in a few months in a position to resume the question more advantageously than is at present possible.

One of the strongest symptoms of the probable success of the plan is the asperity with which it has been assailed by some of our correspondents, a tone which we must be allowed to say is never well suited to discussion, and is very much misapplied here, even supposing that the whole thing were the delusion which it is said to be, considering the intentions of those who have brought it into public notice. Surely it is more especially discreditable to persons to go so far as to assert that Mr. MURRAY, of Polmaise, had been obliged to pull down the very apparatus on whose successful action the discussion has been raised. A letter from Mr. PETER MACKENZIE, in another part of to-day's Paper, effectually disposes of such unworthy methods of influencing opinion.

It is very unwise to assume that the art of heating has reached its final condition, that it cannot be improved, that no conceivable means exist of doing what is now done better and cheaper. *We* at least cannot hold out any prospect of acquiescence in such hopeless doctrines. On the contrary, we are perfectly convinced that men have only just begun to operate in the right direction, and we shall never rest till means of heating shall have been devised, which will be far more like a termination of the inquiry than hot water.

But let no one say that we disparage hot water. On the contrary, we admit all its excellence and advantages; and we should think him a very unwise person, who, having a good hot-water apparatus, pulled it down for the sake of substituting Polmaise. "Let well alone" is an excellent maxim, if it does not prevent our always striving to do better.

As to those who decry the Polmaise system, because in their opinion it will not, as they think, do all that may be done with hot water, will they allow us to ask whether a dray-horse is the less useful because he is not fit to run for "the Derby?"

ON THE ORIGIN AND GROWTH OF FUNGI AND PARASITES.

AT the present moment the malady which has affected Potatoes engages much of the attention of the scientific world, and various theories have been advanced in order to account for so widespread a disease. Many writers ascribe it to the attacks of a fungus. It is not my intention to enter into this controversy, but rather, as a preliminary undertaking, to offer a few remarks on the growth of fungi and parasites. In what I am about to state, I am aware I am entering on new ground, and have therefore to contend with a host of great names arranged on the other side. This might almost be sufficient to deter one from entering on the task, were it not that your columns are open to the investigation of truth, rather than the support of any preconceived theory.

Under this impression I now proceed, leaving the arguments to be adduced to speak for themselves. In the mineral kingdom we find that metals in crystallising assume frequently an arborescent form. The same thing may be observed in water crystallising into hoar frost on the panes of windows. This arises from a law, resembling, as Mr. Aikin informs us, that which produces the lower forms of vegetable organisation. When a small quantity of paste is allowed to stand for a few days till it begins to undergo decomposition, it becomes covered with a multitude of white fibres or threads shooting upwards into the air, having all the appearance of a vegetable production. Now in what manner is this white mouldy substance formed? If we look into Liebig we find it reported that he placed some Potatoes in a box, wrapping them up in several folds of paper; that some time after they were found enveloped in a kind of net, and that the sprouts and cells of the young Potatoes abounded in starch, which they had drawn from the cells of the Potatoes he had thus wrapped up. He then goes on to state that the formation and growth of fungi is analogous to this, and that as the constituents of the old Potato were found unchanged in the young ones, so in like manner, animal and vegetable substances, when they begin to decay, pass over into fungi, exactly as the substance of the parent Potato entered into the young sprouts and tubers. It is in this manner, too, that the substances in the paste above mentioned passed over into the white fibres or threads which appeared on the surface of the paste.

So far, all is plain; but when we come to inquire in what manner do fungi, and parasitic plants resembling them, spring up on innumerable vegetable substances, when these vegetable substances are partly changed in their nature, we are told by naturalists that these parasitic plants have seeds called sporules, which vegetate and produce parasites on the plants on which they alight, or to which they have in some way or other become attached. Now, this, I think, is a point which has been too generally received without sufficient evidence. It is certainly a matter which requires more proof than has ever yet been adduced to support it in all cases. We are aware, however, that a substance resembling the lower forms of vegetables grows up in paste, even when excluded from the direct action of the atmosphere; while the previous process of boiling and preparing the paste was sufficient to destroy any ordinary power of germination which a seed or sporule in it might possess. How, then, does this vegetable growth arise? Why, just in the way in which Liebig states that the vegetable substances on which a fungus grows, passes up into the growing fungus. At first, we may have some difficulty in understanding how a fungus could thus grow up without a seed as its cause; but when we reflect that in the mineral kingdom a metal may assume an arborescent form, and that even water in hoar frost does the same, in consequence of a law somewhat similar to that which produces the lower forms of vegetable organisation, we can have as little difficulty in arriving at the conclusion that a vegetable when beginning to decay may still preserve a little of that peculiar vitality which might impel the decaying vegetable to send up its products of starch, &c. in a new vegetable form. It is thus, if I am not greatly mistaken, that innumerable fungi and parasites grow up without the intervention of any seed whatever, and that many of the fungi and parasites which we discover on vegetable substances, and whose growth we attribute to seeds or sporules, are nothing more than the extension of the products of diseased plants assuming new forms, under the influence of the law now indicated.

Under this view of the case it would appear, that whenever a plant became diseased, or its juices unnaturally expelled by atmospheric or other causes, the law now indicated might send up part of these exudations in a shape resembling fungi, and that the new vegetable

thus produced, appearing almost at the same instant as the disease which gave birth to it, might by some be considered as a new being arising from a seed or sporule, instead of its being merely an extension of the existing vegetable in a new form.—*An Inquirer, Ripon.*

SELECT PLANTS FOR BEDDING OUT IN FLOWER GARDENS.

(*Continued from page* 220.)

2. LOBELIA ERINUS COMPACTA.—This variety differs from L. erinus grandiflora in being smaller and more delicate, in its pale-green aspect, in its less robust and nearly upright growth, and in forming an extremely dense and compact plant, with a much greater disposition to form premature flower-buds. When multiplied by seed, the flowers vary in colour from every shade of ultra-marine to a bright sapphire-blue. The latter is its most permanent character, to perpetuate which it should, in common with all varieties which degenerate in colour, be increased annually by cuttings. Although less favourable than the latter for forming large groups or beds, from its dense and upright growth, it is, nevertheless, by far the most beautiful of all the varieties for producing a brilliant single effect upon rock-work, or small parterres. Being of recent introduction, its adaptation for picturesque effect is not generally known. A small bed was devoted to its culture last summer in the Royal Gardens of Buckingham Palace, where, from its remarkable profusion of conspicuous bright blue flowers and neat, compact growth, it was described by all who saw it as extremely beautiful. In a few cases the variety has been considered to be uninteresting (!), which is easily explained, either by reason of a defective growth or from the possession of an inferior variety from seed. I have seen no other plant of similar habit worthy of being compared with it. In order to obtain a stronger growth, previous to planting out, the following treatment was followed :—

Established cuttings of the current year were grown in a house-pit devoted to rearing young stock of Fuchsias, Verbenas, &c., well exposed to the light, and where a generally uniform and genial temperature was maintained at from 66° (and occasionally 70°) by day to 55° by night, until the plants were removed from pots of 3 inches diameter, and established in pots of 5 inches diameter. Whilst the plants were in the former size, a limited number of them were treated upon the principle described in the last Paper, by having the terminal growth of each (amounting to nearly one-half of the entire plant) uniformly cut off, thereby inducing a stronger and more prolific growth. This process was also repeated when the plants were re-established in the latter-sized pots ; and on their again assuming a vigorous growth, they were removed to a cold pit or frame, and gradually exposed to the open air preparatory to planting out for the summer.

The temperature in which they were grown, previous to being planted in the open ground, has been carefully noticed, in consequence of the too little importance attached to the necessary means for obtaining fine growth in plants, otherwise requiring ordinary management.

Could we but read the language of flowers, as expressed by their imperfect growth, it would be but to reproach us for having transplanted them from the bright and genial influence of their own summer skies, to bloom imperfectly under the cold and blighting atmosphere which too often attends their imperfect management. The perfection of beauty in flowers is, in a great degree, dependent upon circumstances favourable to its development ; and like a statue assumed to exist in a block of marble previous to its sculptured form, which nothing less than the intimate knowledge and communion of the artist with the principles and practice of his art can bring to light, so it is with flowers.

The arm of the sculptor is impotent to wield the implements of his genius apart from the favourable influences which awaken and sustain his energies ; and the cultivator of plants, who aspires to the highest attainment in his profession, must also feel the inspiring influences of nature, over the circumstances which give birth to the noblest efforts of professional skill.—*William Wood, Pine-apple-place.*

ENTOMOLOGY.

THE WOOD LEOPARD MOTH (*Zeuzera Æsculi*).—Conspicuous amongst the tree-destroyers is a caterpillar similar in its habits to that of the goat-moth, but it is much smaller, being only 1¼ inch long, fleshy, of a yellow colour, with four black raised spots on each side of the segments, excepting the thoracic and apical ones ; the former has a black shining horny shield, and the latter is also partially black and horny ; the spiracles are black, and there are two black spots on the head ; it has six pectoral, eight abdominal, and two anal feet (fig. 1) ; it lives in the trunks of various trees, as the Apple, Pear, Quince, Lime, Mountain-ash, Walnut, Hazel, Holly, Ash, Elm, Beech, Birch, Oak, and Horse Chesnut, from which it receives its specific name, not a very apposite one, as it very seldom attacks that tree. In Feb, 1845, a portion of a small Oak-branch was sent to me with one of these larvæ in it ; a longitudinal tunnel had been found, not quite in the centre, about the size of a swan's quill, and there it remained for several months. I wrapped the wood in brown paper, through which the caterpillar ate a hole directly opposite that in the wood, previously to changing to the pupa, and covered the entrance with a woolly web and fibres, I imagine, of the paper, and about the end of June a male moth hatched. In extricating itself, it had forced the pupa-case half-way through the woolly stopper, which held it fast by the serratures. This pupa is shining ochreous-brown, long and cylindrical, with two transverse elevated lines of little teeth on the back of each segment, one being short, the other interrupted only on the underside, the serratures inclining towards the tail ; the apex is also spiny, and there is a horn on the forehead (fig. 2).

The female moths appear later, and are found until the end of August* ; many of the eggs are laid in July, and the larvæ issue from them so as to cast their skin in September, and arrive at maturity the following June. These moths fly towards the evening, and the males are very active and lively, but of rare occurrence compared with the sluggish females ; these are furnished with a strong horny ovipositor for inserting their eggs in the crevices of the bark ; they are oval and of a pale salmon colour (fig. 4), and one I had laid about 300 eggs in one mass ; when first hatched the larva feeds upon the bark of the tree ; but it soon afterwards pierces the solid wood, and the late Mr. A. Matthews made some observations on its economy, which will further develope the habits of the caterpillar. His attention was called to the subject by seeing a small mass of apparently decayed sawdust protruding from the bark of a Pear-tree in May, above four feet from the ground. On removing the bark it appeared that the caterpillar had first worked downward, and formed an irregular cavity in the wood, from one-eighth to three-eighths of an inch deep, which was to receive, and was partly filled with excrement ; it then returned, having increased in strength and size, and in all probability changed its skin, and proceeded to bore a tunnel, a little above its entrance, about half an inch in diameter, regular in shape and gradually receding from the surface of the tree, until it had extended nearly a foot in length, when it was 1½ to ¾ from the bark, and at the summit the caterpillar was found with its head ascending. The larva usually changes to a chrysalis just beneath the bark, in a thin web which it previously spins, and the serrated rings are admirably adapted to hold by the web and aid the moth in forcing its way through the covering, and eventually slip out, as is evident by the empty pupa-cases of this and similar timber-feeding larvæ being seen projecting from the trees where the moths had recently hatched ; and I expect that such larva either secure to the imago a means of exit, by previously eating a hole entirely through the bark and closing it by a web, sawdust, and excrement, or leaving so thin a covering that the animal has strength enough to force its way through, softened, as it may be, by the fluid with which all Lepidoptera are charged at the period of their final transformation.



The wood-leopard moth has been found in various parts of England, and was abundant some years since in St. James's-park, where the wings were scattered about by the bats, which fed upon their bodies. It is a singularly beautiful moth, and of considerable size, the female sometimes measuring 2¼ inches, when the wings are expanded. The male is much smaller ; it is white, the wings are somewhat transparent. The nervures ochreous, with numerous large round and oval black spots, having a chalybeous or green tint on the superior ; but they are much smaller and paler in the inferior ; the antennæ are black, shorter than the thorax, setaceous ; the first 18 joints are bipectinated, the rays forming an oval ; the following joints are slender and pubescent (fig. 3) ; the head and thorax are densely clothed with the finest wool ; the latter is long and oval, with six large black spots in two lines down the back ; the eyes and legs are black, the latter deep bluish ; the abdomen is banded with grey and black. The female has simply setaceous antennæ, the basal joints woolly ; the abdomen is large and much blacker than in the male.

Fruit-trees may be protected from these mischievous larvæ by painting them with whale-oil soap as recommended in this journal, v. ii., p. 304 ; and no doubt if tobacco-smoke could be forced into perforated trees, it would drive out the larvæ, just as rats are ejected by water.—*Rurigola.*

GERMAN PAMPHLETS ON THE POTATO DISEASE AND ITS REMEDIES.

No. 4.—*What Artificial Means may be used to obtain from a few Seed-Potatoes a large number of Plants, and an abundant produce of Tubers ?* From the "Annalen der Landwirthschaft," Band VII. Heft 2.

THE need of Potatoes for seed, which must be felt in the coming spring, naturally draws attention to the means of meeting the deficiency. From experience I can recommend a simple and safe procedure, whereby out of a few good seed Potatoes, a far greater number of strong and fruitful Potato plants may be produced than by the usual plan. I was led to this practice by the wish to increase as rapidly as possible the new sorts of Potatoes which I had grown from seeds, and which appeared to me especially promising, in order that I might be the sooner able to judge of their utility.

It would occupy too much space to detail all the experiments I have made, but I may state generally as the result, that I have been able, *out of every sound eye of a perfectly sound Potato, to obtain at last three strong Potato stalks*, all three of which bore perfectly developed and ripe Potatoes. The following is the plan pursued :—From the sort of Potatoes I wished to preserve, I selected the strongest and most beautiful Potatoes ; these I placed, in the beginning of March, in a hotbed which had been already used, or I prepared a hotbed on purpose with horse-dung, and upon this I placed the Potatoes so thick and near one another, that at least from 25 to 30 might be counted on every square foot ; these were then covered with about 4 inches (Quer-Finger) of earth, and the frame was closed. In the course of from 14 days to three weeks the Potatoes had germinated and grown so rapidly as to project against the glass of the frame. A spot of ground was then prepared for the transplanting of the Potatoes, and after the sashes had been removed about eight days, to accustom the plants to the air, the Potato plants were taken up, and every one of the tubers was separated from the stalks by a peculiar turn of the hand which may be easily acquired. The shoots thus removed were again planted close to each other, either entire or divided into many parts, in the piece of ground previously prepared, and were protected at night or on cold days, by covering them over with boards and fine faggots or straw. Here they were allowed to remain till the weather permitted their being planted in the open field. Although this treatment has been generally successful, yet sometimes it has happened that the night frosts have done severe injury to the plants. I have sometimes allowed the Potato plants to remain in the hotbed, by removing with the fingers the tubers from the shoots, and replanting the latter immediately. It does not at all signify, if from the thickness of the plants, one is obliged to lift the Potato shoot quite out of the ground, in order to remove the parent tuber. The hotbed need not, after this process, be covered with the frame, but merely at night covered over with the boards, or if necessary a straw mat. This plan is undoubtedly the best for the growth of the Potatoes in the open field, but it renders necessary another bed for the farther growth of the parent tubers.

Whether the parent tubers have been separated from the stalks upon one plan or the other, they should be placed in either the same hotbed or in another, and laid out in the same way as at first. By this treatment every sound parent tuber immediately sends forth new plants, and produces in a much shorter time than before from every eye a plant as sound and healthy as at first, and they grow so much faster than the first, that they will frequently be ready to plant in the open field with the first. In the same manner a third crop of sound and healthy plants may be obtained, which will be ready for planting out at the end of May or the beginning of June, and from which an abundant supply of Potatoes may be harvested. It is seldom that a single eye has failed in yielding shoots a third time, and I have often succeeded in obtaining them from more than half the eyes a fourth time, and these have produced beautiful large Potatoes, perfectly ripe, and such as might be used for seed or for the table.

The difficulty of this mode of treatment lies in the backwardness of the first produce of shoots, which will prevent their being planted out time enough for a third produce to make their appearance, so as to ensure a perfect harvest. There will always be some difficulties to be met in getting three shoots from each eye, but in this way alone when successful can the largest quantity of Potato plants be secured from any given quantity of seed Potatoes. When the tubers produce three sets of shoots, it is found that for every acre (morgen) of land a hotbed frame will be required about 5 feet long, and 4 feet broad, provided the plants, when placed out in the field, are set at their usual distance.

I come now to speak of this plan not where the object is to save the Potatoes on account of the deficiency of the harvest, but as a cheaper and better one than that which is now generally adopted, for the purpose of growing Potatoes. In the course of taking up Potatoes, or during the winter, the finest, largest, and ripest tubers should be selected for the purposes of seed. In the middle of March, treat them as described above by placing them near one another in a hotbed, exposed to the free air in April, and at the beginning of May ; or, should night frosts prevail about the 13th or 14th, plant them out in the field, and then plant them somewhat deeper, and there will be found little occasion to plant again on account of failure. A field planted with tubers cut up will show many more vacancies than by this plan. After separating the shoots from the parent tubers, they should be placed together, and about 3 inches of earth heaped over them. In 14 days, at most three weeks, the hotbed will again be covered with the strongest plants, which may be planted out in the field.

Without the help of a hotbed, only poor plants are obtained, which yield but an indifferent produce. Throughout the whole procedure there is required the aid of heat and maturation, in order that more than one fruitful sound plant be obtained from a single eye.

* For dissection and a figure of the female, see Curtis's Brit. Ent. plate 732.

It appears to me that if this plan was generally tried that it would probably lead to some more easy mode of procedure, so that, perhaps, the hotbed might be dispensed with, and then small farmers might be able to adopt it. Should the plan be ever generally adopted it would undoubtedly be the means of effecting a great saving in the culture of Potatoes.

In conclusion, I must bear my testimony, that this procedure is preferable in every point of view to the plan of planting the Potatoes whole, or in cut sets.

1. They are much superior to plants obtained from planted tubers, for transplantation does not injure them, but rather increases their produce; they do not produce new tubers easily in the hotbed, and should they do so, it does not interfere with the success of transplantation.

2. They suffer far less from the influence of injurious conditions of the atmosphere.

3. They find more space in the soil for the production of tubers, even if they are planted somewhat thicker than Potatoes are ordinarily planted, because every plant stands alone, whilst many stems grow together when produced from a single tuber.

4. They ripen their tubers simultaneously, because later shoots cannot appear, and on this account they produce, on an average, a greater number of large and middle-sized tubers than smaller ones.

5. The produce, entirely independent of the saving of seed, is greater, because the tubers are originally thicker planted than can with profit be done in the ordinary way. Something, however, depends on adapting the treatment to the particular kind of Potato as well as the soil. An individual plant cannot naturally produce so many tubers as an entire stem, which consists of six individual plants, though they be poor and contracted, but still six individual plants occupying the space of three stems, every one with six plants, will give a much larger and better produce. — *Ohle, Gorlitz, Jun.* 1846.

WEEKLY PRICES OF POTATOES per ton, in *Covent Garden Market*, in 1845, and 1846.

	1845.			1846.	
March 8	50*s.*	to 90*s.*	March 7	70*s.*	to 170*s.*
15	50	90	14	70	170
22	60	100	21	70	180
29	60	100	28	70	180
April 5	60	90	April 4	70	180
12	60	90	11	70	180

Also at the waterside, *Southwark*.

March..... 10	55*s.*	to 80*s.*	March 9	60*s.*	to 140*s*
17	55	80	16	60	140
24	55	80	23	60	140
31	55	80	30	60	140
April 7	55	80	April 6	60	140

Home Correspondence.

Texan Beehive.—I have read the article headed "Immense Natural Beehive," extracted from the *Texas Telegraph*, a paper published at Houston. I remained some days at Austin in June 1843, in company with Messrs. Upshur and Teulon, two gentlemen who had resided there for a considerable time, and both much attached to science and literature. From these gentlemen I obtained much information relative to Austin and its vicinity, but never heard them mention anything about the said beehive. The description of that part of the country is partly correct. In August 1843 I was at San Antonio, and heard that from a fissure in a mountain not far from San Antonio some two or three small waggon-loads of honey and bees'-wax had been collected. I have traversed much of the first range of Texan hills and mountains, and have not seen any deposits of honey or wax in the fissures or caverns in the rocks. Such, however, may exist; but many an old tree have I assisted to cut down for wild honey. Some few persons employ themselves in the collecting of honey and wax for sale. Wax fetches a high price in Mexico, where so much is used in the churches. Speaking of strange things in Texas, I may mention that on the San Antonio river there are many ruined "Missions." The churches of said missions are still in pretty good repair. In nearly all these ruins small bats build their nests; but in that of La Concepcion, a few miles below San Antonio, there is a countless number of bat's-nests, and in 1843 and 1844 I observed a layer of bat's-dung covering the whole of the bottom of the church in some places a foot to a foot and a half thick, and the stench arising therefrom intolerable. Were manure necessary for the lands on the San Antonio, this bat guano might be of some service. The bats in the town of San Antonio are rather annoying, few houses having glazed windows.—*W. B.*

Melons.—Having now lived 14 years in the far north of Ireland, and with an employer who gives me no liberty to visit or communicate with my neighbours, I have not had an opportunity of seeing the Beechwood Melon; but, from seeing it so much praised in the *Chronicle*, I last year sent to Edinburgh for some seed, and planted a large frame of it by itself, with the view to keep the seed free from mixture. To my great disappointment, however, I had four distinct varieties of fine Melons, viz., the Bedford Green-flesh, a large Scarlet-fleshed Rock, a large oblong-shaped Melon (of 11 lbs. weight), and a large oblong deeply-ribbed sort, which inclined to grow unshapely, weighing about 10 lbs. Now, may I ask which of the last-mentioned Melons, or if any of them, was the true Beechwood?—*J. D T.* [Very sorry to hear that you have been *cheated*. None of these answer to the Beechwood Melon.]

Lupinus littoralis.—In the account of this plant in the "Botanical Register" (vol. xiv., p. 1198), it is stated that "this species is abundant on the sea-shore from Cape Mendocino to Puget's Sound, where it binds together the loose sand with its tough branching roots." Can any of your readers inform me whether the experiment has been tried in England of employing this plant for binding the loose sand on the coast? As it could be rapidly propagated to any extent, it would probably be found superior to other plants at present employed for the purpose.—*A. C.*

Polmaise Heating.—As many important facts have already been laid before the public respecting Mr. Murray's mode of heating, and also principles applied to the system by Mr. Meeke, I will only endeavour to draw a few parallels between the workings of Nature and that of the Polmaise system. Natural Philosophy teaches us that "the effects of the direct influence of the sun are greatly modified by the transportation of the temperature of one region into another, in consequence of that disturbance in the equilibrium of the atmosphere, which the action of those rays necessarily produces. The columns of air that are lighter are displaced by those that are heavier, and have a general tendency in the air to move from the poles towards the equator. The superior current restores the air carried from the higher latitudes to the lower with such a degree of equality that the average weight of the atmosphere, as measured by the barometer, is nearly the same in all climates. This restoration is, however, subject to great local and temporary irregularities, from the different degrees of resistance that the air meets with in passing over the surface, and the different capacities of that surface for receiving and communicating heat." Now this efficacious and simple method for distributing heat over the earth's surface is used on a small scale in the Polmaise heating, the warm air ascending and flying to the right and left, diffusing itself over the whole house, the lower currents moving on to supply the place of that which has been displaced by this easy way the heat is modified with freedom to any temperature that may be required for gardening purposes. Is there anything unnatural in all this? Again, vapour also that rises from water uniting itself to the air, ascends to the higher regions of the atmosphere; we are also informed that if large portions of the atmosphere at different temperatures, and saturated, or nearly saturated, with humidity, be driven against one another by contrary winds, the consequence must be a precipitation of humidity, or the formation of clouds. Now, as far as we have observed, the simple and ingenious plan of giving moisture to the house has nothing opposed in it to Dr. Hutton's theory of the formation of clouds in the manner in which the air is supplied with moisture. Moisture can be given in sufficient quantity to satisfy the wants of plants in any situation in which they may be placed, from the dry to the moist stove. Many other natural laws could be pointed out in this way of heating hothouses, that have been discovered by such men as Newton, Dalton, Leslie, Prevost, Mariotte, &c., but with all its simplicity and successful working, it appears to meet with keen opposition from quarters from which we ought to expect better things. I set out one morning in March amidst frost and snow and saw the Vinery at work, and I only wish that those who talk about a white heat being necessary to keep up the temperature, had seen it. Instead of a white heat I saw a low smouldering fire and a narrow-mouthed furnace, and the supplying of it with fuel, might be compared to the feeding of an infant with a teaspoon instead of a muckle Sam with a horn shovel. It is somewhat strange that almost every useful invention has to undergo an ordeal, and some of them a fiery one, before they will be secured to benefit the world; take as an example the discoveries of Galileo. Kepler thought that if the discoveries of Galileo were true, his "Mysterium Cosmographicum" would be overturned; and there was a Mr. Horky who declared positively that he had examined the heavens with Galileo's own glass, and that no such thing as a satellite about Jupiter existed; nor does it appear that the descendants of Horky are all dead; but the reply that the philosopher gave to the astrologers might be given to them; he told them that it was a more honourable and praiseworthy enterprise, with their own watchings, toil, and study, to discover something admirable and new, than to pass a listless and lazy existence, labouring only to darken the toilsome inventions of their neighbours, in order to excuse their own cowardice and inaptitude for reasoning, while they cry out that nothing can be added to the discoveries already made. There are no golden reasons influencing me either to write against the system or for it; but having examined it from time to time, and having seen what it has done with so much ease and simplicity, I consider that it would be doing an injustice to gardening to remain silent. I may state, before concluding, that the furnace has been used for four years and required no repairs, and to all appearance will require none for many years to come; I was also informed that the fire when made up at 6 o'clock in the evening, will remain good for 10 or 12 hours, so that the gardener can go to bed when he pleases, and never dream of the mercury in the tube being congealed, or even at the freezing point.—*P. Mackenzie, West Plean, Stirling.*

Pansy Dealers.—The undersigned would thank the Editor of the *Gardeners' Chronicle* to inform him what he can do under the following circumstances:—In February, 1845, he sent a Post-office order to the amount of 1*l.* to a celebrated grower of Pansies, near London, after the latter had transmitted his list, for which no plants have been received, nor any answer to several letters on the subject.—*A Subscriber, Guernsey, March* 31. [Prosecute him for fraud.]

Weather Rules.—I have to state for "G.W.'s" information (p. 205) that I have watched the weather by Dr. Kircher's rules for several years past, and have found them to be correct. This year it blew hard, with squalls accompanied by rain from the S. and W. on the 21st, 22d, 23d, and 24th March, consequently if Dr. Kircher's rules hold good this year, the coming summer will be wet.—*M. E. A.*——In addition to the above I beg to give the following:—

1843, March 21, wind S.W.; 22, S.W., 25, very high, S.E.
,, ,, 26, ,, S.E., VERY high.
1844, ,, 17, ,, S.E., VERY high.
1845, ,, 21, ,, S.S.W.; 22, W.S.W., VERY high.
1846, ,, 20, ,, E.; 21, E., very high; 22, N.W.

—*J. B. H., Abergele, April* 4*th.*

Polmaise Heating.—I rejoice to see that horticulturists are beginning to receive one grand principle which I am convinced is as essential to the well-being of plants as to the support of animal life—I allude to the admission of a constant supply of fresh air from without into the atmosphere of the house. It is the judicious adaptation of this principle which has proved so beneficial at Polmaise, and I trust that your advocacy of the system, backed by the remarks of Mr. Meeke and others, will eventually persuade gardeners that plants are not fairly used when shut up in confined houses; for as we know that they assimilate carbon from the air, of what use can it be to continue them surrounded by an atmosphere from which the carbon has been already exhausted? Thus, we often see plants in houses warmed by hot-water or flues, drooping and sickly, when the weather will not allow of airing the house. A striking instance of the comparative salubrity of the two methods has come under my notice, in the case of two Orange-trees, which for two seasons in a hot-water forcing house scarcely put forth a blossom, but on being removed to a house heated by one of Hogard's stoves, where fresh warm air was constantly pouring in, throve vigorously, and have since their residence there continued to exhibit a fine bloom. I have great expectation, from the tone of your leading correspondents, that this question will resolve itself into a scientific inquiry into the general principles upon which heating should be founded. We shall then be in a position to judge correctly of the various inventions which are daily propounded, and know how to reject those which, in spite of specious appearances, being radically opposed to the laws of nature, are certain to end in failure and disappointment.—*L. Clifton.*

——In answer to my question of whether the heat can be distributed before it is collected, Mr. Meeke says, "I reply that it is collected in the coals, evolved in the combustion, and our object then is distribution." It appears to me that it would be more correct to say, that it is stored up, in a latent state, in the coals, is brought into action by and evolved during the process of combustion, is collected by the apparatus, whatever it may be, in which the coal is consumed, and conveyed through the channels communicating with, and by their intervention distributed to, the area to be heated. The real question of the time requisite for the distribution of heat to the area to be warmed, is, whether in practice the hot water is inefficient, and the Polmaise only efficient; a mere theoretical difference of a few moments is of no advantage. With regard to the waste of heat from the boiler, what I said was, that it might, to a great extent—not that it might all be avoided; that it was not in every case a necessary consequence of the use of hot water. For instance, I have in a greenhouse a boiler, the fire-box of which is contained within the water case; as this is not inclosed it supplies heat to the area of the house, in the proportion which its surface bears to that of the pipes. When I find that five or six moderate-sized detached houses or pits are supplied with the requisite amount of bottom and atmospheric heat for carrying on the ordinary operations of Pine and early Grape growing, during our usual winters, and this from one not immoderate-sized furnace, on the Polmaise plan, and costing not more than a quarter (which I think it professes) of the outlay necessary for a hot-water apparatus upon the same scale, I shall begin to think some 75 per cent. of the many hundred pounds which have been so laid out might have been saved; until then I incline to the opinion, that from a given quantity of fuel a greater amount of caloric, by means of a well arranged hot-water apparatus, may be collected, conveyed, and distributed to different detached houses at the same time, than by the Polmaise plan, and this in spite of the sacrifice which is then unavoidable.—*T. K.*

Brewing. — In last week's Paper an anonymous correspondent professes to give a method of brewing "pale ale" of a quality equal to that of the Messrs. Bass. After stating the proportions of each of the ingredients (the quantity of Hops, by the bye, seems unreasonably large), he directs the "Camomile flowers to be *stewed*—query, stewed?—in a jar and strained." "Put the Camomile flowers and Hops in at the same time." Into what are they to be put, or where? And again, "Boil the *malt* and water," &c. Is it possible your correspondent can be in earnest in directing the malt to be thus treated? when every housewife knows that to even pour boiling water on the malt would cause it to become solidified or cread, and the brewing spoiled. If your correspondent would be kind enough to explain or reconcile these, to me, apparent incongruities, I should feel much obliged; for to follow his directions as they now stand would appear to be a waste of money only. —*A Subscriber, Nottingham.*

Potato Disease.—In November last I tied a sound

subjects of notice. Where size and rapid growth is the object, be sure to use liquid manure, according to the directions laid down previously, viz., moderate in strength, and as clear as wine it possible. Imported Orchids should have a mild yet constantly moist atmosphere for a few weeks, until they begin to grow. No water should be applied to them until that period, and then with moderation. They will fill their pseudobulbs by atmospheric moisture alone, and all excitement otherwise will be at the expense of the energies of the plant. Get other Orchids into rapid growth as soon as possible, in order to get a long autumn to ripen their bulbs—a most essential point with most of them *Mixed Greenhouse.*—The leading shoots of Epacrises Chorozemas, Correas, Heaths, with many other choice plants, which produce the best effect in a bushy condition, should be frequently pinched or stopped, in order to form good specimens; also those of Calceolarias, Verbenas, and other young stock, intended either for decorating the flower-beds or for succession in pots. Give liberal shifts, when necessary, to specimen plants, and, above all things, secure efficient drainage; with the constant use of turfy soils, weak and clear liquid manure should be used constantly at this period. *Cold Pits or Frames.*—That portion of the structure which is not filled with young stock, may now be very usefully occupied with some of the hard-wooded tribes of the conservatory, or mixed greenhouse, in order to make way for a free and healthy growth in the rising generation, and to afford choice specimens abundance of room.

KITCHEN GARDEN FORCING.

Pines.—Montserrats, or Jamaicas, intended for fruiting next autumn, and through the following winter, will soon begin to show; these are easily injured by overwatering, especially if not in a very high temperature. They will, however, now require a little, which should be enriched with good but clear liquid manure. See that their bottom heat does not decline any at this period, but maintain it steadfastly at 80° or 85°; to this end frequently introduce a little new tan between their stems, rather endeavouring to carry the bottom-heat to a higher level than to augment the amount in any particular degree. *Vineries*—Attend to disbudding the late Vines, which will be now breaking; see that all is right at the root as to superfluous water, &c. A tarpaulin would be an excellent thing to draw on the borders during heavy rains, the pernicious consequences of which to the Vine are, I am sorry to say, still underrated by the public, at least in my opinion. *Peach-houses*, as before. *Cucumbers and Melons.*—Do not let the advancing season lull you into a belief that linings may be neglected. In so fitful a climate as that of Britain, they will bear slight renewals through most of the summer, provided fine fruit be the object. Stop often the young shoots, at every second eye, of your Cucumbers. But after once stopping in the seedling state, suffer the Melon leaders to stretch nearly to the side of the pit or frame before stopping them.

KITCHEN GARDEN AND ORCHARD.

Scarlet Runners, and an early crop of French Beans, should now be sown. The ground for the Runners should be well manured, and deeply dug; and the shoots when about 5 feet high, should be constantly stopped. This will save the necessity of using unwieldy sticks, and will secure a succession. The first Kidney Beans will be as well raised in a hothouse or frame, and transplanted. They however must be gradually hardened before transplanting. Nasturtiums may now be sown, as also an early sowing of Gherkins. These may be raised as recommended for the Kidney Beans. Sow also a little early Red Beet, Scorzonera, and Salsafy. The Globe Artichokes should now be dressed: remove a little soil, and pull away all the plants but about four or five, and fill up with a dressing of rich manure instead of the soil. A row transplanted now in very rich soil will succeed the main crops, if well watered and attended to. Box-edgings should be clipped immediately, if not already done. *Orcharding.*—Attend to former directions; I doubt this will prove a bad fruit year. The snow has lain here 3 inches thick for the last day or two.

FLOWER-GARDEN AND SHRUBBERIES.

If no scheme has been formed for the disposition of the gay mass flowers, it should be done forthwith, in order that sufficient stock may be got together without delay. Not a moment's time should be lost in propagating extra things for these purposes. Choice Carnations, if at hand, should be turned out in beds or borders. Three in a group, in rich soil, produce a bold and gay effect. The Mimulus family should be now transplanted in fresh patches in moist soil, not forgetting that popular flower, the Musk; the latter should be removed in dense patches.

FLORISTS' FLOWERS.

It has been truly said, that the present season has hitherto been the most unpropitious known for many years, for the culture of this department of the amateur's care. Many complaints from various extensive Tulip growers attest the prevalence of canker in a serious degree amongst their collections. As the stems elongate, it will be necessary to support them by introducing neat sticks into the bed, to which metallic wire may be attached in such a manner that the end of each piece of wire (four to every stick) may encircle the stem of a Tulip, thus holding it perfectly safe from the effect of wind, giving at the same time a very neat appearance to the bed. Protect and shelter from prevailing winds and hailstorms as usual. *Pinks.*—The beds must be kept thoroughly clean, and small sticks may be put to the plants; it is better done now than when they are further advanced. I am growing 100 pairs, in half-pots, and when this plan becomes more generally adopted, it will doubtless give great satisfaction, especially where they are bloomed for exhibition. *Ranunculuses*, in spite of the cold weather which has lately occurred, are making progress. Cover the beds with mats from excessive rain, as well as on frosty nights. *Carnations and Picotees.*—Examine the traps for wireworm daily. Thin pieces of Potatoes ought to be inserted in each pot where there is any fear of danger from these destructive insects. *Pansies* ought to be covered as recommended for Ranunculuses; and if the cultivator will look his bed over about 9 or 10 o'clock in the evening, with a candle and lanthorn, he will not lose his labour, for at this time snails and other vermin are hard at work with his collection. *Auriculas and Polyanthuses*, where intended for show, must not have water over-head; and in this showery weather take care that no drip falls on the plants.

COTTAGERS' GARDENS.

The cottager should at all times pay considerable attention to mixed crops; much can be accomplished in this way. Many valuable articles have appeared lately on that head, in the way of suggestions, but they have all, I think, omitted to lay stress on what I conceive to be an important point in the affair. No crop should, in my opinion, be allowed to shade the Potato. There can be little gained by this, and probably much lost. This plant requires, on the average of summers, all the light our murky skies afford. Regarding Onions, also, the same may be safely asserted. The cottager should however always grow a very considerable quantity of broad Beans, and should never allow them to occupy a plot of ground by themselves. Such crops as Carrots, Parsnips, Swedes, Turnips, and all the Brassica, or Cabbage and Broccoli family, will not only bear a slight shading, but, in the average of English summers, will enjoy it, provided the mixture is judiciously arranged for soiling, gathering, &c.

FORESTING.

The barking season will be at hand soon, and it is time to think of marking the trees intended for this purpose. Sufficient labourers should also be at hand to carry these matters out speedily. There seems a likelihood of much rain at present: it is to be hoped that all water-courses have received proper attention.

State of the Weather near London, for the week ending April 9, 1846, as observed at the Horticultural Garden, Chiswick.

April	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max	Thermometer. Min	Thermometer. Mean.	Wind	Rain.
Wed. 8	)	29 735	29 466	55	39	47.0	W	.06
Thu. 9	2	29 915	29.950	53	40	46.5	S.E.	.46
Fri. 10	3	29 932	29 142	55	40	47.5	S.W.	.65
Mon. 6	10	29 058	28 984	51	34	42.5	S W.	.30
Tues. 7	11	29 190	29 060	48	40	44 0	N.	.12
Wed. 8	12	29 461	29 168	56	31	43.5	W.	
Thurs. 9	13	29 799	29 648	57	29	43 0	W.	
Average		29 469	29 282	53.5	36.1	44.8		1.69

April 3—Clear a.m windy, cloudy, and fine, showery
4—Hazy, heavy rain; cloudy
5—Constant heavy rain; clear and fine
6—Very heavy rain, heavy clouds, with sun at intervals; cloudy
7—Slight rain and cold; densely overcast
8 Slight frost early, fine, with clouds, partially overcast
9 Clear; fine; very clear at night.
Mean temperature of the week 3 deg. below the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending April 18, 1846.

April	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 12	54.3	36 2	45.2	13	0.56 in.	—	1	3	—	2	5	—	4
Mon. 13	50 1	34 2	46.2	6	0.12	6	3	1	1	3	5	—	—
Tues. 14	50 0	33.4	45.2	8	0.31	2	2	—	2	4	1	—	2
Wed 15	49 9	30 6	43.2	10	0.47	1	1	1	1	4	5	1	4
Thur. 16	50.8	36.8	46 8	9	0 64	4	5	2	1	1	3	2	2
Fri 17	50 9	35.1	47.0	9	0.39	6	5	3	1	1	2	1	1
Sat 18	57.0	37 8	47 4	4	0 08	2	4	2	1	2	2	4	3

The highest temperature during the above period occurred on the 17 h, 1844 —therm. 71°, and the lowest on the 13th, 1843—therm. 26°.

Notices to Correspondents.

The Third Edition of PAXTON'S COTTAGERS' CALENDAR being exhausted, a New Edition is preparing, and will be ready in a few days.

ASPARAGUS—*J A B*—Stable manure is unnecessary, provided your soil is light and free; in that case, any other manure will do as well. Nothing can be better than guano. We advise you to apply the latter in mixture with water, when the Asparagus is beginning to form its summer shoots, and to continue to dose it at intervals through the summer—provided your soil is not clay.

BOOKS—*Hortus Juvenis*—The latest and most complete catalogue of garden plants is Mr. Don's, rev. at p. 402, 1845.——*Alpha*—"School Botany" will form an introduction to the study of British plants, and afterwards plants may be made out by Lindley's "Synopsis of the British Flora," or "Babington's Manual," or Hooker's "British Flora," the *last* edition. No books of the kind are intelligible till the rudiments of botany are mastered, and they are taught by the "School Botany." The "Vegetable Kingdom" is a work applied to the classification of plants of all countries. The *Gardeners' Chronicle* for 1844 and 1845 may be had, price 30s. each, but not without the Newspaper.——*Alpha*—"School Botany" is itself as elementary as any book can be made usefully.——*H F*—The plants used to illustrate "School Botany" are the very commonest in all places. It will be convenient to you to remember the names; but it is not indispensable, provided your memory will retain the facts.——*S*—There is no difficulty in learning the system of Linnæus, if you think it worth while so to occupy yourself. Any old introduction to botany will tell you how to do it; "Lee's Botany," or "Smith's Botany," which may often be bought on bookstalls for a shilling or two. It is now neglected by men of science. For Catalogue take Don's, reviewed at p. 402, vol. 1845.——*E L*—Unless Paxton's "Botanical Dictionary" will supply your want, we fear that English works cannot be found. We have nothing like a complete botanical glossary in this country. De Candolle's "*Théorie élementaire*," or Lecoq's "*Dictionnaire de la Botanique*," would probably give you the desired information. It is understood that Dr. Lindley has such a work in preparation.——*A*—Macintosh's "Flower Garden."‡

CAPRIFOLIUM—*A Lady*—We suspect that want of sun is the chief cause of your Tuscan Honeysuckle not flowering; besides which, or in consequence of which, it grows too fast, and runs to wood. Perhaps the soil is too strong. The light soil of a wood is what it prefers. Daphne odora is not hardy; it will not live where Fuchsias survive.

CEMENTS—*Anon*—The proportions of sharp sand and lime are the same as in making mortar with other materials; your bricklayer understands that. You interpret the meaning of "sharp sand" correctly; it is sand deprived by washing of all its minute muddy particles. Burning will not do it any good. The Romans are believed to have made their mortar with hot water, and to have applied it hot.

CONIFERÆ—*J Holmes*—We are not at all surprised at your specimens of dying Deodars; although we never happen to have seen any in the same state. It has always been our opinion that the Larch is a very improper stock for the Deodar—the one being deciduous, the other evergreen. If Deodars are to be worked, it should be on the Cedar of Lebanon; but why work them when seed can be so easily obtained from India?

CRITICISM—*Harlow*—Very many thanks. We should be much grieved if we thought your remarks quite applicable; but upon looking back, we do not succeed in discovering to what you allude. The answer at p. 226 does not strike us as it seems to strike you. Since you have been so very good-natured as to make some general remarks, would you give yourself a little further trouble, and point out cases specifically? You could not do us a greater favour.

HEATING—*Cs Ne*—With sawdust and cinders resting upon the slate of a close-jointed tank, they must necessarily become very dry, an evil only to be overcome by constant watering. It is always better to keep the plunging material off the tanks, unless they are covered in with some porous substance, which slate is not.——*Alpha*—As the walls of your Cucumber pit are of turf, you will probably be obliged to place your fermenting dung in the inside. In doing so, tread it well down; when firm and cooled down, put on it the usual depth of mould, and plant on a hillock in the middle of each light.—The mouse-trap rests on a box of earthenware or wood, containing water; it is placed on a level with the ground, and in the runs of the mice; consequently, when mousie runs on the platform it tips him over into the watery abyss beneath. If properly managed it answers perfectly.

NAMES OF PLANTS—*J C L*—Dendrobium aduncum. The true Moss Roses will all force very well; but as they are all inferior to the old sort, so are they all less worthy of being coaxed into premature bloom.——*Patron*—The Umbrella Pine is probably the Stone Pine, Pinus Pinea. If so it is quite hardy, and will grow in any soil. It does not, however, often gain its fine Italian Umbrella form in this climate.——*E T*—It is Cuphea pubiflora; the first name was left by an oversight. The miscellaneous matter is discontinued.——*T T*—One of the many varieties of Viola canina.§

PEACH TREES—*A N*—Peach trees ought not to be divested of their foliage in autumn by force. A light broom should be applied as soon as the leaves will separate by its touch, in order to expose and form the shoots. Those received were blotched at every eye; and all such shoots ought to have been cut out in pruning, which, in the case of Peach trees, in houses more especially, ought certainly to be done in autumn. Probably the border has been too richly manured.‖

POTATOES—*J H H*—Yours appears to be the Golden Peruvian Potato. It is valuable to you now, although this variety has not formerly found much favour in England. The best way to treat it will be to raise seedlings from it, in order to improve its quality.

RHODODENDRONS—*T T O*—Mix their seed with a little silver sand; sow it on peat in a garden pan, and place it in shade in an exhausted Cucumber bed or pit slightly warmed. Keep away weeds, but do not disturb the Moss that may spring up. Anti-corrosion paint will produce the appearance of Portland stone. We regret our inability to answer the other questions; they are not horticultural.

STRAWBERRIES—*P G*—Your Strawberries planted last August in well-trenched and manured soil may not produce much this season, but by allowing them to remain there is every chance of their doing well next year. Owing, probably, to the cold wet season, plants taken up for forcing have, in many instances, only produced foliage.‖

TIMBER—*J T*—Mere immersion in lime water, or a solution of sulphate of iron, or in the pyroligneate of iron, have been used to preserve timber, but with very little real advantage. The best way is to season it well. Even Kyan's process (a solution of corrosive sublimate) has generally proved a failure, unless the fluid was forced into the pores of the wood. The points of a fancy Calceolaria are fully pointed out at p. 814, 1841. It is *not* found advantageous to use strong manure for Pelargoniums.

MISC—*H T S*—One man constant, and two in spring and summer; but by having one man constant and occasionally employing such extra hands as may be required to keep the work well forwarded, a less expense will be incurred than by constantly keeping two in summer, whilst the cropping will be done at proper seasons.‖——*Cartmel*—All wood cut down when out of sap is more durable. But in your case, as the Oak timber is to be employed for in-door work, we would not advise you to sacrifice the bark. All you will have to do will be to season it thoroughly after it is stripped, and to take care that it is thoroughly dried when converted into plank.——*J C*—Why write uncivil letters? Do you imagine the cause, your cause, or any cause, will be served by so doing? If you think so, you are mistaken.——*B S*—Sow Fern-seed on peat, place a piece of glass over it without touching, and keep it in the shade. But they are more generally propagated by offsets.——*G S T*—We really cannot oblige you. Private correspondence is impossible: besides, such information as you ask for is furnished by plenty of cheap books. You should study "School Botany," or some such work.——*D B B*—The absence of flower-buds from the shoots made last year by Rhododendrons is a universal complaint. We do not attribute your failure to your soil, but to the wet, gloomy autumn of 1845. If they form wood they *must* form flowers, if there is sunlight and warmth enough.——*T O W*—You had better apply to the Secretary of the Gardeners' Benevolent Institution, 97, Farringdon-street.‡——*A B*—Much obliged, but we are supplied with the Numbers. Your Azaleas have, no doubt, been injured at the roots, from being allowed to become too dry, and afterwards over watered, which causes their young fibres to rot. You must, therefore, reduce the soil about the roots rather freely, and repot them *now* in very light sandy peat; place them in a close pit in a gentle moist heat for about 10 days, and shade during bright sunshine; afterwards harden them by gradual exposure, and finally, treat them in the ordinary way. Your compost is too heavy, and not at all suitable for Azaleas in pots.¶——*Stigma*—Kalmia latifolia may be increased by layers or seeds. It likes a light peaty soil.‡——*O R*—It is impossible to give definite answers to such questions as yours. We should think, however, that your two Asparagus beds, 5 feet in width by 22 in length, will not be sufficient to yield a fair supply for a family of four during the season. You had better add, at least, another of the same size.‡

SEEDLING FLOWERS.

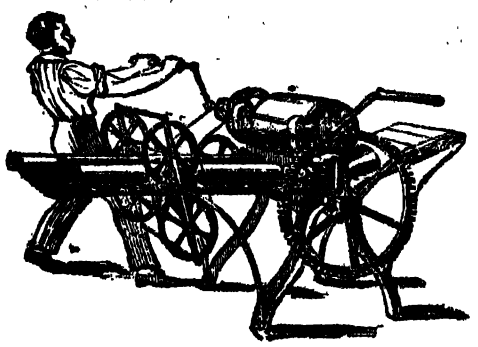
CINERARIAS—*J W X*—Your seedling is a large flower, showy, and good in colour, but it is deficient in form—the petals being long and narrow give it a loose and starry appearance.*——*J W*—Of your flowers No. 1 is common, and poor in colour; 2 and 4 are both good in colour, and compact in form; 3 is pretty, but there are several better flowers in cultivation similar to it.*

EPACRIS—*Y*—We like the colour of your seedling, but the flowers are too small.*

PANSIES—*W S*—Your seedling is a fair border variety; it is, however, not equal in substance, precision of form, and marking, to the prize flowers of the present time.*

VERBENAS—*A A*—The chief merit of your seedling consists in the fine head of bloom which it forms—it appears to want novelty of colour; we have seen several similar to it.*

DRAINING TILES AND PIPES.



AINSLIE'S PATENT IMPROVEMENTS.—For Making and Drying Draining Tiles of the 1st Class. Gentlemen having works in operation, or who are about to erect them, will find the above worthy their attention.

The Process combines Effect with Economy, as Tiles can be made ready for Burning at all seasons; generally from ten to thirty hours, according to the nature of the clay. To be seen at Alperton, Acton, Middlesex; Mr. Howe, Engineer, 119, Great Guildford-st., Southwark; the Polytechnic Institution, Regent-street, London. Particulars may be had from John Ainslie, Alperton, Acton, Middlesex.

STEPHENSON and CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom-heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's Seats and principal Nurseries throughout the kingdom.

S. & Co. beg to inform the Trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

The Agricultural Gazette.

SATURDAY, APRIL 11, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Thursday, April 16—Agricultural Imp. Soc. of Ireland.
Wednesday, — 22—Agricultural Society of England.
Thursday, — 23—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETY.—E Cumberland.

FARMERS' CLUBS.

April 13—W. Hereford—Bakewell
— 14—Dorking — Lewes — St Peters
— 16—Binfield and Wal ham
— 17—Wadebridge
April 20—Botley
— 21—Rhins of Galloway
— 23—Plympton St Mary—Newton

Our recommendation to the buyers of Peruvian and Bolivian Guano, that they should invariably place themselves in communication with either Messrs. Gibbs and Co., of London, or Messrs. Myers and Co., of Liverpool, has, it seems, given offence to some of the London houses who are agents for the sale of this article. It is alleged that we have recommended purchasers to buy only direct from Messrs. Gibbs and Co., or Myers and Co.; and we are asked "why the complainants' respectability as trade-men, and their guarantee to buyers should not be sufficient to convince the farmer of the quality being genuine; seeing also that they prefer deliveries to be made from the import warehouses?"

Our answer is very simple. We have not recommended buyers to purchase exclusively from the two importers; the context of our recommendation plainly shows that we had no such meaning; for we expressly stated that the importers would not sell less than 80 tons at a time, and we added that we were persuaded *they would direct applicants to their agents*, who could be relied on. We believe that the writer of the letter to which we refer is one of their agents; he, therefore, has nothing to complain of.

It is idle to talk to the public about the respectability of Messrs. A., B., or C., placing them above suspicion. We question the respectability of no man. There is not a dealer in England who will not assure you that he is the most honest man alive; and yet we know that, somehow or other, farmers are infamously cheated by dealers. Assuming, therefore, that all sellers of manure are honourable men, we nevertheless deliberately repeat our advice; and we again say that there is no security for the buyer who does not purchase directly from the importers, Messrs. Gibbs and Co., or Myers and Co., or from agents pointed out by them. Peruvian and Bolivian Guano is not adulterated in Peru; ships are not freighted in England with gypsum, loam, sand, chalk, and other rascally ingredients, for the purpose of being mixed with Guano on the shores of the Pacific. The Guano is brought to the importers *as it occurs in Nature*, and its adulteration takes place in this country after it is obtained from them, if it is ever obtained from them at all. It is therefore to the importers, most especially, that farmers should look; and if they will not take that precaution, they must be left to the conscience of the harpies who fatten on them.

It may appear hard to really respectable men that we should speak thus strongly; but in truth they ought to be infinitely obliged to us; for if by our warnings we can drive rogues out of their trade, honest-dealers will derive as much benefit from the operation as farmers themselves.

The Irish Waste Land Improvement Society has just published its fourth annual Report. We learn from it that the operations of the Society have been considerably extended during the past year. The number of its tenants has increased 20 per cent. The number of acres let has increased 14 per cent. The rental of its occupied lands has increased 17 per cent. The amount invested by the Society in the improvement of its estates has increased between 5 and 6 per cent. The amount similarly invested by its tenants has increased 17 per cent.; and the value of the tenants' crops and stock, which is the test both of their own prosperity and of the Society's also, has increased no less than 35 per cent. during the past year. Three thousand persons, we are informed, are resident on the Company's property, which but a few years ago was a wild and barren waste. They are now, in the midst of the distress and consequent recklessness prevalent around them, pursuing their wonted avocations in order and peace; with employment secured to them during the approaching trying season, and with every prospect of a supply of wholesome food for their support until the coming harvest.

Some of our readers may not be acquainted with the constitution and history of this Society. It is a company of shareholders representing a capital of 500,000*l.*, incorporated by Act of Parliament, and having for its object the reclamation and improvement of the numerous tracts of waste land in Ireland. The method pursued to accomplish this object is as follows: The Society takes an estate on a long lease, and, after expending such a sum of money as may be necessary to bring it into a state fit for the occupation of agricultural tenants, divides it into suitable allotments, which are then let at a profit rent proportioned to the outlay. There is no other country in the world where there is either such room or such need for the operations of such a society. Ireland possesses an extent of cultivable waste land amounting to nearly 5,000,000 acres; is there not room for the application of capital here? And it possesses such an enormous supply of agricultural labour in proportion to the demand for it, that the wages of able-bodied men do not exceed 10*d.* a day; is there not need, then, for the commencement of operations which shall increase the produce of the land, and thus increase the portions of it falling to the shares respectively of the landlord, the tenant, and the *labourer*? The following extract from the Society's prospectus exhibits the grounds on which such an institution was called for:—

"Since the year 1809, when Commissioners were appointed to inquire into the nature and extent of the bogs in Ireland, the population of that kingdom has increased 33 per cent., yet no public effort has been made to give occupation to the millions dependant for subsistence on the cultivation of the soil. It is stated in the reports made to Parliament, in pursuance of the Act 49 Geo. III., as also in the reports of the Emigration Committee of the year 1827, and in subsequent reports, that the number of statute acres of waste land capable of beneficial improvements is nearly five millions, being one-fourth of the whole kingdom; and the waste or uncultivated surface has been shown to contain—

Of flat bogs	Acres—1,576,000
Of bogs forming the covering of mountains	1,251,000
Of convertible mountain	2,070,000

"The cultivation of these lands, which is strongly recommended by various Parliamentary Committees, would afford obvious and immediate means of local employment to the Irish labouring poor; but the difficulties which have hitherto prevented such a consequence may be stated as follows:

"1. The inability of the great landed proprietors to advance the capital requisite for reclaiming the waste lands.

"2. The want of powers, owing to the entails and settlements of the large estates, for granting such long leases as would induce strangers to undertake the cost of such improvements.

"3. The want of sufficient capital among the tenantry to enable them to make drains, roads, fences, and buildings, which are essential to the occupation of the land.

"The impediment to the improvement of the entailed lands is removed by the Act of Parliament incorporating this Society, which authorises tenants for life, and other incapacitated persons, to grant leases of 99 years to the Society, who are empowered by the Act to take such leases, on which they will invest their capital by making such improvements as will enable the population of that country to obtain the productive occupation of it. The middling, and even small, farmers in Ireland have a great deal of ready money in small sums, which they hoard up for want of the means of employing it; in proof of this (according to Porter's tables), the increase of deposits in the Savings' Bank of Ireland since 1831 has exceeded 25 per cent., whilst in England and Wales it is not more than 8 per cent. These persons would take more land if they could obtain it, whereon to employ their capital. The anxiety of the Irish people to obtain the use of land, their industry in the cultivation, and their means of stocking limited portions of it, are notorious.

"England now pays to Holland, Belgium, and Holstein 700,000*l.* per annum for the single article of Butter—the whole of which might be produced in Ireland if her waste lands were improved.

"In *comparing* the advantages between the investment of money for reclaiming the waste lands of Ireland and those in the Colonies, it may be stated that the price of labour in Ireland does not exceed one-fifth of that paid in the Colonies; this circumstance alone, placing the Irish cultivator, subject to rent, in an infinitely better situation than the Colonial cultivator with a free grant of land. Ireland has, moreover, the best market for her produce, and every manufactured article supplied at the lowest rate of cost, while the reverse of these applies to the Colonies.

"The principal cause of all the disturbances in Ireland is the difficulty which the people find in obtaining land whereon to employ their energies and support their families. Thus there is rich land without occupation, a large diffused capital without employment, and a *starving population in misery, for want of combining the* best elements of a nation's wealth and prosperity by productive labour.

"Parliament has removed the legal difficulties. The Society call on the landed proprietors to join them in the execution of a measure so much to their own interest - a measure by which the owners of the soil will be enriched, the peasantry will obtain productive employment, and the shareholders will secure a liberal dividend on the capital invested in the undertaking."

It thus appears that there is hardly any country where the investment of capital in farming should pay so well as in Ireland. Labour cheap—a market, the best in the world, near—farming generally sufficient—soil most fertile in many places, and capable of being made so where it is now lying waste; with all these elements of prosperity, a Society for reclaiming the waste lands of Ireland, if *properly managed and efficiently supported*, surely cannot be otherwise than successful, as well as beneficial.

Why is such an institution not better supported? The authorized capital was never nearly subscribed, and more than one-half of the original shares have since been forfeited. The operations of the Society have, therefore, been necessarily limited; and this (at a time when, both on their own account and as an example to Irish landlords, they would be especially useful), is a serious loss to the country.

Amongst the beautiful analogies that co-exist in, and seem to connect under one law the physical and the moral world, there is none more remarkable than the necessity in each of Faith. The untaught mind is a desperately hard receiver of the evidence of things unseen by the physical senses; and if there is one effect of a little early education more constantly and perceptibly valuable than another, it is the foundation which it lays—like the bed, timbers, and rails of a railroad—for speed and facility in the transmission of future knowledge. The most thankless and irksome of all tasks is the being hauled back from time to time to whip up every lag hound that refuses to follow scent perceived by every nose in the pack but its own. Yet such is the task to which the writers on Agricultural Chemistry have been obliged to devote page after page, in the effort to explain to certain human eyes and noses what the minds appertaining to them refused otherwise to admit; in their learned dissertations upon those *invisible spirits* which may be almost said to preside over all that is to be learnt of Agricultural Chemistry. We allude to the gases—oxygen, hydrogen, nitrogen, and carbonic acid. They have all the misfortune of *being invisible*. Whether Dame Nature in making them so had not some little joke in hand, for the purpose of stultifying the wisdom of those of her children who refuse to admit all evidence but that of their *bodily* eyes, she does not tell us in words; but she seems to point rather significantly to some such conclusion, in having based all the processes revealed in animal and vegetable physiology upon the action of invisible agents: in other words, showing that both vegetables and animals grow and derive their increase out of matter which in its original form is *perceptible to the mind* but not to the eye, and which on their death and decomposition will again return to the same state. What a fund of reflection does this simple fact offer to the agriculturist, who is willing to believe that man was intended to culti-

vate the earth *with his mind* as well as his body! Imagine him taking a walk over his farm, in July, immediately after a smart thunder-storm; a delicious and peculiar fragrance rises up from the ground to his nostrils; a dab of a schoolboy at his side looks up knowingly in his face, and says, "Papa, do you know what that sweet scent comes from?" "To be sure, child! *From the ground.*" "Yes, but what makes it come from the ground?" "Why, *the rain.*" "But what makes the rain bring it from the ground?" Papa looks foolish; whilst the junior boy in the junior class of agricultural chemistry comes out strong with his first lesson. "It comes from *the ammonia, brought down in the rain more rapidly than the earth can absorb it, and which being a highly volatile gas, is rising again into the air as soon as the storm is over!*" "Nonsense, child!" "But, Professor LIEBIG and Dr. PLAYFAIR, and all the great chemists, say that it is so." "But *how can they prove it,* boy!" "Why, in this way. They say that although the carbonate of ammonia, which smells now so deliciously, is a volatile gas, the *sulphate* of ammonia is a fixed and *visible body:* and if you spread finely powdered gypsum, which is *sulphate of lime*, upon a Grass field, you may walk over it after a thunder-shower without perceiving this scent: for the gypsum lays hold of the ammonia and obliges it to make a very curious interchange—a sort of cross-marriage; for the sulphate leaves the lime and unites with the ammonia, and becomes *sulphate of ammonia*, and the carbonate, abandoned by the ammonia, consoles the deserted lime, and becomes *carbonate of lime*, commonly called chalk! And thus gypsum, though not a manure itself, becomes the basis of two manures—sulphate of ammonia, which is an *organic* manure, and carbonate of lime, which is an *inorganic* manure. But the Master says we must not speak of inorganic *manures* because it leads to confusion; and it is better to call inorganic substances applied to the soil 'alteratives' for the sake of distinction. And he says that if powdered gypsum be spread occasionally over the stables and the farm-yard, it will take up all the ammonia that now goes off in smell, and, by the same process abovementioned, will increase the quantity and value of the manure prodigiously."

Query, which is the better agriculturist, that boy or his father? The one is an experienced and practical farmer, the other is a youngster just dipped in the first rudiments of Theory. True: but let us try the same question in another branch of art? Which is the best physician, the youth who is attending his first lectures at Guy's and Bartholomew's, or the village quack who has been practising all his life and effected many "wonderful cures," groping in darkness, yet sometimes stumbling upon light. Which is the best musician, the street-player, who has been grinding a barrel-organ all his life, or the tyro who has just read "Pinnock's First Catechism of the first Principles of Harmony." What is Theory? The condensed result of the whole history of *former practice*, arranged and classified, enlightened and explained, by reference to the eternal and immutable principles of scientific truth. He who despises theory despises the practice of every man that was born before himself in the world. He who commences practice, with the knowledge of theory, commences business with a mind lit up by the recorded experiences of all who went before him. Your "practical man," leaving a Norfolk farm and settling on a Gloucestershire clay, smothers his sheep in the mud, the first winter, by trying to feed off his Turnips, whilst one of his new "practical" neighbours, before he has quite done laughing at him, finds himself upon a chalk farm in Kent, and becomes laughed at in his turn by making a summer fallow for Wheat and *liming it.* Whilst our young theorist who gave us that lesson just now about ammonia, when he has got to the top of the school, leaves it equally prepared for any soil you can plant him in, not bound down to the details of practice on clay, chalk, or sand, but a master of the art of Agriculture upon either. If he learnt every lesson as well as his first, we'll back him to any moderate amount, to turn the laugh upon the laughers, at the end of one course, in any county you shall name, or upon any of the variegated strata of the "geological map of the British Isles" that hangs before our eyes.

But we must return to our draining; and we trust our patient readers will not find our young friend's elementary information upon the ammonia in rain-water, to be an inappropriate or useless parenthesis.

To a deeply drained soil, every shower that falls and filters downwards to the drain, brings a fresh tribute of that which is the essence of fertility. From an undrained clay, every shower washes away together with its own virtue, some of the best of the chemical and mechanical elements which it found. The one is perpetually growing richer, the other poorer. The bed of sand which is seen deposited at the bottom of the main furrows of a clay soil, may with truth be called *the spoils of the field*; yet it is but the message left to the eye of the farmer to tell him, *by what he can see*, how much has gone besides whose loss he can *not* see. Sand is visible, but ammonia is invisible. It is but the body that remains when the spirit is departed. It is this grossness of our perceptive powers which is so much to be lamented in every art, but most especially in that of agriculture, whose true understanding depends so closely upon the knowledge of those *invisible elements* which the science of Chemistry opens to our minds. And never, surely, can agriculture deserve the name of a science, until our practice begins to evince our acknowledgment of the high importance of these invisible agents. The beams that support our habitations, and the wooden walls of our naval armaments, have derived their bulky substance from the elaboration in the leaves of the Oak tree of the invisible carbonic acid gas; the most nutritious part of a loaf of bread is derived from the equally invisible nitrogen; the boundless and fathomless waters of the ocean are composed of two gases, each of them separately invisible; and lastly, the atmosphere that supports life and respiration, during every instant of our existence, is itself invisible. Surely, then, the existence of ammonia, the life and soul of agricultural fertility, should not be neglected, practically disbelieved, *because it is invisible.*—*C. W. H.*

THE TENURE OF LAND IN IRELAND.

I beg you to publish the following queries and suggestive notices on this subject. I would ask those of your readers who have seats in the Houses of Lords or Commons, and others who though not legislators themselves can influence legislation:—Would it not be easy to disembarrass land-dealing of much of its costliness, insecurity, and difficulty; and if so, would not free-trade in land, wholesale and retail, be an acquisition of the highest value! If there was in each province in Ireland a land office, such as those in some of the colonies of England, prepared for the ready transfer of land, what a trade would at once set in for "the acres," that rudiment of all other manufactures! Every one knows the agonised struggle of the peasantry for land, sometimes attended by a convulsive ferocity of grasp, indicating that to possess ground to cultivate, is a question of life or death. And yet many of our landlords are encumbered by their unmanaged lands; possessors of much territory in name and little in reality; they are in poverty, and their tenants are ready for rebellion. And how is this? Because landlords can only *let*, often too, for short terms of years; and if by lease, which is generally a boon, it is a compact so full of restrictions and penalties, that it only invites the attorney and the absentee's agent to use the readiest instrument of oppression, "the broken covenant," to torture the tenant; but even if contested elections, and "reasons plenty as blackberries" were not here to induce affronted agents and angry landlords to "put the tongs" upon contumacious tenants at will, as, despite bits of parchment Irish tenants mostly are, in three of the provinces, the complaint now is against the system of hiring land at all. My object would be to have much greater facility for buying small portions of land for cash down—"arigith sheese," as we say in our euphonious language. I would enable a man to buy 10 acres out and out; it would be better far than renting 200; he could stock 10 and work it properly, while, with the same capital, the hired 200 acres must starve. If a man could not work 10 acres to his liking and advantage, let him sell and put money in his purse, for at the proposed land-offices an acre ought to be able to change hands at a moderate cost for transfer, and with an unimpeachable title. But as in duty bound we must inquire, how would these facilities serve the land-owner?—no great elementary change ought to be partial or one-sided. First, then, what is the territorial and financial history of our gentry? Many of them possess large tracts of country, the arable parts not half worked, and of its reclaimable bog and mountain, miles of both are much in the state that the old "Fir-Bolgs" left them. If this is true, why is it? Because the possessors have often but a life-interest in the estate, and they will not sink capital on so short a tenure, and on mere *possibility* of return; besides, millions of our gentry-owned acres are "out at pawn," and as their owners can encumber, but cannot sell, they cannot redeem the "dead-pledge," the mortgaged estate:

> "The estate runs out and mortgages are made,
> Their fortunes ruin'd, and their fame betray'd."

Could landlords sell on the land-exchange without notoriety or discredit, their territories might diminish, but their wealth would increase; they would begin to enjoy the sweets of independence in themselves, and a happy and secure vicinity to a steady and improving yeoman race—their neighbours. Such a change as this would be very valuable in Great Britain, but it is become of peremptory necessity in Ireland. The fluctuations in manufacturing trade and commercial relations during the war, the closing of some markets by blockade or forcing the flow of goods in an untimely manner into others, were with other causes which I do not discuss in your Journal, ruinous to the small manufacturing capital of Ireland; and no wonder, when these violent changes grievously oppressed the giant powers of Great Britain herself; consequently our agricultural workers are in undue over-balance of numbers—they are all scramblers for existence; a race, in general, bound *adscripta glebæ*, and well described by Swift, as "Slaves and beggars whom the landlord calls his tenants." All "borrowers of land" are in a greater or less degree slaves to him who lends it; but even though the "temporary proprietor," the landlord under an entail, may get usurious interest on his loan, a general war is being levied against him and all his tribe, and either fiscally or physically, he is ever in a way to be victimized. I ask your intelligent readers—are these statements of facts? and also, will they examine, would a free-trade, a cash-trade, a wholesale and retail trade in land, be a remedy? I would not *compel* land to be subdivided as in France; no, I would let men accumulate if they chose, but I would facilitate distribution, I would do away with laws which make a false mind for an intestate, and accumulate where the deceased omitted to do so. The law for land should be distributive, when not otherwise devised, but perfect liberty "to do what they would with their own," would keep plenty of land-trading going on in the community. But how would this affect the tenantry if they became small proprietors instead of large renters, if "every rood of ground maintained its man?" Should we not have settlers at home instead of in Canada or the States of America? The best of our peasantry now emigrate; they want a real home, and it is away from home they must go to seek it. If industry, economy, intelligence, and total abstinence from drink, enable a peasant to scrape together 50 or 20 sovereigns, he is off to America; he takes his money and his moral capital abroad, while the incapable and the miserable are tied to the soil. If a tenant-farmer lets his farm be but half worked, he and his family must be always indigent, and of the "parra-saahtha" kind; if he improves it, he is like a Turkish merchant, in danger of the bash-aw, because he seems too rich. If his tenure is nearly out, he dare not sink capital or labour in his farm—he would have, in nine cases out of ten, to buy it back; and if he is thus obliged to abuse and misapply forethought, and run down his farm, he runs himself down with it. I say nothing now of ejectments from deficient title, broken covenants, or of wholesale "clearances" made for non-payment of rent or arrears; but I shortly point out the advantage ownership would be to the peasantry.

FEE-SIMPLE ESTATES FOR THE MILLIONS!—What a grand idea of pacification; proprietorship, with all its calm yet onward influences. Our little, but real landlords, would soon make this country the garden it should be. We have now scarcely any plantation-shelter. How could we:—if a man wants to put down 200 trees in fences or elsewhere, he buys them for eighteenpence a hundred, but he must beware of covenants. Can he plant?—and supposing that he can, he has no property in them except he registers in the *Dublin Gazette* at an expense of 7*s.* 7*d.*, besides getting an attorney to do it for him, and 6*s.* 8*d.* additional. So much for cottier planting in Ireland. If the acre was his own, he could plant it, and improve it constantly; the face of the country would be soon made cheerful; brushwood loppings would be plenty and cheap, and the severe laws about timber stealing might be reduced to a constitutional form. But farming generally would improve; cottier farms would become the agriculturist's savings bank, economy would then have as safe and a more profitable depository than it now has (for full savings banks sometimes only indicate the difficulty of employing small sums of money). But what thrift ownership in land would engender; the wet days, half holidays, any spare hours of the cottier, and the leisure now wasted by their wives, and the youth of both sexes, and children, all for want of remunerative occupation, these properties would be turned into the "man's own farm," and would pay good interest. I cannot hope but there must be always some so poor that they must borrow land on interest; and any law to forbid what is call "tenancy" would be oppressive, and would still permit usurious dealings in land to continue: free permission for usury in money too would be some economy to those desperate destitute, who will always gamble. Land-lenders, like money-lenders, however, ought to be put under the best legal guardianship; those who trade in what is of indispensable necessity to the poorest have always the greatest facility for oppression; pawnbrokers are well cared for, and their doings attended to by the law. Landlords who have pawned their own estates in mortgages, and pay the interests by giving the usance of them to poorer borrowers again, are driven to many painful extremities; consequently, while I earnestly press free trade in land, and cash trade in land on the public, I would not despise any measure calculated to make borrowing the ground for usance as equitable an affair as possible. Lord Devon's commission has produced no law yet to mitigate agrarian suffering and warfare in Ireland. We have ferocities to deplore and be ashamed of, but it is desperate suffering which leads to desperate deeds. Irish peasants have no more natural appetite for being hanged or transported than other men. If land could be had at home, wholesale and retail, to buy, 20 years would alter and improve the whole rural population.—*R. Dowden, Rathlee, Cork.*

SMUT IN WHEAT.

IN compliance with your request, I send the result of certain experiments on Smut, made by me nearly 30

years ago, and published at the time in Evans and Ruffy's "Farmer's Journal." But though so old, they may be new to many of your readers; and at all events they show now as clearly as they did then—

1st, That the disease is mainly attributable to infection; that is, to the bringing sound healthy grains in contact with the powder contained in smutty ears; in other words, inoculating them.

2d, That however slight this contact may be, the produce of seed so infected will invariably be more or less smutty, unless counteracted by certain preparations applied to it before sowing.

3d, That on the contrary, however highly such seed may be infected, if afterwards carefully washed and steeped, the produce will be clean, healthy, and free from smut.

To render my experiments the more satisfactory, I did not confine myself to one variety only, but extended them to five varieties of Wheat; in every one of which the disease is clearly traceable to infection, as the primary, if not the sole cause thereof.

Experiments, Nov. 1816.	*Results*, 1817.
No. 1. Old Kentish red, of the harvest of 1815, sown dry	Very slightly smutty.
2. Kentish red, of harvest 1816, ditto	Several ears of Pepperbrand, but no smut.
3. Ditto, kiln-dried, rather highly	Clean.
4. White Wheat sown dry	Slightly smutty.
5. Yellow Lammas, ditto	The same.
38. Spring Wheat, ditto	Slightly smutty, perhaps 100th part.

The results are, as I anticipated, various; yet though the maximum of disease seems to be 1 per cent., surely that ought, if possible, to be prevented; for, on the principle of contagion, this 1 per cent. may become 50 per cent. in the next generation. We shall see:—

No. 21. Old Wheat (of 1815), merely put into the bag where smutted corn had been	One-thirtieth smut.
22. New Kentish red, kiln-dried, ditto ditto	One-twentieth smut.
23. Yellow Lammas, ditto	One-third smut.
43. Spring Wheat, with about 1 per cent. of dry smut powder shaken in amongst it	Considerably more than half smut.

In the above cases the grain was not moistened, but sown dry. Now, for a rather larger dose of the powder on grain previously moistened, the better to make it adhere—

No. 11. Old Kentish red Wheat rubbed with smut-powder of new Wheat	One-seventh smut.
12. New ditto ditto	One-sixth smut.
13. Ditto kiln-dried, ditto	One-eighth smut.
14. White Wheat, ditto	One-third smut.
15. Yellow Lammas, ditto	One-seventh smut.
39. Spring Wheat, ditto	Eight in 10, or 80 p. cent. smut.

Before we go any further, let me ask, what but the application of the smut powder, in a more elaborate manner, if not in an increased quantity, can have occasioned the difference between Nos. 1, 2, 3, 4, 5, and 38, and Nos 11, 12, 13, 14, 15, and 39? They were all, except the spring Wheat, sown at the same time, and in rows adjoining each other.

So much for the cause. Now for the remedy. This may be any preparation that will destroy the infectious quality of the smut powder without injuring the grain. Blue vitriol (sulphate of copper) I have found as good, because as safe, as any other steep. I allowed ½ lb. to a bushel of Wheat, dissolved in water, into which mixture the Wheat is carefully sifted, and the light grains, smut balls (if any), and seeds of weeds are as carefully skimmed from the surface. In this steep the following previously infected parcels of Wheat were immersed, but only for a short time:—

No. 1. 16 old Kentish Reds (of 1815), inoculated, then steeped in the above mixture	1 of smut to about 200 clean.
17. New Kentish Red, inoculated and ditto	Clean.
18. Ditto, kiln-dried, ditto	Clean.
19. White Wheat, do. do.	Clean.
20. Yellow Lammas, ditto	3 of smut in 2000 clean.

Two points are thus established; 1st, the infectious quality of the smut-powder; and 2d, the power, by chemical means, to destroy, or at least to neutralise, this infection. But to make the matter as decisive as possible, I took a portion of the above parcels 16, 17, &c., after they had been inoculated and steeped as above (cured, as one say), and again inoculated them. These are the results:—

No. 24. Old Kentish Red (of 1815), inoculated, steeped as No. 16, then again infected by bringing it in contact with smut powder	One-twentieth smut.
25. New Kentish Red, treated in the same manner	One-twentieth smut.
26. White Wheat, do. do.	Full one-third smut.
27. Yellow Lammas, do.	One-twentieth smut.

Many farmers think that whatever risk may attend the use of new Wheat for seed, there is perfect safety in sowing old Wheat without any preparation whatever. Let us bring this opinion to the test.

Sown March 9, 1817.

No. 40. Spring Wheat, mixed with a small quantity of old Wheat that had been infected Nov. 8, 1816, and kept in a drawer during winter	Very smutty, the old Wheat particularly so.
41. Spring Wheat mixed with new Wheat infected as above	Very smutty, but the new not so much as the old in No. 40.
42. Spring Wheat, with White Wheat infected as above	More than half smut.

Wheat smut has no effect on Barley, the produce of the latter, after infection by the powder, being perfectly clean and healthy.

I conclude with a few words on pepper-brand, a disease entirely different from smut. It is a hard round black substance, not much unlike a grain of pepper, whence its name. I had no idea that this, like the smut or bladder-brand, was capable of being generated by infection; but the following experiments leave no doubt of the fact:—

At last Wheat sowing (1816), I had made use of a few bushels of Wheat-seed of the growth of 1815. As usual, I trimmed it, and found that the skimmings consisted of a good deal of pepperbrand and some little smut. These skimmings I laid by themselves, and afterwards applied them as follows:—

No. 6. Old Kentish Red Wheat (1815), well rubbed with the above skimmings	Almost every ear pepperbrand, and all the plants weak and stunted.
7. New Kentish Red, rubbed as above	One-fifth pepperbrand — the plants diseased; but not near so much as those of No. 6
8. Ditto kiln-dried, ditto	The same, with some smut.
9. White Wheat, ditto	One-half pepperbrand and smut.

The plants in No. 6 presented the strangest appearance through the winter I ever witnessed; not the ear merely, but the whole plant was visibly affected. As the spring advanced, the leaves came on curled and shrivelled, and the stems so short and crooked, that no person would have believed they were sown from off the same heap, and at the same time with Nos. 1 and 10, which grew on each side of them; but such was the fact. What was the effect of the vitriol-steep in this case? I have only one experiment, but that is most decisive of its efficacy in the prevention of pepperbrand, as it had been in the foregoing cases of smut or bladderbrand;—and be it observed, that the Wheat which formed this experiment (No. 10), was part and parcel of this very No. 6, which I have described as so singularly diseased. The only difference between them is that before sowing, one (No. 10), had been steeped, the other (No. 6), not.

No. 10. Same as No. 6; rubbed with skimmings, &c., then steeped as in the former cases	Plants sound and healthy, only one ear of smut in about 2000.

I have only to add, that having conducted every one of the above experiments with my own hands, I can vouch for the general accuracy of the details. I have since at various times repeated these experiments to satisfy any one who might be sceptical on the subject, and always with the same results.

A word or two in conclusion. It is apparent from the above experiments, that some varieties of Wheat are more susceptible of the effects of the smut-powder than others. Of these the most so appears to be the spring White Wheat. I say nothing in reply to the arguments that have from time to time been advanced against this theory of infection, and in favour of atmospheric causes, as producing the disease; 1st, because I do believe the former; and 2d, because I do not believe the latter; and so long as I can produce the above results, which I will pledge myself to do in any season, why should I alter an opinion, the result of many years' experience?—*Samuel Taylor, Stokeferry, Norfolk.*

Home Correspondence.

Potato Disease, Drainage, &c.—As I am led to believe, from some articles or correspondence which I have read in your valuable Paper, that you are under the impression that the Potato disease which showed itself so almost universally last year, only then appeared for the first time, or, at farthest, the year previous, I am induced to let you know that in 1843 I had a field of about 8 acres in Potatoes, from which I had taken a crop of Oats in 1842, having been previously drained with tiles at 12 feet apart, over and through old drains, and which had lain in Grass for 30 or 40 years. The crop of Potatoes was very luxuriant, but even when taking them up they showed many symptoms of the disease now, alas! so well known. I lost more than a third of the whole crop, notwithstanding our having taken the greatest care, trying to stop the disease by picking and repicking them many times, until they were all consumed or sold. Two or three of my tenants lost a large part of their crops that year, and although very little was said publicly of the disease by the farmers in the county (Ayr), for fear of prejudicing purchasers against their Potatoes, my land steward was well aware, and told me at the time, that the disease was felt in several localities to a considerable extent. Last year, all felt the disease more or less, and one of my tenants lost nearly his whole crop; he sold none. The land on my property is generally speaking a very adhesive clay. My father drained to a considerable extent, with stone drains, from 3 to 4 feet deep, in the old herring-bone fashion, a main drain running up and down the hill, with diagonal side drains, 30 feet apart, running into it. These drains were all made in what was then considered a very perfect way, and consequently very expensive, having a built conduit below, covered about a foot with broken freestone, next coarse gravel, then finer gravel and sand, after which the clay; about two or three inches of gravel brought to the surface by means of a frame, drawn up as the drain was filled, on one side of which was placed the clay, on the other side two or three inches of gravel, until brought to the surface. These drains have been found not to free the land from surface-water, and in walking over them it is quite evident where the drains are—Rushes, as formerly, growing pretty luxuriantly between the drains, which apparently only act 2 or 3 feet each way. I am now putting in tile-drains, 30 inches deep, in each furrow of 12 or 13 feet, using the old diagonal drains as submains, which, I hope, will thoroughly drain the land. Our clay, however, is of so stiff and retentive a nature, that I have doubts whether we shall ever be able to make the land so dry that Rushes will not grow upon it when laid down to permanent pasture. My father latterly drained a good deal with tiles upon the frequent drain system, about 24 inches deep in the furrow. Several of these fields are now becoming quite covered with Rushes between the drains, which are only 12 or 13 feet apart, and I am obliged to break them up again. One field I walked over the other day was drained in 1837; in 1838 an Oat crop was taken; 1839, green crop; 1840, Oats laid down without furrows; 1841, Grass pastured by sheep; since which time it has been pastured with sheep or young cattle. In many parts of the field the Rushes are becoming numerous between the drains, which can always be distinguished by the green Grass which grows upon them, and I fear I shall be obliged again to break it up. Can you give me any advice as to such pastures, to insure permanent good pastures free from Rushes?—*John Hamilton, Olive Mount.* [Rushes are to be got rid of only by thorough drainage; and you seem to be going to work the right way to secure that. Will it not answer your purpose to attempt the laying down of Grass by inoculation, obtaining the sward from some good pasture? See last Calendar. We gladly accept your obliging offer of the duplicate papers.]

Substitutes for Potatoes.—When so many individuals were hot upon autumn-planting Potatoes, I considered it a rash experiment, and the present lamentable accounts bear me out, I regret to say, in my prognostications. Let men who can afford to do so continue their exertions, and endeavour to ascertain the best mode of getting rid of the disease. But I strongly recommend the poor man, who has only a small piece of ground, to give up Potatoes altogether this year, and substitute either Carrots or Parsnips, or a proportion of both; these, well boiled and mixed with Rice, with the addition of a bit of fat bacon, and a modicum of pepper and salt, will prove a most excellent dish, not more expensive than Potatoes, and exceeding the latter in nourishment, comparing the cost of one with the other. Potatoes cannot, with any safety, be grown on the same land they were taken from last year; the spawn of the fungi is there, and although the fungi may not be the cause of the rot, yet they are the result, and their seed will attach itself to the tubers and certainly not improve them, but tend to their destruction. Peas and Rice mixed with a small quantity of salt butter are by no means to be despised by either the palate or the constitution. The analysis of Potatoes is certainly not favourable to their extensive cultivation as a means of recruiting exhausted nature. Let us, therefore, hope that other vegetables will in a great measure supersede them in household economy.—*Falcon.*

Checking Turnips.—It is the practice with one farmer, if not more, in my neighbourhood, to check the too rapid growth of their Turnips simply by pulling them up, and setting them down again in the same hole—a process which is likely enough to prove effectual, though, through want of personal experience, I cannot vouch for its success.—*F. A. M.*

Artificial Yeast.—Boil 5 oz. of coarse brown moist sugar in 1 gallon of water; when lukewarm, stir in 5 oz. of flour, then add 2 oz. of patent yeast, and when it has risen by the fire, fill quart bottles half full, and cork them. It may be used directly, and the bread is ready to bake in an hour; or it will keep a month, previous to the expiration of which a fresh quantity can always be made.—*A. E.*

Winter Vetches.—At the ploughing-match which took place at Hooton, Cheshire (the seat of Sir Wm. Stanley, Bart.), on Thursday week, March 12, a bundle of green winter Vetches and Oats was exhibited, of 18 inches in length and upwards, which were mown from a field on Spital farm, Lower Bebington, Cheshire, the property of Wm. Jackson, Esq., of Birkenhead. There are 5 acres of the same height now growing there.—*W. B.* [We know of Italian Rye-Grass which would cut a ton of hay per acre *now*.]

Agricultural Education.—In a letter on this subject inserted in No. 11 of the *Gazette*, signed "F. A. Malleson," is the following paragraph: "Entomology is so necessary that it must be learned in some way; and if the farmer chooses to abhor books he shall receive more disagreeable lessons still from his ragged and vanishing Turnip-tops, his smutted Wheat, and his blighted Apple-trees." By your answers to correspondents I also perceive that the Wheat of "T. A., Alton," is affected by the maggot of Oscinis vastator, a little fly, the history of which is given in the "Royal Agricultural Journal." I am also at the present time a sufferer from the same cause, having last week been much surprised at seeing a field of seven acres, which was previously in perfect health, rendered quite bare in many places by the ravages of this little maggot. It is also at work in several other fields in this neighbourhood. I have known individuals plough up 40 or 50 acres of Wheat in one year, which, from its similar appearance, I believe to have been destroyed by the same insignificant creature, although the mischief was attributed to other agents. Now, in order to prescribe a fit remedy for injuries of this kind, it must be necessary first to ascertain the causes of them. With this view the economy of various insects injurious to vegetation has been given from time to time in your Paper, as well as of

those affecting the corn crops, in the "Royal Agricultural Journal." But when the habits of these insects have been once clearly pointed out, practical men ought themselves to take up the subject and endeavour to discover the proper remedies. A kind Providence often assists him by supplying other insects which destroy many of the injurious species; but man must still be vigilant; probably few subjects of more importance might occupy the attention of several of your intelligent correspondents; for the time is at hand when the British farmer will not be able to afford a large portion of his Wheat crop to the Oscinis, of his Oats to the wire-worm, and of his Turnips to the fly. No doubt entomologists may occasionally direct the practical farmer or gardener as to the proper means to be adopted in many cases (of which your Paper is a proof); but it must not be expected in all, as these insects are numerous, and several seasons are requisite in certain instances to ascertain the economy of a single species. The method, I believe, usually adopted in the cases referred to, is to harrow the crop, sow soot or some other stimulating manure over it, and then roll the ground with a heavy roller, which, if not too far gone, causes the Wheat to tiller, and the smell of the soot may prevent a second attack and save the crop; but if any of your correspondents can recommend a better plan, it will no doubt be acceptable to others as well as to—*F. J. Graham, Cranford.*

Tops of Carrots.—I have read in "Malcolm's Surrey," and elsewhere, that the tops of Carrots are sometimes cut green for cows in the month of July without diminishing their size, and that Sir Henry Vavasour mowed some twice, another part once, and the remaining part of the crop the scythe did not pass over. That the roots of those twice cut were not at all inferior in size or quality to those whose tops had been left untouched. Have any of your correspondents proved the above?—*R. G.* [We have: and can vouch from experience that the statement is inaccurate.]

Soot for Potatoes.—The history of the Potato disease, from its first appearance a hundred years ago, is that of an increasing tendency to putrefaction and decay; and what else could have been expected from a plant set, year after year, with its cut faces in contact with fresh or fermenting dung, the juices of which thus mix with those of the plant, crop after crop? What other vegetable has been subjected to such putrefactive treatment? The obvious remedy appears to be, anti-putrescent dressings; and how have these answered where tried? Peat is eminently antiseptic; and Potatoes grown in peat, how little comparatively they have suffered! and how highly they have been esteemed for seed for the greater part of a century! Next, those grown on Stinchcombe farm, from soot (described in Mr. Morton's "Treatise on Soils"), where they grew their own seed successfully for 30 years. It would be interesting to know how the Stinchcombe Potatoes stood last season. Even last year, when the rot was at the worst (see Mr. Barnes's "Small Experiments," reported in "Johnson's Gardeners' Almanack," and worth extracting in your columns), Potatoes dressed with soot and charred refuse, both antiseptic, turned out mostly sound; and still continued so by the latest report, whilst with all other dressings they took the rot. But if soot is the most promising remedy for the present Potato disease in this country, it is also to be had more abundantly here than elsewhere; so that it may be used freely (say 20 bushels per acre, with the requisite inorganic salts), especially where growing for seed, for which purpose peaty and high grounds should be preferred; and thus we may reasonably hope that the tendency to decay would be thrown off much faster, with the help of vital action, than it has been brought on by the admixture of putrescent dung-juice with the sap of the plant. The brevity of this will not be an objection, where the subject has been so fully reasoned on more than once; the principle is simply the employment of antiseptic dressings to remedy a malady brought on by a long course of putrefactive treatment. A correspondent inquired whether the disease appeared first in Cornwall. It was seen there by the writer at the end of June, or beginning of July, in the neighbourhood of Looe, on the early Potatoes; the main crop having continued sound for several weeks afterwards.—*J. P.* [Stinchcombe farm has fallen into other hands, and Dimmery methods are no longer adopted. The Potato disease was very destructive in that neighbourhood.]

Societies.

AGRICULTURAL CHEMISTRY ASSOCIATION.

At the late monthly meeting of this Association, held on the 12th ult., Professor Johnston said that in the month of February an excursion was made into the country to visit one of the most extensive paper works in the neighbourhood of Edinburgh, for the purpose of examining the waste material of these works. Such of them as had seen paper works knew that a number of chemical processes go on—such as the preparation of the glue, the bleaching of the rags, &c. The refuse of these had, after they had served their purpose, been run into the Esk, which ran close by, and instead of contributing to any good, did a great deal of harm, particularly in the summer time, when they stagnated in the stream, and caused noxious effluvia. Mr. Cameron, the proprietor of these works, was anxious to know whether these materials might not be profitably turned to account for agricultural purposes, and he (Professor Johnston) had gone out along with Mr. Girdwood, an active member of the Committee, to make inquiries and make suggestions. The refuse is generally composed of the following:—1st, The alkaline ley in which the rags are boiled; which one is most important in itself. 2d, The refuse of the chlorine stills, used in bleaching the rags. 3d, The refuse from the preparation of the glue, which contains a large amount of animal matter, and therefore likely to prove valuable as manure. 4th, The dustings of the paper, and the dustings of the rags, some of which were woollen. They are all of importance, and, if mixed, would no doubt make a valuable compost. Mr. Cameron has made a number of experiments himself, and Mr. Girdwood has promised to send out his carts for the purpose of obtaining a sufficient quantity to make experiments with, which he would report afterwards.

The Potato Disease.—Professor Johnston went on to say, that the other point to which he would allude was one which had occupied much attention of late, namely, the discussion of the Potato disease. They had thought it proper since last meeting, in reference to the extraordinary statement made by Professor Lindley, that the Potato crop was doomed, in consequence of certain diseased Potatoes which he had observed under certain circumstances producing unhealthy shoots, to issue circulars to parties who had given them information, requesting to know (1.) the actual supply of Potatoes in their respective districts as compared with former years at the same season, and of what varieties? (2.) If they had any Potatoes planted or sprouted; and if these had shown any symptoms of disease? (3.) If the supply was deficient, did they ascribe it to actual loss in autumn, or to the subsequent spread of the disease from improper pitting? With regard to two or three counties he had received information. In Forfarshire the supply is said to be an average one; but in the southern parts of Perthshire, bordering upon Stirling, the supply of Potatoes was not one-sixth of former years; there is in the higher grounds a sufficient supply, and they are selling at 90*s.* a ton. In Renfrewshire they are much the same as last year, and greater than they were three years ago. They are selling at 72*s.* to 80*s.* a ton. In Wigtownshire the supply is not so great as in June last year, two months later than this. The only return from Ayrshire states, that a great many farmers have no Potatoes, though it is believed that it is not less than last year. As to the loss, Mr. Home of Argaty, attributes the loss in Perthshire to the pitting; the loss was not in autumn, but since they were pitted; Mr. Caird, of Baldoon, says that most of those pitted the old way were affected; but his own, where he tried a new method, remained quite sound. He had also reports from Perthshire and Ayrshire, in which the writers say that they had some planted, and these were quite sound. There was a very interesting fact in reference to the nature and progress of the disease, in connexion with the circumstance of a considerable number of Potatoes having been used to make starch—it being one reason why the deficiency in some districts was greater than others, which was this: that in Renfrewshire some parties have given up making starch, because it now takes 100 bolls of Potatoes to make the same quantity of starch which 40 bolls did formerly. This shows that the disease makes its first attacks in the cellular membrane. It does not meddle with the starch at first, but after a time it advances and attacks the globules, rendering them soluble in water, and thus a great part is lost in the washing. He might mention, before concluding, that the only kind of Potatoes in Ayrshire that had escaped the disease was the Cups, confirming the opinion entertained respecting the strong vitality which they seem to possess.

Mr. Burnett then proceeded to give a statement as to the amount of the Potato disease in a district round Ayr. He had been present at a meeting of the St. Quivox Club, where there were 20 farmers present, when the queries of Professor Johnston were under consideration. The opinion entertained by that meeting was, that upon the whole, there were very few Potatoes remaining as compared with last year. That was accounted for by various causes. Some farmers had consumed them by cattle, to prevent them being lost; others had made them into starch, while others had sold them as fast as possible. It was difficult to ascertain the actual loss—perhaps one-half of the whole crop has been totally lost. The only variety of Potato remaining was the Cups. There were some exceptions; but that was the general opinion, and even they could not be depended on for seed. With regard to the Potatoes planted or sprouted, he had planted half an acre himself with the description American Early. They were partially diseased when taken up, but they were carefully picked over, and those that were apparently sound were planted, and so far as examination has gone, they were perfectly sound now. The deficiency in the supply is to be ascribed partly to the loss at autumn and partly to the subsequent spread of the disease; and he was of opinion that no pitting could prevent the spread of the disease. Those Potatoes which were tainted at the first, on being put among sound Potatoes, had not communicated the disease to them. Another remark was, that diseased Potatoes in the pits have apparently the strongest and healthiest sprouts; but the sound and healthy ones which did not exhibit these sprouts so speedily have showed no symptoms of infection.

Beans with Sulphate of Soda.—Professor Johnston exhibited an extraordinary sample of Beans taken at random from a field at Corstorphine, grown by Mr. Girdwood, and which were of great strength, largeness, and weight, and were the result of an experiment made by the above-named gentleman. The Beans were grown upon a piece of land not celebrated formerly for large crops, being a cold wet clay, which was doctored by sulphate of soda. Professor Johnston read a letter detailing the experiment of Mr. Girdwood, stating that that gentleman had left a small portion without the sulphate, and estimated the difference at 16 bushels per acre. The whole crop had yielded 63 bushels to the Scots acre. This was an illustration, Mr. Johnston observed, of the benefit resulting from the application of chemical substances to the land.—The Chairman remarked that it must be good land, and in good hands, where these were applied; because, if poor, they would have no effect.

Analyses of Guano.—Professor Johnston concurred in the remark made by the Chairman, and proceeded to say, that among the subjects proposed to be discussed, was that of the various kinds of guano in the market. He thought this subject might be of considerable interest, not only to those who attended this meeting, but also to those who might read of it. There was scarcely anything in which the science of chemistry had been of more importance, to the agricultural community at least, than this subject of guano. The quantity of guano used last year in Great Britain, at the average price of 7*l.* per ton, amounted to 1,500,000*l.*; and when he considered how much the practical man was open to deception from his want of knowledge, they would see how important it was that that Association should take some means of enabling practical men to judge of, and determine the kind of guano for which they should give a certain sum of money. The mode of ascertaining the value of guano was by analysis, and as the prices of that article varied from 10*l.* to 4*l.* per ton, and some would scarcely sell at all, it was of vast importance to ascertain the best kinds. He would turn their attention to the quantities of water in the different kinds; it varied from 8 per cent, in Bolivian, to 27 in Ichaboe, to 40 in another kind. The next important substance was the quantity of organic matter. In some of those now in the market there was very little; this was owing to its being farther decomposed. The other important substances in guano were the phosphates of lime and magnesia; it varied very much in the different kinds.

PROPERTIES OF WATER, AMMONIACAL MATTER, AND EARTHY PHOSPHATES, IN DIFFERENT GUANOS.

Name.	Colour.	Water.	Ammoniacal Matter.	Earthy Phosphates.
Peruvian	Light Coloured	From 7 to 9 per ct.	From 56 to 65 per ct.	From 14 to 23 per ct.
Chilian	Brown	10 to 13	20 to 56	22 to 30
Bolivian	Light Brown	Above 6	67 to 64	25 to 29
Ichaboe	Dark Brown	From 18 to 26	8 to 44	21 to 29
Saldanha Bay	1. Light	17 to 27		
	2. Dark	34 to 44	14 to 22	45 to 56
Algoa Bay	Light	2 to 5	22 to 25	1.
	Very Dark	23 to 26	15 to 18	2.
Halifax Island	1. Light Brown	2 to 20	20 to 61	70-20
	2. Dark Brown	25 to 48		48-15
Possession Island	Light	25 to 49	From 42 to 47	22-67
	Dark	14 to 15		
Birds Island	Light	19 to 21	1.	21-43
	Dark		2.	5-57
Patagonian	1. Light	20 to 25	From 24 to 32	
	2. Dark			
Pacemoster Island	Dark	20 to 22	32 to 41	

It will be seen from the above table that Peruvian is the most valuable; it sells at from 10*l.* to 11*l.* a ton, and many think that this high-priced guano, will, in the end prove the cheapest. Among the kinds which came into this country under the name of South American, there was one which was said to come from Chili, through some other source than the company which had the sole right of bringing it into this country;—but it was not so valuable as that commonly known as the real Peruvian. The Ichaboe guano was that best known; it was used very extensively last year, and if was more valuable than some other kinds. The Saldanha Bay guano presents itself under various aspects; it is sometimes light coloured and sometimes dark; the latter containing more ammoniacal matter. Another kind known was that from Algoa Bay; one specimen of it was so dry that it only contained 2 per cent of water. A sixth variety was from Halifax Island; it was very bad, being full of stones. That from Possession Island, at the last sales in Liverpool, would not sell at any price. Its colour has prejudiced many people too much against buying it; it was better than that from Halifax Island, and some others. Birds Island guano was very like Bolivian in colour; it is a very curious kind, though not worth one-third of the money. It does not appear to be adulterated, yet contains half its weight of gyp-

ium. That from Patagonia was more important as a source of supply, though, in two samples from the same cargo, one contained 40 per cent., and the other 20 of water. It also contained a large quantity of crystals of carbonate of ammonia, and the parties say that they could get 60 or 70 tons from the cargo. If a market could be got it is worth 25*l.* a ton, while the guano itself would not yield more than 4*l.* a ton. It is a very encouraging circumstance also to them when they considered how much the former sources of guano were exhausted, that some of the other sources promised fully and advantageously to take their place.

Farmers' Clubs.

Isle of Thanet.—At the meeting of this Club on the 11th ult., a member produced the result of a crop of Barley of 7 acres, on 6 of which 2 cwt. of Peruvian guano per acre had been thrown broadcast, worked in with the scarifier, the ground dressed fine, and the Barley drilled in rows (some at intervals of 9 inches and some at half that distance); 1 acre was left without guano. The difference in favour of guano was 12 bushels per acre, leaving a profit of about 28*s.*, and a larger quantity of straw, by its application. The difference between the thin and thick sown was about 7 bushels per acre, in favour of the thick; being apprehensive of attack by wireworm, 4 bushels of seed per acre were drilled in; the produce was more than 7 quarters per acre.—A member then introduced the following subject: "The comparative advantages of farming highly, moderately, and drivingly;" and in an able and argumentative speech, of which the following is a very brief outline, endeavoured to show that high farming would in the end be most advantageous to all parties. He said that that system was best which would return the largest amount of profit for a number of years, without depreciating the value of the land; but before you farm highly it was necessary to have certainty of tenure, otherwise others might reap the benefit. He would endeavour to show that high farming was the most advantageous to the country generally, and, with certainty of tenure, to the farmer also. There was little difficulty in proving that high farming was most beneficial in a national point of view; for, in addition to increased production, it gives much more employ than most people were aware of, and, with our rapidly increasing population, that was of the greatest consequence. It was not so easy to prove that it was advantageous to the farmer; but he would show wherein it would not injure him. His rent, the tithe under commutation, rates, taxes, repairs, and housekeeping, are the same whether he grows a large crop or a small one; and land in good condition requires less seed. Taking all these circumstances into consideration, it was not unreasonable to infer that it must be most advantageous to farm highly. He would now take the other extreme, and point out the disadvantage of farming drivingly: it impoverishes the land; decreases the amount of labour; frequently ruins the farmer; inconveniences the landlord; and it does as much as any system can do towards producing a famine and ruining the country. And he would move the following resolution, "That this club, having duly considered the advantages and disadvantages of farming highly, moderately, and drivingly, is of opinion that high farming is the most advantageous: 1st, to the farmer, as most profitable; 2d, to the labourers, as giving the most employ; 3d, to the community generally, as supplying the largest amount of food. But that it regrets exceedingly that the uncertainty of tenure, in many instances, prevents that unconditional recommending of it which would otherwise be advisable."—A member showed that, by a liberal application of manure, he had improved a farm, which he had taken in a low condition, so as to yield him an additional profit of 20*s.* per acre.—*Thomas Hooper, Secretary.*

Reviews.

On the artificial Preparation of Turf, independent of Season or Weather, and with Economy of Labour and Time. By Robert Mallet, C.E., &c., &c. S. B. Oldham: 8, Suffolk-street, Dublin. 8vo. pp. 49.

This is a published essay originally communicated to the institution of Civil Engineers in Ireland, and printed in its Transactions; the subject of it being, however, of very general importance in Ireland, the author has now given his work a form more likely to attract the attention of landowners and cultivators. Mr. Mallet points out the greater economy of the artificial mode of drying, and the Dutch method of manufacturing peat fuel. He illustrates by plans and specifications the cost and structure of the kilns of which he recommends the erection and use, and from the particulars which he adduces, he draws the following inferences:—

"First, that the artificial drying of turf, by kiln, is attended not only with the important advantage of insuring a crop of perfectly dry fuel, independently of season or weather; but that an increased value is given permanently to the turf in the process.

"Second, that this method of drying increases the value of turf fuel of the best quality, as ordinarily prepared, by nearly double.

"Third, that the method is applicable not only to turf intended for immediate manufacturing or other use, but to all turf requiring to be stacked or stored for future or domestic use.

"Fourth, that the most valuable return is given by applying this method of drying to the dense black varieties of turf; and that the assumed advantages of superior purity in the red, or upper turf, for certain manufacturing uses, are not founded in fact; inasmuch as its ashes contain a considerable proportion of sulphur, as well as those of the denser black turf."

One part of Mr. Mallet's improved method of manufacturing peat fuel consists in the adoption of the Dutch method of taking them from the bog. We extract the following passage, descriptive of this plan of making "hand turf":—

"The method may be expressed in a single sentence; it is in place of ever cutting turf from the bank in sods at all, invariably to make 'hand turf,' as it is called in Ireland. Wherever there is abundant water in the bog, as is generally the case, the Peat-mud is to be had ready to hand, merely by taking it out of the bog-holes by suitable instruments. Where the drainage is more perfect or the turf more fibrous, the Dutch method of working or kneading with water, so as to make artificial hand-turf, must be adopted. The results of adopting this method are—that from the same peat, turf thus made is about double the density when dry that it can ever be brought to without mechanical pressure, if cut in sods—that the whole labour of turf-making is reduced to merely casting out the peat-mud, and spreading it on the surface of the bog, when properly prepared to receive it, and after a short time slicing the semi-dried stratum of peat-mud with a fit tool into parallel bands, to form the future peats, which as soon as they are consistent enough to be carried, are transferred to the drying kiln, by which the whole labour of spreading and turning the sods and piling &c., which constitute by far the greatest expenditure of labour in turf-making when cut in sods, are avoided.

"It is not perhaps easy to give any precise explanation of why it is that peat dries so much faster, and becomes so very much closer and denser, if broken up prior to its drying, than if dried just as cut from the turf bank; but the fact is certain. Thus I find by actual experiment that good brown turf from the bog of Allen when kiln-dried as cut from the bank, weighs only 31 pounds per cubic foot = 837 lbs. per cubic yard. When cut, and the fibre broken up moist, and made in the Dutch fashion, and kiln-dried, it assumes such a density as to weigh 64.6 lbs. per cubic foot = 1744.2 lbs. per cubic yard; thus more than doubling its density, and in fact becoming as dense as compressed turf, and denser than dry Oak timber, which only weighs about 53 lbs. per cubic foot.

"The average cost in Ireland of turf may be stated at from 5*d.* to 7*d.* per statute box of 20 cubic feet. Now it is said that one able-bodied man can cast up from a bank not more than 5 feet in depth, as much as 20 boxes = 400 cubic feet per day of wet turf sods. I doubt the fact myself, but assuming it to be so, it will require from four to five other persons (women and boys), to carry away and spread the turf, and under the most favourable weather, the turning and piling process must be continued for at least 20 days. Taking the average of wages in Ireland, therefore, it is manifest that almost the entire value of turf at 6*d.* a box consists in labour spent upon it. Now if the Dutch method, or the Dutch improvements on our own method, of making hand turf be adopted, at least two-thirds of the whole labour would be saved; and more than this, if, as I recommended, this method of preparation be fully combined with the arrangements for desiccation in kilns which I have proposed. Thus then to recapitulate: what I propose for improving the preparation of turf fuel in Ireland is—First, to abandon turf cutting altogether, and exclusively make 'hand turf' after the Dutch method. Second, to dry all turf so made in kilns, either of the German or of my construction."

We strongly recommend this work to the perusal of all those the nature of whose properties renders them interested in the subject which Mr. Mallet has here treated in so able and interesting a manner.

Farm Memoranda.

A Lincolnshire Lowland Farm. (*See page* 229.)—The arable land is divided into 12 fields of nearly equal size, which are cropped in the following rotation: commencing, with a half-fallow for Turnips or Rape; 2d, on the Turnip land, Oats; 3d, Wheat; 4th, Clover; 5th, Wheat; 6th, Beans, manured; 7th, Wheat. The Rape is sown to Wheat; 3d, Clover; 4th, Wheat; 5th, Beans or Peas; 6th, Wheat. These rotations are alternate, the land growing Turnips one course being sown to Rape next. Deviations, however, are occasionally made; Barley sometimes succeeding the Wheat after Rape, followed by Clover on Grass seeds. Potatoes, in some cases, are taken upon a few acres; also Carrots and Mangolds in small quantities only. The land to be fallowed is ploughed up in dry weather, in the autumn or during the winter, at a depth of about 7 inches. It is cross-ploughed as early in the spring as possible, and left for a time. It is then well worked with a common scarifier, heavy harrows, and roller, taking care that it is not brought into a fine tilth too soon, but kept in what is termed a "shequery" state; the danger being in its running or setting into a compact waxy state from heavy rains, if too fine a mould is obtained. The root-weeds are thus kept on the top and dried up, while the land is fine enough at the same time to promote the growth of the seeds. Immediately before putting in the crop it is ploughed a third time, well worked as before, and the tilth is then obtained as fine as possible; all weeds are picked off and burnt, with sods pared from the headlands or elsewhere, for drilling in with the seed. The whole force of the farm is now brought to bear upon the field; ridging, manuring, preparing ashes, drilling, and rolling down, are all carried on simultaneously. About 14 large two-horse cart loads of farm-yard dung are deposited in the ridges, which are 25 inches apart. Upon these are drilled from 20 to 60 bushels of ashes mixed with 4½ bushels of bones, or 1½ cwt. of guano per acre, and 3 lbs. of Turnip seed. If guano is sown the seed is drilled with the double or after coulters, so as not to come in contact with the guano; for if it does it dies. The same mode of operation is adopted with Rape, which requires about 1 peck of seed an acre. The ridges are generally rolled again when the Turnip or Rape plants are from 4 to 6 inches in height, if the land is then dry enough. They are thus more consolidated, and the plants will imbibe moisture from the subsoil and grow much faster. Both crops are repeatedly hand and horse-hoed during the summer, so that the land obtains nearly the pulverisation of a summer fallow, at the same time producing a profitable crop. Occasionally the fallowing takes place oftener than is laid down by the rotation, by giving up the last two crops, Beans and Wheat. The land is very subject to the small variety of Couch-grass, so that it sometimes becomes necessary to fallow after the second crop of Wheat. The varieties of Turnips most approved of are the Purple-top Swede (of which Mr. C. has long been a successful grower), the Green-top Scotch Yellow, and the Red Round. After the Rape crop is consumed these are fed off in succession; the Red Round first, Scotch Yellow second, and Swedes last. This rule is in accordance with the most approved system, it being ascertained the common varieties are best first. The sheep are folded on the field, being allowed 2 oz. each of linseed cake, which is gradually increased to ¼ lb. The Turnips are taken up, cut, and given to the sheep in flat-bottomed troughs, raised 15 inches from the ground. This year Mr. Clarke has three sheds, constructed of large bullock hurdles, and covered with straw, as shelters for them. These are well bedded, and found to be a great benefit, for the sheep are comparatively dry and clean, and much more healthy and comfortable. There can be no doubt that the plan of hovelling in any shape is a great saving in food, but especially in winter, when a great part of what the stock consume is eaten to maintain the heat of their bodies. The Oat crop is put in after the same manner as Wheat, and as early in the spring as possible. The Dutch Brew, Friesland, and Poland are most preferred. The Hopetown was cultivated two or three years, but did not ripen well. The Potato-Oat is another kind which has not yielded well. About 12 pecks per acre is enough for seeding. Wheat: this crop is sown between the 1st of November and Christmas, but all is done in November if possible. The Wheat after Rape is sown much later, because of eating off the keeping, but seldom later than January. The "lands" are laid out so that the drill covers them at a round, the horses walking down the furrows; and the ploughing and harrowing are both done without a horse treading upon the part ploughed, except in the furrows. The seed is deposited at 9 inches apart, and about 7 to 10 pecks per acre, according to the state of the soil. The favourite varieties are the Taunton Dean White, the Sheriff's White, the Old Essex White, and the Short-strawed Hoary White, the Spalding's Red, Golden Drop, the Burwell Red (a variety of Old Red Lammas), and Smoothy's Red. Mr. Clarke has for several years cultivated many sorts in plots sometimes to the amount of 60, and has found none to exceed the above for general purposes. Clover.—This is drilled between the rows of Wheat, and about 10 lbs. per acre produces an excellent plant. Part of the Clover is mown, and part depastured; the Clover after the 1st crop of Wheat is eaten off, and that after the 2d crop of Wheat mown. Beans.—These are drilled in double rows for horse hoeing, that is, the rows are placed at alternate distances of 6 and 18 inches. The varieties most preferred are the small Heligoland and the Cambridge White; the Tick Beans are never grown. The land is frequently prepared for Beans by the skeleton ploughs and scarifier alone. The favourite sorts of Pea are the Partridge Grey, the Prussian Blue, the White Boiling Pea, and the Nimble Tailor Pea. Mr. C. has, for the past four years, endeavoured to adapt to field culture a most prolific dwarf Pea, selected by an old gardener for its extraordinary yields, and has succeeded well. The implements principally in use upon the farm are Ransome's cast-iron ploughs, four-horse thrashing machine, and chaff engine; Cooch's dressing machine; Hornsby's drill; Harrows in variety, Howard's patent common six bulled, &c.; large Scarifier; the universal plough, invented by Mr. C.: this implement is very useful in several ways; it can be adapted so as to make a perfect horse-hoe for ridge culture, a good two-horse scarifier, a capital broadshare plough, and a very effective subsoil plough. The Rackheath subsoil plough; Waggons and carts, light and heavy. The ploughs are all worked by two horses, except Ransome's B. M., one or two of which are kept to take up the mould-furrows, and other light work. Stacks.—The Hay, Beans, Peas, Oats, and Barley are in long ricks; the Wheat stacks or "cobs" are after the best East Lothian model, being round, and widening gradually as the height increases. The roof is short and well thatched, and the eaves are 22 feet from the ground. Mangolds, and occasionally Turnips, are taken up early in November, and placed in long heaps or "graves," about 8 feet wide at bottom. They are thatched down for two or three weeks, to give time for any fermentation to escape, and are then earthed up within a foot of the top, which

is left open with an additional covering of thatch. The Mangolds are never consumed until the spring. The manure made in the fold-yards remains there till required for use, being turned over about 6 weeks before leading, and is in its most fermenting state when covered up in the ridges.

CALENDAR OF OPERATIONS.

APRIL.

THE wet weather of the past week will have hindered field operations; and this may yet considerably injure the farmer; for if, as the old proverb has it, *a peck of March dust is worth a King's ransom*, the want of dry weather early in April must be a serious loss indeed. We have not been able to get on the land at all for the last six days (April 8), and our accounts from other districts show that over the greater part of England farming has, during that period, been almost at a stand. All that can be done in such a case is to get the yards cleaned out, the dung turned, drains in wet spots dry, bought manures brought home, and, if the roads are good, manure carried. It has also been a good time on drained lands for sowing soluble or half-soluble fertilisers; the wet weather in such cases washes these manures *into* the land, while on undrained lands it will only wash them *off* the land; a difference which will doubtless be sufficiently obvious at harvest time. Grass lands intended for hay should now be cleaned up, and fresh harrowed; the Thistles and Docks should be pulled, mole-hills and dung knocked about, stones and sticks picked up, and the field should then be shut up till harvest. The present is the proper season for sowing Flax seed, but the land is probably still generally too wet. The land having been deeply cultivated and brought to a fine tilth, roll and lightly harrow it; then sow 3 bushels per acre of good seed with a broadcast sowing-machine, and cover up by the Grass seed harrow and light roller.

Notices to Correspondents.

BREWING.—*A C*—The malt should be put into the mash-tun when the water is about 180° Fahr.; it should remain in the mash 1½ hour, when the wort for the best ale should be drawn off, and put in the copper with the hops immediately. Boil rapidly for about 1¼ hour. The wort is then run off into the cooler through a sieve, and the second quality wort may take its place in the copper. The yeast should be first mixed with a gallon of the ale-wort at 85°. When the fermentation has commenced in this portion, add another gallon of wort to it, and just before the worts are cooled down to 67° in moderate weather, and 73° in winter, those two gallons containing the yeast are to be spread over the fermenting-tun, and the worts let down upon them. See Robert's "British Wine-maker," a most useful book.

CALVES.—*A Calf*—Mix Oatmeal porridge with the new milk which you give your calves, or put an egg into each calf's allowance, or dilute the milk with water to the requisite quantity, and make it up to the calf with oilcake put in its manger, broken small, and Turnips and hay.

CARAWAY.—*W B P*—Sow about 20 lbs. of seed in March on a deep rich loam amongst a Bean crop. After Bean harvest single the Caraway plants to about 6 ins. apart every way, and keep the crop clean till next season, when the seeds will ripen in July. A triple crop of Coriander, which ripens the first year, and Caraways and Teazles, which ripen in the second, is frequently grown.

GRASS LAND.—*Street*—If you can get it pared and burnt before May, you may grow Swedish, and, if not till June, common Turnips. Feed them off on the land in autumn and winter, and sow Barley or Oats next year.

GRAZING OR MOWING.—*Enquirer*—In your comparison, even assuming the accuracy of the data, you fail to observe that the aftermath will be some time before it acquires the growth of the Grass as left by the cow. But we imagine your information is inaccurate, as Grass consumed grown in summer *must* be more nutritive than the same Grass dried and consumed in winter. There is no advantage in cutting green Vetches, &c into chaff, unless you mix straw with them. Winnowed chaff is perfectly good food.

GREEN CROPS.—*Sigma*—Plant ¼ with Lucerne—that is a permanent crop—and of the other ¾, plant ¼ with Mangold Wurzel, ¼ with Carrots, ¼ with Swedes, ¼ with successions of Winter and Spring Vetches, to be succeeded by Cabbages trans-planted from a seed bed, which will be consumed during winter, and followed by Mangold Wurzel. You need have no corn crop at all, unless you require it for straw. Your soil will grow first-rate Lucernes.

ITALIAN RYE-GRASS.—*I. B H*—We have 30 acres, which, if there were suitable weather, would *now* cut a ton of hay per acre, and one bushel of good seed per acre was the quantity sown amongst the Wheat last spring. Clover seeds were also sown with it, but these have for the most part been killed by the luxuriant growth of the Rye-Grass.

LINSEED CRUSHER.—*Hayle*—The Ulby Linseed crusher is a very good one, we *know*—but we cannot say whether the judges were right at Shrewsbury in awarding the premium to another. As regards fattening pigs, we never made any money by it, and never met with those who have. We keep 18 or 20 breeding sows, fat them, and sell them after their third litter, and sell the pigs as "stores," and as long as present prices last, that answers very well.

REFUSE OF GLUE FACTORY.—*W Hastings*—The refuse skins might be dissolved in ½ of their weight of sulphuric acid, and mixed with ashes in the proportion of 1 to 5, and you may sow a ton weight of the mixture per acre for the Turnip crop. We have no doubt it would be a good manure.

SPANISH PHOSPHORITE.—*Civis*—It is a mineral occurring in considerable quantity in the form of a narrow bed near the village of Logrosan in the Spanish province Estremadura. A pure specimen contains about 80 per cent. of phosphate of lime. Bones contain only from 50 to 70 per cent. of this substance. Superphosphate of lime is the product artificially obtained by subjecting the phosphate of lime, whether derived from bones or from phosphorite, to the action of some strong acid, such as the sulphuric. Mix 16 bushels of bones, or what is far more economical, 6 bushels of superphosphate, with such a quantity of ashes as you are able to drill per acre with your machine.

TO HOE WHEAT.—*S Sandbach*—The hoeing Wheat drilled in rows 9 ins. apart, will cost from 3*s.* to 5*s.* per acre according as the land is sandy and clean, or heavy and foul.

*** Communications reaching town after Wednesday, cannot be answered the same week.

Markets.

POTATOES.—SOUTHWARK, WATERSIDE, April 9.

There has been a regular supply to this market during the past week, and the quantity left of former arrivals pressed heavily on the fresh arrived samples, and injured the sale. The stale goods being sold at from 70*s.* to 75*s.* per ton, made it difficult to dispose of the fresh cargoes at an advance in those prices; notwithstanding, there was considerable business done in Red kinds, but inferior York Regents and Shaws were a complete drug. Prices ranged as follows:—York Reds, 100*s.* to 140*s.* per ton; ditto Regents, 80*s.* to 100*s.* per ton; ditto Shaws, 60*s.* to 70*s.* per ton; Scotch Reds, 70*s.* to 85*s.* per ton; Blues, Blacks, and Mercurys, from the north of Scotland, 60*s.* to 70*s.* per ton; Fifeshire Reds, 70*s.* to 75*s.* per ton. There is considerable langour in the trade this morning, and the above prices are barely maintained.

HOPS, FRIDAY, April 10.

The market remains firm, with rather more doing. The late wet weather is thought will prove injurious to the coming crop.

PATTENDEN & SMITH, Hop-Factors.

COVENT GARDEN, APRIL 11.—The supply of Vegetables has been rather better this week than hitherto, and Fruit, although not plentiful, is sufficient for the demand. Pine-apples are good in quality, and, considering the season, tolerably plentiful. Foreign Grapes are sufficient for the demand; and a few bothouse Grapes have also made their appearance. Fine looking Strawberries have been offered at 2*s.* an ounce. The best Dessert Apples bring about 20*s.* per bushel; inferior sorts may, however, be obtained from 6*s.* to 12*s.* per bushel. Pears remain nearly the same as they were last week. Oranges are good and pretty plentiful, and Nuts are sufficient for the demand. Of Vegetables, Asparagus is somewhat scarce. French Beans are tolerably well supplied. Seakale and Rhubarb are excellent in quality, and Broccoli, Cabbages, and other winter Greens, are good. Excellent Celery may be obtained at last week's prices. Potatoes, of the best quality, still continue to fetch 9*l.* a ton; trade for inferior samples is dull, and the prices remain unaltered. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Tropæolums, Jasmines, Lily of the Valley, Pentas carnea, Stephanotis floribunda, Burchellia capensis, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Rhododendrons, Cinerarias, Gardonias, Moss and other Roses.

FRUITS

Fine Apple, per lb., 4*s* to 10*s*		Lemons, per dozen, 1*s* to 3*s*	
Grapes, Bothouse, per lb., 15*s* to 20*s*		— per 100, 6*s* to 14*s*	
— Spanish, per lb., 2*d* to 1*s*		Almonds, per peck, 6*s*	
— Portugal, p. lb., 1*s* to 3*s*		Sweet Almonds, per lb., 2*s* to 3*s*	
Apples, Dess., per bush., 7*s* to 20*s*		Filberts, English, p. 100 lbs., 50*s* to 60*s*	
— Kitchen, 4*s* to 10*s*		Nuts, Cob, per 100 lbs., 80*s* to 90*s*	
Pears, per bl. av., 6*s* to 18*s*		— Barcelona, 90*s*	
Oranges, per dozen, 1*s* to 2*s* 6*d*		— Brazil, 12*s* to 16*s*	
— per 100, 4*s* to 10*s*		— Spanish, 14*s*	
— Seville, per 100, 5*s* to 16*s*		Walnuts per bushel, 16*s* to 20*s*	
— per dozen, 2*s* to 2*s* 6*d*		Chesnuts, per peck, 3*s* to 7*s*	

VEGETABLES.

Cabbages, per doz., 6*d* to 1*s* 6*d*		Parsnips, per doz., 3*d* to 1*s*	
— red, per doz., 4*s* to 8*s*		Scorzoners, per bundle, 1*s* to 1*s* 3*d*	
Broccoli, Brown, per bdle., 1*s* to 2*s*		Salsify, do., 1*s* to 1*s* 6*d*	
— White, 1*s* to 3*s*		Onions, per bushel, 1*s* 6*d* to 3*s*	
Greens, per doz. bunches, 1*s* 6*d* to 3*s*		— Spanish, per doz., 1*s* 6*d* to 6*s*	
French Beans, per 100, 1*s* 6*d* to 2*s* 6*d*		Shallots, per lb., 6*d* to 8*d*	
Sorrel, per hf.-sieve, 3*d* to 1*s*		Garlic, per lb., 6*d* to 8*d*	
Potatoes, per ton, 70*s* to 150*s*		Shallot, per acore, 6*d* to 1*s* 6*d*	
— cwt., 4*s* to 9*s*		Lettuce, per score, Cab., 4*d* to 6*d*	
— bushel, 3*s* to 4*s* 6*d*		— — Cos, 6*d* to 1*s*	
— Kidney, per bushel, 2*s* to 4*s*		Radishes, per 12 bunds. 6*d* to 1*s*	
Turnips, per doz., 1*s* to 2*s*		Mushrooms, per pottle, 6*d* to 1*s* 6*d*	
Red Beet, per doz., 6*d* to 1*s* 6*d*		Small Salads, per punnet, 6*d* to 9*d*	
Carrots, per doz. bchs., 3*s* to 5*s*		Fennel, per bunch, 2*d* to 3*d*	
Horse Radish, per bundle, 1*s* 6*d* to 3*s*		Savory, per bunch, 2*d* to 6*d*	
Seakale, per punnet, 1*s* 6*d* to 2*s*		Thyme, per bunch, 2*d*	
Rhubarb, per bundle, 6*d* to 1*s* 3*d*		Watercress, p. 12 sm. bun. 6*d* to 8*d*	
Asparagus per bundle, 4*s* to 12*s*		Parsley, per bunch, 1*d* to 2*d*	
Cucumbers, each, 1*s* to 3*s*		— Roots, per bundle, 1*s*	
Spinach, per sieve, 1*s* to 1*s* 6*d*		Tarragon, per bunch, 6*d*	
Leeks, per doz. bunches, 1*s* to 1*s* 6*d*		Mint, green, per bunch, 6*d* to 8*d*	
Celery, per bunch, 6*d* to 1*s* 6*d*		Marjoram, per bunch, 4*d*	
Cardoons, each, 6*d* to 9*d*		Chervil, per punnet, 3*d* to 8*d*	

HAY.—Per Load of 36 Trusses.

SMITHFIELD, April 9.

Prime Mead. Hay	85*s* to 90*s*	New Hay	—*s* to —*s*	New Clr.	—*s* to —
Infr. New & Rowen	70 90	Clover	105 to 115	Straw	30 36

JOHN COOPER, Salesman.

CUMBERLAND MARKET, April 9.

Prime Mead. Hay	90*s* to 97*s*	Old Clover	110*s* to 116*s*		
Inferior -	80 80	Inferior do.	98 105	Straw	30*s* to 36*s*
New Hay -	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, April 10.

Fine Old Hay -	80*s* to 88*s*	Old Clover	110*s* to 116*s*		
Inferior Hay -	70 76	Infr. „	75 90	Straw	28*s* to 34*s*
New Hay -	— —	New Clover	— —		

SMITHFIELD, MONDAY, April 6.—Per stone of 8 lbs.

Best Scots, Herefords, &c.	4*s* 0 to 4*s* 4	Best Long-wools -	4*s* 6 to 4*s* 10
Best Short Horns -	3 10 4 2	Ditto (short) -	4 2 4 4
Second quality Beasts -	3 6 3 8	Ewes and second quality	4 4 4 6
Calves -	4 0 4 4	Ditto (short) -	3 10 4 2
Best Downs & Half-breds	4 10 5 2	Lambs - - -	5 0 5 4
Ditto (shorn) -	4 6 4 8	Pigs - - -	3 8 4 8

Beasts, 2604; Sheep and Lambs, 20,060; Calves, 68; Pigs, 318.

We have to day a good show of Beasts, trade is dull, and our top quotations are with difficulty realised. Several remain unsold.—The number of sheep is rather on the increase, and the demand only moderate, trade is consequently heavy, and prices have a downward tendency. Small Lamb is in demand.—Veal trade is heavy.—In Pigs very little is doing.

FRIDAY, April 10.

The demand for Beef being very small to-day, only the best qualities meet with purchasers, at nearly Monday's prices; in second rate very little is doing, at fully 2*d* per 8 lbs. reduction and many remain unsold.—Sheep are in a plentiful, but quite adequate to the demand, prices about the same as on Monday.—This being Good Friday, Lamb is much in request, of which there is considerably less than an average supply. Nine small Lamb makes very nearly 9*s* per 8 lbs; large Lamb, 6*s* 4*d* to 7*s*.—Veal trade is rather better; 5*s* 4*d* is more readily obtained for the best qualities.

Beasts, 760; Sheep and Lambs, 4330; Calves, 170; Pigs, 368.

41, Wood Smithfield

MARK-LANE, MONDAY, April 6.

The supply of Wheat to this day's market was moderate—there was a steady demand for all fine descriptions of new Wheat at fully last week's rates, but secondary descriptions are still neglected. Good old Wheat was rather dearer.—Fine Malting Barley maintained its former value, but secondary sorts were cheaper.—In the price of Oats and Shelling there was no material alteration.—Beans remain as last advised.

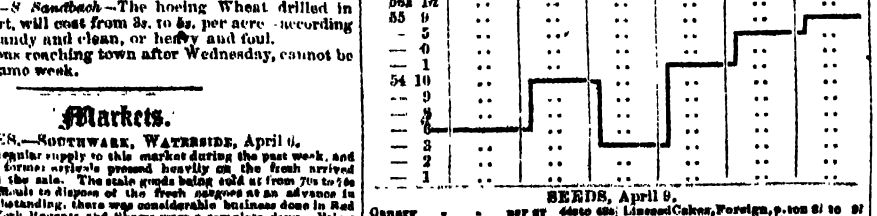
BRITISH, PER IMPERIAL QUARTER.

	s.	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk		White	62 66	Rad .	56 62
—— Norfolk, Lincolnshire, and Yorkshire			60 63	White	55 60
Barley, Malting and distilling	29*s* to 31*s*	Chevalier	31 34	Grind.	24 26
Oats, Lincolnshire and Yorkshire		Polanda	24 26	Feed	21 25
—— Northumberland and Scotch		Feed	23 26	Potato	25 29
—— Irish		Feed	21 24	Potato	24 27
Malt, pale, ship			54 62		
—— Hertford and Essex			60 66		
Rye			34 36		
Beans, Maragan, old and new	38 to 40	Tick	30 46	Harrow	32 48
—— Pigeon, Heligoland	55 to 59	Winds	— —	Longpod	— —
Peas, White	40 to 48	Maple	32 32	Grey	32 34

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Feb. 28 per Quarter.	54*s* 6*d*	29*s* 7*d*	21*s* 5*d*	35*s* 4*d*	34*s* 9*d*	35*s* 2*d*
Mar. 7	54 10	29 8	21 10	33 6	34 11	33 8
— 14	54 3	29 4	21 9	34 2	35 2	34 9
— 21	55 1	29 10	22 0	31 10	34 4	33 4
— 28	55 6	30 2	22 1	34 0	33 6	33 4
Apr. 4	55 9	30 7	22 6	33 7	34 10	34 0
6 weeks' Aggreg. Aver.	54 11	29 10	21 11	33 9	34 9	34 0
Duties on Foreign Grain	12 0	9 0	6 0	9 6	8 6	8 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Mar. 28.



SEEDS, April 9.

Canary - per qr	44*s* to 48*s*	Linseed Cakes, Foreign, p. ton	8*l* to 9*l*		
Caraway - per cwt	46 48	Mustard, White - p. bush.	—*s* —		
Clover, Red, English -	80 100	— Superfine „ -	— —		
— — Foreign -	50 80	— Brown „ -	— —		
— White, English -	80 84	Rapeseed, English, per last	28*l* 27*l*		
— — Foreign -	62 66	Rape Cakes - per ton	— —		
Coriander - - -	12 16	Seinfoin - - -	— —		
Hempseed - per qr.	32 36	Tares, Eng. winter p. bush.	— —		
Linseed - - per qr	62 66	— Foreign - -	4 5*s*6*d*		
— Baltic - - -	62 66	Trefoil - - per cwt	20 30		
— Cakes, Eng. per 1000	11*l* 12*l*	Turnip (too variable for quotation)			

KINGSTON AND LEA.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition, at the Auction Mart, Bartholomew-lane, on Tuesday, April 14, 1846, at 12 o'clock, a very fine assortment of FUCHSIAS, VERBENAS, DAHLIAS, HEARTSEASE, PINKS, GERANIUMS, and other Plants in bloom. May be viewed the morning of sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition, at the Auction Mart, Bartholomew-lane, on Thursday, April 16th, 1846, at 12 o'clock, a very rich collection of PICOTEES, the surplus stock of a much esteemed amateur, comprising all the newest varieties. Also, a splendid assortment of Dahlias, Fuchsias, Verbenas, Heartsease, Geraniums, and other Plants in bloom. May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed to submit to Public Competition by Auction, on the premises, Horwood Nursery, Hampstead-road, on Monday, April 27th, 1846, at 11 o'clock, (in consequence of the premises being required for other purposes), the whole of the GREENHOUSE PLANTS, consisting of very choice Geraniums, Azaleas, Acacias, Fuchsias, Verbenas, Calceolarias, Heaths, Fairy Roses, &c. Also, a newly-erected Greenhouse, several two and three light Boxes, Handlights, and other effects. May be viewed prior to Sale, and Catalogues had on the Premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

TO GROWERS OF ORCHIDS.

MESSRS. J. C. AND S. STEVENS beg to announce they will SELL BY AUCTION, at their Great Room, 38, King-street, Covent-garden, on THURSDAY, 16th APRIL, and following day, a continuation of the IMPORTATION OF ORCHIDACEÆ (of which part was sold on the 1st inst.). In this parcel will be found some splendid specimens of Lycaste Skinneri and Cattleya Skinneri, a new plant from a cold district, supposed a Peristeria; very fine specimens of Lælia superbiens, a fine Stanhopea from the Vera Paz, Odontoglossum grande, in large masses; Arpophyllum squarrosum, giganteum, and a new species; some grand specimens of the large sweet-scented species of Odontoglossum pulchellum, in fine order; a few Gœlias of a distinct species to those offered in the last sale, from the Vera Paz, and several plants now introduced for the first time. Messrs S. beg to add, that although the loss has been great, the living specimens are such as well deserve the attention of Amateurs desirous of possessing Prize plants.—May be viewed the day prior and mornings of Sale, and Catalogues had of the Auctioneers, 38, King-street, Covent-garden.

ULEY IRON WORKS, NEAR DURSLEY, GLOUCESTERSHIRE.

Important to Iron Founders, Engineers, Agriculturists, Agricultural Implement Makers, and others.

The EARL OF DUCIE, having disposed of the above-named Property, has honoured

G. HUMPHRYS AND Co. with instructions to arrange for SALE BY AUCTION, on TUESDAY, MAY 5, 1846, and following days of business (Fridays and Saturdays, and Monday the 10th excepted), until the whole is disposed of, THE VERY VALUABLE EFFECTS of manufactured and unmanufactured Stock, Fixtures, Tools, Carts, Horses, &c. Comprehending Driving Shafts, Gearing, Planing, Slotting, and Drilling Machines, Slide and other Lathes, Vices, Vice Benches, Screw Tackle, and other Tools, Fan Blower, Cupolas, Crane, Moulding Boxes, and an extensive assortment of Wheel and other patterns, Brass Founders' Tools, Portable and other Smith's Forges, with Anvils and Tools, Pattern Makers', Carpenters', and Wheelwrights' Benches, Circular Saw; Timber of various kinds, well-seasoned; a quantity of Machines, of various kinds, partly manufactured and complete; a great quantity of Bar and other Iron; Cast and Blistered Steel, Counting-house Fixtures; the one half Share of the Uley Patent Chaff Cutter, a Richmond Cart and Spring ditto; a useful Draught Horse and Gig ditto; Sets of Harness, and numerous miscellaneous Effects.

Full and descriptive Particulars will appear in Catalogues at 1*s.* each, which may be obtained 7 days prior to the Sale at the *Midland Counties' Herald* Office, Birmingham; *Guardian* Office, Manchester; *Mercury* Office, Bristol; at the Works; or the Auctioneers' Offices, Stroud and Wotton-under-Edge. Catalogues will be sent on a post-paid application, inclosing 12 postage stamps.

☞ The Sale will commence each day at 12 o'clock to the Minute.

FOREIGN POTATOES, FOR SEED OR CONSUMPTION.

FOR PUBLIC SALE, at 2, Monument-yard, on Wednesday, 15th April, 1846, at 12 o'clock precisely, the following goods, viz.: ABOUT 60 TONS OF POTATOES, ex Eleanor Wickham, per Terceira, Azores. These Potatoes being brought in boxes and hampers are in perfectly sound condition, and will be found particularly desirable for Seed, the Azores being among the very few places in which the prevailing disease has not appeared. Samples of the Cargo were exhibited at the Meeting of the Horticultural Society, on the 7th instant, and reported favourably upon by Prof. LINDLEY.

Samples on view, and Catalogues to be had on application to KEELING and HUNT, Brokers, Monument-yard and Pudding-lane.

FOR PUBLIC SALE IN LONDON, at Garraway's Coffee House, Cornhill, at 3 o'clock, on Tuesday, the 14th instant, MUSTARD SEED, about 500 quarters, Danish White, of fine quality (can be kept in Bond if required). For samples and particulars, apply to ALLWIN, BEVAN, COLE, and HARRIS, Brokers, 90, Lower Thames-street.

TO BE LET ON LEASE, OR BY THE YEAR, in one of the midland counties, NINE ACRES OF FREEHOLD CAPITAL GARDEN GROUND, with Dwelling House, Barn, Stables, &c., all in good repair. Four acres of the ground are planted with Fruit-trees now in a full bearing state, which are allowed by all judges not to be excelled. There is about 250 large trees, which consist of Apples, Pears, Plums, and Cherries, and several thousands of Gooseberry and Currant trees. The Gooseberries alone will more than pay the rent. It is six miles from Leicester, which is one of the best market towns in England. Any gardener wishing to commence business on his own account will find this worthy of notice.—For particulars apply, either personally or by letter, to Mr. GLOVER, Cropston, Mountsorrel, Leicestershire.

*** Possession may be had immediately.

FOREIGN SHEET GLASS, GLASS TILES, &c.

—The cheapest, stoutest, and best quality imported and sold at C. JARVIS'S Old Established Window Glass Warehouse, 38, Great Castle-street, a few doors from Regent-street.

CROWN GLASS at 50*s.* per Crate; squares cut to size equally low in price; sashes glazed on the lowest terms. Country orders forwarded with reference will meet with prompt attention. *** The largest Discount allowed off all description of Glass for ready money only.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

per gross.	per gross.	per gross.
6 in. by 4 .. 6s.	8 by 5 .. 13s.	9 by 7 .. 18s.
7 in. by 4½ .. 9s.	8 by 6 .. 14s.	10 by 8 .. 26s.

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists, apply to R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square, London.

THE ARTICLE GLASS.

MESSRS. DAINES AND BRADDOCK have made arrangements to supply the Public with GLASS for Sashes and Horticultural purposes of superior quality and substance, and at much lower prices than that which may have been obtained through the medium of any previous advertisements, as the sizes therein quoted at 1d. per foot, may be obtained at 8s. per 112 lbs., upon application, 6, Farringdon-street, London. N.B. A Stock of Patent Plate and Stained Glass constantly on hand.—April, 1846.

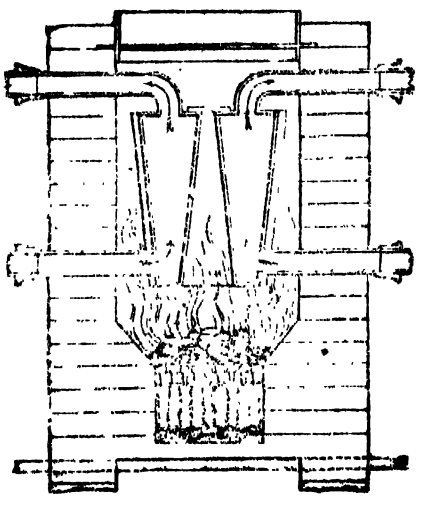
FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPRICK'S, 26, Castle-street East, Oxford-street. For Ready Money only.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. NEIGHBOUR & SON, that they have prepared, for the season, an extensive supply of their various improved BEE-HIVES; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a postage stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

NUTT ON BEES, (6th Edition) just published.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea; by Appointment to HER MAJESTY and H. R. H. PRINCE ALBERT.—Ornamental Water-fowl, Black Swans, White do.; Egyptian, Canada, China, Barnacle, Brent, Bean, and Laughing Geese; Pintail, Widgeon, Gargany, and Common Teal, Labrador, Shoveller, Gold-eyed tufted, Dun Diver, Carolina, and Call Ducks, &c.; pinioned and domesticated. Great variety of Poultry, Pea-fowl, &c.—And 3, Halfmoon-passage, Gracechurch-street. China Pigs.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS'S recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place: and in more than one hundred other places.—150, Fleet-street, London.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and price, at 150, Fleet-street.

WIRE-WORK, HOT-WATER APPARATUS, GREENHOUSES, &c.

ST. THOMAS BAKER, MANOR-HOUSE, MANOR-PLACE, KING'S-ROAD, CHELSEA, Manufacturer of INVISIBLE WIRE-FENCE, to resist Grazing Stock, and rendered Rabbit-proof. WIRE-WORK in Trainers, Arches for Walks, Bordering, Flower Stands, Pheasantries, &c. HORTICULTURAL BUILDINGS, Green and Hothouses, Conservatories, &c. The same heated by HOT-WATER-APPARATUS, on improved and economical principles.

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GUANO, PERUVIAN AND AFRICAN, warranted Genuine to Analysis: also Gypsum, and all other Manures of known value, on sale by MARK FOTHERGILL, 40, Upper Thames-street.

BRITISH GUANO, equal in quality to Peruvian, at 9l. per ton. Pamphlets gratis on 8 Stamps being forwarded, being amount charged for postage. Agent for DINGLE'S HAND SEED DIBBLE.

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THE URATE OF THE LONDON MANURE COMPANY.—Four Guineas per Ton. After five years' experience in the manufacture of the above Manure, the Company confidently recommend it as one of the cheapest and most permanent of all artificial dressings. Availing themselves of the many improvements in the science of artificial manures, the Urate is so adapted that the food requisite for a rotation of crops is fully maintained. The Urate will be found most valuable, either drilled or sown broadcast, for Barley, Oats, Potatoes, Tares, or Turnips: for the latter it is particularly useful, as it seldom fails, in the driest season, to secure a good plant, and also to produce a great weight per acre. The London Manure Company also supply genuine PERUVIAN GUANO, Gypsum, Sulphuric Acid, Super-phosphate of Lime, Bone Sawdust, and every Artificial Manure.

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THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed: Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

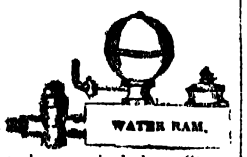
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SUPERPHOSPHATE OF LIME, 7l. per ton, at MR. LAWES'S FACTORY, DEPTFORD CREEK.

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No. 1 Ram, Supply Pipe, 4 in.
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Deep Well Engines and Pumps worked by Steam, Horse-power, or Manual-labour. Fountain Basin in Iron, from W. Rowley's pattern. Jets made to any device. Buildings, Baths, &c. heated upon the most simple and economical plan. Steam Closets, Cooking Apparatus, &c.



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DINGLE'S HAND DIBBLING MACHINE, for depositing all kinds of Seed. It is so constructed that it will at the same moment make the hole and deliver the exact quantity of Seed with extreme regularity, nor is the soil liable to choke the point.

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PRIZE DRAIN-TILE MACHINE.

DENTON AND CHARNOCK'S PATENT "ECONOMIC" DRAIN-TILE AND PIPE MACHINE.

At the last meeting of the Yorkshire Agricultural Society, the Prize of 10l. was awarded to this Machine, after a succession of trials before the competent Mechanical and Agricultural Judges, and it has subsequently obtained Medals and Premiums from the Liverpool, Highland, and other Societies.

Orders are received, and every further information given, by the sole makers, R. BRADLEY & Co., Engineers, Wakefield.

Price 20l. inclusive of Patent dues.

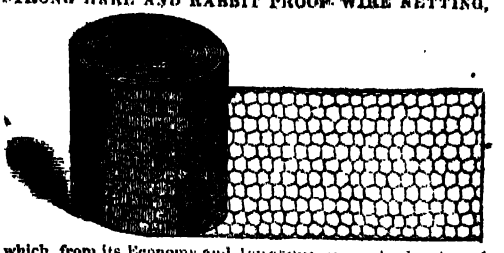
R. B. & Co. are also makers of the Improved Oil-cake Crusher, price 8l.—Wakefield, April 11.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

PASSAM SMITH & CO.'S FINE CONGOU—rich, strong, full Pekoe-Souchong flavour—at 4s. 4d. per pound, continuing to give such universal satisfaction, the Proprietors can strongly recommend it to Families requiring an economical and serviceable article.—No 1, COVENTRY STREET, LONDON.

W. AND C. YOUNG, MANUFACTURERS OF IRON AND WIRE WORK, &c., 128, High-street, Edinburgh, and 32, St. Enoch-square, Glasgow, beg respectfully to call the attention of Landed Proprietors, Horticulturists, &c., to their STRONG HARE AND RABBIT PROOF WIRE NETTING,



which, from its Economy and Durability, is peculiarly adapted for inclosing and rendering impervious to HARES and RABBITS, Extensive Grounds, Young Plantations, Gardens, Nurseries, &c. It can be attached to Hedges, Paling, and other existing Fences, and removed, when required, with the greatest facility.

Prices, in Webs of any length—18 inches high, 9d. per yard; 24 inches, 1s.; and 30 inches, 1s. 3d. per yard, and delivered free at any of the principal Ports of the three Kingdoms for One Halfpenny per yard.

STRONG STRAINED WIRE FENCES, with Wrought-iron Uprights, for Horses, Cattle, and Sheep, at from 1s. 4d. to 1s. 10d. per lin. yard, according to strength.

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STRONG STRAINED WIRE FENCES, Plain and Ornamental, Hare and Rabbit proof, for inclosing Flower-gardens, &c., at from 2s. to 3s. 6d. per lin. yard.

PORTABLE Do., in the form of Hurdles, at from 2s. 6d. to 3s. 6d. per lin. yard.

Definite Estimates of Costs given upon receiving a Description of the Fences wanted, the nature of the Lines, and the extent required.

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These Hurdles are made with prongs to fix them into the ground, and can be removed or fitted up with the greatest facility by any labourer.

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W. & C. YOUNG manufacture every description of IRON and WIRE WORK required for this and foreign countries, and from the increased facilities afforded them by the Glasgow branch of their business lately established, they feel assured that all commands from the West of Scotland and Ireland will be executed in a manner that will give every satisfaction to those who honour them with their patronage. Drawings, Catalogues, and Testimonials, sent free of expense to any Nobleman or Gentleman requiring them.

Workmen sent to all part of Scotland, England, and Ireland.

SMOKY FIRE PLACES PREVENTED.—W. and M. PEETHAM take leave to acquaint their friends and the public, that they undertake to prevent the above-named evil effectually; and they likewise construct brick or metal flues to descend, or otherwise, as the situation may require, which they will warrant to draw and act properly.

Apply at their Stove-warehouse, 9, Clifford-street, or at the Manufactory, No. 422, Oxford-street.

TEA TRAYS, Tea Urns, Knives and Forks, Dish Covers, &c., at C. WATSON'S 41 and 42, Barbican, and 16, Norton Folgate.—Established half a century. A set of three Paper Tea Trays, including the largest size made, 35s., very richly ornamented all over, 50s. a set of three, and up to 14l.—Japan Tea Trays, 7s. 6d. a set, and upwards.—A 5-quart London-made Bronze Tea Urn, 35s., with the newest patterns up to 5l. 5s.—A set of six patent raised London-made Dish Covers, 18s. 6d.—Best imperial raised, 35s. 6d., set of six.—Elegant silver shape, 52s. 6d., set of six.

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3½-inch handsome Balance-handle.. 18s. doz. 14s. doz. 6s 6d. pr
4-inch Balance-handle, largest and best made ..... 20s. „ 16s. „ 7s 6d. „
Ditto, with Watson's Albata Plate-handles, equal to Silver..... 22s. 6d. 18s. „ 8s. 6d. „

Forks half the price of the above.

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LINGHAM BROTHERS, 170, Little Hampton-street, Birmingham, sole Manufacturers of the IMPROVED MENOGRAPH, or Labels for Garden Borders, Flower Pots, &c. Engravings of the same, with prices attached, sent per Post to all parts of the Kingdom, on application as above.

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GOOD BLACK TEA, 3s 6d., 3s. 8d., and 4s. per lb. Gunpowder, 5s.; Young Hyson, 4s 10d.; Good Colonial Coffee, 1s. 4d.; Fine Plantation, 1s. 8d. These articles, of strong good quality, much recommended, are respectfully offered to notice. Samples, or other quantities, forwarded on receipt of post-office order or other order of payment.

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The public may rely on the work being regularly published every Month, the manuscript being in a state of great forwardness, and upwards of one thousand of the engravings having already passed through the engraver's hands.

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MAUND'S BOTANIC GARDEN AND FRUITIST;

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Full-sized Engravings of GARDEN FRUITS, coloured and united with Emblematic Illustrations. The whole are copied from nature by the most competent artists.

Also, neatly executed Miniature Engravings of the most recently-introduced Exotic Plants, for the Greenhouse or Borders, remarkable for their beauty and novelty.

These Plates and Illustrations of Fruits and Flowers, comprised in every monthly Number, are accompanied by descriptions and explicit directions for their cultivation and general management, to enable every person who is fond of a garden rightly to understand and estimate the subject it contains, and efficiently to conduct its whole arrangement and culture.

The object of the Author will be to enable every one, whether possessing a large or small garden, to obtain from it the greatest amount of profit and enjoyment.

No. I. of this work was published on the 1st of January, 1845; price, large paper, with the Flowers and Fruit coloured, 1s. 6d.; small, with the Fruit plain, 1s. The Gardeners' Edition, partially coloured, not including the Fruitist, 6d.

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THE IMPROVEMENT TO BE MADE

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CULTIVATION OF SMALL FARMS,

By the introduction of Green Crops, and Housefeeding the Stock thereon, with a Preface ADDRESSED TO LANDLORDS giving full information to those who may be inclined to adopt the plan recommended, as to the best mode of introducing it, and the results attending its introduction; together with the expenses likely to be incurred thereby, and some remarks on the expediency of Landlords providing Farm Offices for their Tenants.

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"There is a superb engraving for each month, the colouring of which is brilliant and correct; and as we have a plant now in bloom on our table which is figured in this number, we have been enabled to compare the bloom with the engraving, and are gratified in saying that the representation is as close and striking as it is possible to attain."—*Newcastle Advertiser.*

LONDON: R. GROOMBRIDGE AND SONS, 5, PATERNOSTER ROW.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MOLLOY BYAM, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent-Garden, in the said county; where all Advertisements and Communications are to be addressed to the Editor.—Saturday, April 11, 1846.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 16—1846.] SATURDAY, APRIL 18. [PRICE 6*d*.

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SCOTTISH PANSY SOCIETY. — The SECOND ANNUAL COMPETITION of this Society will take place in the Calton Convening Rooms, Edinburgh, on WEDNESDAY, 17th JUNE, 1846.

Intending Competitors will receive Schedules of the regulations by applying to the President, Mr. John Finlayson, Kincarding; the Treasurer, Mr. J. Alexander, 32, South Hanover-street, Edinburgh; the Secretary, or any Member of Committee, and to the Secretaries of the Local Horticultural Societies, any of whom will receive the Annual Subscription of *2s. 6d.* previous to the 6th May.

ROBERT ARTHUR, Secretary.
1, Waterloo-place, Edinburgh, April 18.

NOTTINGHAM GRAND HORTICULTURAL EXHIBITION (Open to all England), will be held at the Exchange Rooms, on WEDNESDAY, 29th APRIL, at 2 o'clock, for the Exhibition of Auriculas, Hyacinths, Polyanthus, Pelargoniums, Camellias, Azaleas, Roses, Rhododendrons, and all Stove, Greenhouse, and Hardy Plants in season.

Schedules of the Prizes, &c., to be had of
S. R. P. SHILTON, Honorary Secretary.
St. Peter's, Church-side, Nottingham, April 18.

ARCHÆOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.

The next MEETING of the Subscribing Members will be held on FRIDAY, the 1st of MAY, at the Rooms of the Institution of Civil Engineers, 25, Great George-street, Westminster.

The subject for special discussion will be—
"PICTILE MANUFACTURES, including Pottery and Porcelain of all countries and of every period."

Members who cannot personally attend, are invited to forward, by any friend, Articles which they may consider as likely to bear on the subject.

Archæological Institute Apartments, 12, Haymarket.
Attendance from 12 to 2 daily.

T. HUDSON TURNER, Secretary.

The ANNUAL MEETING of the INSTITUTE will take place at York, under the patronage of his Grace the Archbishop; President, the EARL FITZWILLIAM, commencing TUESDAY, JULY 21st.

BECK informs the Public that the various Articles manufactured by him in Slate for Horticultural purposes, may be seen in use at Worton Cottage, Isleworth, upon application to the gardener (*Sundays excepted*).

TRUE TRANSPLANTED FIELD TURNIP-SEED, SOLD BY

J. G. WAITE, SEEDSMAN, &c., 4, Eyre-street-hill, Hatton-garden, London.

White Round,	18*s.* per bushel.	Purple Topped Scotch, per bushel.	22*s.*
Green do.	18*s.* do.	Green do.	22*s.* do.
Red do.	20*s.* do.	Purple Topped Swede,	20*s.* do.
Stubble,	20*s.* do.	Improved do.	21*s.* do.
White Stone,	20*s.* do.	Green do.	20*s.* do.
White Tankard,	22*s.* do.	Skirving's Improved Liverpool Swede,	20*s.* do.
Green do.	21*s.* do.	Laing's do.	24*s.* do.
Red do.	21*s.* do.	Matson's do.	24*s.* do.
White Globe,	20*s.* do.	MANGOLD WURZEL.	
Green do.	20*s.* do.	Fine Improved Long Red,	50*s.* per cwt.
Red do.	20*s.* do.	Long Yellow,	70*s.* do.
New White Decanter (very large),	42*s.* do.	Yellow Globe,	60*s.* do.
Cream Globe,	24*s.* do.	Red do.	70*s.* do.
Dale's Hybrid,	22*s.* do.		

J. G. W. has a splendid collection of Lawn, Pasture, and all the most useful Grasses in cultivation, of which a separate Catalogue may be had. His assortment of Garden and Flower Seeds is upon the most extensive scale; Catalogues of which may be had on application.—April 18, 1846.

NEW AND SUPERB FUCHSIAS.—Strong established plants, 12*s.* per dozen, consisting of the following beautiful varieties:—Serratifolia, Cassandra, Sir H. Pottinger, Salter's Sylph, Oberon, Queen of the West, Rosabella, Princess Alice, Mayii grandiflora, Duchess of Sutherland, Feigh-a-Ballagh, Hero, Hamlet, Imperialis, Junius, Eppe's Fair Rosamond, Queen of the Fairies, Nymph, Queen of the Beauties, Attraction, Exoniensis, Prima Donna, Paragon, Robusta, Snowball, Unique, Victory, Varburgh, Vesta, Kentish Bride, &c. The above will be carefully packed and forwarded to London carriage free. All orders from unknown correspondents to be accompanied with a remittance.

W. J. EPPS, Bower Nursery, Maidstone.

MR. VAN HOUTTE'S NURSERY AT GHENT.

MR. VAN HOUTTE'S CATALOGUES. Nos. 21, 22, 23, 24, and 25, may be obtained, on prepaid application, at Mr. GEO. BARR'S, 52, Mark-lane, London.

TRUE STICKNEY'S HOLDERNESS RYE-GRASS.

J. BACKHOUSE AND SON, York, the sole holders of this GRASS, which is unrivalled for Lawns and Permanent Pasture, have a few bushels on sale at a Guinea a bushel.

DANECROFT NURSERY, STOWMARKET, SUFFOLK.

S. GIRLING'S GENERAL CATALOGUE OF DAHLIAS and other FLORIST'S FLOWERS, can now be had on prepaid application, containing nearly every new Dahlia of the season. A separate Catalogue of ROSES and PANSIES is also ready, and can be had, if required.

FUCHSIA "DOCTOR JEPHSON."—This splendid FUCHSIA was raised by the Gardener of the above-named Gentleman, and is pronounced by growers who have seen it to be the finest light Fuchsia known. Petals of a clear snowy white, corolla a rich deep rose, habit of Willmoreana, and a profuse bloomer.

Plants 10*s.* 6*d.* each, with the usual discount to the Trade.

Plants may be had on application to MESSRS. HURST & M'MULLEN, Seedsmen, No. 6, Leadenhall-street, London; or to JOHN CULLIS, Royal Leamington Nursery, Warwickshire.

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WM. JACKSON AND CO., NURSERYMEN, beg to announce that they are now prepared to execute orders for their Splendid Collections of GREENHOUSE AND STOVE PLANTS, which are in the finest possible health; large bushy plants, in 60 sized pots, at the following very low prices, baskets and mats included:—

50 Choice Greenhouse Plants for 3*l.* 3*s.*, comprising Azalea indica Gladstanesii, Do. laterita, Do. Smithii, Do. phœnicea alba, Do. superba, Do. variegata, Burchellia capensis, Brachysema latifolia, Bouvardia strigosa, Bartonia brunoides, Babingtonia camphorosma, Boronia serrulata, Chorozema ericoides, C. Dicksonii, C. Henchmanii and C. varium nana, C. varium nana, var., C. rotundifolia, Cytisus intermedia, C. rodophinæ, Campelia carinata, C. lasciniata, Daphne indica rubra, Diosma amœna, Epacris coruscana, E. carnea, E. levigata, E. impressa, E. nivalis, E. onosmæflora, E. purpurascens, E. pulchella, E. Wilmoreæ, Erodium macranatum, Gompholobium tenella, Hypericum balearicum, Helichrysum spectabile, E. rupestris, Jasminum gracile, J. grandiflora, Leddigesia oxalidifolia, Lobelia bipunctata, Lechenaultia formosa, L. biloba nana, Oxylobium capitatum, Pimelea rosea, P. decussata, Pultenæa biloba, P. subumbellata, Tecoma jasminoides.

30 very select Greenhouse Plants for 4*l.* 4*s.*, comprising—Azalea indica extans, A. indica splendens, A. indica Woodsii, Chorozema ovata, C. spartoides, C. triangularis, C. species, Calothamnus clavata, Daphne indica rubra, Dillwynia microphylla, D. coccinea, Epacris attenuata rosea, E. Copelandii, E. campanulata rubra, E. impressa alba, E. rosea purpurea, Gastrolobium spinosum, Gompholobium splendens, G. polymorphum luteum, Hovea pungens major, Helichrysum spectabile, H. rupestris, Mirbelia speciosa, M. grandiflora, Oxylobium acutum, O. capitatum var., Pimelea spectabile, Stypheha tubiflora, Veronica speciosa, Primula sinensis alba plena.

36 very Select and Beautiful Stove Plants for 7*l.* 10*s.*, comprising—Achimenes picta, A. grandiflora, A. longiflora, A. pedunculata, Aphelandra cristata, Bellegarone elongata, Bougmansia floribunda, Begonia coccinea, Centradenia rosea, Clerodendron lavifolia, Calusarea rosea, Columnea grandiflora, Cactus Alexandrii, C. gigantea, C. Dalstonii, Eranthemum pulchellum, Æschynanthus grandiflora, Epiphyllum Russellianum, Gesnera longiflora, G. sub-alba, G. zebrina, Gloxinia Cartonii, Goldfussia glomerata, Ixora coccinea, I. crocea, Justicia carnea, J. coccinea, J. picta, J. speciosa, Plumbago rosea, Stephanotis floribunda, Thunbergia aurantia, T. chrysops, Tradescantia zebrina, Vinca alba, V. rosea.

12 Ericas, 12*s.*; 18 Indian Azaleas 30*s.*; 20 Epacrises, 30*s.* See Advertisement 4th inst., page 218.

W. J. & Co. can also supply the following rare and beautiful Plants. All goods are forwarded with the utmost dispatch per railway.

Achimenes Lipmanii, 5*s.* 6*d.* Clerodendron splendens, 10*s.* 6*d.*; Dipladenia crassinoda, 5*s.*, Hindsia longiflora alba, 10*s.* 6*d.*; Rhododendron Jacksonii, 10*s.* 6*d.* to 42*s.*, R. Smithii aureum, 15*s.*; Large Fuchsia, Mrs. Frederick Millbank, 7*s.* 6*d.*; F. serratifolia, 2*s.* 6*d.* to 5*s.* each; 12 best prize Fuchsias, 6*s.*

Cross Lanes Nursery, Bedale, Yorkshire, April 18.

ARAUCARIA IMBRICATA, or CHILIAN PINE.

YOUELL AND CO.'s Stock of the above magnificent hardy tree will be found unequalled in this country or the Continent either for extent or luxuriance of growth; and they beg to call the attention of planters in general to the fact that those they offer are not nursed plants or drawn up in close pits, but fine sturdy plants possessing dark rich green foliage, and such as have stood the severity of the winter for several years in this the most eastern point of England, proverbial for its excessive cutting winds. The following is the scale of prices for plants in pots, and may be planted out with advantage at the present season.

2 years old	.. ..	9*s.* per dozen.
3 ,,	.. ..	12*s.* ,,
4 ,,	.. ..	18*s.* ,,
5 ,,	.. ..	30*s.* ,,
6 ,,	.. ..	60*s.* ,,
Cedrus Deodar, 1 year, fine	.. ..	18*s.* ,,
,, ,, 1 foot	.. ..	30*s.* ,,
Pinus excelsa, 3 inches	.. ..	9*s.* ,,
,, ,, 4 to 5 inches	.. ..	18*s.* ,,
,, ,, 18 inch, fine bushy plant		42*s.* ,,
Abies Khutrow, 2 years	.. ..	9*s.* ,,

Also fine specimen plants of older growth from 10*s.* 6*d.* to 2*l.* 2*s.* per plant.

Agents in London, Messrs. FLANAGAN and Son, 9, Mansion-house-street.

Great Yarmouth Nursery, April 18.

GARAWAY, MAYES, AND CO., beg to apprise their Friends and the Public, that their CATALOGUE of DAHLIAS, FUCHSIAS, GERANIUMS, VERBENAS, PETUNIAS, CINERARIAS, &c., is now ready for delivery, which will be sent on application; most of the new and approved Varieties will be found in their list. This old-established Nursery affords great advantages to Noblemen and Gentlemen who may require Gardeners and Farm Bailiffs. All communications will have prompt attention. Tree and Seed Catalogues with an extensive Catalogue of Roses.

Durdham Down Nursery, Bristol, April 18.

DEAN'S beautiful New Dahlia "ROSY CIRCLE." HURST and M'MULLEN, 6, Leadenhall-street, London, Agents for the South.

For description, see *Gardeners' Chronicle*, Jan. 3d and 10th, 1846. Plants ready for sending out first week in May, 10*s.* 6*d.* each. Usual discount to the Trade.—Jedburgh, April 15.

PANSIES.

CHARLES TURNER begs to announce that he can execute a few more orders for the much-admired varieties raised by H. COLLISON, Esq., and himself. Blooms of which will be exhibited at the Horns Tavern, Kennington, on Wednesday the 22d inst. Also the principal varieties raised by other cultivators. Descriptive Catalogues can be had on application.

Cheavey, Windsor, April 16.

KINGSTON NURSERY, SURREY.

T. JACKSON'S SUPPLEMENTARY CATALOGUE OF PLANTS, with prices, for 1846, may be obtained free on prepaid application

Kingston Nursery, Surrey, April 18.

SMITH'S NEW SEEDLING FUCHSIAS.

JOHN SMITH, NURSERYMAN, Dalston, Middlesex, begs respectfully to announce that he intends sending out in May the two following superb and distinct Fuchsias, selected from many first-rate Seedlings:—

BEAUTY OF DALSTON.—Tube remarkably thick, of a glossy pure white, sepals slightly tinged with pink, very broad; corolla vermilion; the foliage very distinct and handsome; strong robust grower. It was submitted to the Editor of the *Gardeners' Chronicle*, and noticed by him Aug 16, 1845, p. 580, under the signature of "A Subscriber."—"Your large light variety is a fine and showy seedling, the tube is quite white, and the sepals are tinged with a very delicate tint of pink; corolla vermilion." Price 10*s.* 6*d.*

EXIMIA.—Tube and sepals carmine; corolla rich violet purple, the corolla is very large and of fine form; habit good, foliage small and pendent; it will be found an acquisition to the dark varieties. This is also noticed with the former in the *Gardeners' Chronicle*. "The dark variety is also attractive from the contrast in its colours; the corolla is unusually large, and of a bright violet. They are both good and showy specimens." Price 10*s.* 6*d.*

An allowance to the Trade when three of either are taken at once.

J. S. can supply good strong plants in flower of his Queen Victoria and Venus for 7*s.* 6*d.* each. Smaller ones, 5*s.*

A Select List of Fuchsias can be had on application.

Dalston, April 18, 1846.

FUCHSIAS.—Pride of Peckham, Ivery's; Duchess of Sutherland, Gaines'; Noblissima, Coronet, Modesta, Vesta, Smith's; Norfolk, Hero, Barkway's; Expansa, Queen Victoria, Miller's; Candidate, Girling's; Robusti, Hope, Goldfinch, Cassandra, at 12*s.* per dozen.

Duke of Wellington, Monarch, Kentish Hero, Kentish Bride, Maria, Epps', Queen Adelaide, Holmes', Euterpe, Gaines'; Queen Victoria Princess Royal, Lady Walsingham, Prince of Wales, Youell's, Aurantia, Smith's; Aurita, Iveryana, Forterfi, Formosa elegans, Stanwelliana, Blanche, Harrison's; at 6*s.* per dozen.

Colossus, Cormackii, Adonis, Paragon, Floribunda magna, Hopneri, Lancii, Exoniensis, Transparens, Blanda, Victory, Sanguinea, Britannia, Venus Victrix, Arborea, Smith's; Faury, Majestica, Eppsii, Brockmannii, Gem, Conspicua arborea Princeps, Speciosa, Flora, Tricolor, Mirabilis, Magnifica, Havesii, Invincible, Magnificent, Racemiflora, Brewerstii, Victoria; at 3*s.* per dozen.

PETUNIAS.—Girling's new striped and other kinds, 3*s.* per dozen.

VERBENAS.—The best scarlets, blue, white, and rose, 3*s.* per dozen.

HELIOTROPIUMS, 3*s.* per dozen.

Good rooted plants, true to name, at the above prices, 6*d.* per dozen being added for postage, will be sent free by post, carefully packed in tin cases, on the receipt of postage stamps or a Post-office order.

JOSEPH and STEPHEN SHILLING, Nursery and Seedsmen, Northwarnbro', near Odiham, Hants.

TEN SPLENDID NEW HALF-SHRUBBY CALCEOLARIAS.

JOHN BELL, in offering the undernamed CALCEOLARIAS, begs to assure purchasers they are equal to any coming out this season, and will fully answer the description given:—

ATTRACTION.—Large dark yellow, with large scarlet blotch, well defined.

DEFIANCE.—Large cream ground, with crimson blotch.

EXCELSA.—Large white ground, with crimson blotch.

PRINCESS.—Large cream ground, with dark maroon blotch.

CONDUCTOR.—Large yellow buff ground, with crimson blotch.

CONSPICUA.—Bright yellow ground, with large brown spots or stripes.

ECLIPSE.—Dark crimson ground, beautifully spotted with white.

NYMPH.—Yellow ground, beautifully spotted with bright crimson.

EMPRESS.—White ground, with purple spots, beautiful.

CRIMSON PERFECTION.—Crimson ground, beautifully spotted with black.

Fine blooming Plants, in 36-size pots, 5*s.* each; or the ten for 2*l.* 2*s.*

The last four named were exhibited last season at the Norwich and Norfolk Horticultural Show by the raiser, and gained the first seedling prize, and were pronounced by the judges to be superior to any ever exhibited.

Horticultural Establishment, Bracondale, near Norwich.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON have the pleasure of offering the following Plants adapted for Bedding, at the prices named when the selection is left to themselves:—

FUCHSIAS.

12 fine varieties ..	6s. 0d.	12 superb new vars., for exhibition ..	18s. 0d.
12 superior do ..	9 0	50 fine do. ..	30 0
12 superb do. ..	12 0	50 superb do. ..	50 0

VERBENAS.

12 fine varieties ..	5s. 0d.	25 extra fine vars. ..	15s. 0d.
12 superior do. ..	9 0	25 superb new do. ..	20 0
12 superb new do. ..	12 0		

PETUNIAS.

12 fine varieties	6 0
12 superb do.	9 0

Young plants of the above can be sent securely packed in tin cases by post, if required.

CINERARIAS.

Strong plants coming into bloom.

12 fine varieties ..	6s. 0d.	25 extra fine varieties	15s. 0d.
12 superior do. ..	12 0	25 superb do.	25 0
12 superb new do. ..	18 0		

	Each.	per doz.
	s. d.	s. d.
Calceolaria floribunda, Veitch's, an elegant yellow spec., highly recommended for bedding	2 0	18 0
Enthalis macrophylla (yellow)	1 0	6 0
Gaillardias, of sorts	0 9	6 0
Lobelia erinus compacta (fine blue)	1 0	6 0
Siphocampylus betulæfolius	1 0	9 0
Silene laciniata	1 6	12 0

DISTINCT AND SHOWY HERBACEOUS PLANTS.

	per doz.	per 100.
Select sorts, one of each named	6 0	40 0
Superior do. do.	9 0	60 0
Superb new do. do.	12 0	75 0

AZALEA INDICA.

12 fine varieties	12s. 0d.
12 superb do.	18 0
12 extra new do.	30 0

SELECT LIST OF PLANTS ABRIDGED FROM GENERAL CATALOGUE.

	Each—s. d.		Each—s. d.
Abutilon Bedfordianum .	2 6	Lilium lancifolium punctatum .. from 3s. 6d. to	21 0
Æschynanthus Roxburghii	2 6	,, ,, rubrum from 7s. 6d. to	21 0
Alona cœlestis	3 6	,, testaceum from 2s. 6d. to	10 6
Alstrœmeria Errembaultii	2 6	Lisianthus Russellianus .	2 6
,, nemorosa ..	3 6	Medinilla erythrophylla .	3 6
Andromeda tetragona ..	2 6	Mirbelia illicifolia ..	3 6
Aotus gracillima ..	2 6	Nematanthus longipes ..	1 6
Azalea indica Apollo ..	3 6	Nerium Oleander T'Anglé	2 6
,, Cleopatra ..	5 0	Oxalis Plumieri (shrubby)	3 ●
,, exquisita ..	7 6	Pimelea hyperictifolia ..	2 6
,, magniflora ..	3 6	,, spectabilis ..	2 6
,, optima	3 6	Platycodon grandiflora..	5 0
,, Prince Albert .	3 6	Pultenæa polygalifolia ..	1 6
Bouvardia flava (new yellow)	3 6	,, thymifolia ..	1 6
Brachysema platyptera .	2 6	Rhododendron alta-clerense splendens	5 0
Ceanothus collinus ..	21 0	,, campanulatum	3 6
Cestrum aurantiacum (true)	2 6	,, fragrans ..	2 6
Chirita sinensis ..	5 0	,, Gowerianum ..	5 0
Chironia floribunda ..	1 6	,, invictum ..	5 0
Chorozema Rugelii ..	5 0	Ribes albidum	2 6
,, oppositifolia ..	3 6	,, Gordonianum ..	2 6
Cuphea strigillosa ..	2 6	,, Menziesii	1 6
Dillwynia elavata ..	2 6	,, sanguinea fl plena	7 6
,, glycinifolia ..	2 6	Rondeletia, new yellow species (Havanna) ..	10 6
,, rudis	1 6	Ruellia glabra	1 6
,, speciosa ..	1 6	,, macrophylla, splendid scarlet species	7 6
Echites atropurpurea ..	3 6	Schweiggeria pauciflora .	2 6
,, picta	3 6	Siphocampylus coccineus, new and splendid	5 0
Epigæa repens	3 6	,, duplo-serratus .	1 6
Euonymus fimbriatus ..	2 6	,, semi-serratifolius	2 6
Franciscea acuminata ..	3 6	Spiræa Douglasii ..	1 6
,, hydrangæformis	10 6	Tacsonia mollissima ..	3 6
,, latifolia ..	2 6	Thysanotus proliferus ..	3 6
Fuchsia serratifolia ..	3 6	Tremandra Hugelii ..	2 6
Gesnera discolor	2 6	Triptilion spinosum ..	5 0
,, Gardneriana ..	1 6	Tropæolum brachyceras .	2 6
Gloxinia macrophylla variegata ..	2 6	,, elegans ..	2 6
,, magnifica ..	2 6	,, Jarrattii ..	2 6
Habrothamnus fasciculatus (true)	1 6	,, Lobbianum ..	1 6
Hallea flavida	2 6	Veronica Lindleyana ..	2 6
Hindsia longiflora ..	2 6	,, salicifolia	1 6
,, violacea ..	7 6	Xanthosia rotundifolia ..	2 6
Ilex latifolia	10 6		
Inga pulcherrima	2 6		
Jasminum affine	5 0		
Jochroma tubulosa ..	2 6		
Justicia Maudounellæ ..	3 6		
Lantana malvæfolia ..	2 6		
Leycesteria nepalensis ..	2 6		
Lilium lancifolium album from 2s. 6d. to	10 6		

Catalogues of the above will be sent gratis on application.

A proportionate number of plants presented to each order towards defraying the expense of carriage, &c.

A remittance or reference required from unknown correspondents.

SILVER PHEASANT EGGS for Sale, at 30s. per dozen.—Direct to A. C., Post-office, Andover.

WILLIAM MASTERS, EXOTIC NURSERY, Canterbury, will be happy to forward, free of expense to any of the South-Eastern Railway Stations, the under-mentioned choice Hothouse and Greenhouse Plants, at the prices affixed, the selection being left to himself:—

	£ s. d.
12 named Geraniums, of 12 fine sorts for	0 18 0
12 newer named ditto, of 12 superior sorts	1 5 0
12 Calceolarias, of sorts	1 1 0
12 Cape Heaths, of 12 different kinds	0 18 0
12 superior kinds of Cape Heaths	1 10 0
12 Plants of 12 species of New Holland Plants ..	0 15 0
12 do. do. of New Holland Greenhouse Plants, of larger size	1 4 0
12 Plants of 12 species, of newer kinds, do. do. ..	1 10 0
12 small Plants of 12 varieties of Camellia Japonica..	1 10 0
12 larger Plants, do. do. ..	3 0 0
12 Indian Azaleas, of 12 sorts	0 18 0
12 large Plants of Indian Azaleas	1 10 0
12 newer kinds of Indian Azaleas	2 2 0
12 distinct species of Succulent Plants	0 18 0
12 choicer kinds of Succulents, one of each	1 10 0
12 Orchidaceous Plants of 12 species	0 6 0
12 do. of rarer kinds, 1 each	10 10 0
12 choice Stove or Hothouse Plants, 1 of each ..	1 10 0
12 Indian and Hybrid Rhododendrons, 12 varieties ..	2 2 0
12 China and Thé Roses, 12 varieties	0 15 0
12 superior Thé and China Roses, of 12 sorts	1 4 0

A large collection of the different varieties of Verbena, Calceolaria, Petunia, Anagallis, Mesembryanthemum, &c., for bedding, at from 4s. to 6s., in dozens.

THE NEWEST AND VERY BEST FUCHSIAS, VERBENAS, PETUNIAS, &c.

YOUELL AND CO. are now sending out per post free, the newest and very best FUCHSIAS, including

Serratifolia, (if required) at	21s. per doz.
Very fine first-rate Show Varieties	12s. ,,
Fine ditto	9s. ,,
VERBENAS, first-class Show Varieties	10s. ,,
Ditto, fine	6s. ,,
PETUNIAS, Extra Fine	9s. ,,
CINERARIAS, ditto	12s. to 18s. ,,
PANSIES, Extra fine and first-class Show flowers	18s. ,,
Ditto Ditto	10s. ,,

Those favouring Y. and Co. with their orders for the above, are respectfully requested to state the varieties they already possess, that a repetition may be avoided, every care being observed in making improvements, by adding such varieties as will give satisfaction.

CARNATIONS AND PICOTEES.

			£ s. d.
12 pairs extra fine and very superior first-class Show Flowers, by name			2 10 0
25	ditto	ditto ditto .	5 0 0
12	ditto	Fine Show Flowers ditto .	1 10 0
25	ditto	ditto ditto .	3 0 0

12 pairs Showy Border Flowers ditto, 12s.

Extra fine Show Pinks, by name, per dozen pair, 12s.

Also a few pairs more of the Superb Picotees "President" and "Duke of Newcastle," at 15s. per pair.

HERBACEOUS PLANTS, fine sorts, 6s. to 9s. per dozen.

RIBES SANGUINEUM FLORE PLENO, 7s. 6d. per plant.

50 Packets of New and Choice FLOWER SEEDS, per post, free, for 6s.

CALCEOLARIAS, for bedding .. .. .. 6s. per doz.

GERANIUMS, for bedding .. 6s., 9s., and 12s. ,,

An HERBARIUM of RARE EXOTIC FERNS (many species almost unique) to be DISPOSED OF. Price and particulars can be had on application.

For particulars of their new and beautiful White Fuchsia, "SANSPAREIL," with Five other Seedlings, see Advertisement of March 28. Also their Splendid Verbenas.

Great Yarmouth Nursery, April 18, 1846.

GENUINE HARE RABBITS.—THE LARGEST AND FINEST BREED IN THE KINGDOM. This large, beautiful, and scarce variety (precisely the colour of the hare) has great length and depth of carcase, great width and substance of loin, long erect ears, and weighs, when at maturity, from 16 to 17 lbs. Are as hardy and prolific as the common or wild rabbit; from one to two months old, 12s. per pair; three to four months, 18s. Free to London.

Apply to Mr. JOHN BRETT, Market-place, Great Yarmouth.

NEW, GOOD, AND CHEAP.

BENJAMIN W. KNIGHT, FLORIST, &c., Tivoli, near St. Leonard's on Sea, Sussex, begs to call the attention of his friends and the public to the following CHOICE PLANTS, which are now ready to send out.

Twelve new choice and distinct Fuchsias, fit for exhibition, for 6s.; 12 extra first-rate very distinct varieties, all sent out for the first time last season, for 12s.; 12 distinct Verbenas, for 3s. 6d.; 12 extra new, good varieties, for 6s., 12 choice Petunias, for 6s.; 12 good and distinct Cinerarias, for 6s.; 12 extra, good kinds, for 12s.; 12 fine Anagallis, for 3s. 6d, 12 fine Salvias, for 4s.; 12 Heliotropiums, for 4s.; 12 choice kinds of Phloxes, for 6s; 12 extra new, very distinct varieties, for 12s.; 12 choice Antirrhinums, for 6s.; 12 choice, new kinds, for 12s; 12 fine show Pansies, for 6s.; 12 extra good, for 12s; choice Seeds, selected with great care from the best varieties: Verbena, 3s. 6d per paper; Antirrhinums, 2s. 6d. per paper Dahlia, from the best show flowers, 3s. 6d. per paper; German Aster, extra fine, 2s. 6d. per paper.

Also will be ready in May, 12 good show Dahlias, for 6s.; 12 superior, for 12s.; 12 extra good, distinct kinds all new last season, for 21s.; 12 choice fancy, or variegated varieties, for 6s.

Any of the above can be securely packed, and forwarded post-free, on receipt of the amount with the order. Catalogues of the above may be obtained on pre-paid application—April 18, 1846.

TO CALCEOLARIA GROWERS.

JNO. STANDISH, NURSERYMAN, Bagshot, begs to inform his Friends and the Public that he has a large Stock of splendid spotted CALCEOLARIAS, now ready to send out at unusually low prices, ranging from 12s. to four guineas per dozen; those at 1s. to 2s. 6d. each are really fit for show flowers, and the other sorts, at higher prices, are great novelties. He has now ready some Seedling Plants, raised from some of his best varieties, at 12s. per dozen, which will no doubt produce some splendid new sorts. Also, now ready to send out, Fuchsia "Alfred the Great" and F. monstrosa, at 5s. each, the former having a deep red calyx with reflexed sepals, and a fine cupped rich purplish crimson corolla; the latter, an immense large flower, the colour of Standishii, but more than twice as large.

Catalogues of the above can be had on application.

TO SEEDSMEN AND AGRICULTURISTS.

R. WHITE & CO. beg to offer the following sorts of TURNIPS, which they can confidently recommend, and of which they hold large and genuine stocks. They beg, also, to inform their Customers that this branch of their business is now managed entirely by Mr. C. SCOTT, late of Manchester, who was the raiser of the Swedish Turnip named by the Secretary of the Royal Agricultural Society of England "Scott's Improved Manchester Swede," and with which he gained the first prize of the Agricultural Society of Manchester three times, viz., in 1842, 1843, and 1844. The following sorts are recommended:—Scott's Improved Manchester Swedes, Skirving's Improved ditto, Laing's ditto ditto, Large Swedish Yellow Purple-top, Large Scotch Yellow Green-top, Large Scotch Yellow Purple-top, Dale's Hybrid, Swedish and White and Red Tankard, and Pomeranian.

R. W. & Co. have also a large and well selected stock of Grasses, Mangold Wurzel, Clover, &c.; also Genuine Bone, Sulphuric Acid, and other Manures.

They also offer Vegetable Seeds in collections, comprising the newest and best of all descriptions, in sufficient quantity for a year's supply, for 2l. 2s.

100 varieties of Flower Seeds, containing all the newest and best sorts, for	£1 1 0
50 ditto, ditto	0 10 6

Verbenas, Petunias, Geraniums, &c., for bedding out, 3s. and 6s. per dozen.—Poole Nursery, Dorset.

TO EMIGRANTS, COLONISTS, AND AGRICULTURISTS.

POTATO SEED saved from the best varieties, for obtaining early, healthy, and prolific kinds, on Sale by W. CLARK, NURSERYMAN, SEEDSMAN, &c., 25, Bishopsgate Within, London, 10s. per ounce, or in packets of 5s. and 2s. 6d. each, and will be forwarded with printed directions, carriage free, on receipt of Post-office order or reference. Any quantity per ½ lb. at a considerable reduction. Also fine plants raised from seed last year at 6s. per quart, recommended for planting. See *Gardeners' Chronicle and Agricultural Gazette* of 21st March, 1846, for Reviews of Works on Raising Potatoes from Seed, &c.

NEW SEEDLING VERBENA, FUCHSIA, PETUNIAS, AND ANTIRRHINUM.

WM. IVERY, NURSERYMAN & FLORIST, Peckham, near London, begs to inform his Friends and the Public that he purposes sending out after the 21st inst., the undermentioned, which he can with confidence recommend:—

VERBENA WONDER OF SCARLETS: colour of Boule de Feu, and strosanguinea habit—See *Chronicle* of September 20, 1845: "W. I.—The Seedling you have named Wonder of Scarlets is a very fine variety; the individual flowers are large, brilliant in colour, and form a fine head of blooms." 7s. 6d. each. No discount unless two are taken.

FUCHSIA TRAFALGAR: tube red, sepals green, corolla dark purple, and very large, showing it much below the sepals; quite distinct from any other variety. 7s. 6d. each.

PETUNIA PAINTED LADY: white ground, margined pink, with beautiful pencilled eye. 5s. each.

PETUNIA UNIQUE: lilac ground, beautifully pencilled and black eye; fine round flower and substance. 3s 6d. each.

PETUNIA VANGUARD: rosy purple, with large black eye. 3s. 6d. each.

PETUNIA METEOR: rosy red or purple ground, very dark eye and round flower. 5s. each.

PETUNIA PET SUPERB: light red ground, margined with purple, and beautiful dark eye; good shape. Awarded a certificate of merit at Surrey Zoological Gardens. 5s. each.

ANTIRRHINUM PICTA IVERYANA. 3s. 6d.

,, ROSEA ALBA. 3s. 6d.

,, KING OF THE WHITES. 1s. 6d.

Catalogues may be had on application.

GRASS SEEDS.

GEORGE GIBBS AND CO. are now supplying their Mixtures for laying down to permanent Grass, at 32s. per acre, allowing 2 bushels and 12 lbs. to each acre. This being an important branch of their business, having within the last few years supplied them for several thousand acres, with the most favourable results, they have been induced to lower the price to 32s. to meet the means of the plain farmer. G. G. and Co., therefore, confidently call the attention of those who may be desirous of converting land into a quick and durable meadow or pasture of the best quality, both for hay and succession of feeding; full directions for sowing and treatment will accompany the Seeds. Mixed sorts, for improving old Grassland, 1s. 3d. per lb.; fine sorts, for forming Lawns, &c., 1s. 4d. per lb.; large white Belgian Carrot Seed, 1s. 6d. per lb.; Italian Rye-Grass, true kind, 8s. 6d. per bushel. A general priced Catalogue of Turnips, and other Agricultural Seeds, forwarded on application.—Address to GEORGE GIBBS and Co., Seedsmen, &c. to the Agricultural Society, 26, Down-street, Piccadilly.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND."

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

THE ARTICLE GLASS.

MESSRS. DAINES AND BRADDOCK have made arrangements to supply the Public with GLASS for Sashes and Horticultural purposes of superior quality and substance, and at much lower prices than that which may have been obtained through the medium of any previous advertisements, as the sizes therein quoted at 1d. per foot, may be obtained at 3s. per 112 lbs., upon application, 6, Farringdon-street, London. N.B. A Stock of Patent Plate and Stained Glass constantly on hand.—April, 1846.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

per gross.	per gross.	per gross.
6 in. by 4 .. 6s.	8 by 5 .. 13s.	9 by 7 .. 18s.
7 in. by 4½ .. 9s.	8 by 6 .. 14s.	10 by 8 .. 26s.

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists, apply to R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square, London.

FOREIGN SHEET GLASS, GLASS TILES, &c.—The cheapest, stoutest, and best quality imported and sold at C. JARVIS'S Old Established Window Glass Warehouse, 38, Great Castle-street, a few doors from Regent-street.

CROWN GLASS at 50s. per Crate; squares cut to size equally low in price; sashes glazed on the lowest terms. Country orders forwarded with reference will meet with prompt attention. ●●● The largest Discount allowed off all description of Glass for ready money only.

HORTICULTURAL GLASS OF BRITISH MANUFACTURE, at J. WELCH, jun., PHILLIPS, & Co.'s Warehouse, 12, Panton-street, Haymarket.—Having made arrangements with a British Manufacturer, they are enabled to offer the above article in unlimited quantities at the following terms, in Squares not exceeding 40 inches long:—

No. 0—(equal to Foreign Sheet)	.. ..	4½d.	per foot.
1—averaging from 16 to 18 oz. to the foot		3½d.	,,
2	,, 21 to 23 ,,	1d.	,,
3	,, 32 ,,	1s.	,,

J. WELCH, jun., having been many years with Mr. Drake, of 8, Jermyn-street, and 315, Oxford-street, and at the time of the glazing of Chatsworth Conservatory, has devoted himself to the Horticultural Glazing Department, begs to call the attention of Horticulturists generally to the above prices for Glass, which they undertake to glaze in any part of the United Kingdom.

They also beg to recommend for Pits and Garden Lights small size squares, which they offer at the following low prices, packed in 100 feet boxes, not particular to thickness:—

Under 5 in. by 3 ..	1½d. per foot.
5 in. by 3 and ,, 6 in. by 4 ..	2d. ,,
6 in. by 4 and ,, 9 in. by 7 ..	3d. ,,

J. W. & Co. solicit inspection of their stock of Stained and Ornamental Glass at their Warehouse, as above.—12, Panton-street, Haymarket.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea; by Appointment to HER MAJESTY and H. R. H. PRINCE ALBERT.—Ornamental Water-fowl, Black Swans, White do.; Egyptian, Canada, China, Barnacle, Brent, Bean, and Laughing Geese; Pintail, Widgeon, Garganey, and Common Teal; Labrador, Shoveller, Gold-eyed tufted, Dun Diver, Carolina, and Call Ducks, &c.; pinioned and domesticated. Great variety of Poultry, Pea-fowl, &c.—And 3, Halfmoon-passage, Gracechurch-street. China Pigs.

HORTICULTURAL SOCIETY OF LONDON.—Notice is hereby given, that Tuesday, April 21, is the last day on which Exhibition Tickets are issued to Fellows of the Society at 3s. 6d. each.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The EXHIBITIONS in the Gardens of this Society will take place this season on

WEDNESDAY, MAY 20th, JUNE 3d, JULY 1st,

Tickets of admission may be had at the Gardens by presenting an order signed by a Fellow or Member of the Society. Price, on or before May 9th, 4s., after that day 5s., except on the days of Exhibition, when they will be 7s. 6d. each.

Fellows are privileged to take 30 Tickets at one time for 5l. 5s., until May 9th.

FINE IMPORTED GARLIC.

J. G. WHITE having just received a large consignment of GARLIC in prime condition and first-rate quality, begs to offer the same at 40s. per cwt.—4, Eyre-street-hill, Hatton-garden, London, April 17.

H. GROOM, CLAPHAM RISE, near LONDON (removed from WALWORTH), BY APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY, begs to say his Catalogue of GERANIUMS, AURICULAS, LILIUM LANCIFOLIUM, and NEW PLANTS is ready, and will be forwarded by post on application.

He has a fine stock of CARNATIONS and PICOTEES.

*** Foreign orders executed.

The Gardeners' Chronicle.

SATURDAY, APRIL 18, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

TUESDAY, April 21	Horticultural	2 P.M.
	Linnean	8 P.M.
WEDNESDAY, — 22	Royal South London	1 P.M.
SATURDAY, — 25	Royal Botanic	4 P.M.
FRIDAY, May 1	Botanical	3 P.M.

COUNTRY SHOW.

WEDNESDAY, April 29—Norfolk and Norwich Horticultural Society.

WE were among the first to suggest that the POTATO DISEASE was owing to atmospheric causes; recently, however, we have seen reason to doubt the soundness of that opinion, as our readers know; and we now lay before them the following statement by Count GASPARIN, who, with others, regards the murrain as a sort of vegetable cholera.

M. DE GASPARIN states that, in the south of Europe, two crops of Potatoes are obtained every year. The first crop is planted in March, and harvested in June; the second is planted in July, after the Wheat is cut, and taken up in October. The first of these crops was absolutely sound; the second was diseased. In the following Table he gives the state of the weather during the two periods:—

	First Crop.		Second Crop.	
	1845.	Usual Mean	1845.	Usual Mean.
Mean temperature	13°,5	14°,4	19°,0	19°,6
Mean of minima	6°,1	7°,2	11°,0	12°,1
Mean solar heat at 2 P.M.	31°,7	43°,2	40°,1	46°,5
Temperature of the earth, 1 yard deep	10°,6	11°,6	17°,0	18°,4
Number of showers	47,0	32,0	38,0	30,0
Quantity of rain	mm. 200,5	mm. 215,1	mm. 319,2	mm. 287,6
Evaporation	mm. 781,7	mm. 918,5	mm. 920,0	mm. 978,4
Cloudiness (100 parts represent the heavens completely covered with opaque clouds, intercepting light)	12,4	12,1	6,9	10,6
North wind, number of days	75,5	76,6	69,0	74,3
Force of north wind per second, and mean of each day	m. 0,0	m. 4,8	m. 5,2	m. 4,4

From this it appears that the South of Europe second crop suffered, although it was grown under the highest temperature, when there was no greater difference from the average quantity of rain than occurred in the first crop which was sound, while evaporation was most active, and when the sky was clearest. In short, M. DE GASPARIN concludes that no customary meteorological phenomena can have been the cause, and that therefore those who continue to rely upon such an explanation must have recourse to conjectures which there is no possibility of verifying; in short, that in this case, as in that of the Asiatic cholera, meteorology is incapable of explaining the cause of the Potato disease.

We are afraid that Count GASPARIN is right; and this very circumstance, this absolute impossibility of assigning a satisfactory reason for the appearance of the murrain, must, we think, add seriously to the fears of those whose full knowledge of the facts of this terrible visitation prevents their placing any confidence in the safety of the crop of 1846 in the United Kingdom.

His opinion is confirmed by the wholly unexpected intelligence, to be found in another column, that the Potato disease has broken out in the *dry, warm* colony of the Cape of Good Hope.

LET us once again draw attention to the little BELGIAN WINDOW GARDEN, mentioned at p. 208. A model of such a contrivance was most obligingly forwarded to us from Boulogne, by our good correspondent, Mr. CRUCKSHANKS, and shown to the Fellows of the Horticultural Society. It teaches us several things. A rolling blind is made to work in the inside, so as to screen the plants from too much sun, when placed in a southern aspect. A trellis-work of wires is carried up the ends, and adds much to the appearance of the little garden. Here thrives Maurandya Barclayana, together with the little Tropæolums of Chili. The bottom should be guarded by a raised edge next the sitting-room, so as to form a shallow box at least 6 ins. deep; this is to be filled up with damp moss, in which the pots are plunged, and by which they may also be covered. Attention to these matters has been found by experience to be essential. We would add movable ventilators at the front and sides, so that air might be given when it would not be prudent to raise the sash.

Such little details are what constitute the secret of success; and now that the plans of construction are intelligible, and that many are, as we believe, preparing to adopt these gardens, we must offer some hints in a general way.

The advantage of such an apparatus consists in its separating plants from a sitting-room when they are not wanted, and introducing them there the instant they are wished for. Open the doors, and the garden forms part of the room; close them, and the apartment is relieved from the presence of the plants. But, what is of much more importance, in the latter case the plants are themselves completely relieved from the fatal atmosphere of the apartment,—not fatal, indeed, if inhaled for a few hours at a time, but certainly destructive if endured for long.

What, it may be asked, is there in the air of a sitting-room which plants are thus unable to support? Can anything be purer than the atmosphere of an English drawing-room? Perhaps not; but it is this purity which in part inflicts the injury. Plants would thrive better if it were otherwise, but it is more especially its DRYNESS. Let any one measure the moisture of a sitting-room and the open air, and he will see how great a difference prevails. We have this moment tested it by Simmons's hygrometer; in the open air this instrument indicates 40°, in a sitting-room 60°.

When plants are kept in a dry atmosphere, they rapidly lose their water of vegetation; the sides of their pots are robbed at the same time; and it is impossible for plants to suck out of soil thus partially dried the moisture demanded for the sustenance of their exhausted foliage. Such a state of things is inseparable from a sitting-room. To render the latter congenial to plants it would be uninhabitable by ourselves. The extent to which plants are injured in a common sitting-room is strikingly illustrated by the condition of cut flowers. Let two clusters of fresh-gathered flowers be introduced into a sitting-room; place the one in the mouth of a narrow-necked jar of water, and arrange the other upon such a shallow pan of water as a deep dish will furnish. It will be found that the latter will be perfectly fresh days after the former are faded. The reason is that in the narrow-necked jar the flowers have no access to water except through the ends of their shoots, and are surrounded by a very dry air; while in the flat dish they are able to absorb abundant water, because a large part of their surface is in contact with it, and are moreover surrounded by air incessantly moistened by the vapour that continually rises from the dish.

Of this we may be sure, that darkness, dust, heat, want of ventilation, and all the other calamities to which plants in sitting-rooms are subject, are as nothing compared with the inevitable dryness of the air; which indeed acts injuriously, not merely by exhausting plants of their water of vegetation, but by lowering the temperature of the pots in which they are grown, in consequence of the evaporation constantly taking place there.

What makes the evil greater is, that the plants which are purchased for sitting-rooms are invariably brought into high condition by being grown in a damp atmosphere. They are transferred from the hands of skilful gardeners, armed with the most perfectly-constructed forcing-houses, into the care of inexperienced amateurs, whose means of maintaining a plant in health are something considerably less than nothing.

A case will illustrate this: A Rose-bush is bought in the market, fresh and trim, with one or two flowers open, others in bud, more still younger, and many but just peeping out. From such a specimen nothing, it would seem, can result but a long succession of beauty. But this charming thing, so fresh and promising, was, perhaps, a few hours before, the inhabitant of a damp greenhouse or pit, where its leaves were formed in shade, and their surface softened by a daily bath of artificial dew. It is suddenly conveyed to a sitting-room; its leaves shrivel up under the withering influence of its new habitation; the fountains of life become dried; the young flowers, starved by want of their accustomed food, drop off, the leaves follow them; the green-fly or red spider attacks the suffering remains, and a week or two are sufficient to witness the destruction of all the buyer's hopes.

We appeal to everybody's experience for our proof that this is an ordinary case. But a Belgian window garden removes the difficulty; in such a place a plant is kept in precisely the circumstances most conducive to its health; light and moisture foster the young shoots, and the softened air provides a due supply of all that is indispensable to vigour.

To those who propose to engage in this kind of amusement we would add a very few words of empirical advice. 1. Always use rain-water 2. Always let it be milk-warm; 3. To every quart of rain-water add half a grain of nitrate of ammonia, or sulphate of ammonia; 4. Invariably keep up a continual current of *warm* fresh air through the garden whenever the circumstances of the season will permit; the easiest method of accomplishing this, which is equally important in large as in small houses, and yet is almost universally neglected, we shall consider on a future occasion.

THE readers of the *Chronicle* are indebted to Mr. MURRAY for the following FACTS from Polmaise:

THE CHURCH.

1. St. Verner's Church is 70 feet long, 50 feet broad, and 40 feet high, with five doors and windows on four sides. 2. The hot chamber, in session-house, is 7 feet high by 5 feet 6 inches each way, inclosing the stove. 3. Hot-air opening into the church is 3 feet 6 inches by 2 feet, situated at one corner of the church!! 4. There are only two cold-air drains, 2 feet each, with 3 feet openings into the church!! 5. These cold-air drains only extend 20 feet into the body of the church!!! 6. On the 4th of February, in the night, the stove heated the church to 75° Fahr.; was kept at that heat for several hours. 7. Four thermometers were placed in separate parts of the building: near the hot-air opening, at the opposite end, in the centre, and in the gallery; the greatest variation was only 5°. The stove was put up in the year 1840, and has required no repair!

THE HOTHOUSE.

1. The hothouse is 30 feet long by 12 feet. 2. Hot chamber 6 feet 8 inches long, 4 feet 3 inches broad, and 7 feet 8 inches high, leaving an open space of 1 foot 8 inches round three sides and top of stove. 3. Hot-air opening is only 2 feet by 1 foot 6 inches, and is 2 feet above the level of the floor of the house. 4. There are two cold-air drains, 1 foot each, with 2 feet openings. 5. The fire and ash-pit doors are to the open air, consequently separate from hot-air chamber. 6. The supply of air to the fire is quite distinct from that of the house, so that no gaseous exhalation from back draught can take place. 7. On the 5th of February, 1844, the external temperature was at 6° Fahr. (26° of frost); there was no difficulty in keeping up the required temperature, and with much less fuel than was required in the adjoining house, heated by a flue. 8. The hothouse can have the heat raised in 25 minutes!!! 9. The temperature has been raised to 100° Fahr.!!! 10. The fire lasts all night, requiring no attention till morning. 11. The gardener can admit fresh air to be warmed! and supplied to the plants at pleasure. 12. When the thermometer is 20° higher in the Polmaise-house than in the flue-house, it does not feel *so hot* or oppressive!!! 13. Every leaf can be made to hang with dew. 14. The apparatus has not required any repairs. 15. It cost 30*l.*, was the smallest size made by HADENS, but would heat from 100 to 150 feet of hothouse.

These facts are recommended to our readers till others can be accumulated; they will be very gratifying to those who wish well to the system; and its adversaries will find more profitable employment in giving them the consideration they deserve, with a view to their explanation, than in the invention of such mischievous tales as were noticed in the Leading Article of our Paper on Saturday last.

HAMILTON'S PINE SYSTEM.

As the public has shown some interest in this mode of Pine culture, to which I confess myself in the main a convert, I may perhaps be allowed to say a few words about it. I have both examined into the matter by inspection, and have also made several inquiries by letter to Mr. H., all of which he has kindly and explicitly answered, and has also permitted me to make any use of his remarks which I may think proper. To be guarded in the matter, however, as it has already given rise to some disputing, I may as well state that I am not assured that it will drive what is called the maiden plant system into entire disuse; what I think is, that where constant succession, coupled with a severe economy is the object, it is the plan of all others. A large pit, full of ripe or ripening fruit, under the old system, is, of course, at all times a matter of interest, and

makes considerable display for awhile. This can scarcely happen under the Hamiltonian method: succession of suckers seems to imply succession of fruit, and this will be found to follow as a matter of course. After these necessary remarks, I will proceed to make a few extracts from letters received up to this time. Although the subject does not follow in any particular order, I hope the extracts may be of service to those who are about commencing the system, more especially the amateur. Practical men will scarcely need them.

Jan. 2.—"My opinion is simply this: the young suckers on the old stool ought to be always growing, but in very dark weather 65° during the day will suffice, and answer a better purpose than a higher atmosphere, supported by enormous fires. With a humid atmosphere, they will make much progress even at this season, at least my plants do. Dormancy and dry air are both positively injurious, particularly a dry air; the leaves will become debilitated, and their energies so impaired that they will be very unfit to meet the exigencies of the plant when the growing season arrives. I like to see the Pine-leaf so brittle that it can scarcely be touched without breaking; and when such leaves are cut with the knife the sap will directly ooze out from the inner tissue of the leaf. In this state they are prepared to meet a July sun."

The planting out system certainly has a tendency to protract the fruiting period; this however will, I am assured, be easily obviated in due time by the use of a peculiar compost.

Jan. 17.—"When you cut your fruit avoid as much as possible any damage to the leaves. Preserve by all possible means your old roots. Young, or stem roots, are all very good adjuncts if honestly obtained; let them not, however, be petted at the expense of the original roots. If two suckers are left equally in a perpendicular position, and the agencies pointed out by the Hamiltonian method applied to promote rapid growth, they may each be expected to produce a fruit as large as the one preceding. Neither can they fail to do so in a very few months, if the proper means be properly applied."

Jan 27.—"With regard to turning out plants, I am persuaded that my system, as recommended at page 62 of my book, will answer the best; particularly for the amateur and market gardener, as the plants can be excited into fruit by an addition of tan. Tan has a good effect in keeping the surface of the bed warm; as also in preserving the roots in health.

"It is a well known fact that the surface of a tan bed is always considerably cooler than a lower level, and when the Pines are planted out in soil, it is indeed very much cooler. After the fruit is cut I generally apply fresh tan on the surface; it encourages the emission of young roots from the stem without injury to the old or original ones.

"I hold it of great importance so to place the old stools that they may remain for years undisturbed; no matter whether the plants are in pots or not. If only four or five young stem roots are produced at each earthing or tanning—if only one a year—and the old ones carefully preserved, I will warrant the old stool to keep pace with the best maiden plant. I must, however contend for a special compost of the most porous description, otherwise I am of opinion that disappointments will frequently occur. Nobody will in the present day like to wait two years for a fruit from a given plant. This however will be the case from the use of improper composts. The plants ought to fruit every year, either on one or two suckers; therefore they cannot afford to remain stationary, neither do they require it. As soon as the fruit is cut, rapid growth should be encouraged, be the season what it may; this must be accomplished without disturbance or mutilation.

"Under a properly constituted atmosphere the leaves will be moist in the morning with dew, if I may so term it. This alone, in my opinion (in a great measure), prevents the plant from becoming anyways debilitated by a winter's growth. Warmth in the winter does no harm, providing the channels of the leaf are kept stored with moisture.

"As somewhat confirmatory of the longevity of the Pine roots, I may just state that I have a plant which has been turned out five years, and has produced eight fruit during that period."

In concluding these extracts I may be permitted to add that in my opinion the points dealt with in these letters, although unconnected in some degree, are of immense importance to Pine-growers; and since there is such a conflict of opinions about the best mode of growing the Pine, and since also they are grown of great excellence under a variety of systems, it becomes every one, however successful hitherto, to keep aloof from prejudice—to suspend his opinions for a while, until facts shall be sufficiently multiplied. It is not difficult to perceive almost perfect identity of principles amongst all our best Pine-growers, although they arrive at a given point by a different route.—*R. Errington, Oulton Park.*

VEGETABLE PHENOMENON.

I HAVE lately had my attention drawn to the singularly anomalous condition of an Oak tree in the neighbouring parish of Wiggonholt, standing in the Parham estate, by the roadside between Pulborough and Storrington. The only circumstance of any importance which the sketch does not convey, is the rough and rather lacerated state of the bark at the inner side of each trunk, together with a remarkable flatness of that part, which the interception of light and air by the proximity of the trunks will not sufficiently account for. The long straight branch which shoots abruptly from the right hand trunk is so firmly imbedded in the left one as to be forced into a semi-cylindrical shape at the point of contact. This will scarcely account for its small size, for a tree or a branch will generally obtain ample compensation for losses by impediments placed in its way. There is, for instance, growing out of the rocks on the far-famed islet in Loch Katrine, an Oak, the trunk of which presses so close to the rock as to be semi-cylindrical, and yet it is in perfect health, and throws out vigourous well formed boughs. (Kohl's Scotland.) It will be seen by the accompanying sketch that the tree either is double at the base, or appears to be so, a circumstance well known to be by no means uncommon, and arising with much more probability from the close proximity of two acorns, from each of which sprung a tree, subsequently united together at the base by a forced inosculation, than from the occurrence of a double acorn. Whether, however, this be the point to which attention should be drawn, remains to be ascertained. At the height of about 11 feet from the ground, a seeming branch from one trunk appears to unite itself to its neighbour trunk. There would be nothing curious in this, could any such inequality or suture be detected in the united portion as to justify the belief that the parts had accidentally come in contact, lost their bark, and become the possessors of a single system of vascular tissue by a kind of Taliacotian process. When this takes place, I am not aware that the bark ever closes uniformly over the alburnum, which always bulges out in the line of junction, indicating an imperfect disposition of parts. Not so with our tree. Here, the whole space from the point of union to that of divergence into branches is as smooth and as uniform as if no such connection had ever been formed, whence I am not inclined to believe it an inosculation of branches.



Apparent action of trunks.

	ft.	in.		ft.	in.
Circumference at a ..	4	10	*Circumference at d* ..	9	0
,, *b* ..	4	0	,, *e* ..	4	6
,, *c* ..	4	10	*Height to b*	11	0

There is, in my opinion, but one way of accounting for this singularity: viz., by supposing the tree to be single, and not a pair, and that some accident or unusual forcible impediment has driven in the bark and substance of the tree completely through during an early stage of its growth, forming what is called in Sussex a rind-gall (a Saxon term I willingly leave to the discussion of your philological readers) and that, in consequence of this event, the tree rose and grew with an aperture through it, now sufficiently large for a man to pass through. It has been suggested to me, with equal probability and ingenuity, that when a mere seedling, our Oak might have been perforated by the tooth of an animal, the wound having cicatrised, without closing its sides; a conjecture favoured by the state of the bark and the form of the stem. Had the tree been an Ash, it might very reasonably have been inferred that some superstitious people had trained it up in this singular manner, for the purpose of passing their maimed, their halt, and their blind through the chasm; a process which numbers of our modern Sussex "dames" are quite antique enough to put faith in. Taking this view of the question, we cannot look upon the connecting portion as a branch at all, or in any way curious, but simply as the superior part of the trunk of a tolerably large tree, with an extraordinary aperture through it.

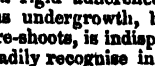
I understand that the above superstition is not extinct in Sussex, or, at least, was not 50 years ago, since there is a man in this place now, who was *passed* when an infant through an Ash tree at Todhurst for hernia. The process was as follows:—an Ash sapling was chosen, and split up the stem; between the two sides, forcibly held apart, the child was drawn, and then the stem was allowed to resume its natural condition, in order that it might grow together again, ligatures being bound about the tree to hasten the process. It was then gravely announced that as the tree healed, so would the child's health improve.

There is certainly a simple experiment which would make all hypothesis superfluous, that of displaying a section of the tree above and below the joining; but in the case of a fine tree of 80 years old, this is not to be thought of. If inosculation has taken place, the connected parts will be found to contain two sets of concentric circles, whilst the two stems will present the usual appearances. If a rind-gall has occasioned the phenomenon, then the divided trunk would afford the curious spectacle of incomplete and very irregular rings, the pith, if any, being close to the inner side of the circumference. Some may believe, if they please, that we have here an analogy in the vegetable world to that inexplicable mystery in the animal creation, the Siamese twins.

I do but submit this paper, as a case, to the readers of the *Gardeners' Chronicle*, in the hope of possibly eliciting either parallel instances, or some more satisfactory explanation than those attempted here.—*F. A. Malleson, Pulborough, Feb.* 3.

SELECT PLANTS FOR BEDDING OUT, &c. IN FLOWER-GARDENS.

(*Continued from page* 286.)

2. LOBELIA ERINUS COMPACTA.—Though I stated in my last Paper that this was less valuable than L. erinus grandiflora for forming large masses, it may, nevertheless, be successfully adopted for producing a general effect to any extent, and from its close, partially upright growth, it is exceedingly suitable for edgings to flower borders and parterres. To enable it to withstand heavy rain and wind, an artificial support of wirework, similar to the annexed outline,  four or six inches in width, with lower prongs or teeth to fix it in the ground, should be placed parallel with the plants, about an inch and a half distant on each side. The close habit and profusion of blossoms, together with the slender stems of this variety, require some such support, in the absence of which the cherished anticipation of a summer's hope may in a great measure be sacrificed in a very short time.

3. LOBELIA ERINUS COMPACTA ALBA.—This is a recently-introduced variety. Its habit partakes of both L. erinus grandiflora and L. erinus compacta, being nearly upright, less branching than the former, and less compact than the latter, but more robust, and allied to it by a similar pale green, but healthy appearance. Its pure white flowers are produced abundantly, rendering it a valuable addition to the flower garden, whether for general effect or for edgings, contrasting well with other evergreen plants of similar habit throughout the autumn. In adapting Lobelia erinus and its varieties for edgings, the best effect may be obtained by extending a garden line over the weak growth to the limits required, and pruning it off with a knife or hand clippers. The upper growth may also be restricted in a similar manner. Where the plants are intended to bloom again in autumn, the weak tops of the fore-shoots should be shortened only in proportion as the season appears favourable to a maturity of the after-growth. A partial but uniform restriction of the side growth alone will generally be found equal to an increased amount of bloom.

4. CHÆNOSTOMA POLYANTHA.—This is a greenhouse plant, of a slender, partially upright habit, attaining from 9 to 12 inches in height, and readily trained to a dwarf and compact growth. It forms a valuable addition to the flower-garden, being well adapted for beds, or for individual effect upon rock-work, producing a profusion of purplish-lilac flowers, with a yellow eye or centre, during the months of July, August, September, and October. From its extreme disposition to form premature flower-buds, a rigid adherence to the rule for obtaining a vigorous undergrowth, by shortening the extremities of its fore-shoots, is indispensable.

The cultivator will readily recognise in this plant a similarity in character to the useful Lyperia pedunculata and p. alba (Buchnera pedunculata.) The latter, though a more robust plant, is inferior to the former, when properly "got up," in its larger and more lively-coloured flowers, and in its natural tendency to excessive fertility; so much so, that I anticipate nothing less than that an entire restriction of one or two plants from bloom will give a supply for successive seasons. In common with many others, this interesting plant is often seen to disadvantage in the greenhouse during the spring months, with its prematurely scattered bloom; it is, nevertheless, one of those autumnal ornaments which contributes its share of interest when our summer friends are gone, and which, if less gay, is more constant, and, like those objects in Nature whose highest qualities are only discernible in a strong light, it loves

to expand its beauty beneath the bright sunshine. It does, in fact, remind one of the adage, "A place for everything, and everything in its place." Its generally imperfect growth seems to say, "Give me my place, and I will fulfil the object and design of my true character." It is, moreover, a plant that is not to be valued singly, by comparison. It possesses a value and interest peculiarly its own,—answering well for masses in the flower-garden, where it forms a distinct and essential feature. The profusion of its flowers, the pleasing variety of its colours, and the long continuance of its bloom, fully compensate for the absence of more brilliant but less valuable properties.—*William Wood, Pine-apple-place.*

WEEKLY PRICES OF POTATOES per ton, in *Covent Garden Market*, in 1845, and 1846.

	1845.			1846.	
March	15	50s. to 90s.	March.....	14	70s. to 170s.
	22	60 100		21	70 180
	29	60 100		28	70 180
April	5	60 90	April	4	70 180
	12	60 90		11	70 180
	19	60 90		18	70 180

Also at the waterside, *Southwark*.

March.....	17	55s. to 80s.	March 16		60s. to 140s
	24	55 80		23	60 140
	31	55 80		30	60 140
April	7	55 80	April	6	60 140
	14	55 80		13	60 140

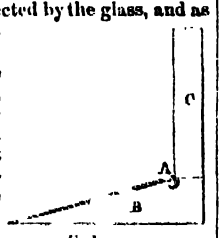
Home Correspondence.

Gas-tarring Walks.—Happening to be at Margate a few days ago, I observed that the public walk upon the cliff was covered over with gas-tar. Upon inquiry I found that this plan had answered perfectly upon the gravel-walk in the centre of the pier, which has been done some years, is quite smooth and hard, and has all the appearance of being covered with Claridge's asphalte. I consider this plan of gas-tarring walks a great hit. They are thus made dry in all weathers, the worms are destroyed, no weeds can grow, and all trouble of keeping them in order is saved. The gas-tar is applied hot to the gravel walk with a brush, and dry sand is sifted over the tar to harden it. I should say that some powdered quick-lime might be added to the sand with advantage. Three or four coats are required, which may be renewed every two or three years as needful. I laid down two barn-floors in 1839 with Claridge's asphalte, half an inch thick. They are now in as good a state as when first done, and have answered my wishes in every respect. They cost me one shilling per square foot, which included a heavy land-carriage for the materials. After having seen the gas-tar applied to the walks at Margate, I should now not go to the expense of laying down a barn-floor with Claridge's asphalte. I should prepare the floor with a solid concrete of broken stones, and then apply three or four coats of gas-tar with sand and quick-lime sifted over the tar. I think it would pay a farmer to prepare in this way all his homesteads. He would save all loss by rats, mice, and dampness. In using gas-tar as a covering for boards, I have found great advantage in mixing a little resin with each kettle of gas-tar. Thus mixed it will last longer and have more body and glossiness. —*Henry Bebb Morris, Ramsgate.* [Gas-tar was recommended by us for walks in the year 1842.—See p. 379. Mr. Morris's plan is more simple.]

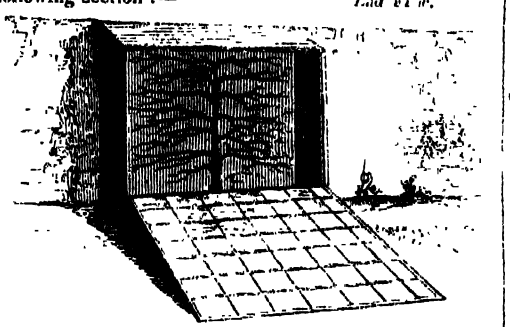
Cotoneaster microphylla.—There is a curious fact connected with this pretty hardy shrub which has not, to my knowledge, been noticed in any botanical work; namely, the tendency of its long trailing branches invariably to grow towards the north; it being common in the south of England I have had frequent opportunities of observing it in many situations, and in all cases with the same curious propensity of shunning one of the primary causes of its existence, and adhering to it with a tenacity which would make the most careless observer ask, what is the reason? When planted on the open lawn it becomes a pitiable looking object, the branches not laying flat on the ground; against a south wall it is as remarkable for its peculiar neat appearance, the principal branches only requiring to be secured, and Nature does the rest. Information as to the cause of this singularity would be thankfully received.—*Curiositas.*

Daly's Wonder Potato.—We are indebted to the kindness of the Messrs. Chambers, of Edinburgh, for the following information respecting this Potato, which has proved to be very prolific, even triumphing over a Dutch tuber, from which great expectations were formed by the late eminent agriculturist, Mr. Hope, of Portobello. Mr. James Hope says the Holland ones of which his father was so sanguine produced only 30 bolls per acre, and these very small, whereas the Daly's Wonder of Sir A. Ferguson produced 90 bolls per acre of excellent quality, and neither (if at all) affected by the disease. Mr. Burnet, writing from Gadgirth, near Ayr, says—"The Daly's Wonder Potato, which I got from Sir A. Ferguson, about ten years ago, I am still cultivating with great success. It is a most productive, hardy, and excellent Potato for the table, having improved very much in quality within the last few years. The first year I grew them the crop was immense, and the Shaws measured 9 feet in length; this was upon deep soil highly manured; but in general cultivation in the field, I have found them to produce 23 tons to the Scotch acre, at the ordinary rate of manuring. They were never found to fail in the spring, and while all other kinds of Potatoes have suffered more or less from the disease in the autumn, these have been but little affected; indeed they are the only kind, with the exception of the American Early, that I have been able to preserve for planting this spring; they are much approved of by all who have tried them in this quarter." It may be mentioned that the boll of Potatoes in Scotland contains 12,784 cubic inches, or 5·763 imperial bushels, or 4·54 Potato bushels. 8 81 bolls will, therefore, equal a ton of Potatoes. About 9 bolls, however, will be required, in order to afford the usual allowance for soil. Bolls vary in different localities, so that the above proportions will not in all cases hold good. A Scotch acre is a little more than 1¼ imperial acre.

Covering Wall-trees with Glass.—I propose, now that glass is so cheap, to inclose a Peach or Nectarine-tree upon a wall in a frame, and the glass which forms the frontage to be hung with a hinge, so that when not used to protect and assist in ripening the fruit, it shall be available over a second frame, so formed upon the border in front of the tree, as to give opportunity for the growth of early Radishes, &c. The effects of the small supply of heat from the sun last year failing to ripen my wall-fruit, I have imagined that the glass in front in the manner I have described would assist in bringing it to perfection, and preserve it from flies and wasps in its progress to maturity. Now, believing that you are at all times willing to assist the inexperienced horticulturist, I beg to solicit your opinion on the subject. Would the inclosure of the tree render it less capable to go alone when unprotected by the glass, and as in the case of pulling off a garment give it cold? [No.] I contemplated letting it go alone until the fruit had set, and then, as of course the border-frame would not be required, we should lose no time in the employment of the glass. I am no draftsman, but perhaps I may make myself better understood by the following section:—



End view.



Full view.

A, hinge to frame, upon which the glass-front would be put up or down to form inclosure C, in which the Peach tree is supposed to be, or over the border in which is marked B. —*John Quill.*

Fire Cement.—Inquiries are being made, I observe, after a cement that will withstand fire. For lime-kilns and such-like igneous works, in this part of the country, a strong loam alone is used; but, not having access to any such, I have lately used for the erection of one of Mr. Rivers's brick Arnott stoves the following composition:—Stiff clay, liquefied to the consistency of yeast or thick cream, and passed through a coarse sieve, two parts; sharp sand, one part; and coal ashes, one part, passed through the same sieve. The clay should not be so loose as not to be made sufficiently stiff again by the admixture of the dry ashes and sand to be worked up as mortar. This composition assimilates so much to what appears to be that of the "fire-lumps" and fire-bricks, that I have very little doubt of its solidification when the fire comes to be applied. I propose to let the water dry out, as bricks are treated, before the fire is lighted.—**

United States' Gardeners.—I am desirous of getting the catalogues of two or three of the best seedsmen (wholesale dealers), also of one or more reliable nurserymen, preparatory to opening a correspondence with them. We want in this vicinity some good working gardeners; those which come among us, with some exceptions, we find, upon trial, to be unworthy and incompetent. Any who come should bring testimonials from some society or known quarter. Such men can obtain from 20 to 25 dollars per month. — *Ch. W. Elliott, Walnut-hill Nursery, Cincinnati, Ohio, March* 1.

Indian Corn.—Having lived in America six years I can speak with confidence as to the use of Indian corn; for the last 14 years we have used it almost daily in our family, which is large. I have lately been applied to for receipts, and to save trouble, and if possible to aid the spread of this excellent article of diet, I have had those which are most useful printed. I have just seen Dr. Bartlett's pamphlet, from which I think no one would learn how to use corn in any shape. I send you a sheet of my receipts, hoping you will further their circulation by publishing them. I sent some to Father Mathew, who tells me they are the plainest and most useful he has seen, and that he has caused a few thousand copies to be reprinted.—*B. H.*

Yellow Corn is far more nutritious, and tastes better than White Corn. Indian Corn Meal must not be ground too fine; it generally requires to be sifted, and the coarsest bran taken out; this when boiled is good food for pigs. Bread cannot be made of Indian meal alone; one-third of meal to two-thirds of Wheat flour is quite as much as the bread will bear; more meal would make it too sweet and sticky. To make bread, take, for example, 7 lbs. of Indian meal, and pour boiling water on it till it is all wet—it never knots like flour; then let it stand till it becomes milk-warm, and stir in a stone and a half of flour with the hands; proceed then exactly as you would with wheaten bread; of course but little more water will be required. It takes rather longer to bake than wheaten bread. *Indian Meal Dumplings* are made exactly like suet dumplings; or if you prefer them without suet, mix them with milk instead of water; they require longer time in boiling than flour dumplings. If any is left to be cold, it is good cut in slices and fried. *Johnny Cake*, which is, in fact, a pudding, and eaten hot is made thus:—Take about two pints of Indian meal, and mix with it about one table-spoonful of melted pork lard or clear beef dripping; dissolve one tea-spoonful of salt and half a tea-spoonful of soda in a tea-cup, with cold water; pour milk into the meal till it forms a stiff batter; add the salt and water, and one beaten egg. Grease a shallow tin, such as is used for Yorkshire puddings, and pour the batter in. Bake it in a brisk oven for about two hours. You may make Johnny Cake without milk, by putting rather more lard in it; or if you please you may make it with milk and water, as convenient. N.B.—Johnny Cake should never be made thick; an inch deep is enough. *Mush* is Indian meal stirred into cold water, or milk and water, quite thin, and then boiled for about half an hour. It thickens very much, so that it is necessary to stir it frequently, and to add cold water occasionally. It is also called Indian hasty pudding, and it is usually eaten with treacle or with milk. *Fried Mush.*—If any mush be left, when it is cold stir in more Indian meal till it is very stiff; cut it out of the pan in pieces about half an inch thick, and fry it in beef or pork lard. It is excellent. *Boiled Indian Pudding.*—Make a stiff batter, by stirring Indian meal into a quart of milk or water. Add two table-spoonfuls of flour, three of brown sugar, two tea-spoonfuls of ginger, and two of salt. If you make it with water, mix in a little chopped suet and one egg, but with milk there are not required. Tie rather loose, and boil for three hours at least. *Baked Indian Pudding.* Boil three or four pints of milk, according to the size of the dish you mean to fill, and stir in Indian meal till it becomes about as thick as stiff batter. Stir in two or three ounces of butter, and half a tea-cupful of brown sugar. Add according to taste either a little grated lemon-peel or any spice you like. Butter a shallow earthen baking-dish, and bake in a moderate oven for three-quarters of an hour, or longer if needful. When cold it will easily turn out, and this pudding is better cold than hot. *Plain Indian Pudding.*—Scald a quart of milk, and stir in seven table-spoonfuls of Indian meal, one tea-spoonful of salt, one of ginger or cinnamon, and half a tea-cupful of treacle. Grease a baking dish, and bake for about two hours. *Indian Meal Gruel.*—Stir a table-spoonful or two of meal into cold water; boil it till it is thickened as much as you like. *Indian Pan-cakes.*—Mix about a pint of meal with sufficient milk or water, and one beaten egg to make a thin batter; fry them in as small a quantity of lard as possible. *Corn Cakes or Corn Bread.*—Pour boiling water with a little salt in it on Indian meal; mix it as stiff as you can with the hands, roll it into balls the size of an orange, then flatten the balls, till the cakes are about half an inch thick. Fry them in a small quantity of beef-lard, merely sufficient to prevent them sticking to the pan, or burning. They are to be eaten hot, generally as a breakfast dish. *Sweet Corn Cakes.* Mix one quart of milk, one beaten egg, a tea-spoonful of salt, and half as much soda, and two table-spoonfuls of treacle. Pour this on meal and stir it well till it becomes thoroughly mixed, and stiff enough to make it into flat cakes like those in the last receipt. Fry them for 15 or 20 minutes. *Light Corn Bread.*—Stir four pints of Indian meal into three pints of tepid water; add one large tea-spoonful of salt, let it rise for 5 or 6 hours, then stir it up with the hand; use as much dough for each roll as can be conveniently shaped in the hand; make oblong rolls about an inch and a half or two inches thick, bake in a brisk oven. *Plain Corn Bread.*—Take six pints of Indian meal, one tea-spoonful of salt, four pints of hot water, and mix thoroughly with the hands; let it stand for half an hour or more, then form it as in the last receipt, and bake it in a hot oven. REMARKS. All kinds of Corn bread require a hotter oven than flour bread. Never grind the Corn too fine, or sift it through a fine sieve; no matter how coarse the meal if the husk is removed. The hotter the oven or Dutch oven, so that it will not burn the dough, the softer and sweeter will be the bread. *Hominy* is a dish hardly known in this country, except by name. It is a western word, and a dish most common in the western States of America; it is simply "hulled corn." The way to prepare it is this:—Send the corn to the mill and have it cracked or ground as coarse as possible, if there is any meal amongst it, sift it out, and return only the cracked corn for hominy. The mill will have disengaged the skin, so that the cook can wash it off: this should be done in cold water, rubbing it with the hands, and changing the water two or three times. Another method of getting rid of the skin is to soak the corn for about 10 minutes in soda and water, or in lye, and then pound it in a mortar; but this is too tedious. When the hominy is thus prepared, put it into a large pot of cold water, and boil it steadily for six or eight hours. Add hot water frequently whilst boiling, otherwise the hominy will burn and become dark. It should be perfectly white, like well boiled rice. Send it to table dry and hot. The usual way in the western States is to boil hominy twice a week, and set it by in an earthen vessel for daily use. When wanted for breakfast or dinner, put a piece of butter into a baking dish, melt it, then fill the dish with hominy, well mashed down; let it heat thoroughly, and it is fit to eat. Some people allow the bottom to bake, then turning it topsy-turvy in the dish, the crust serves to keep it hot. For Frying Fish, use coarse Indian meal instead of bread crumbs. For Stuffing, use Indian meal instead of grated bread.

How to Dress Buckwheat.—Have you never tried this? The peasantry of Westphalia, as well as of Poland, use it as their principal aliment, and consider no other farinaceous food so agreeable or more nutritious. It has the great merit of being easily prepared. Pump on it in a colander till it is thoroughly cleansed. Boil it slowly till tender; drain, and eat it with fresh butter, or gravy, or sugar stirred in.—*N., Florence, March*, 1846.

Repair your own Glass.—Although doubting whether the gardener can do this as well, or even as cheap, as an honest glazier, I fully agree with your correspondent in the convenience of being able to remove the putty without danger of shattering the adjoining panes with the hammer and chisel. This can be done, as he says, with the aid of hot iron easily enough when the putty is tolerably new, but when very old it requires more heat and time than the operation is worth. But if tallow or suet is mixed with the putty when made, the latter does not lose its fusibility for a very long time; and very old putty so made is readily softened by heat. Such putty is more troublesome to make, works less tough, and does not take paint so soon as the common; but for modern thin glass, so often coming to repair, and so liable to have one pane cracked in repairing another, I think its advantages outweigh its defects. On the proportions opinions will differ; the glazier would probably say, the less suet or tallow the better; but I see no objection to

equal parts of linseed oil and suet or tallow, mixed by melting, and the whitening beaten in in the usual way; those who prefer a smaller proportion may use half a pound of suet or tallow to a pint of linseed oil.—*P.*

Caveat Emptor. Don't buy a Pig in a poke.—Perhaps you will allow me (though I know you dislike gardening gossip) to tell a tale which may be of service to your correspondents who complain of fraudulent advertisers. Once upon a time, I was led by a specious advertisement to order a new Fuchsia from a country nurseryman, and not being "a known correspondent," &c., I inclosed my 10*s.* 6*d.* in the shape of a post-office order. In due time I received the plant, in a thumb pot, and had to pay 2*s.* or 3*s.* more for carriage, porterage, &c. After some months of nursing, I had the satisfaction to discover that my money, care, and attention, had all been thrown away on a bit of rubbish, for which, if I had seen the plant in bloom before I ordered it, I would not have given 6*d.* I thought myself much worse off, than if, like your Guernsey correspondent, I had not received anything for my money. However, I resolved that I never would, from that time, "buy a pig in a poke;" and I have often since had reason to think that my half-guinea was well spent.—*J. N.*

Brewing.—1st, your correspondent is right in reading "stewed" for "strewed." It was a mistake of the printer. 2nd, the quantity of Hops is right. 3rd, the Hops and Camomile flowers are to be added to the other ingredients when, in technical language, the beer begins to fine itself. 4th, perhaps I used the term boil, which your correspondent says every housewife would know better than to use, because I am not a housewife. 5th, nevertheless, the brewer says the beer ought to be boiled both before and after the Hops and Camomiles are put in.—*Anon., April* 13.

Destruction of Insects.—As a radical cure of inveterate cases of green-fly, I beg to suggest immersion of the whole plant while small, in a vessel of oil, to be followed by immersion in a solution of soda, and lastly, of pure water. Oil is destructive of insect life, by closing the pores of respiration; and will penetrate into convolutions of the young leaves of the plant, where tobacco-smoke cannot reach. The latter remedy is always found to require one or more quickly repeated applications, or otherwise to be ineffective. An oil bath would destroy the life both of insects and eggs.—*C.*

Foreign Correspondence.

France: *Department de la M., April* 10.—The good folks in England, who get up societies at their pleasure, would hardly believe the trouble there is in this land of liberty in establishing so simple a thing as a provincial "Société d'Horticulture, *autorisée par le Ministre.*" You are, perhaps, aware that by what are called "the laws of September," 20 persons cannot meet for a specific purpose without the permission of the higher powers; not even 20 florists can combine to improve the culture of their pets, without special authority so to do from the Minister of the Interior. This it has required, in our case, four months and a half to obtain. I had first to send our proposed rules and a correct list of the founders, in duplicate, certified by the provisional President and Secretary to the Sous-Préfet, who sent it to the Préfet. The latter functionary, although a strong recommendation in our favour had been sent by his deputy, thought proper to return the documents, desiring that a special report should be made by the mayor on the subject, for fear there should be any Carlist or Republican scheme at the bottom of it. Well, in due time the mayor likewise made a very favourable report and sent it to the Sous-Préfet, who sent all the documents back to the Préfet at B * *, who packed them off, accompanied with his learned observations to the Minister of the Interior at Paris. After a couple of months' consideration the great man was pleased to attach the magic word "approved" to our plan, but with a saving clause, that no alteration should ever be made in our rules without his special permission. This being done, copies of all the papers were sent back to the Préfet at B * *, who sent them back to the Préfet at G * *, who sent them to the mayor at the Town-hall, who sent a letter with the good news to our president, who sent it to me, who sent the *Réglement approuvé* forthwith to the printers. I am, however, by no means certain that we can legally meet with pruning knives in our pockets; we should, probably, come under the laws against concealed weapons.

Societies.

BOTANICAL SOCIETY OF LONDON.

April 4.—The Vice-President in the Chair. Donations to the library were announced from the Horticultural Society of Berlin, and Mr. W. Pamplin. The following specimens were exhibited:—

1. Dwarf and much-branched forms of Gnaphalium minimum, sent by the Rev. G. W. Sandys, as bearing the general appearance of Gnaphalium uliginosum, and, at first sight, seemingly distinct from both of these species.

2. Examples of the peculiar Linaria, from Bandon, in Ireland, labelled with the MS. name of Linaria sepium, Allm. For these specimens the Society was indebted to Professor Allman, who, however, did not add any remarks in explanation of the change of name. They are identical with the Cornish Linaria, described by Mr. Hewett Watson in the "London Journal of Botany" (Feb. 1842), under the name of Linaria Bauhini, and introduced into the fifth edition of the "British Flora," and the "Manual of British Botany," under the name of Linaria Italica. The specimens are so completely intermediate between Linaria vulgaris and Linaria repens, in their technical characters, as to have led several botanists into an opinion of their hybrid origin; and this view is certainly supported by the fact that Hampshire specimens are again intermediate between Linaria repens and Linaria Italica (Rauhini or sepium).

3. Continuation of Mr. Andrews' series of Irish Saxifrages, to illustrate their wide range of variation; the species exhibited on this occasion being Saxifraga Geum and Saxifraga hirsuta. From the beautiful series of specimens, now in the Society's Herbarium, the fact of the Hibernian forms, including those of the Pyrenees, is placed beyond all doubt or cavil; while the specific identity of Saxifraga Geum and Saxifraga hirsuta is rendered probable.

The Secretary announces that the new regulations for the exchange of specimens were ready for distribution to the members, and might be obtained by other botanists upon application.

STAMFORD HILL, CLAPTON, AND STOKE NEWINGTON GARDENERS' ASSOCIATION.

March 2.—Mr. Rainbow in the chair. Mr. Croxford, gr. to — Barnes, Esq., Stamford-hill, read a paper on the cultivation of the Melon. He said that, although it was true that the modern plan of heating by hot water was far superior to that of hot dung; yet, while the majority of growers were obliged to continue the latter, he thought that attention ought to be directed to the discovery of the best mode of carrying it into effect. It should be remembered that new systems were neither intended to produce or apply new agents; the object of every improvement in structure or heating apparatus was simply to administer with greater regularity the elements essential to the healthy existence of the inmates, and to exclude with greater certainty the non-essential and injurious. Heat is an agent over which we have now a tolerably good command; but with light we are very differently circumstanced. The art, therefore, of applying the former aright in the case of the Melon, consists not in the exact imitation of the degree under which that plant thrives in its native habitat, but in balancing it with the quantity of light here obtained; so that the intensity of each of these two agents may bear the same proportion as they would under perfectly natural treatment. We find that the temperature of the Melon's native soil takes a medium range between the two extremes to which the air is subject during day and night through the influence or absence of solar heat. Taking this for a guide, he had since found from experience that the bottom-heat, however applied, should never exceed 80°, —75° was quite high enough, with a top-heat something lower than that until the fruit begins to swell, when the latter may range from 70° to 95°. Respecting ventilation, he gave air for no other purpose than that of regulating the temperature. To increase the quantity of air given, either at the time of the fruit setting or ripening, if it caused the heat to decline below the degree recommended above, would, he thought, be injudicious treatment. He merely kept the fruit as dry as was consistent with the health of the plants. The soil he used was the top and second spit of strong pasture loam, with an eighth part of common manure, well mixed and broken by repeated turnings during 12 months prior to its being used. Few plants require more water than the Melon in the early stages of its growth; but from the time of its setting to the ripening of its fruit, a moderate quantity only of that element should be applied. The propriety of this is indicated in the circumstances attending the production of all our indigenous fruits: vegetation commences when the earth contains the largest quantity of water; a steady diminution of this moisture is coincident with the increase of light and heat, through the intensity of which perfection is attained. Sudden transitions should, however, be avoided, being always injurious, and not unfrequently fatal to the crop. In making a dung-bed he used a good quantity of wood, which kept the heat steady, and prevented the sides from sinking and the consequent cracking of the soil from the action of the linings. Having made the bed firm, when sweet, he planted two plants upon a hill 15 inches in depth under each light, spreading six inches of soil over the other parts of the bed. As soon as the roots began to extend from the hills he gave them a good soaking of water, and on the day following completed the earthing, bringing the whole surface to a level with the hills, treading it firmly down, and watering if dry; upon this two inches of light soil was spread, which prevented excessive evaporation, and generally obviated the necessity of giving more water before the fruit was set. He considered dung beds far inferior to trellis in every respect. He could always obtain a greater weight of fruit from a narrow pit with the latter, with one plant to a light, than from two in a dung bed, however wide; and would advise those who have large brick pits, instead of putting dung within them, to form a hollow chamber at bottom with rough wood, and to put 2 feet of soil upon it for the plants to grow in; this, in the months of summer, would receive sufficient heat from the sun and the air confined in the pit, to bring it to the temperature already prescribed. Thinning, under all circumstances, is a most important operation. His plan was to take them in infancy, to rub, pinch, or cut off all shoots beyond the number required to cover the bed: by a proper attention to this, the plants are enabled to develop their organs so perfectly, that the fruit is almost sure to set, and surpass both in size and quality the produce of plants, however vigorous, that have been neglected in this particular. Attention to setting the fruit at all seasons was enjoined, as the means of securing a regular crop, the fruit all swelling at the same time. In the case of canker, the only remedy he had found was dry lime, applied to the parts affected.—Mr. Silkwood said he had always regarded the plan of warming the chamber of a pit or frame by driving a large amount of heat through the soil in which the roots were growing, as one of the most unmanageable and improper that could well be adopted. Why, he would ask, did propagators plunge pots of cuttings of almost all plants into a hot-bed, but to induce them to make roots? We, by the same mode, in the case of the Melon plant, produce the same result; and then, after thus multiplying the organs of absorption to an undue extent, meet the difficulty of getting the fruit to set, owing to the superabundance of crude sap forced by this means into the system of the plant, by a recourse to the equally unnatural plan of cutting off the supply of water to prevent the said organs discharging to the full extent of their power those functions for which Nature intended them. He thought that while such treatment as this was pursued, it was more reasonable to ascribe our success to the inherent hardihood of the Melon plant, than to attribute our failures to its constitutional delicacy. By the use of trellis, our pits will contain a large quantity of air, and if this air be kept at the temperature recommended by Mr. Croxford, it will be sure to warm the soil sufficiently, provided we take the precaution of confining a foot of air between that soil and the subjacent earth, otherwise we must expect it to lose its heat by conduction below, as fast as it acquires it by induction at the surface.—Mr. Bundle stated, that he had last summer grown three lights of Melons with artificial bottom-heat, and 10 without; the result of this experiment was decidedly against the former, for he had never yet seen better fruit or a better crop than the produce of the 10 lights last named.—Mr. McElroy spoke in favour of using stimulating manures with the soil, such as fowls'-dung, guano, &c.; but where these were employed great attention must be paid to thinning the shoots. To prevent the ravages of the red spider, he laid tiles here and there upon the surface of the bed; these he occasionally wetted, and kept the lights closed for an hour afterwards, while the sun was shining bright upon them, for the purpose of saturating the confined air with hot steam, than which nothing was more destructive to the life of these pests; the temperature he afterwards lowered by shading before giving air.—Mr. Neves believed the best manure that could be employed was ditch or pond-scrapings; this, well incorporated with very strong loam, and used in a body of at least 14 inches in depth, would, under the course of treatment advocated by Mr. Croxford, produce fruit of first-rate quality, far superior to what is generally obtained from more expensive composts.—Mr. Bailey attributed the canker to the soil being hollow about the stem of the plant; this should be guarded against in planting. To destroy the red spider, he syringed the leaves on the under side with lime-water, and closed the frame for two hours afterwards, during the heat of the morning sun.—*W. Sherwood, Hon. Sec.*

New Garden Plants.

23. Brassica Chinensis. Chinese Oil Cabbage. *Hardy Annual.* (Crucifers.) Shanghai.

A hardy annual which grows freely in almost any sort of soil. The seed should be sown in April, in a sheltered situation, then in May the plants may be planted out where they are to remain, allowing 2 feet between each plant. It appears to be of no importance in a horticultural point of view, but may be cultivated by farmers for feeding cattle, or for oil as it is in China.—*Horticultural Journal.*

24. Ruellia macrophylla. Large-leaved Ruellia. *Stove Perennial.* (Acanthads). Spanish Main.

This fine herbaceous plant is a native of Santa Martha, according to Vahl. It bears large branching forked panicles, loaded with flowers of glowing scarlet, and nearly three inches long. In that state it was exhibited at a meeting of the Horticultural Society in October last by Mr. Carton, gr. to his Grace the Duke of Northumberland. It should be an instruction to all persons sending home South American seeds not to forget the fine species of Acanthads with which that part of the world abounds; for although many are but weeds, yet others are quite as striking for their beauty as this and the Justicias, Aphelandras, &c., already in cultivation. They were formerly here in many instances, but requiring a moist warm atmosphere at a time when gardeners did not know how to obtain heat without dryness, they soon became sickly and died. Among the reputed species of this very genus, we see in our herbarium the Ruellia trivialis, grandiflora, and longiflora of Salzmann, all from the woods of Bahia, every one of which is a finer species than even this. Nor are the East India species inferior, as is attested by the numerous kinds of Goldfussia, Strobilanthes, Dipteracanthus, &c., with which botanists are familiar—only, however, in their dried gardens. As they are easily propagated and grown, all these would be real acquisitions, and might easily be had. This species requires to be kept in a stove, and being a plant of free growth, will succeed in almost any sort of soil. During summer an ample supply of water should be given to its root, and syringed over head once or twice a day. After flowering it should be cut back to secure a supply of young shoots from the bottom, for flowering the following season.

This may be done advantageously once or twice, but for such free-growing plants it is best to renew them every three years. In winter when syringing would be injurious, it will be necessary to keep up a humid atmosphere, as this plant is very liable to be attacked by red spider. It is easily multiplied by cuttings of young wood under ordinary treatment.—*Bot. Register.*

Garden Memoranda.

Royal Botanic Garden, Regent's Park.—A portion of the large conservatory, or winter garden, a model of which has been in this garden for some time, is now in course of erection. It occupies about one-fourth of the original design, and incloses an area 175 feet in length and 75 feet in breadth. It consists of a series of curvilinear span roofs, the centre one being 40 feet in height and 50 feet in width, and the two others on each side of it being about 25 feet in height and the same in width. These are supported on rows of iron pillars, which are tubular, for the purpose of conducting rain-water from the roof to cisterns to be made available for watering the plants. The centre span has a semi-circular end, standing out about 25 feet from the front line of the building, forming the principal entrance in which the broad walk leading from the south gate terminates. A span roof of the same height and width as the others (25 ft.), starts from each side of the principal or centre arch, and extending along the front at right angles to the other roofs, presents a fine looking frontage resting on a perpendicular elevation of about 10 feet, thus improving its general appearance, which would otherwise be of a zigzag form. At each end of the building a curve, starting from the spring of the upper one, comes down near the ground, forming as it were, a lean-to curvilinear house, of about 12 feet in width, but having no partition to divide it from the rest of the house. In regard to heating, this is to be effected by the agency of hot-water, which entering at one corner, is made to travel in six coils of 4-inch iron-pipes round the whole area within a short space of the boundary, and in four pipes up and down the middle of the house. The pipes are to be inclosed in drains about 3 feet in depth, which are connected with one another at right angles, by hollow chambers or drains for the purpose of conducting the heated air across the space intervening between one row of pipes and the other, the warm air rising through shafts closed in with iron gratings, and planted at distances varying from 15 to 25 feet square throughout the entire area. In addition to the pipes, an iron tank, 2 feet in width and 6 inches in depth, passes all round the inside, close to the glass, which comes down to the ground all the way round. This tank is furnished with openings for the escape of vapour, which can be closed when required, and an aperture covered with a grating is left along each side of the tank for allowing the heat radiated from the sides to escape into the atmosphere of the house. The whole is warmed by two of Burbidge and Healy's ribbed boilers, each measuring 39 inches in width; each boiler is presumed to heat 2500 feet of 4-inch pipe. The chimney and boilers are at some distance from the house, to which the pipes are led through a covered drain. It is understood that, in the arrangement of the plants in this building, they are to be grouped, each mass comprising only one tribe, as Camellias, Heaths, Acacias, &c.; and that besides mere greenhouse plants, the culture of exotic Orchids, Palms, &c. is to be attempted in the warmer parts of the building. Ventilation is provided both at top and bottom—in the roof by the sashes being made to slide, and at bottom by a series of doors moving outwards on hinges, thus answering the double purpose of ventilation and affording means of entrance to visitors wherever desirable.

Miscellaneous.

Water-cress.—Most persons are acquainted with the Water-cress and its salutary properties; they know generally that it grows in brooks, and on the borders of fresh and running streams. Few, however, of those who, in the busy thoroughfares or quiet suburbs of London, hear the cry of "Water cre-e-ses," or see in their daily walks the old red-cloaked women sorting the little bundles at the corners of streets, have any idea that the cultivation of this esculent now forms an important branch of horticultural and commercial industry; which, from the increasing consumption, and use made of the plant in pharmacy, is gradually rising into consequence. In the present day, the Water-cress may be found on almost every table, from the highest to the lowest. It is one of the most powerful antiscorbutics with which we are acquainted, and is said to possess the property of exciting the appetite and fortifying the stomach. We have no certain information that it is cooked in any part of England, as is occasionally the case in France; but in the north of Germany, to which country we owe its original cultivation, it is boiled and eaten as Spinach. In an old botanical work,* we are told that the watery part of Tothill-fields, Westminster, was overrun with Water-cress, and that it grew on the banks of the Thames in several places. The same work also enumerates many places in England where this refreshing vegetable was abundant; and it is now known that, like many other of the simple but useful productions of Nature, which, in their natural varieties, abound wherever they may be beneficial to man, it is to be found in most parts of the world. It is of the Cruciferous family, which comprehends about 20 species, all possessing high antiscorbutic properties, and of the genus Nasturtium, "said to have been so called from the effect its acrimony produces on the muscles of the nose—*nasus tortus*, signifying a convulsed nose."* The common Cress is known as Nasturtium officinale, and presents two varieties, the green and the blue, which by cultivation have been rendered far superior to what they were in their wild state; being less acrid, and not so liable to contract the taste of slime and mud as those found in ditches and marshes. 50 years ago, a considerable proportion of the supply that found its way to the metropolitan market was gathered from the numerous little streams which intersect the meadows near the towns of Newbury and Hungerford, in the county of Berkshire, from which places it was brought in sacks by the stage-coachmen of the day, who shared in the profits of the sale. The first attempts at regular cultivation in the neighbourhood of London, appear to have been made in the year 1808 at Springhead, a village near Gravesend. This plantation still exists, and is sometimes visited by the frequenters of the well known semi-watering-place just mentioned, for the purpose of regaling themselves with a fresh-plucked salad and bread and butter. Another plantation was afterwards commenced in Surrey, but subsequently abandoned. The culture, however, continued to spread, particularly in localities favourably situated with regard to springs of water. Near Rickmansworth, in Hertfordshire, where there is a fine stream running over a chalky bottom, there are now about 15 acres under cultivation. The Springhead plantation consists of 4 acres, while on the opposite side of the Thames, at Waltham Abbey, in Essex, is another of 6 acres. These, though extensive, are insufficient to meet the demand of the huge metropolis. Other supplies are obtained from greater distances. From Uxbridge and Salisbury great quantities are forwarded to London, packed in hampers, every day in the year excepting Sundays; and some idea may be formed of the enormous consumption from the sum-total of the annual sales, which amount to more than 10,000*l.* The culture of Cress requires much attention and watchfulness, especially in winter, in which season, during a single night, a sharp frost may destroy a whole plantation, if too remote from the springs to retain their mild temperature. The ground is generally laid out in parallel trenches, separated by small mounds, on which succulent vegetables may be grown. The bottom should be covered with several inches of sandy vegetable earth, perfectly level and equalised, so that the water may have a regular flow in every part. The months of March and August are the most favourable for putting in the plants, which are generally set in suckers or tufts, 8 or 10 inches apart. A well-planted trench will be in full bearing after the first year, according to the temperature of the water and the nature of the soil. The activity of the vegetation depends particularly on the state of the atmosphere; but if the plantation has been made with care, and the plants well chosen, it will require no other precautions, with the exception of occasional weedings, than those necessary to guard it from winter frosts, and the irruption of foul and muddy water in thaws and storms. In favourable seasons the Cress may be gathered every three weeks; but in cold weather, two months are sometimes required to bring the plants to perfection. After these gatherings, it is customary to roll and level the bottom of the trench, or to manure when required. A good plantation will last a long time; but it should be renewed by the same process as at first, whenever it shows signs of decay. Sometimes, in frosty weather, the supply of water is increased until the plants are completely covered; but as this submersion weakens them, it should not be continued longer than absolutely necessary. Mr. Loudon describes the process as follows:—"Some market gardeners, who can command a small stream of water, grow the Water-cress in beds sunk about a foot in a retentive soil, with a very gentle slope from one end to the other. Along the bottom of this bed, which may be of a convenient length and breadth, chalk or gravel is deposited, and the plants are inserted about 6 inches every way. Then, according to the slope and length of the bed, dams are made 6 inches high across it, at intervals; so that when these dams are full, the water may rise not less than 3 inches on all the plants included in each. The water being turned on, will circulate from dam to dam; and the plants, if not allowed to run to flower, will afford abundance of young tops in all but the winter months. A stream of water no larger than what will fill a pipe of an inch bore, will, if not absorbed by the soil, suffice to irrigate in this way an eighth of an acre. As some of the plants are apt to rot off in winter, the plantation should be laid dry two or three times a year, and all weeds and decayed parts removed, and vacancies filled up. Cress grown in this way, however, is far inferior to that grown in a living stream flowing over gravel or chalk." The history of the cultivation of this plant on the Continent affords some interesting particulars, which serve to exemplify the advantages that accrue, with proper attention, from the apparently humblest objects. About the beginning of the present century, an attempt was made to form Cress grounds in the neighbourhood of Paris, similar to those then common on the banks of the Rhine, by the Count de Lasteyrie; but without success; while the markets of that capital were supplied only by persons who travelled to distances, sometimes of 40 leagues, collecting the Cress wherever it could be found. The supply was seldom sufficient to satisfy the limited demand, although it frequently consisted of nothing more than bunches of marshy plants masked by a few sprigs of the genuine vegetable. In the winter of 1809, Monsieur Cardon, then principal director of the hospital chest of the grand army, was quartered with his staff at Erfurt, the capital of Upper Thuringia. Walking one day in the environs of the city, when the earth was covered with snow, he was astonished by the sight of several long trenches, from 10 to 12 feet in width, covered with the most brilliant green. Curious to know the cause of what appeared to be a phenomenon at that season, he walked towards them, and perceived with the greatest surprise that the trenches formed a large plantation of Water-cress, presenting the aspect of a verdant carpet on a surface in every direction white with snow. In answer to his inquiries, M. Cardon learned that the plantations had existed for many years, and belonged to the authorities of the city, from whom they were rented by the cultivators at the annual sum of 2100*l.* Since that time, however, their value has greatly increased. From a statement published in 1830, we find that the annual return then amounted to more than 8000*l.*; and that the Cress, highly esteemed for its purity and superior qualities, was sold in all the cities on the Rhine, and in the markets at Berlin, at a distance of 120 miles from the place of its growth. M. Cardon foresaw the benefits that might be expected to arise from the introduction of this branch of horticultural industry into the neighbourhood of Paris; and, after a long search, found 12 acres of a thin sandy alluvium at St. Leonard, in the valley of the Nonette, between Senlis and Chantilly, which, containing many beautifully limpid springs at a temperature of 59°, appeared to be well adapted for a Cress plantation. He engaged two well-informed individuals from Erfurt who were acquainted with the method of cultivation. The ground was laid out in trenches of 250 feet in length by 12 feet in breadth; which were, however, afterwards reduced to one-half of those dimensions, as it appeared that the water lost its natural temperature, and froze in the winter, by flowing over so large a surface. In a few years, after an expenditure of 3200*l.*, there were 92,000 square feet under cultivation. It was no longer the Cress clandestinely gathered, often in flower, or run to seed, that was exposed for sale in the French metropolis. The Cress of St. Leonard arrived, packed with a care to which the Parisians were strangers. Its freshness and purity were such, that the market-women, of their own accord, offered double the usual price before any demand had been made; and, in testimony of their high satisfaction, feasted the journeymen cultivator who had come to superintend the sale, and the waggoner, and sent them home decorated with ribbons and flowers. Much greater precautions appear to be taken in the packing and transport of the Cress in France than in this country. The French growers are particularly careful in warm weather, and guard the plants from exposure to the least storm, as they then turn yellow. They pack them in baskets, which contain from 25 to 30 dozens of bunches, so arranged as to leave a circular opening or chimney up the centre, which always remains empty. The baskets are then placed on rails fixed across a wagon, so as to permit a free current of air through all the openings; and in the summer, before putting on the tilt, the whole are well watered, to preserve their freshness during the night, and they are delivered at the market early in the morning in the most perfect condition. The regularity of the arrivals and constant freshness of the Cress sent every day from the grounds at St. Leonard, not only insured the success of the scheme, but brought forward a host of competitors. M. Cardon's German workmen left him to commence rival establishments; and there are now in the environs of Paris 16 plantations, producing annually 1,350,000 dozens of bunches, valued at 37,800*l.*; and, adding the charges of transport, and expenses of all the individuals employed in this branch of trade, which, a few years ago, had no existence, the sum actually circulated amounts to not less than 60,000*l.* Formerly, the sale in Paris seldom amounted to more than 20*l.* daily in the best season; while at the present time, a supply of not fewer than 20 waggon-loads, worth 240*l.*, is required to meet the daily demand.—*Chambers' Edinburgh Journal.*

Potato Disease at the Cape of Good Hope.—A friend has sent us the following interesting account of the appearance of this formidable disease in the Cape Colony. It is an extract from a letter published in the "Graham's Town Journal," of January 31st:—"On the 18th of September last, I planted 1 bushel of the kind of Potatoes known in London as Shaws, 1 bushel of Early Americans, 1 bushel of Reds (procured in Cape Town under the name of Berwick Reds), and 1 bushel of Ash-leaf Kidneys. All these, excepting the Kidneys, were imported from England, not long before they were planted; the manure applied to them was stable dung. Up to the end of October they were strong and vigorous. All at once the Americans began to yellow in the leaf, and upon examination, I found the stems close to the ground had shrivelled up. In fact, they had all the appearance of having been hardly pressed between the finger and thumb. For two or three weeks they went on in this state, being anything but pleasant to look at. At last I determined to uproot them. Fancy my astonishment to find at least a fourth of the full-grown tubers completely rotten, and at least a half more all but covered with dark blue spots. I caused them to be spread out on the surface, under the influence of an African sun, which so completely dried or roasted them that in the evening the diseased parts fell off in

* Miller's Gardeners' Dictionary. 1807.

* Loudon. Encyclopædia of Plants.

little hard scales, leaving the tubers sound beneath; and to this day they are so, now nearly a month since. That the disease was brought to this colony by the seed I have no doubt; at least the causes ascribed in England cannot be ascribed here. In the month of September we had only two showers after the Potatoes were planted, in October two, and November only one. As for sunshine, enough of that to cause an Englishman at times to feel querish. Then again for electrical currents; two rows of Reds next to the Americans were surrounded with a copper wire (about 6 inches under ground), connecting a plate of zinc at one end of the drill with a plate of copper at the other end. Down the centre of the two drills a wire was suspended about 4 feet from the ground, and attached to the plates just mentioned. And if the electricity in the atmosphere has any power over Potatoes, it ought to have it here, as in the centre of one of the drills of Shaws, and within 7 yards of the Americans, stands a stone Pine all but killed by a shock of lightning, the bark being torn off on one side, 5 feet in length, and thrown 30 or 40 yards away. The "Reds," which were placed near the wires, were free from disease, and so were indeed all the other Potatoes in the same break, except the Americans. The Americans are an early sort, and the disease seems to have appeared in Europe chiefly among the early kinds. The soil is of a light gravelly nature, and the crop fine, averaging 16 bushels for one of sets planted whole. I must state that the Potato here is, properly speaking, an evergreen. At the end of three months they must be lifted, as the tubers have by that time reached their full size, and they invariably commence to grow, while the old plant still keeps growing also.—*R. S. Smith, the "Oaks" near Caledon, Cape of Good Hope, January, 1846.* P.S.—Our seasons in this country come at opposite times to those in Europe, which some of your readers may not remember.

Calendar of Operations.

(*For the ensuing Week.*)

CONSERVATORIES, STOVE, &c.

Watering Pot Plants.—Great care should ever be bestowed on this important process. Too much, too little, or an injudicious mode of appliance, are equally fatal to high cultivation. Very many plants are seriously injured at the periods of shifting or "potting off," by improper watering. It has been the fashion to recommend what is termed a "thorough soaking" to newly-potted stock, and I fear that in this very act the foundation of what is technically termed "sourness" is frequently laid. A very fine rosed-pot, and slight applications of water, at intervals, close on the heels of potting, is the best way, as a general maxim, to penetrate the mass, and to cause the particles of soil so to arrange themselves by gravitation, as that the atmospheric influence shall be somewhat modified, but by no means intercepted. There is, however, no good reason why all plants should be watered immediately on shifting them. When a plant has no ball of earth, the water should of course be made to penetrate the whole mass, in order to prevent desiccation, which would sometimes ensue through extreme porosity in the new soil. When, however, the subject is a plant (say a Camellia), with a hard-wedged ball, a steeping overhead in water for an hour is a preferable course. After this, frequent syringings or waterings with a fine rose will be the soundest policy for a week or two afterwards. *Conservatory.*—See that no plant suffers from drought here. Planted-out things will now require thorough waterings. The larger specimens in tubs or pots must also have a most liberal supply, provided the drainage is complete. This is the period for free use of liquid manure, but take care that it is perfectly clear. Large Orange-trees should now enjoy a copious application of this renewing element. Where there trees produce gross wood, disbud or remove it altogether, and let the lower wood take its place; this will induce fruitfulness, by moderating the system. *Stove Plants and Orchids.*—Pay due attention to watering, shifting, stopping, &c., of stove-plants in general. Make cuttings as they can be obtained in a young state, of Gesneraria, Plumbago, Eranthemum, Justicia, Clerodendron, Vinca, Euphorbia, Brugmansia, Begonia, Thunbergia, &c., &c., in order to keep up a succession of clean young stock. See that the growing Orchids have abundance of atmospheric moisture, with a liberal circulation of air early in the morning, shutting up close betimes, and taking care to observe moderation in the use of fire-heat, in order that a pure atmosphere may be inclosed for the night. Growing Dendrobiums will now require liberal supplies of water; and air-plants on blocks, frequent syringings. *Mixed Greenhouse.*—Look to the directions about Stove Plants. Propagate stock as there recommended. Most of these will succeed in the mixed greenhouse, where a medium between the cold greenhouse and the stove is observed. See to cuttings of Heaths, as soon as the wood is in order. Fumigate the moment an insect appears; thus is best done in a moderate way, two evenings in succession. Some of the hard-wooded things, of no particular importance, might be removed hence at this period, to furnish more room for growing young stock and fine specimens in flower. A slight protection will, however, be necessary. Old lights, or a tarpauling on poles as a lean-to, the lowest part next a south wall, and the front opening well to the sun, would do exceedingly well for them. Mats may be hung at the sides at night.

KITCHEN GARDEN FORCING.

Pineries.—Attend to the regulating air, heat, and atmospheric moisture, as laid down in previous Calendars. A considerable amount of heat may now be used on proper occasions, as before pointed out. Fruiting houses, or pits, should now average 80° by day, and about 70° at night. 85° or 90° may be allowed, however, from three o'clock to five in the afternoon. Dung pits must not be so warm by 5°, as the plants in them are more liable to "draw." *Vineries.*—Some of the laterals, where crowded, may be removed in the earliest house, where the Grapes are beginning to ripen. Not, however, to throw sunlight immediately on the berry, but in order to promote a perfect secretion in the principal leaves, with a view to heighten the flavour of the fruit, and to organise plump buds for the ensuing year. *Cucumbers and Melons.*—Follow up successions. This is a good time to sow for a crop of autumn Melons; at least with those who have nothing but dung beds to grow them in. Look to former Calendars. *Mushroom house.*—Take care to provide a humid atmosphere. Beds made after this, should possess more moisture in the manure. *Figs.*—Be sure to follow up stopping the shoots when from four to six buds long. Water and syringe freely, and use plenty of liquid manure, clear, to those in a bearing state.

KITCHEN GARDEN AND ORCHARD.

This is an excellent time to plant a full crop of Potatoes. Kidneys, with well-protected sprouts, or any other early kinds planted now, will be little later than those planted in February. This, however, requires a little extra care; the sets should be placed in baskets, a single layer thick, on damp litter, and as carefully handled as eggs; they should by no means be planted during either sunshine or wind. Those with sprouts 2 or 3 inches long, if managed thus, and covered at night until the second week in May, will closely succeed those in frames. Let a sowing of all the winter and spring Broccoli be made forthwith. Cape Broccoli and Cauliflower for Michaelmas may, however, be sown a week or two later. See that plenty of Green Kale, Savoys, Brussels Sprouts, Leeks, Scorzonera, Salsafy, Beet, &c., is got in without delay. Continue successions of Horn Carrots; indeed sow a bed every month, from January to September. This is the best way to be independent of the grub. Ridge Cucumbers should be got forward instantly; also Tomatoes and Vegetable Marrow. As soon as your young Asparagus is from 3 to 6 inches high, let the new plantations be made.

FLOWER-GARDEN AND SHRUBBERIES.

A thorough re-arrangement of all the herbaceous tribes should take place every spring; if this has not been done no time should be lost. Some of the grosser kinds get into too large masses, and thereby destroy all proportion in the mixed beds. Continue sowing annuals wherever required. Early struck Verbenas, Calceolarias, &c. may be planted out 2 or 3 inches apart in beds, with a slight protection; they will make nice plants by the middle of May, and may be removed either to masses or borders, where they will bloom directly.

COTTAGERS' GARDENS.

As observed last week, let Broad Beans occupy, as a secondary crop, a place amongst all the green tribes, Swedes, &c. The cottager may sow a little late spring Broccoli. He should take care to secure plenty of plants of the various greens intended to succeed the summer crops, and to furnish a supply for himself or cow during the following winter. Scarlet-runners should be planted directly; also Nasturtiums and a row of Red Cabbage if not already done; these will supply all the pickles a cottage requires. A few Gherkins may be sown on a southern slope.

FORESTING.

Little can be added to former Calendars. Barking is the next great affair. See that all matters are prepared. The young seed beds will require some attention at present; screen from late frosts by Fir or other boughs, and be sure to keep down all weeds.

State of the Weather near London, for the week ending April 18, 1846, as observed at the Horticultural Garden, Chiswick.

April		Moon's Age.	Barometer. Max.	Min.	Thermometer. Max.	Min.	Mean.	Wind	Rain.
Frid.	10	11	29.845	29.736	61	39	44.5	S.W.	
Sat.	11	O	29.842	29.437	61	31	46.5	N.	.06
Sun.	12	16	29.807	29.770	58	45	55.0	S.W.	.00
Mon.	13	17	29.770	29.569	61	34	47.5	S.W.	.02
Tues.	14	18	29.745	29.606	61	44	51.5	N.E.	.10
Wed.	15	19	29.705	29.701	57	49	53.0	E.	.35
Thurs.	16	20	30.027	29.930	62	44	53.0	E.	
Average			29.738	29.678	61.0	41.2	51.1		.79

April 10—Clear; very fine; partially overcast
11—Dry haze; overcast, rain at night
12—Very fine; cloudy and fine; rain at night
13—Cloudy; clear and fine
14—Clear; foggy; dry haze, partially overcast
15—Densely clouded; dark haze, densely overcast
16—Slight haze and fine, overcast.

Mean temperature of the week 4½ deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending April 25, 1846.

April	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun 19	53 8	36.6	47.7	6	0.06 in.	5	5	2	1	—	2	5	—
Mon. 20	53 8	37.3	45.5	8	0.23	1	4	2	—	—	5	5	2
Tues 21	60 2	32 2	50.0	6	0 20	1	4	4	1	1	2	6	—
Wed. 22	60.6	40.1	49 8	11	0.82	3	5	2	1	1	3	5	—
Thur 23	59.3	39.4	49.3	11	0 52	1	2	2	—	4	4	4	3
Fri 24	59 5	35.6	47.7	8	0.55	3	1	2	4	1	6	2	1
Sat. 25	60.0	39.6	49.8	8	0.47	2	3	2	2	6	2	1	2

The highest temperature during the above period occurred on the 25 h, 1841—therm. 80°; and the lowest on the 25th, 1837—therm. 25°.

Notices to Correspondents.

Books—*Studiosus*—The "Penny Cyclopædia" will give you as good a knowledge of "Natural History" in general as can be had from any one book.——*Cymro*—All catalogues of plants give both their Latin and English names. The latest one, and that which may possibly best suit your purpose, is Mr. Don's, reviewed at p. 402, vol. 1845.‡

Camellias—*W*—The bloom you have sent is so imperfect, that it is impossible to tell if it be true to name. You must wait till the plant produces a more perfect flower. The foliage of Chandleri is large and of a deep green.°——*M M*—Camellias may be increased by inarching them on other kinds; or as soon as the present year's shoots are ripe, take cuttings off with a heel, and put them into pots prepared in the usual way for cuttings. They should be placed in a cool frame, or under hand-glasses, and kept shaded until they have commenced forming roots, when they may be removed into a brisk bottom-heat. Shoots of the middle size make the best cuttings. The best compost for Camellias is, three-fourths good peat and one-fourth good light loam. If loam cannot be had, peat alone will do very well.‡

Carnations—*An Original Subscriber*—The following are late bloomers:—Redford's Gamé Boy, Wood's Brigand, Smith's Duke of Wellington, Will's Beauty, Jaques' Achilles, Greatley's Lady Wilton, Strong's Linnæus, Pickering's Prince Albert, Banton's Hermione, Lascelle's Queen of Sheba, Allaway's Wonder of the World, and Purley's Adelaide. To induce them to flower as late as possible, propagate from the smallest layers or pipings.°

Club in Cabbages—*Caulibourt*—The knobs or clubs that are formed on the roots of the Cabbage tribe, particularly Cauliflowers and Broccoli, are said to be caused by insects, and are prevented by putting wood-ashes into the hole in which the Cabbages are planted.

Heating—*A Lady Sub*—The morning sun is *not* essential; for ordinary purposes a west aspect turning a little to the south will do very well. Your gardener is mistaken.——*Henry*—You will not obtain a current of air unless you can connect the frames *a* with the floor of the cellar *c* by an air-drain. If you do that you will immediately establish the requisite circulation, and save your wasted heat. The drain from *c* to *g* seems to be of no advantage.——*J N*—You may connect your flue with the house chimney by a horizontal shaft; but it must be well cased over, so as to be kept dry and warm, or it will not draw in winter time. A good casing is made with cinder-ashes and charcoal built over with brickwork, or even covered with clay, rammed hard and sloped outwardly.

Hollies—*S P*—Some young plants raised from seed of the yellow-berried kinds, will bear yellow berries, but many of them will return to the common form, producing red berries. Grafting is the surest way of perpetuating the variety.¶

Insects—*P L, Jr.*—It is a species of Coccus, nearly allied to the cochineal, which is injuring the Sugar-canes. You may, perhaps, glean some information by reading various articles in this Journal upon the green Coccus, especially in the 1st and 3d vols., and at pp. 427 and 499 of vol. iv.; but we regret that it is not in our power to suggest a remedy, unless we could examine the plants on the spot, and investigate their economy. Would not an infusion of Tobacco be better than soot, &c.°*R.*——*J G F*—We cannot advise you without seeing specimens of the insects. Please to send some in a quill or a pill-box. *R.*——*J M C*—You must get the Myrtles out as soon as possible, as rain will assist in banishing the scale-insect. The first thing to be done is to pick off the leaves most infested and burn them, the others should be washed with soap-suds, the stem and principal branches must then be scraped and brushed with the same liquid, employing a tooth-brush. After this ablution, the woody parts may be painted with a mixture of soot and lime. *R.*

Martynia fragrans—*M W*—If Balsams are well managed, the same treatment that suits them will also suit this; but it is one of those plants with which nothing can be done, except the house is damp as well as warm. It likes a rich soil and frequent potting, and should be well attended to with water‡

Morphology—*B S*—The Fuchsia is very subject to such casualties; one was figured at p. 388, 1845. We shall be most happy to examine other Pansies.

Mortar—*C M S*—Put the sand in a tub. Pour water over it. Stir it well up. When it begins to settle pour off the muddy water. Repeat till done.

Names of Plants—*John Robinson*—We do not recognise your seeds; but they look like those of the Staves-acre. They are apparently fresh, and we will have them sown. If they grow you shall know the result.——*K T R*—Veronica formosa and Cuphea platycentra.——*Broughton*—Your Cucullum phymatochilon is quite new to us, and extremely pretty.——*J H*—Cœlia Bauerana.——*A B D* 1, Cyrtopodium Andersoni; 2, Bromelworts cannot be named from their single flowers; 3, Sacco-labium calceolus; 4, Camarotis purpurea.——*H C*—Your Tropæolum tricolorum is curious, but not handsome, it is trying to become double.

Potatoes—*Constant*—If charcoal be really effectual against the disease, then any kind will do. We should strew the drills with it, place the tubers on it, and then add more charcoal.——*J W*—Your seedling is a nice-looking one, and *seems* to be sound. It shall have a fair trial.——*Pitfour*—A thousand thanks. The news is quite unexpected.

The Weather—*G Jun*—It is very possible that the deviation of the Gulf Stream may have something to do with this mild winter; but it is at present mere conjecture. Whenever any *facts* have been elicited we shall make them public.

Window Gardens—*D S J*—Any aspect will do; but the north is the worst, and only fit for Ferns, Mosses, or spring bulbs, or bought plants just ready to blossom. We will give you lists of plants another time.

Miscellaneous—Thanks to *S*, the *Gardeners' Chronicle* is correct. We have communicated with the other paper.——*G*—The meaning of Cucurbits, Lousads, and all such terms, and the manner in which they are applied, is fully described in the "Vegetable Kingdom," to which we must refer you.——*S C*—We are aware that this paper is sometimes spoiled in the folding, but we have no means of preventing it. The newsmen purchase it unfolded; and it is to them that you must look for redress, we are powerless in the matter. If you will be so good as to refer to p. 402, 1845, you will find that the Don's Catalogue which we recommended is not the great 4to abortion, which we have not spoken favourably of.——*Hill*—A gold Mohur is an East Indian coin, not a plant.——*W B*—Stephanotis does fruit occasionally, and then produces a seed-vessel which is not inaptly compared to a green sheep's-heart.——*A Constant Reader*—We do not believe that anything except time will destroy the bad smell of your gas-tar walk in the greenhouse. You may wash it with chloride of lime, or strew it thickly with charcoal; but we have little hope of such remedies being effectual.——*W D*—Sow Hickory seeds in a warm sunny border two inches deep. Or, if you prefer it, place them in some damp Moss beneath garden-pots exposed to the sun, as recommended at p. 219. Do not crack the shells.——*An Inquirer*—We are quite unable to answer your question: perhaps glue; perhaps isinglass; perhaps plaster of Paris; perhaps twenty things.——*Hornsey*—Of Scarlet Pelargoniums, Conway's Giant and General Tom Thumb will possibly answer your purpose, the former for single specimens and the latter for beds. And for sweet-scented flowers you cannot have better than Heliotropes and Mignonette.‡——*C*—If you will refer to p. 116 of our volume for 1845 you will find a plan of a pit that may perhaps answer your purpose.‡——*Cerulewald*—Your former letter has not been received.‡——*I B*—You are not yet too late to sow Celery. Sow in shallow pans to be placed in a gentle heat until the first leaves are formed, when it should be pricked out 3 inches apart in a bed composed of very rotten and mellow dung, laid on 3 or 4 inches in thickness, on a hard bottom. On this the plants will make fine fibres, and will be ready for being finally transplanted to the open ground in May, and with a very trifling amount of check. In your case we should plant in rows. Soot may be mixed with liquid guano for garden purposes; and there can be no harm in mixing sea sand with guano for facility of spreading on Grass or other land, unless the soil is of a very light nature.‡

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The Agricultural Gazette.

SATURDAY, APRIL 18, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, April 22—Agricultural Society of England.
Thursday, — 23—Agricultural Imp. Soc. of Ireland.
Wednesday, — 29—Agricultural Society of England.
Thursday, — 30—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES—E. Cumberland—Lancaster.

FARMERS' CLUBS.

April 20	Wrexham—Botley	April 29	Newton
— 24	Rhins of Galloway	— 30	Otterey St Mary
— 25	Hereford	May 1	Guyden
— 27	Welling on-Darlington	— 2	Melrose—Monmouth

WE beg the attention of our readers to the operations of two large and, in some respects, similar Societies in this country. Each of them receives the patronage of a great number of the well-educated and the influential; each, in the endeavour to excite and maintain an interest in the objects of its establishment, hold a large and attractive annual meeting; each, anxious to diffuse the knowledge it acquires, publishes an annual volume of Transactions. The one, THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, aims at increasing and diffusing an acquaintance with Natural Philosophy, Chemistry, Natural History, &c. The other, THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, desires the improvement of an art to the theory of which all these sciences contribute. There is very considerable similarity here in the end proposed to be attained; such, indeed, that we might expect an almost identity in the machinery employed. The *subjects* which engage the attention of these Societies are, in both cases, extremely various, and each of them has its devotees by whom it has been thoroughly investigated, and to whom it is familiar. The *districts* successively visited by these Societies differ in their agricultural as well as in their scientific character, and in each there are to be found those who have distinguished themselves among their neighbours by superiority of acquaintance with some one or other among the departments of agriculture as well as of science. Now, the British Association goes to work in a way likely both to concentrate all the existing knowledge on each of the subjects it patronises, and also to develop and exhibit the results of local talent and local industry in each of the districts it visits. The various sections of its business are committed to separate committees, each of which confines its attention exclusively to the matters within its own jurisdiction; and each of them being assisted by men eminent for their attainments in their respective departments, and being officered by men selected from the neighbourhoods visited, is in a position well calculated both to increase the stores of its knowledge and to excite a local interest in the subjects of its inquiries. The funds, too, of this Society, barring the unavoidable expenses of its management, are applied exclusively in quarters, and for purposes, which the distinguished men who manage its affairs *know* as the most likely to further its objects. Look over the official reports of *this* Society, and you will nowhere find so vague an offer as one of reward for an account of "*the best experiment*" in science; the labours of its working members are not left thus to expend themselves, it may be, on unworthy and useless investigations; they are directed by its office-bearers into channels where they are likely to be fruitful.

Now, why cannot the English Agricultural Society in the management of its affairs, follow an example here so well set? This question was asked the other day, at a meeting of its Council, by Mr. THOMPSON—a gentleman to whom we owe the establishment of the Yorkshire Agricultural Society, and to whom on other accounts our respectful attention is due—and he has obtained a committee to investigate the subject, and to report to the Council next Wednesday. We heartily hope his effort to improve the Society's present method of conducting business may succeed. Why should our Agricultural Society not follow the example of the British Association for the advancement of Science? The subjects which it patronises are as various—it might have its sections A, B, C, &c., each with its committee of management, as far on in the alphabet as the other, and yet each should have a sufficiently extensive and well-defined jurisdiction. Communications bearing on the condition of the labourer might be referred to section A. Discussions on points connected with the conversion of food into beef, mutton, bacon, pork, cheese, milk, wool, &c., might be held under section B. Papers connected with the cultivation of plants, their habits of growth and produce, should belong to section C.

Section D might discuss all matters referring to agricultural mechanics. Section E should take cognizance of everything connected with the cultivation of *the soil*, regarding it as a storehouse of vegetable food, to which a plentiful supply and a ready access are both desirable things; papers connected with the subjects of manures and drainage would be referable here, &c., &c. Or any other classification of agricultural subjects might be adopted—one more simple might, perhaps, be advisable in the beginning—all we contend for is, the propriety of an effort being made by our national Agricultural Societies to bring into exercise the talents, information, and industry latent amongst agriculturists all over the country.

Should the English Agricultural Society advertise its intention to adopt some such scheme at the ensuing Newcastle meeting, and appoint its committees to carry it into execution, farmers would go there not as they hitherto have done, merely to have the sentiment of wonder pleasingly excited—they would not go merely as on a pleasure excursion—they would consider their travelling expenses as a "*business*" investment—each having some specific object in view, some point requiring explanation, would, on his arrival, at once be directed where to obtain all the information or experience upon it that exists. What an improvement would this be upon the arrangement which at present obtains, where visitors can never come together under the auspices of the Society, except as part of hundreds or of thousands—numbers utterly useless and impracticable, either for the communication or for the reception of information!

FARMERS, like frogs, are sorely exposed to pelting; this is, perhaps, one of the reasons that make it rather difficult sometimes for us to keep our heads above water. No sooner do we take a stroke upwards and try for a breath of *fresh air*, than a shower of stones comes thick as hail from every quarter; our foes pelt in earnest, and *our friends in fun*; "fun for them but death to us." But, thank Heaven, we have, both, the melancholy privilege of croaking. We enjoyed alike this right under the successive reigns of King Log and King Stork. It has never been denied us: it is our Magna Charta; long usage and habit have made it a prescription and a privilege; and we shall cling to it to the death. We are misrepresented by our foes as demanding legislative advantages, at the expense of all the rest of the community; and we are misrepresented by *our friends*, as being willing to resign them only on the condition of others more injurious than what we abandon. "Defend us from our friends!"

We have never been distinguished as special admirers of taxation, but we have as frequent opportunities all the year round as most people, of learning from the rough teaching of Nature the truth of the motto, that "what can't be cured must be endured;" her silence teaches us to hold our tongues under infliction which is unavoidable; and there is a truthfulness and stubborn honesty about the very clods we turn up with the plough, which tell us, somehow or other, that while we render unto God the things which are God's, we are equally bound to render unto Cæsar the things which are Cæsar's; that when a man or a nation is in debt, the least that can be done is to pay the interest of it. We are not great financiers; and we "hate politics" as cordially as the young lady at the tea-table waiting for the gentlemen; therefore we seldom intermeddle in either. But it is as tantalising to sit still under misrepresentation as to wait in vain while the best Pekoe-flavoured souchong is growing cold; therefore, if the gentlemen who have been settling the affairs of the nation *will* so try our patience, they must expect us to use our privilege. We are misrepresented, amongst other things, as demanding a repeal of the Malt-tax as a set-off against the loss of our precious protected prices. Now, when our friends and fellow-croakers, the frogs, took Stork for king instead of Log, they found that exchange is not always a bargain; and when we look the infliction of the Malt-tax well in the face, we read in it *two* questions: firstly, whether it can be conveniently got rid of? secondly, whether, if got rid of, we shall be better off than we were before? We speak as farmers,—therefore, of course, as fools; but it does appear to our dull, lumbering intelligence, that shifting a burden does not get rid of it; that the left shoulder will grow just as sore as the right; and that robbing Peter is a short-sighted way of paying Paul.

The squire tells us that we are in debt to the tune of 800,000,000*l.*, and that our annual rent for the snug little farm of England, and its outlying fields, is something like 50,000,000*l.*; that the national landlord *will* have his money, and that it must be raised, one way or another. He tells us that 5,000,000*l.* out of the 50,000,000*l.* is paid by the Malt-tax, and that if that be taken off, it must be paid by something else. Now, we hate taxes, as we said before; therefore we hate the Malt-tax; but it occurs to our mind that we shall, on the same principle, hate just as much any other tax that is imposed in its stead.

The question, therefore, seems to be, not whether the Malt-tax is an evil and a burthen; but whether any other that can be proposed in its place will be a *less* evil or a *less* burthen. It is easy work to show that any one given tax is a nuisance; none can be otherwise; but candidly and honestly speaking, is the Malt-tax such a nuisance as to warrant our throwing it off and taking some other in its place? What shall we have? It will require a levy of some sort, equal in amount to nearly the whole property and income-tax of the kingdom now existing, to make up the deficiency. If it be admitted that interest fairly due must be fairly paid, the money must be raised somehow or other. The farmer will be sure to be saddled with his share, and what he does not pay directly, must be paid by the rest of the community, who are all his customers; and it is not his interest to make them poorer, if he can help it. What other tax then shall we propose in its place? The ingenuity of gifted minds has vented itself in letters to Sir ROBERT PEEL, to propose new subjects for taxation in the room of the old ones. Some hardy weather-proof folks suggested umbrellas as fit objects for Treasury consideration and financial vengeance; but we object to that; for the farmer lives much out-of-doors, and besides we pay smartly already upon the silk and the whalebone. We were thinking, in our feeble attempts at a suggestion, of a tax *upon Hedgerows*. They occupy in Devonshire and some other favoured districts more than 10 per cent. upon the average of a farm, and they seem to benefit nobody but birds, vermin, and Ash-trees, none of them particularly profitable to the farmer. A poll-tax upon Ash trees, and a lineal running duty upon hedges, might raise a trifle

for the public exchequer; but the fear is that they would disappear so rapidly under the hint, that the country would be divided by nothing but railroads, and the exchequer be none the richer, whatever the country might be, by such an acquisition of new corn-growing territory.

But, in sober earnest, what are the advantages held out to the farmer, of the abolition of the Malt-tax? Does the farmer pay it? The Flax-grower might as well assert that he pays the excise upon paper. It is the consumer, not the grower of an article, who pays the tax upon it; and the object of *an internal tax*, or 'excise,' not being to diminish production or restrict consumption, but to collect subscriptions towards the national payment of what *must* be paid, by Englishmen, whether they drink beer or water. The question for the farmer's consideration is narrowed to this,—would the increase in the growth of Barley, which a greater consumption of Malt would demand, confer upon him an advantage equivalent to *his own interest in the national loss* of five millions per annum now paid to the exchequer by that large and respectable average of the community who drink beer; and which tax if not derived from them must be had from some other source? Whatever this source may be, the farmer will have his share to pay, and this he must debit against that indeterminable and rather apocryphal advantage which he is to derive from growing more of Barley *and less of something else*; for it is clearly upon this *difference* alone that he can assess his proportion of injury by the excise upon the manufacture of Malt. Every agriculturist must see that it is by a grain crop, not a green crop, that the land is now covered, which would, upon hypothesis, have grown Barley had the Malt-tax not existed. To this difference, if any, the question is narrowed, and upon this let a distinct calculation be made.

But another question, and that, be it observed, a new one to the farmer, has been raised—namely, as to the possibility of employing Malt for the purpose of fattening stock with greater profit than the Barley from which it is manufactured. As this is a scientific question, capable of a distinct and determinate solution, it deserves a deliberate and careful examination, and we shall return to it at the earliest opportunity.—*C. W. H.*

ON THE STATE OF HUSBANDRY IN LOWER BRITTANY.

WITH INCIDENTAL OBSERVATIONS ON THE CONDITION OF THE FARMING POPULATION THERE, COMPARED WITH THE SOCIAL STATE OF THE ANALOGOUS CLASSES IN IRELAND.

By Martin Doyle.

(*Continued from p.* 191.)

The provincial parts of Ireland and Brittany resemble each other in the want of manufacturing establishments. Ireland, however, possesses a much greater amount of marketable labour, and greater natural resources for large manufactories, and the Irish labourer is willing to transfer himself to any place where he may meet with a demand for his labour, and even to emigrate to distant countries for the sake of employment, and a fair prospect of ultimate independence. Now, the Breton will not leave his miserable cabin for work; if it comes to his door, well and good, but he will not go in search of it, and this dislike to leave his own hearth and local associations has so powerful an influence on him that it is only under the severest pressure of poverty that he will go forth like the cottier of Connaught from the home which he loves; then, indeed, he will lock the door of his hut after he has sown his patch of land in the spring, and seek work, or go forth with his whole family as a beggar from the hills of his *departement* into the fertile plains, and return when it suits his convenience to do so: and the indisposition to a permanent change of locality operates also among the class of operative mechanics, who do not estimate as they ought the advantages they might gain by going from their native towns or villages to other places for instruction in their respective trades, for they are content with a very inferior state of industrial skill.

The Breton peasant resembles the Celt of Ireland, not only in disregard of comforts and cleanliness, in patience under severe privations, and physical hardihood, but also in his manner of enjoying social life. Though constitutionally grave in his general bearing, he is one of the merriest of men on all festive occasions, the piper and fiddler seated on a cider-cask, and playing away as long as he can keep his eyes open, while the rest of the company are footing it on an uneven earthen floor, is an exact impersonation of the Irish musician of the same calling, except as to the costume. There is the same love of drink, too, especially among the elder men;—but no, not now, the Irishman may be congratulated on his present superiority in temperance.

There is identity of religion in every particular, the same attachment to their clergy, observance of rituals, and similar habits and superstitions derived from a common source—the Druidical worship—the same love of country, the same slovenliness of management and disinclination to spend any money unless the outlay brings immediate advantage.

There are, however, owing to political and social causes, some important advantages possessed by the small farmer of Brittany which are not enjoyed by the bulk of those in Ireland. The Breton cultivator, for instance, is himself in numerous instances the proprietor of his farm, and therefore he feels at ease for the future, and is from self-interest and habitual respect for authority, obedient to the laws of the land. Unless he pays, in direct land taxes to the state, 200 fr. per annum, he does not possess the franchise; and if he be thus a qualified elector he is really independent of all control; and, free from the heart-burnings which destroy the peace of the Irish freeholder of the same or a much lower grade, were it not for the terrible reflection that unless he can provide a substitute at a heavy expense he may be forced by the law of conscription to leave his home for seven years, and probably die in the unhealthy clime of Algeria, he would feel himself an independent man. Surrounded by his family, and a sufficient number of labourers for his farm work, he leads a patriarchal sort of life, goes for pleasure or profit to every fair and market within 10 miles of him, dressed out in his full holiday suit, mounted on his stout-built nag, and comes home very tipsy and supremely happy.

Like the small Irish farmer, the Breton of the same class has, however, sometimes more capital than he chooses to acknowledge. There are few local bankers, and the country people like to hoard up their cash, though, if placed at interest it would so largely fructify; this is precisely the Irish temper of distrust, and certainly not without sufficient causes, and money is brought forth on occasions to an astonishing amount which had been long out of circulation to the manifest loss of the owner and the public. The Breton tenant, too, argues like the common Irish farmer when urged to expend his capital on draining or other works which would repay him to a certainty—Why should I? My father and grandfather were satisfied with things as they are, and if I make my ground better I may be charged a higher price for the land? So farmers have been known in Ireland not to till the ground in order to avoid the payment of tithes, by which resolution some may have lost the opportunity of realising considerable profits rather than put into the pocket of a tithe owner, or of a landlord. We are acquainted with a gentleman who saw sums, in 6 franc pieces and gold, to the amount of some thousands of pounds sterling delivered to the departomental treasurer at Quimperlé, some years ago, when an alteration in the currency took place. There is, indeed, more capital in the country for conducting land improvements than is generally believed, as is unquestionably the case in Ireland.

The Bretons acting on a false or narrow principle of economy will go to market like the Irish, not calculating the value of their time, in order to sell something not worth half that time, for the pleasure of going, and for festive enjoyment in the tent or public-house, where cider and drams of brandy are copiously dealt out; and they must have all their holiday observances. No servant will hire with any master who will not allow him to attend the fêtes, pardons, or fairs of his districts, besides extras in abundance; this is surely one of the obstacles to the general public improvement of the country.

What would a British undertaker of public works think of his men going away to hear a mass for the cattle, when an irruption of the sea, and the consequent destruction of an embankment were apprehended? During the formation of the breakwater at Kurnic (in Finisterre), which was constructed, amidst great physical difficulties, to gain a tract of alluvial land from the sea, several hundred men were employed, and sometimes with the most disheartening results; at length, after many months of extreme toil and difficulties the bank, which had been twice destroyed and repaired, was so far advanced that one day's labour would have completed it; yet, though an equinoctial tide was to flow in 48 hours, because the *fete* of St. Gloi intervened, and the peasantry made it a point of conscience that their horses should be taken to hear mass at Landirneau, the undertaker of the work in vain supplicated his men to attend, and offered double, treble wages. They listened to his reasonings, but with their characteristic superstition and obstinacy, excused themselves, one and all, from compliance, on the plea that their horses would die within the year if they did not attend the mass. The next day the sea rushed on the devoted work and swept it away. That mass, said the contractor, lost me 30,000 francs. Ultimately the poor gentleman succeeded in constructing a mole, by calculating the holidays and working accordingly.*

Now, to do the Irish peasantry justice, they would not have acted thus foolishly in such an emergency from any religious causes. Their clergy would have urged them to break the holiday, or at least anticipate it by his placing the work in a state of safety during the day and night preceding the expected danger.

The Bretons have infinitely more of that prejudice against innovation and improvement than is now to be met with in Ireland, where the advancement in scientific knowledge among the higher class, and of education among the lower, have tended to develop the intellectual powers. Yet, in M. Sousvestre's portraiture of an old farmer, mentally calculating the probable results of the strange work before him, we recognise the "knowing" Irish Celt of but a few years ago, laughing in his sleeve at what he thinks an impracticable or a very foolish undertaking—the *wise* man, whom all the parish consults, the humourist, too, in his grave dry way. This short dialogue, between the undertaker of the work and the peasant, is characteristic:—"Well, John Carfor, you are looking at my pier; what do you think of it? is it not a promising child?" "It is large enough for its age; but children that come too soon don't live long." "Ah! I think you were one of those who prophecied that I could not inclose the bog." "That's true, sir." "Well, you see that you're out in your judgment; the sea herself has provided us with ammunition of stones and sand to resist her attacks, and has made her offspring stronger than herself. This breakwater, you see, puts out her tongue at her mother." "But it is sinful, according to the commandment, in children to make faces at their parents." "And yet you see I have accomplished what I said." The old man gave an incredulous shrug, was silent for a moment, and then placing his hand on the shoulder of the gentleman, with a gesture that was respectful though familiar, said "You are a man of power, sir, but the Almighty God is mightier than you. He has said to the sea 'go no further than that.'" "And how do you know, Carfor, that the bounteous Creator has not made a gift to me of this bog?" The old man bent his head. "Sir, the good God would not sell his gifts; this is stolen from the sea, and that which is stolen never profits."

Now, though this work gave immense employment, and ultimately developed the resources of the locality, and stimulated agricultural and commercial industry, old John Carfor held the opinion that it would have been better for the people if the bog had remained as it was.

* M. Sousvestre.

FORM OF LEASE.

A resolution having been passed at a meeting of members of the Vale of Evesham Agricultural Association, that security of tenure was essential for the prosperity of the farmer, and would tend to the welfare of all other classes, a committee of landlords and tenants was subsequently appointed to draw up a form of lease under which a tenant might hold his farm with the greatest advantage to himself, and with due justice to his landlord.

The committee having given due consideration to the answers they obtained from agriculturists in all parts of England to the "Lease Circular" they last year issued, are now enabled to submit to the members for their consideration a form of lease, based upon the experience thus gained. It has been framed with a due regard to both landlord and tenant. The former has full security given him against deterioration of his property, from unskilful or careless husbandry; the latter has as much liberty and freedom from restriction in cropping as it is possible to afford, with due regard to his landlord's interests. The words in *italics* may be altered to suit local or personal circumstances; and the committee believe that the form will be found capable of adoption upon any land, and in any part of England. If there be an objection to granting a lease, the same principles are still applicable to any agreement however short the term.—*Ed. Holland.*

This Indenture made the day of one thousand eight hundred and forty in pursuance of an Act to facilitate the granting of certain Leases, between A. B. of of the one part, and C. D. of of the other part,

Witnesseth—that the said A. B. doth demise and let to farm unto the said C. D, his heirs, executors and administrators, all the dwelling-house, buildings, and several closes of land mentioned in the schedule hereunto annexed, and containing by admeasurement A. R. P. or thereabouts, to hold from the day of for the term of *twenty* years thence ensuing; yielding therefore during the said term the rents hereinafter mentioned. Except and always reserved out of this demise all coals, mines, minerals, quarries of stone and beds of gravel, timber, and trees likely to become timber, with full liberty for the said A. B., his agent or others by him authorised, with or without horses, carts or other carriages, to enter upon the said premises or any part thereof, for the purpose of working any of the said mines or quarries, or of falling or taking away the timber, or planting other trees, or for any purpose whatsoever; making reasonable satisfaction to the said C. D. for any injury or damage which the said A. B. may cause in so doing.

And the said C. D. doth hereby for himself, his heirs, executors and administrators, and every of them, covenant, promise, and agree to and with the said A. B., his heirs and assigns, in manner following: that he the said C. D. will pay to the said A. B., by two equal half-yearly payments in every year (the first being made on the 25th day of March, and the other on the 29th day of September in each year), the following rents, that is to say, in the first year the of sum £ , which sum constitutes the value of bushels of Wheat, according to the average price of Wheat for the seven years ending on the 1st of January next preceding the date of this demise, made up and published as required by law for the purpose of the Tithe Commutation Act; and in every other year during the continuance of this demise the value of a like number of bushels of Wheat according to the average price, in like manner made up and published for the seven years next preceding; the rent for each year varying with the average price of Wheat during the preceding seven years.

And the said C. D. covenants with the said A. B. to pay all taxes chargeable upon the said premises during the said term, landlord's taxes excepted.

And that the said C. D. will at his own proper cost and charge repair all the house and buildings hereby

demised, and also will keep in good repair all the gates, rails, pales, stiles, hedges, ditches, fences, banks, bridges, mounds, and drains on the said lands, the said A. B., his heirs and assigns, furnishing on the said premises or within miles thereof all rough timber, brick, lime, tiles, and all other materials whatsoever for making such repairs.

And that the said dwelling-house and other buildings having been valued by persons of skill at the entry on the said premises by the said C. D. at the sum of £ , which valuations are included in the schedule hereunto annexed, the said C. D. shall and will at the expiration of the said term, or at the time of his leaving the said premises, whether it be before or after the end of the said term, deliver up to the said A. B. all the buildings so valued in good repair, and shall and will pay to the said A. B. the whole sum by which the said buildings shall have become lessened in value by reason of his neglect to repair the same; and in case any dispute shall arise with respect to the decreased value of the same, such dispute shall be referred to the decision of two arbitrators, or their umpire, chosen as hereinafter provided; but the said C. D. shall not in any case be liable for any damage caused by tempests, and a reasonable deduction shall be made for the natural decay and wear and tear of the premises while occupied by him.

And that the said C. D. shall not sell or assign over this lease, nor underlet the lands hereby demised or any part thereof, unless with the written consent of the said A. B., and shall use his best endeavours to protect from injury by cattle or otherwise all trees or quickset hedges growing upon the said lands, and shall not lop or cut any of the trees so growing, Pollard-trees excepted.

And it is hereby agreed that at any time in the *fifteenth* year of this demise, or in any subsequent year, the said A. B. may require the said C. D. to grow such crops on every portion of the said lands as shall be prescribed by the said A. B., he, the said A. B., delivering in writing to the said C. D. the course of cropping prescribed by him; and in case the said C. D. shall object to crop the land as proposed by the said A. B, the point in dispute shall be referred to the decision of arbitrators, or their umpire, chosen as hereinafter provided.

And that the said A. B. shall at all times have power for himself, or his agent, to go upon any part of the said demised lands for the purpose of inspecting the state of repair of any part thereof, and of ascertaining the state of the management and cultivation thereof; and in case the annual renting value of the said demised lands shall have suffered decrease by reason of the said C. D.'s failing to repair or to cultivate the said lands according to the rules of good husbandry, the said A. B. may give notice to quit to the said C. D. at any time before the 25th day of March in any year, and the said C. D. shall quit and deliver up possession of the said lands on the 29th day of September next ensuing after such notice has been received by him; and in that case arbitrators, or their umpire, appointed as hereinafter mentioned, shall assess the damages to the land and buildings caused by such breach of covenant, which sum so assessed the said C. D. shall pay to the said A. B. And in case the said C. D. object to quit after receiving such notice, he may require that the dispute shall be referred to arbitrators or their umpire, chosen as hereinafter provided; and if they shall decide that the said lands have not been materially deteriorated by the management of the said C. D. such notice shall be void; and if they shall decide otherwise the said C. D. shall quit, and shall pay to the said A. B. whatever sum the said arbitrators or their umpire shall judge to be a reasonable compensation for the injury done to the said lands by the said C. D.

And that in the event of the said C. D. becoming a bankrupt or insolvent, or of his making any bill of sale or assignment of his estate or effects, or refusing to pay in full the rents herein reserved within one month after the same shall have been lawfully demanded, the said A. B. shall have power immediately to re-enter and repossess the lands herein demised, paying to the said C. D. reasonable compensation for such improvements effected by the said C. D. as have increased the annual renting value of the said lands, the amount thereof being adjudged by arbitrators or their umpire, chosen as hereinafter provided.

And the said A. B. covenants with the said C. D. for quiet enjoyment of the herein demised lands; and that the said A. B. shall insure all the buildings upon the said premises, provided always that in case such insurance shall be rendered void by the said C. D. having on the premises goods of a hazardous nature, or by other circumstances caused by the negligence of the said C. D. he, the said C. D, shall pay to the said A. B. the whole amount withheld by the insurance office.

And that the said A. B. will effectually drain at his own cost and charge every part of the said lands which require drainage, and that the said C. D. covenants to pay an additional rent after the rate of 5*l.* for every 100*l.* expended by the said A. B. from the time of the completion of the whole or any part of the drainage and during the continuance of this demise.

And that the said C. D. shall and will during the time he holds the said lands under this demise farm them in a good and husbandlike manner, and shall not break up or convert to tillage any of the land marked in the schedule annexed as pasture or meadow land without the written permission of the said A. B. or of his agent lawfully authorized.

And the said A. B. and C. D. mutually covenant and agree that any dispute arising in settling their respective claims in respect to any matter contained in this demise, as well as the several matters herein declared to be referable to the decision of arbitrators, shall be settled and decided by persons of skill, appointed in the following manner:—that is to say, the said A. B. shall choose one such person and the said C. D. shall choose another to be arbitrators, who shall upon being appointed forthwith choose an umpire, whose decision in case the said arbitrators disagree shall be final; and should either the said A. B. or the said C. D. refuse or neglect to choose his arbitrator within a month after being required to do so by the other, then either the said A. B. or the said C. D. shall have power to choose and appoint two arbitrators who shall decide by themselves or their umpire, and such decision shall be equally binding on both parties as if each had appointed one arbitrator.

In witness whereof these presents written on this and the preceding pages are subscribed by the said parties at in the county of and in the presence of

TURNIP CULTURE — VALUE OF THIN PLANTING.

[We extract the following from the columns of the *Ayrshire Agriculturist*.]

In the following remarks upon the growth of the Swedish Turnip, I wish to draw attention to a point which does not appear to have been sufficiently investigated—the space to be allowed for the growth of each plant.

In the south of Warwickshire, the district from which I write, the crops of Swedish Turnips were unusually good this season; and several of the farmers had the curiosity to ascertain the weight grown per acre. The experiments were, in general, carelessly performed; but some were executed with such exactness as to furnish data that may be depended upon. In the cases here presented, the ground was measured with the utmost accuracy, and the Turnips taken up, cleaned, freed from their tops and roots, weighed, and counted. I regret that, not having notes of all the trials. I can only give the details relating to the two farms upon which the best crops in the neighbourhood were grown The result to which the whole seemed to lead was, that on good land, the thinnest crops were the heaviest.

Lots 1, 2, and 3, were grown by Mr. Haywood, Oversley Lodge, near Alnster. The soil was a rich sandy loam, and the manure was ploughed in during October, 1844. The seed was sown broadcast, about the end of May; and the slight variations in the thickness of the plants are to be attributed to accidental differences in thinning, which is, of course, rather a difficult operation, when this objectionable method of sowing is employed. Lots 4, 5, 6, and 7, were produced by Mr. Haywood, jun., at Salford, upon a slight gravelly soil. The seed was planted in drills about 22 inches apart. This was done early in June. In all the lots the Swedes were of the sort called "Skirving's Improved."

Lots.	Date of Weighing.	Manure per acre.	Number of plants per acre.	Average No. of sqr. inches to each	Average wt of each in lbs.	Weight per Acre.		
						Tns.	cwt.	qr.
1	Nov. 8	20 two-horse cart loads of fresh farm-yard manure	14,650	459	5.87	35	15	0
2	Dec. 4	Do.	14 080	419	5.57	35	0	0
3	Dec. 4	Do	14,600	430	5.42	35	7	2
4	Nov. 29	2 cart loads of pigeon dung ..	17,172	.565	3.52	26	19	3
5	Nov. 29	4½ cwt. Ichaboe guano	13,930	450	4.64	28	16	1
6	Nov. 29	6 cwt. do.	14,285	439	5.08	32	8	1
7	Nov. 29	Night soil	17,479	359	3.55	27	13	1

Taking the average of the first three lots, which were, as has been stated, decidedly the best in the neighbourhood, we find that 444 square inches were occupied by each plant, which is equivalent to a square of 21 inches in the side. When the fact that the seed was sown broadcast, and many little Turnips were left close together in the furrows, is taken into consideration, it is plain that 444 inches is considerably under the average space occupied by each full-grown plant. From the same circumstances, it arises that while the great majority of the Turnips were at least 8 lbs. in weight, the average is little more than 5¼ lbs.

Assuming that 444 square inches is the proper space on good land, it is easy to determine the distance which should be left between the plants in drills of a given width. For example, supposing the width of the drills is 27 inches, divide 444 by 27, and we shall have 16 as the distance from one plant to another in the rows. From what I have seen in Scotland, where the drills are about the width just mentioned, or a little more, I should think the Turnips are left much closer together; and, in this part of England, where the drills are seldom wider than 22 inches, still less space is allowed. Now, though it cannot be affirmed from these few instances, that 444 square inches are necessary for the full development of the Swedish Turnip, it is certain that a very heavy crop can be produced at that rate; and it remains to be proved, whether a crop equally heavy can be grown where much less room is granted.

There is one great defect in the experiments just detailed, namely, that wherever there appears a great disparity of weight, there is a difference in the manure, or in some other essential circumstance. This defect naturally arose from the fact that the Turnips were not planted for the purpose of experiment. Thinness is but one of many circumstances that affect the productiveness of a crop; and it is quite possible that a thin crop may be lighter than a thick one, provided the latter has superior advantage in soil and culture. The thing to be ascertained is this, whether all other circumstances being the same, a thin crop will not surpass a thick one? This question might be easily settled by experiments within the reach of every practical farmer; and, if the attention of agriculturists should be drawn to the subject, the object of the present communication will be gained.

It is acknowledged by all, that excessive thickness of plants spoil a crop; and it is certain, that excessive thinness will be equally bad. Between the two extremes, there must be some point at which the produce will be a maximum; yet, judging from the diversity of practice, not only in different districts, but in the same, we are led to think that farmers, in this matter, act upon no fixed principle.

Theory would seem to indicate, that on every soil the Turnips should be at such a distance from each other that the whole surface of the ground should be covered by the leaves, but that the leaves of different plants should not mingle much with each other. It must be remembered, that comparatively a small part of the Turnip is derived from the soil, the rest being drawn from the carbonic acid of the atmosphere, by means of the leaves. The leaves and roots, however, require a considerable quantity of inorganic matter; and it is therefore necessary, in order to economise the nutritive qualities of the soil, to grow as much bulb as possible in proportion to the roots and leaves. This is accomplished by increasing the size, and diminishing the number of the plants. In a good soil the roots do not require to go far in search of food to nourish the leaves; these, therefore, are thrown out rapidly, and, if unimpeded, will cover a large extent of ground. They abstract carbonic acid from the under stratum of the air; and provided the whole surface is covered, get all that can be got, and what they acquire is applied in the most economical manner to the nourishment of the bulb. On the other hand, where the plants are too thick, the leaves of the different plants interfere with each other; the supply of carbon is insufficient, the plant struggling for breath, as it were, makes an effort to throw up leaves vertically to catch the fresh air. This requires an additional supply of inorganic matter; a new demand is made upon the roots, which are obliged to extend themselves in all directions. In doing so, they absorb a part of the scanty supply of carbon acquired by the leaves; thus the bulb is starved, the whole energies of the plant being taken up in forming the organs of assimilation; the soil is exhausted, and the crop rendered unprofitable. This is an extreme case, but, wherever sufficient room is not given, the effects are the same in kind if less in degree. It is true, that the substances taken from the soil to form superfluous leaves are again returned to it, but their profitable use for the season is prevented.

Perhaps on poor soils the space may be lessened, because the whole plant being stunted, the leaves will not require so much room for their development.

It is by experiment, however, and not by reasoning, that a point of this kind can be settled. Nothing can be more fallacious than the estimates even of experienced men, when guided by the eye alone; a thick crop being almost invariably rated too high, and a thin crop too low. If I should induce any intelligent farmer to test the question, by the chain and the balance, my object, as I have already said, will be accomplished.—*J. R., Prior's Salford, Stratford-on-Avon, March 2, 1846.*

Home Correspondence.

Cure for Potato Disease.—I am led to conclude that the disease may be cured in the parent root. The plan I propose is cheap and simple. When the best seed that a planter may possess has been picked out and cut in the usual manner for planting, they are to be placed in tubs, and the interstices filled with dilute oxygenised muriatic acid. I feel well assured that the sets would by this means be thoroughly disinfected, and at the same time the incipient, if not the entire vegetation of the plant, be greatly promoted.—*H. Kemp, York Hotel, Bridge-street, London.*

Plough versus Spade.—Your valuable correspondent, "Oxygen," having in his letters inserted in your Papers of the 25th of Oct. and 8th of Nov. last, expressed an opinion that the plough or spade does not cultivate the earth on the best principles, I should be happy to send him drawings of an implement I am now using, which, I conceive, fully attains the object he had in view, both in a cheap and efficient manner.—*Richard Smith, Upper Hall, Droitwich, Worcestershire.*

Sewage Manure.—The value of sewage water, although appreciated in some parts of the Continent, and in Scotland, is little if at all known in England From the advance in science, and the low ebb of agricultural improvement compared with manufactures, the fact is the more surprising. It is not only the waste, amounting in the metropolis alone to millions per annum, not only the injurious and deadly effects from the escape of the pernicious gases, which are to be considered in the application of this material; but it is, in fact, in accordance with Nature's laws by the provision made by Nature's God, that what now constitutes the plague of London is intended to enrich the soil—enriching it in the most appropriate and suitable form for all vegetable matter to use or assimilate for its growth, diluted or strengthened as the plant is able to bear—to be supplied by pipes, as the "Metropolitan Sewage Manure

Company" proposes at a cost surprisingly cheap compared with the conveyance of manure in the solid form, I think the landed interest should at the present time be alive to this most important subject. So much do I think of the advantages and value of this kind of manure that it is not improbable that I may have tanks in different parts of my farm, cart the solid manure from my cattle-boxes in sheds, put it in the tanks (which should be covered), and convey the vegetable tea to the thirsty soil, sufficiently diluting it with water. I propose to convey it by pipes, as the best and cheapest method.—*Agricola.*

On Manuring Meadow Land.—100 lbs. of hay contain—water, 16 lbs.; albumen, 8 lbs.; non-azotised matter, 68½ lbs.; and ashes, 7½ lbs. (Dr. Playfair). 100 parts of the ashes of meadow hay contain—silica, 60.1; phosphate of lime, 16.1; perphosphate of iron, 5.0; lime, 2.7; magnesia, 8.6; gypsum, 1.2; sulphate of potash, 2.2; carbonate of soda, 2.0; chloride of potassium, 1.3; loss, 0.8 (Haidlen). If the manure applied does not restore to the soil all the ingredients removed in the ash of the hay, the land must sooner or later be exhausted, and sterility be the consequence; if the land is naturally fertile the manure applied should not only contain all the above ingredients, but as near as may be in the above proportions.

	Silica.	Phos. Lime and Magnesia.	Perphos. of Iron.	Carbonate of Lime.	Potash with Silica.	Salts of Potash & Soda.	Gypsum.	Loss.	
100 parts Ashes of Horse dung, contain (Jackson)	40.0	41.25	..	18.75	..	..	..	..	100
100 parts Ashes of Cow-dung (Haidlen).....	63.7	20.9	8.5	1.5	..	..	3.1	1.3	100
150 parts Ashes of Human Faeces (Berzelius)	16.0	100 0	..	..	..	16 0	..	18.0	150
100 parts Ashes of Wheat Straw (Berthin).....	71.5	2.3	..	9.6	13 0	3.6	..	..	100

The urine of both man and beast consists, in its ash, principally of urea, the salts of soda, potash, and ammonia; also in that of the horse and cow of carbonate of lime, and in that of man of lactic acid. When it is considered how much of the urine of animals is allowed to run to waste, we shall cease to wonder at the surprising effects occasionally produced by the application of the various salts. A careful examination of the above analyses will also impress on the farmer the propriety of varying his manures as much as possible. It will also explain why, in the case of the dairy counties, the application of bones (phosphate of lime) has been found to renovate the pastures in such a surprising manner; the small proportion of phosphates returned to the soil in the dung of the cow, their chief manure being readily accounted for when we refer to the analysis of milk. 1000 parts of milk yielded in one experiment 67.7 parts ashes: in another 49 parts.

100 parts of the ashes average—		
Phosphate of lime and magnesia....	58.0	100
Perphosphate of iron	1.23	
Salts of soda and potash.....	40.77	

The manure of all growing stock will also be found to be wanting in phosphates, the food being comparatively exhausted of these ingredients to enlarge the bones of the growing animal; on the other hand, the full-grown ox merely fattening will be found to yield in its manure a much larger proportion of phosphates than either the milch cow or the young bullock. The further application of the above I will now leave with your many readers.—*C. B. C., Manchester, March* 24.

Horse Keep.—I would like to see an article in your Journal on the comparative merits of Beans and Oats as food for horses, either mixed or otherwise. At present, a boll of good Beans (4 bushels) is worth 20*s.*, and one of Oats, 16*s.* I find, by experience, that 3 bushels of Beans broken, will bulk out to 4, of which the value will be 15*s.* They can be broken at any mill for 1*d.* or 1½*d.* per bushel, and taking carriage into account, the expense will be about equal, bulk for bulk. Now, 3 bushels of Beans will weigh 14 stone, while 4 bushels of Oats will only be 12 stone, or at most 12½ stone. What I wish to know is this: how much are the Beans better than the Oats? The price, observe, is the same. I have known horses stand farm-work in summer on 3 bushels of Beans, whole (or 4 broken) mixed with 8 bushels of coarse bran, and though they did not get fat, yet they remained in tolerably fair condition. In my opinion, bran is little better than Wheat straw, so that the Beans alone must have done the work. The stock of horses on the farm of which I write, is heavy, and I will feel infinitely obliged could you, or any of your correspondents, answer my question. —*J. A., Berwickshire.* [We shall soon publish evidence on this point.]

Guano.—In a late Number you state that Messrs. Gibbs and Co. will not supply guano in a quantity less than 30 tons. Last October I applied to them, and they stated they did not supply less than 1 ton, and I had from them 2 tons. I believe that the price was 10*s.* per ton less if 15 tons were taken, and 1*l.* per ton less if 30 tons was the order.—*Henry.*

Potato Disease.—Potatoes grown in my garden in pots, and from perfectly sound seed, as far as the eye could judge, have given way, first the leaf, and afterwards the stem becoming affected. The brown gangrene had not shown itself on the tubers when I examined them. I have had the stems of some of them cut off to try the effect, which was found to be so beneficial in many fields last autumn, and on some of these the young leaves at the first joint seem to be growing fast. There are several sorts of Potatoes in frames, which as yet appear to be healthy, the stems having attained their full growth. In my fields I have had Potatoes planted in January, February, and March, both from whole and cut Potatoes. Although the land is heavy, and has, consequently, been moist during these months, the plants appear to be advancing satisfactorily under ground. These have been planted both over and under manure. I am now preparing a field with the manure incorporated with the soil by frequent ploughings, and I have another field in preparation for Potatoes without manure, but in its stead I am to apply 150 bushels of lime per Scotch acre. The land is a rich alluvial soil.—*John S. Richardson, Pitfour Castle, Perth.*

Potato Planting.—By some unaccountable fatuity, people in various parts of the kingdom seem to imagine that late kinds of Potatoes should be planted very late. Perhaps they should, for the market. Potatoes for seed, however, should not be selected from a sample grown for sale; and which may, to meet a given market, or rather price, be grown quite out of season, as regards the health and endurance of the future progeny. What would be thought of the gardener who made a point of planting his Dahlias, Gloxinias, or his Tropæolums, in the end of May, or the early part of June, and even up to midsummer? Now, there, with the Potato, are all of South American origin; and, although not precisely like the Potato, in every respect, are amenable to the same general laws as to the important principle of thorough ripening, rest, &c. &c. Late planting of the genera above-named might not show any extraordinary effects in the next generation, or for a few succeeding ones; but certain it is that this downward course could not be long persisted in without some weakness, disease, or anomalism, presenting itself. To be sure, a gross appearance in the immature progeny may be kept up for a considerable time, by the application of manures; and what is termed high cultivation. But will it be contended that a gross habit, either in a plant or an animal (if I may be allowed to argue by analogy in this case), is at all times indicative of a robust and unimpaired constitution? To pursue the argument a little further, suppose that the South American tubers before named, after abuse of that kind for a few generations, were to be subject annually to a most profuse sweating, or fermentation, of some 90° to 100°, for a few weeks—at the very period at which nature had prescribed a rest, under a temperature in their own clime of 40° to 50°—could all this severe transgression of the laws of nature be expected to bear repetition for many generations, without some serious irregularity or disease presenting itself? In my opinion, the Potato has been endued with an extraordinary constitution to bear so long a series of accumulative evils; although the common impression seems to be that it is very tender, and impatient of injury. If such be the case, artificial treatment has made it so. One fact of considerable import, and bearing, as I conceive, on the principle of seed ripening, is, that whilst generation after generation of the late kinds of Potatoes pass away, require change, or, as it is commonly termed, become "worn out," the old Ash leaved Kidney, the early Shaws, the Champions, &c, stand their ground, and require little renewal. Now these latter kinds always ripen thoroughly, whereas the very late kinds, from late plantings, are whipped to death by the chilling blasts of October. Another circumstance worthy of notice is, that the Irish Cups, and the Scotch Pink-Eyes are (at least in this part of the country) the most highly diseased. Now it is well known that these Potatoes are in this district the offspring of imported seed, or at least the descendants of such. Imported Potatoes come over in great bodies, and undergo a degree of fermentation that would totally destroy the tubers of some plants. Does not this seem to point out that hereditary disease is engendered by high degrees of fermentation? I am of opinion that the most exhausted, or "worn out" kind of Potato, would be fairly restored to its pristine vigour, if planted early, so as to be perfectly ripe, and so kept through the winter as neither to become dry or ferment for a moment. Those who advocated the using of unripe tubers during the great prevalence of "the curl," some 20 years ago, advocated that which perchance checked the curl, but led to even greater evils still. The practice of the Edinburgh farmers, as to using unripe seed from the moors, and thereby avoiding the curl, is often quoted with an air of triumph by those who are wedded to the unripe system; but these gentlemen seem to forget that the plant on the moors, although apparently late, possesses much better elaborated juices than the highly manured plant of the lowlands. Let any one apply the criterion of well-ripened wood, as understood by all good gardeners, to these growths respectively, and he will soon discover a much shorter joint in the moorland, or hill Potato, than in that of the lowland on highly manured ground. In conclusion, I would strongly advise all interested in tracing the present evil, to plant their late Potatoes by the early part of April, and thus endeavour to retrace those steps which have, as I think, led us up to the present serious disease. — *Robert Errington, Oulton Park, March* 17.

Judicious Crossing of the Breed of Pigs.—Observing in a late Number of your excellent Paper some remarks on the Berkshire breed of Pigs, and on the crossing of pigs generally, I am induced to give you the result of my own observation, which shows how very important it is that the farmer and the cottager should be particular in the breeding and purchase of their stores. I have had for some time a boar of a small breed (Lord Howe's). The produce from the large sows of the district, principally the Tamworth breed, by this boar, is found to keep its size, while the quality is much improved, and the aptitude to fatten at any age increased. I had a litter the last week in June, 1845, by this same boar, from a large sow purchased in the market; one of the litter I had killed at seven months old, weighing 12 score, another at eight months weighing more than 13 score, after being fed at very little expense, and a third, eight months and a few days old, weighed 18 score, 16 lbs. This last was fed by a cottager, who gave me 26*s.* for it at ten or eleven weeks old, and who tells me its allowance for the last month previous to its being slaughtered was three pecks of meal a week with bran, and a few Potatoes. Up to that period it did not eat more than half the quantity. Should these particulars be likely to give a hint to any of your readers as to the judicious crossing of so valuable an animal, I should be obliged by your insertion of them, even at the risk of detracting from the merits of the Berkshire breed which your correspondent tells us attain to "20 score at two years old."—*South Derbyshire.*

Adulteration of Manure.—Your notice of this subject will do us all good service. I lately had occasion to buy 100 qrs. of crushed bones, but I took the precaution to send the sample I obtained from one manufactory to a friend for examination; the answer I obtained was, "Your sample, weighing 2¾ oz., I have carefully examined, and after picking out the pieces of bone I find one-half to be rubbish, consisting of chalk, lime, and ashes."—*W. S.*

Societies.

HIGHLAND AND AGRICULTURAL SOCIETY.

The usual monthly meeting of this Society was held in the Museum on the 1st instant. Mr. Baillie, of Coulterallers, read the first paper—a communication on the present condition of farm servants in Scotland, by Mr. John Birss. Mr. Baillie stated that the paper was interesting not only from its contents, but from being the very creditable production of one who, having been himself an agricultural labourer, was well qualified to express an opinion as to the condition of that class. He acknowledges in the essay the great progress which of late years has been made in this country both in the science and the practice of agriculture, the means actively adopted to disseminate information, and the readiness with which every suggested improvement is followed up; but he laments that the condition of the farm-servants is retrograding. He considers that their amelioration is chiefly to be looked for from the landed proprietors; and he has been induced to bring the subject under the notice of the Society, in the hope of calling attention to it. The great proportion of ploughmen and men of all work, particularly in the north of Scotland, are single men, few farms having cottage accommodation for families. The essayist enters minutely into a description of the treatment and habits of this class, and of the accommodation afforded to them, the details of which he became acquainted with, to use his own expression, "by dear-bought experience." The greatest neglect is evinced in providing anything like comfortable or decent sleeping accommodation for the servants in a farm-steading. Their dormitories are either in the stable loft, or in an outhouse; in either case, the floor is covered with all the old lumber that accumulates about a farm, rendering it a matter of impossibility to clean the apartment, and entailing on its occupants all those concomitants of filth, which are graphically alluded to in the essay. In the stable loft the beds are placed under and so close to the beams, that a man can scarcely creep into them; between them and the roof there is no covering except that of the spider. In front are the hay-racks, which in spring harbour creeping things innumerable; while the effluvia of the horses ascending from the stable complete the discomforts of the bed-chamber. Mr. Birss considers, with some justice, that this particular part of the arrangement of a farm-steading has been too much overlooked by the landed proprietors, and that in the erection of new buildings, all the improvements of the day are carefully attended to, with the exception of providing accommodation for the servants, properly ventilated and lighted, and so finished and arranged as to be kept in a state of cleanliness and order. Of late years the condition of the farmer has undergone a considerable change, his social position is better, and the house accommodation afforded to him by his landlord is much improved. He consequently does not mix with his servants so much as in the olden times, and his evening is frequently spent with his family in the parlour. This change has had a bad effect on the moral tone and character of the servants. If they are riotously disposed, they are not under the restraint of their master's presence, while, if they are inclined to read, the book-shelf is no longer an appendage of the kitchen. The essayist strikingly shows how much the farmer, for the sake of his family, is interested in having a moral and orderly set of servants; he thinks that much might be done with very small means, by promoting the purchase of cheap instructive works—clearing some of the lumber from the sleeping places—placing in them one or two articles of furniture, so as to enable their inmates to read or write, and generally by en-

couraging habits on the part of the servants, which the essayist thinks, from experience, would ere long become general, if the means of adopting them were afforded. He states that in the Lothians and other parts of the country, the ploughmen or hinds are generally married men, accommodated with their families in cottages attached to the farm. To their condition the foregoing remarks do not, of course, apply. Their habitations, however, generally consist of but one room, a system which is most properly condemned as one incompatible with comfort, and calculated to extinguish all proper delicacy in the minds of the rising generation. Throughout the essay Mr. Birse states the various grievances of his class in a most proper and commendable spirit; he concludes by urgently requesting the landowners to direct to the subject an increased measure of their attention.

Mr. Baillie observed that he was very happy the attention of the meeting had been called to this subject. He was afraid that landed proprietors, in building farm-steadings had not hitherto sufficiently considered the accommodation and comfort of servants. As this was a matter of great importance to a large and useful class of labourers, he begged to state that in his opinion the Highland and Agricultural Society should avail themselves of the hint thrown out in this paper, and in framing their list of premiums for next year, should offer a prize in certain counties to the proprietor who shall, in the course of two or three years, build the most approved farm-steading, especial reference being had to the sleeping accommodation of servants of both sexes, such premium being confined to farms of a rent not exceeding 200*l.*

An Essay on the Diseases of the Larch, by Mr. Newton, of Drumcross, was next read by the Secretary.

Mr. Grabwood, Featherhall, Corstorphine, read a report of experiments in deep ploughing, by Mr. Wilson, Eastfield, Penicuik. Mr. Wilson remarks that, among the various improvements which have followed the introduction of thorough-draining, subsoil-ploughing is one of the most important. Besides being a valuable auxiliary to draining, by breaking the tenacious till, and facilitating the escape of water, it enables the farmer gradually to increase the depth of vegetative mould by the admixture of virgin earth from the subsoil. The farm on which Mr. Wilson's experiments were made is nearly level, with a northern exposure and a soil varying from gravelly earth to tenacious clay. It had for many years been ploughed from 5 to 6 inches deep, and at that depth a hard crust or pan had formed itself, which in some places was almost impervious to water, and in a great degree neutralised the effects of furrow-draining. The first field experimented upon consisted of 13 acres, partly heavy on a clay subsoil, partly light on a gravelly subsoil. It was subsoiled across the drains in October and November 1844; a depth of 6 or 7 inches having been first taken by the common plough, which was followed up by the subsoil plough to an additional depth of 7 to 8 inches. Two acres were ploughed in the usual way. In preparing for green crop in spring, no difficulty was found, where the subsoil plough had been, in working through the crust or pan. The whole field was equally manured with a moderate supply of farmyard dung and guano, and was sown with Yellow Turnips. The appearance of the whole crop was similar till August, when that portion of it in the subsoiled land took the lead, and when it was lifted in the end of October, the produce per acre where subsoiled was 25 tons 17 cwt., and only 20 tons 7 cwt. where ploughed in the old way, yielding, at 12*l.* per ton an excess per acre of 3*l.* 18*s.* consequent on the experiment. The second experiment was made on a field of deep earth inclined to sand on a subsoil of sandy clay. Two acres were subsoiled 15 inches deep, two were ploughed 6 or 7 inches, and two ridges were trench ploughed 13 inches. The field was ploughed across in spring, manured in the drill, and planted with Potatoes. The crop was lifted towards the end of October, when the quantity yielded by each portion per acre was—subsoiled, 7 tons 9 cwt. 2 qrs.; trenched, 7 tons 1 cwt. 2 qrs.; ploughed, 6 tons 14 cwt. 1 qr.; which, at 2*l.* 5*s.* per ton, gave an excess per acre to the trenched land of 16*s.* 3½*d.*, and to the subsoiled of 1*l.* 14*s.* 3½*d.* Another experiment was made on a field intended for Barley after Potatoes. The Barley was sown about the 1st of April; the subsoiled portion kept the lead throughout; the crop was cut on the 22d of September, and when thrashed the produce on the subsoiled land was 8 qrs. 3 bushels Barley, and 36½ cwts. of straw, and on the ploughed 7 qrs. 4 bushels, 3 pecks, and 28 cwt. straw; the difference in money being about 2*l.* 9*s.* per acre in favour of the subsoiled. Another experiment was made when ploughing a field in February, two ridges of which were subjected to subsoiling to the depth of 12 inches. This was not followed by any beneficial result, and the author questions the propriety of subsoiling for a grain crop when the ground is in lea, as it is difficult to lay the furrows so compactly as they should be for the reception of seed. Deep or trench ploughing, he thinks, may be advantageous to soils of a deep nature, but sometimes injurious to those which are thin, with a sterile and tenacious subsoil. Subsoil ploughing, however, if judiciously performed, he considers, can seldom do harm, and that a great variety of soils, especially after furrow draining, will derive much benefit from the operation. Mr. Girdwood remarked, that he agreed with Mr. Wilson in his views of the soils which should be subsoiled. The operation had not been followed by any great change in the neighbourhood of Edinburgh; that, however, he attributed to the previous draining and deep cultivation, which had gradually effected what subsoil ploughing is meant to produce. The immense crop of Barley detailed under one of the experiments was well worthy of notice. Mr. Girdwood, in conclusion, called the attention of the meeting to a defect which he had frequently observed in the Essays sent to the Society; he referred to the use of indefinite terms, such as earthy loam, sandy clay, &c. He thought that some code as to this might be laid down by the Society, for the regulation of writers of prize essays.

Farmers' Clubs.

SUBJECTS FOR DISCUSSION.

13. THE POLICY OF BREAKING UP PERMANENT PASTURE.

1. *How would the Landlord be affected?*—With him the permission rests, and if he would be injured by it, no permission will be given. This question, then, is the first for discussion. Will a farmer pay a higher rent for arable than for pasture land? Consider, too, in which condition the rental, whatever it may be, is likely to be the more permanent.

2. *How would the Farmer be affected?*—Take the cases in which he would willingly pay a higher rent; for in those only will permission be granted him to convert his pastures; and consider whether capital invested in arable or in pasture farming is the more productive.

3. *How would the Labourer be affected?*—There can be no difficulty here. Arable farming is much more laborious than dairying or grazing. And probably it is to a higher condition of agriculture, which arable culture certainly is, that we must look for the absorption and employment of the rapidly increasing numbers of the labouring population.

4. *How would the Nation be affected?*—Consider the influence of more abundant food, of abundant and productive employment, and of extensive investments of now unemployed capital in a manner connected most directly intimately with the national "wealth."

Winchcomb: *Tenant Rights.—March* 21.—At the monthly meeting of this Club, this subject was introduced by Edward Holland, Esq., of Dumbleton, President of the Club. The above subject was selected in consequence of a communication received from the London Farmers' Club, containing a report of a meeting of the members of that Club, at which the question of "Tenant Rights" was discussed, on which occasion it appeared to be the opinion of the majority that parliamentary interference was necessary to secure to the tenant a legal claim to compensation for improvements made during his occupation of a farm, and for which he had not received a fair return, but the value of the estate being thereby increased, of which the landlord received the benefit at the tenant's expence. The view of the subject taken by Mr. Holland was adverse to any Act of Parliament interfering in a bargain betwixt landlord and tenant, which he argued, is precisely similar to any other bargain made between two individuals, the price of the article sold or let depending on its intrinsic value, and the terms on which it is bought or rented being for the private consideration of the purchaser or tenant, in which any legal enactments would, in a free country, infringe on the liberty of the people. The peculiar disadvantages suffered by tenant farmers arises (he thought) from the too frequent practice of renting land as yearly tenants-at-will, and the uncertainty of this tenure, preventing such liberal investment of capital in manure, and good cultivation as is necessary, in order to bring the soil to great and profitable production. The natural and common sense remedy for this evil is that of lease for such term as will enable the occupier in rotations of crops to receive the benefit of increased production, consequent on the skill and capital employed. The Evesham Agricultural Association (of which Mr. Holland is a member,) entering into his views on this subject, have lately given much attention to it, and after communicating with other societies, and eminent farmers, have drawn up a form of lease [published in another column] which it is presumed will protect the estate from deterioration, and at the same time give full scope to the tenant safely to invest his capital in such manner as he considers likely profitably to increase the fertility of the farm he occupies. After entering into several other points of the subject tending to corroborate his observation, the question was fully discussed by the members of the Club, and the following resolution passed by a large majority.—Resolved, "That it is the opinion of this meeting, that the interference of the legislature between landlord and tenant is uncalled for, since the recent changes in the laws affecting agriculture, and its being now placed on the same footing as other branches of industry, make it evident, that in future the interest of the landlord will be to let his land to men of capital and skill only, and such men will not invest their property without due security being given them for a fair return for their investment." "That the secretary be requested to transmit this resolution to the editor of the *Gardeners' Chronicle and Agricultural Gazette*, and inclose therewith a copy of a lease, which, it is the opinion of this Club, would, if adopted generally, tend greatly to improve the practice and profit of agriculture throughout the kingdom."—*J. F. Peacey, Hon. Sec.*

Wenlock: *The best Form of Agreement between Landlord and Tenant.*—This subject was taken into consideration by a very large and influential portion of the members, and the question was very fairly, fully, and liberally entered into by the landlords, agents, and tenants present; and the most satisfactory part of the proceedings was the unhesitating and unanimous manner in which all present came to the conclusion, that the time had arrived when all agreements should contain clauses giving to the tenant full and ample compensation for his improvements, and the value of all unspent manures, on the termination of his tenancy. This principle being admitted, the members present (being ably assisted by some of the members of the Atcham Club) then endeavoured to draw up the best form of agreement, when, after a very animated discussion, it was resolved, that the best form was that drawn up by the Loughborough Association, as inserted in the "Journal of the Royal Agricultural Society," vol. vi, part i., p. 47, with the addition of having the game reserved to the landlord, except rabbits, which ought to belong to the tenant, and with permission to destroy them in any way he thought best.

Reviews.

Instructions for Making Unfermented Bread; with Observations. By a Physican. Taylor and Walton, Upper Gower-street.

A tract on a subject to which we have already more than once directed the attention of our readers. See page 25, *Agricultural Gazette*, 1846. It is a simple statement of the advantages of this mode of baking, and of the details of the process. We extract the following formula and directions:—

To Make White Bread.

Take of Flour, dressed or household	3 lbs. avoirdupois.
Bicarbonate of Soda, in powder	½ oz. Troy.
Hydrochloric (Muriatic) Acid — (specific gravity 1·17)	5 fluid drachms.
Water	about 26 fluid ounces.
Salt	,, ½ oz. Troy

To Make Brown Bread.

Take of Wheat Meal*	3 lbs. avoirdupois.
Bicarbonate of Soda, in powder	4½ drachms Troy.
Hydrochloric (Muriatic) Acid — (specific gravity 1·17)	5 fluid drachms and 25 minims, or drops.
Water	about 30 fluid ounces.
Salt	,, ½ oz. Troy.

"First, mix the soda and flour as thoroughly as possible, which is best done by shaking the soda from a small sieve over the flour with one hand, and stirring the flour all the while with the other. In general this will answer sufficiently; but the end will be attained more certainly if the mixture be passed afterwards once or twice through the sieve.† Next, dissolve the salt in the water, and add the acid to it—taking care to perfect the mixture by stirring them well together. Then, mix the whole intimately as speedily as possible, using a wooden spoon or spatula for the purpose. The dough thus formed will make two loaves somewhat larger than half-quarterns. They should be put into a quick oven without loss of time. This is most conveniently done in long tins. The oven should be made hotter than for common bread. A portable one, where there is no other, and a common fire, will answer the purpose. About an hour and a half will be required for the baking."

* That is, Wheat well ground, but retaining the whole of the bran. The productions from meal, by screening, differ somewhat at different mills. The most usual are, in succession, bran, fine bran or coarse pollard, fine pollard, coarse middlings, fine middlings, flour No. 3, flour No. 2, or seconds, flour No. 1, or household. By separating one or more of these only, meal or flour of various qualities may be obtained, and bread made adapted to every habit. When families make their own bread, and find that the meal as it comes from the mill does not suit them, they have only to purchase flour and bran separately, and mix them, as instructed by experience or advice, at home. By this means they will be able both to select their bran and to vary the proportion of it in their flour, according to the effect desired. Dealers who have little demand for meal are themselves in the habit of preparing it in this way, when it is asked for. The mixture thus sold for meal consists of flour 2¾ lbs., and bran or pollard ¼ lb. But the double operation of first sifting out the bran and then mixing it again causes an unnecessary addition to the price.

† When the quantities are small, the mixing may be effected by rubbing the flour and soda together carefully with the hands.

Calendar of Operations.

APRIL.

The weather is still extraordinarily wet for the season of the year. There is but little land in the country that has been fit to work many days during the past fortnight. Nearly 3 inches of rain have fallen with us since the beginning of the month, and that is about one-tenth of the fall for the year. the land is now as wet as it has been any time during the past six months. Under these circumstances, operations are very much behindhand. Oat sowing and Barley sowing, which ought to have been completed, are in many places not yet commenced. The sowing of Carrot-seed and the planting of Mangold Wurzel, and the preparation of the land for green crops, generally, have also been delayed. Carrot-seed, mixed with damp sand three weeks ago, preparatory to sowing, has lain there ever since, and is now sprouting, and, if it be not soon sown, will soon spoil. This is our own case, and we shall have to sow it by hand the first dry days. We have already sown some acres thus. The best method of doing it is to use a frame, stretching two parallel lines about 18 inches apart. Three women and one man form a party, the man sows the mixed seed and sand, two of the women prepared the furrows for it by scoring the ground as her line with their hoes, and the third covers all up with a coarse rake. On land which works well they can thus sow nearly an acre in a day, at an expense of about 4*s.* 6*d.*—and land will be ready for this before it will admit of horse cultivation. Were the land ready and the weather suitable, the planting of Mangold Wurzel seed should now proceed. We shall refer to this subject next week.

Notices to Correspondents.

Books.—*A Constant Reader.*—Professor Johnston's "Lectures on Agricultural Chemistry and Geology" is the most complete work. Petzholdt's "Lectures on Agricultural Chemistry" is cheaper and plainly written.

Carrots.—*Thos. Iondell.* You may put the quantity of oxide of manganese in these roots as they are taken from the field at one ounce to every thousand pounds. About Mr. Clarke's plough you shall hear soon.

Coal Tar.—*S.* There is nothing in it which renders gypsum peculiarly suitable to mix with it, and we should greatly fear using it at all as a top-dressing on growing plants of any kind.

Couch-Grass.—*J. B.*—Dig or fork the patches out of your Sainfoin. Harrowing will not help you.

Drains.—*J. B.*—Stones broken to pass through a 2-inch screen are as good a material for drainage as tiles; but they are

rarely to be had so cheap as pipe-tiles may now be made. Straw, bushwood, &c. should never be used.

FARM PRODUCE—*Tenant Farmer*—On your 95 acres of arable land (25s. an acre), you might have 30 acres of Wheat and 10 acres of Oats, besides 10 acres of Barley and Beans (for consumption on the farm by stock), 20 acres Swedes, Turnips, and Carrots; 10 acres of Mangold Wurzel, and 15 acres of Clover (half of the Wheat). You should thus have for sale, say 900 bushels of Wheat and 200 bushels of Oats (360 being required for horse-corn), and for consumption 450 tons of roots, and 320 bushels of Bran and Barley, equal to the keep of 250 sheep for 25 weeks, besides the Clover of 15 acres, equal to the keep of 100 sheep during summer. All this is exclusive of your pasture land.

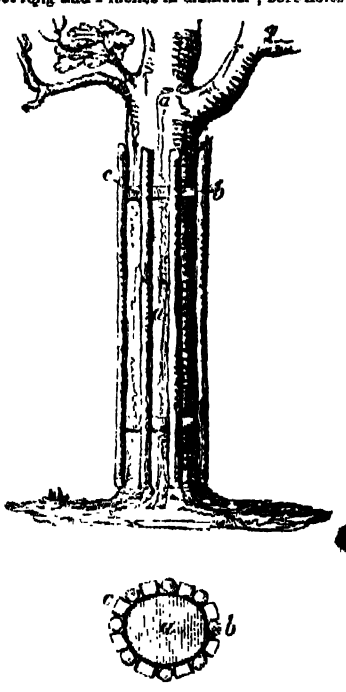
FLAX SCUTCHER—*Monmouth*—We recommend you to apply to Mr. Dickson. See his Advertisement in last week's Paper.

REGISTRY BOOK—*H E K*—Swinburne's will, we imagine, answer your purpose; at all events your bookseller will get you a sight of it, and then you can judge for yourself. We know of no other.

SCARLET-RUNNERS—*A Regular Sub*—Are you sure you sowed the missing row?

SWEDISH TURNIPS—*George*—Do not sow until the third week in May.

TREE GUARD—*B W*—Procure stakes from a coppice of Ash or Larch, about 6 feet long and 2 inches in diameter; bore holes through the tops and bottoms, about 1 foot from the ends; get a hole drilled up through the centre of a stake and cut it off in lengths of 2 in. or rather less; pass a thick tarred string through the 6 ft. stakes, and 2-in. pieces alternately, both at top and bottom, until you have enough to surround the tree loosely, leaving plenty of space for growth. Tie it round and fasten the ends of the string. It merely rests on the ground, and hangs loosely round the tree like the cradle placed round the neck of a blistered horse; the object in both cases being the same to hinder the animal from gnawing the protected part. The annexed woodcut illustrates it *a* being the tree; *b* a stake; and *c* a 2-inch piece.



TO FIX AMMONIA—*J White*—Lime will drive ammonia off. The most effectual substance you can select is sulphate of iron—*i. e.* green vitriol; or sulphuric acid.

TO KEEP 20 HEAD OF CATTLE OF VARIOUS AGES—*Caermarthen*—Supposing the land to be of good quality you will want a field of about 30 acres, 6 acres of Lucerne, and successions of Vetches over about 8 acres, the earlier cuts being succeeded by Turnips and the latter by Cabbages, will keep them from May till October; 5 acres of Swedes, 4 of Mangold Wurzel, 4 of Carrots, and 3 of Parsnips, with the stolen crops of Turnips and Cabbages, will amply suffice for the rest of the year. "Fettercairn" Swede, Orange Globe Mangold, White Belgian Carrot, large Jersey Parsnip. Sow Lucerne the first week in May, Vetches at intervals during spring, Mangold Wurzel now, Parsnips the first week and Carrots the last week in March. Use your liquid manure in compost as you propose. As regards implements consult the awards of the English Agricultural Society. Arthur Young's Farmers' Calendar.

TO PRESERVE SEED—*H E K*—Keep it in a well-aired case or bag, in a dry airy place. Specimens of straw and ear are best kept attached to wooden rods from 4 to 6 feet long.

TURTLE DOVE—*X Y Z* asks for information as to the management and characteristics of these birds.

*** Communications reaching town after Wednesday, cannot be answered the same week.

ERRATUM—At p. 241, col. *c*, 19th line from the top, for "sufficient" read "inefficient."

Markets.

SMITHFIELD, MONDAY, April 13.—Per Stone of 8 lbs.

Best Scots, Herefords, &c.	4s 4d	0 to 0	4	Best Long-wools	-	4s 6 to 4s 8	
Best Short Horns	-	3 10	4 0	Ditto (shorn)	-	4 0	4 4
Second quality Beasts	-	3 0	3 8	Ewes and second quality	-	4 0	4 4
Calves	-	4 8	5 4	Ditto (shorn)	-	3 8	4 0
Best Downs & Half-breds		4 10	5 2	Lambs	-	5 8	7 4
Ditto (shorn)	-	4 4	4 6	Pigs	-	3 8	4 8

Beasts, 2576; Sheep and Lambs, 14 460; Calves, 81; Pigs, 280.

Our supply of Beasts is not large, but fully adequate to the demand; trade is heavy, and prices not generally supported. The very best Scots with difficulty make 4s 4d.—The numbers of Sheep are remarkably small, but this being holiday week very few are wanted. Trade is heavy at about the same prices as of late.—Lamb is lower.—Veal trade continues steady.—Very little is doing in the Pork trade.

FRIDAY, April 17.

The Beef trade to-day is excessively dull. The best Scots are making about 4s 2d, and Short horns barely 4s; inferior qualities are considerably lower, and a large number remain unsold.—We have rather more Sheep today, but the demand has proportionally increased; best Downs are readily sold at about 5s 4d, and Shorn at 4s 8d; Best Long-wools at nearly 5s, and Shorn at 4s 6d; other qualities are not so eagerly bought, and prices for them remain about the same as on Monday.—Although Lamb is not so plentiful the trade is not so good; prices range from 5s 8d to 7s.—Veal trade is brisk; a good Calf makes rather over 5s 6d.—Pork trade is heavy, at late prices.

Beasts, 761; Sheep and Lambs, 4080; Calves, 143; Pigs, 320.

41, West Smithfield.

POTATOES.—SOUTHWARK, WATERSIDE, April 13.

The supply during the past week has been moderate, but it was fully sufficient for the demand. The fresh arrived samples from Yorkshire and Scotland, of the best quality, were in request, but there was no buyers for any inferior samples of Reds. This market has of late been glutted with Yorkshire Regents and Shaws, many of which have been disposed of at very low prices, and there are a great many lots left unsold; there are also several lots of inferior samples from Inverness, Aberdeen, and Montrose, some of which are unsaleable. The trade is excessively heavy this day, at the annexed quotations, and the holidays are contributing to that depression. Prices—York Reds, 90s to 140s per ton; ditto Regents, 80s to 100s per ton; ditto Shaws, 40s to 80s per ton; Blues, Blacks, and Mixtures, from the north of Scotland, 60s to 70s per ton; Flesshire Reds, 60s to 70s per ton; Montrose Buffs, 80s per ton; Perthshire Reds, 70s to 80s per ton.

COVENT GARDEN, APRIL 13.—Vegetables of all kinds have been plentifully supplied, and Fruit, although not over abundant, is sufficient for the demand. The chief novelty among the latter has been in the shape of ripe Cherries, a few punnets of which have been offered during the week. Forced Strawberries are becoming pretty plentiful, which, together with a limited demand for them, has had the effect of lowering their price; the best specimens fetch about 1*s.* 3*d.* an ounce. Green Gooseberries and Apricots have just made their appearance; the former at from 2*s.* to 2*s.* 6*d.*, and the latter at from 2*s.* to 3*s.* a pottle. Pine-apples are good in quality, and tolerably plentiful. Hothouse Grapes are more abundant than they have hitherto been, and, in consequence, are falling in price. Apples and Pears remain nearly the same as quoted in our last report. Nuts of all kinds are sufficient for the demand. Of Vegetables Broccoli is very plentiful, and begins to get cheaper; Asparagus, however, is still dear, and not over abundant. Rhubarb is cheaper, as are also Cucumbers. Cabbages, Greens, &c., are good and plentiful; the latter are somewhat lower in price. Young Carrots and Turnips have been offered; the former at from 8*d.* to 2*s.*, and the latter at from 1*s.* 6*d.* to 2*s.* 6*d.* a bunch. Celery is excellent, and sufficient for the demand. Potatoes, of the very best quality, still continue to fetch 9*l.* a ton; trade for inferior samples still continues dull, and the prices remain unaltered. Good frame Potatoes may be bought for about 2*s.* 6*d.* a lb. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Tropæolums, Jasmines, Lily of the Valley, Pentas carnea, Stephanotis floribunda, Burchellia capensis, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Rhododendrons, Cinerarias, Gardenias, Moss and other Roses.

FRUITS.

Pine Apple, per lb., 6s to 10s		Lemons, per dozen, 1s to 3s	
Grapes, Hothouse, per lb., 10s to 15s		— per 100, 6s to 14s	
— Spanish, per lb., 2d to 1s		Almonds, per peck, 6s	
— Portugal, p. lb., 1s to 3s		Sweet Almonds, per lb., 2s to 3s	
Apples, Dess., per bush., 7s to 20s		Filberts, English, p 100 lbs., 50s to 60s	
— Kitchen, 6s to 10s		Nuts, Cob, per 100 lbs., 80s to 90s	
Pears, per bl.-sv., 6s to 15s		— Barcelonas, 90s	
Oranges, per dozen, 1s to 2s 6d		— Brasil, 12s to 16s	
— per 100, 4s to 18s		— Spanish, 14s	
— Seville, per 100, 8s to 16s		Walnuts, per bushel, 16s to 20s	
— per dozen, 2s to 2s 6d		Chesnuts, per peck, 2s to 7s	

VEGETABLES.

Cabbages, per doz., 6d to 1s 6d		Parsnips, per doz., 2d to 1s	
— red, per doz., 4s to 8s		Scorzonera, per bundle, 1s to 1s 3d	
Broccoli, Brown, per bdle., 9d to 1s 6d		Salsify, do., 1s to 1s 3d	
— White, 3d to 8s		Onions, per bushel, 1s 6d to 3s	
Greens, per doz. bunches, 1s 6d to 2s 6d		— Spanish, per doz., 1s 6d to 2s	
French Beans, per 100, 1s 6d to 2s 6d		Shallots, per lb., 6d to 8d	
Sorrel, per bd.-sieve, 6d to 1s		Garlic, per lb., 6d to 8d	
Potatoes, per ton, 70s to 180s		Endive, per score, 3d to 1s 6d	
— cwt., 4s to 9s		Lettuce, per score, Cab., 4d to 6d	
— bushel, 2s to 4s 6d		— — Cos, 6d to 9s	
— Kidney, per bushel, 3s to 4s		Radishes, per 12 bunds, 4d to 1s	
Turnips, per doz., 1s to 2s		Mushrooms, per pottle, 2d to 1s	
Red Beet, per doz., 6d to 1s 6d		Small Salads, per punnet, 2d to 3d	
Carrots, per doz. bchs., 2s to 3s		Fennel, per bunch, 2d to 3d	
Horse Radish, per bundle, 1s 6d to 3s		Savory, per bunch, 4d to 6d	
Seakale, per punnet, 1s 6d to 2s		Thyme, per bunch, 4d	
Rhubarb, per bundle, 3d to 1s		Watercress, p 12 sm. bun. 6d to 8d	
Asparagus per bundle, 3s to 12s		Parsley, per bunch, 1d to 2d	
Cucumbers, each, 6d to 2s 6d		— Roots, per bundle, 1s	
Spinach, per sieve, 2d to 1s		Tarragon, per bunch, 6d	
Leeks, per doz. bunches, 1s to 1s 6d		Mint, green, per bunch, 6d to 9d	
Celery, per bunch, 6d to 1s 6d		Marjoram, per bunch, 4d	
Cardoons, each, 6d to 9d		Chervil, per punnet, 2d to 3d	

HAY.—Per Load of 36 Trusses.

SMITHFIELD, April 16.

Prime Mead. Hay	90s to 95s	New Hay	—s to —s	New Clr.	—s to —		
Infr. New & Rowen	63 70	Clover	100 to 115	Straw	32	34	

JOHN COOPER, Salesman.

CUMBERLAND MARKET, April 16.

Prime Mead. Hay	80s to 95s	Old Clover	110s to 115s				
Inferior -	60 80	Inferior do.	95 100	Straw	32s to 36s		
New Hay -	— —	New Clover	— —				

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, April 17.

Fine Old Hay -	80s to 88s	Old Clover	110s to 115s				
Inferior Hay -	63 70	Infr. „	90 100	Straw	32s to 34s		
New Hay -	— —	New Clover	— —				

Trade extremely dull at the above prices.

MARK-LANE, MONDAY, April 13.

The supply of Wheat from Essex and Suffolk this morning was small, that from Kent fair; the trade ruled dull, and in some instances rather lower prices were taken, whilst the greater part of the last named remained unsold late in the day. Business in free foreign was of a strictly retail character, sales of bonded were extremely difficult, and almost impossible, owing to the scarcity of certificates, and the disinclination to purchase on speculation. Barley and Beans must be written 1*s.* per qr. lower for all descriptions. Peas of all kinds are fully as dear. The value of fine Oats is maintained, but out-of-condition parcels are neglected.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk -	White	58	66	Red -	50 61
—— Norfolk, Lincolnshire, and Yorkshire		50	62	White	59 68
Barley, Malting and distilling 28s to 31s Chevalier		30	34	Grind.	22 26
Oats, Lincolnshire and Yorkshire -	Potanda	28	37	Feed	21 25
—— Northumberland and Scotch -	Feed	25	26	Potato	25 29
—— Irish - - - - - -	Feed	22	25	Potato	24 25
Malt, pale, ship - - - - -		54	60		
—— Hertford and Essex - - -		60	65		
Rye - - - - - - -		34	36		
Beans, Mazagan, old and new	27 to 30	Tick	29	46	Harrow 31 48
—— Pigeon, Heligoland - -	34 to 52	Winds	—	—	Longpod — —
Peas, White - - - -	34 to 38	Maple	29	32	Grey 28 31

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	4110 Sks. — Brls.	3570	4715	2333	1918	—	1270	396
Irish -	— „ — „	—	—	60	10349	—	—	—
Foreign -	60 „ 3981 „	29874	1508	—	2940	—	10080	880

FRIDAY, April 17.

The show of English Wheat since Monday has been small, and that day's prices fully supported; free foreign continues to find buyers in retail, but bonded, and f. o. b. offers, are almost unsaleable. Barley of all kinds is difficult of disposal. Beans are unaltered, Peas fully as dear. Oats are held firmly, and rather more money is generally obtained.

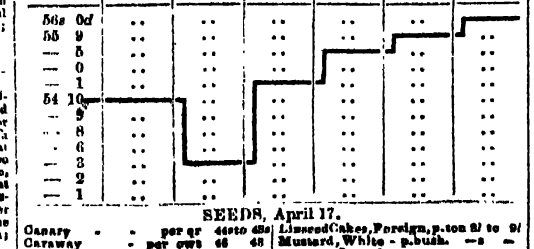
ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English - -	6810	3080	4060	1840 Sks
Irish - -	—	—	1480	—
Foreign - -	20410	—	2080	—

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Mar.	7 per Quarter.	54s 10d	29s 3d	21s 10d	34s 6d	34s 11d	33s 3d
—	14 - -	54 3	29 4	21 9	34 2	35 2	34 9
—	21 - -	55 1	30 10	22 0	33 10	34 4	33 4
—	28 - -	55 5	30 2	22 1	34 0	35 0	33 8
Apr.	4 - -	55 5	30 7	22 2	33 7	34 10	34 0
—	11 - -	56 0	30 6	22 9	33 4	35 1	33 9
6 weeks' Aggreg. Aver.		55 3	30 0	22 2	33 9	34 11	33 9
Duties on Foreign Grain		17 0	8 0	6 0	9 6	8 6	9 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, April 11.



SEEDS, April 17.

Canary - - per qr	44s to 48s	Linseed Cakes, Foreign, p. ton	9l	to	9l
Caraway - per cwt	46 48	Mustard, White - p. bush.	—	—	
Clover, Red, English -	50 100	— Superfine „ - -	—	—	
— — Foreign -	80 80	— Brown „ - -	—	—	
— White, English -	50 84	Rapeseed, English, per last	27l	30l	
— — Foreign -	48 64	Rape Cakes - per ton	—	—	
Coriander - - -	10 16	Saintfoin - - -	—	—	
Hempseed - per qr.	36 36	Tares, Kng. winter p. bush.	—	—	
Linseed - - pr qr	48 48	— Foreign - -	6	8s6d	
— Baltic - -	42 46	Trefoil - - per cwt	20	40	
— Cakes, Eng. per 1000	12l 13l	Turnip (too variable for quotation)			

KINGSFORD AND LAY.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed to submit to Public Competition by Auction, on the premises, Harwood Nursery, Hampstead-road, on Monday, April 27th, 1846, at 11 o'clock, (in consequence of the premises being required for other purposes), the whole of the GREENHOUSE PLANTS, consisting of very choice Geraniums, Azaleas, Acacias, Fuchsias, Verbenas, Calceolarias, Heaths, Fairy Roses, &c. Also, a newly-erected Greenhouse, several two and three-light Boxes, Handlights, and other effects. May be viewed prior to Sale, and Catalogues had on the Premises; of the principal Seedsmen; and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE & MORRIS will submit to public competition, at the Auction Mart, Bartholomew-lane, on Tuesday, April 21, and Thursday, 23, 1846, at 12 o'clock, a fine collection of CARNATIONS and PICOTEES, comprising all the approved varieties; also a splendid assortment of GERANIUMS and other Plants in bloom. The newest varieties of Fuchsias, Verbenas, Heartsease, and Pinks, Greenhouse and hardy climbers, Bengal Roses, choice Dahlias in dry roots, &c. May be viewed the morning of Sale; and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

MEXICAN ORCHIDS.

MESSRS. J. C. AND S. STEVENS have just received, per Avon, a consignment of ORCHIDS, which they will sell by Auction, at their Great Room, 38, King-street, Covent Garden, on Tuesday, 21st April, at 12 o'clock. The plants are in high health, and comprise fine specimens of Odontoglossum Cervantesii and Rossii; Stanhopeas, Pleurothalles, Oncidiums, a new Lælia, a new Peristeria, and several unknown. May be viewed the day prior and morning of Sale, and Catalogues had of the Auctioneers, 38, King-street, Covent Garden.

GRAND SALE OF PINUS, ARAUCARIA, ABIES, CEDRUS, &c., comprising some of the finest specimens in the kingdom, in pots, tubs, &c., removed, at the request of the proprietor, to the Royal Nursery, near the Station, Slough, for absolute SALE BY AUCTION, on the 21st APRIL inst.

By GLENNY and Co.

Among the noble specimens may be mentioned:—Fine Araucaria excelsa, 15 feet high, A. Cunninghamii, do., A. imbricata, A. Braziliensis, many fine plants. Pinus insignis, rigida, Banksiana, Aberdeenii, ponderosa, serratina, &c. &c. Abies religiosa, fine, taxifolia, do., morinda, nobilis, amabilis grandis. Cedrus Deodara, many fine plants, many small; A. Cephalonica and Pinsapo; a large and many fine Dammara australis, Dacrydium excelsum, Cupressinum, Phyllocladus trichmonoides, two Podocarpus latifolium, unique specimens, Taxus Mackii, Podocarpus totara, &c. Junipers, Cypresses, &c. in great variety. All are in pots, in the finest health, and stood out last winter.—Particulars and Catalogues, in a few days, at the Nursery, Slough; at the Horticultural Agency and Gardeners' Gazette Offices, 420, Strand; and 2, Tavistock-street, Covent Garden.

FOR SALE, with immediate possession, if required, the Leasehold interest for a term exceeding 30 years, in a TURNIP and DAIRY or GRAZING FARM of 450 Acres, of good quality, in high condition, and with great capabilities, in the county of Salop. This Farm has been occupied for the last five years less with a view to immediate profit than with the object of putting the land into a good state of cultivation, and the Proprietor is a Nobleman of the highest character and standing in the agricultural world.—For particulars, apply to Mr. GELL, Land Agent, Weston, near Shrewsbury.

N.B. This advertisement will not be repeated.

TO NURSERYMEN, SEEDSMEN, AND OTHERS.
A RARE OPPORTUNITY FOR INVESTMENT.

TO BE DISPOSED OF, on very reasonable terms, an unexpired term of 30 years in a LEASE of most desirable NURSERY GROUNDS, containing about 3 acres of land, in a high state of cultivation, and situate in a populous and wealthy neighbourhood. There are a cottage, a greenhouse, a pit, seed shop, and other conveniences. It is situate within half-an-hour's ride of either of the bridges. Ill health is the cause of the proprietor parting with this eligible property.—For further particulars apply to C. D., Mr. Sanderson's, Angel-court, Throgmorton-street.

TO BE DISPOSED OF, with immediate possession, a small concern in the FLORICULTURAL and JOBBING Business, 3 miles from London. The Stock consists of two Greenhouses and one Propagating house, well stocked with choice Plants; likewise Frames, Sheds, and other conveniences. A good Four-roomed Cottage on the ground. Can be taken on Lease, if required; Rent 18*l.*—Further particulars can be had of Mr. NUTTING, Seedsman, 46, Cheapside.

TO BE LET ON LEASE, with immediate possession, a HOUSE in Church-street, Stoke Newington, with 3 acres of good Garden Grounds, suitable for a NURSERY, or on Building Lease.—Apply to W. E. MAXWELL, Esq., 6, Gray's-inn-square.

LUTON HOO, BEDFORDSHIRE.
TO MARKET GARDENERS AND OTHERS.

TO BE LET on Lease or by the Year, Walled Gardens of 5 Acres, clothed with the finest Fruit Trees, particularly Pears; and other Gardens and Orchard of 5 or 6 Acres, with Gardener's House, and all requisite Out-buildings, all compact. From Lady-day now next ensuing. To View, and for Particulars, apply to Mr. AKERS, London Lodge, Luton Hoo Park.

N.B. Luton Gardens are 29 miles from London, and 9 from St. Albans. The London and Birmingham Railway passes within a few miles, and their Luton branch, as proposed, immediately adjoining. Coaches to and from London pass daily.

Rent is not so much the object in letting the Gardens as having them well kept up, and Fruit Trees trained. Security and references will therefore be required.

SEED BUSINESS TO BE DISPOSED OF, principally Garden, old established, with a wide light country connexion, a good House, Stable, Coach-house, &c., low rented. Coming in easy. Age and declining health is the reason for advertising the above.—Direct to Mr. DAVIES, Seedsman, 8, Great Dover-street, Borough, London.

HORTICULTURAL TOOL WAREHOUSE.

GREEN AND CONSTABLE, WHOLESALE AND RETAIL IRONMONGERS, 36, King William Street, (four doors from London Bridge,) beg to announce they have a large assortment of New and Improved GARDEN TOOLS, including Lord Vernon's Patent Hoe, Dr. Yelloley's Patent Garden Fork, Lyndon's Patent and other improved Spades, solid head Garden Rakes, Ladies' Light Garden Forks, Transplanting Tools, Jointed Hothouse Syringes, Fumigators, Improved Garden Shears, Edging Irons, &c. Ladies' Horticultural Chests fitted with every Implement requisite for the Garden.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. NEIGHBOUR & SON, that they have prepared, for the season, an extensive supply of their various improved BEE-HIVES; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a postage stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

NUTT ON BEES, (6th Edition) just published.

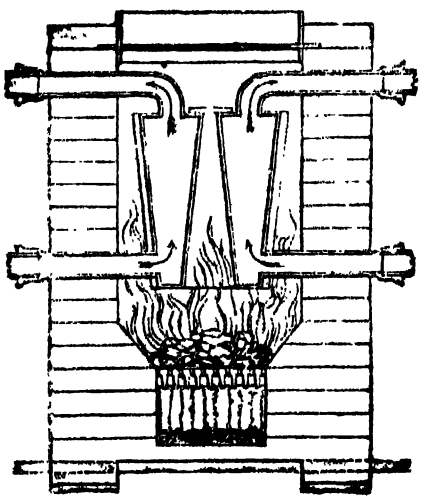
ORNAMENTAL WIREWORK FOR THE GARDEN.

G. B. THOMPSON AND CO. beg respectfully to announce that they continue to prepare at their Manufactory, 390, Oxford-street, London, all kinds of Fancy Ornamental Wirework suited for the Garden, Greenhouse, or Conservatory, consisting of Flower Trainers, Stands and Borders, Garden Arches, Seats, and Vases, Improved Garden and Hothouse Engines, Syringes, Fumigating Bellows, and other Floricultural Implements.

Also, G. B. THOMPSON'S Improved Waterpot, which possesses considerable advantages over all others, the smaller sizes being suitable for ladies' use. They have now on sale a novel folding portable Wooden Garden Chair, at 3s. 6d. each, or 36s. per doz., which quantity is packed in a small space.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SHEWEN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth, Mr. Henderson's Pine-apple-place; and in the Horticultural Society's Gardens.

THE TANK SYSTEM.

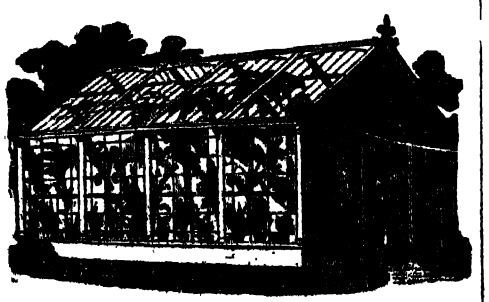


BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple place; and in more than one hundred other places.—130, Fleet-street, London.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

SMITH AND CO.



ESTABLISHED NINE YEARS.

HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, AND GENERAL GARDEN FURNITURE MANUFACTURERS;

GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA, LONDON.

FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

TURNIP SOWING.

POTTER'S GUANO was used by Dr. DAUBENY against Peruvian Guano, Bones, Superphosphate, and eight other Manures for Turnips, and BEAT THEM ALL. See, for particulars, "Journal of Royal Agricultural Society," vol. vi. part 2, p 331; also at p. 224 of the *Gardeners' Chronicle* of this year. Factory, 28, Clapham-road-place, London.

GUANO, PERUVIAN AND AFRICAN, warranted Genuine to Analysis: also Gypsum, and all other Manures of known value, on sale by MARK FOTHERGILL, 40, Upper Thames-street.

BRITISH GUANO, equal in quality to Peruvian, at 9l. per ton. Pamphlets gratis on 6 Stamps being forwarded, being amount charged for postage. Agent for DINGLE'S HAND SEED DIBBLE.

GUANO (GENUINE PERUVIAN & BOLIVIAN) ON SALE, BY THE ONLY LEGAL IMPORTERS, ANTHONY GIBBS AND SONS, LONDON; WM. J. MYERS AND CO., LIVERPOOL;

And by their Agents,

COTSWORTH, POWELL, AND PRYOR, LONDON; GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.

7, Lime-street, April 18.

THE URATE OF THE LONDON MANURE COMPANY.—Four Guineas per Ton. After five years' experience in the manufacture of the above Manure, the Company confidently recommend it as one of the cheapest and most permanent of all artificial dressings. Availing themselves of the many improvements in the science of artificial manures, the Urate is so adapted that the food requisite for a rotation of crops is fully maintained. The Urate will be found most valuable, either drilled or sown broadcast, for Barley, Oats, Potatoes, Tares, or Turnips: for the latter it is particularly useful, as it seldom fails, in the driest season, to secure a good plant, and also to produce a great weight per acre. The London Manure Company also supply genuine PERUVIAN GUANO, Gypsum, Sulphuric Acid, Super-phosphate of Lime, Bone Sawdust, and every Artificial Manure.

No. 10, Bridge-street, Blackfriars. E. PURSER, Secretary.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

GUANO.—PERUVIAN AND BOLIVIAN of the finest quality.—Purchasers are invited to inspect the stocks at Swayne and Bovill's Bonded Warehouses, Mill Wall, Poplar, and West India Docks. From the comparatively small stocks of Guano, of good quality, both African and Peruvian, on hand, and the very limited supply coming forward from Peru and Bolivia this season, Messrs. Swayne and Bovill recommend their friends and the Public to supply themselves early with what they require for this season.—19, Abchurch-lane, City.

PRIZE DRAIN TILE MACHINE.

DENTON AND CHARNOCK'S PATENT "ECONOMIC" DRAIN-TILE AND PIPE MACHINE.

At the last meeting of the Yorkshire Agricultural Society, the Prize of 10l. was awarded to this Machine, after a succession of trials before the competent Mechanical and Agricultural Judges, and it has subsequently obtained Medals and Premiums from the Liverpool, Highland, and other Societies.

Orders are received, and every further information given, by the sole makers, R. BRADLEY & Co., Engineers, Wakefield.

Price 20l. inclusive of Patent dues.

R. B. & Co. are also makers of the Improved Oil-cake Crusher, price 8l.—Wakefield, April 18.

DINGLE'S HAND DIBBLING MACHINE.—SMITHFIELD SHOW, DECEMBER, 1845.—Several of these Machines were exhibited by the proprietors at the Great Smithfield Agricultural Show, in December last, and attracted a good deal of attention—indeed they were universally acknowledged to be the most simple and perfect instruments ever introduced.

Since the Machine was first brought out, several important improvements have been effected, rendering it complete. It is confidently recommended by the proprietors, being convinced that it will give general satisfaction.

The dibbling point is so constructed that the soil cannot choke it; and it will at the same moment make the hole and deliver the exact quantity of seed with extreme regularity. It is simple in its construction, and not liable to get out of order.

☞ Two cups are of various sizes, for discharging either Wheat, Mangold Wurzel, Barley, Beans, Peas, Vetches, &c.

Single .. .. .. Price 40s. each.
Double .. .. .. 4l. 10s.

Including Box and Carriage to London, Liverpool, or Bristol.

WILLIAM E. RENDLE & Co., General Merchants, Plymouth.

AGENTS ALREADY APPOINTED:—

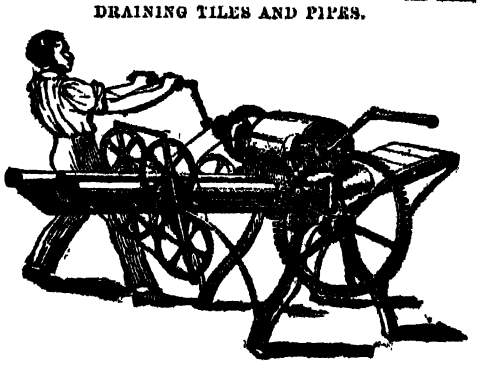
London—Mrs. Wedlake, 115, Fenchurch-street, Mark Fothergill, 40, Upper Thames-street; Hurst and M'Mullen, 6, Leadenhall-street; Chas. Farnes, St. John-street, West Smithfield; Chas. Smart, 360, Oxford-street. *Liverpool*—James Cuthbert, Claxton-square. *Dublin*—William Drummond and Sons, Agricultural Museum. *Cork*—J. and H. Haycroft, Nurserymen. *Manchester*—Abraham Vickers, Ironmonger. *Essex*—Mrs. Wedlake, Hornchurch. *South Derby*—Thos. C. Fletcher, Ilkeston, near Nottingham. *Chester*—Francis and J. Dickson, Nurserymens *Shrewsbury*—Jno. Cartwright, Ironfounder. *Cambridge*—Robert Maynard, Whittleford. *Stirling, N.B.*—Wm. Drummond and Sons, Agricultural Museum. *Inverness*—W. Martin, Northern Agricultural Museum. *Haddington, N.B.*—W. Dods. *Wellington, Salop*—Thos. Baddeley, Iron Merchant. *Chichester, Sussex*—Halded and Son, East-street. *Worcester*—Wm. Webb, Ironfounder. *Callington*—William Dingle, Merchant. *Truro*—Mason and Martin. *Bristol*—Frocktor & Co., Cathay. *Exeter*—Nicholas Tuckett, General Merchant. *Tavistock*—Edgcumbe and Staunes. *Thirsk, Yorkshire*—Thos. Rutherford, Seedsman.

Circulars, with Testimonials, &c. can be forwarded on application. Other Agents required.

Plymouth, April 18.

SUPERPHOSPHATE OF LIME, 7l. per ton, at MR. LAWES'S FACTORY, DEPTFORD CREEK.

DRAINING TILES AND PIPES.



AINSLIE'S PATENT IMPROVEMENTS.—For MAKING and DRYING Draining Tiles of the 1st CLASS. Gentlemen having works in operation, or who are about to erect them, will find the above worthy their attention.

The PROCESS combines EFFECT with ECONOMY, as Tiles can be made ready for BURNING at all seasons; generally from ten to thirty hours, according to the nature of the clay. To be seen at Ainslie's Patent Machine Manufactory, Mr. Howe, Engineer, 119, Great Guildford-st., Southwark; the Polytechnic Institution, Regent-street, London. Particulars may be had from Mr. AINSLIE, Alperton, Acton, Middlesex.

BED FEATHERS.

	Per lb.		Per lb.
Mixed	1s 0d	Best For. Grey Goose	2s 0d
Grey Goose ..	1 4	Best Irish White Goose	2 6
Foreign Ditto	1 8	Best Dantzic	3 0

Warranted sweet and free from dust.

A List of every description of Bedding, containing Weights, Sizes, and Prices, sent free by post on application to HEAL and SON, Feather Dressers and Bedding Manufacturers, 196, Tottenham-court-road, opposite the Chapel.

WORSTED GARDEN NETS 2½d. per yard, for protecting trees from frost and blight: also Woollen Net, Wasp Net, Bunting, Screens, &c. Hemp Garden Nets 1½d. per yard, old mended Fishing Nets, 1d. per yard.—ROBERT RICHARDSON, maker of all kinds of Garden Nets, Fishing Nets, Sheep Nets, Rabbit Nets, Tents, Rick Cloths, Marquees, Transparent Frame and Greenhouse Covers, cheap Tarpaulings, &c. &c., 21, Tunbridge place, corner of Judd-street, New Road, London.

DINGLE'S HAND DIBBLING MACHINE, for depositing all kinds of Seed. It is so constructed that it will at the same moment make the hole and deliver the exact quantity of Seed with extreme regularity, nor is the soil liable to choke the point.

Agent in London:—Mr. MARK FOTHERGILL, 40, Upper Thames Street, where the Machines may be seen.

SILVER SUPERSEDED, and those corrosive and injurious Metals, called Nickel and German Silver, supplanted by the introduction of a new and perfectly matchless ALBATA PLATE. C. WATSON, 41 and 42, Barbican, and 16, Norton Folgate, aided by a person of science in the amalgamation of Metals, has succeeded in bringing to Public Notice the most beautiful Article ever yet offered, possessing all the richness of Silver in appearance, with all its durability and hardness—with its perfect sweetness in use, undergoing, as it does, a chemical process, by which all that is nauseous in mixed Metals is entirely extracted—resisting all acids—may be cleaned as silver, and is manufactured into every Article for the Table and Sideboard.

	Plain Fiddle.	Threaded Fiddle.	King's Pattern.	Albert Pattern.
Table Spoons per doz.	16s. 0d. ..	30s. ..	35s. ..	42s.
Dessert do. do.	12s. 0d. ..	25s. ..	28s. ..	32s.
Tea do. do.	5s. 0d. ..	13s. 0d. ..	13s. 0d. ..	17s. 6d.
Table Forks do.	16s. 0d. ..	30s. ..	35s. ..	42s.
Dessert do. do.	12s. 0d. ..	25s. ..	28s. ..	32s.

C. WATSON begs the Public will understand that this Metal is peculiarly his own, and that Silver is not more different from Gold than his Metal is from all others—on its intrinsic merits alone he wishes it to be tested, and from the daily increasing eulogiums he receives, he is convinced that nothing can prevent its becoming an article of universal wear.

C. WATSON'S handsomely ILLUSTRATED CATALOGUE and PRICE CURRENT, is just Published, and Families who regard economy and elegance, should possess themselves of this useful Book, which may be had *Gratis*, and Post Free, from the above Address.

NOW READY,

In one thick volume 8vo, containing 900 pages, and upwards of 500 Illustrations, price 30s. in cloth boards,

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AND
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A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 17—1846.] SATURDAY, APRIL 25. [PRICE 6d.

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NEW, GOOD, AND CHEAP.

BENJAMIN W. KNIGHT, FLORIST, &c., Tivoli, near St. Leonard's on Sea, Sussex, begs to call the attention of his friends and the public to the following CHOICE PLANTS, which are now ready to send out.

Twelve new choice and distinct Fuchsias, 6t for exhibition, for 6s.; 12 extra first-rate very distinct varieties, all sent out for the first time last season, for 12s.; 12 distinct Verbenas, for 3s. 6d.; 12 extra new, good varieties, for 6s.; 12 choice Petunias, for 6s.; 12 good and distinct Cinerarias, for 6s.; 12 extra good kinds, for 12s.; 12 fine Anagallis, for 3s. 6d.; 12 fine Salvias, for 4s.; 12 Heliotropiums, for 4s.; 12 choice kinds of Phloxes, for 6s.; 12 extra new, very distinct varieties, for 12s.; 12 choice Antirrhinums, for 6s.; 12 choice new kinds, for 12s.; 12 fine show Pansies, for 6s.; 12 extra good, for 12s.; choice Seeds, selected with great care from the best varieties: Verbena, 3s. 6d. per paper; Antirrhinums, 2s. 6d. per paper; Dahlia, from the best show flowers, 3s. 6d. per paper; German Aster, extra fine, 2s. 6d. per paper.

Also will be ready in May, 12 good show Dahlias, for 6s.; 12 superior, for 12s.; 12 extra good, distinct kinds, all new last season, for 21s.; 12 choice fancy, or variegated varieties, for 6s.

Any of the above can be securely packed, and forwarded post-free, on receipt of the amount with the order. Catalogues of the above may be obtained on pre-paid application.

April 28, 1846.

HOYLES' SEEDLING GERANIUMS.—Augusta, Gipsy Maid, Josephus, Duke of Orleans, Lord Morpeth, and Alice. W. MILLER has still a few complete sets of these beautiful Seedlings. Cash price, 3l. the set. The Plants are strong in 48-size pots.

N.B. Descriptive Catalogues of New Plants can be had.

"Providence Nursery, Ramsgate.

KINGSTON NURSERY, SURREY.

JACKSON'S SUPPLEMENTARY CATALOGUE OF PLANTS, with prices, for 1846, may be obtained free on prepaid application.

Kingston Nursery, Surrey, April 25.

H. GROOM, CLAPHAM RISE, near LONDON (removed from WALWORTH), BY APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY, begs to say his Catalogue of GERANIUMS, AURICULAS, LILIUM LANCIFOLIUM, and NEW PLANTS is ready, and will be forwarded by post on application.

He has a fine stock of CARNATIONS and PICOTEES.

Foreign orders executed.

THE NEWEST AND VERY BEST FUCHSIAS, VERBENAS, PETUNIAS, &c.

YOUELL AND CO. are now sending out per post free, the newest and very best FUCHSIAS, including Serratifolia, (if required) at ..... 21s. per doz.

Very fine first-rate Show Varieties ..... 12s. ,,

Fine bite ..... 9s. ,,

NEW AND SUPERB WHITE FUCHSIA, "SANSPAREIL," 10s. 6d. per plant.

YOUELL AND CO. beg to call the attention of cultivators of FUCHSIAS to the above Seedling, which they will guarantee is not surpassed by any light variety yet raised, and will give general satisfaction, and refer to the following remarks upon it:—

"An elegant flower, light tube and sepals, with purple crimson corolla."—See *Gardeners' Chronicle, Sept 20th, 1845.*

"A NEW WHITE FUCHSIA.—We have just seen a magnificent white seedling Fuchsia, raised by the Messrs. YOUELL. The flower is about 3 inches in length, the tube and sepals white, and resembles 'Venus Victrix,' but is three times its size, and is much more brilliant and fair in colour. It should be called 'Sansparell,' as it is most assuredly one of the most beautiful of its species."—*Editor of the Cambridge Advertiser, Oct 1, 1845.*

Their 5 other fine Seedlings will be ready for sending out with the above in the early part of May, and when the set is taken, will be charged 1l. 11s. 6d.

SELECT SEEDLING VERBENAS (raised 1845.)

Exquisite, 5s.; Grandissima, 5s.; Helena, 3s. 6d.; Celeste, 3s. 6d.; Aurora, 3s. 6d., Auberon, 3s. 6d. For description of the above, see their Advertisement of March 1st. They will be ready for sending out, per post, free, or otherwise, the first week in May, at 21s. the set.

12 fine varieties	6s. per dozen.
12 Extra ditto, very superior	10s. ,,
PANSIES, fine varieties	10s. ,,
,, Extra ditto, very superior, first-rate show flowers	18s. ,,
PETUNIAS.....	9s. ,,
CINERARIAS, ditto	12s. to 18s. ,,

ERICAS, fine and free-flowering sorts, by name, 9s., 12s., and 18s. per dozen.

CHRYSANTHEMUMS, the best sorts by name, per post free, 9s. and 12s per dozen.

Those favouring Y. and Co. with their orders for the above, are respectfully requested to state the varieties they already possess, that a repetition may be avoided, every care being observed in making improvements, by adding such varieties as will give satisfaction.

CALCEOLARIAS for bedding out .... 6s. per dozen.

GERANIUMS ditto, 6s., 9s., and 12s. ,,

For Particulars of ARAUCARIA IMBRICATA, and other Coniferæ, see their Advertisement of last week.

Great Yarmouth Nursery, April 25.

ROSES, GERANIUMS, FUCHSIAS, VERBENAS, DAHLIAS, CHRYSANTHEMUMS, CALCEOLARIAS, CINERARIAS, PANSIES, &c.

S. WALTERS, FLORIST, Hilperton, Trowbridge, Wilts, can supply the above on the following terms, each in 12 varieties, plants in the best order:—

	Per doz.—s.	d.
ROSES, perpetual blooming, for bedding, in pots, Bourbons, China, Tea, and Hybrid Perpetual ..	12	0
,, summer blooming, Hybrid China, Hybrid Bourbon, Gallica, Provence, &c., stout plants, 1 to 2 feet, in pots	12	0
,, forced, fine specimens in bloom or bud ..	30	0
,, extra fine ditto	40	0
GERANIUMS, 12 first-rate varieties, full of buds ..	20	0
,, extra, including Zanzunnimum, Trafalgar, Robustum, plants about 1 foot high and 2 to 3 feet round	42	0
FUCHSIAS, best old favourites, 1 foot, branching ..	6	0
,, best new of last year, 1 foot, branching, in bud, including Serratifolia, Magnet, Cleopatra, Victoria, &c.	21	0
DAHLIAS, best show flowers, 6 to 9 inches	6	0
,, 12 best sent out last year, including Gloria Mundi, Beeswing, Cleopatra, &c.	21	0
VERBENAS, best old favourites, stout, per post ..	3	0
,, best varieties of last year, in pots, about 1 foot, branching	9	0
CINERARIAS, per post, in good varieties	6	0
,, in pots, strong bushy plants, in bud	10	0
,, Bladud, splendid, can be seen at 6, Leadenhall-street, each	7	6
PETUNIAS, best varieties of last year	6	0
CHRYSANTHEMUMS, all the approved sorts, per post.	6	0
CALCEOLARIAS, strong bushy plants	10	0
PANSIES, show varieties	6	0
,, extra, strong, in pots	10	0
Scarlet Geraniums 6s., Mrs. Mayler	9	0

Descriptive Catalogues on application.

Carriage paid on all parcels to the amount of 1l. any distance not exceeding 100 miles.

WILLIAM E. RENDLE and CO., are enabled to offer the following choice sorts of

GERANIUMS, DAHLIAS, FUCHSIAS, &c.,

at very reduced prices.

GERANIUMS.

LYNE'S SEEDLINGS of 1844.—The following set, including hamper and package, for 20s.

LYNE'S SEEDLINGS.—White Perfection, Confidence, Imogene, Princess Alice, and Redworth.

Selection of 20 from the following List, including hamper and package, for 30s.—1st CLASS.—Hector (Cock), Magdalene, Robustum (Foster), Duke of Cornwall, Modesty, Sunrise, Lord Ebrington (Lyne), Horatio Nelson, Rainbow, Pluto, Othello (Thurtell), Sarah Jane, Rosalia, Flora, General Pollock, Claude, Queen of England (Doyle), Sir R. Peel (Foster), Thunderer (Blackford), Hybla, Conflagration, Lady Villiers (Foster), Constellation (Garth), Beauty of Walthamstow (Pamplin), Hebe (Beck), Apollo (Lyne), Hermoine, Semiramis, Cordelia (Sweet), Grandis.

Selection of 20 from the following List, including hamper and package for 20s.—2d CLASS.—Coronet, Cynthia, Hamlet, Penelope, Peri of the West, Countess of Mount Edgecumbe, Consort, Princess Royal, Circassian (Lyne), Guide, Fascination (Miller), Jersey Maid (Blackford), Symmetry, Pulchellum, Dido, Favourite, Vulcan, Flash, Camilla (Foster), Oberon (Hodges), Prince of Waterloo, Rising Sun, Prince Albert (Gaines), Gipsey, Wonder of the West, Ne Plus Ultra (Thurtell), Portia, Jupiter, Witch (Garth), Count D'Orsay, Aurora, Enchantress, Van Amburgh (Wilson), Fanny, Cornish Gem (Rendle), Lady C. Shepperd (Bennett), Fair Maid of Devon (Topping), Jupiter, Elizabeth, King John, Amethyst, Sultan, Grand Monarch, Queen of the Fairies, President, Ivanhoe, Clara, Mabel, Glory of the West (Bassett).

DAHLIAS

Selection of 12 from the following List, including hamper and package, for 15s.—1st CLASS.—Essex Champion, Beeswing, Alice Hawthorn (Drummond), Victory of Sussex, Raphael, Orlando (Brown), Essex Bride (Turvill), Marchioness of Ormonde, Cleopatra, Emperor of Whites, Dazzle (Keynes), Preceptor (Whale), Queen of the Gipsies (Girling), Vanguard, Fulwood Hero (Teeby), Victory of Sussex, Northern Beauty, Sir J. S. Richardson (Union), Aurantis, Beauty of Sussex (Mitchell), Essex Triumph, Lady St. Maur, Standard of Perfection.

Selection of 20 from the following List, including hamper and package, for 12s.—2d CLASS.—Consolation, Queen of Roses, Matilda, Perpetual Grand, Nonpareil, Bermondsey Bee, Tasker's White, Yellow Climax, Honourable Miss Abbott, Sure Enough, Swindon Rival, Prince of Waterloo, Nutwith, Lady Antrobus, Eximia, Favourite, Mrs. J. Richardson, Hero of Stonehenge, Confidence, Queen of Trumps, Sir R. Sale, Mrs. Shelley, Vivid, Great Western, Antagonist, Admiral Stopford, Virgil, Tournament (Union), Princess Royal (Hudson), Prince of Wales, Beauty of the Plain, Bridesmaid, Bloomsbury (Lee), Rouge et Noir, Glory of Plymouth.

DAHLIAS.—(FANCY VARIETIES)

Selection of 12 from the following List, including hamper and package, for 15s.—Matilda, Lady Loraine, Noir et Blanc, Archduke Frederick, Beauty of England, Fairy Queen, Madame de Montagne, Silvio, Village Maid, Comte de Paris, Harlequin, Madame Schwaffenfield, Madame Chauviere, Illuminator, Madame Mielle, Oakley Surprise, Charles 12th.

FUCHSIAS.

Selection of 20 from the following List, including hamper and package, for 15s.—1st CLASS.—Serratifolia, Pearl, Rosabella, Majestica superba, Conductor, Rope, Vulvergii, Sir W. Magnay, Sir H. Pottinger, Duke of York, Foigh-a-ballagh, Princess Alice, Formosissima, Picta, Othello, Delicatissima, Pillar of Beauty, Recurva, Lord Ashley, Eminent, Cleopatra, Magnet (Smith), Sidmouthii, Erecta elegans (Kendal), Nymph, Queen of Beauties.

Selection of 20 from the following List, including hamper and package, for 9s.—2d CLASS.—Goldfinch (Harrison), Cordifolium hybridum, Delicata (Rendle), Duke of Wellington, Florence, Magnet, Queen (Pawley), Prince of Wales, Eppsii, Kentish Hero (Epps), Lindleyana, Vesta, Reflexa, Neptune, Modesta, Hector, Gigantea, Expansa, Decora, Coccinea Vera, Coronet, Albion (Smith), Uttoxeter Beauty, Rickardii Grandiflora (Rickard), Lowreyii, Lanceti, Exoulensis (Pince), Paragon, Robustum, Eclipse, Britannia, Noblissima, Balloonl (Smith), Transparens (Youell).

PETUNIAS.

Selection of 12 from the following List, including package, for 4s. Queen of May, Beauté de Jour, Beauté parfait, Cœrulea Striata, Louis Gullino, Striata delicatissima, Attraction, Forget-me-not, Perfection, Membranacea, Portrait, Sansparell, Delineata (Morgan), Pet (Ivory), King, Ovid, Magna Charta, Reliance, Splendida, Celestial, Punctata.

VERBENAS.

Selection of 20 sorts from the following List, including hamper and package, for 9s.—Fair Rosamond, Favourite, Louis Philippe, Boule de Feu, Garland, Mulberry, Hudibras, Excelsa, Bloomfield Beauty, Pouldi, Emma, Fortune-teller, Atrosanguinea, The Giant, Vesta, Lilac Perfection, Enchantress, Lovely Rambler, Striata coccinea, Formosa, Prince of Wales (Knight), Prince of Wales (blue), Meliudres latifolia, Teucroides, Queen, Odoratissima, Blue Queen, Cœrulescens, Gladiator, Vesta.

PANSIES.

Selection of 20 from the following List, including hamper and package, for 4s.—Duchess of Beaufort, Prince of Wales (Maule), Maid of Saragossa, Azure, Maid of Judah, Virgin Queen (Bryant), Zelia, Black Prince (Parsons), Queen of Whites (May), Surprise, Beauty of Lema Vale, Alice Maud, Fair Maid, Phœbe (Thomson), Prince of Wales (Silverlock), Bridegroom (Major), Mulberry superb, Regulator, Success, Launcelot, Dark Seedling (Hayle), Attila, Orlando.

ANTIRRHINUMS.

The following set, including hamper and package, for 5s.—Maculata, Atro-striata, Luteum, Brightii, Fowellii, Album, Picta, Double White.

LOBELIAS.

Six of the following sorts, including hamper and package, for 4s.—Erinus grandiflora, Erinus compacta alba, Resplendens, Queen Victoria, Grandis, Salterii, Millerii, Bathonia.

AZALEA INDICA.

Selection of 12 from the following list, including hamper and package, for 25s.—1st CLASS.—Optima, Exquisite, Broughtonii, Retulgens, Præstantissima, Rosea punctata, Minerva, Barbata, Prince Albert, Alba superba, Alba striata, Candidissima maxima, Grandiflora maculata, Purpurea plena, Rubra-plena, Gladstaneii, Excelsa, Smithii magnifiora, Rosea elegans, Coccinea superba, Addisonii, Alba triflora.

Selection of eight from the following List, including hamper and package, for 6s.—2d CLASS.—Variegata, Gladstaneai, Lateritia, Danielsiana, Rawsonii, Smithii, Smithii coccinea, Rosea, Rosea semi-duplex, Woodsii, Scandishii, semi-duplex, Splendens, Spectosissima.

GLOXINIAS.

Selection of six from the following List, including hamper and package, for 5s.—Cerina, Rosea alba, Insignis magniflora, Pressleyana, Rubra, Maxima, Caulescens, Macrophylla variegata.

CACTUS.

Selection of six from the following List, including hamper and package, for 10s.—Gardneril, Truncatus, Truncatus violaceus, Majestica, Formosissimus, Splendidum, Coccineum, Egertonii.

MISCELLANEOUS PLANTS.

Selection of 12 from the following List, including hamper and package, for 15s.—Bouvardia flava, Ichimenes picta, A. longiflora, A. rosea, A. hirsuta, A. pedunculata, Gesnera Cardinalis, G. Cooperi, G. zebrina, G. tubiflora, G. elongata, Salvia patens, Cuphea platycentra, Commelina polygama, Oxyglossum fasciculare, Begonia coccinea, Epacris, E. floribunda, Ardisia crenulata, Ixora coccinea, Pentas carnea, Gardenia radicans, G. florida, G. sp. nova, Ficus elastica (Indian-rubber tree), Burchellia capensis, Plumbago capensis, Brugmansia sp. nova, B. arborea plena, Juanullloa parasitica, Euphorbia splendens, E. fulgens, Pleroma Benthamiana, Centradenia rosea, Siphocampylus betulæfolia, Olivea nobilis, Vinca oculata rosea, Russellia juncea, Brunsfelsia Americana, Æschynanthus grandiflorus, Æ. Roxburghii, Æ. ramosissimus, Eranthemum pulchellum, Lantana crocea, Columnea Schiedlana, C. splendens, Hibiscus rosea sinensis, H. Cameronii, Pimelea spectabilis (grafted), P. hispida, P. decussata, Hovea Celsi, Chorozema varium, C. varium nana, C. varium rotundifolium, Veronica speciosa, Grevillea rosmarinifolia, G. rava, Eutaxia Baxterii, E. myrtifolia, Blosma capitata, D. ciliosa, D. ericoides, Correa bicolor, C. Cavendishii, Phillea ericoides, Kalosanthes miniata, Genista Æthenna, G. odoratissima, Amphicome argula, Aloysia citradora, Araucaria imbricata.

MISCELLANEOUS CLIMBERS.

Selection of 12 from the following List, including hamper and package, for 8s.—Cobœa scandens, Eccremocarpus scaber, Loasa aurantiaca, Lophospermum erubescens, Kennedya ovata, K. coccinea, K. monophylla, Batatas bonariensis, Bridgesia spicata, Bignonia picta, B. capensis, Passiflora racemosa, P. Loudonia, P. Buonapartea, P. Sullivanii, P. Neelii, P. cœrulea, P. cœrulea-racemosa, Ceropegia elegans, C. stapeliæformis, Ipomœa Learii, I. Sellowii, Stephanotis floribunda, Tropœolum Lobbianum, T. tricolor, T. brachyseras, Thunbergia chrysops, T. aurantiaca superba, T. alata, T. alata alba, Allamanda cathartica, Convolvulus petanthus, Combretum coccineum, Manettia glabra, M. bicolor, Maurandya Barclayana, Tropœolum canariensis.

PLANTS FOR BEDDING OUT.

Anagallis carnea grandiflora, Bouvardia triphylla, B. splendens, Salvia fulgens, S patens, S. chamædrifolia coccinea, Nierembergia gracilis, Chænostoma polyanthe (new), Mesembryanthemum tricolorum, Phlox Drummondi, Petunias of sorts, Verbenas of sorts, Pelargoniums—Tom Thumb, Fire Ball, King—Heliotropes, Fuchsia corymbiflora, F. fulgens.

FLOWER SEEDS.

50 packets of choicest Flower Seeds (free by post) for 12s.		
30	ditto	ditto 8s.
20	ditto	ditto 6s.

N.B.—All Post-office orders must be made payable to William Edgecumbe Rendle, Plymouth.

TESTIMONIALS.

"I am happy to tell you that the plants which you sent, were received here yesterday in *excellent* condition, having been packed in the best manner possible, and I am much pleased with them."—*S. S. Cunningham, Caprington Castle, Kilmarnock, Scotland, Dec.* 16, 1845. (Distant upwards of 500 miles from Plymouth).

"I am happy to say the plants arrived safe, and in such good condition that no person would have supposed they had ever been removed from your greenhouse, although they travelled such a distance; *indeed, they astonished every one who saw them*, they were so healthy, so well packed, and, I must add, for the good descriptions, so very reasonably priced."—*William Bevan, Esq., Camass Bruff, County of Limerick, April* 14, 1846. (Upwards of 850 miles from Plymouth.)

Great attention is paid to careful packing.— All plants forwarded to long distances are packed in Fir Boxes, and firmly secured.

*** Early orders are desired, as there will be a limited quantity only of many of the sorts.

ORDERS WILL BE EXECUTED IN STRICT ROTATION.

Circulars, containing Lists of Flower Seeds, Forest and Fruit Trees, Bulbous Roots, and Chrysanthemums, can be had on application.

*** *All orders above 3l. will be delivered (free of carriage), to London, Bristol, Exeter, Barnstaple, or Falmouth; or, above 6l., to Liverpool, Dublin, or Cork.*

A remittance is not required from known correspondents, or those who give reference in London.

Steamers from this Port three times a week, to London, Cork, Dublin, Liverpool, and Falmouth.

ARAUCARIA IMBRICATA.

12 fine young Plants of this valuable Tree, including hamper and package, for 20s.

Those who reside at long distances, and wish to have their plants forwarded by post, can be accommodated; and we have arranged to send Dahlias, Fuchsias, Petunias, Verbenas, Pansies, and Antirrhinums, packed in stout tin cases, free by post.

☞ ALL THE PLANTS ENUMERATED IN THIS CATALOGUE ARE NOW READY FOR SENDING OUT.

We have to return our best thanks to our numerous customers for the liberal orders with which we have been favoured during the past season, and have now to solicit a continuance of their patronage, assuring them that we shall always supply the best articles at the lowest remunerating prices.

Our chief object will be to give satisfaction; and if from any circumstance an irregularity should at any time occur, we shall always feel it our duty to make the most ample amends. We have always endeavoured to be liberal in our dealings, and trust our friends will not have reason to complain of our not continuing to be so. WILLIAM E. RENDLE & CO.

Office, Union Road, Plymouth, April 25.

TEN SPLENDID NEW HALF-SHRUBBY CALCEOLARIAS.

JOHN BELL, in offering the undernamed CALCEOLARIAS, begs to assure purchasers they are equal to any coming out this season, and will fully answer the description given:—

ATTRACTION—Large dark yellow, with large scarlet blotch, well defined.
DEFIANCE—Large cream ground, with crimson blotch.
EXCELSA—Large white ground, with crimson blotch.
PRINCEPS—Large cream ground, with dark maroon blotch.
CONDUCTOR—Large yellow buff ground, with crimson blotch.
CONSPICUA—Bright yellow ground, with large brown spots or stripes.
ECLIPSE—Dark crimson ground, beautifully spotted with white.
NYMPH—Yellow ground, beautifully spotted with bright crimson.
EMPRESS—White ground, with purple spots, beautiful.
CRIMSON PERFECTION — Crimson ground, beautifully spotted with black.

Fine blooming Plants, in 36-size pots, 5s. each; or the ten for 2l. 2s.

The last four named were exhibited last season at the Norwich and Norfolk Horticultural Show by the raiser, and gained the first seedling prize, and were pronounced by the judges to be superior to any ever exhibited.

Horticultural Establishment, Thorpedale, near Norwich.

FORBURG NURSERY, READING.

J. J. BEST, of the above Nursery, begs to inform the admirers of CALCEOLARIAS, that he has still a few plants left, in 48-sized pots, of his much-admired CALCEOLARIA LEOPARDI; this was awarded a prize at the Chiswick July Show, 1845. In colour it exactly resembles the Leopard's skin. Per plant, 5s.

J. B. also begs to state, that he is now sending out VERBENAS, &c., in 6-sized pots, strong plants, at the following prices:—

	Per doz.—s. d.		Per doz.—s. d.
Verbenas, fine sorts, in pots	6 0	Lobelia pyramidalis, and multiflora	9 0
Do. per post	3 0	Do. fulgens, and others	6 0
Girling's Petunias, and others	6 0	Choice Fuchsias, in pots	6 0
Do. per post	3 0	Do. per post	3 0
Anagallis cœrulea, fine blue	6 0	Scarlet Geraniums, from	4s. to 6 0
Do. per post	3 0	Alona cœlestis, from	12s. to 18 0
Calceolarias for bedding, strong	6 0	With Heliotropes, &c.	4s. to 6 0

Also the following CREEPERS:—

Cobœa scandens	from 6d. to 9d. each.
Eccremocarpus, strong	9d. to 1s. ,,
Lophospermuma, do.	9d. ,,
Maurandyas do.	9d. to 1s. ,,

With fine large named flowering plants of Cinerarias 9s. per doz.

Package included in the above prices, and sent free in line of Great Western Railway.—April 25.

GRASS SEEDS.

GEORGE GIBBS AND CO. are now supplying their Mixtures for laying down to permanent Grass, at 32s. per acre, allowing 2 bushels and 12 lbs. to each acre. This being an important branch of their business, having within the last few years supplied them for several thousand acres, with the most favourable results, they have been induced to lower the price to 32s. to meet the means of the plain farmer. G. G. and Co., therefore, confidently call the attention of those who may be desirous of converting land into a quick and durable meadow or pasture of the best quality, both for hay and succession of feeding; full directions for sowing and treatment will accompany the Seeds. Mixed sorts, for improving old Grassland, 1s. 3d. per lb.; fine sorts, for forming Lawns, &c., 1s. 4d. per lb.; large white Belgian Carrot Seed, 1s. 6d. per lb.; Italian Rye-Grass, true kind, 8s. 6d. per bushel. A general priced Catalogue of Turnips, and other Agricultural Seeds, forwarded on application.—Address to GEORGE GIBBS and Co., Seedsmen, &c. to the Agricultural Society, 26, Down-street, Piccadilly.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON have the pleasure of offering the following Plants adapted for Bedding, at the prices named when the selection is left to themselves:—

FUCHSIAS.

12 fine varieties	6s. 0d.	12 superb new vars., for exhibition	18s. 0d.
12 superior do.	9 0	50 fine do.	30 0
12 superb do.	12 0	50 superb do.	50 0

VERBENAS.

12 fine varieties	5s. 0d.	25 extra fine vars.	15s. 0d.
12 superior do.	9 0	25 superb new do.	20 0
12 superb new do.	12 0		

PETUNIAS.

12 fine varieties	6 0
12 superb do.	9 0

Young plants of the above can be sent securely packed in tin cases by post, if required.

CINERARIAS.

Strong plants coming into bloom.

12 fine varieties	6s. 0d.	25 extra fine varieties	15s. 0d.
12 superior do.	12 0	25 superb do.	25 0
12 superb new do.	18 0		

DISTINCT AND SHOWY HERBACEOUS PLANTS.

	₰ doz.	₰ 100.
Select sorts, one of each, named	6 0	40 0
Superior do. do.	9 0	60 0
Superb new do. do.	12 0	75 0

AZALEA INDICA.

12 fine varieties	12s. 0d.
12 superb do.	18 0
12 extra new do.	30 0

GREENHOUSE PLANTS.

12 fine species, one of each	12 0
12 do. do. of newer kinds	18 0
12 do. do. do. very superior	24 0
12 choice Climbers	12 0

STOVE PLANTS.

12 very fine species, one of each	18 0
12 superior do. do.	24 0

NEW PLANTS.

	Each—s. d.		Each—s. d.
Bouvardia flava (new yellow)	3 6	Pleroma Benthamiana	3 6
Calceolaria floribunda (Veitch's), an elegant yellow species, highly recommended for bedding per doz. 18s.	2 0	Polygala Dalmaisiana	3 6
Fuchsia serratifolia	3 6	Rondeletia, yellow species (Havanna)	10 6
Platycodon grandiflora	3 0	Ruellia macrophylla, splendid scarlet species	7 6
		Siphocampylus coccineus, splendid	5 0
		Tacsonia mollissima	3 6

For Select List of Plants, see Advertisement of April 18th.

Catalogues of the above will be sent gratis on application.

A proportionate number of plants presented to each order towards defraying the expense of carriage, &c.

A remittance or reference required from unknown correspondents.

PICARDY TREFOIL.—This Seed, so highly esteemed in France, can be purchased direct from the bonded warehouse, on application to JOHN A. WHEALLER, 34, Mark-lane.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. NEIGHBOUR & SON, that they have prepared, for the season, an extensive supply of their various improved BEE-HIVES; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a postage stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

NUTT ON BEES, (4th Edition) just published.

FOREIGN SHEET GLASS, GLASS TILES, &c.—The cheapest, stoutest, and best quality imported, and sold at C. JARVIS'S Old Established Window Glass Warehouse, 38, Great Castle-street, a few doors from Regent-street.

CROWN GLASS at 30s. per Crate; squares cut to size equally low in price; useless glazed on the lowest terms. Country orders forwarded with reference will meet with prompt attention. *** The largest Discount allowed off all description of Glass for ready money only.

THE EXHIBITIONS OF PLANTS, FLOWERS, and FRUIT, in the Gardens of the ROYAL BOTANIC SOCIETY, Inner Circle, Regent's Park, will be held this season in the New Conservatory, on Wednesdays May 20, June 3, and July 1.—Tickets may be obtained at the gardens by presenting an order from a fellow or member, price 5s. each, until May 8.

FRENCHAY, NEAR BRISTOL,
The late residence of Mrs. Tuckett, deceased.
For SALE by PRIVATE CONTRACT, a very convenient FAMILY MANSION, containing spacious dining and drawing-rooms, library, hall, and kitchens, on the ground floor; six best bed-rooms, and three servants' rooms, on the first floor; well arranged offices, Stabling for four horses, and Coach and Gig-houses; with an ornamental Garden, and a productive Kitchen-garden. The whole abundantly supplied with both sorts of Water.
The Premises are in excellent condition, and fit for immediate occupation.
The Premises may be viewed by tickets, to be obtained of JOSEPH BAYLY, Small-street, Bristol, and of whom the price, and further particulars, may be obtained.
Frenchay is a delightful village, 4½ miles from Bristol, 6 miles from Clifton and Henbury, and one hour's ride from Bath.

NURSERIES, GREAT BERKHAMPSTEAD, HERTS.
MESSRS LANE AND SON'S splendid CINERARIA "SUPERB BLUE," which fully maintains its original excellence, is now ready for sending out—by post, 5s.; large, blooming plants, 7s. 6d.
FUCHSIA, "MRS. LANE," which was exhibited and proved last year, will be sent out first on the 11th of May next, and all orders received and to be received will be executed according to priority. Price 10s. 6d.
Spring Catalogues may be had on application as above.

GREENHOUSE AND STOVE PLANTS.
WILLIAM JACKSON and CO., NURSERYMEN, being the possessors of a large and healthy stock of the above Plants, comprising the rarest and most beautiful in cultivation, beg to offer them on the very reasonable terms quoted in their Advertisement in the first page of the *Gardeners' Chronicle* of the 18th instant, to which they beg to refer for particulars.
Cross Lanes Nursery, Bedale, Yorkshire.

THE NEW "MAMMOTH" BROCCOLI OF 1846.
WILLIAM MAY, F.H.S., begs to refer to his former description of this splendid Broccoli, advertised as "Elletson's Superb April White Broccoli," seeds of which may be had as below, where specimens may be seen (which only require to be seen to be approved) weighing from 8 lbs. to 12 lbs. each. Its size is not its only merit; it is perfectly hardy, of dwarf growth, of delicate colour, of firm texture, and coming into use at this late season, thus rendering it one of the desirable acquisitions in culinary Vegetables. Its form is semi-spherical, each Head forming numerous divisions (yet close), so that one Head may be cut into eight or twelve separate portions, each forming, apparently, a perfect Head as large as an ordinary Broccoli; so that one head is sufficient for a week's liberal supply, and that of first-rate excellence.—Sealed packets, containing 1200 seeds, with directions for its culture, at 5s. each, post free, may be had in London of Messrs. WARNER, Cornhill; Mr. CHAS. FARNES, St. John's-street, Smithfield. In Manchester, of Mr. W. WATKINSON, Market-place; and of the advertiser, Hope Nursery, Bedale, Yorkshire.
N.B.—This is the proper season for its being sown. The trade supplied.

The Gardeners' Chronicle.

SATURDAY, APRIL 25, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

FRIDAY,	May 1	{ Horticultural (Anniversary)	1 P.M.
		{ Botanical	3 P.M.
MONDAY,	— 4	Entomological	8 P.M.
TUESDAY,	— 5	{ Horticultural	3 P.M.
		{ Linnæan	8 P.M.
SATURDAY,	— 9	Horticultural Gardens	1 P.M.

COUNTRY SHOWS.

WEDNESDAY, April 29		{ Norfolk and Norwich Horticultural Society. Nottingham Horticultural.
FRIDAY,	May 1	Perthshire Horticultural.
WEDNESDAY,	— 6	Heartsease.

WILL those gentlemen who are so shocked at the POLMAISE plan of heating, and who so confidently foretell its universal failure, be so good as read attentively a letter in another column from Mr. DAVIES, of Wavertree? They will now find that what we have always asserted *could* be done HAS been done; and not by an enthusiastic amateur, of whom practical men profess so great a dread, but by a nurseryman, for his trade purposes. A *double* pit 42 feet long has been thus heated for four pounds six shillings.

Such being the case we decline inserting any further cavillings about the matter; unless, indeed, some one is able to show that Mr. DAVIES' statement is untrue; which those who know his respectability will not be very easily led to believe.

WHEN a man builds a forcing-house, he settles carefully the slope of the roof, the nature and direction of the heating apparatus, the material for his shelves and floors, the quality of his glass, the size of the squares, and the depth of their laps. Whether the door shall be at the end or side, and the whereabouts of the stoke-hole are other points of grave deliberation. How, then, are we to account for the almost universal neglect of the most important part of all—THE VENTILATION?

But no, we wrong the builders of forcing-houses; they do not neglect ventilation; on the contrary, they provide for it copiously. They make the roof-sashes slide, and the side windows unfold, and the doorway alone administers no inconsiderable doses of *wind*. In fact, the ventilation, if by that term is meant the *letting in of wind*, is in nowise deficient. But unfortunately this is not precisely what plants require. They want in-draughts neither of hot dry air in the dog days, nor of ice-cold breezes in the winter. Both hot and cold air act like water; the one scalds, the other freezes. It is because of the danger of such ventilation as this that gardeners have concluded that a close, moist atmosphere is indispensable to Vines when in flower—a singular mistake which we fully disposed of some years ago.

Some time since we had intended to address ourselves to this subject (see p. 99), but the revival of the Potato question and other matters so crowded our columns that ventilation was given to the wind. We must now endeavour to make up for our lost time.

If we did not hate new words, we should be half inclined to expunge ventilation from the language of gardening, and to substitute zephyration or some such gentle epithet. We shall, however, content ourselves with distinguishing ventilation from aëration, the latter a legitimate word in actual use; defining *ventilation* as the process of letting the external air at once into a forcing-house, and *aëration* as the act of keeping the atmosphere of a forcing-house in motion by currents of warmed fresh air.

The importance of AERATION cannot be overestimated. It is the one thing which now requires to be secured, in order to render our artificial climates natural. Why it is so advantageous we have on a former occasion endeavoured to show. A man's reason, indeed, must tell him that a plant condemned to pass its life in a still atmosphere is like nothing so much as a criminal set fast in an everlasting pillory. In order to secure motion in the vegetable kingdom, currents of air are made to do the work of the muscles, limbs, and volition of animals. It is not at all improbable that, in addition to the mechanical effect of motion in assisting the propulsion of the sap, it may be important that the stratum of air in contact with the leaves of plants should be incessantly shifted, in order to enable them to procure an adequate supply of food; for we find that water in motion feeds them better than that which is stagnant. Leaves are continually abstracting from the air the very minute quantity of carbonic acid which it contains. When the air moves quickly over their surface, fresh supplies of that food are incessantly presented to it, and the operation of abstraction may be facilitated; while, on the contrary, if the air is stagnant, the absorption of carbonic acid may be very much slower. Just as would be the case if a great sponge filled with milk were to be placed in mere contact with a man's mouth; he would be a long time in sucking out its contents if the sponge were immovable, but he would soon possess himself of the milk if the surface of the sponge were continually shifting.

Perspiration is another vegetable function, which must be maintained in healthy action. The quantity of water that flies off from the surface of a plant will, *cæteris paribus*, be determined by the rapidity of the motion of air passing over its surface. In an absolutely still air perspiration will be reduced to its minimum, and it will increase, within certain limits, in proportion to the quickness with which the air sweeps over it. This is no doubt the reason why in Vineries which let in air at every lap of glass, and with the side-doors constantly open, the Grapes acquire such excellence, and keep so long: as is the case with Mr. GEORGE CRAWSHAY'S famous December fruit.

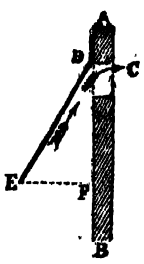
If the motion of air is thus favourable to the two great operations of feeding and perspiring, we shall find that it is equally needed day and night; for perspiration goes on principally during daylight, and feeding in the hours of darkness. A good system of aëration *must then be constantly in action*. How to secure that is the great Horticultural problem which now remains to be solved; and to which we would most especially draw the attention of our readers.

We cannot anticipate any difficulty in the matter; for a variety of means suggest themselves, the moment the question is considered. Such aëration as we propose has, in fact, been secured in different ways by many persons, although such plans have attracted little attention in consequence of their real importance not being understood.

One of the earliest and simplest was that of the late President of the Horticultural Society. By passing pipes, open at each end, through the heating materials of a hotbed, one end being in the interior of the frame, and the other exposed to the open air, he succeeded in constantly renewing the atmosphere of the frame, and in keeping the leaves in motion, with, as he tells us, the happiest effect.

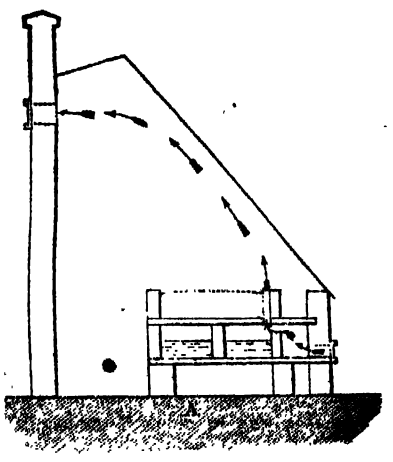
Mr. WILLIAMS, of Pitmaston, has pursued another course. He keeps the *south* end of his Melon-frame open to the outward air night and day, except that it is covered over with a screen of "fly-wire" painted black, and continued in the inclination of the roof. This screen receives the rays of the sun from 10 A.M. to 3 P.M., all summer long; it becomes heated to 80° or 100°, and consequently heats the air that passes between its interstices. By raising the sashes at the back, a very powerful current of air is established; the thermometer ranges from 80° to 90° below the leaves in a sunny day, and in short the "atmosphere is as hot as is experienced in the southern parts of Italy, with almost as much ventilation as if growing in the open air."—*See Journal of Horticultural Society*, vol. i, page 48.

The plan of Mr. WILLIAMS might be modified by such a contrivance as is shown in the following section. Let A B represent a section of a front wall, or wooden frame; C, a hole; D E F, a screen of zinc or iron, painted black, nailed to it in front. It is obvious that when the sun shines on the black plate, D E, it will rapidly heat, and communicate its temperature to the air below it; the latter would immediately pass through C, and with a force proportioned to the elevation of its temperature.

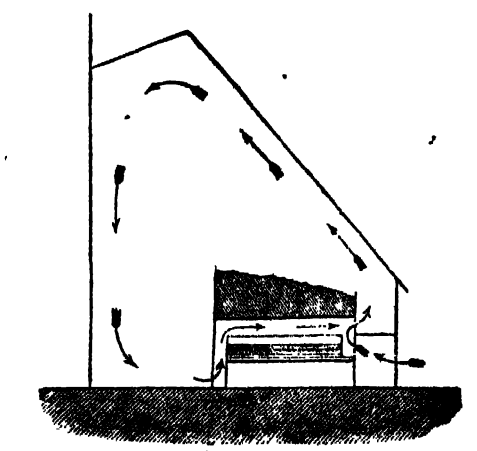


In the last number of the "Journal of the Horticultural Society," Mr. THOMAS MOORE has proposed a very simple method, which we now reprint, of aërating a Cucumber house, heated by tanks.

"In a little book* on the culture of the Cucumber, published in 1844, I recommended the warming of the external air before admitting it to the plants, by a plan which will be explained by the annexed diagram (A).



"The main point which this plan was intended to secure was this: that the cold air should pass directly over the surface of the heated water in a tank provided for supplying bottom-heat to the Cucumber plants; and by passing over this surface, it was supposed that it would not only be warmed, but so far charged with moisture as not to abstract any from the succulent foliage and stems of the plants, but rather to furnish them with a source whence they themselves might draw part of their supply. This plan was entirely unconnected with any scheme for securing motion without admitting the external air; but it is obvious that both might be combined, as in the following diagram (B), which also represents an improvement upon the original plan.



"In this arrangement it will be seen that the cold external air is supposed to pass through a heated chamber separate from the tank, but admitting of communication for the purpose of supplying moisture if necessary. Thus the external air may be warmed either with or without being moistened before it reaches the plants inside the houses; or the moisture may be directly admitted from the tanks by other means, in the exact quantity required at any particular stage of growth. The advantage gained by this plan is a greater command

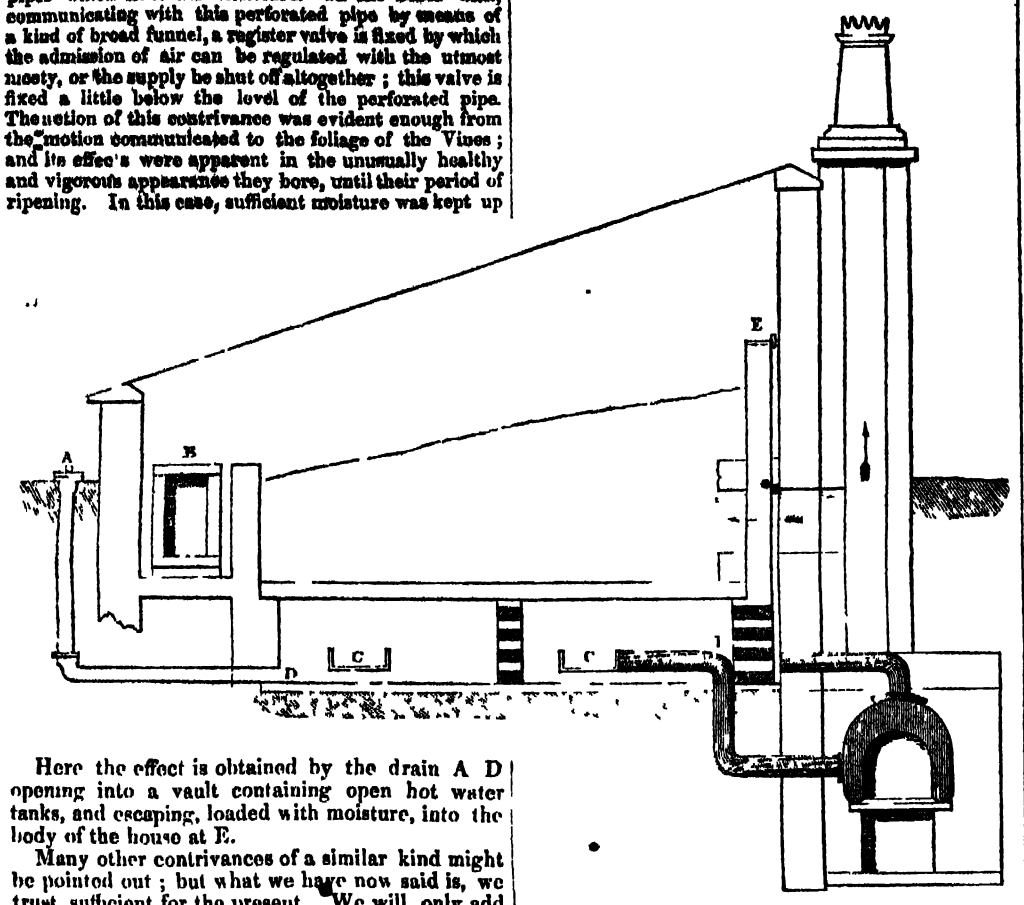
* Theory and practice applied to the Cultivation of the Cucumber in the winter season.

over the moisture of the atmosphere; though in a forcing-house such a power would seldom be required to be put into practice."

He also mentions a successful plan, contrived by Mr. LEAF's gardener, at Streatham.

"This plan consists in passing a zinc pipe, thickly perforated with small holes, from end to end of the Vinery, and exactly beneath the range of hot-water pipes which heat the structure. In the outer wall, communicating with this perforated pipe by means of a kind of broad funnel, a register valve is fixed by which the admission of air can be regulated with the utmost nicety, or the supply be shut off altogether; this valve is fixed a little below the level of the perforated pipe. The action of this contrivance was evident enough from the motion communicated to the foliage of the Vines; and its effects were apparent in the unusually healthy and vigorous appearance they bore, until their period of ripening. In this case, sufficient moisture was kept up by sprinkling the walls and pipes, watering the pathways, and by the use of evaporating troughs placed on the metal pipes, and kept constantly filled with water."

Another instance of a good arrangement for ventilation will be found at p. 772 of our volume for 1848, where the following cut is given of a capital Pine pit in the garden of the Hon. R. CLIVE, at Howell.



Here the effect is obtained by the drain A D opening into a vault containing open hot water tanks, and escaping, loaded with moisture, into the body of the house at E.

Many other contrivances of a similar kind might be pointed out; but what we have now said is, we trust, sufficient for the present. We will only add that the Polmaise plan owes much of its excellence to the perfect way in which it accomplishes such purposes.

A CORRESPONDENT says, "What is best to do with the border under a wall of a quarter of a mile long, which has been made for 300 years, and which is quite exhausted? Fresh trees canker and die as fast as they are put in. As to the notable receipt of shaving the surrounding fields of their topsoil, it is too absurd to be practised. There must be some other means more within the range of common sense."

We quite agree with him, and invite our practical and scientific friends to discuss the matter. For ourselves we are by no means disposed to undervalue the importance of the top spit of a rich loamy pasture, if people can afford to plunder their estates of the best soil which they contain. But as to the *necessity* of the practice, that is another thing, on which it is full time that attention should be fixed.

FANCY TRAINING.

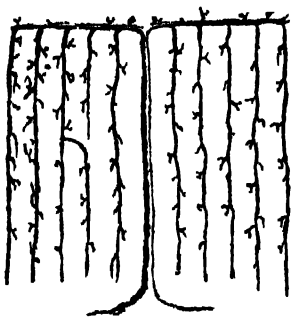
PERHAPS some of the following modes of training may afford the readers of the *Gardeners' Chronicle* as much quiet amusement as they have to *W. P. L.*

No. 1.—PEAR.

Trained against a gable end or chimney-back. If this pattern be drawn out to double this length and the same breadth, it will look well, not having too many tiers of branches. Branches laid in not exceeding 9 inches apart; whole breadth of the tree on the wall, only 3 feet.

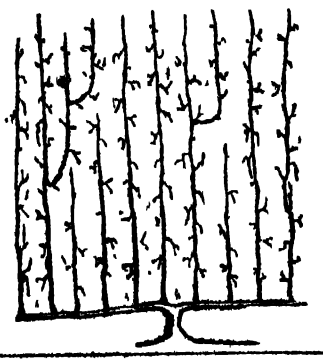


No. 2.—PEAR.



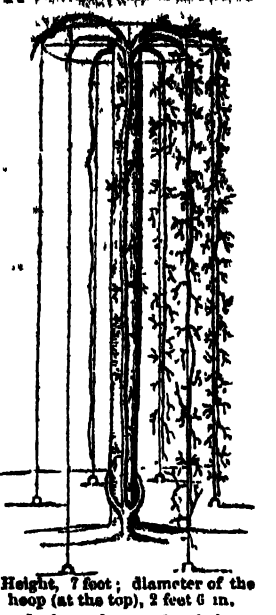
Total width 6 feet, on an 8 feet wall.

No. 3.—PEAR.



No. 4.—PEAR.

This method has a good appearance, one of the best. If trained with 3 ascending stems, which are stopped at the top and then brought down in six branches. There will be found space enough for light and air for maturity of the fruit on the three ascending branches, which should be aimed at, in the culture, as well as on the descending shoots.



Height, 7 feet; diameter of the hoop (at the top), 2 feet 6 in.

The descending branches are neatest when trained on a light wire (of about the strength of a bell wire), which will last sufficiently long till the shoots reach the ground, when their extremities may be there fastened as the wires were.

Light stakes may answer the purpose as well, but they do not look so neat; and if they have to be bought will probably cost as much as the wire.

Observe in fixing this, and the other poles (where such are represented), to dig a hole 3 feet deep, and ram the earth round the pole 18 or 20 inches from the bottom, very hard and fast, as the pole will have to be supported by that altogether. The earth for the upper 18 in. in depth in the hole should be cast in lightly, as it is in this that the tree will have to be planted. Except this is minded, and a labourer is set to the work, he is sure to fix the pole as he would a gate-post—ramming the soil equally hard up to the very surface.

Only one branch is represented on this plan, to obviate confusion, except where it divides at first from the lower part of the stem.

The same method may be adopted by running four branches straight up the pole, stopping them frequently in their progress for spurs.

THE AMATEUR GARDENER.

TREATMENT OF PLANTS INTENDED FOR BEDDING OUT.—At this season of the year, there is a danger which the amateur should guard against, because it is one to which gardeners are very prone, and if fallen into will be productive of much loss and disappointment: I mean the premature committing to the flower-beds the more tender plants which have been carefully preserved during the winter, and on which the beauty of the summer season is so dependent. During the months of April and May, the skies are often so propitious, that we cannot but believe the winter is quite departed. With sultry nights and brilliant days we banish every thought of frosts and bleak winds; all hands are set to work to turn out our Pelargoniums *et hoc genus omne*, and we flatter ourselves that we shall have a long and prosperous summer. But we soon find we have committed the folly of the birds who anticipated the pairing time; north and east winds return, and night frosts re-assert their iron rule, and a few hours blast the labours of a whole winter.

Having a crowded frame, and tempted by the balmy gales and soft showers which prevailed about the middle of April, and persuading myself that vegetation never would be so forward if cold weather had not quite retired, I was foolish enough to act in the manner I have just described. I turned out 40 or 50 plants into the places I had destined for them, and immediately repented of it. The recent frosts have nipped them, and although death has not been the result, they are sadly robbed of their beauty, and I have lost much time by the experiment. I hope I shall profit by this lesson, and act up to the resolution I now advise others to make—never to turn out tender, or even half-hardy plants, until the middle or end of May. Resist every temptation to break this resolve, and I am certain you will be saved much disappointment and loss.

But the important question arises—What is to be done with those plants in pots which are intended for ornamenting the beds in summer, but which grow too rapidly for their present confined quarters? This matter must now receive the immediate and careful attention of the gardener, since many productions may become permanently stunted by being left too long in small pots. Now, it should be remembered that vegetable growth may be retarded without inflicting any injury on plants subjected to the treatment. The pots should be removed from a sunny spot to the shade of a north wall, where they will continue in *statu quo* for many weeks. They should be defended from much rain, and receive protection enough to avert frost, and no more. By these means the growth of roots will be checked, and there will be a marked difference between plants so treated, and those subjected to warmth in a glazed frame. This retardation of growth will be of service many ways, and will result in the production of finer plants at a future period; but I mention it now only as a means of preventing those plants being pot-bound and injured, on which so much of the beauty of the season is to depend.

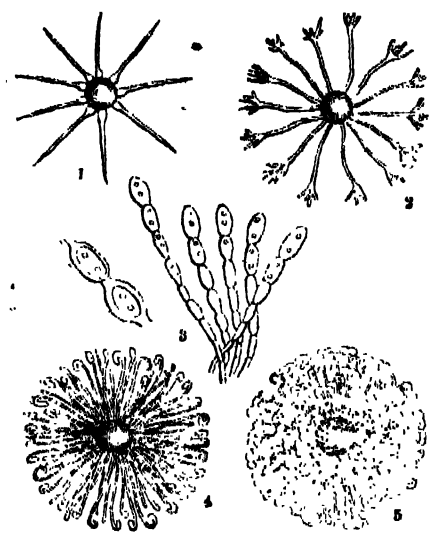
If your stock of plants is small, and you have plenty of frame-room, you may repot them as it becomes

necessary, and thus turn out the whole in a highly developed state at the end of May or beginning of June. Many things will do well in this way, but generally, greenhouse treatment is not favourable to plants which are afterwards to be turned into the borders. The tenderness they acquire by being kept under glass, or even being covered up at night, exposes them to checks when planted in the open air. This would not be the case, indeed, if they were not turned out till the summer had become established; but too much time would thus be consumed in preparatory management. Another good plan is to cover over at night with a flower-pot, any plants which you are disposed or compelled to commit to their destined place. In all these questions an enlightened judgment must guide you, the object being to have your parterres gay with flowers for as long a time as possible.—*H. B.*

DISEASES OF PLANTS.

[Erysiphe. Mildew. Mehlthau (mealdew) of the Germans.]

Common as are the productions which it now comes to our turn to examine, and notorious as is their noxious influence on vegetation, the history of their development is but imperfectly known. They consist of little globules changing from a more or less deep yellow to black, springing from a floccose web, and filled with sacs containing the reproductive organs, and at a certain stage of growth putting out from all parts of their circumference long variously formed fibres, which lift them up from the surface of the leaves in which they grow, and imbibe their juices; and they are always preceded by delicate threads which are mostly white, but occasionally greyish, consisting of little bead-like joints, of which the uppermost fall off and, it is believed, like so many germs, vegetate, and thus quickly gain possession of the infested plant. These mealy patches are called by botanists, according to their degree of development, Oidium or Erysiphe, and are too well known to cultivators under the general name of mildew.



1, Erysiphe guttata; 2, E. penicillata; 3, E. graminis; 4, E. adunca; 5, E. bicornis; all after Corda.

It has not, indeed, been positively proved that the Oidium is an early stage of the Erysiphe, but the one so constantly precedes the other, that it is more than probable that they are merely different stages of growth of the same thing. The Peach, especially, suffers from the attack of such a parasite, and is only very lately that the second or more perfect form is developed. If, however, the young shoots be examined late in the season they will be found coated with a thin floccose web of the same nature as that which succeeds to the mildew of the Rose, known to the French under the name of "Blanc de Rosier." The Peach mildew is a well-known post not only of forced Peaches, but of those grown on exposed walls, even in the most favourable aspect, and when once it gains possession of a spot it is not often that it is extirpated. Various plans are resorted to by gardeners to hinder the growth of this troublesome parasite, of which, perhaps, the most general is flowers of brimstone, at the best a very doubtful remedy. Where it grows upon the fruit probably more is done by the action of rubbing it on than by the brimstone itself, which, in the shape of a crude powder, can scarcely have much effect, and possibly the best remedy next to taking care that the trees are flourishing from proper attention to soil, and as free an admission of air as consistent with the object in view of early produce, is washing the walls with something which may either destroy or cover the minute spores, or, as recommended by a German writer, syringing the whole plant well with a strong solution of brown soap. Where trees have been destroyed by mildew, it is quite useless to plant another in the same position without some such precautions. We have seen three generations in succession destroyed by mildew, in the course of a few years. It is not, however, Peach trees alone that suffer from this cause. There is scarcely a natural order of plants in our temperate climate which is not affected by it. In tropical countries, the genus has not at present been detected, unless, indeed, a very anomalous production on the leaves of Jacquinia armillaris be justly referrible to it, which we have from Jamaica. Beds of seedling Whitethorn, and it is said Pansies, are often much injured by it. Its effects on Pea crops are too visible to escape notice, the whole plant being soon clothed with it, as if coated with a cinereous wash. Hops, too, are notoriously affected by a similar plague, and during the last year scarce a field of Wheat was free from the attacks of Erysiphe graminis, but probably from some favourable turn in the season did not seem to suffer from it. It is not probable that a sure remedy will ever be found for such an universal pest, to the development of which all seasons seem favourable, and which is alike produced in the most sheltered and exposed aspects, and if, as is certain, though many true species exist, one or two forms are perfectly indifferent as to the plants on which they grow, it would be quite hopeless to attempt a remedy. We have exhibited one or two of the principal forms in one figure, from which it will be seen that the species are beautiful microscopic objects. The whole subject is well worth the attention of any one who has leisure to make the necessary observations.—*M. J. B.*

Weekly Prices of Potatoes per ton, in *Covent Garden Market*, in 1845, and 1846.

	1845.			1846.	
March	22	60s. to 100s	March	21	70s. to 180s
	29	60 100		28	70 180
April	5	60 90	April	4	70 180
	12	60 90		11	80 180
	19	60 90		18	70 180
	26	60 90		25	70 180

Also at the waterside, *Southwark*.

March	24	55s. to 80s.	March	23	60s. to 140s
	31	55 80		30	60 140
April	7	55 80	April	6	60 140
	14	55 80		13	60 140
	21	55 80		20	60 140

Home Correspondence.

Vine-growing.—Grape growers, during the time in which Vines are in flower, recommend the house to be kept close, and by no means to admit air unless the sun happens to raise the temperature too much. What may the maximum temperature of sun-heat be during such a period? And how do the Polmaise growers get rid of the constant current of air, both by day and night, which would appear prejudicial to Vines in bloom, as they are supposed to set best in a close moist heat. As Mr. Roberts in his "Treatise" recommends high temperature, and a very humid atmosphere, perhaps he will be enabled to state (if he has tested Simmons's Hygrometer) what that instrument should indicate when the Vines are in flower, and during the swelling of the fruit?—*A Subscriber.* [Nothing can be more contrary to reason than the practice of keeping air moist and still while the Vines are setting. We have long since exposed this error.]—— I shall be extremely glad to hear your opinion about a plague that has visited my Vines. The winter before last I put a wooden tank covered with slate and laid in whitelead, round a house of 40 feet, and took up part of the old Vines to replace them with Muscats and other first-class sorts. The half of the Vines remained. They showed fruit very well, but just before breaking into bloom, turned just as you see the specimens, and all with a trifling exception went off. I attributed it partly to the border, and partly to the old gardener insisting on an immense heat at night. This year, I divided the house temporarily, keeping one part for forcing, and the other with the old Vines as a Vinery. The portion of Vines left in the forcing house are gone, just as you see. Those in the outer house are, as yet, safe, with a perfection of healthy wood and show of fruit. The border outside is covered with dung, on Roberts's plan. Now, what is the cause? Can it be the whitelead, the fumes of which are too visible to the organs on entering the house when at 70°. We can find no other cause. It cannot be the border, because the young Vines are in a new made one, of the best construction, and have no possibility of damp or other inconvenience. Every plant in the house, of which, until I get additions made, there are a great number, Oranges, Azaleas, &c., &c., are all in perfect health, and not a sign of anything but in the unhappy bunches of Grapes, which curl up just as you see. The gardener thinks he perceives a black spot on some of the heads just as they go off. In the meantime, we have lowered the temperature of the outer house to 60°, and covered the tube with soil to absorb the lead, if that be the cause; and the atmosphere is sensibly altered since yesterday, being now quite fresh, whilst the inner house has still the heavy dead feel, and the gardener says when he opened it this morning, it was oppressive in the extreme. I have gone to a great length, as it is interesting. If it be the whitelead, I will remedy it in some way, by substituting cement or some other means.—*W.* [We do not conceive that the fumes of whitelead can be the cause of the evil complained of, because, if they were, they would have turned the edges of the young leaves yellow. We presume that the house is too damp, and fill *ærated* (see Leading Article of to-day). Muscats are very tender, and will not bear the treatment of Black Hamburghs.]

Cotoneaster microphylla.—Of two plants of this on my lawn, one only is growing as your correspondent "Curiositas" has described, with all its branches leaning towards the north; the other throws its boughs out equally on all sides of the stem. The former of these is set on a sunny slope towards the south; the other on a bank with a north-eastern aspect. But for the question of your correspondent, I should have said, that it was a shrub peculiarly sensitive of wind, and that while one of these two plants has shrunk from the prevailing wind in this part—the south-west, the other being sheltered from it, has been enabled to take its natural form and growth.—*R. W.*

The Potato Fungus.—Mr. Moore, of Glasnevin, has sent me this morning a leaf of a Potato clothed with our old enemy Botrytis infestans, from Potatoes in the Royal Botanic Garden, Dublin. Everything seems to tend to a repetition of the ravages of last year. I am persuade nobody here that there are any fears, and all advice is vain.—*M. J. B.*

Weather Rules.—I feel much obliged to "M. E. A." for his notice of my queries respecting Dr. Kircher's weather tables. I wish, however, he had favoured us with his place of residence, as, from a comparison of his statement with that of "J. B. H." which immediately follows, we are led to the conclusion that the wind blew from directly opposite points in their respective localities, and consequently are puzzled as to the application of Dr. Kircher's rules. Are we to anticipate a dry summer at Abergele, and a wet one in the neighbourhood of "M. E. A.?" and will not a similar discrepancy in different localities invariably tend to perplex an inquiror, and prevent anything like a useful application of Kircher's rules? "J. B. H.," who states the points of the compass from which the wind blew on some given days during the years 1843-4-5, omits to state whether the summers of these years agreed with the rules, or contradicted them.—*G. W.*

Polmaise Heating.—A short time ago I was invited by a neighbour to inspect a new mode of heating horticultural buildings, which he termed the Polmaise system. He had erected a small pit running north and south, at one end of which, by way of experiment, he had built a chamber, in which he placed a very small iron stove. At the top of the chamber a hole was made into the pit, through which the hot air flowed at the bottom of the chamber. Immediately under the fire was the mouth of a drain, which ran to the other end of the pit, and through which the cold air was drawn. I went into the pit and found there was a stream of hot air flowing from the chamber at a very high temperature, so hot that it had discoloured the paint on the wood directly above. A thermometer was placed at each end of the pit; the one most distant from the pit indicated 71°, and the other 70°. The current passing along the top could not have been less than 90° in the centre of the pit, and nearer the chamber much higher. He proposed to modify the heat at the entrance from the chamber, and moisten the air by hanging a wet blanket over the hole. This part of his plan I objected to for many reasons, and being about to erect a pit of similar form I resolved to get rid of the blanket, which I have, as well as of all the other objections given in your Paper, and that too at a very light expense. I think I can convince you that I have set this grand principle free, and thus disencumbered it of the load of objections so unworthily heaped upon it. Every other mode of heating horticultural buildings will soon disappear; its cheapness, safety, and fitness will, I am sure, throw out of use the boiler, pipes, tank, and manure-bed. I will now attempt to describe my pit; it is 42 feet long by 8 feet wide inside, high roofed, having an east and west aspect, with a wall across the middle, dividing it equally. One half is used for propagating, and the other for greenhouse plants. At the end of the propagating compartment, I have built a chamber 30 ins. wide by 36 ins. long, and 24 ins. high. In this is placed an iron stove, 17 ins. long, 12 ins. wide, and 12 ins. in height; about 12 ins. of the air-chamber is carried into the pit; the propagating part is covered with strong slates, giving a chamber of 21 ft. long by 8 ft. wide, and 30 ins. deep. Into this the hot air flows through a hole at the top of the chamber, over which I have placed a piece of sheet-iron, which is bent downwards to diffuse the heat and prevent its violence doing injury. From the bottom of the chamber a cold-air drain is carried the whole length of the pit, terminating with an eye at the end of the cold compartment. On this eye a slide is fixed to close the drain when required. In the large chamber there is another eye, which is left constantly open. I have built a small flue round the large chamber; the smoke is conducted through the hot-air chamber into the flue, and back into the chimney by iron pipes, which assist in heating this part as well as in giving an additional draught to the chimney, as will be readily perceived by the return-pipe passing through great heat. When I wish to warm the part intended for plants I can do so in a few minutes, by drawing a slide which covers a hole that passes through the division wall into the large chamber. This second chamber cannot be dispensed with, let you apply it to the greenhouse, stove, pit, or frame; the absence of a second chamber must prove fatal, or at least be very inconvenient; hence it is that we hear of scorched leaves, wet blankets, boilers, &c. With a second chamber none of these will be either heard of or required. The second chamber can be easily made in any house; in the Orchid house or stove it may be the stage, and if a greater top-heat is required, draw your slide, and immediately you have a stream of warm air charged with moisture to any extent required. This I can prove by experiments in my own pit. I have gone into the cold compartment when the thermometer has stood at 65° in the propagating part; having previously opened the door of my air-chamber about ½ inch, and drawn the slide, the vapour gently flowing through has filled the place in a few minutes, at the same time

gradually raising the thermometer until it has reached 60°. As respects the heat generally in the propagating compartment, I certainly never heard of any construction that would retain heat so long with so small a portion of fire. I got 10 cwt. of coke, which cost 3*s.* 4*d.*(!); this I have been burning these three weeks, and I expect it will last three weeks longer. I have kept up a high temperature constantly. I have frequently left the pit at 65° at nine o'clock at night, and found it at 58° in the morning. On one occasion I left it at 60° and found it in the morning at 52°. I have often left the fire for 12 or 14 hours, and have found the heat very little diminished. Now for the expense of the apparatus. The whole of the iron work, including the plate and also the stone slab, cost 4*l.* 6*s.*, and even this expense might be considerably reduced by purchasing a ready-made stove. The hot-air chamber and flues were built by one man in about a day and a half. The flues I had built merely to prevent the escape of heat, and to save fuel. As for repairs, I do not expect any will be required for 10 or 15 years, except that the flues may want cleaning in three or four years.—*Isaac Davies, Larkfield Nursery, Wavertree, near Liverpool.* [We shall endeavour to find room for some plans by "J. H. H" next week.]

Bee Trees in the New Forest.—In a decree of the Court of Exchequer (26 Elizabeth), is the following passage:—"It is likewise ordered that the said keepers of the New Forest, shall each of them in his several walk, have only such windfall trees and boughs where no part of the root is turned up, and in boughs also, only to so much thereof as the bees do light on, and the honey that shall be found on the tree, but not to cut away any main bough or tree by colour thereof."—*Thomas Falconer.*

Covering Walls with Glass.—I have for three years adopted the plan of covering Peach and Nectarine trees, as also Vines, with wooden frames and moveable fronts; but I cannot say they have quite answered my expectations. Some of the fronts are glazed, others are covered with oiled lawn, and all removable when the fruit is considerably advanced. I do not perceive much difference between the glass and the lawn. I think the latter the warmest, and as the covers are principally used at night, the only advantage of glass is its durability. The difficulty I experience is the want of a little heat so as to advance the growth in spring and get the fruit and wood well ripened in the hot weather. I have tried a lamp without any sensible effect. The thermometer inside the glass ranges nearly the same in half an hour as that in the open air; so that the principal protection is to the young flowers against wind and rain. Unless your correspondent can devise some cheap and easy means of introducing and continuing sufficient heat to resist the frost, we shall obtain little advantage, and run the risk of advancing the blossom only to see it nipped in the bud. I have a roller blind over the glass; and the promise of this mild spring is certainly greater than in the two preceding years. The difference between the trees covered and uncovered is very manifest, both in size and quantity; but I have had my frames on these two months. The fronts should be hung from the bottom and not from the top; the latter plan encourages the fly. The syringe is a dangerous auxiliary without some means of evaporation, and unless your ingenious correspondents can devise a method of introducing a current of warm air, I augur little advantage from these protections in ordinary seasons. I may add that they do not answer so well for Vines as Peaches and Nectarines; the former filling the box full of wood. —*Amateur.*

Vegetable Phenomenon.—As Mr. Mallison has submitted his paper on this subject to your readers in the hope "of eliciting parallel instances," I beg to state that there is an occurrence of the same kind at Dalkeith Park, N. B., in a Lime-tree; and another in an Elm-tree, at Charborough Park, Dorset. Both are very similar to the representation given at page 252, only the trunks or branches are much smaller, and higher up than in the one just referred to.—*J. M'Intosh.*

——There is in the parish of Bayton, in Worcestershire, an Oak which goes by the name of the self-bored Oak. It has an aperture resembling that mentioned by "F. A.," and the country people think that they cure the hooping-cough by passing their children backwards and forwards through it. I remember a man upon whom the operation had been performed. The hole is not larger than will admit an infant, and I think has contracted since I remember it. The Oak is pollard, and stunted. It grows on the property of C. Wicksted, Esq.—*Anon.*

Cement.—If "An Inquirer" wants a cement, pray recommend the following:—Fill a bottle with isinglass chips, and pour in as much gin as the bottle will hold. The isinglass will be dissolved, and become a jelly; and when wanted for use must be placed in hot water or before the fire, to bring it to a fluid state.—*Anon.*

Temporary Vineries.—I am about to put up a temporary Vinery. I have eight lights, 14 feet long, and propose to make a boarded shed about 8 feet high, at the back, and to ventilate by two front glass openings, and two at the back; and to place in it a large Arnott's stove, surrounding this with woollen cloths, or worsted nets, some of the strands to be in water. I conceive this will be quite sufficient for late crops. At the back I propose to train Figs. If any of your correspondents have any experience as to such a house, I shall be glad of information.—*Dodman.*

Heating.—I have fitted up a low forcing-house with an iron tank, and have the boiler in the house; thus getting the bottom-heat over the tanks, which are covered with slate, and the air of the house is heated by the iron of the tanks, and that produced by the boiler. The boiler is small, and does not take up much room; and this evil is more than compensated by the great additional heat obtained. The boiler is of iron, made by Messrs. Smith and Co., of Leamington. The tanks are 30 feet long, and these, with the boiler and putting up (exclusive of the brick supports), cost 25*l.*; it is easily managed; the consumption of fuel small. On the whole, I think, for a small forcing-house, this is one of the best I have seen.—*Dodman.*

Effect of Burning Green Wood in Stoves.—My gardener, in a fit of economy, burnt in the furnace of a Pine-stove a quantity of green wood; the result has been that the bricks of the flue have become impregnated with pyroligneous acid, or some deleterious material, so as to cause an unpleasant effluvium, and materially to injure both Pines and Strawberries in the house. What will be the best plan (short of pulling down the flues) of removing the evil.—*J. P., Cheshunt.*

Liquid Guano.—I think it worthy to mention the good effects derived from the diluted concentrated extract of Ichaboe guano, by all plants in the greenhouse. I have a plant of Lowndes' Perfection Pelargonium in an 8-inch pot, measuring 5 feet in diameter, on which, three days ago, I counted 53 trusses of expanded bloom, and there were altogether at one time visible on the plant 227 trusses. I water my Fuchsias once a week with diluted clear guano-water at the rate of one table-spoonful of the extract of guano to a gallon of water, and the plants are thriving more than usually well.—*Lyston.*

Bell Glasses.—I have been a constant reader of the *Chronicle*, and it has struck me as strange that every Number has an advertisement about glass, and that no manufacturer has ever hinted at bell-glass, so much used in olden times, and so much wanted in the present day. I am persuaded that a ready sale might be found for such articles, made of any common strong glass, coloured or plain. In one of your Numbers you alluded to an insect-trap, but no one has ever made them. Everybody conversant with a garden would buy bell-glasses. The trap was of this form, to hang on walls. I propose that you should tell us where we can procure bell glasses, 2 feet across and of less sizes, the large ones like carboys, and decreasing; a hole at the top, or solid, of strong green glass, like wine-bottles.—*X. Y. Z.* [We are unable to afford the information desired. We quite agree in the importance of these things. Very common glass would do.]



Societies.

HORTICULTURAL SOCIETY.

April 21.—R. W. Barchard, Esq., in the chair. The Earl of Scarborough and Mr. J. Foster were elected Fellows. A paper was read from Mr. Maher, relative to the prevailing disease in Potatoes, the principal features of which were as follows. A thunderstorm, accompanied by high winds, having occurred in July 1845, washing away the soil from the tubers, Mr. Maher was of opinion that the disease was caused by the heated water passing down by the cavity formed by the wind-waving of the haulm, and that the malady might be prevented from further spread by storing the tubers when taken up in perfectly dry earth. Specimens illustrative of the good effects of this mode of storing were produced. These evidently showed that they had at one time been diseased; but that its further progress had been stayed by this method of storing. Mr. Maher was also of opinion that the remaining sound portion of the tuber might be safely used as sets for the next year's crop. In regard to other matters, Mr. Rae, gardener to J. J. Blandy, Esq., sent various Orchids, especially a fine specimen of the showy Cattleya Skinneri, Peristeria Humboldti with four pendulous spikes of dingy spotted blossoms, the sweet-smelling Lycaste aromatica, Oncidium pictum, Huntleya violacea with curious violet-coloured flowers, having something of the appearance of a bivalve shell, and a seedling Azalea. A Knightian Medal was awarded.—From Mr. Alnutt, of Clapham, was a large specimen of Kennedya coccinea, for which a Certificate was awarded.—Mr. Dobson, gr. to Mr. Beck, of Isleworth, received a Certificate for a fine specimen of the larger and best variety of Oncidium ampliatum.—From the same collection were also Oncidium luridum and papillo, and the beautiful golden-veined Ceylon Anectochilus setaceus, growing in company with the silver-veined American Physurus (——) under a bell-glass in an elegantly-formed Orchid basket, similar to those represented at p. 35. It was constructed of green slate, held together by brass clasps, and had altogether a very neat appearance, and was well calculated for being placed in a drawing-room.—Mr. Conway, of Brompton, sent a large, coarse-looking Fuchsia, named Goliath, exhibiting a multiplication of the petals. Sports in this tribe being of frequent occurrence, it is not impossible that this, although probably the first double Fuchsia which has been exhibited, may be only the forerunner of a series of double-flowered varieties much more symmetrical than the subject in question. —Mr. Redding, gr., to Sir J. D. Broughton, Bart., produced two magnificent cut specimens of a purple Rhododendron, named Alta-clerense Broughtoni, and Messrs. Veitch and Son, of Exeter, sent a Saccolabium, stated to be new, but which, if not S. miscanthum, very much resembled that species.—Messrs. Fairbairn, of Clapham, received a certificate for a famous specimen of Erica vestita coccinea, every branch of which was surmounted by a ring of bright red blossoms.—Mr. Moore, gr. to R. Hanbury, Esq., sent Oncidium albo-violaceum, one of the most delicate of its class, for which a Certificate was awarded; and a sweet-smelling Epidendrum, from Honduras, apparently E. variscosum, was exhibited by Mr. Low, of Clapton.—Mr. Jackson, of Kingston, sent an Epacris-like plant, with small white flowers, from Swan River; and beautiful cut blooms of the Poppy Anemone, came from Mr. Marshall, of Surbiton.—Mr. Glendinning, of the Chiswick Nursery, sent Begonia albo-coccinea, a pretty pink-flowered sort.—From Mr. Anderson, gr. to the Marquis of Bath, was Lælia flava, a pretty yellow-flowered species, forming a striking contrast with the purple-blossomed kinds. From the same garden was also a sample of Ash-leaved Kidney Potatoes, which were said to have been produced from diseased sets. These were clear-skinned, fine looking specimens, and apparently free from disease. One which was cut, however, for the purpose of trying them, very soon became discoloured in the centre when exposed, which is characteristic of the disease in an early stage.—From Mr. Plant, gr. to J. H. Schroder, Esq., were Vanda cristata, with bright brown streaked blossoms of no great beauty, and a good specimen of the showy Pimelea spectabilis.—Mr. Ayres, gr. to J. Cook, Esq., of Brooklands, sent an exceedingly well-managed Stephanotis floribunda, loaded with sweet-scented white blossoms down to the very pot, and a well-grown Ixora crocata, a pretty species, well deserving of more extensive cultivation than it has received. A Knightian Medal was awarded for the Stephanotis.—Of Fruit, a handsomely-grown Queen Pine-apple, weighing 3 lbs. 7 oz., came from the garden of the Marquis of Bath; and a certificate was awarded to Mr. R. Fish, gr. to Col. Sowerby, for beautiful specimens of British Queen Strawberries, which were mentioned to be most suitable for forcing when very early fruit is not wanted.—Mr. Hutchinson, gr. to E. J. Shirley, Esq., again sent specimens of ripe Peaches, which were, however, inferior to the sample produced at the last meeting. Finally, various foreign fruits came from Messrs. Keeling and Hunt, of Monument-yard. These consisted of fruit of the Banana, a Yam, Tangerine Oranges, Sweet Lemons, Forbidden Fruit, a Water Melon, Blood-red Oranges, and two cones of the Pinus Pinea, or Stone Pine.—From the Garden of the Society were the showy Cattleya Skinneri, a Guatemala species, the lilac blossomed C. intermedia, Oncidium altissimum, Achimenes picta, a red Indian Azalea, Disocactus biformis, a scraggy Cactaceous-looking plant with small purple flowers; varieties of Hippeastrum Johnsoni, Cytisus canariensis, a seedling Cineraria, the beautiful Berberis trifoliata, which has been proved to be hardy, Cuphea pubiflora or strigillosa, and Arctostaphylos nitida, a Mexican shrub, introduced by Mr. Hartweg, which is not sufficiently hardy to withstand the rigour of our winters, and not gay enough to gain for it a place under glass. Packets of a dwarf Canadian Haricot were distributed among such Fellows as wished to receive them; and it was mentioned that Potatoes, from New Grenada, were at the service of those who might express a wish to have them.

LINNEAN SOCIETY.

April 21.—E. Forster, Esq., in the chair. Mr. N. B. Ward exhibited a specimen of the stem of Pteris caudata, upwards of 7 feet in height. This plant abounds in New Zealand, where with its leaves it attains a height of from 20 to 30 feet. He also exhibited a specimen of Uncaria procumbens, from the Cape of Good Hope, a plant belonging to the natural order Pedaliaceæ, and which produces a fruit whose carpels are furnished with strong hooks, hence it is called at the Cape Grapple-plant.—A paper was read from Edwin J. Quekett, Esq., on the structure of starch and chlorophyl. After detailing the remarks of Möller and Nægeli on the development of starch and chlorophyl, the author gave the result of his own observations on several species of exogenous and endogenous plants. He agreed with Nægeli and Möller, that starch and chlorophyl, as well as cellular tissue, are developed from a nucleated cell or cytoblast, but he differed from these observers, in the fact that instead of having seen the starch granules developed in the cytoblast, he had always observed them external to that body. They had, however, made their observations on Acrogens, whilst the author had confined himself to exogens and endogens. The plants which he examined were a species of Circæa, the tuber of the Potato, Lilium bulbiferum, and Iris germanica.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

April 22.—This, the first meeting for the season, was held in the Horns Tavern, Kennington. The display of Auriculas and other Florists' flowers was tolerably good. The miscellaneous collections were numerous; one or two interesting single specimens were produced, and altogether the exhibition may be considered an improvement on the last spring meeting. As the Auriculas form the principal feature of this show we will begin with them.

In the *Private Growers' Class*, for the best pair, the Large Silver Adelaide Medal was awarded to W. Trahar, Esq., for Dickson's Duke of Wellington and Unique. A small Victoria Medal, as 3d prize, was voted to J. Chapman, Esq., for Page's Champion and Sykes' Complete. 3d, a small Linnean Medal to W. E.

Gilligan, Esq., for Mathilde's Enchantress Hero and Oliver's Lovely Ann. For the best collection of six Auriculas, the first prize was awarded to W. Trahar, Esq., for Dickson's Duke of Wellington, Hudson's Apollo, Conqueror of Europe, Redman's Metropolitan, Dickson's Duke of Wellington, and Oliver's Lovely Ann. 2d, small Victoria, to W. S. Ginger, Esq., for Kenyon's Ringleader, Grimes' Privateer, Laurie's Field Marshal, Oliver's Lovely Ann, Dickson's Duke of Wellington, and Stretch's Alexander. 3d, small Adelaide Medal, to J. Chapman, Esq., for Sykes' Complete, Clegg's Crucifix, Squire Maundy, Chapman's Maria, Oliver's Lovely Ann, and Cockup's Eclipse. In the *Nurserymen's Class*.—For the best pair of Auriculas, the 1st prize, the small Silver Victoria Medal, was won by Mr. James Dickson, for Dickson's Duke of Sussex, and Matilda. 2d, by Mr. N. Gaines, for Hudson's Apollo, and Wild's Bright Venus.—A prize was awarded to Mr. James Dickson for a collection of Auriculas, finely bloomed, and in excellent condition; among them we noticed Dickson's Earl Grey, Duke of Cambridge, Matilda, Duke of Wellington, Lytton's Imperator, Page's Champion, Headley's Seedling, &c.; and Mr. J. Chapman, received the small Victoria Medal, for a large and well assorted collection. Among the seedlings exhibited 1st class Certificates were awarded to Dickson's Lady Sale and Chapman's Sophia. The Silver Cup presented by Mr. Dickson for the best four Auriculas, was awarded to W. Sandiland, Esq., who exhibited Headley's Royal Purple, Taylor's Glory, Kenyon's Ringleader, and Page's Champion. The entrance fees, forming a 2d prize, were given to John Chapman, Esq., for Oliver's Lovely Ann, Clegg's Crucifix, Smith's Mrs. Smith, and Star of Bethlehem; and the Gold Medal presented by W. Trahar, Esq., for a collection of six Auriculas raised and grown by the exhibitor, was won by Mr. J. Dickson, whose stand contained the following six first-rate flowers: Dickson's Unique, Earl Grey, Duke of Cambridge, Duke of Wellington, Matilda, and Richard Headley.—In Heartsease, the 1st prize in the *Amateurs' Class* was given to — Edwards, Esq.; his collection comprised: Hannibal, Dido, Mulberry, Superb, Victory, Jehu, Arethusa, Perseus, Tom Pinch, Sulphurea elegans, Hunt's Wellington, Regulator, Madonna, Unique, Eclipse, Optimus, Acteon, Imogene, Isabella, Pilot, Pizarro, Vivid, Defiance, Exquisite, and Jewess Superb.— 2d prize to H. Brown, Esq., of Camberwell, for Jehu, Excellent, Hudson's Bay, Cotherstone, Arethusa, Regulator, Ne Plus Ultra, Seedling, Virgil, Yellow Defiance, Madonna, Purity, Hannibal, Isabella, Dulcifer, Dido, Mary Jane, Victory, White Sergeant, Bridegroom, Exquisite, Pizarro, Success, and Dolight.—1st prize for Nurserymen was awarded to Mr. Turner, of Chalvey, for Hamlet, Novelty, Rubicon, Perseus, Madonna, Titus, Isabella, Daughter of St. Mark, Jehu, Juno, Princess Royal, Viscount Hardinge, Prince of Wales, Arethusa, Curion, Tippoo Saib, Mary Jane, Purple Perfection, Sul. elegans, Caractacus, Azurea grandiflora, Pizarro, Optimus, and Dido.—2d prize to Mr. Thompson, of Ivor, for Mary Jane, Constellation, Tom Pinch, Exemplar, Cygnus, White Sergeant, Regulator, Virgil, Jehu, Desirable, Fanny, Madonna, Rob Roy, Lady Middleton, King of Saxony, Pompey, Hamlet, President, Purple Perfection, Excellent, Exquisite, Conservative, Duchess of Rutland.—The Large Silver Victoria Medal, offered by Mr. Ivery, for the best 12 Cinerarias in pots (amateurs) was awarded to Mr. Young. Several seedlings were exhibited; the following were selected by the judges for first-class Certificates:—Ivery's Prime Minister, Bianca, and Pride of Dorking. A large collection of Cinerarias in fine flower, was exhibited by Mr. Ivery, not for competition.—For the best collection of Miscellaneous Plants, the Royal Adelaide Cup was awarded to Mr. Bruce, gr. to B. Miller, Esq. In this group were Ixora coccinea, a double red Azalea, Leschenaultia formosa, in fine condition, a splendid Aphelexis humilis, finely grown plants of Adenandra speciosa, and Gnidia pinifolia, and several Cape Heaths.—The second group was from Mr. W. P. Ayres, gr. to J. Cook, Esq., of Brookiands, and was scarcely, if anything, inferior to the former. It comprised the same Stephanotis floribunda mentioned in another column, a healthy plant of Cyrtoceras reflexum, Boronia serrulata, the beautiful blue-flowered Hoves Celsi, a small but compact plant of Leschenaultia formosa, a variety of Aphelexis sesamoides, a white Indian Azalea, and several other plants, including some good Cape Heaths. A Gold Medal was awarded for these.—A Silver Medal, as second prize, was awarded to Mr. Young, of Camberwell, for Aphelexis humilis, a good plant of the yellow-flowered Erica Petersonii, a neat plant of Cytisus racemosus, and the elegantly drooping Cereus Mallisonii.—The next group was from Mr. Kay, of Norwood, who sent a collection consisting of a purple Azalea, Euphorbia splendens, a good Achimenes longiflora, a small Hardenbergia monophylla, a white Indian Azalea, and a tolerably good Epacris impressa.—A fourth collection came from Mr. Hamp, gr. to J. Thorne, Esq.; in which we remarked a good Erica Cavendishii, a Pimelea spectabilis, and several Heaths.—In the *Nurserymen's Class*, the only competitor was Mr. Pamplin, who contributed well-grown specimens of Prostanthera violacea and of Pultenæa stricta, the latter dwarf and bushy, a neat little Boronia serrulata, the pink-flowered graceful-looking Colocasia gracilis, a large Acacia, and several Heaths.—A Silver Medal was awarded to — Wooler, Esq., for six distinct varieties of Indian Azaleas.—A large Erica vestita coccinea was shown as a single specimen by Messrs. Fairbairn, of Clapham, who also brought several other things for exhibition only.—The same specimen of Kennedya coccinea mentioned in another column was shown by J. Alnutt, Esq., of Clapham.—A collection of Alpine plants were produced by Mr. Wood, of Norwood; and Mr. Cuthill, of Camberwell, was awarded a 1st prize for six brace of his Black Spine Cucumber.—A 2d prize was also awarded to Mr. Alnutt for fine samples of the same variety.

Rebiews.

Sowerby's Supplement to English Botany.

(*Continued from page 55.*)

Pl. 2903. *Saxifraga affinis* (D. Don) is a pretty little Saxifrage, well fitted for rock-work. It is to be found in many curious gardens, but is little known even to botanists. Its only known native station is upon the top of Brandon mountain, a lofty summit near the sea on the coast of Kerry. Described by Mr. Babington. Hook. Brit. Fl. ed. 3, 200. Considered (we think incorrectly) as the same as S. platypetala, and as a variety of S. hypnoides. In this place Mr. Babington points out the differences between them. Bab. Man. 118.

Pl. 2904. *Vicia gracilis* (Lois).—A weed of interest only to botanists. Described by Dr. Bromfield. Bab. Man. 79. Named Ervum gracile in Hook. Brit. Fl. ed. 5, 89.

Pl. 2905. *Allium Scorodoprasum* (Linn.)—A wild Garlic found in fields in many places. The description is a most elaborate critical dissertation, by Mr. Borrer. Bab. Man. 306. Named A. arenarium in Hook. Brit. Fl. 347, but as Mr. Borrer thinks incorrectly.

Pl. 2906. *Allium Babingtonii* (Borr)—A large Garlic, which appears to have been formerly cultivated as a pot-herb in many places; but is not now used in England. In the district of Connamara, in the west of Ireland, it is still in use, having been obtained from some native stations in the islands on that coast by the peasantry. It is nearly allied in structure to the two Leeks, A. Porrum and A. ampeloprasum, both of which are in cultivation, although the former alone is the true Leek. From these it is very carefully and elaborately distinguished in this place by Mr. Borrer. Mr. Babington considered it to be undescribed and named it A. Halleri in his Manual (305); but that name had been previously given to another plant by Mr. Don.

Pl. 2907. *Bryum uniondes* (Br. and Sch.)—A Moss recently detected in Britain by Mr. J. Nowell, an intelligent operative of Todmorden. Described by Mr. Wilson.

Pl. 2908. *Leersia oryzoides* (Sw.)—This is a curious Grass, of no agricultural value, belonging to the rice family. It grows in marsh ditches in Sussex in small quantity, and was detected by Mr. Borrer, who describes it here.

Pl. 2909. *Saxifraga cæspitosa* (Linn.), variety *incurvifolia* (Mack), is a plant of interest only to the botanist. Described by Mr. Babington.

Pl. 2910. *Carex Borninghausiana* (Weihe).—This plate is accompanied by a very full description and account of this Sedge by the Rev. W. H. Coleman. It is a plant only recently distinguished by British botanists, although long known on the Continent. It is of no agricultural interest. Bab. Man. 337.

Pl. 2911. *Rivularia plicata* (Carm.)—A rare and little known sea-weed, described by the Rev. M. J. Berkeley.

Garden Memoranda.

R. G. Loraine, Esq., Wallington Lodge, Surrey.—This pleasant country residence has of late risen to some importance in the horticultural world, on account of the carefully selected and increasing collection of choice exotic plants. In the Orchid-house (which is a span-roofed erection heated on the tank system) several plants were in flower; of these may be mentioned Lælia flava, on a small block, producing a flower-stem about 18 inches high, surmounted by a cluster of yellow blossoms, each flower measuring about 2 inches across; Oncidium altissimum, with a flower-spike 11 feet in length; and O. leucochilum, with a spike 6 feet in length. In the same collection were also the beautiful Cattleya Skinneri showing flower, as was also a nice plant of Dendrobium fimbriatum; D. Pierardi was in flower, as was also Epidendrum crassifolium, the latter having six strong spikes. The walls inside of the house are covered with rockwork intermixed with shells, and have a neat appearance; the crevices are planted with Ferns, Lycopods, &c.; at the further extremity is a a small fountain, with basin containing gold and silver fish; near to this, growing among the rockwork, is a fine plant of the Selaginella pallescens, which has something of the appearance of a Lycopod, but, unlike plants in this genus, it forms a crown or centre, round which the branches grow in beautiful regularity close to the soil, and then take a curve upwards, forming a complete nest. It is of a lively green colour, and a more interesting and lovely plant for this or similar situations could scarcely be found. On a log, suspended from the roof, was a plant of the curious Juanulloa parasitica, which has sent down roots fully 3 feet in length into the basin of the fountain; and trained to a pillar in the centre of the house were Clerodendron splendens and C. splendens albiflos, both in flower, which had a fine effect. In a small rustic basket the beautiful and rare Æschynanthus Boschianus was in flower; the branches are slender and pendulous, the leaves roundish (of a dark green colour), and the flowers, which are axillary and nearly 3 inches in length, stand erect; the calyx is 1 inch in length, of a dark chocolate colour, and has five blunt teeth, which are erect; the tube of the flower is very narrow at the base, gradually widening upwards, and of a fine scarlet colour; the lower division of the corolla, together with the two side ones, are streaked with brown; the stamens project considerably above the flower, adding much to its singular appearance. On entering the stove, two magnificent plants of Achimenes picta catch the eye; they are about 3 feet through, and about the same in height; their richly-spotted flowers contrasting well with the finely variegated foliage. Gesnera zebrina was throwing up nine strong stems, and in a short time will form a splendid object; although this is generally considered to be a winter-blooming plant, it might, nevertheless, by alternate seasons of growth and rest, be made to flower at any season throughout the year. Mr. Jack, who is gardener here, exhibited a fine specimen in full bloom last May at Chiswick, which was six months in advance of the usual flowering season. Gesnera Herbertiana will soon be in flower; this only needs to be more extensively known to become a general favourite; the flowers are of the same shape as those of G. zebrina, but much larger, and not quite so dark in colour. It flowers profusely, and possesses a very dwarf habit, showing flower when about 6 or 8 inches in height; it flowers from September to January, and can be made to do this in a 3-inch pot, if the very smallest tubers are employed. In this collection were also in flower Columnea scandens, covered with hairy ringent scarlet blossoms; and Alpinia nutans, the latter with a stem about 10 feet in length. In the Greenhouse was a fine young specimen of the variety of Erica elegans called stricta; this is a much more abundant bloomer than the old E. elegans; this plant was about a foot through, and had upwards of 80 heads of bloom on it; very small plants of this variety will produce three or four heads of bloom in a 3-inch pot; it makes more vigorous shoots than elegans, still, however retaining a compact form. Various other plants were in bloom, among which may be numbered a fine bush of Cytisus racemosus, measuring 4 ft. through, and covered with flowers. A couple of sea-gulls on the lawn appeared to bid fair to extirpate the whole race of worms, for they kept unceasingly pacing about after these pests, which they caught in great numbers. These birds might be employed more frequently for the purpose, and would be at once useful and ornamental.—*J. B.*

Mr Groom's Nursery, Clapham Rise.—The extensive collection of Auriculas at this establishment are now in bloom, and to those who take an interest in these singular and beautiful flowers, the present is a favourable opportunity to see them in perfection; the favourite and better sorts only are grown, and they are in fine colour and robust health. These gardens promise a succession of gaiety; the Tulips are showing colour, the beds of Anemones and Ranunculus are rising strongly, and the beds of Lilium lancifolium album, &c., in the open grounds, are vigorous and fine.—*, *April* 21.

Miscellaneous.

Guano and the Potato Disease.—On Monday, the 23d ult., Professor Johnston delivered a lecture on agricultural chemistry to a considerable number of farmers and others interested in agricultural pursuits, in the town of Montrose. In the course of his observations the learned Professor referred to the application of manure to the Potato crop, with a view of stopping the progress of the disease. He recommended various applications, such as guano, pounded kelp, and pearl ash, and condemned the use of fermented dung. He stated, that where the dung was the richest the disease was the worst; and that there was least disease where guano was employed.—*Scotch Paper, April*, 1846.

The Wood Trade.—Since the passing of the resolution of the House of Commons in regard to the duty on wood, great activity has existed in the deliveries of wood lying in the places of traffic on the river side, and also in the importation of fresh cargoes. Mahogany, and other woods used for making furniture, were, last session, made free of duty; and the indulgence has since been extended to other descriptions of wood than those specifically mentioned in the statute. The consequence has been, that if the fresh importations of Mahogany, Cedar, and other woods, did not in some measure keep pace with the deliveries, there would soon have appeared an almost complete clearance of the stock of wood in the docks. The immense quantities of furniture made of the cheaper descriptions of wood, including that imported from the Gambia, and known as Gambia Mahogany, at a great diminution in the price formerly required for such articles, bear testimony to the correctness of these remarks. At the same time it should be stated that the furniture alluded to is not made from the finest species of woods, which still retain their high value in the market. In illustration of this it may be remarked, that a single log of Mahogany of very large size and extraordinarily fine vein, which was recently removed from the West India Docks, was valued at the large sum of 1000 guineas, although free of duty.—*Abridged from the Chronicle.*

Calendar of Operations.

(*For the ensuing Week.*)

Amongst the numerous enemies with which the gardener has to contend, the snail and slug tribes hold a most prominent position. The pressure of gardening

business in the months of April and May is so great, that the destruction of these depredators is apt to be neglected; it is, however, of paramount importance. Lime is well known to be instant destruction to them; it is, however, not always at hand in a quick state: and moreover, a shower of rain soon nullifies its power. I am in the habit of using two simple articles, which, if timely applied, will bid defiance to their mischievous propensities, viz., new sawdust and riddled cinder ashes. The ashes are riddled to the size of Radish seeds, all dust being excluded. These strewed over the young crop when just emerging from the ground, I find to be efficient. What an excellent chance is hereby afforded where occasion requires, for a thorough mechanical division of guano as a top dressing, thus effecting two purposes. A handful of good Peruvian guano, blended minutely with these ashes, would prove a ready mode of manuring a weak seed bed.

CONSERVATORIES, STOVE, &c.

Conservatory.—See that climbers and all plants of rambling habits have due attention in regard to stopping, water, &c. Camellias forced into wood should have a trifling check as soon as the young leaves have attained their full size; this is best accomplished by diminishing the supply of water at the root. Continue, however, to shade and syringe morning and evening. *Stove and Orchids.*—Stove plants as in last Calendar. See that growing Orchids have due attention in regard to shading and atmospheric moisture; the latter is still, I imagine, lamentably deficient in many structures; or, if of sufficient amount, of too fluctuating and capricious a character. *Mixed Greenhouse.*—As this is everybody's structure, I may perhaps be excused for treating of many things under this head which should more properly be ranged under the heads stove or common greenhouse. In doing this, I am presuming that a climate somewhat in advance of the cool greenhouse, that is to say, a house in which artificial heat is used only to repel the frost, is maintained. By keeping one end of such a house (the end where the hot-water or smoke flue enters) closer, using more atmospheric moisture, and at the same time a greater amount of air at the other extreme end, it is not by any means impossible for the amateur to indulge in many of the luxuries of larger establishments. Repot and propagate Begonias. This is one of the most useful families of plants that can be grown. Keep up a cleanly system of cultivation, by means of sweet and healthful soils, and improved modes of potting; together with the most complete drainage, and the constant use of weak and clear liquid manure, during the growing season. *Cold Pits or Frames.*—These will be occupied now with some of the early struck or potted off stock, hardening for the flower-garden. Any spare room may be occupied with the thinnings of the other plant houses.

KITCHEN GARDEN FORCING.

Pines.—See that good mellow turfy soil is ready under cover for shifting processes; as also materials for thorough drainage; as broken crocks, rough bones, charcoal, &c. Use good and clear liquid manure, to swelling fruit, when necessary; and keep up a lively heat, with plenty of atmospheric moisture. *Vineries.*—The late or winter Grapes, such as West's St. Peters, Black Hamburgh, Black Damascus, Muscats, &c., will be now budding fast. Let disbudding, tying, stopping, &c. be duly attended to, according to principles laid down for the earliest house. *Melons, Cucumbers, &c.*—See to a second sowing of ridge Cucumbers; get the earliest hardened forthwith, preparatory to turning out, and let the trenches be prepared. A trench thrown out 3 feet wide, and 2 feet deep, and filled to a foot above the ground level with such materials as litter, Grass mowings, or leaves, with a little hot manure, all thoroughly blended, will make an excellent bed. When completed, raise mounds of soil 3 or 4 feet apart, to receive the hand-glasses, leaving the residue uncovered with soil for the present.

KITCHEN GARDEN AND ORCHARD.

A sloping bank should now be prepared, and planted with nice runners of the Alpine Strawberry, for fruiting in September and October; plant three in a patch, at intervals of 15 inches; the ground between should be covered with slates when the plants are established. Transplant Chamomile; sow succession of round Spinach in a cool aspect; and let all Beet, Scorzonera, Salsafy, &c., be got in, if not done. Secure plenty of good Parsley in highly manured beds, at the nearest end of the kitchen garden, and examine and remove the herb plantations. Sow a bed or two of herbs for next year's planting; this should be done every second year in all gardens—such as pot Marjoram, Winter Savory, Thyme, &c. &c., as the old plants are liable to wear out. Thin suckers from Raspberries, leaving four or five to each stool. Take care to thoroughly clean all Strawberry plantations before the runners come out.

FLOWER-GARDEN AND SHRUBBERIES.

Thorough-dress all beds and borders; prepare stations ou lawns for extraordinary specimens of ornamental plants, as large Fuchsias, &c., viz., drainage in the bottom, and good turfy and mellow compost above. Trim and prune all climbers on out-door trellises, or conservative walls; and prepare stations to fill up blanks.

FLORISTS' FLOWERS.

Auriculas are now blooming; the amateur may experiment in cross fertilization to obtain new varieties. In growing for exhibition, the pips which are misshapen should be removed with a sharp-pointed pair of scissors, and care must be taken that the trusses of blooms are not exposed to the too powerful action of the sun. If the seed gathered last season has not been previously sown, now will be found a good time. Sow in shallow pans or boxes, in light vegetable soil; it is only requisite to press the seed on the surface, and cover lightly with fresh Moss. They will, when placed in a cold frame, be up in a few days. *Ranunculuses.*—Take great care that the soil is close round the neck of the rising plant; remove all weeds as they appear, and if the beds are infested with worms, pour lime-water in the holes which they make on the surface. *Tulips.*—The unusual precocity of these noble flowers has rendered them more liable to injury from the late spring frosts which we have had, the consequence is that the bloom generally this season will be unsatisfactory. When the flowers begin to show colour, the top cloths of the awning may be put on. Carefully examine all diseased foliage (of which, unfortunately, there are great complaints this season) and expose the affected parts as much as possible to the air. *Carnations and Picotees.*—Put down the sticks as soon as possible; if delayed, the roots will be injured by their insertion.

COTTAGERS' GARDENS.

Mangold Wurzel should be sown forthwith, if needed for the cottager's cows. If his land be light, deep, and sandy, this crop will pay him better than Swedes; and will both keep and answer as well as they. Prepare a bed for a few of the February sown Cabbages; they will succeed the autumn plants as well as give the latter time after the head is cut to make bold sprouts. A bed of Swede Turnips should be sown by all means; if the Potatoes should miss, these will do to fill up all blanks. Let the cottager dress well his flower-beds, and endeavour to replenish his lost stock. It is to be hoped the higher order of gardeners are always ready to lend a helping hand in this respect to those who are industrious and civil.

FORESTING.

Look to new plantations; the season here, however, is very rainy, and this in all probability is rather general; if so, this will be a good spring for late planting. Keep a vigilant eye upon the nursery seed-beds.

State of the Weather near London, for the week ending April 23, 1866, as observed at the Horticultural Garden, Chiswick.

April	Moon's Age.	Barometer. Max.	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain.
Frid. 17	11	29.952	29.852	57	44	50.5	S.W.	.09
Sat 18	(	30 008	29.893	51	46	48.0	N.	.02
Sun. 19	23	30 127	30.0 9	53	34	43.5	N.	
Mon. 20	24	30.118	30 072	54	27	40.5	N E.	.03
Tues. 21	25	30 040	29.958	57	30	43 5	N E.	
Wed. 22	26	29 873	29.851	57	37	47.0	E.	
Thurs. 23	27	29 818	29 773	62	42	47.5	N.E.	.27
Average		29 989	29 940	54.9	36.7	45 8		.41

April 17—Foggy, densely overcast; rain at night
18—Rain; densely clouded
19—Overcast, cloudy and cold; clear at night
20—Clear, cloudy; showers, partly hail; frosty at night
21—Frosty, fine, clear and cold at night
22—Foggy; overcast, with dry haze
23—Light clouds; dense white and dark clouds; uniformly overcast; rain at night.

Mean temperature of the week 9½ deg. below the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending May 2, 1866.

April	Aver. Highest Temp.	Aver. Lowest Temp	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 29	59 9	38.5	49.2	9	0.12 in.	0	2	2	3	1	6	3	3
Mon. 30	60 9	37 7	49.3	9	0.12	6	1	3	2	4	3	1	—
Tues. 31	62 3	33 4	50.4	7	0.10	1	4	3	4	4	2	—	2
Wed. 29	62 5	40.4	51.4	7	0.76	2	3	4	2	4	—	1	4
Thur. 30	61 9	41 6	51.8	8	0 31	2	2	5	1	2	4	1	3
May													
Frl. 1	64.8	42 3	53.5	3	0.51	1	2	4	2	5	3	3	—
Sat. 2	65.6	43 1	54 3	6	0 79	1	2	5	—	4	4	2	1

The highest temperature during the above period occurred on the 28th, 1840—therm. 81°; and the lowest on the 26th, 1838—therm. 25°.

Notices to Correspondents.

Auricula Seed—*Philo*—1st. When the flower-stems of your Auriculas assume a yellow or faded appearance, they may then be cut off; after tying them together the heads may be inserted in a small thin paper bag, and hung in a dry place till the period of sowing arrives. 2d. All the varieties of grey, green, and white-edged may be obtained from the seed of any one of the sorts. 3d. It is usual to sow the seed early in the ensuing spring, say March. They may be sown in shallow pans or boxes, and placed in a cool frame. The seed must be very slightly covered with soil, which should be composed of vegetable or leaf and decayed turf, about equal proportions. It is a good plan to put some fresh clean Moss over the seed when sown; this keeps the surface more equally moist, and insures its rapid and certain germination. This Moss must be removed as soon as the plants are fairly above-ground. They do not by any means require heat, and are rather impatient of moisture. *W.*

Bees—*A B*—Your small hive will be of much use placed upon the top of one of your strong hives, and the sooner the better. The fresh comb will be the surest means of enticing the bees to take possession. Your two other empty hives may be replenished with fresh swarms, and by all means allow the bees to have the combs. *W.*

Cucumbers—*W G*—Your young fruit has all the appearance of suffering from want of good aëration (see Leader of to-day). The roots, probably, got too much water, and the leaves cannot get rid of it. Keep the soil drier, or manage the aëration better. The latter is what you ought to do.

Greenhouses—*Villager*—No plants will *flower* well if always kept in a greenhouse much screened from the sun; but they will grow there. You may, however, force bulbs, &c., in it: and so also Pelargoniums, provided you can let them have the benefit of the summer's sun in the open air.

Heating—*Henry*—Your plan is out of mind. It does not matter how the drain runs provided it passes *from* the frames *into* the lowest part of the cellar.——*T D W*—The Polmaise heating was first applied to churches. It is so stated, with many details, in a Leading Article, in our last Number. Mr. Baden's address, who put up the apparatus in St. Verner's church, has been given in our advertising columns. See page 95, and he would no doubt be glad to enter into communication with you.

Hothouses—*J D*—The best materials for these buildings are wood or iron. The worst is zinc; the dearest is copper. For very large buildings iron is necessary; for small ones wood is most convenient and the cheapest.

Insects—*Z C B*—They are the larvæ of a Bibio, and in all probability injure your Cabbage plants, *vide* the *Gard. Chron.*, vol. 4, p. 765. *R.*——*J C*—The beetles infesting your Peach-trees are the Curculio picipes and Anisoplia horticola, which you will find described and figured in the *Gard. Chron.*, vol. 1, p. 293, and vol. 4, p. 700. *R.*——*A B C*—No. 1 is a foreign Cockroach, which is probably as destructive as our own. 2 is a West Indian Cerambyx allied to one which is very fond of Oranges. *R.*——*C M*—It is the Pitnus Fur which had bred amongst the Indian Corn. Can you ascertain if the beetles had fed upon it? If so, please to send us a few of the pilfered grains. *R.*

Kitchen Garden Cropping—*G B* asks for information as to the manner in which the cottager in Norfolk, mentioned at p. 222, raised four crops of Potatoes in one year on the same piece of ground.

Manures—We have received from Mr. Darke, of Birmingham, two pots of his "Stimulating Compound." We have not tried its effect upon plants, but as he has communicated to us confidentially the ingredients of which it is composed, we can say that, if honestly compounded, it promises to be an excellent material for gardeners. We shall give it a trial and report more particularly on the subject hereafter.

Names of Plants—*G W*—Ornithopus perpusillus we believe; but it is not in flower. It is not a Clover.——*G J*—Utricularia campanulata, the Bird's-nest Pcsita.——*J C Wheeler*—An Acacia new to gardens. You shall have the name next week.——*A B C D*—Your plant is unknown to us. It will require two or three hours to determine its name. We will endeavour to satisfy you next week. It is some tropical Cinchonad.——*D Murray*—Crassula imbricata.

Potatoes—*A Q Z*—We do not know to what you allude. We can find nothing editorial on the subject. Certainly do not use fresh lime with ammoniacal manures for this crop. Heavy losses have already been sustained by the practice. We are trying a modification of Mr. Forsyth's "active bed," (See his pamphlet)—something between it and the Irish lazy bed—well dressed with charcoal dust and wood ashes. We have nothing to say in favour of tan. If you have it you may find it worth employing in the manner you propose; but we cannot advise you to buy it.——*L F M*—The Azores Potatoes were advertised by Messrs. Keeling and Co., of Monument-yard, at p. 246. New Grenada and Neapolitan Potatoes are on sale in Liverpool, and may be heard of among the merchants.

Rats—*Beta*—Phosphoric poison does its work so effectually and quickly, that there is no object in trapping rats. We are not aware that the mousetrap can be seen in action. The following is the substance of what was formerly said about it:—It consists of a box with two sides open at the ends, having a false bottom, which is in two lengths hung by pivots. Each piece of board forming the swing bottom is made to taper at one end in the form of a wedge, the thin end being placed inwards. A pan filled with water is plunged in the earth to its rim, and the trap is placed on it, so that the mice in running along the bottom are precipitated into the water.‡

Seeds—*E M G*—May-day is a very good time for sowing your Pine-seeds. But they may be preserved in their cones for another year, if kept in a dry cool place.

Tan—*Palm*—No doubt your tan is either too dry or too wet. A certain degree of moisture is required in order to make it heat properly. Perhaps, moreover, you have rammed it down too hard. It is a material that should be expelled from gardens. The next thing that may happen with it may be its overheating, and destroying everything. Add to the price of 40 bushels of tan, the cartage, and the labour expended upon it, and you will find it a very costly material.

Tanks—*Tolla*—Cover your tanks with gravel or coarse cinder-ashes, and by means of a chimney-pot placed upright on the gravel, with its mouth upwards, renew the water as fast as it is driven off; but your covers should not be so hard as to render this necessary. *Soft* brick pavings will always be damp.

Water—*A Sub*—We have not the address of any of the people who bore Artesian wells. An advertisement would perhaps discover them.

Misc.—*G J*—The Paper is stamped at Somerset House; we cannot interfere.——*G J*—We are unacquainted with the roots called Cara and Kikiché, but you are doubtless aware that many kinds of Aracis are employed for food (see "Vegetable Kingdom"). We will inquire about the Rice, and if we can learn anything will again mention it. There is no hope of its succeeding *profitably* in these islands.——*F G G*—Anything may be grown in a pot with proper care, and, except trees, as well as if in the open soil. All depends upon the skill of the potter. The main things are good drainage, coarse bits of fibrous turf, room enough, and security against drought.——*V*—The atmosphere of your hothouse being damp is the cause of your Vines emitting numerous root-like processes at the base of the young shoots. They are not at all detrimental to the Vines.‡——*Leyton*—The plan consists in cutting off a bearing branch of a Mulberry, and forcing it immediately, without roots. The thing may certainly be done, but not without risk of failure. Build your pits of the dimensions usually taken for Cucumber pits; experience shows them to be right. Large moveable sashes are very objectionable. Heat them by Polmaise as Mr. Davies has done. A slope is all that is required for your purposes. It is quite immaterial whether the pits are sunk in the ground or not, unless they are to keep greenhouse plants in winter. In that case they should *not* be sunk. The wooden roller is nothing but a common roller constructed with solid wood instead of hollow iron. You will find the account of it at p. 802, 1845.——*A K*—Of your Fuchsias, those bred from F. fulgens and cordifolia are tender; those from discolor, conica, gracilis, and multiflora are the hardiest.‡——*Leyton*—The fumigating your house strongly with Tobacco might possibly have the effect of causing your Fuchsias to suddenly drop their leaves; it is probable also that drought had something to do with the evil. The Fuchsia is a thirsty plant, and when grown in a high temperature, and in a luxuriant condition especially, should have plenty of water.‡——*J J L*—Various modes of raising Potatoes from seed have been given in our columns; the most recent account appeared in an extract from a German pamphlet, at p. 180.‡

SEEDLING FLOWERS.

Calceolarias—*J C W*—Your seedlings are pretty, but they are not equal to the better sorts raised last year. No. 1 is the best, the general outline being very perfect; those with stained grounds, as 7 and 11, are considered inferior sorts.*

Cinerarias—*E*—Your seedlings possess great substance, and the petals are short and very broad, but they are irregularly placed round the disk, which give the flowers a rough appearance; the colours are good, and they are distinct from others we have seen.*——*J C W*—The petals of your specimen are too long and narrow.*

Fuchsias—*A R G*—Your seedling is showy but weak in colour, and the sepals are too long and pointed.*——*J C W*—We have many varieties similar in colour to No. 1, but larger and finer; No. 2 possesses no novelty—there are too many already of the same character.*

Pansies—*J F*—The seedling you propose to name Albanes, is a full-sized flower of good form and substance, delicate cream colour, with dark purple eye. There is a slight appearance of roughness on the surface, but it will take a prominent place among the light flowers.*

Petunia—*W M*—Though a good flower, your seedling is not equal to the better sorts in cultivation.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

Erratum—In last week's Paper, under the head Garden Memoranda, line 36 from top col. 2, for "heated air" read "cold air."*

SEEDS.—CORNER OF HALF-MOON-STREET, PICCADILLY.
THOMAS GIBBS and CO.,
(By Official appointment), the SEEDSMEN to the
"ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"
Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.
Priced Lists of Agricultural Seeds are always ready, and may be had on application.

TURNIP SOWING.
POTTER'S GUANO was used by Dr. DAUBENY against Peruvian Guano, Bones, Superphosphate, and eight other Manures for Turnips, and BEAT THEM ALL, See, for particulars, "Journal of Royal Agricultural Society," vol. vi. part 2, p. 331; also at p. 224 of the *Gardeners' Chronicle* of this year. Factory, 28, Clapham-road-place, London.

FOR TURNIP SOWING, &c.
BONE MANURE mixed with SULPHURIC ACID by far exceeds all other Manures that have been tried against it, and may be had in any quantity, either together or separate, by applying to JOHN HUNT, Bone and Sulphuric Acid Works, High-street, Lambeth.
BRITISH GUANO, warranted equal to Foreign, at 4*l.* per ton, and may be paid for when the result is known.

The Agricultural Gazette.

SATURDAY, APRIL 25, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
WEDNESDAY, April 29—Agricultural Society of England.
THURSDAY, — 30—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, May 6—Agricultural Society of England.
THURSDAY, — 7—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.
Llandovery—Stewarton—Lancaster—Preston—Cumnock.

FARMERS' CLUBS.

Apr.	27—Wellington—Darlington	May	6—Hamleton
—	29—Newton	—	7—Blofield and Walsham—Richmondshire — Grove Ferry
—	30—Otterv St. Mary		
May	1—Clayden	—	8—Wrotham — Northallerton—Tavistock—Debenham—St. Germains—Chelmsford—Hadleigh—Wakefield—Lichfield
—	2—Melrose—Monmouth		
—	4—St. Catherine — Newark—Markethill		
—	5—Wingerworth—Ardleigh—Watford — Jedburgh — St. Quivox — Framlingham — Rochford Hundred—Abergavenny—Wootton Basset	—	9—Dartford—Probus—Winchcomb—Cardiff — Swansea—Northampton.
—	6—Braintree and Hocking		

IN our last Number, p. 260, is a communication from Mr. HENRY, which shows that MESSRS. GIBBS and MYERS's system with regard to sales of GUANO is not understood. Their present scale of prices is as follows:—

For 1 and under 15 tons . . . £12
For 15 and under 30 tons . . . 11
For 30 tons and upwards . . . 10

With a discount, in all cases, of 2½ per cent.

It will, therefore, be seen that they do not *object* to selling even one ton; but for anything less than 30 tons they have fixed high prices, in order to afford some scope to the dealers.

Letters from the Patagonian coast, dated 21st of December last, inform us that in every spot where the GUANO is found, to which we alluded some weeks ago, English vessels are taking cargoes. Twenty or thirty cargoes of this material will probably arrive in England within a few weeks.

THE subject of TENANTS' RIGHTS, and the nature of the terms generally on which land in this country is held, have lately occupied considerable attention amongst farmers. The London Farmers' Club has done much to excite the discussions which have taken place on these matters at similar societies throughout the country; and now it has taken up the collateral subject of the LEASE (see a report of their proceedings in another page), on which we hope it will succeed in inducing an equally extensive debate. It has done and will do much good in thus guiding the discussions of local societies, provided always it does not induce them to take erroneous or impolitic ground. But this, we think, any impartial person who has examined these discussions as they have been held, or reported in the columns of agricultural periodicals, will consider that they have already taken on the subject of Tenants' Rights. Talking of "rights" and "legal enactments," whether strictly justifiable or not, is certainly not good *policy*. It does but raise the spirit indicated in a letter, in another column, by our correspondent, "R. L.," who probably belongs to the class against whom such remarks are necessarily pointed. Tenants' Rights have no existence, excepting in so far as they are founded upon special agreement with the owner of the land occupied, or upon, what is understood as equally binding, *the custom of the country*. If a tenant-at-will, without any understanding with his landlord, erects buildings, drains land, makes roads, or executes any other permanent improvement of the estate he occupies, he does so with his eyes open to the risk he runs, and whether his card in that lottery prove a blank or a prize, *he* can have no fair ground for complaint. Let those who object to this system of unprotected tenancy at will, and it is *most* faulty in whatever light we view it, endeavour to get it altered by pointing out to landlords their true *interest* in the matter, not by any threat of coercion; for so must agitation be regarded, for legal enactments on matters which are purely the subjects of private bargain. Their efforts, thus directed, will be far more likely to succeed, for their case is much stronger on this ground than it can be on any other.

Who has any interest in a system which induces the investment of capital in cultivation, if the landlord has none? He of all should be the loudest in condemning unprotected tenancy at will—that miserable system on which large tracts in this country are still held—and to which, with its invariable attendants, ignorance and want of enterprise, we must attribute the bad farming which over such districts still prevails. Why, land is almost valueless, except in the degree in which capital is invested in its cultivation. A mode of tenure which should induce a doubly high cultivation would double the value of an estate. Let any landlord look over his rent-roll, and select the best fields on each of his farms—those paying the highest rent. Are they those originally or *intrinsically* the most valuable—those which the geologist would point out as occupying the most favourable sites—those whose subsoils would indicate extraordinary fertility? No—whatever their subsoils may be, they are invariably the *home grounds*, where the *tenant*, whether he intended it or not, has been most actively at work; those nearest the dung heap, and whose cultivation has been the most costly.

Again, there is a tract of land in this country stretching from Dorsetshire to Yorkshire, varying in width from one to ten miles; it occupies the site of what geologists call the blue lias formation; it is naturally of a most uniform quality, *i. e.* the mineral constituents of the soil, which of course are exclusively the landlord's property, are very constant in their quantity and proportions. Is the fertility of this district equally constant? On the contrary, there is hardly another district of equal extent of such variable value. There is land within it varying from 10*s.* to 3*l.* per acre in annual value, and this variety almost wholly arises from the neglect or poverty of farmers in some cases, and their energy and wealth in others.

Does not all this prove beyond doubt how landlords are interested in the establishment of a system which shall tend to induce a high degree of cultivation? And to suppose *unprotected tenancy at will* to have that tendency is most preposterous.

ON THE MANAGEMENT OF HORSES.

[THE following is an abridged report of a discussion on this subject, for which we are indebted to the kindness of the Secretary of the Newcastle Farmers' Club.]

Mr. GEORGE BATES, of Heddon Banks, introduced the subject. It could not, he said, be a matter unworthy of serious thought, how the farmer could most economically feed his live stock, when the vast number of horses and cattle kept in this country was considered. MacCulloch had estimated the number of horses kept for pleasure, for agriculture, and for other purposes, at 1,500,000. The staple food of the horse was corn and hay. Corn was costly, and hay was far from a profitable crop. The substitution, therefore, partially at least, of a cheaper diet, was desirable. Last winter he had resorted to straw and Potatoes; and he had also grown Potatoes for this purpose against the present season; but, owing to their increased value, none of them had gone to the horses. Youatt strongly recommended manger-feeding. Hay and straw, cut up, and mixed with corn, was excellent food. The bruising of Oats was an economical practice. The quantity of unbruised Oats consumed by two horses, if bruised would keep three. He had his Oats all bruised in a cheap old mill, and let his horses eat what they liked of the straw put before them; what was left answered the purpose of bedding. But what he had heard and read of Whin-feeding, damped the ardour of his inquiries into the value of all other kinds of food. He held in his hand a volume published upwards of half a century ago, in which there were several curious and interesting statements on the subject of Furze, or Whins, as winter-food for horses. A gentleman had observed a horse feeding upon Whins, in preference to other food, upon an open common, and was led to make inquiries on the subject. He then found that Whins were cultivated in the neighbourhood of London, and that horses and cattle had been fed thereon in Wales for at least 100 years. It was evident, therefore, that Whins had been used in this country for provender for upwards of a century and a half. They were also used in Scotland; and during the peninsular war the horses of the British cavalry fed and throve upon this diet on the Pyrennees. In the "Royal Agricultural Society's Journal" (vol. vi., part ii., p. 379), there was an admirable prize essay on the subject, by Mr. Owen Roberts, of Bangor. [Mr. Bates read an extract—which we will take the liberty of lengthening.]

"In the northern districts of the principality of Wales, and more especially in the counties of Carnarvon, Anglesey, and Denbigh, Gorse has, time immemorial, been in general use as food for horses. It has also occasionally, and when other provender was scarce, been employed as food for horned cattle. Where, either by itself or in conjunction with other provender, it has been used as food for milch cows, the results have been highly satisfactory. It has given to the milk and butter a fine colour and a rich flavour. Those who have applied it to this purpose are of opinion that cows yield a better profit than when they are fed with the best hay, or even with Turnips. The butter is in all respects of an improved quality. The experience of its utility as food for sheep has hitherto been very limited. This has chiefly arisen from the little attention bestowed by Welsh farmers upon the feeding of that class of live stock. Where, however, the experiment has been made, in conjunction with Turnips, sheep ate it freely, and improved rapidly in condition. It is in feeding horses, however, that Gorse has hitherto most generally and most advantageously been employed. It is because this plant grows so abundantly in all parts of the principality, and because it is so much employed in the keeping of horses, that in many seasons the less wealthy classes of Welsh farmers may congratulate themselves on their escape from ruin. * * It will grow luxuriantly on the thinnest, the coldest, and apparently the most sterile soils. It is capable of being used as circumstances may require, at one year's growth as well as at two. With moderate attention to its culture, and by keeping it from being injured by sheep and cattle, it will produce if it be cut every year, at the rate of from 8 to 14 tons per acre, of good succulent provender; if it be cut every second year, it will yield at the rate of from 12 to 24 tons per acre. * * Instances have occurred of farmers having been known to pay at the rate of 15*l.*, 20*l.*, 30*l.*, aye 40*l* per acre for Gorse, to those who had bestowed some little care in the cultivation of it, and that upon land immediately contiguous to that which they themselves occupied. Scores of acres of the land so held, though capable, with the slightest attention, of yielding luxuriant crops of Gorse, are suffered to be of no value. Nay, such farmers allow whole districts to remain unproductive. Their own Grass crops, from want of activity and forethought, are almost worthless, and they purchase in the immediate neighbourhood, at a high rate, of more intelligent and industrious individuals, that very provender in the form of Gorse which land in their own hands, if judiciously managed, is capable of furnishing in abundance, and in return for the most trifling outlay."

At the end of his essay (continued Mr. Bates), Mr. Roberts gave the testimony of several Welsh farmers to the value of Whins. THOMAS WILLIAMS said—

"I am 74 years of age. As a farmer and a cow-leech I have been practically acquainted with the use of Gorse as food for cattle since I was a boy. When milch cows are fed with Gorse the produce in milk and butter is always better than when they are kept on hay. (Mr. Nicholas Burnett: I can vouch for that.) My father died about 63 years ago, and my mother was left in the occupation of a small farm called Cilmelyn, in the parish of Bangor, with myself, then 11 years old, and two younger brothers. The rent of that place, though now 12*l.* 12*s.*, was only 1*l.* 5*s.* There was no winter fodder whatever for the three cows that my mother had, and hay was at that time sold at 2*s.* 6*d.* the cwt. My mother set me and my two younger brothers to gather and to chop Gorse, promising to each of us a new pair of shoes on May-day if we did our work well. We gathered the Gorse on the borders of a common; and with two mallets and an axe, which I fancy I see before me now, we chopped and bruised what was required to keep the three cows up to May-day. We received the promised new shoes; and the cows when turned out to Grass, were in a far better condition than when they used to be fed with hay. My mother always afterwards used to say that her cows never yielded such good profit as they did the winter they were fed with Gorse by her boys."

One of Mr. Roberts's witnesses declared emphatically that Gorse was at least as good as hay, and he seemed to be of opinion that it was even better. The essay was illustrated with plans of Gorse mills, from which it would appear that they would not be more expensive than many other implements which the agriculturist kept on his farm.

"The earth," said Mr. Roberts, "carried from excavations and cuttings connected with the numerous railways in progress throughout every part of the kingdom, and the slopes on the sides of these railways, may be regarded as furnishing the means of introducing and of extending the cultivation of the Gorse plant as provender, and at an expense that would barely amount to more than double the cost of the seed."

"In Gibbs's Catalogue," said Mr. Bates, "the price of the seed was marked at 1*s.* 6*d.*"

"The chief point in the raising of Gorse is to clear the land from Couch Grass, and to make it tolerably dry. To attain the former object, the best plan, if the soil be tolerably deep, will be to carry off a spit deep of the surface. The value of the soil in forming a compost with lime, sand, clay, &c., will amply repay the expense. After repeated failures, by removing the active soil which abounded with roots, and exposing the yellow rammel, comprising the subsoil, farmers have succeeded in producing heavy crops of Gorse. Mr. Hugh Roberts, of Rhosmeulan, adopted this plan, and sold the first cutting at the rate of 30*l.* an acre. Where soil is thin, and the surface is foul and loaded with Couch roots, it should be pared with a breast plough and burnt. Where the land is composed of cold, stiff, retentive clay, the best expedient will be, should the surface be loaded with Couch Grass roots, &c., to take off a thin paring, and to burn it. The land afterwards, in order to preserve the plants from the bad effects of water, should be put into ridges, similar to those prepared for the reception of Turnip seed. The sort of Gorse cultivated for provender is known by the name of French Gorse (*Ulex Europæus*). The best time to sow the seed is in March

or April. If sown broadcast, about 5 or 6 lbs., or if drilled, 2 or 3 lbs. per acre will be the quantity of seed required. When the plant is to be in rows, and where the ground is very steep, as on the sides of hills, road-cuttings, the sides of embankments, &c., the direction of the rows should be oblique, and not directly up and down. The distance between the rows should be from 15 to 18 inches."

In the same volume of the "Society's Journal" (vol. vi., part ii., page 523), there was a paper on this subject by Mr. Sandham Elly, who fully bore out the testimony of Mr. Roberts to the value of Gorse, so far as to winter food; food for summer was a more difficult matter. He had found Italian Rye-Grass a very admirable article. There was now a crop at Mr. Wharton Burdon's which might have been cut a week ago. Mr. Dickinson, who farmed in the south, got 11 crops in the year, with the aid of some preparation. He (Mr. Bates) had a field, three-fourths of which was Italian Rye-Grass, and one-fourth common Grass. The animals would not leave the Rye-Grass, so long as it was possible to get a nibble; and even when they had eaten it, to all appearance, quite bare, they would still try to get a little more, before going to the other. Then, again, as to the question whether it was better to keep stock in the house all the year round, or turn them out. In Germany, where he had seen much of agricultural life, they kept them in the house the whole year. Labour was cheap there, and was not spared. The German grooms far surpassed the English. The animals were fed on chopped straw and Lucerne, and water was constantly before them.

The PRESIDENT proceeded to offer a few remarks. With respect to the cutting of hay and straw, Mr. Bates had stated that the Hetton coalowners found it no saving. Much, however, depended on the sorting of the hay; for if any portion of it were musty or mouldy, the forage of the whole bin would be spoiled. That was one main reason why the practice was sometimes found not to answer. In former years, all along the great north road, south of York, where the horses of the coach-proprietors were always in prime condition, the forage was all chopped. The Oats, he believed, were not bruised; but he thought, for summer feed, it was very desirable they should be. The barn-yard chaff was thrown in, and answered a good purpose. All the proprietors declared that chopping was economical. As to Gorse, it was an extremely difficult plant to cultivate in the northern counties. He had tried it in every possibly way, and given it every advantage in his power, when trying to grow fox-coverts, but hardly in any case had the cost been repaid. It was a peculiarly petted plant, and he doubted very much if the farmers of Northumberland, with their soil and climate, could grow it to profit. It throve well on the lighter soils of Somersetshire, where he had seen it cut in succession, as you would Lucerne. It was most grown, so far as his own observation went, where Grass lands were poor, and the lightness of the hay obliged the farmer to try some substitute.

Mr. RAMSAY stated, that when he was in London, some years ago, he was struck by the fine condition of the draught-horses, and visited Barclay's brewery to ascertain how they were fed. He found that they had three-fourths Clover hay and one-fourth straw, mixed with Corn and Beans. He also called upon a person in Holborn, who fed his horses, at first, on Corn and hay, in the ordinary manner. The result was, that his speculation was unprofitable. He therefore directed his attention to economy in provender. He got a machine, by which he cut his straw and Clover, and bruised his Corn and Beans. With this he fed his horses (of which he had from 80 to 100), and then realised a fair profit by his enterprise. He (Mr. R.) was induced to get a machine, which his men looked upon as a new fangled contrivance; and after it had been some time in use, it was laid aside—the labour of cutting being unacceptable to his workmen. One of them, however, had continued, unobserved, to use the machine in preparing provender; and he (Mr. R.) was struck by the superiority of this man's horses to all the rest in the colliery. He asked him, one day, how it was, and then found out the secret. He therefore attached the cutter to a thrashing-machine, that there might be no inducement to keep it in disuse; and all the horses, from that time to the present, had been fed on cut straw and Clover. None of the men would feed their horses without it; and when leaving home, they always took care to take with them a supply of what they called "chaff." The use of it, he was sure, effected a considerable saving. The same work was got out of a much less quantity of provender.

FORM OF LEASE.

[READ BY MR. BAKER AT THE LATE MEETING OF THE LONDON FARMERS' CLUB.]

THIS INDENTURE, made the day of , one thousand eight hundred and forty-six, in pursuance of an Act to facilitate the granting of certain Leases, between A. B., of of the one part, and C. D., of , of the other part,

WITNESSETH, That in consideration of the rents, covenants, and agreements hereinafter to be observed and maintained, he, the said A. B., doth by these presents demise, lease, and to farm, let unto the said C. D., his heirs, executors, or administrators, all that capital messuage, farm, and premises, called or known by the name of , in the county of and now or late in the tenure or occupation of consisting of a messuage or tenement, with yards, gardens, orchards, barns, stables, and outbuildings, together with acres of arable and Grass land, lying in the several inclosures numbered in the schedule hereunto annexed as follows:— or otherwise, with their appurtenances, except out of this demise, all timber and other trees, fruit-trees, saplings, pollards, wood and underwood whatsoever, now being or which shall hereafter grow upon the hereby demised premises, and reserving unto the said A. B., his heirs and assigns, and any person or persons authorised or employed by him, right of entry at all reasonable times upon the said premises, to mark, fell, and carry the said timber, wood, and underwood. And also to hunt, shoot, fish, fowl, and sport upon and over the said hereby demised premises, and to take and kill game thereon. To have and to hold * the said demised premises (except as aforesaid) unto the said C. D., his executors and administrators, for the term of 21 years, to be computed from , determinable at the expiration of the 11th or 16th years of the said term, by either party to this demise giving notice in writing to that effect at least 18 months previously to the determination of either of the aforesaid terms. Yielding and paying yearly and every year in lieu of rent † the value of quarters of Wheat, such value to be deduced from the averages of the last six weeks, taken for the tithe commutation purposes, as made up and published in the *London Gazette*, at the expiration of the six weeks previously to the quarterly days respectively as hereinafter mentioned, namely, Christmas, Lady Day, Midsummer, and Michaelmas, which averages having been so taken as aforesaid, shall, upon being calculated upon the number of quarters of Wheat as hereinbefore stated, constitute, represent, and actually be the rent of each quarterly day of payment respectively, the aggregate of which shall constitute, represent, and actually become the yearly rent to be paid and payable as in manner hereinbefore expressed.‡ Provided always that, if it shall happen that the said yearly rent or value of quarters of Wheat in lieu thereof as hereinbefore expressed and reserved, or any part thereof shall be in arrear or unpaid for the space of days and shall not afterwards be paid on demand, or if the said C. D., his executors or administrators, shall become bankrupt or insolvent, or shall do or suffer any act or thing whereby the said premises hereby demised may become assignable or liable to be taken in execution, or if the said C. D., his executors or administrators, shall not perform and keep the covenants, clauses, and conditions herein mentioned and contained, then it shall and may be lawful for the said A. B., his heirs, executors, administrators, and assigns, to enter into and upon the premises hereby demised or any part thereof, and in the name of the whole wholly to eject therefrom the said C. D., his executors and administrators, and all other occupiers thereof, and the said C. D. doth hereby for himself, his heirs, executors, administrators, and assigns, covenant, promise, and agree with the said A. B., his heirs and assigns, in manner following: that is to say, that he, the said C. D., his executors and administrators, from time to time during this demise—

1st. Shall pay the said yearly rent, or value of quarters of Wheat in lieu thereof, by equal quarterly payments, on the days at the times and in manner as hereinbefore in that behalf stipulated.

2nd. Shall bear, pay, and discharge the tithe commutation, rent charges, and all other parochial rates and charges whatsoever (land-tax, quit-rents, and landlord's income-tax excepted).

3rd. Shall maintain and leave the said hereby demised premises,§ with the appurtenance and all fittings and fixtures thereof, and all the roads, fences, gates, stiles, bridges, ditches, and drains belonging thereto, in good and tenantable repair, order, and condition (damage by fire and extraordinary tempest only excepted), being allowed by the said A. B., his heirs or assigns, rough timber, bricks, tiles, slate, and lime, and shall paint or tar the said hereby demised premises once in every three years upon being allowed paint or tar for the same by A. B., his heirs or assigns.

4th. Shall not cut down, or otherwise destroy or injure any of the timber or ornamental trees or saplings, nor grub up any of the underwood now growing or to be hereinafter grown upon the said demised premises, but that he the said C. D., his executors or administrators, shall be entitled to the wood and bushes arising from the fences, as also the lops of the pollards when such fences are made.

5th. Shall preserve and protect the game‖ and fish upon the hereby demised premises for the use of the said A. B., his heirs and assigns, friends or servants, and suffer notices to be given and proceedings taken in his name against any person or persons trespassing in pursuit thereof.

6th. Shall reside upon the said premises during the continuance of the term hereby granted.

7th. Shall not assign or underlet all or any part of the said messuage and premises hereby demised during all or any part of the term hereby granted without the consent in writing of the said A. B., his heirs or assigns.

8th. Shall inburn or stack upon the said demised farm and premises all the crops of corn, seeds, and hay, that shall yearly grow or arise thereon.

9th. Shall expend and consume upon the hereby demised farm and premises all the hay, straw, fodder, and chaff, as well as Turnips and other roots and vegetables growing thereon (Potatoes excepted).

10th. Shall expend upon the said demised farm and premises all the dung, compost, and manure, which shall arise or yearly be made or brought thereon, except that made in the last year of this demise, which shall be left for the succeeding tenant upon being paid by valuation for the same, together with the labour thereon.

11th. Shall manage and cultivate the Grass lands in a good and husbandlike manner, according to the most approved system of the district in which the said hereby demised premises is situated, and shall not break up or otherwise convert into tillage any of such Grass lands, nor shall mow more than one moiety of the same more than once in any year, under a penalty of 10*l.* for every acre so broken up or converted into tillage as aforesaid, such penalty to be paid and recoverable as increased rent during the continuance of the term hereby granted.¶

12th. Shall manage and cultivate the arable land in good and husbandlike manner, according to the most approved system of the district in which the said hereby demised premises are situated, nor shall nor will at any time or times during the term hereby granted take from off or have upon any part thereof more than two crops of Wheat, Barley, or Oats, without the intervention of a summer's fallow, being at liberty to take one crop of Clover, Beans, or Peas, or some other ameliorating crops, between the said two crops of Wheat, Barley, or Oats, and to be at liberty to grow upon the fallowed land Turnips, Colesseed, roots, or any green vegetable crops, provided that the same shall be eaten and consumed by cattle upon the said hereby demised lands and premises.†

13th. Shall not in the last two years preceding each of the periods at which the determination of the lease hereby granted is stipulated, or after having received notice thereof (as hereinbefore mentioned), mow any Clover more than once on any of the Grass lands in successive years, nor sell any hay or straw from off the farm and premises hereby demised.‡

14th. Shall prevent as much as possible all trespasses and depredations on the said hereby demised premises, or in or upon the woods and plantations adjoining the same, and shall maintain and keep the roads leading to or from the same, also shall yearly do all necessary repairs to the said hereby demised premises, within the space of 30 days after having received notice thereof in writing.

15th. Shall at the expiration or other sooner determination of the term hereby granted, or from any or whatever cause the same shall or may arise, leave for the use and benefit of the said A. B., his heirs or assigns, or for the use and benefit of the then succeeding tenant, one-fourth part of the arable land hereby demised, fallowed with at least five ploughings to be given at seasonable times, the first of which shall be given on or before the 1st day of March, and also shall and will at such expiration as of the term aforesaid, leave at least one-eighth part of the said arable lands in Clover or Grass layer, and which said Clover or Grass layer shall have been sown upon land fallowed the preceding year, one moiety of the said Clover and Grass layer not having been mowed.

16th. Shall permit the said A. B., his heirs or assigns, or any incoming tenant, to enter upon and take possession of all or any portion of the lands so to be fallowed as aforesaid on the 24th day of June, and also to enter in and upon the farm at spring seed time for the purpose of sowing Clover or Grass seeds upon the lands fallowed in the preceding year as aforesaid, and which Clover and Grass-seeds shall be harrowed in by the said C. D., his administrators and assigns, without payment or charge for the same.

17th. Shall make the fallows and carry out the manure as stipulated as aforesaid, and leave at the expiration or other sooner determination of the term hereby granted, all the Grass and Clover hay made and grown upon the said demised premises within the last year, and also all the dung, compost, and manure, made or brought upon the said demised farm and premises in the last year of the term hereby granted, and all the straw and chaff arising from such last year's crop as aforesaid, together with all fixtures and buildings¶ erected or put up at the sole cost of the said C. D., his executors or administrators, upon the said demised premises, and all tillages and labour to the fallows and manure, and for all hay, dung, compost, straw, chaff, fixtures, and buildings to be paid for by valuation in proportion to the value and utility of the same in accordance with the preceding covenants, and all improvements consisting of draining and manuring by any manure not produced upon the said demised premises, together with all other permanent improvements, from which the full benefit may not have been derived in proportion to the original cost thereof, as the same may at that time be unexpended, such valuations as aforesaid to be made and settled by two different persons, who, when so appointed and having so taken upon themselves such reference and arbitration, shall, in writing, thereupon appoint an umpire, whose decision, in case of any disagreement between such arbitrators, shall be final, binding, and conclusive, and to whom also shall be referred all other matters in dispute in respect of such occupation, and all dilapidations of and upon the said demised land and premises, and all damage sustained by the land and fences from unskilful and improper management or otherwise, and who shall be empowered to deduct the amount awarded for the same from the amount of the valuation so to be ascertained as aforesaid.

18th. Shall have the use of the barns, stack-yards, and premises to thrash and dress the crops of corn and seeds arising from such last year's crop, according to the custom of the county as aforesaid, and shall be paid or allowed for the thrashing out of such last year's crop, and have the corn arising therefrom carted out by the said A. B., his heirs or assigns, or by his succeeding tenant, a distance not exceeding 10 miles, as compensation for the straw and chaff arising therefrom.

And it is hereby agreed and declared that he the said C. D., his executors or administrators, paying the rents, and observing, performing, and keeping the covenants hereinbefore contained, shall hold and occupy the farm and premises herein demised for all the said term hereby granted, without interruption by the said A. B., his heirs and assigns.—In witness, &c.

Another Clause for a Lease fixed upon a Corn Rent deduced from the prices of various kinds of Corn.

Yielding and paying therefore, yearly and every year during the said term unto the said A. B., his executors or administrators, the rent in the manner and at the times hereinafter mentioned; that is to say, 50 qrs. of Wheat, 50 qrs. of Barley, and 30 qrs. of Beans, to be ascertained quarterly by the average price of Wheat, Barley, and Beans, sold at the corn market in London, in the entire week next preceding the 25th day of December, the 25th day of March, the 24th day of June, and the 29th day of September in every year, and one-fourth part of the value of 50 qrs. of Wheat, 50 qrs. of Barley, and 30 qrs. of Beans, to be paid on each and every of the said quarter days during the said term, without making any deductions, defalcation, or abatement whatsoever out of the same, or any part thereof.

To produce a fair equable annual payment, corn-rents may also be based upon the average of the preceding two or more years. Suppose it should be required to fix it upon the average of three years, and that during the first year the average price of corn had, from the *Gazette* returns, have been 52*s.* per qr., and on the second year 48*s.* per qr., and the average price of

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* The periods of determining the lease may, if thought requisite, be at the 8th, 12th, 16th, or 20th years; but the first period should not be for a less time than eight years.

† If the rent be fixed upon the presumption that Wheat will realise a certain price, then it may be made to vary proportionately as a rent fixed on Corn, for, assuming that land which will grow 3½ to 4 quarters of Wheat per acre, and 5 quarters of Barley, is worth in Wheat 3½ bushels, at 56*s.*, 24*s.* 6*d.*, and in Barley at 32*s.*, 8 bushels per acre. And the covenant might be that when the price of Wheat shall not exceed 56*s* per quarter upon the average by the tithe commutation returns, the rent shall be 24*s.* 6*d.* per acre; and when the price of Wheat shall not exceed 52*s.* upon the average, the rent shall be 22*s.* 9*d.* per acre; and when the average price of Wheat shall not exceed 48*s.* per quarter, the rent shall not exceed 20*s.*, and so may be reduced or increased in proportion as the price of Wheat shall rise or fall.

‡ All payments by labour, such as carting timber or coal, to be inserted if stipulated for in the agreement; or the rent may be equalised upon the average of two or more years, by taking the average of the whole of the preceding year or years with the average of the last quarter, and the average of these will give the rent.

§ As to improvements—if the landlord finds tiles, &c., for draining, the tenant to pay 5 per cent. upon cost of same, or for additional buildings in the same proportion. The landlord shall restore the buildings in case they shall be destroyed by fire or tempest within six months.

‖ Upon this clause great diversity of opinion exists, and this covenant must therefore depend upon the mutual understanding of the parties to the lease. But I may be allowed to suggest that if the landlord conceded to the tenant the right to take hares and rabbits, reserving the winged game to himself, much damage to crops and ill will between parties might be prevented.

¶ Where the farm is situated near towns, this covenant may be dispensed with, by allowing roots to be sold upon bringing on an equivalent in manure.

No restriction is made upon mowing Clover more than once, as this crop, if converted into hay, will be beneficial to a greater extent than if fed upon the land.—If reservation is requisite to prevent mowing particular enclosures of grazing lands, insert clause to that effect.

† This covenant will admit of variation according to circumstances, and may restrict so far only as to not taking more than two grain crops between fallow and fallow, such fallow to be made in every 4th, 5th, or 6th year.

‡ If the nature of the farm will admit of hay or straw being sold, 1 ton of lime or good rotten manure to be brought on for every ton of hay or straw sold, and shall not during the tenure sell or carry away any gravel, clay, soil, &c.

¶ Buildings that have been put up by the tenant without the consent of the landlord, to be removed, or to be taken at the value of the materials only, at the option of the landlord.

the last qr. 8ds., the average to be deducted would be as follows :—

When for Three Years.

1st Year	52 by 4 =	208
2nd Year	48 by 4 =	192
3d Year		
Last Qr.	56 =	56
		9)456
		50s. 8d. average of Three Years.

When for Two Years.

1st Year	48 by 4 =	192
2d Year		
Last Year	56 =	56
		5)248
		49s. 7½d. average of Two Years.

Home Correspondence.

Tenant Rights.—I have for some time noticed a growing desire amongst agricultural tenants, led on I presume by similar demands in Ireland, for what may be considered equivalent to fixity of tenure, viz., compensation for agricultural improvements made by the tenant ; and I have from time to time perused in your *Gazette* various suggestions for the accomplishment of this object. As far as I have been able to make out, they have originated with the class of tenants solely, and not the highest and best of that class, and I think the claim is a mistaken one, and the means proposed unfair, and open to every sort of fraud and trickery. To talk of Acts of Parliament to regulate the contracts between landlord and tenant is mere childishness, and it is equally weak to complain of tenants being injured by want of compensation for improvements made by them to the soil or buildings. I challenge any of your correspondents to give me a single instance of any material improvement made by a tenant for the benefit of his landlord for which he has not been remunerated either in the shape of a reduction of rent, an extended term, or a profitable increase to himself from the individual improvement. If the case falls within the last category, I submit to you that the tenant though he may have improved his landlord's property has no moral claim for compensation. What he did was for his own exclusive benefit, and he has reaped the profit of it. I do not wish it to be understood, far from it, that a tenant is to make lasting and substantial improvements for the benefit of his landlord without compensation, but I say, let them be matter of contract, and specifically defined by it beforehand. When a landlord lets his land is it not fairly presumable that the tenant knows pretty well its worth and makes his bargain accordingly. If the land be run out he pays less rent for it, and a term of years is the consideration in addition to the tenant for its improvement. So with regard to the buildings, if they are inadequate or out of repair, let the tenant come to a clear understanding with his landlord as to their repair, extension, or improvement, and provide accordingly by his lease. It is in every way inexpedient to have after reckonings and valuations like those suggested by the form of lease in your last *Gazette*. Neither party would be satisfied, perhaps ; I am confident the landlord would not, for he is always necessarily more or less at the mercy of his tenant, and he would be open to the grossest impositions. Every one connected with agriculture in the south is aware of the scandalous impositions constantly practised on landlords and in-coming tenants in valuations of acts of husbandry which they cannot be altogether protected against even by the aid of the most experienced and honest land valuers ; but once open the door to valuations between the landlord and tenant for what he styles improvements and unexhausted manures, and rely upon it we should soon see an end of the system. The best covenant in my humble opinion which can be inserted in a lease with a view to the improvement of agriculture is that the tenant shall in no case have two following crops of corn, and the best caution is that no landlord take a tenant who has not a capital equal to 30*l.* an acre, and immediately available for its employment on the land. The curse of agriculture has been, and is the want of capital.—*R. L.* [In reference to the last sentence we say, "No doubt of it." But to urge the necessity of a capital of 20*l.* per acre ! is absurd. That sum over the occupied acres of Great Britain would amount probably to five times the available capital at this moment in the hands of British farmers. 10*l.* an acre is the most a tenant will ordinarily *need*.]

Deep Draining.—Will you permit me with reference to an article on deep drainage, which appeared in your No. 11 of this year, from the pen of Mr. Mechi, to inquire through your columns what was the breadth at the surface and at the bottom of his drains, also whether they were cast simply with the spade, or with it and the aid of the pickaxe and tramp pick ; also the cost per rood of six yards or other measure, with the rate of labourers' wages at the time by the day or week in his neighbourhood. An early reply would greatly oblige many of your readers, and also—*A North Briton.*

Drainage.—The Grass field called "Horse Lees," in the parish of Tortworth in the county of Glo'ster, is of a somewhat clayey soil on a retentive clay subsoil, containing thin but frequent beds of slaty rock. It is 19 acres 2 roods and 21 perches in extent. It has hitherto been very inferior grazing land ; being undrained, the growth of Sedges and Rushes has been fostered, while that of the nither Grasses has been discouraged. It has been drained during February and March of this year 3 feet 6 inches deep, at intervals of 12 yards. During the operation numerous shallow clay drains were cut across, which had been entirely useless for keeping the land dry. No water was obtained till the drains had been cut 3 feet deep, then it oozed out, and between that and 3 feet 6 inches deep a considerable body of water escaped. This was the case all over the field. Now, the subsoil was composed of alternate beds of clay and rock, which sloped or dipped at a considerable angle, and it is impossible to suppose that a series of springs were met with all over the field as soon as a depth of 3 feet was attained. The fact, doubtless, was, as Messrs. Smith, Parkes, Mechi, &c. have illustrated, that the soil was a porous medium ; in this case of such texture that (its weight overcoming the capillary attraction of the earth) a cut in it needed to be 3 feet deep before the water would drain out of it. The cost of this draining has been as follows :—

1480 perches cut 3½ feet deep, tiles placed, earth filled in, and turf replaced, at 7½d.	£46 5 0
25,000 1½-inch pipe-tiles, 12*s.* per thousand, and 3*s.* per thousand hauling	18 15 0
	£65 0 0

or 3*l.* 5*s.* per acre. The land is now dry.—*John Cobban.*

Manure Frauds.—In your Paper of the 4th, there is a very sensible letter of Mr. Lawes, calling the attention of farmers and the public generally to the gross frauds practised in the sale of African Guano. Mr. Lawes suggests as a remedy the appointment of an inspector of manures. I fear that plan could scarcely be carried into effect, as many cargoes are shipped at once to the different outports, whence they are dispersed in various inland directions. I think if the farmers would resolve to purchase no Guano but Peruvian, and at the same time be fully assured of the respectability of the party from whom they purchase, they may in a great measure guard against disappointment. At the present moment no good Ichaboe Guano can be purchased under 7*l.* 12*s.* 6*d.* to 8*l.* per ton, while the best Peruvian is from 10*l.* to 11*l.*, according to quantity. Now, taking the average quantity of moisture in the two qualities, Peruvian Guano at 10*l.* 10*s.* per ton will be found much cheaper than African at 8*l.*, putting aside the certainty of having an article in the former that will not deceive the farmer. The high character of the importers of Peruvian Guano, Messrs. A. Gibbs and Son, and Messrs. Cotsworth, Powell, and Co., the agents of Messrs. Myers and Co., of Liverpool, must be a sufficient guarantee to purchasers that no adulteration would be allowed at their warehouse, while myself and all the London dealers are but too happy to deliver our sales direct from their stores.—*Edward Purser*, 40, *New Bridge-street, London.*

Tenant Rights.—In discussing the question of tenant rights at farmers' clubs, it would be very useful to collect as much practical information as possible on the duration of the benefit of manures, particularly artificial manures, such as bone-dust and sulphuric acid, guano, &c. Will any of your correspondents take the trouble to furnish information on this subject ?—*Hill Side.*

Spring of Water.—I have some land near the Downs, in Sussex, in a part of which a spring of water of considerable volume occasionally breaks out, and runs for weeks, and then suddenly dries up and disappears. It has occurred to me that this occasional or temporary spring might be made permanent by boring, and that there are persons who profess to find water in any part of England, upon the principle of "no cure, no pay." Can any of your numerous correspondents tell me where any such party can be communicated with ?—*M. E. A.*

Wages.—In Lincolnshire and Norfolk farm-servants are paid high wages, from 14*s.* to 15*s.* per week, and are said to be good workmen generally. How many hours does a ploughman having the care of a pair of horses keep them at work from May to September in those counties ? Eight hours is considered a full day's work in the midland counties.—*Inquirer.*

What is the general Market Price of Jerusalem Artichokes ?—They appear to be very scarce about Manchester. I am asked in the market for vegetables 1½*d.* to 2½*d.* per lb., and they do not appear to be sound. At the seed-shops I am asked 4*d.* to 6*d.* per lb. I purposed setting some in lieu of Potatoes, but the seed, I find, will be very dear.—*G. B. C.*

Cross Cropping.—The plan of taking two, and very generally three, corn crops following, is, I am sorry to say, adopted in this neighbourhood by some of the old school. I have endeavoured to convince them of their error, but they will not listen. They say, if they were to have green crops between, their arable land would be all in tillage, and they should not be able to keep so much stock, by their not having so many acres into Grass as they have by their present method. I hope you will again, very shortly, try what you can do to convince them, and paint in more glaring colours, if possible, than you have already done the injury they do to themselves and the public. When we see persons pursuing plans directly opposed to their own interest and that of the community, I think it a duty of all who know the impropriety of such disputes, frequently to endeavour by all possible means to make them follow those methods which will tend to benefit the country, if they could be brought to see directly the advantages of it to themselves.—*J. White.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A WEEKLY COUNCIL was held at the Society's House in Hanover-square on Wednesday last, the 22d April ; present, the Right Hon. Lord PORTMAN, President, in the chair. His Grace, the Duke of Richmond, Earl Spencer, Viscount Hill, Lord Bayntroke, Hon. R. H. Clive, M.P. ; Sir John V. B. Johnstone, Bart., M.P. ; T. Alcock, Esq. ; D. Barclay, Esq., M.P. ; T. Raymond Barker, Esq. ; John Raymond Barker, Esq. ; S. Bennett, Esq. ; T. W. Bramston, Esq., M.P. ; W. R. Browne, Esq. ; Col. Challoner ; F. C. Cheere, Esq. ; E. D. Davenport, Esq. ; C. Hillyard, Esq. ; W. Fisher Hobbs, Esq. ; J. Hudson, Esq. ; G. Kimberley, Esq. ; John Kinder, Esq. ; J. H. Langston, Esq., M.P. ; Col. MacDowall ; W. Miles, Esq., M.P. ; R. Milward, Esq. ; F. Pym, Esq. ; Prof. Sewell ; S. Solly, Esq. ; W. R. C. Stansfield, Esq., M.P ; C. Tawney, Esq. ; T. Beale Browne, Esq. ; Capel Cure, Esq. ; A. E. Fuller, Esq., M.P. ; A. Majendie, Esq. ; A. Ogilvie, Esq. ; T. Turner, Esq. ; and T. R. Tweed, Esq. The following new members were elected :—

Moore, John, High House, Morpeth, Northumberland.
Severn, John Percy, Penyhont Hall, Radnorshire.
Tanner, A. O., Brook House, Edmonton, Middlesex.
Plummer, Matthew, Sheriff-hill, Newcastle-on-Tyne.
Pettat, Rev. Charles Richard, Ashe Rectory, Overton, Hants.
Milburn, John, Crawcrook, Ryton, Newcastle-on-Tyne.
Lumsden, John, Mousen, Belford, Northumberland.
Gray, Alexander George, Newcastle-on-Tyne.
Woods, Richard, Osberton, Worksop, Notts.
Hawkes, Mathew, Melton-Constable, Dereham, Norfolk.
Smith, Thomas George, Toyston, Alnwick, Northumberland.
Stanton, John, Hayward's-field, Stroud, Gloucestershire.

The names of 38 candidates for election at the next meeting were then read.

PRIZE ESSAYS.—Mr. Pusey, M.P., chairman of the Journal Committee, transmitted to the Council the reports of the Judges in the Classes of Essays on Grass-lands and Measure Works, from which it appeared that the adjudications stood as follow :—

I.—GRASS LANDS.

1. *Prize.*—The Essay bearing the motto, "Improvements but not innovations."
2. *Highly Commended.*—Ditto "Labor omnia vincit."
3. *Commended.*—Ditto "Esse-posse-prodesse."
4. *Commended.*—Ditto "And the land shall yield its increase."
5. *Commended.*—Ditto "Roderic U de Valerus."

II.—MEASURE WORK.

1. *Prize.*—The Essay bearing the motto, "Experientia docet."

The President then opened the sealed motto-papers containing the names of the authors, corresponding respectively with the prize essays in each of these classes, when the following adjudications were declared and confirmed :—

I. To Mr. JOHN BRAVENDER, surveyor, &c., of Cirencester, Gloucestershire, the Society's Prize of 50*l.*, for the best Essay on the "Advantages or Disadvantages of Breaking-up Grass Land."

II. To Mr. HUGH RAYNBIRD, of Hengrave, near Bury St Edmund's, Suffolk, the Society's Prize of 20*l*, for the best Essay on "Measure Work (locally known as Task, Piece, Job, or Grate Work), in its Application to Agricultural Labour ; detailing the various descriptions of such work to which any system of measure is applicable, the rates usually paid, and the sum usually earned in a given time ; and comparing the effects of such payment with those arising from the payment of wages by time, on the direct interest of the employer, and especially on the habits, comforts, and general condition of the employed : the whole deduced as much as possible from personal experience, and affording to parties unacquainted with the practice, the means of estimating its advantages, and the information necessary for carrying it out."

The Council having also confirmed the commendations bestowed by the Judges upon the four Essays on "Grass Lands," the President stated that the whole of those communications were highly important and interesting, and reflected great credit on their respective authors, the Judges having found it a difficult task to decide between the competing merits of the Essay to which the prize had at length been awarded and the one which they had so "highly commended."—Colonel CHALLONER trusted that an opportunity would be afforded to the members of perusing these valuable essays which had been thus strongly commended ; and a hope was expressed generally, by the members present, that the authors would place their respective papers at the disposal of the Journal Committee for publication, and the general information of the Society.

FARMING ACCOUNTS.—The Judges appointed to take into consideration the various Essays sent in to compete for the Society's Prize of 10*l.* for the best method of keeping Farming Accounts, reported to the Council that they did not feel justified in recommending any of the Essays submitted to them, as possessing sufficient merit in reference to an exposition of such a system of keeping Farming Accounts as would be considered worthy of the prize or the approbation of the Society.

The PRESIDENT then stated that, having conferred with Mr. Tawney, one of the auditors of accounts on the part of the Society, and with Mr. Kimberley, a member of the Council, he would, at the next monthly meeting, submit to the consideration of the Council the propriety and desirableness of appointing a special committee on this important subject, with a request that such committee will report to the Council the result of their deliberation on the best and simplest mode in which the accounts of a practical farmer can be kept in the most clear and satisfactory manner.

NEWCASTLE AUTHORITIES.—Messrs. Clarke, Fynmore, and Fladgate, Solicitors to the Society, transmitted to the Council the duplicate agreement from Newcastle-upon-Tyne, signed by the Mayor, and impressed with

the great seal of the corporation of that town, in final ratification of the terms of arrangement which had passed the great seal of the Society at the last monthly meeting of the Council.

Mr. Grey, of Dilston, Mr. Crosby, of Kirkbythore, and Mr. Johnson, of Warkworth, having placed their services at the disposal of the Council, in reference to the carrying out of details connected with the ensuing Country Meeting in the northern district, the Council ordered their best thanks to be communicated to those gentlemen respectively for their kind offers.

Mr. JOSEPH RIGG, of Abbey House, called the attention of the Council to the desirableness of measures being taken as much as possible for the purpose of enabling the ingenious but small implement maker, of limited means, to exhibit the cheap, simple, and perhaps in many cases most efficient implement, invented by him, at the Country Meetings of the Society.

CONVEYANCE TO NEWCASTLE.—The Secretary reported to the Council the steps he had taken, pursuantly to the order of the Council, for the purpose of obtaining information on the subject of conveyance by railways and steamers from different parts of the kingdom to Newcastle-upon-Tyne. The various communications connected with these inquiries were laid before the Council, who directed that when replies from the whole of the parties to whom application has been made shall have been received, the Secretary be requested to include the points of information thus obtained, in the classed form of schedule, to be transmitted to the several exhibitors of stock and implements for their guidance.

RAILWAY LIBERALITY.—The Secretary then called the particular attention of the Council to communications he had received from Mr. Creed, secretary of the London and Birmingham Railway Company; from Mr. Herbert, secretary to the London and Dover Railway Company; and from Mr. Swan, secretary to the Newcastle, North-Shields, and Tynemouth Railway Company, conveying in the most liberal and handsome terms the great satisfaction it gave to the chairman and board of directors of their respective companies to be enabled to promote the disinterested and national objects of the Royal Agricultural Society of England, by granting a free transit along their respective lines of railway to the stock and implements intended *bona fide* for show at the country meetings.—The Duke of RICHMOND expressed the gratification it gave him to hear of the great liberality which these railway companies had thus shown towards the Society, and he had much pleasure in moving that a vote expressive of the best thanks of the Council for these communications, and of the high sense they entertain of the value of these most liberal concessions, be conveyed to the chairman and board of directors of these railway companies respectively. This motion was carried unanimously.

NAKED BARLEY.—The PRESIDENT laid before the Council a communication received from the Horticultural Society on the subject of the Hordeum zegoceras, a kind of Naked Barley, raised in the Chiswick Gardens from seeds transmitted to England by Capt. Monro, who stated them to have been obtained from "the finest Barley grown by the Chinese Tartars." The seeds thus placed at the disposal of the President, had not only been distributed by him for trial among parties capable of testing the value of the plant, but having himself received from China three years ago a supply of the same kind of seed through a relative of his neighbour the Earl of Ilchester, he had dibbled the two supplies alongside each other, and in autumn he would report to the Council the result, and furnish seed for further trial. In the meantime, he might state that as this Barley was unfit for malting, he did not anticipate that it would be of any further use in this country than as an early green feed.

CHINESE RAPE-SEED AND OIL.—The PRESIDENT also laid before the Council a communication from the Horticultural Society on the Brassica Chinensis, or Shanghai Oil-plant, a hardy annual, grown for the sake of its oil over the whole country round that city, but which may be cultivated in almost every kind of soil; and though of no importance in an horticultural point of view, may be raised by farmers for feeding cattle, or on account of the oil which it so abundantly yields. He had likewise placed portions of this supply of seeds in the hands of the Rev. A. Huxtable, and other parties, for trial, and would report the result.—The Council ordered their best thanks to be transmitted to the Horticultural Society for these communications, and for the supply of seeds, and the first two parts of the Journal of that Society with which they were accompanied

POTATO EXPERIMENTS.—The PRESIDENT took that opportunity of communicating to the Council the results of experiments on the growth of Potatoes from diseased tubers, of which he had on a former occasion reported the progress. These highly interesting and important experiments will be detailed in all their circumstances in a paper which his lordship expressed his intention of preparing for publication in the Journal of the Society. Among the results obtained by Lord Portman in these experiments, the following striking facts may be briefly stated:—

Where eyes were planted which had been scooped out, but allowed to become stale, the greater part of them have failed: but where fresh eyes were planted, all of them are growing. Of the autumn-planted Potatoes, all are doing well in dry ground; but only half are doing well in ground less friable, the other half proving rotten: the same effect resulting under the latter condition, both on and under farm-yard dung, as well as in the case of no farm-yard manure at all. All the produce of diseased Potatoes has proved to be sound and good; even that experimental portion of it, which for the last six weeks prior to ripening has been exposed to a moist heat; such experimental portion, instead of exhibiting any tendency to disease under such condition, furnishing on the contrary finer Potatoes—not only sound and mealy, but much superior both in size and quality. From the tubers planted in a box in October, in dry heat, five sprouts have been taken successively from each tuber, and planted along with the original tubers in the open ground for a crop: all the plants of this multiplied crop are now growing luxuriantly.

CRETACEOUS GYPSUM.—Mr. MOYLE, of Western Canada, addressed a further communication to the Council, on the subject of the results obtained by him in that part of the world with the cretaceous gypsum, to which he had referred in his previous letters; with an opinion, that to the use of this cheap dressing he attributed the great fertility of Canada, and a statement that on one of his own 50-acre fields, chiefly Wheat, he had last summer grown 40 bushels per acre; the land of his farm having been through the usual rotation of crops for the previous nine years, and the portion on which this Wheat was grown never having had any dressing whatever, excepting one bushel per acre annually of the cretaceous gypsum in question. At the suggestion of the President, it was arranged that Mr. Moyle should be requested to send a ton of this manure to the Society, which would be tried by individual members of the Council, and the practical result of its applicability to the soils of this country ascertained.

Mr. Fuller, M.P., transmitted from the Rev. James Williams one of the Potato-eye scoops used in North Wales, along with a statement of his experience in the improvement in the bulk of the Potato as food after the extraction of the eye, around which the development of the vegetative principle being the strongest, the removal of such portion along with the eye, removes, in his opinion, the cause of that "strong" flavour found in the Potato at this season of the year.

Mr. Rogers, of Liverpool, transmitted a communication, suggesting the trenching of ground this year for Potatoes.

Mr. Forsyth, gr. to the Earl of Shrewsbury, transmitted a Pamphlet on the Culture and Economy of the Potato, and also a communication on the subject of Hay making.

The Commissioners of Excise presented 50 copies of the Parliamentary Report on Feeding Cattle with Malt, for which mark of attention the Council ordered their thanks to be returned.

The Members of Council and Governors present then proceeded to the business of the Special Council.

SPECIAL COUNCIL.—The Right Hon. Lord PORTMAN, President, in the Chair.

The Secretary laid before the Council the various documents he had received from nine of the cities and corporate towns situate within the district for the Country Meeting of the Society in the year 1847, in consequence of the communication into which, pursuantly to the instructions of the Council, he had entered with the authorities respectively of those places.

The Council having taken into due consideration the whole of these documents, at length selected such four of the localities as appeared from the evidence furnished to the Council to be best suited for the purpose of the Country Meeting of that year, to which the personal visit of the Committee of Inspection should be directed, and on the respective capabilities of which for such purpose the Committee should be requested to report to the Monthly Council on the 6th of May next, when the final selection of the place of meeting will, agreeably with the bye-laws, be made.

OFFICIAL AGREEMENTS.—Mr. MILES, M.P., gave notice that, at the next Monthly Council, he should move, "That, in future, no agreement which may be entered into with local authorities relative to the place of the Annual Country Meeting, shall be held good, unless the corporate seal, attested by the signature of the Mayor, be applied to such document."

The Weekly Council stands adjourned to Wednesday next, the 29th instant.

Farmers' Clubs.

LONDON: *Improved Form of Farm Leases.—April 6.*—Mr. BEADELL, in rising to open the question, commenced by saying that of the many subjects which interested the agricultural world, there was none of greater importance than that which related to the bargain to be made between the land owner and the land occupier; and it was upon the way in which that was carried out, that much of the prosperity of both must depend. They must admit that this bargain ought to be mutually binding; that was to say, that it should be so framed as to prevent the tenant from committing waste upon the estate of his landlord, at the same time giving him all the liberty and all the rights that he could enjoy short of that. Now, leases, as at present drawn, did not secure this object. They found leases teeming with reserved rents and shifts, but very little appeared in them which had the effect of securing to the landlord what were his just rights, and of giving liberty and elasticity to the operations of the tenant. He apprehended that in dealing with the tenant, the point next in importance to the lease itself was the term of the lease; and they could hardly go into any county without finding that the terms of leases varied. They had in some counties the term of seven, in others 14, in others again 21 years; and in Scotland 19 years was the favourite term. Why it should be so he knew not, but so it was; that period appeared to suit very well, and it generally secured to the landlord a good, honest, industrious, and improving tenant. They could not expect that the tenant would employ his capital and go into improvements of his farm unless he had fixity of tenure; and that not such as would merely enable him to derive back the money which he had put into it; but such as would give him a handsome profit into the bargain. If they considered how few years would suffice to enable the tenant to get back his money, he did not think there would be much necessity for legal leases. But he held that the enterprising tenant who brought his knowledge to bear in improving the property which he farmed, was entitled to a rate of profit far beyond what the mere interest on his money would afford him. They all knew as well as he did, that the farmer was in most cases tied down to a certain course of cropping; very ordinarily to four crops, namely, one-fourth to naked fallow, one-fourth to spring corn, one-fourth to Clover, and one-fourth to Wheat. He mentioned this for the purpose of showing the absurdity of the system. There were, of course, variations from this plan; some where green crops, Turnips, and other things were allowed to be grown in fallow, and others where Beans and Peas, with Clover, were allowed to be taken. But he had met with many instances of the plan he had first mentioned, although they knew that the system of naked fallows was pretty nearly exploded. He recollected an instance in which the proviso of naked fallow appeared in the lease, and he called upon the party in order to speak to him upon the absurdity of it; and also to remonstrate on the absurdity of tying down the tenant to put down Clover once in every four years. The reply was, that the tenant must plant his Clover, and if it did not take, he would then be allowed to put in Peas and Beans. Thus, the tenant would in that case be called upon to spend 10*s.* or 12*s.* an acre without any benefit whatever to the landlord. He mentioned this as a specimen of cases which had frequently come across him. Leases containing these objectionable provisoes were drawn and persisted in time after time, and he could only account for it in this way, that the old form of lease was handed down from generation to generation, and adopted, whether conformable to the wants of the present day or not. The family lawyer was called in to draw a lease, and the old, musty record—which did all very well at a period when farmers could neither read nor write—was got down, and a lease drawn according to its prescribed form; and if the tenant remonstrated against any of its obsolete provisions or covenants, the reply was, "If you do not sign that, you can't have the farm at all." Well, what was the consequence? Why, the lease was signed for the sake of getting the farm, thrown into the bureau, and never thought of any more until the tenant was about to quit it. His experience was, to a certain degree, limited upon these points. But he knew that frequently, when the tenant was about to quit his farm, and when the lease was read, and covenants which he ought to have observed were pointed out to him, he remarked: "Oh! I never looked at that." The lease, in fact, under such circumstances, became a dead letter until the end of the term for which it had been taken, and the conditions were enforced, and the tenant was made subject to covenants to which he ought never to have been subjected. If these objectionable clauses could, by any means which they could devise, be substituted by more plain and understandable ones, which tenants could and would act under, why they should accomplish a great and permanent good. In some leases there were covenants for reserved rents of as much as 10*l.* an acre for certain offences. Now, all these things ought to be, and should be, got rid of: the punishment bore no proportion to the offence. The tenant certainly ought not to do anything in opposition to his lease; but if he did, he ought at least to have the same amount of justice measured out to him as a person would in one of the criminal courts, where the punishment would only be proportionable to the offence. Reserved covenants would doubtlessly be well got rid of altogether. He did not think there was any great objection to the system of imposing penalties; for if a penalty were conditionally imposed, say of 50*l.*, 100*l.*, or 200*l.*, why he did not so much object to that, as it only, in point of fact, meant a penalty to cover the amount of damage done to the estate by the misconduct of which the tenant might have been guilty. It was said that it was much more easy to find fault than to mend; however, thinking it might be useful, he had turned his attention to what a lease ought to embrace; and he would take the liberty of very shortly stating the sort of lease which would accomplish the objects which they had in view, namely, to secure the rights and interests of the landlord, and at the same time to give liberty and elasticity to the operations of the tenant, and enable him to do those things which it was so desirable to do at the present day. In the case of every lease with which he had anything to do, he should like that it should be short; he had in the way of business frequently to read over leases of five, six, or seven skins, and he was of opinion that a lawyer must be badly acquainted with his business who could not draw a lease in one skin. The conditions might be made equally stringent, whether the lease occupied one skin or six. (Hear, hear). He would just mention one case, which had occurred very near to the place where their excellent chairman was born:—A tenant had had some dispute with his landlord, and came to consult him as to what he should

do, as there was likely to be an action at law in the case. Now his lease happened to occupy five skins, upon ascertaining which he said to him—"There is only one chance for you, and that is this; I never yet knew a lease of five skins, the beginning of which did not contradict the end." (Hear, and a laugh). And so it turned out, and that saved the action. There was in almost every lease very much more formal matter than there need be. All that was necessary might be accomplished by two descriptions of covenant; he would call the first the "covenant of forfeiture"—that was to say, if the tenant chose to offend with his eyes open, there should be an absolute forfeiture of the lease; because they would scarcely ever find a good farmer in such a position. They would not find a farmer who had a large amount of capital, and was really able to pay his outgoings, put himself in such a situation where there were reserved rents or penalties, as to run the risk of forfeiture. As parts of the covenant of forfeiture (although no great friend to timber), he would include the act of cutting down any timber without the permission of the landlord, or of breaking up any land without such permission; and also insolvency, assigment, or non-residence. The next description of covenant which he proposed should be inserted, was the "covenant of compensation." In that he should include only one cropping, or mowing Grass or Clover without an extra artificial dressing, for he did not think it answered to mow twice; but if the farmer chose to mow Grass or Clover twice, why then he should give the land an artificial dressing. He should certainly also think it an offence if the tenant took two white straw crops. With regard to manure he thought the tenant ought to be compelled to bring upon the land a quantity of manure equal in value to the hay or straw which he took off when converted into dung. He would make the same covenant binding as to the green produce, the neglect of scouring ditches, keeping water courses open, &c. Now he was far from thinking that he had embraced all the matters which ought properly to come under these two heads. He had merely shown that there were certain acts which ought to be made covenants of forfeiture, and certain others which ought to be matters of compensation; and if any damage were done, it should be paid for by the party who did it. He thought too that there should be in every lease a clause allowing the tenant to remove all buildings which he might have erected upon the farm during his occupancy, if the landlord and the in-coming tenant refused to take and pay for them. He thought it would be useful that it should go forth from this club as a principle, that if the tenant put up bullock-houses, piggeries, &c., with a view to making the greatest profit of the farm, and the in-coming tenant did not see the use of them, he should be allowed to take them away. Another which he proposed to insert was what he should call the general arbitration clause; that was to say, that in case of any dispute arising between the landlord and tenant, that it should become a matter for arbitration, and not a matter of legal inquiry; and he thought that they would find that most of their best landlords would readily agree to such a clause in their leases. He could not, for a moment, think that any landlord would wish to go to law with his tenant, unless he wished to worry, tease, and perplex him; and on the other hand, he could not suppose that the tenant would desire it, unless he wished to worry, tease, and perplex his landlord. Of course this told both ways; and he thought arbitration was much better than going to law. He had also drawn out a form, which he called a "cropping form;" and which, although it might not be such as to meet the necessities of all cases, it had been acted upon without any inconvenience being found to arise from it. It had been agreed to in several instances, both by landlords and tenants; it was, in fact, a species of covenant which had been in practice in some parts of the country for some time. He (Mr. Beadell) usually inserted a general clause, binding the tenant to farm according to the most approved system adopted in that part of the country in which the lands were situated. Then the land was divided into certain portions, it might be four, five, or six; he had taken one-fourth of fallow with or without green crops, one-eighth in Clover mown only once, one-eighth in Beans and Peas, another in non-exhausting crops, and three-eighths in Wheat crops. They must all know that there was much land that was better adapted to the growth of Barley than of Wheat, and he therefore thought that it ought to be left to the discretion of the tenant, whether he chose to have Wheat, Barley, or Oats; and he could not, for his own part, see that more mischief was likely to be done to land by one crop of white straw than by another. They must bear in mind that, although there they were all good farmers and excellent fellows, there were such persons as bad tenants. No lease in the world would ever bind a bad tenant; and a lease became a one-sided document where a tenant could not farm well. He begged also to say one or two words respecting persons who farmed without capital; they were the greatest enemies the good farmer had. They increased the rent which the legitimate farmer had to pay; and, supposing they had to go abroad to purchase corn, they just gave the foreigner a premium to the extent in which they were themselves deficient in growth. He thought, therefore, that the bad farmer was a great injury to the legitimate farmer, and wherever there were bad farmers, he hoped there would be those that would give them the hint: let it be remembered that where they had less twitch, they could grow a greater quantity of corn. With regard to improvements, there was certainly a difficulty on that point; he could hardly see how the subject of improvements could be dealt with in leases. His notion of permanent improvements was, that they should be carried out by the landlord, and not by the tenant. In taking land which required draining, and would involve an outlay of 3*l.* 10*s.* or 4*l.* per acre, it was necessary to consider how many acres could be managed with the capital. He was talking the other day to a large landed proprietor, who told him that he was perfectly satisfied in buying land, provided he could make 3½ per cent. of his money. He (Mr. Beadell) said—"I don't think you ought to be satisfied with 3½ per cent.; I think you ought to make more; I think you ought to make 6 per cent. It is much better to buy less land, improve it permanently, and make 6 per cent. of your money, than have a large quantity of land, and only make 3½ per cent." If a man took the worst of land, wood-bound land, or land with water on it, and drained and improved it, what was the consequence? Why, the tenant, who would not look at it before, was glad to take it then; and thus land which had been a byword and a reproach, was often brought into the best possible cultivation.—The CHAIRMAN said he had drawn up a form of lease for the purpose of submitting to the meeting on this occasion, and as the object was to arrive at a form of lease securing to the tenant his rights and interests, and at the same time to prevent any deterioration of the property of the landlord, he thought it necessary that the lease should go principally to those two points. He had endeavoured to show, at the meeting of the club at which the subject of tenant-right was discussed, that there was great injury done to the property of the landlord by tenants endeavouring to get their improvements out of their farms before they left them, in consequence of their knowing that they should not be paid for them. It must be evident that the improvements of one tenant were the stepping-stone to those of another; and surely it must be better for the incoming tenant to take and pay for these improvements than to allow the soil to be exhausted by the efforts of the outgoing tenant to get back his capital. In Essex a tenant takes a farm for 14 years; at the end of seven years it will be in excellent order for producing, but at that very period he begins to hesitate whether he shall go on, or whether it would not be wiser then to begin and take out the improvements; for if he allows them to remain to the end of the term, they will induce others to offer a greater amount of rent for the farm than he can afford to give; and he, therefore, in nine cases out of ten, sets about to reduce the farm to the same state as that in which he found it. Now, it must be perfectly manifest to every one that both the landlord and the tenant would be greatly benefited if they could be allowed to remain in the land, and if a fair compensation were paid for them, the rate of compensation being governed by the price of grain. The price of the quarter of corn would show what the landlord or in-coming tenant could afford to pay. But if there was a fixed money rent, and the price of corn was exceedingly high or exceedingly low, much injury might be suffered. In the form of lease which he had prepared, he had had a special eye to preventing this.* It would be found that he had made several notes at the foot of the form of lease, respecting buildings put up by the tenant without the consent of the landlord, and that his proposition was, that either they should be removed by the out-going tenant, or taken at the value of the materials only. There were other clauses, about hay and straw: for instance, he had made no restriction regarding Clover; but he had laid it down with respect to straw, that for every so many tons of straw carried away, so many tons of manure should be laid down. He had mentioned tons instead of loads, because the word "load" was indefinite and ambiguous; what was a load in one place was not a load in another. There had been an objection raised with regard to a corn-rent, on account of the difficulty of fixing it equitably. But all difficulty might be obviated by taking an average of three years; this would always form a fair basis of rent. In reply to a question, he here stated that he proposed, in reference to manuring, that 1 ton of lime should be laid down for every ton of straw sold. There was another covenant relating to a corn-rent, according to which the rent would be represented by a certain amount of produce in corn. He had also laid down the principle that the tenant should not exhaust the land, but receive compensation for improvements effected; and if, on the other hand, the tenant caused any deterioration in the value of the landlord's property, then a deduction should be made upon a valuation; the object being to protect the landlord as well as to give security to the tenant. There was one matter of considerable importance upon which he differed in opinion from Mr. Beadell and many other gentlemen, namely, that with regard to the mowing of Clover a second time. All leases restricted the tenant from mowing Clover more than once. Now, he had seen as good Wheat grown after mowing the Clover twice as after feeding it. There was something so peculiarly advantageous to the land in the shading of Clover, as to make the second mowing fully commensurate with feeding. There was not the amount of advantage derived from feeding in regard to manure that was generally supposed, for the dung deposited was nearly all evaporated by the heat of the sun. (Hear, hear.) As an evidence of the correctness of his views, he might remind them that Clover was not worth more than from 30*s.* to 50*s.*, or at the most 60*s.* an acre; and he knew a case of 20 acres having been mown twice, and both crops sold; they were sold by auction, and therefore did not fetch more than a fair price—both crops sold for 36*5l.* Now, he wished to ask whether, in cases where they could mow, anything in the shape of feeding could compensate for this. Why, the Clover paid for the crop of Wheat itself, whereas, if it had been fed, it could not have produced 4*l.* per acre. Clover, carried into the yard, would maintain a vast quantity more stock than it could possibly maintain by feeding, and therefore it was that he thought the tenant should not be prevented from mowing twice, if he thought proper.—Mr. HUTLEY said: With reference to Mr. Baker's form of lease, he could not agree to the principle of giving up all rights to game in favour of the landlord, which he regarded as giving the independent tenants' right away. He thought they ought to recommend that which was useful and beneficial. The tenant ought to preserve and take care of the game for the landlord, but he was as much entitled to kill it as the landlord himself; he held that the man who maintained the game ought to be allowed to shoot it.—The CHAIRMAN said he believed it had been held in all cases that, unless the lease reserved to the landlord the entire right to the game, and precluded the tenant altogether from sporting, he (the tenant) was not precluded. They could not suppose that a gentleman who was fond of game would give up his right in this respect; a gentleman often invested his money in an estate for the sole pleasure of shooting; and if he had an estate which he was about to let, he would certainly reserve this right. He would not preclude the tenant from shooting, but he would reserve the right for himself also.—Mr. THOMAS next rose, and after some preliminary remarks, said, a new plan had recently been adopted of letting farms on a 16 or 20 years' lease; and the rent of the first four years was assessed at a certain number of quarters of Wheat or Barley, according to the price of the period. At the expiration of the first four years, the price of corn was taken from the averages published in the *Gazette*, and the rent again fixed; and so on at the end of each four years until the term of the lease had expired. This plan had not been adopted without very long and very mature consideration; and he must say upon reflection, that he did not think a system more honest and more satisfactory could be found. Now with regard to the period for which a lease ought to be granted, he thought it must be clear to every one, that a term less than 16 or 20 years was scarcely sufficient to allow the tenant to reap the reward which he ought to receive for his exertions. He ought to have that fixity of tenure which would inspire every farmer with hope, and give him a pleasure, in cultivating his farm, which he could not have if he thought it would pass out of his hands. In leases of farms upon which there was land which wanted draining, the landlord might, in default of the tenant doing it, enter upon the farm, drain the land, and charge him 6 per cent. for the outlay; and he did not think that the tenant could complain of the outlay which his own neglect had caused his landlord to make for him. With regard to the sale of straw and hay on the farm, the practice with him was to bring back a certain quantity of dung in lieu of it. On the subject of mowing Clover twice, he begged to say that in the case of red Clover, he had found it more profitable to mow it than to feed it down with sheep; indeed, he never in one instance found that the crops of Wheat had not been finer and larger than when fed down by sheep. Respecting the question of game, he must say that he felt strongly: to introduce an enormous quantity of game on a farm was, in some instances, almost equal to doubling the rent; and when a landlord chose to keep a large stock of game, the efforts of the farmer must become almost paralysed. He trusted that he should never hold up his hand for a lease in which the landlord kept a quantity of game, and claimed the right of killing it all himself. A plan had recently been hit upon in his neighbourhood, which was found to work very well: it was an arrangement to the effect that the landlord should shoot all the feathered game, and the tenant all the quadrupeds; and this appeared to give satisfaction to both parties. He thought this was sound in principle, and calculated to keep up good feeling between landlord and tenant.—Mr. WOOD said with regard to a corn rent—I think there are many means of preventing loss by increase or decrease in the value of money. We all know that many persons have been ruined by the fluctuations in the value of money, and not by their own want of providence or skill. I think it might be defined in this way—I won't state this as my own notion: it was mentioned to me by a friend of mine, as a plan for paying a fixed money rent half-yearly, of a certain sum, say 250*l.* At the end of five years, take the average *Gazette* prices of so many bushels of Wheat, Beans, Oats, or Barley, according to the nature of the land; then strike a balance between the amount paid in pounds sterling, and the amount according to the value of the corn, the landlord or tenant paying the difference as the case may be. I think this would be a very good way of obviating any difficulty with respect to manures, draining, and general improvements of the farm; these may easily be come at; and the value might be arrived at with greater accuracy, if the tenant, in carrying out his manures, sent in from time to time an account of the same, so as to enable the landlord to ascertain the quantity and quality, as also of the value of the draining, in respect of which compensation would be claimed. I perfectly coincide in all that has been said about game and farm buildings. I have merely thrown out the suggestion for sending in

* For form of lease see another page.

accounts in order to prevent things from being overvalued to the incoming tenant, as they too often are, from the fact of the valuer not having sufficient means of judging.—Mr. BEADELL said, he thought the suggestion of Mr. Wood, respecting a corn rent, deserving attention, on account of its fairness; but at the same time he regarded it as impracticable. A settlement after allowing matters to run on for four years would be very inconvenient.—The CHAIRMAN said, with regard to the arrangement for a corn rent, he could not help thinking Mr. Wood's plan very objectionable, as going over a period of four years; the difference then to be adjusted might amount to a year's rent. He thought it was much better that an adjustment should take place at the end of one year than at the end of four years. If the averages were taken at the end of each year, the matter could be settled and done with. They might always take an average of three years in coming to this arrangement, because in doing so all that would be necessary was, to strike off the first, and add the last. The only objection to a corn rent was the trouble it gave; but the course which he had pointed out was a plain and easy method for arriving at a fair conclusion.—Mr. FISHER HOBBS said, he thought that while every protection ought, doubtlessly, to be given to the landlord, every possible encouragement ought to be given to the skilful and enterprising tenant also. He did hold that the leases brought forward were such as were applicable to years past, and not such as ought to be recommended for a long term of years, to commence at the present time; as agricultural knowledge progressed, such encouragement ought to be given as should enable the tenant farmer to go on at the same rate. There was a great difference between the old, sluggish, indolent tenant, who would not help himself, and the skilful man and man of property, who wished to make the land produce as much as nature would allow it, and he thought, in recommending any particular form of lease as emanating from this Club, they ought not to lay down any particular restrictions as to cropping, but only to lay down such rules as would prevent the deterioration of the property. He thought the old four-course system was very fast wearing out. He thought that they ought never, under any consideration whatever, to have two white straw crops together. But there were so many new roots and new crops annually brought forward, that the farmer ought not to be tied down to any particular system of white straw or pulse crops, to which these forms of lease did tie him down; they also compelled him to consume the roots upon the farm. He thought they could not well farm too high; and that it was most advantageous to sell off the root crops. They were often taunted about Scotch farming. Why, in Scotland, the root crops were the most profitable things they had. The tenant ought to have every facility which it was possible to give him in his operations, short of exhausting the land. With regard to permanent improvements, such as drainage, they ought to be performed by scientific men, or by a company of men, and not by the tenant. He thought it would be advantageous to both parties if the landlord were to do the drainage, and the tenant were to pay him a certain rate of interest for the outlay. He could not, however, agree with Mr. Thomas, that the landlord ought to ask 6 per cent.; 5 per cent. was ample and abundant, and he did not think this club would be justified in recommending more than 5 per cent. With regard to buildings, he did not think the tenant could afford to pay rent for his land unless the landlord erected good farm buildings, or encouraged him to erect them himself. With respect to game, he thought that a vast deal of injury was done to the tenantry of the country by game; much more, indeed, than the public were generally aware of. In Norfolk, last year, he heard of instances of the game injuring the tenant nearly to the amount of the rent of the land. He was not one of those who would say that the landlord should not have the right to come upon his own land, but there should be some limit to the extent of preserving game. With regard to compensation being allowed to the tenant for his unexhausted improvements at the expiration of the term of his lease, very little had been said; he supposed that was attributable to the fact of the question of tenant-right having so recently come before the Club. He hoped that that would be a point which would be strongly recommended in any new form of lease; for he contended that the skilful and persevering tenant ought, if he left unexhausted improvements upon the farm, to be remunerated for them. A proper form of lease would be a most advantageous thing; he was perfectly satisfied that throughout his own county, and probably throughout England, a good form of lease would be the means of increasing the cultivation to the extent of 10 per cent. He hoped and trusted that a form of lease would be adopted by this Club; for if one were adopted he felt certain that the gentlemen of the legal profession would be very glad to follow it out. He had talked upon the subject to legal gentlemen in the metropolis, who had told him that they should be glad to adopt such a form of lease for their clients if they knew that it was framed upon a sound principle.—Mr. COBB said he thought that it was utterly impossible to frame any form of lease which would apply to all parts of the country. He was himself a Kentish farmer, and in Kent two white straw crops were not objected to. They there used a great many fish as manure, and fallowed only once in seven years. He was aware that the gentleman who had opened the question (Mr. Beadell) would not give them any great credit for the management of stock, but he was quite sure he would say nothing against their farming. In Kent they went upon this principle—that to restrict a good farmer in his operations was the worst thing they could do.—The CHAIRMAN, in conformity with their usual practice, now submitted a resolution for the adoption of the meeting. He read a resolution which he had sketched; and after some discussion and alteration it was at length brought to the following terms:—"That leases should be so framed as to give the tenant the fullest scope for the management of his farm and security for the capital invested in improvements, and at the same time to give to the landlord protection from undue cultivation or injury to the farm. And this meeting is impressed with the conviction that draining should be done by the landlord, who should charge a moderate per centage upon the outlay; and also that leases are essential to the cultivation and beneficial occupation of land."—*Abridged from the Mark Lane Express.*

Calendar of Operations.

APRIL.

This is the proper season for planting Mangold Wurzel. Select the Orange Globe variety—the cattle prefer it, and it yields as large a crop as any. Place the seed in a tub and pour water over it, so as thoroughly to damp it: turn it at intervals and keep it damp for 5 or 6 days. It will then be ready to sow. The land meanwhile has been prepared thus:—It should be a somewhat adhesive loam, though the lighter are better suited to the growth of the plant than the heavier soils. It having already been cross ploughed, harrowed, "cultivated," harrowed, cleaned, and rolled—though, by the way, few soils have this spring yet admitted of the performance of all these operations—let the dung be carted on; the heap should be first soaked with liquid manure from the tank. Three men filling the carts, and one man dividing the loads into heaps, about 5 yards apart, in the field, and as many boys leading as the carts employed and the distance may require, and 2 men spreading and 3 ploughs at work in the field, should fill, carry, divide, spread, and plough in 120 cubic yards of dung on 4 acres of land in a day. It is well to make the filling at the dung-heap *piecework*, paid for at the rate of 4*d.* per cubic yard. Immediately after the ploughing, the land should be harrowed, for land at all wet very soon becomes cloddy, if not immediately broken down. The roller should follow the harrow in dry weather. The dung is then put in broadcast: this is better both for the green crop after it has once started, and for the ensuing grain crop; but if the land be not in such condition as that the seeds shall sprout and grow vigorously, though unassisted by manure, then the land, after being thus manured, should be ribbed into very shallow furrows about 26 inches apart; in these furrows about 10 cubic yards per acre of well-rotted dung saturated with urine should be spread, the drills being immediately split by the plough again, making the furrows this time considerably deeper. All this goes on at once; that is to say, the field being all manured, ploughed, and rolled, 2 ploughs commence ribbing it; when they have got a few drills opened, the carts come with the manure, and go up every third furrow, the horse walks up without stopping, and the man behind with the dung-drag, pulls out regularly a portion, so that he shall empty his cart in such a length of three drills as corresponds to one-tenth of an acre, a lad follows dividing what has thus been emptied amongst the 3 drills, and women or lads with forks spread the manure belonging to each drill evenly along the bottom of each. Six drills may thus be completed by the time 14 or 16 are opened, and the ploughs instead of merely opening new ones, now go round and round the manure party at work, covering up their work on one side by splitting the old drills and preparing the ground for them on the other, by opening new ones. About 5 acres may thus be done in a day, and the land is then ready for planting the Mangold. We do this thus:—A roller of about 1 foot in diameter has 3 narrow strips of wood nailed at equal distances on it its surface longitudinally; *i. e.*, parallel to its axis. This roller is made to go up and down the drills, and the strips of wood nailed on it thus leave markings across each at intervals of a little more than 12 inches. These markings are a guide to the women in planting the seed, which is done by hand dibbles, blunted so that they shall not easily make holes more than half an inch deep. Each woman has a small bag of the seed tied round her waist; she stands with her right foot on the drill she is planting, and her left in the furrow; she makes a hole with the dibble on one of the marks across the ridge, and with her left hand plants 2 of the berries (each containing it may be 3 or 4 seeds) in the hole, she then draws her right foot along the top of the ridge and covers them in; she makes another dibble hole in the next mark, plants more seeds, and covers them up as before. This can be done very rapidly after a little practice—the right foot should be slid over the surface, not lifted at all, and, during the stop, while the dibble is at work, it should stand over the seed last sown. A woman earning 10*d.* a day will plant more than a mile in length of drill in this way in a day: when the drills are 26 or 28 inches apart, the operation will cost 2*s.* 6*d.* an acre. A light roller should then go over the ground, and that completes the management of this crop for the present.

Notices to Correspondents.

ANALYSIS OF SOILS—*C. D. S.*—Each analysis will cost from 1*l.* to 5*l.*, according to the degree of minuteness you wish. A pound or two of each sort should be sent to our office, and we will find a competent analyst.

CARBONATE OF LIME.—*Pistol*—The carbonic acid is in union with the ammonia of the atmosphere.

DANDELIONS—*S. C.*—You must persevere for a year or two in pulling the roots and leaves up in moist weather whenever they appear. Use a short narrow trowel. You cannot fail of *ultimate* success.

DRAINS ON FLAT GROUND INTO A BROOK, WHICH OCCASIONALLY FLOODS—*T. D.*—Use draining *tiles*. Let them all run into one main, and let that open as far down the brook as possible by means of a sluice which will shut of itself and hinder the ingress of water.

LIQUID MANURE—*L.*—The present is the best of all times for its application. The young Grass is now just fitted to avail itself of every means of growth you can put within its reach. Apply about 400 gallons per acre, or more if it be much diluted. We should be glad to have the account of your experience on this subject.

Markets.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, April 23.

Prime Mead. Hay	80s to 90s	New Hay	—s to —s	New Clr.	—s to —
Infr. New & Rowen	60	75	Clover	85 to 115	Straw	30	34

JOHN COOPER, Salesman.

CUMBERLAND MARKET, April 23.

Prime Mead. Hay	80s to 90s	Old Clover	110s to 115s			
Inferior	60	80	Inferior do.	95	105	Straw	30s to 32s
New Hay	—	—	New Clover	—	—		

JOSHUA BARNS, Hay Salesman.

WHITECHAPEL, April 24.

Fine Old Hay	85s to 95s	Old Clover	115s to 115s			
Inferior Hay	60	70	Infr. „	80	100	Straw	28s to 30s
New Hay	—	—	New Clover	—	—		

COVENT GARDEN, April 25.—Vegetables of all kinds have been plentifully supplied, and Fruit, although not over abundant, is sufficient for the demand. Trade is somewhat brisker. A few punnets of ripe Cherries have been offered during the week. Forced Strawberries are pretty plentiful, but the demand for them is but limited; the best specimens fetch about 1*s.* 3*d.* an ounce. Green Gooseberries and Apricots have been offered; the former at from 2*s.* to 2*s.* 6*d.*, and the latter at from 2*s.* to 3*s.* a pottle. Pine-apples are good in quality, and tolerably plentiful. Hothouse Grapes are more abundant than they have hitherto been, and, in consequence, are rather falling in price. Apples and Pears remain nearly the same as quoted in our last report. Nuts of all kinds are sufficient for the demand. Of Vegetables, Broccoli is very plentiful, and begins to get cheaper; Asparagus is good in quality, and a trifle cheaper. Rhubarb is also cheaper, as are also Cucumbers. Cabbages, Greens, &c., are good and plentiful; the latter are somewhat lower in price. Young Carrots and Turnips have been offered; the former at from 6*d.* to 2*s.*, and the latter at from 1*s.* 6*d.* to 2*s.* 6*d.* a bunch. Celery is excellent, and sufficient for the demand. Potatoes, of the very best quality, fetch 9*l.* a ton; trade for inferior samples still continues dull, and the prices remain unaltered. The best frame Potatoes may be bought for about 2*s.* 6*d.* a lb. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Auriculas, Tropæolums, Jasmines, Lily of the Valley, Pentas carnea, Stephanotis floribunda, Burchellias capensis, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Rhododendrons, Cinerarias, Gardenias, Moss and other Roses.

FRUITS.

Pine Apple, per lb., 6*s* to 10*s*		Lemons, per dozen, 1*s* to 2*s*	
Grapes, Hothouse, per lb., 10*s* to 14*s*		— per 100, 6*s* to 14*s*	
— Spanish, per lb., 2*d* to 1*s*		Almonds, per peck, 6*s*	
— Portugal, p. lb., 1*s* to 3*s*		Sweet Almonds, per lb., 2*s* to 3*s*	
Apples, Dess., per bush., 7*s* to 30*s*		Filberts, English, p. 100 lbs., 60*s* to 65*s*	
— Kitchen, 7*s* to 15*s*		Nuts, Cob, per 100 lbs., 90*s* to 95*s*	
Pears, per hf.-sv., 6*s* to 15*s*		— Barcelona, 80*s*	
Oranges, per dozen, 1*s* to 2*s* 6*d*		— Brazil, 12*s* to 16*s*	
— per 100, 4*s* to 18*s*		— Spanish, 14*s*	
— Seville, per 100, 5*s* to 16*s*		Walnuts, per bushel, 16*s* to 20*s*	
— per dozen, 2*s* to 3*s* 6*d*		Chesnuts, per peck, 3*s* to 7*s*	

VEGETABLES.

Cabbages, per doz., 6*d* to 1*s* 6*d*		Parsnips, per doz., 8*d* to 1*s*	
— red, per doz., 4*s* to 8*s*		Nouraumers, per bundle, 1*s* to 1*s* 8*d*	
Broccoli, Brown, per bdle., 9*d* to 1*s* 6*d*		Salsify, do., 1*s* to 1*s* 3*d*	
— White, 2*d* to 3*s*		Onions, per bushel, 1*s* 6*d* to 5*s*	
Greens, per doz. bunches, 1*s* 6*d* to 2*s* 6*d*		— Spanish, per doz., 1*s* 6*d* to 2*s*	
French Beans, per 100, 1*s* 6*d* to 3*s* 6*d*		Shallots, per lb., 6*d* to 8*d*	
Sorrel, per hf.-sieve, 9*d* to 1*s*		Garlic, per lb., 6*d* to 8*d*	
Potatoes, per ton, 70*s* to 180*s*		Endive, per score, 6*d* to 1*s* 6*d*	
— new, 4*s* to 9*s*		Lettuce, per score, Cab., 4*d* to 6*d*	
— bushel, 3*s* to 4*s* 6*d*		— Cos, 6*d* to 2*s*	
— Kidney, per bushel, 4*s* to 6*s*		Radishes, per 12 bunds, 4*d* to 1*s*	
— Frame, per lb., 1*s* 6*d* to 2*s* 6*d*		Mushrooms, per pottle, 6*d* to 2*s*	
Turnips, per doz. bchs., 1*s* to 2*s*		Small Salads, per punnet, 2*d* to 3*d*	
Red Beet, per doz., 6*d* to 1*s* 3*d*		Fennel, per bunch, 2*d* to 3*d*	
Carrots, per doz. bchs., 3*s* to 5*s*		Savory, per bunch, 4*d* to 6*d*	
Horse Radish, per bundle, 1*s* 6*d* to 3*s*		Thyme, per bunch, 6*d*	
Seakale, per punnet, 2*s* to 4*s*		Watercress, p. 12 sm. bun., 6*d* to 8*d*	
Rhubarb, per bundle, 6*d* to 1*s*		Parsley, per bunch, 1*d* to 3*d*	
Asparagus per bundle, 3*s* to 5*s*		— Roots, per bundle, 1*s*	
Cucumbers, each, 6*d* to 2*s* 6*d*		Tarragon, per bunch, 6*d*	
Spinach, per sieve, 6*d* to 1*s*		Mint, green, per bunch, 6*d* to 9*d*	
Leeks, per doz. bunches, 1*s* to 1*s* 6*d*		Marjoram, per bunch, 4*d*	
Celery, per bunch, 6*d* to 1*s* 6*d*		Chervil, per punnet, 2*d* to 3*d*	
Cardoons, each, 6*d* to 2*s*			

POTATOES.—SOUTHWARK, WATERSIDE, April 20.

The supply to this market during the past week was moderate, yet there was considerable langour in the trade the early part of the week, at our last quotations, but at the close there was a general improvement in the demand for the best a mpies of Reds at advanced prices. Prices:—York Reds, 90s to 140s per ton; ditto Regents, 40s to 90s per ton; Shaws, 30s to 80s per ton; Scotch Reds, 70s to 85s per ton; Inferior lots, 40s to 60s per ton. There are some fresh cargoes of Perthshire Reds opened this morning, for which 90s per ton is asked.

SMITHFIELD, MONDAY, April 20.—Per Stone of 8 lbs.

Best Scots, Herefords, &c	4*s*	0 to 4*s* 4	Best Long-wools	-	4*s*	10 to 5*s* 0
Best Short Horns	3	10 4 0	Ditto (shorn)	-	4	4 4 8
Second quality Beasts	3	0 3 4	Ewes and second quality	-	4	4 4 8
Calves	4	4 5 4	Ditto (shorn)	-	4	0 4 4
Best Downs & Half-breds	5	0 5 4	Lambs	-	5	8 7 0
Ditto (shorn)	4	6 4 8	Pigs	-	3	8 4 8

Beasts, 2263; Sheep and Lambs, 18,020; Calves, 61; Pigs, 313.

We have to-day a large supply of Beasts of excellent quality, the demand is also extensive, and the very best descriptions do not suffer much reduction in price, but several of the second-rates remain unsold.—Although the number of Sheep is rather increased the supply is still short, the trade is active at a little advance on the best qualities.—Veal trade is dull; a good Calf, however, is still making 5*s* 4*d*.—Lamb is not so much in request, the weather being cold.—Pork trade is rather more active at late rates.

FRIDAY, April 24.

Trade this day was not quite so good as Monday, either for Beef or Mutton, and especially for Lamb, the weather being very unfavourable. The principal portion of Beasts in the market were from Scotland.

Beasts, 899; Sheep and Lambs, 5400; Calves, 190; Pigs, 220.

41, West Smithfield.

MARK-LANE, MONDAY, April 20.

The supply of English Wheat by land carriage samples this morning was moderate, and fine qualities being in request commanded an advance of 1*s.* per qr.; free foreign meets a retail demand, and bonded was taken by the millers in the same manner at its free value, less the duty.—Barley is exceedingly slow of sale, but we do not alter our quotations.—Beans and Peas support their former value.—The Oat trade improves, which enables factors to realise 6*d.* to 1*s.* per qr. more than on this day se'nnight.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White	58	66	Red	59	61
—— Norfolk, Lincolnshire, and Yorkshire		60	62	White	60	62
Barley, Malting and distilling 30*s* to 31*s* Chevalier		30	34	Grind.	28	30
Oats, Lincolnshire and Yorkshire	Polands	24	29	Feed	23	25
—— Northumberland and Scotch	Feed	24	27	Potato	28	31
—— Irish	Feed	22	26	Potato	29	30
Malt, pale, ship		54	60			
—— Hertford and Essex		60	65			
Rye		34	36			
Beans, Mazagan, old and new	37 to 40	Tick	29	46	Harrow	31	48
—— Pigeon, Heligoland	34 to 38	Winds	—	—	Longpod	—	—
Peas, White	36 to 38	Maple	30	33	Grey	28	31

FRIDAY, April 24.

The arrivals of all Grain during the week have been moderate; best qualities of English Wheat support Monday's quotations; the demand for foreign, which continues to be released by certificates, is very slow; we did not hear of any f.o.b. sales being made.—The finest descriptions of Barley are fully as dear; in the secondary sorts, as well as Beans and Peas, we observe no alteration.—Oats are held for more money, which prevents sales to any extent.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Mar.	14 per Quarter.	54*s* 3*d*	29*s* 4*d*	21*s* 9*d*	34*s* 3*d*	35*s* 3*d*	34*s* 6*d*
—	21	53 1	29 10	22 0	33 10	34 4	33 4
—	28	55 5	30 2	22 1	34 0	35 0	33 3
—	4	55 9	30 7	22 6	33 7	34 10	34 0
Apr.	11	56 0	30 9	22 9	33 4	35 1	33 8
—	18	56 10	30 5	22 9	35 5	34 9	35 6
6 weeks' Aggreg. Aver.		55 5	30 2	22 4	34 1	34 10	33 11
Duties on Foreign Grain		17 0	2 0	0 0	2 6	5 6	9 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, April 18.

Pence.	Mar. 14	Mar. 21	Mar. 28	April 4	April 11	April 18
56*s* 2*d*	..	..	..	..	..	..
— 1	..	..	..	..	..	..
— 0	..	..	..	..	..	..
55 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..

KINNERSLEY, AND LAY.

ULEY IRON WORKS, NEAR DURSLEY, GLOUCESTERSHIRE.

Important to Iron Founders, Engineers, Agriculturists, Agricultural Implement Makers, and others.

The EARL OF DUCIE, having disposed of the above-named Property, has honoured

G. HUMPHRYS AND Co. with instructions to arrange for SALE BY AUCTION, on TUESDAY, MAY 5, 1846, and following days of business (Fridays and Saturdays, and Monday the 10th excepted), until the whole is disposed of, THE VERY VALUABLE EFFECTS of manufactured and unmanufactured Stock, Fixtures, Tools, Carts, Horses, &c. Comprehending Driving Shafts, Gearing; Planing, Slotting, and Drilling Machines; Slide and other Lathes; Vices, Vice Benches, Screw Tackle, and other Tools; Fan Blower, Cupolas, Crane, Moulding Boxes, and an extensive assortment of Wheel and other patterns; Brass Founders' Tools; Portable and other Smith's Forges, with Anvils and Tools; Pattern Makers', Carpenters', and Wheelwrights' Benches; Circular Saw; Timber of various kinds, well-seasoned; a quantity of Machines, of various kinds, partly manufactured and complete; a great quantity of Bar and other Iron; Cast and Blistered Steel; Counting-house Fixtures; the one-half Share of the Uley Patent Chaff Cutter; a Richmond Cart and Spring ditto; Useful Draught Horse and Gig ditto; Sets of Harness, and numerous miscellaneous Effects.

Full and descriptive Particulars will appear in Catalogues at 1s. each, which may be obtained 7 days prior to the Sale at the *Midland Counties' Herald* Office, Birmingham; *Guardian* Office, Manchester; *Mercury* Office, Bristol; at the Works; of the Auctioneers' Offices, Stroud and Wotton-under-Edge. Catalogues will be sent on a post-paid application, inclosing 12 postage stamps.

☞ The Sale will commence each day at 12 o'clock to the minute.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition, at the Auction Mart, Bartholomew-lane, on Tuesday, April 28th, and Thursday, 30th, 1846, at 12 o'clock, about 200 Pairs of CARNATIONS and PICOTEES (the surplus stock of a gentleman amateur.) Also, a splendid assortment of Geraniums and other Plants in bloom, the newest varieties of Fuchsias, Verbenas, Heartsease, Pinks, Bengal Roses, Choice Dahlias, &c.—May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE & MORRIS are instructed to submit to public competition, by Auction, on the Premises, Vassall-road, North Brixton, about the second week in May, 1846, a superb bed of TULIPS (the property of a gentleman amateur, giving up their further cultivation); amongst which will be found Pandora, Salvator Rosa, Brown's Louis XVI., Dickson's Duke of Devonshire, Beteral's Brulante Eclatante, Strong's King, Ely's Lady Louisa, Queen, Parmegiano, Musidora, Thalia, Wallace, Brown's Marcellus, General Bourneville, Ulysses, Fabius, Maid of Athens, Sheet Anchor, Sharpe's Victory, Duchess of Kent, Camuze de Craiz, Violet Alexander, &c.; also an excellent Iron Tulip Stage, Iron Hoops, Canvas, Rollers, and a capital Tulip Cabinet for about 120 rows, &c. May be viewed one week prior to the Sale.—Catalogues may be had of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed to submit to Public Competition by Auction, on the premises, Harwood Nursery, Hampstead-road, on Monday, April 27th, 1846, at 11 o'clock, (in consequence of the premises being required for other purposes), the whole of the GREENHOUSE PLANTS, consisting of very choice Geraniums, Azaleas, Acacias, Fuchsias, Verbenas, Calceolarias, Heaths, Fairy Roses, &c. Also, a newly-erected Greenhouse, several two and three-light Boxes, Handlights, and other effects. May be viewed prior to Sale, and Catalogues had on the Premises; of the principal Seedsmen; and of the Auctioneers, American Nursery, Leytonstone.

HORTICULTURAL GLASS OF BRITISH MANUFACTURE, at J. WELCH, jun., PHILLIPS, & Co.'s Warehouse, 12, Panton-street, Haymarket.—Having made arrangements with a British Manufacturer, they are enabled to offer the above article in unlimited quantities at the following terms, in Squares not exceeding 40 inches long:—

No. 0—(equal to Foreign Sheet)	..	4½d. per foot.
1—averaging from 16 to 18 oz. to the foot		5d. ,,
2 ,,	21 to 23 ,,	7d. ,,
3 ,,	32 ,,	1s ,,

J. WELCH, jun., having been many years with Mr. Drake, of 8, Jermyn-street, and 315, Oxford-street, and at the time of the glazing of Chatsworth Conservatory, has devoted himself to the Horticultural Glazing Department, begs to call the attention of Horticulturists generally to the above prices for Glass, which they undertake to glaze in any part of the United Kingdom.

They also beg to recommend for Pits and Garden Lights small size squares, which they offer at the following low prices, packed in 100 feet boxes, not particular to thickness:—

Under 5 in. by 3	..	1½d. per foot.
5 in. by 3 and ,,	6 in. by 4 ..	2d. ,,
6 in. by 4 and ,,	9 in. by 7 ..	3d. ,,

J. W. & Co solicit inspection of their stock of Stained and Ornamental Glass at their Warehouse, as above.—12, Panton-street, Haymarket.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

per gross.	per gross.	per gross.
6 in. by 4 .. 6s.	8 by 5 .. 13s.	9 by 7 .. 18s.
7 in. by 4½ .. 9s.	8 by 6 .. 14s.	10 by 8 .. 26s.

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists, apply to R. CHEAM, Glass, Lead, and Colour Works, 48, Leicester-square, London.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at P. ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

WIRE-WORK, HOT-WATER APPARATUS, GREENHOUSES, &c.

ST. THOMAS BAKER, MANOR-HOUSE, MANOR-PLACE, KING'S-ROAD, CHELSEA, Manufacturer of INVISIBLE WIRE-FENCE, to resist Grazing Stock, and rendered Rabbit-proof. WIRE-WORK in Trainers, Arches for Walks, Bordering, Flower Stands, Pheasantries, &c. HORTICULTURAL BUILDINGS, Green and Hothouses, Conservatories, &c. The same heated by HOT-WATER-APPARATUS, on improved and economical principles.

Parties waited on in Town or Country, and Drawings and Estimates free. Work for the Trade as usual.

Ward's Cases, or Domestic Greenhouses.

PROPAGATING GLASSES, White, 1s. per lb., or from 2s. 6d. to 24s. per dozen. CUCUMBER GLASSES, from 6d. to 4s. each. GRAPE SHADES, with holes, 1s. 9d. to 2s. 6d. each. FISH BOWLS, from 1s. 6d. each.—ASPLEY PELLATT & Co., Falcon Glass Works, Holland-street, Blackfriars.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.

GRAY, ORMSON, AND BROWN, HOTHOUSE BUILDERS AND HOT WATER APPARATUS MANUFACTURERS, Danvers-street, Paulton-square, King's-road, Chelsea, respectfully request the attention of the Nobility, Gentry, and Gardeners who intend to enlarge or augment their Forcing or Plant Houses, to their superior manner of erecting such structures, and the application of Heat by their improved Hot Water Apparatus.

GRAY, ORMSON, and BROWN beg to assure those who honour them with their patronage, that from the practical experience of one of the firm as a Gardener, they guarantee every House constructed by them will be adapted to its intended purpose.

Plans and Estimates furnished free, and satisfactory references given.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

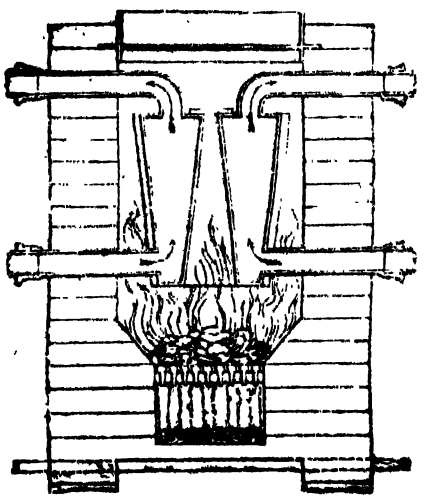
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS'S recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—189, Fleet-street, London.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 77, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus: and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and price, at 189, Fleet-street.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,

ANTONY GIBBS AND SONS, LONDON;

WM. JOSEPH MYERS AND CO., LIVERPOOL;

And by their Agents,

GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL;

COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.—ANT. GIBBS and SONS, 47, Lime-street, April 25.

THE URATE OF THE LONDON MANURE COMPANY.—Four Guineas per Ton. After five years' experience in the manufacture of the above Manure, the Company confidently recommend it as one of the cheapest and most permanent of all artificial dressings. Availing themselves of the many improvements in the science of artificial manures, the Urate is so adapted that the food requisite for a rotation of crops is fully maintained. The Urate will be found most valuable, either drilled or sown broadcast, for Barley, Oats, Potatoes, Tares, or Turnips; for the latter it is particularly useful, as it seldom fails, in the driest season, to secure a good plant, and also to produce a great weight per acre. The London Manure Company also supply genuine PERUVIAN GUANO, Gypsum, Sulphuric Acid, Super-phosphate of Lime, Bone Sawdust, and every Artificial Manure.

No. 40, Bridge-street, Blackfriars. E. PURSER, Secretary.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

GUANO AND OTHER MANURES.—The undersigned begs to offer the following on the best terms, viz.:—

GUANO—Peruvian, Bolivian, and African.
DITTO—British, (made on the strict analysis of Peruvian.)
SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal vol. vi. part 2.)
BONE DUST and HALF-INCH BONE.
BONE SHAVINGS.
} For Wheat, Oats, Barley, Beans, Turnips, Mangold Wurzel, Potatoes, Tares, Grass, &c.

GYPSUM—For Clover, Cinquefoil, Trefoil, Vetches, &c.
NITRATE OF SODA—As a stimulant for Wheat, Oats, Barley, Grass, &c.
NITRATE OF POTASH.
SILICATE OF SODA.
SILICATE OF POTASH.
} As a top dress for Wheat.

PETRE-SALT—as a top dress for Old Pastures, Clovers-leas, &c., being a complete purifier.
AGRICULTURAL SALT—for Compost Heaps, &c.
PRATE—for Wheat, Oats, Barley, Turnips, &c. on hot land.
SULPHURIC ACID—for dissolving Bone Dust and Bone Shavings.
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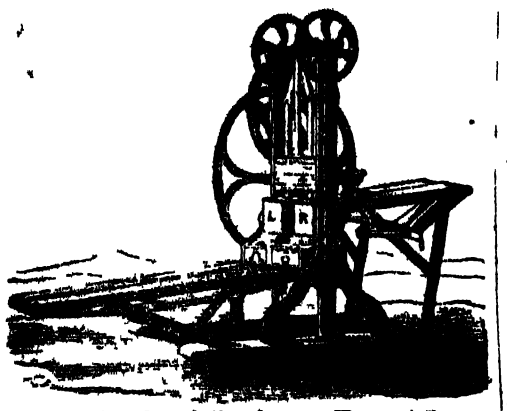
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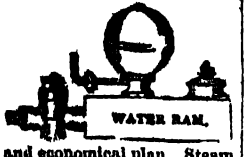
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No. 18—1846.] SATURDAY, MAY 2. [PRICE 6*d.*

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GAYLUSSACIA PULCHERRIMA (*Auguste de St. Hilaire*): With scarlet flowers, from the Caraca 2*l.*—	3	0	0
GESNERA LIBANENSIS (*Lindley*): From Cuba	0	15	0
" New shrubby sp. from Cuba	1	0	0
LOBELIA?: A little pyramidal shrub, with red flowers	1	0	0
" New species, rugosa (?), a little branching shrub, with blistered leaves and smooth stem: A very pretty plant	1	10	0
LUXEMBURGIA SPECIOSA (*Auguste de St. Hilaire*) 1*l.*—	5	0	0
PITCAIRNIA HASTATA (*Lindl.*): Scape bearing vermilion flowers	2	0	0

COLD GREENHOUSE.

BERBERIS AURUHACENSIS (*Lindley*): A new species from Colombia, where it grows on the lofty Cordillera, 12,000 feet above the sea. A handsome shrub	2	0	0
FICUS: New species, with leaves bronze coloured underneath	0	5	0
LOASA: New species, with large yellow and green flowers. The plant has a pyramidal habit	0	10	0
LOBELIA SERRATA (*De Jonghe*). A magnificent new species, with purple flowers, from the blue Mountains of Jamaica	1	6	0
PASSIFLORA: New species, from the Blue Mountains of Cuba, with large white flowers	0	10	0
TACSONIA: With large red flowers. This new species grows like the Berberis at the height of 12,000 feet	1	0	0

MELASTOMADS.

CLIDEMIA VALENZUELA (*A. Richard*)	1	0	0
CREMANIUM PANICULATUM: Brazil	0	12	0
LAVOISIERA ALBA	1	6	0
" GENTIANOIDES	1	6	0
" OCTOPETALA	1	10	0
" ROSEA DE CAMPANEMA	1	6	0
MICONIA CHRYSONENSE (*A. Richard*)	0	12	0
" Species (*A. Richard*)	1	0	0
" LINDENIANA (*A. Richard*)	1	6	0

NOTE.—All these new species have but just been put on sale, and are to this day, with a few exceptions, exclusively in possession of M. de JONGHE, who will exhibit to the Amateurs who may favour him with a visit, dried specimens of all of them. For more detailed information, apply to M. J. DE JONGHE, 20, Rue des Visitandines, Brussels.

EBECK informs the Public that the various Articles manufactured by him in Slate for Horticultural purposes, may be seen in use at Worton Cottage, Isleworth, upon application to the gardener (*Sundays excepted*).

DANECROFT NURSERY, STOWMARKET, SUFFOLK.

S. GIRLING'S GENERAL CATALOGUE OF DAHLIAS and other FLORIST'S FLOWERS, can now be had on prepaid application, containing nearly every new Dahlia of the season. A separate Catalogue of ROSES and PANSIES is also ready, and can be had, if required.

ARAUCARIA IMBRICATA, OR CHILIAN PINE.

YOUELL AND CO.'s Stock of the above magnificent hardy tree will be found unequalled in this country or the Continent either for extent or luxuriance of growth; and they beg to call the attention of planters in general to the fact that those they offer are not nursed plants or drawn up in close pits, but fine sturdy plants possessing dark rich green foliage, and such as have stood the severity of the winter for several years in this the most eastern point of England, proverbial for its excessive cutting winds. The following is the scale of prices for plants in pots, and may be planted out with advantage at the present season.

2 years old	9*s.*	per dozen.
3 "	12*s.*	"
4 "	18*s.*	"
5 "	30*s.*	"
6 "	60*s.*	"
Cedrus Deodar, 1 year, fine	18*s.*	"
" " 1 foot	30*s.*	"
Pinus excelsa, 3 inches	9*s.*	"
" " 4 to 5 inches	18*s.*	"
" " 18 inch, fine bushy plant	42*s.*	"
" " Gerardiana, 2 years,	30*s.*	"
Abies Khutrow, 2 years	9*s.*	"

Also fine specimen plants of older growth from 10*s.* 6*d.* to 2*l.* 2*s.* per plant.

Agents in London for the sale of the above, Messrs. FLANAGAN and Son 9, Mansion-house-street, where samples may be seen. Great Yarmouth Nursery, May 2.

RHODODENDRONS AND AZALEA INDICAS.—A Collection of these beautiful Exotics are now in bloom, including all the new yellow varieties, may be seen gratis, (Sundays excepted) and Saturday 9th of May.

J. B. SMITH, Norbiton Nursery, Kingston, Surrey, May 2.

GREATLY REDUCED PRICES.

WILLIAM E. RENDLE & Co. have a very considerable stock of GERANIUMS, DAHLIAS, FUCHSIAS, AZALEAS, PETUNIAS, VERBENAS, PANSIES, ANTIRRHINUMS, LOBELIAS, GLOXINIAS, CACTUS, Miscellaneous Plants, &c., which they are now sending out *at very low prices*: for instance, 12 of the newest Dahlias are sold for 15*s.*

All who are in want of good sorts of the above should refer to their List in the Chronicle, *April 25th, or procure a Catalogue, a copy of which can be had, on application, gratis.*

N.B. An early application is necessary, as many of the sorts offered are already getting scarce. Plymouth, May 2.

F. C. BALL, successor to Mr. JOHN YOUNG, begs to announce that he is prepared to execute orders immediately, in strong plants, for any of the under-mentioned. Early orders are solicited to secure fine Plants.

NEW SCARLET PELARGONIUM "HONEYMOON," very dwarf, spreading habit, and well adapted for bedding. For Dr Lindley's opinion, see *Gardeners' Chronicle*, 1844, p. 508, "Your Seedling Scarlet is of a very rich and intense colour. * * * The trusses are very large and compact, the one sent containing from 70 to 80 buds and flowers." Plants 3*s.* 6*d.*

RHODODENDRON "CAMPANULATUM PICTUM." See *Gardeners' Chronicle*, 1845, p. 398—"Your hybrid from Campanulatum is a fine and handsome flower, white ground, having the margin of the segments tinged with delicate lilac, and the interior of the upper division of the corolla strongly spotted with maroon. The blooms sent indicate a very ornamental variety." Strong plants 21*s.* each.

PELARGONIUM "MARIA," very fine, large, rosy-purple. See *Gardeners' Chronicle*, 1845 p. 532—"Your Seedling is an improvement on many of the same rosy-purple colour, and is a bright and pretty variety." Fine plants 5*s.*

LOBELIA FULGENS MULTIFLORA. See *Gardeners' Chron.*, 1845, p. 592—"Your Seedling Lobelia is a very handsome variety. The lip is large and broad, of a rich and dazzling scarlet," some of the spikes of flower measuring from 12 to 18 inches in height. Plants 1*s.* 6*d.* each, 15*s.* per doz.

Taxodium sempervirens, 6 to 9 inches	10*s.* 6*d.*
Lygeria pinnatifida	5 0
Alona cœlestis	2 0
Veronica speciosa	2 0
Cryptomeria Japonica	7 6
Fuchsia serratifolia	3 6
Calceolaria floribunda, for bedding	2 6
Roses, two species, Chusan, each	3 6
Do. one do. Amoy	3 6

With a few plants to compensate for carriage. An allowance to the Trade.—Taunton Nurseries, May 2

W. COOPER begs to inform his friends and the public he has made arrangements with Mr. Pawley, of the White Hart, Bromley, Kent, to conduct the plant department for the sale of plants, &c.

W. C. has a few of the following choice plants ready for delivery:—

AZALEA CARMINATA, a beautiful and distinct variety; gained the first prize for Seedlings at the Royal Botanic Society's Exhibition, Regent's-park, strong plants, 7*s.* 6*d.*, small do, 3*s.* 6*d.*

IXORA COCCINEA, in 24-size pots, 10*s.* 6*d.*, small do.	5*s.* 0*d.*	
LILIUM LANCIFOLIUM ALBUM	2	6
Do. do. PUNCTATUM	5	0
Do. do. SPECIOSUM	10	6
VERONICA LINDLEYANA	1	0
Do. SALICIFOLIA	1	6
Do. SPECIOSA	1	0
FUCHSIA SERRATIFOLIA 2*s.* 6*d.*, to	5	0

Other kinds of Fuchsias at the lowest prices.

White Hart Horticultural Grounds, Bromley, Kent.

THE NEWEST AND VERY BEST FUCHSIAS, VERBENAS, PETUNIAS, &c.

DELIVERED IN PERFECT ORDER, PER POST; FREE, TO ANY PART OF THE UNITED KINGDOM.

YOUELL AND CO. are now sending out per post, free, the newest and very best FUCHSIAS, including Serratifolia, and other new varieties at .. .. 21s. per doz.
Very fine first-rate Show Varieties .. .. 12s. "
Fine ditto .. .. 9s. "

NEW AND SUPERB WHITE FUCHSIA, "SANSPAREIL," 10s. 6d. per plant.

YOUELL AND CO. beg to call the attention of cultivators of FUCHSIAS to the above Seedling, which they will guarantee is not surpassed by any light variety yet raised, and will give general satisfaction, and refer to the following remarks upon it:—

"An elegant flower, light tube and sepals, with purple crimson corolla."—See *Gardeners' Chronicle, Sept. 20th*, 1845.

"A NEW WHITE FUCHSIA.—We have just seen a magnificent white seedling Fuchsia, raised by the Messrs. YOUELL. The flower is about 3 inches in length, the tube and sepals white, and resembles 'Venus Victrix,' but is three times its size, and is much more brilliant and fair in colour. It should be called 'Sanspareil,' as it is most assuredly one of the most beautiful of its species."—*Editor of the Cambridge Advertiser, Oct* 1, 1845.

Their 5 other fine Seedlings are now ready for sending out with the above; and when the set is taken, will be charged 1*l.* 11*s.* 6*d.*

SELECT SEEDLING VERBENAS (raised 1845.)

Exquisite, 5*s.*; Grandissima, 5*s.*; Helena, 3*s.* 6*d.*, Celeste, 3*s.* 6*d.*; Aurora, 3*s.* 6*d.*, Auberon, 3*s.* 6*d.* For description of the above, see their Advertisement of March 1st. They are now ready for sending out, per post, free, or otherwise, at 21*s* the set.

12 fine varieties ..... 6*s.* per dozen.
12 Extra ditto, very superior ..... 10*s.* "
PANSIES, fine varieties ..... 10*s.* "
" Extra ditto, very superior, first-rate show flowers, consisting of the best varieties in cultivation ..... 18*s* "
PETUNIAS..... 9*s.* "
GINERARIAS ..... 12*s.* to 18*s.* "
ERICAS, fine and free-flowering sorts, by name, 9*s.*, 12*s.*, and 18*s.* per dozen.

CHRYSANTHEMUMS, the best and newest sorts by name, per post, free, 9*s* and 12*s.* per dozen, including a new species just imported from Chusan.

Those favouring Y. and Co. with their orders for the above, are respectfully requested to state the varieties they already possess, that a repetition may be avoided, every care being observed in making improvements, by adding such varieties as will give satisfaction.

CALCEOLARIAS for bedding out .... 6*s* per dozen.
GERANIUMS ditto, 6*s.*, 9*s*, and 12*s.*

30 packets of NEW and CHOICE FLOWER SEEDS, per post, free, for 6*s.*

The Second Edition of their CATALOGUE is in the Press, and will be published in a few days, and may be had by enclosing two postage stamps.

Great Yarmouth Nursery, May 2.

H. GROOM, CLAPHAM RISE, near LONDON (removed from WALWORTH). BY APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY, begs to say his Catalogue of GERANIUMS, AURICULAS, LILIUM LANCIFOLIUM, and NEW PLANTS is ready, and will be forwarded by post on application.

He has a fine stock of CARNATIONS and PICOTEES.

*** Foreign orders executed.

VALUABLE NOVELTIES.

GLOXINIA "PASSINGHAMII"—This intensely rich and highly valuable variety will be found figured in "Paxton's Magazine of Botany" for January, 1846; short extract, see folio 268. "G. Passinghamii possesses a vigorous habit, very prolific bloom, and large highly-coloured flowers, of *deep rich violet*, and all the properties that can render one of this family valuable. It is a genuine importation from the Cordillo Mountains (in South America)." Plants at 10*s.* 6*d* each, if three plants are ordered by the Trade, one will be given over. The stock being limited, early orders are requested.

PANSY—"BLOOD ROYAL" (RENDLE).—The ground colour light straw; the upper petals of a very dark rich velvety plum-colour; the other petals very deeply and regularly laced with the same colour; the eye perfect and shape circular; texture very firm and thick, causing the flower to lay flat and smooth. This is a first-rate variety, and is the very best of its class. It is well known by many florists in the neighbourhood of London, and orders have been given for nearly all the stock; a few more plants remain, which are offered at 7*s.* 6*d* each. Blooms have been repeatedly seen by J. W. Brown, Esq., of Camberwell, (the well-known amateur Pansy grower) and considered by him to be a first-rate variety.

PETUNIA "MARGINATA SUPERBA" (RENDLE). Ground colour white, strongly margined with deep rosy purple; of good substance and excellent form, the eye dark, and free from veins. This is a most valuable and unique variety, superior to any other sort at present known. Price 5*s.* each, one over in every three to the trade.

VERBENA—"QUEEN OF BEAUTIES" (RENDLE).—Ground colour beautiful rose; the eye surrounded with a wide band of deep rosy purple; corolla large and flat, segments very large, leaving no indenture between them. A very profuse bloomer, excellent habit, and very distinct from any in cultivation. Price 5*s.* each, one over in every three to the trade.

Plants of the above will be supplied *on and after the 4th day of May.*

Fuchsia serratifolia	2*s.* 6*d.*	each.
Bouvardia flava	2 6	"
Hex latifolia	5 0	"
Double Chinese Primrose ..	3 6	"
Araucaria imbricata, 12 for ..	20 0	

Good Plants of all the above can be obtained of WILLIAM E. RENDLE & Co., Plymouth.—May 2, 1846.

NEW, GOOD, AND CHEAP.

BENJAMIN W. KNIGHT, FLORIST, &c., Tivoli, near St. Leonard's on Sea, Sussex, begs to call the attention of his friends and the public to the following CHOICE PLANTS, which are now ready to send out.

Twelve new choice and distinct Fuchsias, fit for exhibition, for 6*s.*; 12 extra first-rate very distinct varieties, all sent out for the first time last season, for 12*s.*; 12 distinct Verbenas, for 3*s.* 6*d.*; 12 extra new, good varieties, for 6*s.*; 12 choice Petunias, for 6*s.*; 12 good and distinct Cinerarias, for 6*s.*; 12 extra good kinds for 12*s.*, 12 fine Anagallis, for 3*s.* 6*d*; 12 fine Salvias, for 4*s.*, 12 Heliotropiums, for 4*s.*, 12 choice kinds of Phloxes, for 6*s.*; 12 extra new, very distinct varieties, for 12*s*; 12 choice Antirrhinums, for 6*s.*; 12 choice new kinds, for 12*s.*; 12 fine show Pansies, for 6*s.*; 12 extra good, for 12*s.*; choice Seeds, selected with great care from the best varieties Verbena, 3*s.* 6*d* per paper; Antirrhinums, 2*s* 6*d.* per paper; Dahlia, from the best show flowers, 3*s* 6*d.* per paper; German Aster, extra fine, 2*s.* 6*d.* per paper.

Also will be ready in May, 12 good show Dahlias, for 6*s.*; 12 superior, for 12*s.*; 12 extra good, distinct kinds, all new last season, for 21*s.*; 12 choice fancy, or variegated varieties, for 6*s.*

Any of the above can be securely packed, and forwarded post-free, on receipt of the amount with the order. Catalogues of the above may be obtained on pre-paid application.

May 2, 1846.

WILLIAM BASS AND S. BROWN continue to supply their SELECT and CHOICE FLOWER SEEDS, with full directions for sowing, treatment, height, colours, &c.

		s.	*d.*
100 varieties choice Annuals, including the most approved new		15	0
50 vars	ditto ditto ditto ..	8	6
30 vars.	ditto ditto ditto ..	5	6
20 vars.	ditto ditto ditto ..	4	0
20 vars. best dwarf kinds, in larger packets, suited for filling beds on lawns		7	6
12 vars.	ditto ditto ditto ..	5	0
20 vars. best greenhouse Annuals		7	6
20 vars. choice greenhouse Perennials		10	6
20 vars. choice hardy Biennials and Perennials		5	0

The above sent free by post at the prices affixed.

Remittances in franks or *Post-office orders from unknown* correspondents.

Their Select and Descriptive Catalogue of Superb GERANIUMS, FUCHSIAS, DAHLIAS, VERBENAS, PETUNIAS, CHRYSANTHEMUMS, &c. &c., is now ready, and will be sent prepaid to applicants on receipt of two postage stamps.

Seed and Horticultural Establishment, Sudbury, Suffolk.—May 2.

PETUNIA, CINERARIA, AND ANAGALLIS SEEDS. Packets of the above choice selected Seeds, saved from the very best sorts in cultivation, at 2*s.* 6*d.* per packet.—Applications, including Post-office orders or Stamps, will be immediately executed.

Direct MICH BREWER, Nurseryman, London-road, Cambridge.

N.B.—Strong plants of that splendid deep blue Anagallis Brewerii, 9*s.* per dozen.

CARTER'S CATALOGUE OF SEEDS.

J. CARTER, SEEDSMAN and FLORIST, 238, High Holborn, London, begs leave to inform his customers and the Public in general that a new edition of his Catalogue, containing 300 additional species, and comprising a first-rate collection of Ericas, Proteas, and other Cape Seeds, Bulbs, &c., is now ready. He will forward it gratis and prepaid on application by letter or otherwise.

*** *A splendid collection of extra fine new Double Anemones, nearly as large as Peonies, warranted to succeed if planted at this season; 210 varieties, 3l., 100 do., 1l. 10s.; 50 do., 15s.; 25 do., 7s. 6d.*—May 2.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON have the pleasure of offering the following Plants adapted for Bedding at the prices named when the selection is left to themselves.

FUCHSIAS.

12 fine varieties ..	6*s.*	0*d.*	12 superb new vars., for exhibition ..	18*s.*	0*d.*
12 superior do ..	9	0	50 fine do. ..	30	0
12 superb do. ..	12	0	50 superb do. ..	50	0

VERBENAS.

12 fine varieties ..	5*s.*	0*d.*	25 extra fine vars. ..	15*s*	0*d.*
12 superior do. ..	9	0	25 superb new do. ..	20	0
12 superb new do. ..	12	0			

PETUNIAS.

12 fine varieties	6	0			
12 superb do.	9	0			

Young plants of the above can be sent securely packed in tin cases by post, if required.

CINERARIAS.

Strong plants coming into bloom.

12 fine varieties ..	6*s.*	0*d.*	25 extra fine varieties	15*s.*	0*d.*
12 superior do. ..	12	0	25 superb do.	25	0
12 superb new do. ..	18	0			

DISTINCT AND SHOWY HERBACEOUS PLANTS.

	₰ doz.		₰ 100.	
Select sorts, one of each, named	6	0	40	0
Superior do. do.	9	0	60	0
Superb new do. do.	12	0	75	0

AZALEA INDICA.

12 fine varieties	12*s.*	0*d.*	
12 superb do	18	0	
12 extra new do.	30	0	

GREENHOUSE PLANTS.

12 fine species, one of each	12	0	
12 do. do. of newer kinds	18	0	
12 do. do. do. very superior ..	24	0	
12 choice Climbers	12	0	

STOVE PLANTS.

12 very fine species, one of each	18	0	
12 superior do. do.	24	0	

NEW PLANTS.

	Each—*s.*	*d.*		Each—*s.*	*d.*
Bouvardia flava (new yellow)	3	6	Pleroma Benthamiana ..	3	6
Calceolaria floribunda (Veitch's), an elegant yellow species, highly recommended for bedding .. per doz. 18*s.*	2	0	Polygala Dalmaisiana ..	3	6
			Rondeletia, yellow species (Havanna)	10	6
Fuchsia serratifolia ..	3	6	Ruellia macrophylla, splendid scarlet species	7	6
Platycodon grandiflora ..	5	0	Siphocampylus coccineus, splendid	5	0
			Tacsonia mollissima ..	3	6

For Select List of Plants, see Advertizement of April 18th.

Catalogues of the above will be sent gratis on application.

A proportionate number of plants presented to each order towards defraying the expense of carriage, &c.

A remittance or reference required from unknown correspondents.

SILVER PHEASANT EGGS for Sale at 30*s.* per dozen.—Direct to A. C., Post-office, Andover.

REGENERATION OF THE POTATO.—SEED saved in the most careful manner from the Berry of the earliest and best kinds, without disease, can be had in Packets. No. 1, containing 18,000 Seed, which will be sufficient to produce Plants for more than 3 square perches of Land, 7 yards to the perch. No. 2, containing more than 6000 Seed, will have sufficient plants for more than 15 perches. Application by Post office order on Baltinglass, for No 1 Packet, 10*s.* 6*d.*; No. 2 Packet, 5*s.* 6*d.*, payable to Mr. MOSES NEILL, Steward, Bellville, Stratford, County Wicklow. Each Packet will be forwarded, post paid, and registered as a money letter, to prevent the chance of miscarriage. Printed directions will be forwarded with each Packet, as to sowing and after-culture. Persons applying are requested to make their address legible.

"We have been favoured with a package of Potato Seeds from the parties offering the above for Sale, whose respectability we can vouch for, and think it remarkably well saved."—*Editor Farmer's Gazette.*

*** A sample of the Seed to be seen at this Office.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

NEW SEEDLING PETUNIAS, PANSIES, FUCHSIAS, &c.

JOSEPH FRYER begs to offer 12 distinct seedling PETUNIAS, selected with great care from an immense Stock, which were seen and greatly admired by many competent judges for their rich colours, form, and substance, 1*l.* the set, viz.:—Ceres, Cleopatra, Queen, General Tom Thumb, Patriot, Ali Pacha, Azurea, Victory, Excelsa, Exquisite, Princess Royal, and Vesta (a description of which will be sent on application). Also, a second Selection of 12 good showy varieties, not named, for 7*s.* 6*d.* Likewise most of the best named varieties, 6*s.* to 9*s.* per dozen; and fine seed saved from the above 1*s.* per packet.

FUCHSIAS.—Princess Alice (Fryer's), a beautiful light variety, of very graceful habit, and an abundant bloomer 2*s* 6*d.* each. Likewise most of the finest varieties in cultivation from 6*s.* to 12*s.* per dozen.

PANSIES.—Albaness (Fryer's), see Editor's opinion in last week's *Chronicle*; Edmonds's Princess Alice, Cook's Dulcifer, Buxton's Ne Plus Ultra, Fame, Meteor, and Ursa Major; Hunt's Tom Pinch, Mountjoy's Victory, Miller's Yellow Defiance, Bryant's Mary Jane and Crimson Perfection, 2*s.* 6*d.* each, or 20*s.* the set. The following good Show Varieties 9*s.* per dozen, or 25*s.* for the 50:—Cook's Attila, Beauty of Aylesbury, Eliza, Mulberry Superb, and North Star; Lane's Venus, Brown's Curiòn, Cotherstone, and Ceres; Welch's Blue Perfection, Thompson's Cyclops, Desdemona, Fair Maid, Isabella, Jehu, Lavallaire, Lilac Queen, Madonna, Marginata, Montem, Nestor, Ne Plus Ultra, Pizarro, Princess Alice, Romeo, Regent, Rufus, Vivid Superb, and Warrior; Hale's dark Seedling, Forsyth's Dr. Horner and Miss Chaplin, Backhouse's Earl of Zetland and Yorkshire Eclipse, King's Exquisite, Mary Ann, Purple Perfection, and Sulphurea Elegans; Edmonds's Herbert, Pearson's Hinda, Saunders's Lady Middleton, Gibbons's Marginata, Marchment's Phœbe, Silverlock's Prince of Wales, Downton's Rory O'More, Henchman's Success and Sir R. Sale, Fryer's Standard, West's Defiance, Schofield's Surprise, and many others of equally good properties. Likewise a collection of good showy named varieties 4*s.* per dozen, or 50 for 12*s.* 6*d.*; and fine selected Seed from the above 1*s.* and 2*s.* 6*d.* per packet.

J. F. has also an extensive Collection of the following plants for bedding out:—Geraniums, 6*s.* to 12*s* per dozen; Calceolarias, 6*s.* to 12*s.* per dozen; Verbenas, 4*s.* to 6*s.* per dozen; Dahlias, 6*s.* to 9*s.* per dozen; Cuenarias, 9*s.* to 12*s.* per dozen; Antirrhinums, Lobelias, Pentstemons, and an extensive collection of herbaceous plants in pots, 6*s.* per dozen.

J. F. begs to state that the above can now be supplied, good established plants, and will be sent by post, free, as far as practicable; or stronger plants packed in hampers without extra charge. All orders accompanied with Post-office orders for amount required will meet with prompt attention.

Clarendon Nursery, Camberwell, May 2.

SEEDS.

GEORGE GIBBS & CO., 26, Down-street, Piccadilly.—Large White Belgian Carrot, 1*s.* 6*d.* per lb.; Red and Yellow Globe Mangold Wurzel, 1*s.* per lb. each; Long Red Mangold, 9*d.* per lb.; Long Yellow ditto, 1*s.* per lb.; True Purple Top Swede, 9*d.* per lb.; Ashcroft's very large Swede, 1*s.* per lb.; Laing's Swede, 1*s.* per lb., Purple-top Nottingham Moss Swede, and Tankard Pure Swede, 1*s.* 6*d.* per lb. each, Skirving's and Matson's Swede, 1*s.* per lb. each; Pain's hardy Green Crown Swede, 1*s.* per lb., Hybrid Green Crown Yellow Turnip, 1*s.* per lb.; Meadow and Pasture Grass Seeds, in mixtures suited to soils, &c., 32*s* per acre, allowing 2 bushels, and 12 lbs to each acre; Mixtures for renovating old Grass-land, 1*s* 3*d.* per lb.; fine sorts for Lawns, &c., 1*s.* 4*d* per lb.

A detailed price Catalogue will be forwarded on application to GEORGE GIBBS and Co., Seedsmen, &c., to the Royal Agricultural Department at Belgrave, &c. &c., 26, Down-street, Piccadilly.

FOREIGN SHEET GLASS, GLASS TILES, &c.—The cheapest, stoutest, and best quality imported and sold at C. JARVIS'S Old Established Window Glass Warehouse, 58, Great Castle-street, a few doors from Regent-street.

CROWN GLASS at 50*s.* per Crate; squares cut to size equally low in price; sashes glazed on the lowest terms. Country orders forwarded with reference will meet with prompt attention. *** The largest Discount allowed off all descriptions of Glass for ready money only.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

per gross.	per gross.	per gross.
6 in. by 4 .. 6*s.*	8 by 5 .. 13*s.*	9 by 7 .. 18*s.*
7 in by 4½ .. 9*s.*	8 by 6 .. 14*s.*	10 by 8 .. 26*s.*

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house. For New Lists, apply to R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square, London.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

PROPAGATING GLASSES, White, 1*s.* per lb., or from 2*s.* 6*d.* to 24*s.* per dozen. CUCUMBER GLASSES, from 6*d.* to 4*s.* each. GRAPE SHADES, with holes, 1*s.* 9*d.* to 2*s.* 6*d.* each. FISH BOWLS, from 1*s.* 6*d.* each.—APSLEY PELLATT & Co., Falcon Glass Works, Holland-street, Blackfriars.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. NEIGHBOUR & SON, that they have prepared, for the season, an extensive supply of their various improved BEE-HIVES; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a postage stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

NUTT ON BEES, (6th Edition) just published.

GLASS MILK PANS.

EDWARDS & PELL, Foreign Agents, 15, Southampton-street, Strand, are now prepared to supply the above article in dark and light glass. EDWARDS and PELL beg to state they have spared neither time or expense in bringing these Pans to perfection, and they can now offer them to the Public with the utmost confidence. Being very strong and well annealed they will bear scalding, but they are so easily cleaned that a little warm water will have the desired effect. They have been well tested, and will be found to produce a larger proportion of cream than either earthenware or metal.

EDWARDS & PELL also supply Foreign Sheet Glass of excellent colour, and very stout at very low prices, and can give references to parties who have used it extensively.

Bell Glasses from 11 inches by 6 to 4 inches by 2½, very stout and good; also Propagating Glasses of various sizes.

HORTICULTURAL SOCIETY OF LONDON.—EXHIBITIONS AT THE GARDEN.—The first Meeting will take place on Saturday the 9th of May; subjects for Exhibition must be at this office on Friday the 8th, or at the Garden before HALF PAST EIGHT o'clock, A.M., on the day of Exhibition.

The gates will be open to Visitors at One, P.M. Tickets are issued to Fellows at this office, price 5s. each; or at the Garden, in the afternoon of the days of Exhibition, at 7s. 6d. each; but then only to Orders from Fellows of the Society.

N.B. No Tickets will be issued in Regent-street on the day of Exhibition.—21, Regent-street.

SPLENDID NEW SEEDLING DAHLIAS now ready for delivery.

GAINES'S PRINCESS RADZIWILL.
GAINES'S PRIDE OF SURREY.
GAINES'S PELCHELLA.
GAINES'S QUEEN OF MAY.

The above obtained several First Class Prizes at the principal shows. Early orders are particularly requested, as the stock of each is limited. A Priced Catalogue of Dahlias, Geraniums, Calceolarias, Cinerarias, Fuchsias, Pansies, Verbenas, &c. &c., may be had by application to N. GAINES, Florist, Surrey-lane, Battersea.

The Gardeners' Chronicle.

SATURDAY, MAY 2, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY,	May 4	Entomological	8 P.M.
TUESDAY,	— 5	Horticultural	4 P.M.
		Linnean	8 P.M.
WEDNESDAY,	— 6	Society of Arts	8 P.M.
SATURDAY,	— 9	Horticultural Gardens	1 P.M.
		Royal Botanic	4 P.M.
WEDNESDAY,	— 13	Microscopical	8 P.M.

COUNTRY SHOWS.

WEDNESDAY, May 6—Heartsease Society.
TUESDAY, — 12—Stamford Hill Horticultural.
THURSDAY, — 14—South Essex Horticultural and Floricultural.

AT the approach of the FIRST GREAT EXHIBITION IN THE SOCIETY'S GARDEN, which takes place next Saturday, it becomes necessary to draw the attention of Exhibitors to two points.

In the first place every Exhibitor is required to deliver, upon first entering the Garden, a fairly-written statement of the Letter in the Classes under which he intends to Exhibit; he cannot be permitted to pass beyond the Carters' Yard till this is done; *and no alteration in the entries will be afterwards permitted* UPON ANY PRETENCE WHATSOEVER. To facilitate this operation printed forms have been prepared, which can be obtained in Regent-street by any person applying for them. And in order to prevent confusion, Exhibitors are requested to bring their papers ready filled up; for the regulation has become so indispensable, in order to put an end to delay and confusion in setting plants, that no one will be exempt from its operation. It will also be found by Exhibitors much better to do this while at home, when they have leisure to consider well how their plants are to be divided, than to delay as heretofore till they are in the midst of the confusion of a Show. Those who send boxes from a distance must enclose a similar declaration, the words of which are these.

"I, A B, hereby declare that the following are the Letters under which I intend to Exhibit, and I pledge myself not to propose any alteration whatsoever."

[*Here follow the letters taken from the printed Schedule.*]

The next point relates exclusively to those who intend exhibiting Fruit. They will excuse us if we call their particular attention to the regulations under which the Prizes are awarded, but which, on past occasions, have frequently been disregarded, the consequence of which has been that Medals have been lost which might otherwise have been gained. It is distinctly stated in the Horticultural Society's printed rules that "all fruit must be fully ripe and well coloured, if the contrary it will be disqualified." Also, that "exhibitors of collections of fruit should bear in mind that however fine one or two of the kinds in the collection may be, they cannot gain a Prize unless they furnish *at least* three different kinds of fruit of first-rate quality."

Notwithstanding those rules are so clearly expressed, we have seldom visited an Exhibition without seeing several specimens of fruit so unripe as to be totally disqualified, and collections containing less than the requisite number of *good* articles. The unripe fruit has often been of very fine quality, and free from any other fault than unripeness, and would doubtless have gained a Prize if it had arrived at a proper degree of maturity, and one or two articles have frequently appeared in the defective collections which might also have gained Prizes if they had been shown separately in their respective classes, but they failed because they were placed in a collection containing fewer than three good kinds.

The disappointments felt by an unsuccessful competitor for a prize must under any circumstances be great, but must, we think, be increased when his contributions are really good, and he afterwards finds that he would have succeeded if he had shown them in a different letter. We therefore hope that every exhibitor in future will, for his own sake, send only such fruit as is "fully ripe and well-coloured," and "worthy of a medal;" and that he will not damage good articles by mixing them in a collection with bad ones, for he should remember that however fine his specimens may be, the Judges have not the power to award any prize except in accordance with the printed regulations laid down for their guidance.

We have only to add that arrangements are made for supplying the exhibitors with refreshment in the morning, as was done last year.

A CORRESPONDENT writes to us thus:—"In a "beautiful wall-garden, in the west of Caernarvon-"shire, the CANKER is very severe among the "standard Apple and Pear-trees, and the gar-"dener says he cannot prune them or put the knife "to them in any way, as the spurs and sometimes "the whole limb die away; and it is certainly the "case in many instances which I saw myself. "However, the same does not apply to the *trained* "trees on any aspect, whether they are stone fruit "or Apples and Pears, and they are always regu-"larly pruned as usual. The situation of the gar-"den is about two miles from the sea, and is rather "exposed to the south-west winds. The soil is a "sandy clay with a yellow sandy subsoil. The "dying of the spurs and limbs the gardener thinks "is attributable to the effect of the sea-breeze on "the wound; but I think that *that* would apply "equally to the wall-fruit. If anybody among your "correspondents could suggest a remedy for the "horrid cankes with which the garden abounds, "and give a hint how to act with regard to the "pruning, they would greatly oblige by their kind-"ness—*Cernwaidd.*"

They would greatly oblige us also, and, we may add, every person in Europe who has a garden. But how can this inquiry be answered in a reasonable manner, until the *cause of canker* is agreed upon? We have turned over every book in our library, we have read everything that has been said about it; we have been asking all our garden acquaintance for a quarter of a century; we have ourselves examined cankers of all sorts, from the little brown speck which appears on the surface of a young twig to the great dry sore which eats through a limb 20 years old; the scalpel, the scraper, the saw, the pruning knife, and Mr. FORSYTH'S composition have been enlisted; even the microscope has been made to do its work, and the result is almost nothing. We do not know *with certainty* what is the cause.

Plenty of prescriptions are to be found, which, like HOLLOWAY'S ointment, are applicable to all sorts of cases; there is no lack of learned explanations and dogmatical opinions; but as to sagacious reasoning, or sound philosophical induction—there is no such thing.

Use any plaister, said the learned and royal gardener at Kensington. Scrape away all the dead wood, go down to the quick and cauterise with oil of vitriol, says M. DUBREUIL. M. DUHAMEL tells us to cut to the quick, to cover the wound with cow-dung, and to bind all up with straw or matting held fast by withs. Throw away your cankered trees and raise seedlings, was the doctrine of Mr. KNIGHT. Bring up the roots to the surface, said Mr. REID, a sensible writer on gardening, in the "Memoirs of the Caledonian Horticultural Society."

But no confidence can be placed in these or any other so-called remedies, unless they can be shown to have some direct bearing on the cause of the disease. In the absence of that proof, they are merely empirical. The great point, then, here, as in all similar instances, is to determine what it is that produces canker. Let us see what authors say as to that matter.

Mr. KNIGHT referred it to old age, and conceived that it was constitutional debility. DUHAMEL called it a corrosive ulcer, and classes it among diseases which proceed "from dryness, or wetness, or the quality of the soil," not a very precise account of it, we must confess. DE CANDOLLE does not mention it. DUBREUIL the younger says that nobody knows; that it often follows hail, or is otherwise the result of contusions, and that a sunstroke may cause it. Mr. REID refers it to the coldness of soil. Mr. PEARSON, of Bewdley, is clear that it is caused by atmospheric influences. It is the insects says one; it is constitutional cries a second; it is all the fault of the sea, says another; while a third assigns it to late and extensive pruning in the spring.

Nothing can well mark more distinctly what an utter confusion of ideas there is respecting this, which is a disease of the utmost consequence to the gardener, as is sufficiently shown by our correspondent's letter, at the head of these remarks. Out of such a farrago what is to be gathered?

The first points on which attention is to be fixed are the well ascertained facts connected with canker, about which no question exists. They are not many. 1. We know that some varieties of fruit canker in this country, more or less, under all circumstances; such are the Golden Pippin, Hawthornden, Royal Russet, Api petit Apples; the White Beurré, St. Germain, and Windsor Pears. 2. We know that in others canker is never observed; as, for example, in the Wild Apple and Pear, or the varieties called Dumelow's Seedling, Northern Greening, Wormsley Pippin, Blenheim Pippin, Waltham Abbey Seedling, and Dutch Mignonne Apples; and the Glout Morceau, Beurré Diel, Seckel, Aston Town, Marie Louise, Ne Plus Meuris, Althorp Crassane, and Knight's Monarch Pears. 3. We know that although inveterately cankering varieties may become healthy for a time, they invariably show symptoms of the disease sooner or later. How common, for instance, is it for Apples in the nurseries, grafted on strong healthy stocks, to lose all sign of canker until they have been growing for a few years in a garden. 4. We know that if a tree is once seriously cankered, all the appliances that ingenuity has suggested fail to eradicate it, though it may no doubt be diminished. 5. We know that in cold, wet, undrained soils, or cold climates, the symptoms of disease are aggravated; and that in warm well drained land, and a mild climate, they are mitigated. And these are, perhaps, the only facts about which we are quite certain.

Do they render it probable that local applications, cutting, and scarifying, and cauterising, and plaistering, are the true cures for the evil? Surely not. The five great facts above mentioned conclusively show that whatever the primal cause of canker may be, it is a constitutional malady which is always liable to appear in certain varieties, and generally will appear under peculiar and well ascertained circumstances. To cut a plant to pieces, in such a case, is like mangling a poor creature afflicted with cancer or any other scrofulous affection. If the evil is eradicated in one place, it presently breaks out in another. The constitution of the plant is what must be looked to, and nothing else. It may, however, not only be constitutional, but hereditary; and in such cases is incurable, as it often is.

Or it may be a constitutional affection caused by exposure to unfavourable climates, as when the tender Apples of the United States, born and reared beneath a broiling sun, are transferred to our chilly, cloudy, pleasant England. Such cases are also incurable, unless summer warmth can be artificially secured.

Or it may be a temporary disease induced by local causes; as when an Apple-tree with an hereditary disorder, or constitutional tendency to canker, is placed artificially in a place absolutely unfavourable to the very nature of the species. In such a case to remove the obvious cause is to put an end to the mischief.

This we take it is the case of our correspondent *Cernwaidd*. His wall-borders are warm, raised, and probably well drained; there he has no canker. But in the central quarters the sandy subsoil is possibly a standing pool, for want of drainage, and cold, wet, and "sour," for want of access to air. His case appears to be the same as that mentioned in the "Theory of Horticulture," p. 110, where it was found by observation that the summer temperature at 3 feet below the surface was only 44° instead of 60°, as it should have been. Means were taken to confine the roots near the surface, and the canker disappeared.

We have been led to dwell more upon this matter than is often possible, in answer to the inquiries of our correspondents, because it is a striking illustration of the importance of looking to principles and not to prescriptions.

SELECT PLANTS FOR BEDDING OUT, &c. IN FLOWER-GARDENS.

(*Continued from page 252.*)

5. *Cuphea purpurea.*—This is a slender and neat-habited half-deciduous shrub, requiring the protection of a cool greenhouse in winter, and thriving in a mixture composed of equal portions of sandy loam, well-rotted leaf soil, and heath mould. Like Chænostoma polyantha, when kept in the greenhouse throughout the year, it forms a sparingly-branched and inelegant growth, with scattered terminal clusters of blossoms; but when induced to form a close growth in spring, by topping the fore shoots, it forms a very compact bush, measuring from 6 to 9 inches in height. When thus transferred to the borders and parterres of the flower-garden, it forms a very interesting object, ornamented with abundance of slightly-pendent orange and scarlet flowers during July, August, and September. It moreover presents a remarkably rich appearance as a marginal edging to other plants of suitable contrast in point of colour.

6. *Saponaria ocymoides.*—Amongst well-known, but neglected plants of a decorative character, perhaps none possesses higher interest than this—so accomodating in its habits, so easily multiplied, so long continued in bloom, and so admirably adapted for variety of effect. Its scarcity is a matter of surprise.

It is a half-shrubby, hardy plant, of two or three years duration, in habit slender and spreading, and producing

numerous bright rose-coloured flowers from June until September. Its ready growth in common soils renders it specially adapted for portable specimens in pots, or slate boxes, to be placed on sheltered balconies, or for terraces and drawing-room entrances. Its decumbent growth is also advantageously displayed on the margin of classic flower-vases, and skirting the base of rock-work, offering an appropriate contrast to its worthy rival Lobelia erinus.

When allowed to continue its naturally attenuate growth, it is peculiarly adapted for softening the sharp and rugged outline of massive grotto-work (where it has sufficient soil), by its comparatively slender but wiry stems being less injured by the wind than others of a more brittle or succulent character; and lastly, it forms a charming object when planted upon partially elevated mounds of blue concrete or iron-stone (in the open borders), where, if permitted to gain an autumnal growth previous to its formation of flower-buds for the ensuing season, it amply repays the cultivator by its increased vigour and multiplicity of lively blossoms. Thus treated, it appears in "its own place," gay and effective.

8. *Oxalis floribunda.*—Were I desired to select the most picturesque plant, yielding a long-continued and profuse crop of flowers without artifical attention to its after-growth, I should without hesitation fix upon this. It is a dwarf, tuberous, herbaceous plant, rising from 2 to 4 inches in height, each plant forming a terminal crown of leaves (similar to a small-growing Clover), from the centre of which arises a profusion of bright rose-coloured flowers, continuing in succession from June until September.

The principal precaution required for its successful management consists in adapting the soil to the tuberous structure of its roots, which differ from most others in their thick, fleshy, unbranched form, capable of absorbing an excessive amount of fluid, beyond what is required for the support of the simple crown of leaves upon their summit. Stiff and retentive soils (when not absolutely cold) are generally favourable to an excess of growth, and *vice versa*. A diminished circulation of fluid, by a restricted supply of nutritive stimulants, or by a lower temperature, less favourable to growth, are necessary means to be taken where great fertility is sought, especially in those plants whose organs (whether roots or otherwise), are remarkably adapted for assimilating an excess of food under ordinary means of culture.

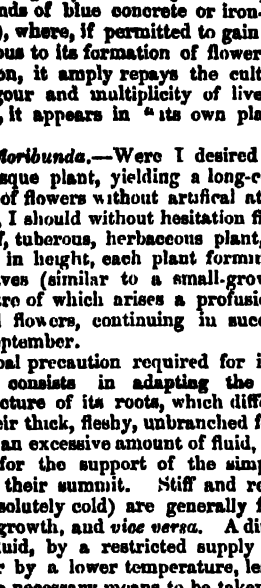
As a general rule, the amount of soil, and the nutritive properties which it contains (when applied to plants) should always bear a strict relation to the extent of growth which they are capable of maturing during the current year. Every degree beyond this is an evil, which lessens the vital energy of their organs.

To induce greater fertility in the plant to which these remarks refer, an artificial soil should be prepared in equal portions of old light garden-loam, heath mould, and well washed river or silver sand, and well incorporated with finely broken brick refuse, equal to one-third of the whole amount. Thus treated it forms a very beautiful object, either for edging or in the parterre, and when seen expanding its bright blossoms for successive weeks, it appears as one of the few objects of which it may be remarked, that it has "few equals, and no superiors." In common with some others, this interesting plant is much degenerated by the inferior varieties from seed which have almost supplanted the original species, the former being much less compact in their growth, and less brilliant in their flowers. The latter is known by its leaves being not more than from two to three inches in length, and by its flowers being uniformly circular, and firm in their texture, varying from bright to darker shades of rose colour, and, when found in favourable situations, the profusion of bloom almost covers the foliage.—*W. Wood, Pine-apple-place.*

FANCY TRAINING.

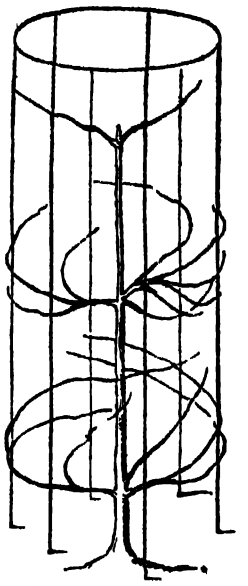
(*Continued from page 288.*)

No. 5.—Pear, 7 ft. high; hoop, 2 ft. 6 in. diameter.



Trained in the descending form, but the branches not brought exclusively from the top, and in the training carried round the upright stakes, so as to form a cylinder when finished.

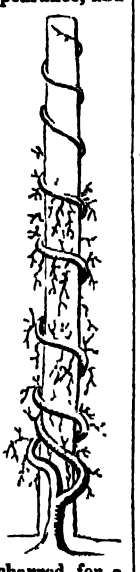
No. 6.—Any kind of fruit tree, same height and diameter as No. 5.



Trained with the branches ascending, and in about three tiers, in order to get the figure completed sooner than if the bottom branches alone were to complete the whole cylinder.

No. 7.—For any fruit tree except a Plum, which does not like its branches to be subjected to such sudden bends; the Plum-trees may be trained in this way, if wished.

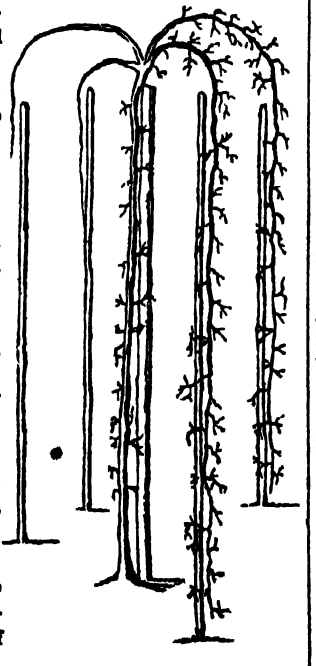
This method of training has a good appearance, and is very productive of fruit. It has also this advantage: being so narrow, in all not above a foot or 14 inches wide, even when in leaf, it can be placed at intervals along a south border, in front of a Peach wall; may be 6 feet distance from the wall without casting any shade to injure the fruit on the wall, and itself deriving the greatest advantage from the radiation. I have grown the Golden Drop Plum in this way that has ripened full a week and even 10 days earlier than the same kind of Plum grown upon a wall with an east aspect, and not 20 yards distance from the pole thus spoken of.



A single Larch or other pole 7 feet high, 4 or 5 inches in diameter at the bottom. Tree trained with two branches twisted round the pole, and spurred, or suffered to have short depending branches, if the tree be a Maria Louise Pear, or other sort bearing from the termination of such kind of wood. The convenience of having two branches trained up the pole is that you may be continually using one of them as the means of a supply of young wood, without at any time denuding the pole. The pole should be charred for a space of 18 inches where it meets the ground (1 foot under and 6 inches above the surface).

No. 8.—For any kind of fruit tree.

A centre stake and four outside stakes, of small dimensions. The four outside stakes, placed about 2 ft. 6 in. from each other, and 20 inches from the centre stake, where the tree is planted. Height, 7 ft. Spurs should be encouraged very much on the ascending or main branch. Another way of treating the upright stem—which looks well also—and is a little variety from the usual way of furnishing bearing wood thereon by spurs, is by turning down certain side boughs (as here represented), into the form of garlands, observing to make the shoots take a descending form instead of an ascending one.



THE AMATEUR GARDENER.

INSECTS.—The cultivators of the soil both on a large and small scale require a considerable portion of patience, under which virtue many frequently succumb by numerous tribes of depredators. Each season brings with it peculiar enemies, whose attacks will soon overturn the efforts of labour, and taste, and skill, unless they are diligently guarded against. Birds will rob you of all your seeds before one is allowed to germinate; cats will disfigure your flower-beds and most provokingly scratch up young plants, however choice they may be; hares and rabbits will nibble off Carnations and Pinks, leaving only some unsightly stumps; and moles will form miniature tunnels under the roots of Roses, &c. On the morning in which I am now writing, the last pest has regularly ploughed through my only Ranunculus bed, and has turned topsy-turvy some of the best roots. Lastly, the noble race of man will often sadly perplex the amateur gardener. Children do not hesitate sometimes to run over a flower-bed in search of a ball; and adults who are ignorant of the mysteries of floriculture, often leave their odious footprints on spots where tender seedlings are just coming up. Verily, we need the patience of Job in the midst of such repeated and constant inflictions.

Long as the above catalogue is, it includes only a few advanced skirmishes of the camp of the enemy, for myriads of insects are always pursuing their destructive tactics in a greater or less degree. How can the pen adequately describe the mischiefs wrought by the slimy race of slugs and snails! In frosty weather, indeed, these ruthless foes disappear, or a long drought may seem to have driven them away, but let a mild day visit us even in the middle of winter, or a shower of rain lay the dust of summer, and there they are, devouring all before them, as if called into new life. Woe be to the florist in whose frame two or three slugs lie concealed. How often has one, in a single night, marred the labour of months. Then come the woodlice, having a fine taste for all that is tender in vegetation, from the cotyledons of seedling Ranunculuses to the petals of Roses. Earwigs hide their detested shapes in every hole and corner, and, assassin like, deal their deadly bites under the cover of darkness. Red spiders and the green fly bring up the rear, and with wonderful fecundity multiply by thousands in a day, till the unhappy gardener is almost at his wits end.

The above are all either dwellers on the surface of the ground, or carry on their operations there. but there are other insects, whose attacks are concealed beneath the soil, and which it is still more difficult to guard against. In the early spring, the wireworm saws away at the lower stems of Pansies and Carnations, and we know nothing of the matter till the withering of the whole plants makes us acquainted with our loss. Through all the year, larvæ of various kinds thus blast the hopes of the cultivator by undermining or destroying the roots. In short, the attacks of enemies are constant, and therefore war must be interminable. A gardener must necessarily be a great destroyer of life, or that life, if spared, will soon destroy him. You must indulge no sentimental notions respecting the happiness the poor insects enjoy, and of which you are about to deprive them; nor must you entertain transcendental or metaphysical opinions as to their capacity for pain. The sentiment of the gentle Cowper respecting the impunity to be granted to the snail who crawls in the evening on the garden path, is generally good, but by the florist it will be received *cum grano*, nor will the dictum of the immortal Shakspeare be reduced to practice, when he tells us the beetle feels as much "as when a giant dies." Such theories cannot stand in the way of practical utility, and if gardens are to flourish either for beauty or usefulness, the insect tribes must die. Young gardeners are often very squeamish on these matters, and certainly great snails, with their houses on their backs, are rather awkward things to kill. But the more you kill, the sooner the work will be done, and by industry and perseverance, you may soon be relieved (as far as snails are concerned) from the task of killing at all.

As very minute and interesting descriptions of all these insects have appeared in former Numbers of the *Chronicle*, I shall not enter into their natural history; I shall confine myself to the best methods of extirpation, so that the amateur may be assisted in guarding himself against the annoyance of loss.—*H. B.*

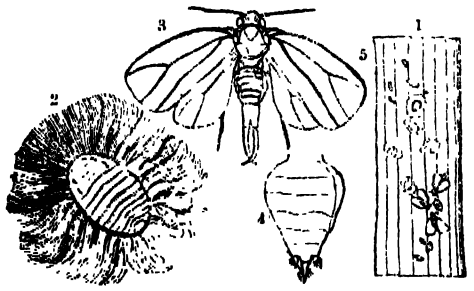
ENTOMOLOGY.

ALEYRODES COCOIS (*the Cocoa-nut Aleyrodes.*)—There is a little white mealy fly which sometimes infests the Cabbages, and an allied species has been sent from the West Indies, which differs from it in its structure and economy. We are indebted to Sir Robert Schomburgk for specimens of this curious and destructive insect, the publication of whose history will be acceptable to the cultivator of exotics, and it is to be hoped that it may lead to the discovery of some mode of extirpating it. Sir Robert says "On my arrival in Barbadoes, I was forcibly struck with the withered appearance of the Cocoa-nut trees, and I have since been told that a disease is prevailing amongst them which threatens to destroy all the Cocoa-nut trees in the island. This remarkable disease showed itself in the island after the fatal hurricane in 1831, and there are only a few trees which are not afflicted by it. It is no doubt to be ascribed to an insect allied to Aleyrodes. A great many of the plantations of Cocoa-nut trees which formerly yielded an income of 200*l.* or 300*l.* per annum have not a single tree which bears fruit. The lower leaves die first and fall off, the flowers follow, or if nuts should have been formed they dwindle away and do not arrive at maturity; ultimately the budding leaves are attacked, and the crown drops off, leaving the withered trunk."

It is considered that this disease has been introduced since the hurricane, from some of the neighbouring islands, when it became necessary to replace a number of Cocoa-nut trees which had been destroyed; but some pretend that it has been occasioned by the introduction of guano. Smoking, &c., has been of no avail, and as the insect most sagaciously places itself under the leaflet, where it is protected against the weather, the heaviest rain does not affect it. It has been advised to root up all Cocoa-nut trees in the island, and after the lapse of a year, when it is thought the insect may be destroyed, to replant the plantations from seeds imported from an island where the insect does not exist."*

On carefully examining the leaves of the Cocoa-nut, it is evident there are two distinct insects upon the under surface, an Aleyrodes and a Coccus. They adhere to the under side of the leaf, and are surrounded by a whitish cottony or resinous powder; both sexes of the Aleyrodes at rest and with their wings closed are exhibited, of their natural size, on a portion of the leaf (fig. 1), and also some oval animals producing the white powder in abundance from the margins of their sides, and these I suppose are the larva state of the Aleyrodes. There are also numbers of white linear cases, as shown at fig. 5, which I conceive to be the pupæ of a male Coccus; indeed I found one of the perfect insects sticking to the surface. At fig. 2 I have represented the under side of one of the larvæ; it is oval, concave, ochreous, and shining, with six minute legs and ventral rings, like a female Coccus; but I could not detect any proboscis or antennæ. I must, however, observe that the objects had all suffered from extreme pressure and great heat, and it is not unusual for the proboscis to be broken off in removing such animals from the surface on which they are feeding.

The winged specimens are larger than any of our British Aleyrodes,* and from the neuration of the wings being different, as well as from the remarkable anal forceps of the male, this insect might with great propriety be separated from the genus Aleyrodes. A. Cocois is bright ochreous, the head is rounded, the eyes are black, oval, and notched on the inside, and I think I could discern two minute ocelli on the inner margins; the antennæ are as long as the thorax, slender, and apparently seven jointed, basal joint stoutish; second the longest. The rostrum is stout and moderately long; the thorax is nearly orbicular, the scutel distinct, the abdomen short and oval in the male, with the last segment long, narrowed, and cylindrical, producing two long incurved claws, forming a pair of forceps (fig. 3); wings apparently horizontal in repose, clothed with white scales or hairs, giving them a powdered appearance; superior ample, sub-elliptical, with a strong costal nervure, and a furcate one with a longitudinal nervure beneath it, issuing from near the base; inferior wings smaller, with a single forked nervure. Six legs slender, hinder long but simple; the tarsi biarticulate, basal joint the longest, the second terminated by two slender claws. Female similar, but the abdomen is ovate-conic, the apex terminated by a very acute transparent valve with a small oval hairy lobe on each side (fig. 4).

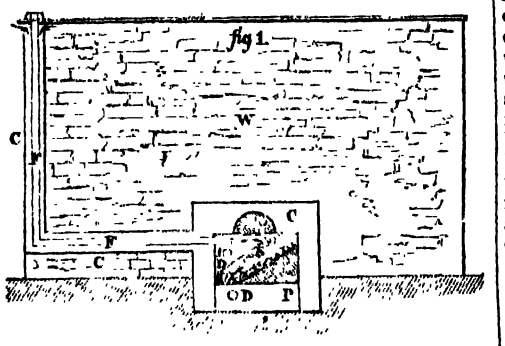


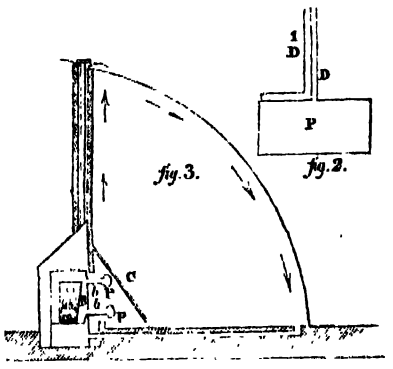
As insects will remain in an embryo state for long periods, every vestige of the infested trees should be burnt as soon as they are taken down, and the most diligent search must be made after the Aleyrodes upon plants of the same natural order as the Cocoa-nut, to ascertain if there are not colonies established elsewhere. There is the larva of a little beetle called Scymnus, which destroys the European Aleyrodes, and it is remarkable that no parasitic insect should have appeared to check the increase of the Cocoa-nut species, but this may arise from the disease having been imported without its usual attendant antidote. Fumigating with sulphur would arrest the plague, if it could be applied; but then it ought to be done simultaneously to be effective, or else at a season when the insects are inactive.—*Ruricola.*

* Curtis's Guide Genus, 436.

Home Correspondence.

Polmaise Heating.—The objections advanced against the Polmaise method of heating, as far as I can make out, merge in a general charge of inefficiency and incompatibility with economical results on a large scale. To put it in a more specific form, it comes to this—that, with a given amount of fuel, equally well consumed, the same temperature cannot be maintained in a hothouse by the Polmaise method, as by the hot water system. The objection, therefore, supposes a greater waste or loss of useful heat by the former than by the latter mode of warming. The questions then arise—first, Is it so? second, If so, is it unavoidable and inseparable from the system, or merely the incidental result of defective arrangements? To the first I answer I think it is likely to be the case from the concurrence of two causes. In the Polmaise method the heat of the fire is communicated to the plates of the stove, and thence appropriated by the passing current of air. Now, the property of air to appropriate, take up or absorb heat, is inferior to that of water; as is evident from the circumstance that the plates of a stove may become red hot while surrounded with air, which could not happen if they were surrounded with water. The interior of the stove must be affected by this circumstance as well as the exterior—in other words, the interior of the stove will be raised to a higher temperature than the interior of a furnace surrounded with water, and the gases of combustion, by which so much heat is conveyed away into the chimney and lost, will partake of the same condition. This may be one cause of greater loss or waste of heat from an air stove than from a boiler or hot-water furnace; and in the Polmaise method it concurs with another, arising from the circumstance of the fire being fed from the air of the house, which has already been warmed. This is partly essential to the success of the Polmaise system; both the vivacity of the current and the renewal of the air of the house depend on the draught through the stove. But, in accomplishing these objects, what happens? The abstraction of a portion of the air, to feed the fire, causes a partial vacuum within the house, and a corresponding pressure of the cold external air, which seeks to enter (and does enter by the laps of the glass and the chinks and crevices of the sashes and door frames), to fill up the void, and restore the equilibrium within and without. This in-draught of cold air, mixing with the warmed current, does undoubtedly help to reduce its temperature, and impair the efficiency of the system. The warmest advocates of the Polmaise method must, I think, admit that these disadvantages are fairly to be deduced from its operation as hitherto exhibited;





and the second question then occurs—are they unavoidable and inseparable from the system, or merely the incidental result of defective arrangements? I own I should be less hopeful of its eventual success, and coming into general favour, notwithstanding the acknowledged benefit arising from the circulation of fresh air, which it provides for, if I thought that these objections (affecting its claims as an economical and efficient mode of warming) were incapable of being practically met and removed. But this is not the case; there are means for insuring an effectual appropriation of the heat evolved in combustion, in combination with an ample supply of fresh air; so that there shall be no in-draught of cold air through the laps of the glass and other crevices. When the body of the stove is alone exposed to the action or contact of the passing current of air, the latter being unable to appropriate the heat as fast as it is evolved, a great portion will necessarily be conveyed away into the atmosphere along with the gases of combustion, or be employed in heating the interior of the chimney; which, so far as useful effect is concerned, is equally wasted or lost. But let another arrangement be adopted, and the chimney (in its ordinary acceptation) be done away with; and let the heating apparatus consist of a stove, and a long extent of thin iron flue, entirely insulated in an air-tunnel, which the air, to be warmed and conveyed into the house, has to traverse. Under these circumstances, the heat diffused through the stove and flue, and radiated to the sides of the tunnel, cannot fail to be appropriated and turned to useful account by the air in its protracted passage to the house. What is defective in the capacity of air for heat is compensated by the greater extent of heated surface which it is made to traverse, and consequently also by the greater length of time its particles are moving in contact with it. And as the same arrangement will provide for an inflow of air, amply sufficient to make good the consumption by the fire and draft of the stove, there cannot be any partial vacuum in the interior of the house to cause a demand on the external air through the crevices of the glass and door or sash frames. The principle of this arrangement was developed in an ingenious plan by one of your correspondents under the signature "Lusor," in a late Number of the *Chronicle*, the only fault of which appeared to me to be that it did not carry it out sufficiently. In the annexed drawings I have endeavoured to extend it in conformity with the preceding observations. W is the outside of the back wall of the house, S the stove, and F F iron flue of the same carried horizontally to the end of the house, and then rising vertically above the wall of the house. C C C, a close chamber and air shaft or tunnel, surrounding the stove and flue, having openings to the external air just below the coping, at the top of the flue or chimney; these openings should be under regulation, and capable of being partially or wholly closed at pleasure. The underground drain or pipe coming from the front of the house is double, or divided into two, D D, (see plan Fig. 2) one D opening into the ash pan P, which is otherwise quite close, and the other D communicates with an angular chamber occupying the end of the stove, which opens into the chamber C, and may be fitted with a regulator or register plate, as is also the mouth of D, which opens into the ash pan. These divide the current from the under-drain into two parts, one going to feed the fire, and the other returning to the stove to be warmed, and enter the house again, for in the Polmaise principle the current has these distinct destinations—that which goes to the fire involving a renewal of fresh air from without, the other forming merely a part of the circulation, arising from difference of temperature between the stove chamber and the body of the house, which may still exist, but not in the same intensity and strength, though there were no communication with the fire and flue of the stove, and does not involve a renewal of the air. By means of the regulators at the mouth of the drain D, and at the top of the air-shaft, the current may be controlled at pleasure; when they are open the circulation will be rapid, the draft through the stove strong, and the fire brisk; by partially closing them, these conditions will be moderated; and when entirely closed, though the fire will be extinguished, a gentle circulation of the atmosphere of the house will still be maintained as long as any heat remains in the stove. The efficiency and economy of this arrangement admit of an easy test from the temperature of the gases escaping at the top of the flue, which cannot be applied where an ordinary brick chimney is used. For in the latter case the temperature of the escaping gases is not a correct test of the loss of heat, as a great portion is absorbed in the masonry, which remains unaccounted for. But it is a correct test in the present case; for whatever heat is taken up by the iron flue is either directly appropriated by the passing current, or radiated to the sides of the tunnel, from whence it is equally appropriated and conveyed into the house. I wish to say a word about the stove, which, if coal is used, should be of the smoke-consuming kind, as Witty's (represented in the drawing), which acts by distilling and coking the coal, and inflaming the evolved gas. There are three very good reasons for this recommendation:—1st. Economy, as the smoke and soot are merely so much unconsumed fuel; 2d. Soot, being a very bad conductor of heat, obstructs and deteriorates the conducting property of the iron flue; 3d. Much trouble in cleaning out the flue is saved. To those who prefer water as a magazine for heat instead of depending on a stove, and do not mind the additional expense of construction, an efficient heating apparatus on the Polmaise principle may be obtained by adapting these arrangements to a hot-water apparatus as represented in fig. 3. The flue, air tunnel, and under-drain, remain as before. Instead of a stove, let B be the boiler and furnace; *b b*, branches from the boiler to two hot-water pipes, P, running the whole length of the house; C, the curtain or wet blanket, or, what would perhaps be better, a woollen netting, with small meshes, through which the warmed air could find its way into the house.—*J. H., H— B—ck, April* 17.

A Robin's Nest.—In the greenhouse of a neighbouring gentleman there is a fine Cineraria, which, in addition to its own beauty, contains a robin's nest ensconced among the leaves, and by this time she must be sitting upon a full complement of eggs.—*A. B., Leatherhead, April* 20.

Martynia fragrans.—At p. 256 it is stated that Martynia fragrans cannot be successfully grown except in a house kept both damp and warm. In contradiction to this, I beg to observe that I have seen a very fine specimen growing in the open air on the end of an old Cucumber ridge. As a proof that it did reach perfection as far as Nature was concerned, it perfected large bunches or racemes of its quaint proboscis-like seed-vessels.—*G.*

Broccoli.—In addition to the many kinds of Broccoli which, during the last few years, have been in general cultivation, some other varieties have been raised, possessing properties which their predecessors have not; and being especially worthy of cultivation, as they produce "heads" at a time when, under ordinary circumstances, there is usually a succession most required. The Walcheren Broccoli, or Cauliflower, may be mentioned as one of the most useful in this respect. In order to have a good succession from August to January, I recommend sowing not earlier than the middle of April; afterwards, a small sowing about every three

weeks, still, and concluding about the middle of July, a good succession of "heads" will thus be produced until the end of December, and by taking up the plants, should the weather be very frosty, and laying them in by the roots, in an open shed, and protecting or exposing them as may appear necessary, by bearing in mind that they are but little hardier than the Cauliflower, good heads of the last sowing may be kept until the middle of January. This variety is also very useful when sown early in September, and planted under handglasses, or treated in all respects similar to Cauliflower, and producing heads much superior. Snow's Superb White Broccoli is well deserving of general cultivation; from sowings made last year in the middle of May, and early in June, very good compact white heads were produced from the end of November to January, quite superseding Grange's White, which is contemporary with it. Legge's Late White Broccoli is also an invaluable variety, producing heads at a time when they are most wanted, although the produce is not so fine in appearance as that from either of the former; with us they fill up a deficiency, having just commenced cutting this variety, with every probability of their continuing until we have early Cauliflower. The value of this variety is enhanced by reason of its extreme hardiness, having stood uninjured the severe weather of the first three months of 1845, a property which will apply to few other sorts.—*J. H., Amport House, April* 20.

Gold Mohur Plant.—Among notices to correspondents in a late paper, I read "a Gold Mohur is a coin, not a plant." Some years ago a friend brought home some seeds from Bombay; among them was one sort, to which he gave the above name: he described the plant as being common and well known there, and the blossoms exceedingly beautiful, of a bright gold colour; the seeds were evidently leguminous, probably of a genus nearly allied to Phaseolus; they vegetated, but the plants soon damped off. I have never been able to ascertain the botanical name of the plant.—* [The clue thus afforded by our kind correspondent has enabled us to ascertain to which plant the name of Gold Mohur is applied. It is mentioned in Graham's Catalogue of Bombay plants as the Gool Mohur, a name applied to the Barbadoes Flower-fence (Poinciana pulcherrima).

Weather Rules.—Your correspondent "G. W." (p. 269), appears to wish to have a statement of the quarter from which the wind blew, at the time of the vernal equinox. In the neighbourhood of the Cheviot Hills we had a strong wind from the south, with a considerable fall of snow, accompanied by drift, on the 21st. I cannot state with accuracy from what points of the compass the wind blew on the preceding and subsequent days, for my attention was not drawn to Dr. Kircher's weather tables till some time afterwards, though I am almost sure that the storm commenced from the north at the beginning of the week, and that the wind veered round to the south a day or two previous to the 21st.—*G. W. J.*

Hedge Budding.—I cannot agree with your correspondent (p. 221), regarding this mode of budding. Independently of the casualties to which the plants would be subjected in such a situation, great difficulty is experienced in procuring them with good roots. I am in the habit of taking up a large number of briars annually, many of which, after being taken up, require to be thrown away for want of roots. Now, this would lead to much disappointment, in the event of their having been budded with a fine variety of Rose, and after standing until February, 1848, proving to have no roots, or perhaps so few as to keep the plant in a weak state. No time, in my opinion, is gained by budding in the hedge, and I am sure that none is lost by taking up the stock and budding them afterwards; on the contrary, a decided advantage accrues from this method. In October I take up all the best briars from the hedge-rows I can find, being careful to select those of a brown colour, which I find to be more durable than those having a bright green stem. They are then planted in a light soil, and headed down to about the height to which they are intended to be grown. During the same autumn they will form fine young fibres, and be ready to push shoots vigorously early in spring, and by June and July they will be fit for working. By this method I have budded plants in June, which have shown flower-buds in the short time of 35 to 40 days afterwards, and which have continued in bloom until the blossoms were destroyed by frost, the sorts being hybrid Perpetuals. It will therefore be seen that no time is lost, but much gained, by securing stocks with good roots. As regards the time of the day for budding, I think that is of little importance; success chiefly depends on the state of the stocks and shoots to be budded from; in them, the sap ought to be flowing freely, and therefore I find moist, dull, and warm weather to answer the operation best, which at all times ought to be performed as quickly as possible. Your correspondent intends to bud in August and September, but I have often found the shoots then to be so well ripened that some difficulty is experienced in raising the bark for the reception of the bud. To obviate this inconvenience, about the middle of June last year I went over all the stocks intended to be budded late, and cut off all the shoots close to the stem. By September the plants had made fresh shoots just in a fit state for budding, nearly all of which are growing at the present time.—*Robert Cassiles, gr. to the Rev. J. P. Jones, Kemble Ewen, Wilts.*

Cardamine hirsuta.—A good deal has been said lately, in "Chambers's Journal" and other publications, about the cultivation of the Sisymbrium nasturtium, or common Watercress. There is another cress plant, the Cardamine hirsuta, or hairy-bitter Cress, which appears to me to have hardly received the notice which it deserves, as a warm, aromatic vegetable condiment. The plant is well known to botanists as one of those which appear early in the spring; but it generally grows in such a small quantity (being found on dry banks, and drawn up very early to flower and seed), that the foliage affords scarcely anything to supply the table. It is, however, when it can be obtained in sufficient quantity, a very delightful Cress; not so succulent as Water-cress, but more bitter, and approaching more to the flavour of Lepidium sativum, or common garden Cress. I have chanced to fall in with it, this season, in larger quantities, as to foliage, than I have ever seen it. I cannot doubt that the spot is better adapted, than the dry banks where we usually find it, for the development of its stems and leaves. I have tried it more than once as a salad, and have found it very pleasant; I doubt not also very strengthening to the digestive organs. It is on a moist bank, partly of gravel, sloping down to a slow rivulet, which is, in fact, the outlet to a town-drain. The soil is here much richer than that in which we commonly find the Cardamine hirsuta; there are many such spots, where nothing can be grown to answer a useful purpose. I mention this fact to draw the attention of those to it who cater for the public gratification. Might not an artificial soil be formed in which the hairy-bitter Cress might be brought to a state of great luxuriance, and made a profitable article of speculation? I send a small quantity of the plant, that you may judge by your own taste of its qualities as a salad. I may add, by way of postscript, that canaries are extremely fond of the leaves, as well as of those of Water-cress.—*Wm. Ilott, Bromley, Kent.* [Its flavour is very agreeable.]

Societies.

HORTICULTURAL SOCIETY.

Anniversary, May 1.—The Lord Prudhoe in the chair; succeeded by C. B. Warner, Esq. The report of the auditors upon the accounts of the Society for the past year, and a report from the Council on the progress of the Society for the last six years, were read to the meeting. It was moved by Mr. George Glenny, seconded, and resolved unanimously, that the thanks of the Society are due to the Council for their report. It was moved by Charles Devon, Esq., seconded, and resolved unanimously, that the Council be requested to print and circulate the report. It was suggested by Robert Gordon, Esq, that it is desirable that in future the annual balance-sheet be distributed at the meeting a fortnight previous to the Anniversary, in which suggestion the Chairman and Secretary acquiesced on the part of the Council. The Society then proceeded to ballot for Council and Officers for the ensuing year; after which General Caulfield, Charles Devon, Esq., and J. C. McMullen, Esq., were appointed Scrutineers, who reported that the Lord Prudhoe, W. H. Pepys, Esq., and Mr. Loddiges, had been removed from the Council; and that the Right Hon. Sir George Staunton, Bart., M.P., E. Baker, Esq., and F. G. Cox, Esq., had been elected in their room; and also that His Grace the Duke of Devonshire had been elected President; Thomas Edgar, Esq., Treasurer; and J. R. Gowen, Esq., Secretary for the ensuing year.

BOTANICAL SOCIETY OF EDINBURGH.

April 9.—Professor Balfour in the chair. H. Ivory, jun., Esq., was elected a Resident Fellow, and F. Townsend, Esq., Trinity College, Cambridge, a Non-Resident Fellow of the Society. The following communications were read:—1. Botanical Excursions in Upper Styria in 1842. By Dr. R. C. Alexander. In this paper Dr. A. gave an account of various excursions to the mountainous parts of Styria, during which he visited the Schökel, Lantsch, Leoben, Reiting, Yolling, Klagenfurt, and Saltzbach. He also gave a detail of the various plants observed during his tour; and stated that he had collected in all about 900 species, of which upwards of 20 were new to the flora of Styria. The paper was accompanied by a list of the principal plants collected south of the Drave. Specimens from the Society's Herbarium, contributed by Dr. Alexander, were produced to illustrate the paper, of which an abstract will probably appear in the "Annals of Natural History," and in the Society's "Transactions."

2. Remarks on the claims of certain species of plants to be considered indigenous to Britain. By Mr. R. M. Stark. At the commencement, Mr. S. adverted to the progress of Botanical Geography, and particularly to the labours of Mr. Hewett C. Watson, in his works on the distribution of the British flora. Passing over the instances of shrubs and perennial herbaceous plants found apparently wild, but which have undoubtedly escaped from the garden, he directed the attention of the meeting to the large family of annual corn-weeds, and their claims to be regarded as truly indigenous to Britain. Though universally dispersed wherever the plough and the agency of man extended, the fact of their not being found associated with other annuals where the land was waste and uncultivated, seemed to prove that they were the companions of the cereal grains, and with them had been introduced at a very remote period. Some of them (of which several instances were given) are confined to one side of the island, or to certain districts of the country, which showed that, notwithstanding their [illegible] to the laws regulating the distribution of organic life. He expressed his opinion that it would be desirable, both for the interests of science and agriculture, that these plants and their prevalence or rarity in various districts should be recorded in our catalogues, local floras, and other works of a similar description.

Mr. James M'Nab exhibited flowering plants of two curious species of Arum (A. cordatum and A. cornutum), raised in the garden of the Horticultural Society, from seeds sent home by William Jameson, Esq., Saharunpore, in April, 1843. The flowering spathe of the one was two feet, and of the other 18 inches in length, both being beautifully mottled with brown and yellow spots; and, what is very remarkable, the two species were sown on the same day, and after receiving the same treatment for about three years, flowered within 24 hours of each other. Beautiful specimens of Pinguicula grandiflora, from Bandon, near Cork, communicated by Miss Carpenter, Bristol; of Vaccinium macrocarpum, from near Mold in Flintshire, by Dr. Bidwell, Abrighton; and of Dianthus cæsius, from the debris of Salisbury Crags, by Mr. John Laing, Experimental Garden, were exhibited to the meeting.

MICROSCOPICAL SOCIETY.

April 15.—J. S. Bowerbank, Esq., in the Chair. Sir R. I. Murchison; J. B. Simmonds, Esq.; W. G. Few, Esq.; E. G. Allan, Esq.; R. J. Bagshaw, Esq.; and Julius Page, Esq.; were elected Fellows. A paper was read on the structure of the guinea-worm (Filaria medinensis), by George Busk, Esq., surgeon to the Dreadnought hospital ship. From his position, the author stated, he had frequent opportunities of examining this parasite. It was endemic in certain districts of Asia and Africa, and persons coming from such districts were those who were affected with it. In the first instance, this animal seemed introduced into the flesh by means of exposure to water in which it was contained. What the nature of the life of the animal out of the human body is, has not yet been ascertained. After its introduction, it remains in the body 12 or 18 months, and attains a length of from 4 to 6 feet, when the flesh begins to suppurate, and it comes away. The author went into the minute details of the structure of this animal, and concluded by stating his conviction that the Filaria medinensis was only an intermediate state of some animal whose existence had not hitherto been suspected. He stated that he was led to this conclusion from the analogy of this animal with the trematode entozoa, in which Steenstrup, in his highly curious work on the "Alternation of Generations," just published by the Ray Society, had pointed out that they were intermediate states of other animals.—Dr. Lankester stated that he was not aware that there were any facts amongst genera and species in the vegetable kingdom which supported Steenstrup's theory; he would, however, point out the cycle of development which the leaf passes through in the floral envelope, stamens, and pistil, as indicative of a law of the same kind applying to an individual plant.—The President referred to the infusoria of paste as exhibiting certain points of structure which would lead to the conclusions that they were intermediate forms of some animal not known.—At the close of the meeting, Mr. E. J. Quekett exhibited sections of a Potato, in which the sound parts were found penetrated with portions of a fungus.

Reviews.

Course of Arboriculture, Theoretical and Practical. (*Cours élémentaire.* &c.) By M. A. Dubreuil. 12mo, pp. 613. Paris: Victor Masson, and Langlois.

This is a *nice* little book, very neat, very prettily "got up;" rather useful, and not very profound. The author touches upon everything, and only touches: but what he does is safely done. There are no general views, but there are no new errors. The directions for practice are old, but they are the best of the ancient fashion. If no one of experience will learn much, no one without experience will learn error. The book is a specimen of the *juste milieu* school. "*Medio tutissimus ibis*" should have been M. Dubreuil's motto. Whether this criticism be complimentary, or the reverse, will be determined by the peculiar constitution of men's minds. Those who think to do pretty well, without striving to do better, is the true mission of gardeners, will study M. Dubreuil; by those who advocate the go-a-head system he will be thrown aside. We shall not judge between the parties. All we can say, in addition, is that the book is ornamented by many very nice woodcuts, and some steel plates, representing singular ancient trees. A favourable example of the author's style is afforded by the following extract:—

"In considering the age of the trunks of certain trees more than 800 years old, like those of the Chapel Oak of Allouville in the Lower Seine, or more than 1400 years old, like those of the Yews in the hedge of Routot, in the department of the Eure, one would be inclined to believe in the immortality of some among them. One might fancy that these trees are exempt from the general law, that every organised being must perish in a given time. Nevertheless, if we examine their mode of growth we find that they come within the law; that is to say, that in them, as in all plants, life is prolonged in each of their organs only for a few years. In fact, the essential living parts of the tree, that is to say, the youngest layers of the liber and the alburnum, scarcely preserve their functions more than two or three years, at the end of which time they are replaced by new

layer, the leaves, and the whole of the fruit, in the mere man a year. Similar productions succeed them the next year.

"It is, then, in reality a new tree that developes itself and annually covers the old one, in which there has ceased to be life. The origin of this new tree is in the buds placed upon the branches of the preceding year, and which may be compared to seeds. If, in plants called annuals, such as Flax and Mustard, this accumulation of individuals one over the other is not found as in trees, it is because the very abundant fructification of these plants wears out their tissue, and annihilates their vital force; there is no production of buds to preserve life in the layer of the liber, and so furnish a new vegetation the following year. The consequence is that these plants dry up directly after the fruit is come to maturity. That is so true, that if you hinder them from ripening fruit by cutting off the flowers as they open, you will see buds forming at the axil of the leaves; the liber keeps itself alive beyond the ordinary time, and the following year these buds give birth to a new individual which entirely covers the old one. This leads us to conclude that trees, if we consider only the essential living parts of the individual, scarcely prolong their existence beyond two or three years. But if we give the name of tree to the whole, both of the living parts and the parts inert, such as the old woody layers, we can then say that there is no natural term to their duration, because the vital forces are as energetic in the liber and buds of an Oak of 1000 years old as in those of 30 years old. The death of trees, considered under the last point view, is, then, always accidental. Nevertheless, some kinds appear to yield to the influence of accidental causes more easily than others. Thus, Poplars and Chestnuts, expire sooner than the Oak and Yew, &c.; that is to say, owing to their tissues being less compact, and softer, they are more easily influenced by the destructive causes which are constantly acting upon them. In fact these trees, when they are placed in localities beyond the reach of the causes which shorten their duration, live as long as the Oak and Yew. Lime-trees and Chestnuts of many hundred years old may be cited as examples."

New Garden Plants.

25. SCHUBERTIA GRAVEOLENS. Strong scented Schubertia. *Greenhouse Climber.* (Asclepiads.) Brazil. This plant was first published in the present work, in January 1838, under the name of S. graveolens, from a small specimen furnished by the Messrs. Henderson, of Pine-Apple Place. Afterwards Dr. Graham mistook it for a Physianthus (or Araujia) and published an account of it in the Botanical Magazine, calling it auricomus or the golden-haired, in allusion to the long brown hairs which clothe it. Mr. Glendinning, of Turnham Green, has furnished the following memorandum of its habits and cultivation:—"When Stephanotis floribunda made its appearance it was generally considered, and justly, the finest twining plant in cultivation. The present subject is not inferior to it under good culture. The flowers are rather larger, and quite as fragrant; they are likewise produced in great profusion. The plant which was exhibited by me before the Horticultural Society last autumn, and awarded a Banksian medal, remained in bloom quite four months; thus rendering it a most useful and desirable plant at a season peculiarly distinguished by paucity of flower. I have found the following treatment in its cultivation suitable to it. When the flowers begin to fade, it should be allowed quietly to go into a state of repose, when it will almost become deciduous. Early in March it should be shaken out of the pot, the soil cleared entirely away from the roots, and repotted in rough peaty soil with a little turfy loam, adding a small portion of sand; these should be intermixed. Select pots of rather large dimensions, as it delights in root-room; well drain the pots, and spread the roots out amongst the soil when potting it. Settle the whole down with a good watering. Then place it in a close stove or pit, in a temperature of 75°; and if plunged in bottom-heat, success will be more rapid and certain. Few plants will more satisfactorily repay the trouble and attention thus bestowed upon it; and if trained in the same manner as Stephanotis, it will begin to bloom freely about the end of August."—*Botanical Register.*

Garden Memoranda.

Horticultural Society's Garden, Turnham Green.—The Orchid house here begins to appear gay, many of that lovely and interesting tribe being in blossom. The more remarkable of these were the showy Cattleya Skinneri, with fine heads of large purple blossoms; a large specimen of Acanthophippium bicolor, with its curious brown and yellow flowers peeping out among the pseudo-bulbs; the bright orange-blossomed Epidendrum aurantiacum; the useful Cattleya intermedia; and the sweet-smelling Epidendrum Stamfordianum. In the same collection was also the pretty little Leptotes bicolor, covering the upper surface of a block with its long white purple-tipped blossoms; the sweet-smelling Aspasia epidendroides; and the delicate and rare Dendrobium Heyneanum, producing a slender spike surmounted by a fine cluster of snow-white flowers. In the adjoining greenhouse was in blossom a fine plant of the beautiful Weigela rosea, which was sent some time ago from the north of China by Mr. Fortune. It has the appearance of a Philadelphus, with opposite nearly sessile leaves of about 3 inches in length; and monopetalous tubular flowers of a delicate rose-colour, and of very large size. This valuable acquisition to our gardens has hitherto been kept under glass; but is not improbable that it may yet turn out to be hardy. Another of Mr. Fortune's plants in the shape of an Indigofera was just coming into bloom. In its present state, however, little more can be said of it than that it is a neat-looking shrub, and promises to be an abundant bloomer. Along with these was Hibbertia perfoliata, an old but gay-looking greenhouse shrub, with large bright yellow flowers, and deep green foliage. In the same house was also in blossom Mr. Fortune's Azalea obtusa; it forms a pretty little bush, with blunter leaves than is generally found in the species already in our gardens, and flowers of a deep red. It promises to be a profuse flowerer, and if it should turn out to be hardy, which, being from a high northern latitude, possibly it may, it will form an invaluable addition to the Arboretum. The Aristolochia gigas, trained along the roof of the curvilinear stove, has now on it 12 fully-expanded helmet like blossoms, and many more are making their appearance. This interesting, if not beautiful twiner, continues to produce its curious large concave blossoms almost the whole year round. Alpinia nutans, a plant nearly related to the Ginger, was in bloom, the beautiful waxy-looking flowers being produced in a slightly pendent raceme of about 6 inches in length. The pale yellow flowered Limnocharis Plumieri was also in blossom in the little aquarium at the end of the stove. In this house also the Antiaris toxicaria, or deadly Upas tree, was in a remarkably thriving condition. The large conservatory was gay with the various kinds of leguminous plants which make so fine a display here at this season. The fine specimen of Brugmansia sanguinea was covered with long deep orange trumpet-shaped flowers; Chorozoma varium was a mass of beauty, and the large Clianthus puniceus has been, and still is loaded with blossoms. Various climbers were in flower, of which the more remarkable were Hardenbergia macrophylla and monophylla, whose beautiful purple and blue blossoms render them two of the best conservatory twiners which we possess. The Mexican Habrothamnus fasciculatus planted out in the bed was covered with flowers, the numerous little scarlet heads contrasting well with the somewhat ample bright green leaves. It proves to be one of the finest things ever brought to this country in the way of half-hardy plants; it is perhaps, however, better suited to the conservative wall than to house or pot culture. In the house recently erected in the hardy department, a thriving specimen of Calystegia pubescens will soon be in flower. This was sent from Shanghai, by Mr. Fortune, under the name of a double Convolvulus, and is the first plant of its order that has been mentioned as producing double flowers. The latter are of a delicate pink colour, and are found to be about as large as those of a double Anemone. If it should prove to be hardy, it will form a valuable addition to plants of that kind. In the same house was also Cuphea strigillosa or pubiflora, a pretty little half-hardy plant, producing slightly pendent tubular orange flowers, of about half an inch in length. It will, no doubt, form an excellent plant for the flower-garden, where it will produce a fine effect planted in masses. Various seeds, numbering 30 in all, prepared by Mr. Bickes, have been sown in the experimental garden, in the east end of one of the plots, and a similar number of the same kind of seeds, unprepared, has been sown on the west side of the same plot with a view to test the relative advantages resulting from seeds thus prepared with others sown in the usual way. Many of them are not yet through the ground, and of those that are up, little can be said in their present condition. It may be mentioned, however, that of the two rows of Windsor Beans, which form a part of the trial, those that had been steeped appeared to be rather the best, and of the two rows of yellow Malta Turnips, that seemed to be best from prepared seed; of the two rows of Potatoes, however, 6 plants from the unprepared tubers were up, while of the prepared sets only one was above-ground. The experiment is, altogether, yet too much in its infancy to draw any satisfactory conclusion from it. Potatoes from the Azores, New Grenada, Oporto, and Naples have been received in the Garden, and are about to be planted for the purpose of ascertaining whether a crop of sound Potatoes cannot be produced from them. Those from Oporto consist of a pink and a white kind. The sample from New Grenada was composed of small, but clean fine-looking tubers. All the above-mentioned are apparently quite free from the peculiar disease of last season. Plants of the Yellow Peruvian Potato, growing in pots, appeared to be healthy. The Arboretum looked gay with the different species of Pyrus, Amelanchier, Ribes, and wild Russian Cherry, &c. The Rhododendrons will soon be in beauty, and the large Glycine sinensis on the wall is just coming into bloom, as was also the pink flowered Prunus sinensis and yellow blossomed Genista candicans. The hollow walks round the large and adjoining tents have been filled up and turfed over level with the rest of the lawn; and various other improvements have been effected, especially the gravelling of the walk round the south side of the garden. This has been extended very much further than before, which considerably improves its appearance. In regard to fruit trees, the Gooseberries and Currants have been somewhat injured by the early frosts; the Apple trees are loaded with blossoms, and seem to be uninjured, but the mild weather in January and February having forwarded the buds of Plums and the Apricot sharply, especially during the snow, and on the night of the 20th, when the thermometer indicated 12° of frost. Sufficient, however, may yet be left for a crop. The garden altogether begins to look well, and operations, preparatory to the grand exhibition on the 9th, are progressing as speedily as possible.

Miscellaneous.

Destruction of Insects; Sulphuretted Hydrogen Gas.—Some plants were put into a close box in which the gas was given off. Ten plants of different sorts were subjected to this treatment; some were dry when put in, others wet, but all were well syringed with soapsuds immediately after they were taken out. It was found by experiment that six hours produced the same effect as 48. In every case the insects were destroyed, but the following Table shows that this process is injurious to the plants:—

Name.	Condition.	State.	Time in the Box.	Remarks.
			hrs.	
Pelargonium	Growing	Dry	48	Dead when taken out.
Ditto	..	Wet	48	
Dodonæa triquetra ..	..	Dry	48	Died in three weeks afterwards.
Echinocactus	..	..	24	No bad effects could be seen for a few weeks, then it gradually rotted off.
Primula sinensis ..	..	Wet	12	Dead when taken out.
Ditto	..	Dry	12	
Bletia sp.	Dormant	..	12	Very much injured.
Jasminum Sambac ..	Growing	..	12	
Mammillaria discolor	..	..	6	
Canna indica	..	..	6	
Opuntia ferox	..	..	6	Dead when taken out.
Euphorbia splendens	..	..	6	

—*Journal of the Horticultural Society.*

Calendar of Operations.

(*For the ensuing Week.*)

Grapes.—The preservation of a fine bloom on Grapes is in general deemed of the highest importance; in fact, they cannot be considered first-rate, however large or well coloured, unless they possess an untarnished bloom. The constant use of the syringe will be sure to destroy it; but some people have an impression that this cannot be dispensed with, on account of that destructive insect the red spider. Such, however, is not the case, as I have proved for years. Those who persist in the use of sulphur on the pipes or flues according to directions in the Calendar a few weeks since, and add to that a cleanly system of cultivation, accompanied by an abundant use of water on all walls, floors, or other cool surfaces, will seldom or never be troubled with red spider. The syringe, however, ought in my opinion to be most liberally applied during the budding of the Vines, and up to the period of flowering, after which it should be entirely dispensed with.

CONSERVATORIES, STOVE, &c.

Conservatory.—No tribe of plants is better adapted to keep up a constant display in this structure than Azaleas. The numerous varieties of the A. indica are remarkable for brilliancy of colour; whilst the hardy American species delight with their agreeable fragrance. The principles followed with regard to the Camellia to produce winter flowers, are in the main applicable to the Azalea indica. Forcing into wood betimes in the spring—a trifling amount of check to form the bud, and a partial rest for a considerable time before excitement, are the main features. The Azalea, however, will do with more heat than the Camellia, and with rather less shading. Those intended for flowering next January and February, should be forced into growth without delay. *Stove and Orchids.*—Follow up frequent syringings to stove-plants in general morning and evening. Do not suffer things to become crowded, or weakness will be the certain result. If any room can be spared in the other plant structures, a few of the commoner or hardier kinds should be removed. *Orchids.*—Continue to increase the temperature gradually, more especially when it can be done by solar heat, and accompanied by a very considerable amount of atmospheric moisture. This will be best accomplished from 3 in the afternoon until 6, when the thermometer may sink to 65° for the night. *Mixed Greenhouse.*—The early flowering plants of Primula sinensis now exhausted should be removed to a cool pit or frame; likewise early blowned Cinerarias, or other fading stock. It is of the utmost importance to have a pit or frame for this purpose, as it enables the cultivator to thin out the remaining stock, now in rapid growth. Chrysanthemums should be increased for next year's flowering without delay. Cuttings of the tops, three in a small pot, may be struck together, and grown together, and the suckers with roots potted singly. They should have bottom heat if possible (about 80°) for a few weeks, and of course a slight shading.

KITCHEN GARDEN FORCING.

Pines.—Early potted suckers, or young successions, will soon be full of roots. When such is the case, they should receive a liberal shift; no matter at what period. If they are somewhat dry, they had better be well watered with clear liquid manure, and should be left to settle for a few days, when the ball will be in a proper state; this will supersede the necessity of watering on the heels of potting, which is liable to sour the soil, and retard the rooting. *Vineries.*—Early Grapes in many places will soon hasten towards ripening. Let it be remembered that a tolerable amount of dryness in the

…and phosphorus mixed with it, early in the morning (not later than 7 o'clock), continued each evening, and a little all night if possible, will be found to increase both flavour and colour. *Late Vines.*—Be very moderate in fire heat until these approach towards blossoming. Keep the syringe employed morning and evening until the blossoms begin to open. *French Beans, Strawberries, &c.*—These will want abundance of water. They must not be allowed to flag by any means, and if the weather prove very bright, they may be removed to a cooler and somewhat shady shelf. *Melons.*—Keep up a steady bottom heat of 80° by renewed linings; attend well to thinning the shoots, stopping, &c. Melons will never succeed if the shoots become crowded, and overlap each other.

KITCHEN GARDEN AND ORCHARD.

This is an excellent time to make a principal sowing of all the late or spring Broccolies, such as Portsmouth, Sulphur, Dwarf Late White, Knight's Protecting and Somers's Particularly Late White. The latter is the latest Broccoli with which I am acquainted, and has, with me, for several years, succeeded all the others, and formed the link between the late spring Broccoli and the hand-glass Cauliflowers. Sow Rampion, Chervil, Chiccory, and a bed of Sweet Marjoram on a warm slope. This plant is much hardier than the Basil, and will do very well in this way. Commence disbudding Peaches and Nectarines betimes. Do not suffer the green fly to establish a footing for a day, if possible. Thin out the suckers of the double bearing Raspberries to about three of the strongest; these should be staked out thinly and should be well manured.

FLOWER-GARDEN AND SHRUBBERIES.

Of course manuring and dressing will proceed in an orderly way. High dress ground should be mowed at least once a week at this period, for a well kept lawn is always a most pleasing object. Let all herbaceous or mixed beds or borders be finished dressing without delay, and prepare stations where blanks exist to receive Verbenas, Fuchsias, Heliotropes, Calceolarias, &c., now in the course of hardening for this purpose, and for forming masses. Self-sown Annuals, the Mimulus family, the Forget-me-not, and other useful little things, as also Pansies, may be transferred with balls, to fill up blanks. See that runners of the Neapolitan Violet are provided for the next winter. Many excellent things in the herbaceous way have been lost or rejected, to make way for mere novelties; these things, however, are brought to public notice again by some of our useful periodicals, one of the best of which is "Maund's Botanic Garden," a work especially adapted for the amateur and small gardener

FLORISTS' FLOWERS.

Pansies.—It sometimes happens that these plants assume a straggling habit; in such cases the shoots must be pegged down to the surface of the bed, in order to prevent their being broken off by the wind, which is very apt to be the case. The beds ought also to be constantly examined, and every means used to entrap snails and other destructive vermin; if not attended to, the chance of obtaining perfect blooms will this season be small indeed. As seedlings flower, remove the bad ones, and take cuttings of those which it is desirable to retain, as there is great risk in removing seedling Heartsease when in flower. *Tulips.*—In many parts of the country serious loss will be experienced from the very prevalent injury which the bulbs have sustained, arising from the cankered state of the foliage, and the very unsatisfactory season throughout; unremitting attention must be paid to the removal of all diseased parts, and to thorough cleanliness of the beds. Protect as usual from frosts, which have latterly been frequent, and attend to the fastening of the elongating flower-stalks, as recommended last week. *Ranunculuses* are having quite moisture enough, and it is very probable that the bloom of this favourite flower will be fine. Let seedlings in pans have the benefit of warm showery weather, when it arrives. *Carnations and Picotees.*—Do not allow the surface soil in the pot to become hard; stir it from time to time, and finish putting in the supporting sticks without delay. *Pinks* will also require small rods, as they are now spindling fast. *Dahlias* may now be planted out and protected, by inverted pots or other means, during the night.

COTTAGERS' GARDENS.

Let the cottager secure a sowing forthwith of Scarlet Runners: a couple of rows about 5 feet apart, and the sticks from each row meeting overhead as an arcade, has a very good effect, and is altogether a serviceable plan; Runners delight in a rich soil. A couple of rows about 8 feet apart, and running north and south, afford an excellent situation between them for a raised bed of Cucumbers: Late Peas, as Knight's or British Queen, will do as well: the sticks should, however, not exceed 6 or 7 feet in this case, and the Runners should be kept topped constantly. A few Kidney Beans may also be put in on a warm border. A few Annuals may be sown in patches, such as Collinsias, Clarkias, Chryseis, Malope, Iberis, and Carnation or Dwarf Poppies; these, with a few Dahlias and Hollyhocks, will keep the garden gay till November.

FORESTING.

The barking season must now have arrived in most places. Of course, the getting it dried is an important point. An elevated spot should be selected, as dry as possible. Use "horses" or "lofts," as they are called in some places, to avoid contact with the ground, in order to preserve a good colour, which it is well known is considered a criterion of quality. Like hay, some fermentation is over; this, therefore, requires some caution. Place it so that rains will speedily run off. When the natural sap is dried out, it is ready for stacking; the stacks should by all means be narrow.

State of the Weather near London, for the week ending April 30, 1846, as observed at the Horticultural Gardens, Chiswick.

April		Moon's Age.	Barometer. Max.	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain
Frid.	24	29	29.863	29.749	57	34	44.5	N.E.	.03
Sat.	25	●	29.901	29.784	50	42	51.0	N.	1.49
Sun.	26	0	29.818	29.762	58	30	41.5	N.	.04
Mon.	27	1	29.909	29.845	54	38	45.0	N.	.03
Tues.	28	2	29.581	29.367	61	27	44.0	W.	
Wed.	29	3	30.232	30.104	60	33	46.5	E.	
Thurs.	30	4	30.296	30.233	61	44	52.5	W.	
Average			29.943	29.674	56.0	35.1	46.5		1.82

April 24—Rain; dark haze; cloudy
25—Hazy and damp; showers: hazy; extraordinary heavy rain in the night, the quantity being greater than has fallen within 24 hours since Sept. 1, 1851
26—Overcast; showers; clear; frosty
27—Clear and fine throughout
28—Very fine; cloudy; partially overcast
29—Clear; very fine; overcast
30—Clear and fine.
Mean temperature of the week 4 deg. below the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending May 9, 1846.

May	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 3	63.3	42.7	51.0	10	0.80 in.	1	4	3	1	4	4	1	2
Mon. 4	64.7	42.9	53.8	7	0.70	3	4	3	—	3	2	2	1
Tues. 5	63.8	42.9	53.3	13	0.98	3	3	1	2	4	3	1	1
Wed. 6	63.5	40.8	52.1	9	0.48	—	5	3	2	2	4	3	1
Thur. 7	65.0	41.9	53.4	5	0.45	2	5	3	1	4	3	1	2
Fri. 8	64.4	43.1	53.7	8	0.57	—	4	5	—	4	3	3	1
Sat. 9	62.4	43.8	53.1	7	0.60	2	5	3	1	3	5	2	—

The highest temperature during the above period occurred on the 6th, 1830—therm. 81°; and the lowest on the 5th, 1847—therm. 27°.

Notices to Correspondents.

POST-OFFICE ORDERS.—In order to obviate the inconveniences which are now constantly being experienced by parties who wish to remit small sums to the office of the GARDENERS' CHRONICLE, we have to request that all Post-office orders may in future be made payable to Mr. JAMES MATTHEWS, at the Post-office, 180, Strand, London.

BOOKS—*Ornithologos*—We have always understood that Bechstein's work on Cage Birds is the best.

BROCCOLI—*S S*—Next week.

CINERARIAS *J H W*—You may grow these very well with the aid of a cold pit, matted over in winter, but you must not expect to have them in flower very early in the season. In regard to propagation, they are easily increased from seed, or by dividing the plants after they have done blooming and commenced to grow again. If the latter mode is adopted, after having removed the dead flowering stems, it is an excellent plan to plant them out in the open border, where they make fine young shoots, which, on being taken off and potted, soon form fine strong plants. In raising seedlings, gather the seed when ripe, and sow it in pots or pans filled with light somewhat rich soil; or, in the case of the plant being planted out, smooth the soil a little round about it, and the seed will sow itself, producing young plants in abundance.‡

FORCING-HOUSE FOR FLOWERS ONLY.—*Sub*—A span-roofed house or pit would be very eligible. If this form is adopted, it should run north and south. About 1 foot of bare wall, besides the side-sashes, ought to be above the ground level. The span or pitch of roof should be rather flat; but must be glazed with the clearest glass, and in as large panes as possible. The walk should be under the angle, and the flue from the boiler might be carried under this walk, and covered with dish-tiles. A pit on each side, with a chamber tank-heated, would render it complete. The face of the pits might have graduated sliders, in order to admit when necessary atmospheric moisture to the house from the open tanks. A plunging medium of clean sand or ashes, 6 inches deep, might be placed over the chamber. The pit on each side of the walk need not be wider than 30 inches, which, with a walk of 24 inches, would give a house of 7 feet in width. A roof covering would greatly economise the consumption of fuel, and contribute to the health of the plants, by dispensing with much of the night-fires. *R. E.*

GRAPES—*J J*—It would appear as if the wood of your Black Hamburgh Vines had not been sufficiently ripened last season.‖

GRASS.—*Dodecatheon*—In some cases, as with Fir-trees, it is impossible to make Grass grow beneath their shade. In others, as with the Oak, there is no difficulty. The best Grasses for the purpose are Poa nemoralis, Milium effusum, Phleum pratense, Lotus major, and White Clover. But all plants *must* have light and moisture. Guano is an excellent top-dressing, applied in small quantity, diluted with fine earth, and applied in wet weather; 2 cwt. an acre is enough. Sulphate of ammonia will much improve the colour of lawns; so will soot if applied in November. We are not aware that Parsnips and Carrots have failed in the new crop. Sow again. We do not know that Deodar *seed* can be bought in this country. The Linnean system of Botany is as much out of date as the Geography of Strabo; he calls the Parsnip a fusiform *root*, and correctly. Read Mackintosh's "Flower Garden." *We might, perhaps, advise you about your Greengage trees, but it will be necessary for you to describe their case much more minutely.

HEATING—*Arbuthnot*—We must confess that your plan is not what we would recommend. The plan of forming a floor with hurdles and rushes over the open tanks is very common, and a good one as long as the materials will last; but they soon rot. To heat a tank by means of a pipe passed through it is a waste of materials. The water will heat as well without the pipe as with it. We do not like the flue carried through the house; it is falling back upon an old bad system. Take the pipe out of the tank and place it where the flue is, for air-heat, and for occasional dryness.—*J H*—We do not clearly understand your inquiry, which, moreover, is less legible than could be desired. No doubt a Cucumber bed may be kept sufficiently warm by filling a central tank with hot water once a day; and, if you have no objection to the labour of doing it, the Cucumber plants can have no objection to the manner of it.

HYACINTHS—*B*—We have never seen a bright yellow Hyacinth; those called yellow are of a buff colour.*

INSECTS—*O*—Our Peas are spindling up, and irregular, owing to the same causes. The Polydesmus eats into the Pea in the ground, a Curculio nibbles the leaves, and what remains is shared by the slugs. *R.*——*J M C*—They are the larvæ of the crane-fly, figured and described in Vol. I. p. 612 of this Paper. There is no remedy but removing the earth carefully from around the drooping plants, and killing the grubs; three or four may often be found round one root. *R.*——*J G F*—There must be more than one sort of insect in your frames. The one sent, as far as can be judged from a broken specimen, is an Aleochara. If you lay a decaying Cucumber in the frame, it will act as a decoy, and you can occasionally examine it and destroy the inhabitants. Please to stop the quill in future with cork, and not with a bit of Potato; the insects had all escaped except one which was mutilated. *R.*——

MANURE—*A Walton* would be obliged by "Lyston" informing him what is meant by "Extract of Guano," and by stating how it is to be prepared, and whether the use of it in a diluted state is equally recommended for culinary vegetables as for flowers?

MICE—*Hortensis*—Since the phosphoric rat poison answers so perfectly for destroying rats, it is very likely to suit mice, if it is made *sweet* enough. We would advise you to give it a trial.

MORPHOLOGY—May it please your worship,—Partington's "Sir Solomon" being detected in an attempt at double-dealing (in sport), is brought up for judgment by your ancient and quiet watchman—*Dogberry*. In this Auricula the flowers are becoming double by a very curious change, which we shall specially describe as soon as the woodcuts required for illustrating it can be made ready.

NAMES OF PLANTS—*A B C D*—Rondeletia cordata.——*J G Wheeler*—Acacia; either a broad and short-leaved variety of A. verticillata, or an undescribed species. We believe it to be the latter.——*Z*—No. 3, Kennedya rubiounda; 1, Zichya inophylla; 2, Z. angustifolia.

ROSES—*Burnham*—The summer treatment of Roses which have been forced is this:—If they are of the Provins or Moss class they should be hardened gradually in the leaf without abuse, until the first week in May, when they should be plunged in an open situation, out of doors; the pots should be covered over with three inches of rotten manure, and the plants should be well attended to with water through the summer. If of the Hybrid kinds, Bourbon, &c., they may be plunged in a half-shady situation until the end of June, and watered with liquid manure occasionally. They may then be partially disrooted, and repotted in rich and mellow soil, and encouraged by all possible means, keeping every blossom-bud pinched off until the middle of September. They should be housed by Michaelmas, and will blossom respectably through the autumn and winter.‡

SLUGS—*Slater*—Give them, when feeding, a watering with lime-water, or weak ammoniacal-water, formed by dissolving an ounce of smelling-salts in a gallon of water.

THE SHELL-SLUG—*Flora*—This has been figured and described at p. 389 of our volume for 1845. It is quite true, we believe, that it feeds on other slugs; at least it does not attack plants. Some years ago an attempt was made by the Horticultural Society to introduce the Testacella at Chiswick; but none have ever re-appeared since they were turned loose, and the experiment was apparently a failure. They were greedily attacked by ants, who soon finished off a few that were put into a damp hothouse.

TRAINING—*Hortensis*—We have many more of the plans of fancy training in hand, and shall continue to publish them from time to time. You will see for what kinds of trees the ingenious author thinks them best adapted.

YEW BERRIES—*J Roberts*—Gather those when ripe in autumn, and place them in a large flower-pot, mixing them with a little sand or dry mould to keep them from fermenting; then bury them about a foot deep in the ground, placing a slate over the mouth of the flower-pot to exclude wet; they should remain in this condition until the following March, when they should be taken out and sown in the usual way. If the berries are allowed to become dry they will not vegetate before the second year. In your case sow as soon as possible. Holly-berries should be treated in a similar manner.¶

MISC.—*W B*—Portsmouth Broccoli. Chappel's cream-coloured is flatter and whiter.‖——*A Subscriber*—We do not know of what the adhesive mixture employed by the Post-office consists; but we ourselves use a composition made with two-thirds gum arabic and one-third brown sugar dissolved in as much water as is required to make it flow readily, and nothing can be better. For damp places, however, we should think that isinglass and gin would be better; see p. 270.——*M C Y*—The most desirable *wood* for tubs for Orange-trees or other greenhouse shrubs of large size is teak. The best material is slate.——*R D*—Treat your yellow Canadian Haricot in the same way as you would any other dwarf Kidney Bean.‡——*R P*—There is nothing uncommon in your Nemophila.*——*Wansbeck*—Remove all shoots from your Asparagus until you leave off cutting, when all that comes should be allowed to grow.‡——*W H C*—The mode of using marine glue has been given at p. 362 of our volume for 1845. It cannot be used by glaziers from the difficulty of heating it. Treat Niphæa exactly like Gloxinia.——*H*—When calico is varnished with a composition of sugar of lead and becomes black, it is because the black sulphuret of lead is formed by the sulphuretted hydrogen, to which the calico is necessarily exposed. The sulphuretted hydrogen is decomposed in the operation. The Shamrock is the Wood Sorrel, Oxalis Acetosella.

SEEDLING FLOWERS.

AZALEA—*B*—Your seedling is no improvement upon the old white, the flowers are not so large, nor is the form so good.*

CALCEOLARIAS—*W J E*—A striking and showy seedling; pure yellow ground nearly covered with brown spots, so bright in colour as to approach a scarlet; the flower is large and well formed.*

CINERARIAS—*Q F*—Both your seedlings are good flowers; they are rather small, but the flowers are round and well filled up; in colour they are rich and brilliant.*——*O B*—The petals of your seedling are too long and narrow, and they appear to want substance also; in colour we have several like it.*——*G R*—Your seedling is very peculiar in colour, and on that account will be useful for a collection.*——*J C*—No. 7 is the best flower in your collection, the petals are broad and well formed, and the flower is good in colour. In the other specimens the petals generally are long and flimsy, and not equal to the flowers at present grown.*——*R P*—Your seedlings are to be principally admired for their colours, particularly 7, 10, and 13; the last is the best, and a fine flower; in other qualities they are generally not equal to the flowers now grown, as the petals are narrow and deficient in substance.*——*W K G*—Your specimen is rather small, but pretty on account of its peculiar colour.*——*J R*—Your seedling is a well-formed and pretty specimen of a crimson flower, rather small and common in colour.*

ERICAS—*S Whitehill*—Of your Heaths No. 2 is rich and fine in colour; 1 and 3 are rather too much alike, and we prefer the lighter variety, No. 1; in No. 2 the mouth of the tube is large, rich in colour, and finely formed; 4 and 6 are very pleasing varieties, and the yellow specimen No. 7 is decidedly an acquisition; 8 is too much like some of the others. They are all fine varieties and deserving of general cultivation.‡

FUCHSIAS—*W A O*—Rubens is a stout flower, with a large red corolla; tube and sepals flesh colour, the latter tipped with green; it is a showy flower, particularly on the plant, the foliage being of a deep green.*

PANSY—*A Constant Reader*—A fine large round flower of great substance, rich yellow ground, with bronzy purple upper petals, and broad belting of the same round the lower petals; eye fine; a bold and striking flower, well adapted for showing.*

POLYANTHUSES—*H B*—Your specimens are common border varieties, possessing none of the properties of florists' flowers.*

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Ditto—British, (made on the strict analysis of Peruvian.)
SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal vol. vi. part 2.)
BONE DUST and HALF-INCH BONE.
BONE SHAVINGS.
} For Wheat, Oats, Barley, Beans, Turnips, Mangold Wurzel, Potatoes, Tares, Grass, &c.

GYPSUM—For Clover, Cinquefoil, Trefoil, Vetches, &c.
NITRATE OF SODA—As a stimulant for Wheat, Oats, Barley, Grass, &c.
NITRATE OF POTASH.
SILICATE OF SODA.
SILICATE OF POTASH.
} As a top dress for Wheat.
PETRE-SALT—as a top dress for Old Pastures, Clovers-leas, &c., being a complete purifier.
AGRICULTURAL SALT—for Compost Heaps, &c.
URATE—for Wheat, Oats, Barley, Turnips, &c. on hot land.
SULPHURIC ACID—for dissolving Bone Dust and Bone Shavings.
SODA ASH—for destroying Wire-worm.

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The Agricultural Gazette.

SATURDAY, MAY 2, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, May 6—Agricultural Society of England. Highland and Agricultural Society.
Thursday, — 7—Agricultural Imp. Soc. of Ireland.
Wednesday, — 13—Agricultural Society of England.
Thursday, — 14—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.

Llandovery—Stewarton—Preston—Cumnock—Maybole.

FARMERS' CLUBS.

May 4—St. Columb—Newark—Markethill
— 5—Wingerworth—Ardleigh—Watford—Jedburgh—Ss. Quivox—Framlingham—Auchford Hundred—Abergavenny—Wootton Bassett
— 6—Braintree and Bocking—Herlaston
— 7—Blofield and Walcham—Richmondshire—Grove Ferry—Hawick
— 8—Wrentham—Northallerton—Tavistock—Debenham
May 9—St Germains Chelmsford—Hadleigh—Wakefield—Lichfield
— 9—Dartford—Probus—Winchcomb—Cardiff—Northampton
— 11—West Hereford Wenlock—W. Market Clrencester—Yoxford—Selby—Exminster—Bakewell—Great Oakley
— 12—St. Peters
— 13—Halesworth—Wadebridge

DURING the past winter we have consumed in our yards about 1400 tons of Swedish Turnips, Mangold Wurzel, and other roots, and probably 120 tons of straw. The consequence is that we have now in heaps in the fields and about the buildings upwards of 3000 cubic yards of MANURE. And it is upon the application of this that we depend for the production of a similar quantity of food for stock another year, and for the maintenance unimpaired of the fertility of the farm. We could not waste any of the manure manufactured during the consumption of the farm-produce; we could not permit the urine of the sheep, cattle or horses to run to the neighbouring brook, without experiencing from our carelessness a loss at harvest time, and a diminished ability to maintain the stock we have hitherto kept. And we should find it necessary to make up for the deficiency by the otherwise unnecessary expence of purchasing manures elsewhere.

Now, apply all this in a review of British Agriculture. Consider England as one large farm. Immediately after harvest the produce of the land gradually concentrates and is consumed in certain spots at intervals of 20, 30, or 40 miles, all over the country, for the towns here are the farmeries and correspond to the buildings where the live stock is kept, and their manure manufactured and preserved. Now what return do these towns make to the land for the [illegible] supply [illegible] to correspond with our 9000 cubic yards for every 1500 tons of vegetable food? Take London as one of them:—One-eighth of the population of England resides there, and one-eighth of the agricultural produce of England is consumed there. But where is the manure for the land derived from this vast consumption? The Wheat sold at Mark-lane is measured by millions of bushels; the cattle and sheep sold annually at Smithfield must weigh 190,000 tons; *the whole* of the agricultural produce of land equal in extent to seven of the neighbouring counties, with their 4,000,000 of acres, is consumed in the metropolis. What return in the shape of manure is made to the land for this vast drain upon its fertility? Scarcely any. A radius of 60 miles around this centre does not traverse the extent thus robbed; a radius of six describes nearly all of it to which any fertilising return is made. To maintain our simile: London is not only the largest, it is the worst managed farmyard in the kingdom, for a river runs right through it, and carries off all the manure that is made in it. And this is true more or less of every other town in this country; and the fertility of the land unquestionably suffers much from this wasteful consumption of its produce; that is, it would, did we not, to diminish the injury, adopt the expensive policy of purchasing manures at a cost of some millions of pounds annually, and importing them from a distance.

The agricultural importance of the subject of TOWN SEWAGE can scarcely be overrated. After a very long period, during which it has experienced a most anomalous neglect, we are glad to find that it is at length attracting the attention of capitalists. Companies are being formed for the collection and carriage of the manures hitherto wasted. *One*, at any rate, the METROPOLITAN SEWAGE MANURE COMPANY, is before Parliament; their bill has passed its second reading, and without doubt it will soon pass through its remaining stages; and then we may hope for energetic measures being taken for the removal of that which has so long been the disgrace of British agriculture.

We have had the pleasure of reading a pamphlet* just published by Mr. MARTIN, this Company's "Projector," developing the methods in which he proposes that their operations shall be conducted. We are exceedingly anxious to excite amongst our readers some interest in this subject, and for this purpose we cannot do better than recommend this pamphlet with its accompanying plans for their perusal and examination. They may depend upon it that the drainage of towns, even though induced only by its influence upon health, and the collection and transmission of the drainage for agricultural purposes, will be the great engineering operation of coming years. It is certain to be a profitable undertaking to whoever shall engage it—it is the liquid portion which is the most valuable part of the drainage, and thus the means of its conveyance by pipes and channels to a distance are both easy and obvious—there are no very great or expensive difficulties in the way—and those who first set about acquiring and diffusing an acquaintance with the merits and the statistics of the subject are likely to derive the earliest and greatest advantages from it. We have not space here to detail the particular methods which Mr. MARTIN proposes to adopt in order to collect and transmit the sewage manure of London into the neighbouring country; for information on this and other points we must refer to his pamphlet, which we once more commend to the attention of our readers.

ON THE STATE OF HUSBANDRY IN LOWER BRITTANY.

WITH INCIDENTAL OBSERVATIONS ON THE CONDITION OF THE FARMING POPULATION THERE, COMPARED WITH THE SOCIAL STATE OF THE ANALOGOUS CLASSES IN IRELAND.

By MARTIN DOYLE.

(*Continued from p. 258.*)

THE variety of crops obtainable from such poor and shallow soil as that described at p. 191 is an evidence that scarcely any description of moor is actually barren, and that what may appear hopelessly infertile by nature only demands the labour of man to render it productive.

By tracing in a few instances the progress of cultivation in soils not originally better than those to which we have been so long adverting, we come to the pleasing deduction that Great Britain and Ireland contain vast fields for the profitable application of labour to meet the wants of the increasing population.

We are disposed to agree in opinion with the same writer,† that "The various gradations of fertility and productiveness which different soils now exhibit depend more upon the length of the periods during which they have been cultivated, and upon the kind and quantity with which their tillage has been conducted, than upon any peculiar properties inherent in their nature." A vast proportion of the land now cultivated in this country was originally in no respect better than a very considerable proportion of the wastes which remain to this day neglected and uncultivated. It has been brought to its present state of productiveness by the long-continued industry of man, and the same perseverance which succeeded in fertilising the inclosures of this country (England) would produce a similar result on the wastes which abut upon them. If man will but labour upon the earth, and open its bosom, the atmosphere will deposit therein an increased supply of the fertilising principles with which it is abundantly charged." Fertile loams are not compounded by any industry and skill of man, as a cook would compound a pudding of a required consistency with certain ingredients. Take, says the cookery book, so many pounds of flour and suet and sugar and salt, &c.; mix them well with a spoon, boil them so many minutes, and you have a delicious pudding. The theorist in soils, with book in hand, arranges his work by the fire-side somewhat in the same manner. To a stratum of clay so many inches deep add a certain quantity of sand, ditto of powdered bricks; then take so many barrels of lime well slaked with a strong solution of salt, add a few other substances, and then mix the whole together with a harrow, turn it over with the plough, mix the condiments again and again with the harrow, and you have an admirable loam. Even assuming that a man had all the ingredients of a fertile soil at his command, man could never combine them as the Creator amalgamates the component parts of the earth for our use. It is in our power to a certain degree to correct the deficits of soils by judicious admixtures, and render them moderately fertile, but no art can render a naturally bad soil equal to a perfectly good one by nature.

We cannot deprive the following paragraph of even a single sentence, it is so accurately descriptive of the slow but gradual progress of the cultivation of land unproductive in its natural and unreclaimed state, but rendered fertile by human industry. "On a barren waste of land first rose a baronial or monastic mansion; around this feudal or religious residence a few straggling huts sprung up, to these a few inclosed crofts or curtilages were gradually attached. The stock of cattle these were capable of supporting were in the day-time permitted to roam at pleasure over the surrounding wastes; at night they returned to the inclosures which they manured and fertilised. Over these inclosures the cottier also spread the sod or vegetable mould, which he frequently peeled from the surface of the waste. When the population of the village increased in number, and required more room, the limits of the inclosure were pushed outwards, and a new encroachment was committed on the waste. An additional hut was built, a new family was added to the community, the baron or the abbot acquired a new dependent, the occupier of every new hut became the reclaimer and cultivator of an additional croft. This was mostly effected by manual labour; encumbered with stones or the roots of trees, the waste offered no scope for the use of the plough, and even when the soil was free from these impediments, the poverty of the cultivator precluded the employment of this implement. In this manner the centre of every manor or parish became an aggregation of cottages, having small curtilages attached to each of them; together with the right of depasturing cattle in the neighbouring wastes."

It is this right of pasturage as we have seen which has in so many instances prevented land improvements in Brittany, and it is the same stumbling-block which operates so prejudicially in England, where a mistaken tenderness for the poor has raised a cry against the enclosing of commons, whereas the persons usually benefited by them are the farmers adjoining them, who by driving enormous flocks of sheep over them, consume the herbage so speedily, and with such effect, that the poor cottager, who has "but a little ewe lamb," a small cow, or a few geese to share in the privilege of feeding on the common, finds that they come off with very short commons indeed, and that his rights are merely nominal, conferring upon him no substantial benefit.

(*To be continued.*)

* "Thames and Metropolitan Improvement Plan." First Division. By John Martin, K.L. London: 30, Alsop-terrace, New Road.

† M. Belfiel.

ON THE SUCCESSIVE DEVELOPMENT OF VEGETABLE MATTER IN THE CULTIVATION OF WHEAT.

(L'Institut, No. 641. April 15, 1846.)

M. MATHIEU DE DOMBASLE, who is so well known in France from his scientific researches into the means of preventing bunt in corn, has, in a memoir on the nutrition of vegetables, endeavoured to overthrow an opinion generally entertained by cultivators that plants do not exhaust land except during the period of fructification; that is from the time of fecundation to that of the ripening of the seed. This opinion is founded on the generally-admitted fact that a crop mowed just after coming into flower exhausts the land much less than if it is suffered to become ripe. Thus Clover and Tares are considered not merely as innocuous, but in some cases even as decidedly beneficial to the land. Besides, we know that of all parts of vegetables the seeds are those which, in the same bulk, contain the greatest quantity of nutritive matter, and therefore, *à priori*, it is natural to conclude that they require for their formation a greater quantity of nutritive principles.

To those facts M. de Dombasle has opposed others quite as well established, which tend to prove that plants draw as much nourishment from the soil at the begin-

ning of their development as at a more advanced period. For instance, amongst vegetables considered as the most exhausting there are some which in ordinary cultivation are not allowed to produce seed, as Cabbages, Woad, and Tobacco; and it is agreed that in nurseries where young plants of Coleseed and Beet are raised for transplanting, the ground soon loses its fertility.*

M. Mathieu de Dombasle has not hesitated to attribute the slight degree of exhaustion caused by certain green crops to the circumstance of their leaving in the ground a quantity of roots, which is very considerable compared with the whole mass of vegetation. To complete this explanation, it may perhaps be useful to remember that those green crops which exhaust but little, or are beneficial to the soil, are gifted with the power of deriving from the atmosphere the greater proportion if not the whole of their elements. In a former work M. Boussingault has made it appear that all the vegetable matter produced in the course of a crop is not found in it when mowed; in Clover, for example, the quantity of organic matter remaining as an acquisition to the soil may amount to more than 0,8 of the weight of the hay. We must then set it down as a principle that every crop depauperates the ground on which it grows, but that the exhaustion, which is always clear when the crop is entirely taken away, becomes so much the less sensible, as there remains in it a greater or less quantity of residual parts.

The slightly exhausting effect then of vegetables before flowering is far from establishing the point that during their early stage of growth they subtract but little from the soil; the above-mentioned facts prove the contrary, at the same time that they seem to indicate that at this epoch the plant already holds in reserve, accumulated in its organs, a large portion of the matter which at a later period will concur in the formation of the seed. We know, for example, that vegetables taken up after fecundation yield seeds notwithstanding, when they are kept in a proper state of moisture.

When a vegetable is fecundated the reproduction of the species is insured, for, strictly speaking, it is effected under more meteorological influences. Proceeding from this phase of vegetable life, the matter accumulated is carried towards the point where the fruit is to be developed; the green colour of the leaves gradually fades, the saccharine and amylaceous principles, and the azotised substances, leave gradually the stems and roots. Clover and Beet after having produced seeds can no longer be considered as fodder, their stems and leaves presenting merely a ligneous and insipid tissue.

In consequence of this appropriation of the succulent principles of the roots, we understand that a full grown plant will leave only a small residual part in proportion to what it would have left before maturity. It is to this diminution in the organic matter of the residuum, that M. de Dombasle has attributed the exhaustion occasioned by crops; but does it follow necessarily from this concentration of the juices towards a single organ, that from the moment it commences, the air and atmosphere cease to have any part in the phenomena of vegetation, and that the whole work of organisation which is accomplished after flowering is formed merely at the expence of the materials stored up in the tissues of the plant. This is the opinion of M. de Dombasle. Nevertheless, after flowering, the leaves preserve for a long time their aerial functions, and the moisture which escapes from their leaves shows that the roots have not ceased their functions. We see that for an ill-founded opinion, an opinion entirely contrary, but not sufficiently justified in every point of view, has been substituted; it was contended that assimilation takes place principally during fructification; M. de Dombasle affirms that a fecundated plant incloses already all the elements necessary for maturation, and as he did not find for his defence arguments as strong as those which he had employed for the attack he had recourse to experiment.

On the 26th of June, when the Wheat was in flower, he marked out 40 plants as equal as possible. Twenty of these were taken, the remainder reserved for future observation. After having cleaned and dried the 20 first plants, he found that they were composed of—

	oz. (avdp.)
Roots	1·5
Stems, spikes, and leaves	4·4
	5·9 ounces.

The remaining 20 plants were gathered after the ripening of their seeds on the 28th of August, and gave:—

	oz. (avdp.)
Roots	·95
Straw, Spike, Chaff, and leaves	3·01
Seeds	2·84
	6·80 ounces.

In becoming ripe the plants had increased by 4-10ths of an ounce only, that is, by about 1-16th of their weight. The Wheat, therefore, had gained from the time of sowing to flowering 15-16ths of its whole weight. If, then, it had been mown when in flower, it would have returned to the earth by means of its roots a fourth of the weight of the crop, whereas, when ripe, it left in the soil one-seventh only.

The practical inferences to be deduced from this experiment, if correct, are important; for if it is true that a plant cut when it is in flower contains already nearly the whole of the organic matter which it will contain a month or two later, as regards hay crops, it would be more advantageous to mow before rather than after flowering. The method recommended by certain cultivators of maximising the cropping and cutting of hay on the same field, would thus be justified—a method whose merits are very doubtful in the estimation of many practical men, but which, were it well-founded, would have the advantage, which is always of such consequence in cultivation, of producing the greatest quantity of fodder in a given space of time. Thus, setting on one side the question of the exhaustion of the soil, which is quite a secondary point, M. Boussingault has devoted his attention especially to verifying the exactness of the experiment whose consequences are so important.

* It is evident that these instances are not conclusive. The point is not to prove that young crops do exhaust the ground, but to inquire whether they exhaust it as much as when they are allowed to ripen their seed.

He proceeded in the same way as M. de Dombasle; but to avoid the risk of any important error which might arise from the desiccation not being perfect, he thought it best to analyse the matters taken from the soil. In fact, analysis offers a great security, because, indicating, as it does, the absolute quantity of carbon and azote which is found developed in crops, it is of no consequence whether the substances containing these elements were weighed in a state of greater or less dryness.

On the 19th of May, 1844, he looked out for a spot where the Wheat was as uniform as possible. 450 plants were taken, which, freed by washing from the adherent earth, and dried by long exposure to air

	oz. (avdp.)
Produced stems and leaves	9.7
Roots	1.6
	11.3

On the 9th of June, when it was in flower, 450 other plants were taken in the same spot, and dried in the same way, which gave—

Spikes in flower	3.8
Stems and leaves	29.9
Roots	3.5
	37.2

On the 15th of August, at harvest-time, 450 plants were again taken as before, which gave—

Seed	23.8
Spike and Chaff	5.1
Straw	32.6
Roots	4.2
	66.0

Mean for each plant—

		Difference.
May 19. Plant without flowers	0198	0632
June 9. Plant in flower	0830	
Aug. 15. Plant in seed	1471	0641

Thus, from flowering to harvest, the increase of dry matter was in the ratio of 100 : 177, that is to say, that in this interval the weight of the plant was almost doubled a result very different from that arrived at by M de Dombasle.

The analysis of these successive crops was made by taking as the representative of each, proportional quantities of different organs. The details of this analysis are here omitted, and we confine ourselves to giving the Table in which M Boussingault has established the successive increase of organic matter in the crop from a hectare of land (2.47) acres). In fact the crop from the land whence the plants for experiment had been taken was weighed with the greatest care. First the weight of the sheaves was ascertained; the Wheat was threshed by a machine, and then, after the grain had been measured, the difference between the weight of the straw and chaff was estimated. There was per hectare, not deducting the seed—

Wheat	3717 lbs.
Straw and chaff	5914 ,,
Roots (estimated)	661 ,,
Weight of whole crop per hectare	10,292 lbs.

The relation of the grain to the straw and chaff is nearly the same as that given by the 450 plants. We have a right, then, to presume that the weight of the plants taken before harvest, on the 19th of May and the 9th of June, represents, within the same limits of error, the state of cultivation of the fields at these two periods.

Applying, then, to the whole crop the results of the preliminary analysis, we have as the successive increase of organic matter on a hectare of land, the facts registered in the subjoined Table.

Times of Gathering.	Weight of plant when dried per hectare.	Carbon.	Hydrogen.	Oxygen.	Azote.	Mineral Substances.
	lbs. av					
May 19	1519	566,9	88,2	781,1	27,3	56,2
June 9	5805	2222,9	359,7	3025,7	52,2	145,1
Increase from May 19 to June 9	4284	1656,0	271,5	2242,6	24,9	88,9
August 15 (Harvest)	10293	3829,1	639,9	5121,8	92,6	411,6
Increase from June 9 to August 15	4490	1606,2	340,2	898,1	40,4	266,5

We see from this Table, that if, before flowering, from the 19th of May to the 9th of June, there were assimilated per hectare 1656 lbs. of carbon, and 25 lbs. of azote; the same principles fixed in the plants, from the appearance of the flowers to harvest, were 1606 lbs. carbon, and 40 lbs. azote. Doubtless, and indeed as might have been supposed, *à priori*, the development of organic matter, at first very rapid, became less so as the crop approached maturity; but it was still sufficiently active to double nearly the weight of the crop between flowering and harvest.

The analysis shows besides what was the progress of the assimilation of the constituent elements of the corn during the time of cultivation. Thus, supposing vegetation to have been uninterrupted from the 1st of March to the 15th of August we have the following numbers:—

Times of Vegetation.	Number of days elapsed.	Per day and per hectare. Dry Vegetable Matter.	Carbon.	Azote.	Mineral Substances.
March 1 to May 19	79	15,0	6,06	,264	,617
May 19 to June 9	21	205,0	78,86	1,191	4,235
June 9 to August 15	56	82,0	28,67	,727	4,764
Mean assimilation per day		6,38	24,00	,551	2,603

M. Boussingault had collected the necessary materials for executing a work of the same kind on leguminous plants; but the increase of weight in dry vegetable matter was so considerable between flowering and maturity, that the analysis became useless for estimating the consequence deduced from the experiment undertaken on the culture of Wheat, viz., that after fecundation plants continue to fix in their tissues elements derived from the soil and atmosphere.—*M. J. B.*

Home Correspondence.

Meeting of the Agricultural Society at Newcastle.—I have read your Leading Article respecting separate committees for the superintending the discussions to be carried on at the annual meetings of the Royal Agricultural Society of England, and heartily wish the subject was not only well investigated, but clearly defined and adopted, and the utility of the new arrangement would no doubt display itself at the next Meeting (Newcastle). It is by the rising generation that we must expect or look for the theory of agriculture being profitably applied, for I can assure you from experience that pelt us, expose us, dun us, &c., as the knowing ones may be desirous of doing, it has, and as things are it will continue to be an altogether one sided game, producing no useful effects; but then we hope for improvement: but to my subject, suppose my two sons, Christopher and John, and myself, attend the Newcastle Meeting; if your divisions were adopted instead of us all going lounging idly from object to object, all together, I should say, "Now, Christopher, we shall attend the Newcastle Meeting; you must gather what information you can from the Section A, and as your brother purposes selecting the Section B, I shall notice and attain what I can from Section C, and I trust when we return, we shall each have different information to unfold to one another, and not go and return as if we were but one man having three heads, six hands, &c., but every one an intellect of his own, capable of being directed according to one's need." Now, can any objections be made to such a division, for when the benefit of it is so apparent to a single family, what would be the effect should the different members of all our farmers' clubs arrange themselves some time previously to the Meeting, so that each individual might gain information from a separate department, and at the termination of the parent Meeting we should have the whole of the business transacted brought amongst the absent ones throughout the kingdom. I have written the above in haste, simply because I approve of the object in view, and do assure you that unless scientific research enable the present agriculturists to attain to something to enable them to uphold or stem the torrent setting in against them, the greatest portion of English soil will speedily be in the hands of its proprietors.—*Christopher Silence.*

[We have also received the following on the subject.] As a member of the Royal Agricultural Society, in the habit of attending its country meetings, allow me to express my entire concurrence with your opinion as to the importance of arrangements being made to facilitate discussion on topics connected with agriculture at those meetings. The sectional arrangements adopted by the British Association appear, as you suggest, excellently adapted to the purpose of our Society. The collection and diffusion of agricultural information would, I think, be far better promoted by the adoption of such a plan than by the holding merely of general meetings for discussion, where the members attending, and the variety and extent of subjects offering for consideration, would be insuperable obstacles in the way of any abundant harvest of results being produced. Under sectional arrangements every person would know where to go in quest of such information as he more particularly needed, and if the proceedings of the sections, with any valuable papers read, were published in the "Journal" of the Society, or through some other channel, they would then be accessible to all the members. The experience of all would be collected and distributed in an orderly and methodical manner, and great as have been the benefits conferred by the Royal Agricultural Society on the agriculture of the country, I believe they would be equalled, if not surpassed in importance, by those which would accrue from the adoption of the proposed plan.—*H. F. Fardon.*

The Great Agricultural Meeting, to be held at Newcastle-upon-Tyne in July next, promises to be everything the friends of the Society could desire in point of situation and attendance. It is to be hoped that before this great gathering comes to pass, that some resolutions may be proposed to give small farmers and landowners a chance of competing for prizes. It is quite impossible that a tenant renting land from which he anticipates a livelihood, can compete with the monied man in over feeding animals at a loss. He can neither spare his time nor cash for this purpose, and any attempt at such extravagance would be most decidedly a serious error

on his part. The object of agricultural association ever heard, has nothing to do with the present disease. Let and is the improvement of agriculture in all its branches, the breeding and feeding of cattle as well as the cultivation of the land. In carrying out this project an essential principle has been rather overlooked, viz., economy, so necessary to the small farmer. The fattening of quadrupeds has been encouraged to an unlimited extent without much regard to expense. This is very laudable, and may be of use, in proving which are the best crosses adapted for the market; but such experiments should not be permitted to swallow up so many prizes, and throw the working farmers out of the field. I would suggest to those having an interest in the association, and having influence over the members, the policy of considering the claims of the working agriculturist. This may be done by instituting a series of prizes for the best bred animals, ready for the market, fed in the most economical and judicious manner, which ought to be shown on paper. The benefits of experiments are great; if, after having excited astonishment and admiration, they can be made to promote the welfare of our fellow-creatures. If, on the contrary, they are continued merely for the sake of obtaining a reward, exciting the envy of some, and the disgust of others, I cannot believe they are worthy of general support. I do not wish or intend for a moment to underrate the importance of agricultural societies which have already converted so much barren soil into fruitful fields; but I should like to see their energies guided in a direction which would confer such lasting and substantial comforts on a class of men who cannot thrust themselves forward amongst the ranks of the rich, but who are most deserving of patronage. I mean the small farmer, whose circumstances will not justify him in spending money with the prospect of only obtaining a name for having pampered a pig till it was obliged to be carried to the show, and we all know that over-fed bacon is most extravagant food, most of the fat wasting in dressing it for the table, proving that it is labour in vain, and waste of provender, cramming an animal beyond a certain point not difficult to ascertain. I hope that some more able pen than mine will take up the cause of the working farmer.—*Falcon.*

Potato Disease.—In my last communication (p. 260) I mentioned that some Potatoes forced in pits had evinced symptoms of the disease of last summer, but that those in beds in the frame were still vigorous. I regret to say that about a week ago these latter began to show symptoms of taint in some of the stems, which, in the course of three days, became almost black. Some of the others are now showing the usual unhealthy spots on the leaves, and I fear will rapidly give way. The Potatoes in the pits and in the bed were planted at the same time; the former being in a frame of a higher temperature, reached the point of decay sooner than the others, and the tubers show symptoms of disease in both cases. Under ordinary circumstances we should have had them at table about the end of this month; and if the epidemic extends to those grown in the fields, it will probably be the month of July in the southern, and the month of August in the northern parts of the kingdom, before we become aware of the extent of the mischief. To meet this dilemma, I have in some fields planted Beans between the Potatoes, and in others I propose planting Swedish Turnips, Cabbages, and Mangold Wurzel. In the meantime, in order again to test the effect of cutting over, and drawing the stems away from the tubers, I have done so with various plants in the frame, and the result may serve as a guide for the treatment of the field crop. I may mention that my gardener planted out a quantity of Potatoes in the open border on the 1st of March; they were cut down to the ground, and quite black, by the frost which we had about the 20th ult. They are now 6 inches high, and apparently most vigorous; so that the ordinary dread of frost, in the event of early planting, would appear to be groundless. A similar occurrence took place here about 12 years ago.—*J. S. Richardson, Pitfour Castle, Perth, April* 25.

Potato Scoop.—Accidentally taking up your *Gazette* of the 21st ult., my eye was attracted to a new Potato scoop, highly recommended for economy. I am no agriculturist myself, but happen to have a good deal of farming information, and can assure you this scoop, to my certain personal knowledge, is 40 years old. I have seen it used, and I think only for one year, and thrown aside, and for the best of all reasons, that the sets cut out by it produced a weak and puny crop, which when any farmer looks carefully into, he will see the cause. All stone-fruit are richly bedded round with a fleshy covering, and many other seeds in the same way; no one ever thinks of stripping these of their nourishment. Now why deprive the Potato of its support?—the most valuable root which we have. In using the scoop, you scoop out all the eyes, to the depth it will go, and leave more of the farinaceous or mealy part of the Potato than the bulk of the seed. Now examine the skeleton Potato, and see how you have mangled the fibres, or roots, shooting inwards from the eye, evidently for support, of which the scooped-out eye is deprived. Can anything but a small and puny crop be expected? Again, you have noticed that by planting whole Potatoes, you lose a great quantity, and large tubers; this is the converse of the above. I differ also as to planting them deep; they should not be planted too deep — you lose the benefit of the soil; but at a common depth, and earthed up as they grow, an enormous quantity can be raised from one Potato in this way. Now my suggestion is to keep to the old plan, which has been found the best, and so far as I have careful hands cut out the eyes from the Potato, giving every one its fair proportion of the nourishment which Nature intended for it; have your drills ready to receive the seed—or I should rather say follow the plough—bedding the bottom of the furrow well with dung, fresh from the dunghill; place the fresh cut sets over the dung, with the eye up—although this you will not manage upon a large field—and about 10 inches apart, and let the whole be immediately ploughed down; if anything will produce a crop this will. When the plants come fairly above-ground they should be carefully hoed, and the earth loosened all round. When 8 or 10 inches high they should be ploughed up by the drill plough, one having a mould-board on each side,—and then have done with them until the lifting.—*A Scotchman, Ventnor.*

Guano.—I observe by late Numbers that you have taken a lively interest on behalf of the agriculturist, relative to the supply of guano, and have very justly recommended purchasers to apply direct to the importers, and more particularly to Messrs. Gibbs and Co., who have the Peruvian contract. It is admitted, I believe, by every chemist that the Peruvian is the most valuable article, as a fertiliser, of all the kinds imported; but it is allowed by Professor Johnson that the principal quantity used last year was that from Ichaboe—no doubt, arising from the difference of price between that and Peruvian, varying between 4*l.* and 5*l.* per ton. I was the first importer of Ichaboe to this port, and the testimonials I have from numerous parties who have used it prove that they are equally satisfied with the results of its application as they are with the Peruvian. This arises, no doubt, from their getting the article free from adulteration direct from the importers. I take the liberty of informing you that I have now landing the first cargo from Patagonia, at this port, per brig Canning, selected by my brother, Capt. Albert Hancock. A copy of the analysis of the same I subjoin. The quality of the guano I consider to be equal to any imported from Ichaboe; but the quantity to be procured from the islands of this coast is small in comparison to that procured from that island.

"*Copy of Analysis of Cargo of Guano coming from the Coast of Patagonia, now landing at Bristol. by Mr. Herapath, Esq., Analytical Chemist:*—

Water	32.5
Organic matter	11.2
Sulphate Soda, Chloride Sodium, Phosphate Soda, Phosphate Potash	6.10
Carbonate Lime	4.50
Sulphate Lime	2.00
Phosphate Lime	13.33
Sand	.37
	100.0

Available manure, 67.13, containing nitrogen 5.70 per cent. which is equal to ammonia 6.92.

—*B. Hancock, Custom-house, Bristol, April* 28.

Insects on Pasture Land.—I take the freedom of asking your advice in the following statement:—I have about 6 acres of Grass land, 3½ laid down for hay and 2½ grazed. One of the fields grazed is covered with a small green fly, which has destroyed the Grass in many places, and is spreading with rapidity into the hay Grass, and no doubt doing the same there. We have taken the cows out of the field, thinking the insect would be injurious to them. My inquiries from my neighbours do not enlighten me what is the best course to pursue. One of them has been a farmer all his life, and the other an eminent florist, and neither of them ever knew an instance of the kind. Should you be able to give me advice in this case (a very desperate one), it will be appreciated as a great favour. I have ordered the ground to be rolled, but have no faith in so doing being of any service.—*J. Weldon, 24, Dalston-place, Dalston, April* 17. [Can you get gas-water near you? Try sprinkling 400 gallons per acre out of a water-cart. Please to send some of the insects to "*R.*" at our office.]

Wind Thrashing Machine.—Having a thrashing machine (my only power being horses) and having no chance where I am situated of getting water power (steam I don't like), I have had some thoughts of trying wind. If any of your correspondents or subscribers have such things as wind-mills to thrash their crops, I would take it kind if they could inform me the probable expense of one about five horses power, that would regulate itself to the wind, reef and unreef its sails, so as to cause uniformity of speed, &c. I merely want the probable price of the wind apparatus without tower, upright shafts, &c.; I hope that I shall be able to get this information through your valuable paper.—*D. L.*

Value of Farm Buildings.—I have read with interest "the Value of Farm-buildings" as a discussion for clubs. I observe that you think a tenant might safely build on a 21 years' lease and remunerate himself, or that he might pay his landlord 7½ per cent. instead, if he would build. I believe no landlord would refuse to do so on these terms, the tenant keeping in repair. You have added some calculations to show which would be best for the tenant, but I believe there are errors in these calculations. If the tenant sinks 2000*l.* in building, he will at the end of 21 years leave behind him 5560*l.*, supposing that he could have improved his money during those 21 years at 5 per cent. compound interest; if he pays annually 150*l.* (as interest to the landlord at 7½ per cent.), he will leave 5355*l.*, which is what 150*l.* annuity, improved at 5*l.* per cent. compound interest, would amount to; so that the difference is but small. But, if he should leave in 10 years, in the first case he will leave behind 3240*l.*—less 1050*l.* (which his landlord will have to repay him for 11 unexpired years), leaving a balance of 2190*l.*; in the second case, 1886*l.*; difference in favour of paying 7½ per cent., 304*l.* Or, to take an extreme case, if turned out at the end of one year, he will have paid 195*l.*, instead of 150*l.*; loss 45*l.*, for the use of the buildings. So that, if we assume it to be granted that 21 years' occupation will repay a man for erecting buildings, a tenant ought always to be willing to pay 7½ per cent. for money expended for his benefit by the landlord. On the other hand, a landlord is as much benefited by receiving 150*l.* per annum for 21 years, for an outlay of 2000*l.*, as if the tenant had laid out that sum himself; looking at the subject in this light, is not this too much for a landlord to exact? If buildings are only valued at 14 years' purchase, is not that tantamount to saying that they are worth nothing at the end of 25 years?—*Enquirer.*

Town Sewage Manure.—The Leader in an early Number of your *Agricultural Gazette*, in connexion with the report of the "Annual meeting of the Society of Land Agents, Land Valuers, and Surveyors," contained in the *Mark Lane Express* of 29th Dec., contains, I think, important matter for the consideration of Agriculturists at the present time. It must be admitted the soil will produce more abundant crops of every kind if skill, capital, and science, are better applied; and that a return adequate to our most sanguine expectations, under ordinary circumstances, will surely crown the persevering endeavours of every diligent farmer. A short time ago I endeavoured to direct the attention of the meeting of the Royal Agricultural Society to the importance of encouraging the public to use the sewage manure of London, considered equal to the dressing of 57,000 acres of land per annum; and I yet hope the subject will be taken up by that Society, for I find that it is entertained. Although I know you have already lent your aid, I hope I may be excused in again directing attention to this matter, conceiving it to be as important, if not more, than the subject of guano, as it is not unlikely it may supply its place, being attended with a double profit, namely, improving the health of towns as well as the condition of the land.—*J. C., Blair Warren, Horkesley Hall, Colchester.*

New Charge against Rooks—Sucking Eggs and Destroying Young Chickens.—Having an argument with a friend as to the advantages and disadvantages of rooks, he made the above charge against them, which, being disputed, he wrote to his father's gamekeeper, whose reply I copy: "I have often caught rooks in traps baited with eggs; and have frequently set traps for crows, but have caught rooks instead. I have often seen them carrying away eggs as well as chickens. The beak of a rook is not so black as that of a crow."—*T. W. L.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A WEEKLY Council was held at the Society's House, in Hanover-square, on Wednesday last, the 29th of April; present, the Right Hon. Lord PORTMAN, President, in the chair. Earl of Erne, Hon. Capt. Howard, M.P.; Sir John V. B. Johnstone, Bart. M.P.; Sir John Ogilvy, Bart.; Colonel Austen, M.P.; D. Barclay, Esq. M.P.; T. Raymond Barker, Esq.; F. C Cherry, Esq.; E. D. Davenport, Esq.; A. E. Fuller, Esq. M.P.; C. Hillyard, Esq; John Kinder, Esq, Rev. C. E. Keene; Colonel Mac Douall; Professor Sewell; S. Solly, Esq.; W. R. C. Stansfield, Esq. M P.; George Wilbraham, Esq.; Henry Wilson, Esq.; Colonel Hulse, J. A. Knife, Esq.; A. Ogilvie, Esq.; E. Parkyns, Esq.; H. Price, Esq.; Major Pugh; J. P. Severn, Esq.; Rev. J. R. Smythies; W. Staffurth, Esq.; S. T. Tower, Esq.; T. Turner, Esq.; and T. R. Tweed, Esq. The following new members were elected:—

Tawney, A. R., Banbury, Oxfordshire
Unett, J. W., Smethwick, Birmingham
Wilson, Joseph, Crackenthorpe Hall, Appleby, Westmoreland
Horlock, Frederick, Guestling Lodge, Hastings, Sussex
Granville, Earl, Alaenham, Bridgenorth, Salop
Thomas, John, jun., Ynissiwind, Neath, Glamorganshire
Dixon, Dixon, Unthank Hall, Haltwhistle, Northumberland
Grace, Edward Nathaniel, Byker Hill, Newcastle-on-Tyne
Mellor, James, Hunter-street, Liverpool
Walters, Robert, Charlotte square, Newcastle-on-Tyne
Mercer, James, M.D., 50, Northumberland-street, Edinburgh
Ingham, Robert, Weston, South Shields, Durham
Charleton, Charles Forster, Alnwick, Northumberland
Nutt, John W., York
Rowlandson, Thomas, 59, St. Ann's-street, Liverpool
Atchison, William, Hazelridge, Belford, Northumberland
Whittle, Edward, Toller-Fratrum, Dorchester, Dorset
Finlay, James, Summer Hill, Newcastle-on-Tyne
Arrowsmith, W. L., Island of Malta
Besely, Rev. Dr., Vicarage House, Longbenton, Newc.-on-Tyne
Roods, William, Littlington, Lewes, Sussex
Smith, William, Longbenton, Newcastle-on-Tyne
Smith, Henry, Maud's-Moreton Lodge, Buckingham
Selby, Leopold, Pelton Cottage, Chester-le-Street, Durham
Bates, Edward, Snipe House, Alnwick, Northumberland
Kirk, Richard, Gale Bank, Layboun, Wensleydale, Yorkshire
Harding, Richard, Warren Farm, Finmer, Buckingham
Nowry, Viscount, 64, Eaton-place, Pimlico
Frost, Saml. Merryne, jun., Bullocksteads, Newcastle-on-Tyne
Crawford, William, Newton-Purcell, Bicester, Oxon
Palmer, John, Stockton on Tees, Durham
Sowerby, Thomas, Saltwell vale, Gateshead, Durham
Donkin, Armorer, Jesmond, Newcastle-on-Tyne
Malcolm, Colonel George, Warfield, Bracknell, Berks
Tucker, Henry, Colerame House, Stamford-hill, Middlesex
Ward, William Squire, Wellow Hall, Ollerton, Notts
Riddell, Sir Walter Buchanan, Bart., Old Square, Lincoln's Inn
Lawes, John Bennett, Rothamsted Park, Harpenden, Herts

The names of 20 candidates for election at the next meeting were then read.

RAILWAY LIBERALITY.—The Secretary laid before the Council letters received from Mr. Saunders, Secretary to the Great-Western Railway Company, and Captain Mark Huish, General-Manager of the Grand-Junc-

then Railway, conveying in the most handsome and liberal terms the pleasure it gave to the Chairman and Board of Directors of their respective companies, to promote the disinterested and national objects of the Royal Agricultural Society of England, by granting a free transit along their lines of railway to the stock and implements entered for exhibition at its Country Meetings. The President and Council having expressed the gratification they felt on being made acquainted with these instances of public liberality in favour of the Society and its objects, a vote of their best thanks to the Chairman and Directors of each of those Companies was moved respectively by Mr. Wilbraham and Mr. Raymond Barker, and carried unanimously, for the favour of their communications, and the high sense the President and Council entertain of their most liberal concessions.

NEWCASTLE MEETING.—Mr. MANNING, Contractor of Works to the Society, reported the satisfactory progress of the various arrangements for the ensuing Country Meeting, to be held the middle of July next, at Newcastle-upon-Tyne, connected with the erection of the Pavilion, the enclosure of the show-yard, and the supply of 1600 iron hurdles for the construction of pens for the stock.

The Secretary reported to the Council that numerous applications had been already made by intended exhibitors at Newcastle, for leave to enter implements and stock for the forthcoming show.

Mr GLOVER, Secretary to the Local Committee at Newcastle, announced the intention of its members to offer special prizes for poultry on the occasion.

ADULTERATION OF MANURES.—Mr. TOWER and Mr. DAVENPORT having called the attention of the Council to the great extent to which artificial manures in this country are adulterated, and consequently the serious loss and disappointment experienced by the practical farmer in adopting recommendations connected with their trial,—Sir JOHN OGILVY remarked that in Scotland the establishment of the Chemical Association, of which he was a member, had exercised a most salutary influence in checking the progress of these dishonest practices, from the dread of exposure it impressed upon the guilty parties.—Mr. KINDER then gave notice that, at the next Monthly Council, he should move the appointment of an "Inspector of Manures" to the Society; and as his intelligent neighbour, Mr. Lawes, of Rothamsted, who had that day been elected a member of the Society, had long been engaged in the chemical investigation of manures, and of their practical effects under given circumstances on his own experimental farm, and had expressed to him his willingness to undertake, on his election into the Society, such honorary office, and examine in that capacity, free of all charge to the members who might apply to him, all samples of suspected manures from time to time submitted for his inspection, reporting to them in due course the results of his investigation in each particular case; being amply rewarded for such services by the honour of the appointment, and the opportunities it would give him of being useful.

FLAX CULTIVATION.—Mr. Warnes having attended the meeting for the purpose of presenting to the Council a copy of his work, recently published, on the "Cultivation of Flax," and received their best thanks for such mark of attention, communications on the same subject were read from Mr. Dickson and Mr. Beale Browne, when an interesting discussion ensued on the information detailed by the President, the Earl of Erne, and Mr. Stansfield, M.P., in reference to practical results, in the trial of Flax, obtained under different circumstances of its cultivation and management; and the Council accepted the offer of Lord Erne to furnish the Society with a statement of the various plans which had been adopted for the growth of Flax in Ireland, and the success or failure which had in particular cases attended their trials; on the receipt of which, the whole of these papers should be referred to the Journal Committee, with a view to their consideration of the propriety of offering a handsome prize for the best Essay on the subject.

GERMAN AGRICULTURE.—Dr ZELLER, Privy Councillor to the Grand Duke of Hesse-Darmstadt, and Perpetual Secretary to the three Agricultural Societies of that Duchy, transmitted to the Council a valuable collection of works, of which he was the author, on the following subjects:—

1. On Agricultural Book-keeping.—2. On the Public Laws for the Improvement of Meadows in the Grand-Duchy of Hesse.—3. Account of the Proceedings of the Agricultural Societies of the Duchy from 1812 to 1845.—4. Account of the Proceedings of the Great General Meeting, held at Mayence in 1840, of the Vine and Fruit-tree Growers in Germany.—5. On the most Useful Agricultural Implements of the South of Germany.—6. Fifteen Sheets of Designs for Agricultural Buildings.—7. On the Science of Agricultural Proportions (Elementary Data and Statistical Facts alphabetically arranged) Part I. Cultivation of Plants.

The Council ordered these Works to be severally bound and placed in the Library of the Society, a copy of the Journal being sent to Dr. Zeller, along with the best thanks of the Council, in acknowledgment of the present he had so kindly taken the trouble to transmit to the Society.

MISCELLANEOUS COMMUNICATIONS.

1. Letter from Mr. Bray, Town-Clerk of Birmingham, on the subject of the Annual Country Meeting of the Society for 1847.

2. Letter from Mr. John Clarke, of Long Sutton, enclosing his Essay on the Breaking up of Grass Lands, "commended" by the Judges, at the disposal of the Journal Committee.

3. Letter from Mr. Hincks, suggesting the publication of the Names and Pedigrees of Cattle exhibited at the Country Meetings of the Society, in the Catalogues of the Show.

4. An account, from Dr. Vacy, of the Details of Mr. Gurney's Experiments on the subject of "Gurneyism."

5. Paper from Mr. Townley on raising new varieties of Potatoes from Seed.

6. Welch Potato-eye Scoop, from the Rev. J. Williams.

7. Specimen of a Weed from Mr. Fuller, M.P., overrunning his Wheat plant, and which he had been unable to eradicate from his land.

8. Statements and Plans, from Mr. Harrison, of Devizes, of Cottages, &c.

9. Proceedings, from Mr. Pearsall, of the Hull Philosophical Society.

10. Model of a one-horse Cart, from Mr. Graham, of Bersted Lodge, Sussex.

11. Specimens of Hollow Iron, from Mr. Stratton, of Bristol.

The Council then ordered their best thanks for these several communications, and adjourned to Wednesday next, the 6th of May.

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AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

AT the half yearly general meeting of this Society, on the 17th of April, the Secretary having read the minutes of the last meeting, which were confirmed, laid the following abstract of accounts before the meeting:—

Statement of Receipts and Expenditure for the Year 1845

Receipts.

Balance at foot of subscription fund for 1844			£ 188	6 7
Amount of annual subscriptions received in 1845	£1264	3 0		
Interest on donations in the 3½ per cent stock for 1845	165	0 6	1429	3 6
Received from local committee Ballinasloe towards payment of premiums at cattle show			60	0 0
Ditto on account of entrance fees, sale of catalogues and reports, prize essays, lectures &c.			71	9 9
Premium returned by His Royal Highness Prince Albert, awarded to him at the Dublin cattle show			10	0 0
			£1729	19 10
Balance to the debit of the Society			7	19 3
			£1220	12 7

Donations

Amount of donations to credit of Society 1st of January, 1845		500	10 0
Donation received for 1845		5	0
		£512	10 0

Expenditure

Amount of premiums awarded at cattle show Ballinasloe 1845	£ 681	10	1	
Amount of premiums awarded to local farming societies 1845	614	7	1	
Arrear of premiums at Dublin cattle show	10	0	0	
Premiums for thorough draining furrow machine &c.	31	2	8	
Total paid in premiums for 1845				1 7 0 1
Travelling and other expenses of judges to cattle show, Ballinasloe	12	12	0	
Ditto of judges for inspecting the rough draining for gold medals	5	1	2	
				1 1 4 2
Paid towards lectures at Ballinasloe	20	0	0	
Sundry and incidental expenses including expenses of secretary and assistants at ditto	47	1	6	
				67 1 6
Printing and publishing annual report and transactions of the Society for 1845 including plates for cottages thorough draining &c.	125	1	1	
Printing and stationery generally, for 1845 including premium sheets, catalogues, &c.	71	19	8	
Advertisement	82	7	1	
Postage and carriage of parcels	38	8	4	
Incidentals, including gratuities, binding books, travelling expenses, &c	34	12	6	
				1 9 3
Rent of Society's rooms (one year)	70	0	0	
Office expenses, including salary of assistant coals candles, servts &c.	63	1	11	
Secretary's salary	150	0	0	
				283 13 11
Total expenditure for 1845				1226 12 1

Donations

Amount of donations funded in 3½ per cents	5121	17	10	
Balance to credit of donation fund	0	17	2	
				£5122 15 0

Examined and found correct

FRANCIS DONAGH
J. B. BANAHFAD, } Auditors

April 16 1846

The Secretary then read the report of the Council for 1845, from which we make the following extracts:—

"It appears on reference to the accounts of the society for 1845, that the annual subscribers for that year amounted to 731, from whom subscriptions to the amount of 1264*l.* 3*s.* were received, adding to this a sum of 500*l.* contributed by the local committee at Ballinasloe, towards defraying the expenses of premiums at the cattle show, 165*l.* 0*s.* 6*d.*, interest on the funded stock; a sum of 81*l.* 9*s.* 9*d.*, arising from contingencies, viz., sale of reports, catalogues, lectures, and contributions towards prize essays, and balance of 18*l.* 6*s.* 7*d.*, from the preceding year—they make together a fund for the last year 2198*l.* 19*s.* 10*d.* for defraying the entire expenses, and carrying out the objects of the society. It appears also that for the last three years the funds have been applied in three portions—namely, in premiums for the annual cattle show, open for general competition; premiums for husbandry in the local societies, limited to working farmers holding under 25 Irish acres; and thirdly towards defraying the general expenses of the society; and it appears that though the income derived from annual subscriptions each year does not exceed 1270*l.*, yet during the above period the society had been enabled to distribute an average sum of about 1400*l.* in premiums for the above objects, through the machinery at present at its command. In comparing the present list of annual members, amounting in the last year only to 731, a great disproportion between the actual supporters of the society and the numbers throughout Ireland who are so deeply interested in its welfare and success is manifest, and the council have again to express their regret that many noblemen and gentlemen who have extensive estates in this country are not members of this society or contributors to its funds. Acting therefore upon these statements and upon the assumption that the society has proved itself every way entitled to the increased confidence of the gentry and landed proprietors of the country, the council have determined on making an appeal to those who have hitherto contributed to its funds, to aid them in their future operations through the personal application of the several members of the society. It is to be hoped that this appeal will be responded to as it deserves.

"*Local Farming Societies.*—The most gratifying feature in the proceedings of the society has evidently been the great increase in the number of local farming societies in connection with the central one. At the commencement of the society the number of these useful bodies did not exceed 22, and there are now no less than 120 regularly organised, and in operation throughout all parts of the country; of these upwards of 80 have qualified for, and received the Central Society's premiums during the past two years. The council regrets that from the reasons above stated they are not enabled to give more than six pounds in money, exclusive of medals to each of these useful and valuable institutions during the present year; but they feel a confident hope when the objects and proceedings of the society are better known and appreciated; and consequently its funds increased, that they will be in a position to extend their operations more generally, and to give increased aid and encouragement to them.

"*The Annual Cattle Show.*—The selection of the city of Limerick for the annual cattle show of the society for 1846 promises to be fortunate. A guarantee having been given for the sum of 500*l.*, and signed by several noblemen and gentlemen, was presented at Ballinasloe towards the expenses of premiums for the cattle show and accepted. A subscription list has been opened for defraying the expenses of the show, which has already been liberally contributed to, and the names of many of the leading nobility and gentry of the district appear upon the list. The show is fixed to take place on the 12th of August next, and the two following days, and it is expected that the same facility will be afforded to the transport of stock and implements to the meeting as on former occasions."

Farmers' Clubs.

WATLORD, *March 7*: *Tenant Rights*.—Mr. CUTTERBUCK spoke as follows: It is undeniable that the establishment of Farmers' Clubs has, during the last few years, not only called forth a very considerable amount of local and general information, but has enabled the individual members to impart to their brother agriculturists the result of that experience which is the basis of all improvement; they have effected, perhaps, even more positive good by offering to landlord and tenant that neutral ground so long wanted, on which both parties have a fair opportunity, in the spirit of amicable discussion, of drawing attention to points of practice which they may have found either to be prejudicial to, or likely to advance their mutual interests. All will admit that in these times the farmer can hope to obtain a living from his occupation only in proportion to the amount of capital he has invested, and to the energy and intelligence he employs in carrying out such a system of husbandry and rotation of crops as are best adapted to the peculiarities of the soil he cultivates. Both individual and general welfare equally demand that when the period or the mode of occupation can be shown to deter the tenant from adopting an improved mode of husbandry, such relaxations or changes should, without delay, be made, as might promote the mutual advantages of landlord and tenant. On referring to the discussions of the numerous Farmers' Clubs throughout the country, it is impossible not to be struck with the importance so very generally attached to the subject of "tenant rights." They say a "fellow feeling makes us wondrous kind;" and, being myself in the occupation of some land from year to year, I have felt, and do feel every day, the uncertainty of the tenure, that it cannot fail to be detrimental to the investment of capital and the advancement of agriculture; whilst, on the other hand, as a landlord, I shall endeavour to point out those relations which appear to be most conducive to the advantage both of landlord and tenant. After some consideration it is my deliberate opinion that it would not only be impracticable to frame a legislative enactment which would meet the difficulties of the question, but that, by the agitation of that point, not only much valuable time would be lost, but that, during the discussion,

feelings and expressions might possibly find voice which might in reality postpone a final settlement satisfactory to both parties. In every instance where a tenant is prepared with sufficient capital I entirely agree with Mr. Cuthbert Johnston, "there can be nothing like a good, a long, a liberal lease;" indeed, I can hardly conceive that, under ordinary circumstances, any man would be rash enough to invest a large amount of capital in a farm without a lease, but even then great care must be taken that the covenants are drawn by a person of practical experience; on the other hand, the landlord who grants a term of 21 years, and thus parts with all control over his property for so long a period, must, necessarily, in self defence, make for his own safety, such arrangements as may guarantee him not only the improvement of the farm, but such as will provide for its being handed over to him at the end of the term in as good a condition at least as it was at the commencement. It is clear that there must be many instances in which existing tenants would hardly be able to give this guarantee; the difficulty of the question lies in this point only: How those tenants who hold from year to year, can receive a guarantee for that outlay of capital, which, at the time of their quitting, may fairly be said to be unexhausted in the land which would fairly entitle them to compensation. If practical farmers will attentively consider this question, and bring forward each his own views, there is but little doubt, looking at the anxiety on the subject so generally expressed, that any judicious landlord will avail himself readily of such information, and feel himself bound by interest, as well as a sense of justice, to forward, as far as in him lies, the settlement of this question of "tenant rights." It would be the best safeguard against the uncertainty of that ill-defined term, "custom of the country," which leads too often to litigation; causes, in many instances, feelings of irritation and dissatisfaction, and when investigated generally fails on the one hand to protect the landlord from the deteriorated condition of his farm at the end of a term, thereby rendering it more difficult for him to procure a good tenant to enter on a bad holding; and, on the other, where a tenant has really expended money which gives him a fair claim for compensation, it is equally incompetent to enforce the payment, by the landlord, of what, under a better understood system of "tenant right," would be enforced as matter of simple justice.—Lord Essex thanked Mr. Clutterbuck for the manner in which he had brought this subject before the Club. He was ready and willing to give his word and his bond to remunerate his tenants for all permanent and unexhausted improvements, or to afford any other security to his tenants to induce them to farm in a liberal manner. His lordship also stated that the late Lord Leicester would only let farms at the rate of 1 acre to every 10*l.* of capital; and his lordship thought that one drawback on the land in some localities, was the fact that farmers held too much for their capital.—Mr. Currie considered the question of "tenant rights" a most important one, and he thought too much consideration could not be given to it. If leases were offered they would, under the present state of things, be declined. He thought surveyors should, amongst themselves, frame rules for their guidance on such matters. He recorded a case where a farm was, to the great benefit of the tenant, reduced to half its original size.—Mr. Hibbert felt sure that no legislative enactment could simplify the question under consideration; if any landlord were disposed to use harsh measures he would advise him to look to Ireland, and see what such means had there effected.—Mr. Fellowes felt sure that tenure should be by lease, or by such agreement as would secure to the tenants a remuneration for their outlay. He considered what was called the "customs of the country" as worse than useless, and that they should be all done away with, as two surveyors generally disagreed upon an isolated point.—The Secretary (Mr. Humbert) stated that his experience as a surveyor had convinced him that the ambiguous thing called "custom" was fertile in producing misunderstanding between landlord and tenant, and no men would rejoice more than surveyors to see these customs totally abolished, and uniform and rational rules laid down for their guidance. He fully concurred in what Mr. Currie and Mr. Fellowes had stated.—Mr. Clutterbuck then proposed the following resolution, which was unanimously agreed to:—That the question of "tenant rights" is well worthy of consideration, as equally calculated to promote the interests of both landlord and tenant, and the advancement of practical agriculture.—*Chas. T. Humbert, Secretary.*

Swansea, *April* 11: *Annual Report.*—We regret we have not room for the whole of the statement which has been issued by this Society: it exhibits the gratifying fact that the influence of the Swansea Farmers' Club has been very considerably efficient both in removing ignorance of the nature or theory of farming as an art, and also in improving its practice.—"One very grand improvement is already making rapid strides, viz., the culture of Turnips. Universal suffrage is in favour of the Turnip system of husbandry; and your committee, being firmly convinced that it is the only true mode of improving the soil (speaking, of course, in reference to the tenant farmer, and leaving draining and other permanent improvements to the care of the landlord), would earnestly recommend the liberal application of prizes to small farmers, in order to give encouragement to that class of cultivators. Here, then, we see ignorance fading away, and with it incredulity and prejudice. Have we not, therefore, reasonable grounds for hope that an increased and increasing produce, the result of improved system, will ere long tend to remove that other obstacle, to which allusion has been made—the deficiency of capital. Undoubtedly a larger demand is made on the pocket, in the first instance, under the Turnip system (but in the first instance only), than under that where the starved and wearied soil is left to the tender mercies of Couch-grass, Colt's-foot, and other predators upon its vitals, until some weak symptom of returning animation becomes the signal for a renewed attack. Here allusion may be made to a fatally-injurious mistake—too frequently made—of entering on a farm with means inadequate to the demand—that is to say—taking too large an extent of acreage. This arises from a most erroneous idea, that the more land the greater the profit. The profit arises not from the land, but from the perfection of the mode of cultivation—and this cannot be too clearly understood. In fact, we should always bear in mind, that the increase of production is commensurate with the amount of labour and manure bestowed, and that it is only in countries where land is cheap and labour dear that the extensive system can be profitable—whereas in this country, rent, rates, tithes, and taxes are high; hence, therefore, we must endeavour to raise from a less extent of land the same amount of produce—and this is always possible by a concentrated application of the means which modern science and improved practice have suggested.

Hadleston: *The Cost and Value of Protection to the Farmer; the Statistics of the question rather than the Principle.—April* 8.—Resolution: Previous to the discussion it was decided at the unanimous wish of the members present, that the terms of the question should be altered. It was considered that any argument founded on a comparison of protected with free-trade prices of corn, would probably be deceptive, because it is not accurately known what portion of the former have been owing to the law, or what share of any depreciation in the latter may be due to its repeal. The principles of free trade in general, and of free trade in corn in particular, with the past effects of protection on agriculture, and particularly on the tenant farmers, and the probable future effects of free trade on these interests, were therefore discussed, instead of the cost and value of protection statistically considered. After an interesting and protracted debate, it was unanimously decided that a free trade in corn will benefit the nation, without injuring the agricultural interest, provided those requests of the farmers, for the repeal of the Malt-tax—for an improved tenure, embracing more liberal covenants—and the other just claims on the legislature and the landowners which this Club has always advocated, be at the same time conceded. The Club desires also to express its opinion that the proposed Government measure errs, in not making free trade total and immediate; believing that the delay of three years will act injuriously in deferring the settlement of these necessary arrangements.

St. Germans: *Chemistry and Physiology of Agriculture.*—On the 17th ult. a very able lecture was delivered to the members of this Club on the above subject, by Mr. Charles F. Burnard, of South Down. The lecture was listened to with deep attention by a large audience, composed of all the principal agriculturists of the neighbourhood; and all were highly pleased, more particularly with the clear and intelligible way in which subjects of an abstruse character were brought forward, and illustrated. After the delivery of the lecture, a very animated discussion arose, in which several gentlemen took part. The announcement of the intention of the lecturer to publish the paper was received with very great gratification by all present. We forbear, therefore, from giving any extracts from the paper, and content ourselves with a simple statement of its leading divisions:—1. The soil, its origin, composition, &c. 2. The atmosphere, physical properties, chemical constitution, properties of its constituents. 3. Plants, physiological functions, elementary composition, food of plants, sources of their food, chemical properties of their food, assimilation of their food. 4. Of manures, art of culture, properties of manures, mode of action.

Reviews.

New Sporting Magazine. April, 1846. J. Rogerson, 24, Norfolk-street, Strand.

A brilliant Number of this well-conducted periodical. Well illustrated and full both of amusement and information on sporting topics.

The Fifth Annual Report and Transactions of the Society for the Promotion and Improvement of the Growth of Flax in Ireland; with an Appendix, &c. F. D. Finlay, Belfast.

We learn from this report that the Flax crop of 1845 was less than that of the previous year by about 28,000 tons, but that the value of it, considering the increased price of the article and the quantity of seed saved, was much about the same. The principal cause of the less extent of this crop that was sown in the spring of last year, was the high price which good seed then bore, and the unfortunately well-grounded fear of inferior and old crushing seeds being passed off as newly imported from Riga. The Report informs us that the efforts of the Belfast Society to extend the cultivation of this crop, and to improve the management of it, are rapidly succeeding, and that they are attended with undoubted benefit, saving, and profit, to those who avail themselves of the advantages it offers.

This is a society deserving the patronage of every one wishing well to the country in which it is situated. It is extending the cultivation of a crop which, more than any other that can be named, yields profit to the *intelligent* cultivator and employment for the labourer.

Miscellaneous.

Flax Sowing.—The seed best adapted for the generality of soils is Riga, although Dutch has been used, in many districts of country, for a series of years, with perfect success. American seed does not generally suit well, as it is apt to produce a coarse, branchy stem. If used, it should only be on deep, loamy soils. In buying seed, select plump, shining, heavy seed, of the best brands, from a respectable merchant. Sift it clear of all the seeds of weeds, which will save a good deal of after trouble, when the crop is growing. This may be done by fanners, and through a wire sieve, 12 bars to the inch. Home-saved seed has produced such excellent crops, of late, that it is strongly recommended that every farmer should only sow, each year, as much foreign seed as would produce a sufficient quantity of seed for his Flax crop of the following season.* The thinner portion of the field would be the best for this purpose, as, when Flax grows thin, it produces much seed. This plan, besides the saving effected in the price of foreign sowing seed, would effectually secure the farmer from any danger of loss from fraudulently made up seed. The seed saved from this home-saved seed, in the following year, should only be used for feeding, or sold for the oil-mills. The proportion of seed may be stated at three-and-a-half imperial bushels to the Irish or plantation acre; three to the Scotch or Cunningham; and two-and-a-half to the English or statute acre. It is better to sow too thick than too thin; as, with thick sowing, the stem grows tall and straight, with only one or two seed capsules at the top, and the fibre is found greatly superior in fineness and length, to that produced from thin-sown Flax, which grows coarse, and branches out, producing much seed, but a very inferior quality of fibre. The ground being pulverised and well cleaned, roll and sow. After sowing, cover it with a seed harrow, going twice over it—once up and down, and once across or anglewise; as this makes it more equally spread, and avoids the small drills made by the teeth of the harrow. Finish with the roller, which will leave the seed covered about an inch, the proper depth. The ridges should be very little raised in the centre, when the ground is ready for the seed, otherwise the crop will not ripen evenly; and, when land is properly drained, there should be no ridges. The sowing of Clover and Grass-seeds along with the Flax is not advised, when it can be conveniently avoided, as these plants always injure the root ends of the Flax. But Carrots may be sown in suitable soils, in drills, so that the person pulling the Flax may step over the rows, which may be afterwards hoed and cleaned, and should have some liquid manure. A stolen crop of Rape or Winter Vetches may be taken after the Flax. Rolling the ground after sowing is very advisable, care being taken not to roll, when the ground is so wet that the earth adheres to the roller.—*5th Report, Flax Society.*

Calendar of Operations.

APRIL.

The present is the proper season for planting Potatoes. The ground should be manured broadcast with well-rotted dung, ploughed in, and the drills may then be opened up by the plough at intervals of 30 inches. Women or boys should then set the Potatoes at about 12 inches apart. Whole sets should be used, and these should be taken from land where the crop has been suffered to ripen, and where it has not been forced by extraordinary manurings. This appears of considerable importance in the present circumstances, as the prevalent theory of the late disease appears now to be, that it was a species of vegetable epidemic; the future attacks of which those plants will be the most likely to resist, which have grown from sets whose *constitution*, so to speak, has been unimpaired by the immoderate application of artificial stimulants. The drills being split by the plough, and the land rolled, the operation is completed. Where artificial manures must be used, it may be well to try that recommended at the late meeting of the Agricultural Chemistry Association, when "Professor Johnston said, among the analyses made of the Potato is that of the ash, which shows what substances the Potato takes from the land, and can only get from it; it shows also that they take more of one substance than another. Now the principle of artificial manuring is to supply what is awanting. In number six of the pamphlets about the Potato disease, he had recommended saline manures instead of fermenting. From experiments which had been made by Mr. Fleming at Barrochan, several substances were recommended; but he thought it right to make up one for the Potato itself. He had therefore made up a manure which contained all the substances contained in the ash of the Potato, as well as something which would supply the nitrogen contained in their organic part:—

Sulphate of Soda	10
Common Salt	10
Nitrate of Soda	10
Dry Carbonate of Soda	20
Sulphate of Potash	10
Sulphate of Magnesia	10
Bone Dust	32
Sulphate of Ammonia	10
	112 lbs.

Or, for the sulphate of ammonia, 10 lbs. of Peruvian guano may be used. He thought that this manure could be made up at the cost of 5*l.* or 6*l.* per ton."

Lucerne should now be sown on well manured and deeply cultivated loamy soils. Sow in rows about a foot apart, about 30 lbs. of seed per acre. Saintfoin should also be sown now on calcareous soils, drilling three bushels of it per acre across the Barley rows immediately after the latter is sown, or, at any rate, before the young plants appear.

* The produce of seed averages about 12 bushels the statute acre, so that the seed saved on one statute acre would sow about five. For full instructions as to this mode of treating Flax for the seed, see, farther on, under the head of "The Courtral system."

Notices to Correspondents.

CHURN—*E Y*—Messrs. Attwood, *of* Lewes, make a simple and useful churn, in which you can make 6 or 8 lbs. of butter at a time. There are various sizes.

CRAMP IN PIGS—*F G A*—You had better kill the pig, as the cure in the present stage is more than doubtful. *W. C. S.*

"CULTIVATED"—*Ignoramus*—We meant worked by the Cultivator, an implement of the scarifier or grubber kind.

FLAX—*Clericus*—You will find almost all the information you can require in the Numbers of last year's *Agricultural Gazette*. Mr. Warnes, of Norfolk, has lately collated his various publications on the subject, and issued them in the form of an octavo volume; and our correspondent, Mr. Dickson, is shortly to publish on the subject. You will find no difficulty in disposing of your produce. Any agent will purchase.

FARM PRODUCE—*Tenant Farmer*—There is not the slightest need for apology. Judging from land worth 25*s.* an acre with us, we stated (p. 263) what, from experience, we imagined such land well farmed might produce. The 450 tons of roots with the 320 bushels of Beans and Barley, are equal to the keep of 250 sheep for half a year, or if you keep fatting cattle instead, you may calculate 10 sheep, feeding to 25 lbs. a quarter in the course of the winter, as equal to one beast that will fat to 18 or 19 stone a quarter in the same time. The plan, then, which we supposed you to adopt is to buy 100 sheep in spring in such condition as that you might sell them in 12 months at 25 to 30 lbs. a quarter. These would pasture the Clovers which we supposed you not to mow. And in autumn you might buy in other 150 sheep or 15 beasts, as you pleased, and these with your Clover-fed sheep would consume your roots and Beans, &c. And on Turnip land of the above value well farmed, we think you might do all this. But, of course, it depends much upon your situation, climate, and farming. As regards the produce of your Grass land, we cannot speak from experience; neither can we say anything about the value of hay in feeding, never having used it. Perhaps some of our correspondents may give you their opinion of the stock and saleable produce which 100 acres of Grass-land of similar value to the arable, should enable you to keep and produce in addition to the above.

FOOD FOR HORSES—*W K W*—No doubt Mangold Wurzel either steamed or boiled will answer very well as food for horses, given once a day, if they will take it; ours will not. You may get them into taking it by stinting them in other green food.

LIQUID MANURE—*J White*—You must not mix newly slaked lime with urine. It will drive off the ammonia. You may, however, mix sulphate of ammonia, and if along with it you mix some sulphuric acid, say about 1 gallon to every 20 of pure urine, you will make a mixture which will be a very valuable manure when absorbed by vegetable earth, sawdust, or charcoal-dust.

LUCERNE—*Alba vera* and *Viridis*—Sow now in a sheltered bed, and transplant into the missing places some moist day in the beginning of June, and cover the plants for a few days with a handful of straw. Try liquid manure, applied by the watercart. Take it from the stable tank; or make it of 3 cwt. of guano, mixed with such a quantity of water as your cart will scatter per acre.——*A Surrey Tenant*—If your horses are to have their share of Lucerne, 24 acres will be barely enough for them and the 6 cows. But if not, you might plant ½ an acre to Carrots (the White Belgian), and the rest to Lucerne. A good crop on that extent would keep 5 horses for a couple of months in spring.——*J L*—Sow now (by hand if you have not a drill) 30 lbs. of seed in rows, scored out by the hoe 12 inches apart, on the surface of deeply-dug, clean, and well-manured loamy soil.

MANGOLD WURZEL—*F K W T*—Superphosphate of lime will doubtless be a good manure for this crop. Apply 3 cwts. per acre *below* the seed, in the "bouts" or drills.

PATENT YEAST—*R N* asks (*E* (see page 214, col. *c*) to be good enough to tell him where "Patent Yeast" is to be had? who is the Inventor of it? and in whose name and when the patent was taken out?

PIGS—*A Lady*—We know of no breed which does not divide the hoof. Are you sure your information as to the existence of such a breed in Poland, is correct?

RAPE SEED—*E P* asks for information about a particular variety of this plant, called "Golden Treasure." In what respect does it differ from the common sort?

SMALL FARM—*N Y*—You object to breaking the Grass up. It must at all events be drained, for, if un-drained, the application of expensive manures is throwing them away in the first flood that comes. You can drain it for 4*l.* or 5*l.* an acre, and may then manure with guano, at the rate of 3 cwt. per acre; it will not impoverish the land if you consume upon the land the increased growth of herbage which it produces.

SULPHURIC ACID AND BONES *Amicus*—See Mr. Pusey's paper on the subject, at page 141.

TO CLEAN A COW AFTER CALVING—*G T S*. Give her 12 ounces of sulphate of magnesia, 1 ounce of nitrate of potash, and 4 drachms of ginger dissolved and mixed with gruel. *W. C. S.*

TO HATCH EGGS *E S M*—The heat required for hatching poultry artificially is 96° Fahr.

MISC.—*A B* says, I should like uncommonly to see some more remarks on the theory of your correspondent "Oxygen" about top-dressing, which he gave us last year.

Markets.

SMITHFIELD, MONDAY, April 27.—Per Stone of 8 lbs.

Best Scots, Herefords, &c	4*s*	0*s* to 4*s*	2	Best Long-wools	—	— to —	
Best Short Horns	3	8	4	0	Ditto (cherry)	4	4	4	6
Second quality Beasts	3	10	3	4	Ewes and second quality	—	—		
Calves	4	4	5	4	Ditto (shaie)	4	0	4	4
Best Downs & Half-breds	5	0	5	4	Lambs	5	8	7	0
Ditto (short)	4	6	4	8	Pigs	3	8	4	8

Beasts, 3100; *Sheep and Lambs*, 21,330; *Calves*, 62; *Pigs*, 250

The supply of Beasts is not quite so large, but still extensive, and of excellent quality. Trade is dull at rather lower rates, some few of the choicest Scots have made 4*s* 4*d*, but currently our quotations above are not exceeded.—We have a few more Sheep to-day, the demand is, however, adequate, and prices remain about the same as of late.—Lamb trade is dull; the most selling qualities are not lower.—Veal and Pork scarcely maintain late prices; the demand for these articles is small.

FRIDAY, May 1.

Trade is excessively dull for Beef, and although the supply is not large, it cannot be disposed of. 4*s* 2*d* is quite the top price of the best Scots, and 4*s* the most selling Short-horns. Scarcely anything is doing in Inferior quality.—Sheep are not very plentiful, still trade for them is very heavy all qualities make 2*d* per 8 lbs. less than on Monday.—We have a large supply of Lambs; they are fully 4*d* per 8 lbs. lower.—Calves are also lower; the choicest make very little over 4*s* per 8 lbs.—Pigs remain about the same as on Monday.

Beasts, 997; *Sheep and Lambs*, 9600; *Calves*, 188; *Pigs*, 230

J. Weir, Smithfield.

HOPS, FRIDAY, May 1.

The market for fine Hops is very firm indeed, and the holders of inferior ones are not disposed to sell at present prices, which are as follows:—

Sussex, fine	..	..	..	per cwt.	£6 0 to £8 6
" middling	..	..	..	"	5 5 5 12
" inferior	..	..	..	"	4 10 5 5
Weald of Kent, fine	..	..	..	"	6 0 6 6
" middling	..	..	..	"	5 5 5 12
" inferior	..	..	..	"	4 15 5 0
Choice Mid and East Kents	..	..	..	"	9 0 10 10

We hear this morning that fly has made its appearance in several plantations.

PATTESON & SONS, Hop-Factors.

POTATOES.—SOUTHWARK, WATERSIDE, April 27.

The arrivals to this market during the past week have been very small, Notwithstanding the limited demand for every description of Potatoes, there was a further advance at the close of the week on the best fresh samples of Scotch Reds, but Buffs and Blacks, that were in great request some time back, were little asked for, and the stale stored York Regents and Shaws were unsaleable except at ruinously low prices for cattle. There being a continued supply of Mangold Wurzel and white Carrots at unprecedented low prices, the cowkeepers can do without Potatoes: if they take them, it is at their own prices. Prices:—York Reds, 100*s* to 140*s* per ton; ditto Regents, 50*s* to 80*s* per ton; ditto Shaws, 30*s* to 60*s* per ton; Scotch Reds, 80*s* to 100*s* per ton; Montrose Buffs and Blacks, 70*s* to 90*s* per ton; Fraserburgh Shaws, Buffs, Blues, and Mixtures, 60*s* to 70*s* per ton.

COVENT GARDEN, MAY 2.—Vegetables of all kinds have been pretty well supplied. Fruit is tolerably plentiful, and trade begins to get a little brisker. Some good-sized Pine-apples have been offered, and hothouse Grapes are becoming more plentiful, and consequently cheaper. On several of the stalls fine-looking ripe Cherries and Strawberries were observed, and green Gooseberries and Apricots are plentiful. Apples and Pears are very scarce, and are for the most part sold at nominal prices. Oranges are plentiful, and Nuts of all kinds are sufficient for the demand. Of Vegetables, Broccoli is good and pretty plentiful. Asparagus is excellent, and Cabbages, Greens, &c., are good and plentiful. Young Carrots and Turnips may be obtained at last week's prices. A few ripe Tomatoes have just made their appearance, and a quantity of Green Peas from France have been offered during the week. Celery is good in quality, and sufficient for the demand. Potatoes of the very best quality still fetch 9*l.* a ton, and in one or two cases rather more; but inferior samples may be obtained at much lower prices; on account of the variety and abundance of other vegetables, however, few sales are effected at any price. Frame Potatoes are pretty plentiful, and 20 boxes of Lisbon Potatoes have just been received in the market. Lettuces and other Saladling are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Auriculas, Tropeolums, Jasmines, Lily of the Valley, Pentas carnea, Stephanotis floribunda, Burchellia capensis, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Rhododendrons, Cinerarias, Gardenias, Moss and other Roses.

FRUITS.

Pine Apple, per lb., 6*s* to 10*s*		Lemons, per dozen, 1*s* to 2*s*	
Grapes, Hothouse, per lb., 5*s* to 12*s*		— per 100, 6*s* to 14*s*	
— Spanish, per lb., 2*d* to 1*s*		Almonds, per peck, 6*s*	
— Portugal, p. lb., 1*s* to 5*s*		Sweet Almonds, per lb., 2*s* to 3*s*	
Apples, Hops, per bush., 7*s* to 20*s*		Filberts, English, p. 100 lbs., 50*s* to 60*s*	
— Kitchen, 7*s* to 15*s*		Nuts, Cob, per 100 lbs., 60*s* to 90*s*	
Pears, per hl.-sv., 6*s* to 18*s*		— Barcelona, 90*s*	
Oranges, per dozen, 1*s* to 2*s* 6*d*		— Brazil, 12*s* to 16*s*	
— per 100, 4*s* to 18*s*		— Spanish, 14*s*	
— Seville, per 100, 8*s* to 16*s*		Walnuts, per bushel, 10*s* to 20*s*	
— per dozen, 2*s* to 2*s* 6*d*		Chesnuts, per peck, 2*s* to 7*s*	

VEGETABLES.

Cabbages, per doz., 6*d* to 1*s* 3*d*		Parsnips, per doz., 3*d* to 1*s*	
— red, per doz., 6*s* to 12*s*		Scorzoners, per bundle, 1*s* to 1*s* 3*d*	
Broccoli, Brown, per bdle., 1*s* to 2*s*		Salsify, do., 1*s* to 1*s* 3*d*	
— White, 1*s* to 3*s*		Onions, per bushel, 1*s* 6*d* to 5*s*	
Greens, per doz. bunches, 1*s* to 2*s*		— Spanish, per doz., 1*s* 6*d* to 4*s*	
French Beans, per 100, 1*s* to 3*s*		Shallots, per lb., 3*d* to 10*d*	
Sorrel, per hl.-sieve, 9*d* to 1*s*		Garlic, per lb., 6*d* to 8*d*	
Potatoes, per ton, 70*s* to 180*s*		Endive, per score, 6*d* to 1*s*	
— cwt., 3*s* to 9*s*		Lettuce, per score, Cab., 4*d* to 1*s*	
— bushel, 2*s* to 4*s* 6*d*		— Cos, 6*d* to 2*s*	
— Kidney, per bushel, 3*s* to 6*s*		Radishes, per 12 bnds, 6*d* to 1*s*	
— Frame, per lb., 1*s* to 2*s*		Mushrooms, per pottle, 1*s* to 1*s* 6*d*	
Turnips, per doz., 1*s* to 2*s*		Small Salads, per punnet, 2*d* to 4*d*	
Red Beet, per doz., 6*d* to 1*s* 6*d*		Fennel, per bunch, 2*d* to 3*d*	
Carrots, per doz. bchs., 2*s* to 4*s*		Savory, per bunch, 4*d* to 6*d*	
Horse Radish, per bundle, 2*s* to 7*s*		Thyme, per bunch, 4*d*	
Scakale, per punnet, 2*s* to 4*s*		Watercress, p. 12 sm. bun., 6*d* to 8*d*	
Rhubarb, per bundle, 3*d* to 1*s* 6*d*		Parsley, per bunch, 1*d* to 2*d*	
Asparagus per bundle, 2*s* to 8*s*		— Roots, per bundle, 1*s*	
Cucumbers, each, 6*d* to 2*s*		Tarragon, per bunch, 6*d*	
Spinach, per sieve, 6*d* to 1*s*		Mint, green, per bunch, 6*d* to 8*d*	
Leeks, per doz. bunches, 1*s* to 1*s* 6*d*		Marjoram, per bunch, 4*d*	
Celery, per bundle, 6*d* to 1*s* 6*d*		Chervil, per punnet, 2*d* to 3*d*	
Cardoons, each, 4*d* to 9*d*			

HAY.—Per Load of 36 Trusses.

SMITHFIELD, April 30.

Prime Mead. Hay	90*s* to 90*s*	New Hay	—*s* to —*s*	New Clr.	—*s* to —		
Infr. New & Rowen	55 70	Clover	84 to 118	Straw	32 36		

JOHN COOPER, Salesman.

CUMBERLAND MARKET, April 30.

Prime Mead. Hay	100*s* to 90*s*	Old Clover	110*s* to 116*s*				
Inferior	60 70	Inferior do.	95 105	Straw	33*s* to 36*s*		
New Hay	— —	New Clover	— —				

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, May 1.

Fine Old Hay	85*s* to 88*s*	Old Clover	110*s* to 116*s*				
Inferior Hay	65 70	Infr. "	80 100	Straw	28*s* to 32*s*		
New Hay	— —	New Clover	— —				

MARK-LANE, MONDAY, April 27.

The supply of Wheat from Essex and Suffolk this morning was moderate, that from Kent good; the best descriptions being in demand were taken off at the commencement of the market, at an advance of 1*s.* per qr., and a tolerable clearance was made of the secondary descriptions on the terms of this day se'nnight. Foreign, both free and bonded, is in demand in retail quantities only. Malting Barley barely maintains its value, Grinding and inferior sorts are difficult to dispose of. White boiling Peas sell freely at rather more money. Grey and Maple being scarce are more easily of disposal.—Beans support former prices.—There is a limited business doing in Oats, which are generally held for an advance.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White	58	61	Red	59	61
—— Norfolk, Lincolnshire, and Yorkshire	"	50	62	White	59	63
Barley, Malting and distilling 28*s* to 31*s*	Chevalier	30	36	Grind.	25	26
Oats, Lincolnshire and Yorkshire	Polands	24	29	Feed	22	26
—— Northumberland and Scotch	Feed	24	27	Potato	28	31
—— Irish	Feed	22	26	Potato	26	30
Malt, pale, ship		54	60			
—— Hertford and Essex		60	65			
Rye		34	36			
Beans, Masagan, old and new	37 to 40	Tick	39	46	Harrow	31	40
—— Pigeon, Heligoland	34 to 42	Winds	—	—	Longpod	—	—
Peas, White	36 to 40	Maple	39	43	Grey	28	31

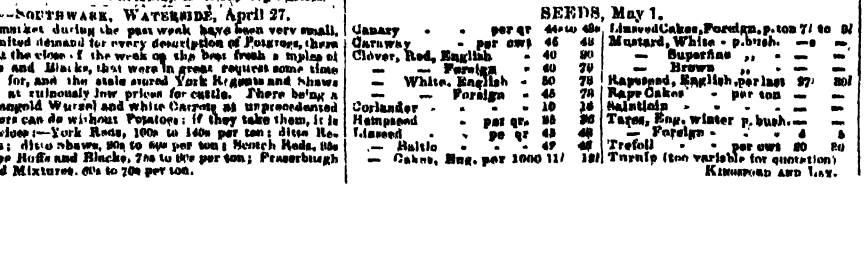
FRIDAY, May 1.

The arrivals of both English and Foreign Corn have been small during the week; the little English Wheat on show at this morning's market realised Monday's prices; transactions in free Foreign and bonded were very limited.—Barley, Beans, and Peas, are unaltered in value, as also Oats, for which there is merely a retail sale, the prices asked checking business.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Mar. 21 per Quarter.	53*s* 1*d*,	29*s*10*d*	22*s* 6*d*	34*s*10*d*	34*s* 4*d*	35*s* 4*d*
— 28 . . .	55 5	30 2	22 1	34 0	35 0	35 6
Apr. 4 . . .	55 9	30 7	22 6	33 7	34 10	34 6
— 11 . . .	56 0	30 9	22 9	33 4	35 1	33 8
— 18 . . .	55 10	30 5	22 9	33 5	34 9	34 5
— 25 . . .	55 6	30 1	22 4	33 7	34 10	33 10
6 weeks' Aggreg. Aver.	55 7	30 4	22 7	33 11	34 10	33 9
Duties on Foreign Grain	17 0	6 0	6 0	9 0	6 0	9 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, April 25



SEEDS, May 1.

Canary	per qr	44*s* to 48*s*		Linseed Cakes, Foreign, p. ton	7*l* to 8*l*		
Caraway	per cwt	45 50		Mustard, White	p. bush.	— —	
Clover, Red, English	40 90			— Superfine	"	— —	
— — Foreign	60 70			— Brown	"	— —	
— White, English	50 75			Rapeseed, English, per last	27*l* 30*l*		
— — Foreign	45 70			Rape Cakes	per ton	— —	
Coriander	10 15			Saintfoin	"	— —	
Hempseed	per qr. 28 30			Tares, Eng. winter	p. bush.	— —	
Linseed	per qr 43 46			— Foreign	"	4 5	
— Baltic	47 48			Trefoil	per cwt	20 24	
— Cakes, Eng. per 1000	11*l* 12*l*			Turnip (too variable for quotation)			

KINGSFORD AND LAY.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, FLORISTS, and Others.

MESSRS. PROTHEROE AND MORRIS will submit to public competition, at the Auction Mart, Bartholomew-lane, on Monday, May 4, Tuesday, 5, and Thursday, 7, 1846, at 12 o'clock, about ONE THOUSAND DAHLIAS, comprising the new Varieties of the season, and all the approved sorts of last year. Also a splendid assortment of GERANIUMS and other Plants in bloom; the newest Varieties of Fuchsias, Verbenas, Petunias, Bengal Roses, Heartsease, Greenhouse, and Hardy Climbers, &c. &c. May be viewed the morning of sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS, & OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed to submit to Public Competition by Auction, on the premises, Vassal-road, North Brixton, on Wednesday, May 13, 1846, at 2 for 3 o'clock, A Superb Bed of TULIPS (the property of Mr. BURRUS, an Amateur, giving up their further cultivation), amongst which will be found Pandora, Salvator Rosa, Brown's Louis XVI., Dickson's Duke of Devonshire, Beteral's Brulante Eclatante, Strong's King, Ely's Lady Louisa, Queen, Parmegiano, Musidora, Thalia, and Wallace; Brown's Marcellus, General Bourneville, Ulysses, Fabius, Maid of Athens, and Sheet Anchor; Sharp's Victory, Duchess of Kent, Carmuize de Craiz, and Violet Alexander, &c. Also an excellent Iron Tulip Stage, Iron Hoops, Canvas, Rollers, a capital Tulip Cabinet for about 120 rows, &c. May be viewed the day prior to the Sale. Catalogues may be had of the principal Seedsmen; and of the Auctioneers, American Nursery, Leytonstone.

ULEY IRON WORKS, NEAR DURSLEY, GLOUCESTERSHIRE.

Important to Iron Founders, Engineers, Agriculturists, Agricultural Implement Makers, and others.

The EARL OF DUCIE, having disposed of the above-named Property, has honoured

G. HUMPHRYS AND Co. with instructions to arrange for SALE BY AUCTION, on TUESDAY, MAY 5, 1846, and following days of business (Fridays and Saturdays, and Monday the 10th excepted), until the whole is disposed of, THE VERY VALUABLE EFFECTS of manufactured and unmanufactured Stock, Fixtures, Tools, Carts, Horses, &c. Comprehending Driving Shafts, Gearing; Planing, Slotting, and Drilling Machines; Slide and other Lathes; Vices, Vice Benches, Screw Tackle, and other Tools; Fan Blower, Cupolas, Crane, Moulding Boxes, and an extensive assortment of Wheel and other patterns; Brass Founders' Tools; Portable and other Smith's Forges, with Anvils and Tools; Pattern Makers', Carpenters', and Wheelwrights' Benches; Circular Saw; Timber of various kinds, well-seasoned; a quantity of Machines, of various kinds, partly manufactured and complete; a great quantity of Bar and other Iron; Cast and Blistered Steel; Counting-house Fixtures; the one-half Share of the Uley Patent Chaff Cutter; a Richmond Cart and Spring ditto; a useful Draught Horse and Gig ditto; Sets of Harness, and numerous miscellaneous Effects.

Full and descriptive Particulars will appear in Catalogues at 1*s.* each, which may be obtained 7 days prior to the Sale at the *Midland Counties' Herald* Office, Birmingham; *Guardian* Office, Manchester, *Mercury* Office, Bristol; at the Works; or the Auctioneers' Offices, Stroud and Wotton-under-Edge. Catalogues will be sent on a post-paid application, inclosing 12 postage stamps.

☞ The Sale will commence each day at 12 o'clock to the minute.

GREAT SALES OF TULIPS.

GLENNY AND CO.'S Four Sales of TULIPS, comprising the finest varieties in the world, take place on Monday the 11th, Wednesday 13th, Monday 18th, and Wednesday the 20th of May. Catalogues sent by post to any part of the United Kingdom. Horticultural Agency and Gardeners' Gazette Office, 420, Strand.

ORNAMENTAL WIREWORK FOR THE GARDEN.

G. B. THOMPSON AND CO. beg respectfully to announce that they continue to prepare at their Manufactory, 390, Oxford-street, London, all kinds of Fancy Ornamental Wirework suited for the Garden, Greenhouse, or Conservatory, consisting of Flower Trainers, Stands and Borders, Garden Arches, Seats, and Vases, Improved Garden and Hothouse Engines, Syringes, Fumigating Bellows, and other Floricultural Implements.

Also, G. B. Thompson's Improved Waterpot, which possesses considerable advantages over all others, the smaller sizes being suitable for ladies' use. They have now on sale a novel folding portable Wooden Garden Chair, at 3*s.* 6*d.* each, or 36*s.* per doz., which quantity is packed in a small space.

TO THE NOBILITY, GENTRY, NURSERYMEN, IRONMONGERS, AND OTHERS.

LINGHAM BROTHERS, 170, Little Hampton-street, Birmingham, sole Manufacturers of the IMPROVED MENOGRAPH, or Labels for Garden Borders, Flower Pots, &c. Engravings of the same, with prices attached, sent per Post to all parts of the Kingdom, on application as above.

Sole Agents in London, G. and J. DEANE, Horticultural Implement Warehouse, 46, King William-st., London Bridge.

HORTICULTURAL TOOL WAREHOUSE.

GREEN AND CONSTABLE, WHOLESALE AND RETAIL IRONMONGERS, 36, King William Street, (four doors from London Bridge,) beg to announce they have a large assortment of New and Improved GARDEN TOOLS, including Lord Vernon's Patent Hoe, Dr. Yelloley's Patent Garden Fork, Lyndon's Patent and other Improved Spades, solid head Garden Rakes, Ladies' Light Garden Forks, Transplanting Tools, Jointed Hothouse Syringes, Fumigators, Improved Garden Shears, Edging Irons, &c. Ladies' Horticultural Chests fitted with every Implement requisite for the Garden.

PROTECTION OF LIFE AND PROPERTY.

J. READ begs to inform the Public that after 31 years' experience in the use of Garden Engines, Machines, and Fire Engines, and 26 years' practice in manufacturing them, he has taken out a NEW PATENT for improvements in the Valvular Action of ALL his Instruments, which are now so simple in construction as to prevent the possibility of their ever getting out of repair, even in the hottest climates; and if sent to the world's end will never require the aid of a Maker. The Garden Engines and Machines are adapted for every purpose of Horticulture. The single-action Fire Engines will pass through any common doorway, and will discharge 30 gallons per minute. The double action ditto will discharge from 70 to 100 gallons of water per minute, and with two-thirds the labour of the common Engines.

N.B. A tank to contain 32 cubic yards of water, sunk at the most convenient place to receive water from the roof of Farm Buildings or a Mansion would afford an ample supply in cases of emergency from fire, or for domestic purposes. A suction tube fixed in the tank might be kept always full, and the engine attached to it in five minutes; and, with a proper length of hose, the domestics might discharge water with great force on any part of the premises in a few minutes. May be seen and proved at the Patentee's, 35, Regent Circus, Piccadilly.

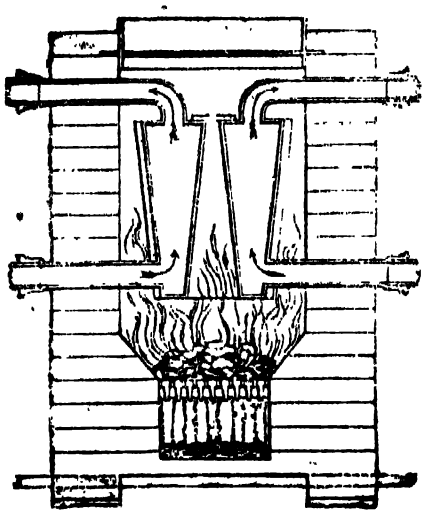
None are genuine except stamped with his name.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists, and all interested in Gardening pursuits, are invited to examine G. and J. DEANE'S extensive Stock of GARDENING AND PRUNING IMPLEMENTS, best London made Garden Engines and Syringes, Coalbrookdale Garden Seats and Chairs.

Averruncators	Garden Scrapers	Pruning Bills
Axes	Grape Gatherers and Scissors	,, Knives, various
Bagging Hooks	Gravel Rakes and Sieves	,, Saws
Bills	Greenhouse Doors and Frames	,, Scissors
Borders, various patterns	Hammers	,, Shears
Botanical Boxes	Hand-glass Frames	Rakes in great variety
Cases of Pruning Instruments	Hay Knives	Reaping Hooks
Chaff Engines	Hoes of every pattern	Scythes
Chaff Knives	Horticultural Hammers and Hatchets	Scythe Stones
Daisy Rakes	Hotbed Handles	Shears, various
Dibbles	Labels, various patterns, in zinc, porcelain, &c.	Sickles
Dock Spuds	Ladies' Sets of Tools	Sickle Saws
Draining Tools	Lines and Reels	Spades and Shovels
Edging Irons and Shears	Marking Ink	Spuds
Flower Scissors	Mattocks	Switch Hooks
,, Stands in Wire and Iron	Menographs	Thistle Hooks
Fumigators	Metallic Wire	Transplanting Tools
Galvanic Borders and Plant Protectors	Milton Hatchets	Trowels
Garden Chairs and Seats	Mole Traps	Turfing Irons
,, Loops	Mowing Machines	Wall Nails
,, Rollers	Pick Axes	Watering Pots
	Potato Forks	Weed Extractors and Hooks
		Wheel Barrows
		Youths' Sets of Tools

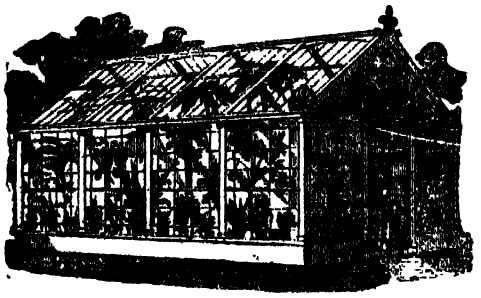
G. and J. DEANE are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with the Illustrated List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom.—DEANE'S Horticultural Tool Warehouse, opening to the Monument, 46, King William-street, London-bridge.

THE TANK SYSTEM.



BURRIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS'S recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURRIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—180, Fleet-street, London.

SMITH AND CO.



ESTABLISHED NINE YEARS.

HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, AND GENERAL GARDEN FURNITURE MANUFACTURERS;
GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA, LONDON.
FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

STEPHENSON AND CO., 61, Gracechurch street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SHERWIN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth; Mr. Henderson's Pine-apple-place; and in the Horticultural Society's Gardens.

HOT-WATER PIPES.—Wanted to purchase, about 200 feet of 4-inch Hot-water Pipe, new or second-hand.—Address, stating price, to A. B., care of Mr. Bishop, Buttermonger, Torrington-place, Torrington-square.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

CLARK'S METALLIC HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.

Proprietor, Mr. THOMAS CLARK.
Superintendent of the Works, Mr. JOHN JONES

IN returning his grateful thanks to the Nobility, Gentry, and Public at large, for their liberal patronage of the above Establishment during a period of nearly 30 years, Mr. CLARK begs to state that the repeal of the duty on Glass enables him to offer his METALLIC HOT and GREENHOUSES at a greatly reduced price. These Houses are glazed with British Sheet Glass, in panes of from 21 to 30 inches in length, and of such thickness as to preclude all danger of accidental breakage, whilst that which arises from the action of frost (frequently amounting to 25 per cent. per annum), is effectually prevented by the peculiar mode of glazing adopted. As a sample of his Metallic Hothouses, in which all the most recent improvements are happily combined, Mr. CLARK refers with pride and satisfaction to the magnificent range erected by him in the new Royal Gardens at Frogmore, which is admitted by all competent judges to be the most complete and perfect of its kind in the world.

FOR TURNIP SOWING, &c.

BONE MANURE mixed with SULPHURIC ACID by far exceeds all other Manures that have been tried against it, and may be had in any quantity, either together or separate, by applying to JOHN HUNT, Bone and Sulphuric Acid Works, High-street, Lambeth.

BRITISH GUANO, warranted equal to Foreign, at 4l. per ton, and may be paid for when the result is known.

TURNIP SOWING.—POTTER'S GUANO.

POTTER'S GUANO was used by Dr. Daubeny last season against 11 other Artificial Manures for TURNIPS. It beat them all,—260 lbs. producing 6000 lbs. more Bulbs per acre than the same weight of Peruvian Guano, at 25 per cent less cost; 18,000 lbs. more than 10 cwt. Bone Shavings, at one quarter the cost, and 7000 lbs. more than 12 cwt. Superphosphate, also at one quarter the cost. For particulars, see p. 331 of last No. of "Royal Agricultural Journal," and p. 221 of *Gard. Chronicle* of this year. To be had, genuine, direct from the Factory, 28, CLAPHAM-ROAD-PLACE, LONDON, or of any of Mr. Potter's accredited Agents.

TURNIP SOWING

THE URATE OF THE LONDON MANURE COMPANY, Four Guineas per Ton. The experience of the last five years has fully established the *above* as one of the best of all the light manures for the production of Turnips, for which crop it is particularly adopted, seldom failing in the driest season to secure a good plant, and to produce a great weight per acre. Availing themselves of the many improvements in the science of artificial manures, the Company so manufacture the Urate, that the food requisite for a rotation of crops is fully maintained therefore parties using the Urate for Turnips will find their succeeding crops of Barley and seeds materially improved. Full particulars, with testimonials, forwarded on application. No 40, New Bridge-street, Blackfriars. EDWARD PURSER, Secretary.

THE LONDON MANURE COMPANY beg to offer Genuine PERUVIAN GUANO, delivered direct from the Importers' bonded warehouses:

Nitrate of Soda,	Fine Bone Sawdust,
Sulphate of Ammonia,	Sulphuric Acid,
Superphosphate of Lime,	Sulphate of Soda,
Gypsum,	Petre Salt,

and every article of Artificial Manure in the most genuine state.—No. 40, New Bridge street, Blackfriars.
EDWARD PURSER, Secretary.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

PHOSPHORIC RAT POISON.—This preparation is offered to the Public with the greatest confidence, being decidedly superior to all those poisons containing arsenic and other minerals. It is most greedily eaten by rats and mice as long as it is offered to them, and invariably proves certain destruction. Prepared only by EDWARD PURSER, 40, Bridge-street, Blackfriars, London. Sold in pots, with full directions for use, at 2s., 3s., and 20s. each.

CHEAP AND DURABLE ROOFING, AND THE BEST RESISTER OF FROST FOR GARDEN PURPOSES.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

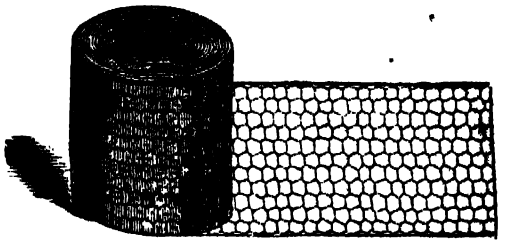
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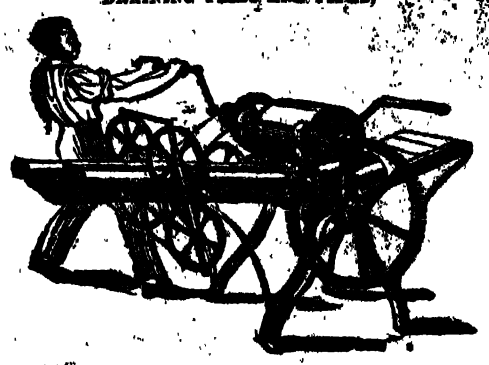
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MECHANICAL IMPROVEMENTS.—Ransome and May's Railway Chairs, &c., *with Four Engravings.*

RAILWAY LITERATURE.—Prero's Practice of Committees of the House of Commons—Nicholson's Strictures on Mr. Chadwick's Pamphlet.

CORRESPONDENCE.—Railway Carriages—The York Lines—Changes of the Edinburgh and Glasgow—Sligo and Shannon—North Staffordshire.

PROCEEDINGS OF SOCIETIES.—Royal Society.

PARLIAMENTARY PROCEEDINGS.—*Government Resolutions*—Progress of Bills—Mr. Duncombe's Resolution—Programme of Parliamentary Business.

Gossip of the Week—Progress of Works—Accidents—Law Intelligence—Iron Trade—Meetings—Tenders for Loans—Contracts—Dividends—Calls—Deposits Returned—Transfer Books closed—Correspondence—Traffic Table—Share Lists—Foreign Ditto—Money Market—Paris Letter and Latest Prices—Elections and Appointments Miscellanea.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 19—1846] SATURDAY, MAY 9. [PRICE 6*d*.

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Gold Mohr plant	301 *a*	Turnip mar	3 *f f*
Grass as food	1 *f*	Vegetables, to blanch	
Heating greenwood for	305	Vine fencing	
— Primulas	301 *c*	Weeds to trap	5 *f*
Heath morphology in	1 *f*	Weeds, terms to use	
Hops manure for	8 *c*	Wet hills	
Hurdle feeding	97 *c*	Wind wagoners	
Horticultural Society		Wire worm and willow set	8 8

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY

UNDER THE PATRONAGE OF HER MOST GRACIOUS MAJESTY THE QUEEN

The SECOND EXHIBITION for the season will be held in the Royal Surrey Zoological Gardens on Thursday May 1st 1846 open to all Exhibitors when Prizes will be awarded for the following collections viz Miscellaneous and Ornamental Plants Cape Heaths Azaleas Pelargoniums Tulips Hearts-ease Roses Vegetables &c Exhibitors will not take place in the above Gardens on Wednesday June 4th Wednesday July 22nd and on Wednesday September 16th 1846 Lists of Prizes and the Rules of the Society may be obtained from J F NEWITT Secretary

Ebenezer House Lockham

EXHIBITION OF TULIPS

H. GROOM, Clapham Rise, by Appointment, Florist to HER MAJESTY THE QUEEN AND TO HIS MAJESTY THE KING OF SAXONY respectfully informs the Nobility Gentry and Amateurs that his SUPERB COLLECTION OF TULIPS is now in flower and will be exhibited (by ticket) until the 16th of May and can be viewed every afternoon (Sundays excepted) Admission 1*s*

DAHLIAS

J. KEYNES, Florist Salisbury respectfully announces that his select CATALOGUE of the following DAHLIAS is now ready and will be sent on application J KEYNES's splendid Scarlet SIR EDWARD ANTROBUS the most perfect Dahlia ever raised with Edwardian Queen Mary and Dodd's Enterprise will be indispensable in all collections Also Cook's Queen of the Flowers and Dodd's Punch two beautiful fancy flowers with all the improved varieties in cultivation Plants are now ready

Salisbury May 1

CAMELLIAS

A. VAN GEERT, Nurserymen, Ghent, Belgium begs to offer to amateurs and the Trade

	£	*s*	*d*
100 best different Varieties of Camellias well shaped flowers, and good established Plants at	8	0	0
150 do do do	11	0	0
100 Camellias, flowering Plants mixed of the running sorts	10	0	0
100 do do large Plants	12	0	0

8 splendid new Fuchsias obtained by an amateur 1 0 0

His general Catalogue of Plants may be obtained on application — May 1

FUCHSIAS VERBENAS PETUNIAS PANSIES CINERARIAS CHRYSANTHEMUMS &c

YOUELL AND CO are now sending, per post, free, to any part of the United Kingdom their new and splendid Collections of the above For particulars of which see their Advertisement of last week

30 packets of New Choice Flower Seeds, per post free for 5*s*

Great Yarmouth Nursery, May 9

PETUNIA, CINERARIA, AND ANAGALLIS SEEDS

—Packets of the above choice selected Seeds saved from the very best sorts in cultivation at 2*s* 6*d* per packet—Applications, including Post-office orders or Stamps will be immediately executed

Direct Miss BARNES, Nurserymaid, London road Cambridge

N B—Strong plants of that splendid deep blue Anagallis Brewerii, 9*s* per dozen

FUCHSIAS, VERBENAS DAHLIAS CHRYSANTHEMUMS, CINERARIAS AND PANSIES

Per post to any part of the United Kingdom

S. WALTERS, Florist, Hilperton, Trowbridge, Wilts, can supply the above in strong plants and best varieties.

	Per doz	*s*	*d*
Fuchsias, in 12 varieties		6	0
Verbenas do		3	0
Dahlias do.		6	0
Chrysanthemums, do		6	0
Petunias do		6	0
Pansies do.		6	0
Cineraria Stadnd, splendid, each		7	6

The best ever offered to the public, can be seen and obtained at 6, Leadenhall-street.

C. LODDIGES & SONS, HACKNEY, have now ready for delivery a limited number of superb Plants 2 feet high very bushy of RHODODENDRON ROBUSTUM—a new species from the Himalayan Mountains perfectly hardy, and of magnificent foliage Price 21*s* each A remittance will be expected with orders from new correspondents

H. SILVERLOCK, NURSERYMAN, Chichester, begs to announce that he has good Plants of the undermentioned sorts ready to send out—

Three VERBENAS seedlings 7 184 price 2*s* 6*d* the set—Venusmas deep scarlet robust habit foliage particularly fine Rosea and fine pink Atropurpurea purple

FUCHSIA Cocstrua large flower corolla rosy purple sepals light flesh fine robust habit and free bloomer 5*s* per plant

GERANIUM Emperor Nicholas 1*s* 6*d* per plant Chinese scarlet with dark blotch in the upper petals considered by many competent judges the best high coloured variety yet out particularly good for autumn flowering 2*s* 6*d*

Petunias Verbenas Scarlet Geraniums &c for bedding out 1*s* per dozen

Plants may be had as above of Messrs BATH & BOTLEY 412 Strand and of Messrs HENDERSON & MULLEN Covent Garden 'till strict London where drawings of the Verbenas by Mr FITCH 3 Gower north may be seen May

HENRY MAJOR, Knostthorpe, near Leeds, begs to inform Gentlemen wishing to purchase that his unrivalled SELF AURICULAS raised from the varieties in particular that gained the prize at the late Show may be had for August next but last week in May but all orders for these must be received by the 16th May cannot be executed after that time as unable to supply any more than 6 of each sort as they will be taken

Have 8 to 12 fine Auriculas still the property of Mr Dickinson which will be sold by Auction at Messrs Stephenson's Rooms Covent Garden on Thursday May 14th at 12 o'clock precisely

VARIEGATED NOVELTIES

GLOXINIA "PASSINGHAMII" This intensely striped highly coloured variety will be found figured in Paxton's Magazine of Botany for February 1846 Plate 1 page 18 Colour of the purple excessively vigorous habit very free blooming and highly effective for all purposes for which variegated plants are required Price 21*s* each

PANSY BLOOD ROYAL (Rendle) The ground colour light straw the upper petals of a very dark rich velvety plum colour the other petals very deeply and finely laced with the same colour the eye perfect and shape circular, texture very firm and thick causing the flower to lay flat and is of first class fine variety and is the very best of its class Its value known by many florists in the neighbourhood of London and others have been given for nearly all the stock of own plants main will have offered at 7*s* 6*d* each Blooms of it may be seen daily by Mr Rendle (the well known amateur and fancy grower) and can only be had from him until next autumn

ILLENIA MARGINATA SUPERBA (RENDLE)—Centre of the white very highly margined with deep rosy purple edging of the latter and excellent form the eye dark and bold in every one This is a most valuable and unique variety superior to any of the sort at present known Priced each on account of its very great value to the trade

VIRGINIA QUEEN OF BEAUTIES (QUEEN) Ground colour beautifully creamy white marked with a wide band of deep purple consolidating and at segments in large, leaving no interior between them A very pretty bloomer excellent habit and very distinct from us in cultivation Price each one 5*s* in every three to the trade

Plants of the above will be supplied in full fit for the end of May

Fuchsia serratifolia	2*s* 6*d* each
Bouvardia flava	3 6 "
Ilex latifolia	7 0 "
Double Chinese Primrose	3 6 "
Araucaria imbricata 12 for	20 0

Good Plants of all the above can be obtained of WILLIAM F RENDLE & Co Plymouth — May 1 46

NEW GOOD AND CHEAP

BENJAMIN W KNIGHT, Florist &c, Tivoli, near St Leonard's on Sea Sussex begs to call the attention of his friends and the public to the following CHOICE PLANTS which are now ready to send out

Twelve new choice and distinct Fuchsias fit for exhibition for 6*s* 1*s* extra first rate very distinct varieties all sent out the first time last season for 1*s* 12 distinct Verbenas for 1*s* 6*d* 12 extra new good varieties for 6*s* 1 choice Petunias for 6*s* 12 good and distinct Cinerarias for 6*s* 1*s* Assorted kinds for 1*s* 12 fine Anagallis for 1*s* 6*d* 12 fine Salvias for 4*s* 12 Hellotrope plants for 4*s* 1*s* choice kinds of Phloxes for 6*s* 12 extra new very distinct varieties for 12*s* 12 choice Antirrhinums for 6*s* 12 choice new kinds for 1*s* 12 fine stock Asters for 6*s* 12 extra good for 12*s* choice Seeds, selected with great care from the best varieties Verbena 1*s* 6*d* per paper Antirrhinums 2*s* 6*d* per paper Dahlias, from the best show flowers 4*s* 6*d* per paper German Asters extra fine, 2*s* 6*d* per paper

Also will be ready to May 12 good show Dahlias for 6*s* 12 superior for 12*s* 12 extra good distinct kinds, all new last season, for 21*s* 12 choice fancy or variegated kinds for 6*s*

Any of the box can be securely packed and forwarded post free on receipt of the amount with the order Catalogues of the above may be obtained on pre paid application

May 9 1846

GENUINE HARE RABBITS—THE LARGEST AND FINEST BREED IN THE KINGDOM

This large, beautiful, and scarce variety (the colour of the hare) has great length and depth of carcase, great width and substance of loin long erect ears and weighs, when at maturity from 16 to 17 lbs As hardy and prolific as the common or wild rabbit, from one to two months old per pair 15*s* three to four months 18*s* Fish to London

Apply to Mr JOHN BARFF, Market place, Orton, Yarmouth

WOODLANDS NURSERY, MARSHFIELD NEAR CHEPSTOW.

WM. WOOD AND SON have the pleasure of offering the following Plants adapted for Bedding at the prices named when the selection is left to themselves

FUCHSIAS

12 fine varieties	6*s* 0*d*	12 superb new varieties for exhibition	18*s* 0*d*
12 superior do	9 0	50 fine do	30 0
12 superb do	12 0	50 superb do	50 0

VERBENAS

12 fine varieties	5*s* 0*d*	48 extra fine varieties	15*s* 0*d*.
12 superior do	9 0	48 superb new do	30 0
12 superb new do	12 0		

PETUNIAS

12 fine varieties	5 0
12 superb do	9 0

Young plants of the above can be sent securely packed in tin cases by post if required

CINERARIAS

Strong plants coming into bloom

12 fine varieties	6*s* 0*d*	24 extra fine varieties	15*s* 0*d*.
12 superior do	12 0	48 superb do	25 0
12 superb new do	18 0		

NEW AND DISTINCT PHLOXES IN POTS

Select sorts each named	9*s* 0*d*	per doz
Superb do do	12 0	"
Superb new varieties do	15 0	"

AZALEA INDICA

12 fine varieties	12*s* 0*d*.	
12 superb do	18 0	
12 extra new do	24 0	

GREENHOUSE PLANTS

12 fine pots one each	12 0	
12 do do other kinds	18 0	
12 do do very superior	24 0	
12 hot house do	12 0	

STOVE PLANTS

12 very fine specimens one each	18 0	
12 superior do do	24 0	

NEW PLANTS

	Each	*s*	*d*
Bouvardia flava (new yellow)	3	6	
Calceolaria floribunda (Veitchii) an elegant yellow species highly recommended for bedding per doz 18*s*	2	0	
Fuchsia serratifolia	3	6	
Pentstemon grandiflora	3	6	
Thymus Benthamianus	3	6	
Polygala Dalmaisiana	3	6	
Ruellia ciliata yellow species (Havanna)	10	6	
Lutea Intermedia, splendid scarlet species	7	6	
Siphocampylus coccineus, splendid	5	0	
Tecoma mollissima	3	6	

For select List of Plants see Advertisement of April 18th Catalogues of the above will be sent gratis on application

A proportionate number of plants presented to each order towards defraying the expense of carriage &c

A remittance or reference required from unknown correspondents

FOR SALE successor to Mr JOHN YOUNG, begs to announce that he is prepared to execute orders immediately in strong plants for any of the varieties mentioned. Early orders are solicited to secure fine Plants

NEW SCARLET PELARGONIUM "HONEYMOON" very dwarf spreading habit and well adapted for bedding For Dr Lindley's opinion see *Gard. Chron.* 1844 p 508

Your Seedling, Scarlet is of a very rich and intense colour

* * The trusses are very large and compact the one sent containing six perfect buds and flowers Plants 9*s* 6*d*

RHODODENDRON CAMANIATUM PICTUM "See *Gardeners Chron.*" 1845 p 308 Your hybrid from Campanulatum is a large and handsome flower white ground, having the margin of the segments tinged with delicate lilac, and the interior of the upper division of the corolla strongly spotted with maroon The blooms sent indicate a very ornamental variety Strong plants 21*s* each

PELARGONIUM "MARIA" very fine large rosy purple See *Gardeners Chronicle* 1845 p 52 Your Seedling is an improvement on many of the same rosy purple colour and is a bright and pretty variety Fine plants 5*s*

IOBELIA FULGENS MULTIFLORA See *Gard. new Chron.* 1844 p 532 "Your Seedling Lobelia is a very handsome variety The tip is large and broad of a rich and dazzling scarlet" some of the spikes of flower measuring from 12 to 20 inches in height Plants 1*s* 6*d* each 15*s* per doz

Tanedium sempervirens, 6 to 9 inches	10*s*	6*d*
Lysaria pinnatifida	5	0
Alona ecliastis	2	0
Veronica speciosa	2	0
Cryptomeria japonica	7	6
Fuchsia serratifolia	3	6
Calceolaria floribunda for bedding	2	6
Roses, two species, Chusan each	1	6
Do one do Amoy	3	6

With a few plants to compensate for carriage An allowance to the Trade —Taunton Nurseries May 1

DAHLIAS, all the newest and best sorts in cultivation, 5*l* per 100 15*s* 0*d* per doz.

Fuchsias 50 of the most approved sorts	10	0	
Do 25 do do	20	0	
Verbenas and Petunias, the newest and best sorts	6	0	per doz
Calceolarias	6*s* and	9	0 "
Heliotropiums Pinks and Pansies	4	0	"
12 distinct and beautiful species of Phlox	9	0	"
Lobelias, Salvias and Pentstemons	6	0	"
Scarlet and other Geraniums	1	0	"
Do General Tom Thumb	9	0	
50 superior Hardy Herbaceous Plants	25	0	
25 do do do	15	0	
Cloth of Gold Roses in pots	1	6	each
New Persian Yellow Roses	3	6	"
Buddlea Lindleyana	2	0	"
Alstroemerias of sorts	1	0	"

Evergreens and Stove Plants in great variety

Flower Seeds 36 papers 10*s* 18 do 5*s* forwarded free by post.

Messrs J & H Brown beg to intimate to purchasers that they are at liberty to name any preferred species or variety of Plants or Seeds Foreign orders for Seeds and Plants of all kinds carefully executed

Albion Nurseries, Stockwell New ington near London

WILLIAM E. RENDLE & CO.,

Nurserymen, Seedsmen, and Florists,

GERANIUMS, DAHLIAS, FUCHSIAS, &c.,

at very reduced prices.

GERANIUMS.

LANE'S SEEDLINGS of 1844.—The following set, including hamper and package, for 20s.

LANE'S SEEDLINGS.—White Perfection, Confidence, Imogene, Princess Alice, and Rudwarth.

Selection of 20 from the following List, including hamper and package, for 20s.—1st CLASS.—Hester (Cook), Magicienne, Robustum (Foster), Duke of Cornwall, Modesty, Beatrice, Lord Ebrington (Lyne), Horatio Nelson, Balaklava, Elvira, Othello (Thurtell), Sarah Jane, Rosalia, Flora, General Pollock, Claude, Queen of England (Hoyle), Sir R. Peel (Foster), Thunderer (Blackford), Flying Conflagration, Lady Wilton (Foster), Constellation (Garth), Beauty of Walthamstow (Pamplin), Rebe (Beck), Apollo (Lyne), Rezmoine, Semiramis, Cordelia (Sweet), Grandis.

Selection of 20 from the following List, including hamper and package for 20s.—2d CLASS.—Coronet, Cynthia, Hamlet, Penelope, Peri of the West, Countess of Mount Edgecumbe, Consort, Princess Royal, Circassian (Lyne), Guide, Fascination (Miller), Jersey Maid (Blackford), Symmetry, Pulchellum, Dido, Favourite, Vulcan, Flash, Camilla (Foster), Oberon (Hodges), Prince of Waterloo, Rising Sun, Prince Albert (Gaines), Gipsey, Wonder of the West, Ne Plus Ultra (Thurtell), Portia, Jupiter, Witch (Garth), Count D'Orsay, Aurora, Enchantress, Van Amburgh (Wilson), Fanny, Cornish Gem (Rendle), Lady C. Shepperd (Bennett), Fair Maid of Devon (Topping), Jupiter, Elizabeth, King John, Amethyst, Sultan, Grand Monarch, Queen of the Fairies, President, Ivanhoe, Clara, Mabel, Glory of the West (Bassett).

The Geraniums are large flowering plants, in 48-sized pots, the majority of which are showing bloom.

DAHLIAS.

Selection of 12 from the following List, including hamper and package, for 15s., or in a tin-box, postage free, for 16s. 6d.

1st CLASS.—Beeswing, Alice Hawthorn (Drummond), Raphael, Cleopatra, Preceptor (Whale), Queen of the Gipsies, Vanguard, Sir J. S. Richardson, Aurantia, Essex Triumph, Lady St. Maur, Standard of Perfection, Queen of Roses, Bermondsey Rec, Lady Antrobus, Favourite, Mrs. J. Richardson, Hero of Stonehenge, and Antagonist.

Selection of 20 from the following List, including hamper and package, for 12s., or free by post for 13s. 6d.—2d CLASS—Consolation, Matilda, Perpetual Grand, Nonpareil, Tassett's White, Yellow Climax, Honourable Miss Abbott, Sure Enough, Swindon Rival, Prince of Waterloo, Nutwith, Eximia, Confidence, Queen of Trumps, Sir R. Sale, Mrs. Shelley, Vivid, Great Western, Admiral Stopford, Virgil, Tournament (Union), Princess Royal (Hudson), Prince of Wales, Beauty of the Plain, Bridesmaid, Bloomsbury (Lee), Rouge et Noir, Glory of Plymouth.

DAHLIAS.—(FANCY VARIETIES).

Selection of 12 from the following List, including hamper and package, for 15s., or free by post for 16s. 6d. - Matilda, Lady Loraine, Noir et Blanc, Beauty of England, Fairy Queen, Madame de Montagne, Silvio, Village Maid, Comte de Paris, Madame Schwaffenfield, Madame Chauviere, Madame Miellez, and Oakley Surprise.

FUCHSIAS.

Selection of 20 from the following List, including hamper and package, for 15s., or free by post for 16s. 6d., box included; or 40 for 25s.; ditto, free by post, for 27s.—Serratifolia, Pearl, Majestica superba, Vulvergii, Sir W. Magnay, Duke of York, Foighe-ballagh, Picta, Cleopatra, Magnet (Smith), Sidmouthii, Nympha, Queen of Beauties, Cordifolium hybridum, Delicata (Rendle), Duke of Wellington, Florence, Magnet, Queen (Pawley), Prince of Wales, Eppsii, Kentish Hero (Epps) Lindleyana, Vesta, Reflexa, Neptune, Modesta, Hector, Gigantea, Expansa, Decora, Coccinea Vera, Coronet, Albion (Smith), Uttoxeter Beauty, Rickardii Grandiflora (Rickard) Lowreyii, Lanesii, Exoniensis (Pince), Paragon, Robustum, Eclipse, Britannia, Nobilissima, Ballooni (Smith), Transparens (Youell.)

PETUNIAS.

Selection of 12 from the following List, including package, for 4s.—Queen of May, Beauté de Jour, Beauté parfait, Cærulea Striata, Louis Gullino, Striata delicatissima, Attraction, Forget-me-not, Perfection, Membranacea, Portrait, Delineata (Morgan), King, Ovid, Magna Charta, Reliance, Splendida, Celestial, Punctata.

ANTIRRHINUMS.

The following set, including hamper and package, for 5s.—Maculata, Atro-striata, Luteum, Brightii, Fowellii, Album, Picta, Double White.

LOBELIAS.

Six of the following sorts, including hamper and package, for 4s.—Erinus grandiflora, Erinus compacta alba, Resplendens, Queen Victoria, Grandis, Salterii, Millerii, Bathonia.

AZALEA INDICA.

Selection of 12 from the following List, including hamper and package, for 25s.—1st CLASS.—Optima, Exquisite, Broughtonii, Refulgens, Prestantissima, Rosea punctata, Minerva, Barbata, Prince Albert, Alba superba, Alba striata, Candidissima maxima, Grandiflora maculata, Purpurea plena, Rubra-plena, Gladstanesii, Excelsa, Smithii magniflora, Rosea elegans, Coccinea superba, Addisonii, Alba trifiora.

Selection of eight from the following List, including hamper and package, for 6s.—2d CLASS.—Variegata, Gladstanesii, Lateritia, Danielsiana, Rawsonii, Smithii, Smithii coccinea, Rosea, Rosea semi-duplex, Woodsii, Standishii, semi-duplex, Splendens, Speciosissima.

GLOXINIAS.

Selection of six from the following List, including hamper and package, for 5s.—Carina, Rosea alba, Insignis, Rubra, avima, Caulescens, Macrophylla variegata.

CACTUS.

Selection of six from the following List, including hamper and package, for 10s.—Gardnerii, Truncatus, Truncatus violaceus, Majestica, Formosissimus, Splendidum, Coccineum, Egertonii.

MISCELLANEOUS PLANTS.

Selection of 12 from the following List, including hamper and package, for 15s.—Bouvardia flava, Achimenes picta, A. longiflora, A. rosea, A. hirsuta, A. pedunculata, Gesnera Cerioidiana, G. Cooperii, G. zebrina, G. tubiflora, G. elongata, Solanum pseudo-capsicum, Rondeletia speciosa, Chamostoma polyanthe, Stylidium fascicularis, Begonia coccinea, B. insignis, B. floribunda, Ardisia crenulata, Exora coccinea, Pentas carnea, Gardenia radicans, G. sp. nova, Ficus elastica (Indian rubber tree), Burchellia capensis, Plumbago capensis, Bruguiania sp. nova, B. arborea plena, Jasminum parasiticum, Euphorbia splendens, Plectoma Benthamiana, Conradenia rosea, Siphocampylus betulæfolia, Olivea nobilis, Vinca oculata rosea, Russelia juncea, Brunsfelsia Americana, Scolynanthus grandiflorus, Æ. Roxburghii, Æ. ramosissimus, Eranthemum pulchellum, Lantana crocea, Columnea Schiedliana, C. splendens, Hibiscus rosea sinensis, H. Cameroni, Pimelea spectabilis (grafted), P. decussata, Horea Celsi, Chorozema varium, C. varium rotundifolium, Veronica speciosa, Grevillea rosmarinifolia, G. flava, Eutaxia Baxterii E. myrtifolia, Daphne capitata, D. cneorum, D. cneoridies, Correa bicolor, C. Cavendishii, Phillea, articulata, Kalosanthes coniata, Anagallis arguta, Araucaria imbricata.

MISCELLANEOUS CLIMBERS.

Selection of 12 from the following List, including hamper and package, for 8s.—Cobæa scandens, Lonsa aurantiaca, Tropheospermum rubiginosa, Kennedya monophylla, Batatas bonariensis, Coccinea Vera, Coronet, Albion (Smith), Uttoxeter Beauty, Rickardii Grandiflora (Rickard) Lowreyii, Lanesii, Exoniensis (Pince), Paragon, Robustum, Eclipse, Britannia, Nobilissima, Ballooni (Smith), Transparens (Youell.)

PETUNIAS.

Selection of 12 from the following List, including package, for 4s.—Queen of May, Beauté de Jour, Beauté parfait, Cærulea Striata, Louis Gullino, Striata delicatissima, Attraction, Forget-me-not, Perfection, Membranacea, Portrait, Delineata (Morgan), King, Ovid, Magna Charta, Reliance, Splendida, Celestial, Punctata.

ANTIRRHINUMS.

The following set, including hamper and package, for 5s.—Maculata, Atro-striata, Luteum, Brightii, Fowellii, Album, Picta, Double White.

LOBELIAS.

Six of the following sorts, including hamper and package, for 4s.—Erinus grandiflora, Erinus compacta alba, Resplendens, Queen Victoria, Grandis, Salterii, Millerii, Bathonia.

AZALEA INDICA.

Selection of 12 from the following List, including hamper and package, for 25s.—1st CLASS.—Optima, Exquisite, Broughtonii, Refulgens, Prestantissima, Rosea punctata, Minerva, Barbata, Prince Albert, Alba superba, Alba striata, Candidissima maxima, Grandiflora maculata, Purpurea plena, Rubra-plena, Gladstanesii, Excelsa, Smithii magniflora, Rosea elegans, Coccinea superba, Addisonii, Alba trifiora.

Selection of eight from the following List, including hamper and package, for 6s.—2d CLASS.—Variegata, Gladstanesii, Lateritia, Danielsiana, Rawsonii, Smithii, Smithii coccinea, Rosea, Rosea semi-duplex, Woodsii, Standishii, semi-duplex, Splendens, Speciosissima.

GLOXINIAS.

Selection of six from the following List, including hamper and package, for 5s.—Carina, Rosea alba, Insignis, Rubra, avima, Caulescens, Macrophylla variegata.

CACTUS.

Selection of six from the following List, including hamper and package, for 10s.—Gardnerii, Truncatus, Truncatus violaceus, Majestica, Formosissimus, Splendidum, Coccineum, Egertonii.

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MISCELLANEOUS CLIMBERS.

Selection of 12 from the following List, including hamper and package, for 8s.—Cobæa scandens, Lonsa aurantiaca, Tropheospermum rubiginosa, Kennedya monophylla, Batatas bonariensis, Convolvulus pentanthus, Combretum coccineum, Manettia glabra, M. bicolor, Mauranadya Barclayana.

FLOWER SEEDS.

50 packets of choicest Flower Seeds (free by post) for 12s.
25 ditto ditto 8s.
12 ditto ditto 6s.

N.B.—All Post-office orders must be made payable to William Edgecumbe Rendle, Plymouth.

TESTIMONIALS.

"I am happy to tell you that the plants which you sent, were received here yesterday in *excellent* condition, having been packed in the best manner possible, and I am much pleased with them."—*S. S. Cunningham, Caprington Castle, Kilmarnock, Scotland, Dec.* 16, 1845. (Distant upwards of 500 miles from Plymouth).

"I am happy to say the plants arrived safe, and in such good condition that no person would have supposed they had ever been removed from your greenhouse, although they travelled such a distance; *indeed, they astonished every one who saw them*, they were so healthy, so well packed, and, I must add, for the good descriptions, so very reasonably priced."—*William Bevan, Esq., Camass Bruff, County of Limerick, April* 14, 1846. (Upwards of 350 miles from Plymouth.)

Great attention is paid to careful packing.—All plants forwarded to long distances are packed in Fir Boxes, and firmly secured.

*** Early orders are desired, as there will be a limited quantity only of many of the sorts.

ORDERS WILL BE EXECUTED IN STRICT ROTATION.

Circulars, containing Lists of Flower Seeds, Forest and Fruit Trees, Bulbous Roots, and Chrysanthemums, can be had on application.

*** *All orders above 3l. will be delivered (free of carriage), to London, Bristol, Exeter, Barnstaple, or Falmouth; or, above 6l., to Liverpool, Dublin, or Cork.*

A remittance is not required from known correspondents, or those who give reference in London.

Steamers from this Port three times a week, to London, Cork, Dublin, Liverpool, and Falmouth.

ARAUCARIA IMBRICATA.

12 fine young Plants of this valuable Tree, including hamper and package, for 20s.

Those who reside at long distances, and wish to have their plants forwarded by post, can be accommodated; and we have arranged to send Dahlias, Fuchsias, Petunias, Verbenas, Pansies, and Antirrhinums, packed in stout tin cases.

☞ ALL THE PLANTS ENUMERATED IN THIS CATALOGUE ARE NOW READY FOR SENDING OUT.

We have to return our best thanks to our numerous customers for the liberal orders with which we have been favoured during the past season, and have now to solicit a continuance of their patronage, assuring them that we shall always supply the best articles at the lowest remunerating prices.

Our chief object will be to give satisfaction; and if from any circumstance an irregularity should at any time occur, we shall always feel it our duty to make the most ample amends. We have always endeavoured to be liberal in our dealings, and trust our friends will not have reason to complain of our not continuing to be so. WILLIAM E. RENDLE & CO.

Office, Union Road, Plymouth, May 9.

In consequence of the very low prices quoted, no deviation can be made from the collection as named above, and if less quantities are taken a higher price must necessarily be charged.

TULIPS.—A bed of choice TULIPS, the property of a gentleman deceased, to be disposed of. They consist of 30 rows of the most esteemed varieties that an Amateur can possess, and have been collected regardless of expense. To be viewed for the next 14 days, between the hours of 10 and 4, at 2, Gloucester Cottage, Loughborough Road, Brixton, where full particulars may be had, or of Mr. E. DENYER, Nurseryman, Brixton. This Advertisement will not be repeated.—May 9.

R. B. BIRCHAM, Hedenham Rosery, Bungay, Suffolk, begs to offer the following First-rate PERPETUAL and BOURBON ROSES, in pots fit for transplanting into borders, or to form beds of Perpetual Roses:—

Hybrid Perpetual.	*Bourbon.*
Aubernon	Cérès
Augustine Mouchelet	Comte de Rumbuteau
Clementine Duval	Crimson Globe
Comte d'Eu	Dupetit Thouars
Dr. Marx	Edouard Desfosses
Duc d'Aumale	Enfant d'Ajaccio
Duc de Chartres	George Cuvier
Duchess of Sutherland	La Gracieuse
Fulgorio	La Grenadier
La Bouquitierre	Madame Aubin
La Reine	Paul Joseph
Lady Alice Peel	Proserpine
Madame Emma Dampierre	Pierre de St. Cyr
Madame Laffay	Princess Clementine
Marquise Boccella	Queen of Virgins
Melanie Cornu	Souvenir de la Malmaison
Mrs. Elliot	Splendens
Prince of Wales	Virgil.
Prince Albert	*Noisette.*
Rivers (Laffay)	Solfaterre
Thibault	Pourpre de Tyre
William Jesse.	Cloth of Gold.

R. B. B. will supply orders upon the most liberal terms. A remittance or reference is respectfully requested from all unknown correspondents.—Hedenham, May 9.

GLASS MILK PANS.

EDWARDS & PELL, Foreign Glass Agents, 15, Southampton-street, Strand, are now prepared to supply these admirable utensils in dark and light glass. They are made of such strength as to bear a severe blow without breaking, and they clean with so much ease that the use of hot water is unnecessary, and consequently no risk of cracking.

EDWARDS & PELL also supply Foreign Sheet Glass of excellent quality and colour, for Horticultural purposes; this Glass has been much approved by parties who have used it extensively, and to whom reference can be given.

Bell Glasses from 11 inches by 6 to 4 inches by 2½, in clear white flint glass, at 10*d.* per lb.

WASP CATCHERS.

UNDERWOOD, Butler to Her Majesty, 56, Haymarket, begs to inform Amateurs, Gardeners, Nurserymen, and others, that he has just completed a number of WASP CATCHERS, from 6 to 9 inches in square and oval shapes. It is well known that every Wasp caught in this month is the destruction of a whole nest, therefore an early application of this useful article is recommended. A large assortment of improved Budding Knives, Pruners, &c., always ready.

W. LOUDON and SONS, Stirling, N.B., and Dublin, have on sale a large, and choice Stock of TURNIP SEEDS, Swedes, particularly moderate. The following are the most approved sorts, viz.—

Swedish, Skirving's improved Purple-top.
Ditto East Lothian Purple-top.
Yellow Aberdeen, with Green-top.
Ditto ditto, with Purple-top.
Ditto ditto ditto, Improved.
Ditto Improved Early, now much esteemed for sowing late in season.
White Globe.
Green-top Globe.

N.B.—Delivered free in London, Liverpool, Hull, Newcastle, Cork, Belfast, and Londonderry, when not less than 40 lbs. are ordered.

*** Priced Catalogues of Implements, Garden and Farm Seeds, Nursery Plants, &c. sent free on application.

Agricultural Museum, Stirling, and 38, Dawson-street, Dublin.—May 9.

SEEDS.—CORNER OF HALF-MOON-STREET, PICCADILLY.

THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

SEEDS.

GEORGE GIBBS & CO., 26, Down-street, Piccadilly, — Large White Belgian Carrot, 1s. 6d. per lb.; Red and Yellow Globe Mangold Wurzel, 1s. per lb. each; Long Red Mangold, 9d. per lb.; Long Yellow ditto, 1s. per lb.; True Purple Top Swede, 9d. per lb.; Ashcroft's very large Swede, 1s. per lb.; Laing's Swede, 1s. per lb.; Purple-top Nottingham Moss Swede, and Tankard Pure Swede, 1s. 6d. per lb. each; Skirving's and Matson's Swede, 1s. per lb. each; Pain's hardy Green Crown Swede, 1s. per lb.; Hybrid Green Crown Yellow Turnip, 1s. per lb.; Meadow and Pasture Grass Seeds, in mixtures suited to soils, &c., 22s. per acre, allowing 2 bushels, and 12 lbs. to each acre; Mixtures for renovating old Grass-land, 1s. 3d. per lb.; fine sorts for Lawns, &c., 1s. 4d. per lb.

A detailed price Catalogue will be forwarded on application to GEORGE GIBBS and Co., Seedsmen, &c., to the Royal Agricultural Department at Belgium, &c. &c., 26, Down-street, Piccadilly.

SILVER SAND, PEAT, &c.

E. KEMP now having the honour of supplying the Royal Botanic Gardens, Kew, the Horticultural Society's Gardens, Chiswick, the Royal Botanic Society's Gardens, Regent's Park, most of the principal Nurserymen and gentlemen's gardeners in the neighbourhood of London, and many in different parts of the country, to whom he can refer, can with confidence assert from the Testimonials he has received, combined with his own experience, that his SILVER SAND is the best for all Nursery purposes, to be found in this part of the world. Price, delivered within six miles, per ton, 26s.; per half ton, 15s.; packages where required, (sacks or casks,) 14s. per ton, and 7s. per half ton, extra, (for Cash only). PEAT and other Soils supplied.

E. KEMP, Manor-street, near the Rising Sun, Old Kent-road. Orders by Post punctually attended to.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

per gross.	per gross.	per gross.
6 in. by 4 .. 6s.	8 by 5 .. 12s.	9 by 7 .. 18s.
7 in. by 4½ .. 8s.	8 by 6 .. 14s.	10 by 8 .. 26s.

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists, apply to R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square, London.

PROPAGATING GLASSES, White, 1s. per lb., or from 2s. 6d. to 24s. per dozen. CUCUMBER GLASSES, from 6d. to 4s. each. GRAPE SHADES, with holes, 1s. 9d. to 2s. 6d. each. FISH BOWLS, from 1s. 6d. each.—APSLEY PELLATT & Co., Falcon Glass Works, Holland-street, Blackfriars.

GLASS FOR CONSERVATORIES.

APSLEY PELLATT and CO., Falcon Glass Works, Holland-street, Blackfriars, are prepared to supply (in quantities not less than 100 square feet), SHEET AND CROWN GLASS OF BEST QUALITY, at the following *Net Cash Prices*.—

Any size under 40 ins. long.	Per square foot.
13 oz. weight per foot	4d.
16 oz. ,, ,, ...	5
21 oz. ,, ,, ...	7
26 oz. ,, ,, ...	11

SMALL Squares from 5 ins. by 3 ins. up to 10 ins. by 8 ins., from 1½*d.* to 3*d.* per square foot.

N.B.—The 16 oz. is full strength for Greenhouses.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.

GRAY, ORMSON, AND BROWN, HOTHOUSE BUILDERS AND HOT WATER APPARATUS MANUFACTURERS, Danvers-street, Paulton-square, King's-road, Chelsea, respectfully request the attention of the Nobility, Gentry, and Gardeners who intend to enlarge or augment their Forcing or Plant Houses, to their superior manner of erecting such structures, and the application of Heat by their improved Hot Water Apparatus.

GRAY, ORMSON, and BROWN beg to assure those who honour them with their patronage, that from the practical experience of one of the firm as a Gardener, they guarantee every House constructed by them will be adapted to its intended purpose.

Plans and Estimates furnished free, and satisfactory references given.

WIRE-WORK, HOT-WATER APPARATUS, GREENHOUSES, &c.

ST. THOMAS BAKER, MANOR-HOUSE, MANOR-PLACE, KING'S-ROAD, CHELSEA, Manufacturer of INVISIBLE WIRE-FENCE, to resist Grazing Stock, and rendered Rabbit proof. WIRE-WORK in Trainers, Arches for Walks, Bordering, Flower Stands, Pheasantries, &c. HORTICULTURAL BUILDINGS, Green and Hothouses, Conservatories, &c. The same heated by HOT-WATER APPARATUS, on improved and economical principles.

Parties waited on in Town and Country, and Drawings and Estimates free. Work for the Trade as usual.

Ward's Cases, or Domestic Greenhouses.

ROYAL BOTANIC SOCIETY.—The SPECIMEN EXHIBITION of PLANTS, FLOWERS, and FRUITS in the Garden of the Society, Regent's Park, will be held this season in the New Conservatory, on Wednesdays, May 20th, June 3d, July 1st. Tickets may be obtained at the Gardens by presenting an order from a Fellow or Member, price 5s. each.

The Gardeners' Chronicle.

SATURDAY, MAY 9, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, May 13	Society of Arts	. . . .	8 P.M.
	Microscopical	. . . .	8 P.M.
Wednesday, — 20	Royal Botanic Gardens	. . .	2 P.M.
Thursday, — 21	Royal South London	. . .	1 P.M.

COUNTRY SHOWS.

Tuesday, May 12—Stamford Hill Horticultural.
Thursday, — 14—South Essex Horticultural and Floricultural.

Among the other pleasant companions with which we are likely to be favoured in the ensuing summer, we can confidently rely upon the Wasps. They have had a charming winter; are now, in May, as vigorous as in June, as plentiful as in July, and will certainly take care to help themselves to a lion's share of the good things which it is to be hoped that a fine summer will bring us.

We have not yet heard of any philanthropic persons having taken these marauders under their protection. That is a stage of civilisation at which we have not at present arrived; though, considering how far sickly sentimentality is going just now, there is no knowing what may happen. In the meanwhile, until wasp-catching becomes penal, either legally or socially, we would advise those who are likely to have anything eatable next autumn, to look sharp now. It is quite time for them to open their eyes, for legions of wasps are preparing for a descent; their scouts are fully occupied in reconnoitring the country; and if we are not to be martyred, we must exterminate the scouts at once. Every one of these is said to be the author of a nest; and, therefore, every scout that perishes now will save us all the perils of turpentine, fire, gunpowder, and stings hereafter. Common wasp-traps will not, at present, be of much service; a far better contrivance is a pair of entomological forceps, which we see are advertised to-day, for with them it will be very easy to teach children to catch the wasp on the wing. We have just killed two within these five minutes.

"Therefore, friends,
Forthwith a power of English let us levy,
To chase these pagans from our budding fields."

There is one cause of Canker in fruit trees to which we only incidentally alluded last week, and to which we would now draw more particular attention. We stated that it may be a temporary disease induced by local causes. Probably it is so in more instances than are suspected; possibly it is always thus brought about in the beginning, even when it becomes hereditary.

Let us suppose a delicate plant, some tender variety of the Pear, for instance, raised at Paris, cultivated there for many years, then bought for the English market, and suddenly distributed through the country gardens of England. Such a plant will be removed from a warm, dry, chalky soil, a hot summer, which renders the wood as hard as Oak, and a steadily cold winter, which absolutely arrests all vegetation, to a cold damp clay or loam, half drained may be, a cool damp summer, and cloudy sky, which leave the wood as soft in autumn as at Paris it is at midsummer, and, to crown all, a fitful winter, mild and severe by turns, now bringing the sun of May in February, and replacing it by December nights in May.

Under such circumstances what will happen to the Parisian Pear? Its wood will be alternately frozen and thawed; its watery texture will render it peculiarly liable to damage in time of frost; parts will die or be so injured as to be unfit to carry on their offices when spring returns; and every shoot will contain dead points or *foci*, which, however, the eye fails to detect at the time. When growth returns, the naturally vigorous constitution of the Pear tree makes a struggle to overcome the disasters of winter; new wood is deposited over the old internal sores, and all seems healthy. But the season is again unfavourable; the diseased *foci* cannot act as Nature meant them; watery and highly azotised sap collects in them, and runs into a state of incipient putrefaction; then the sore is established: out of sight, perhaps, but certainly established, and the seeds of canker are effectually sown.

Liebig states it to be a law of matter that a body in the act of decomposition, and which he names the "exciter," added to a mixed fluid in which its constituents are contained, can reproduce itself in that fluid. And he refers to the well-known fact that the putrid matter of a decaying animal body laid upon the fresh wound of a living animal will bring on vomiting, debility, and even death, as happens to students in dissecting-rooms. In connexion with this part of the subject that great chemist has the following striking passage, the bearing of which upon the case before us is of the first importance:—

"In order to explain the effects of contagious matters, a peculiar principle of life has been ascribed to them—a life similar to that possessed by the germ of a seed, which enables it, under favourable conditions, to develope and multiply itself. It would be impossible to find a more correct figurative representation of these phenomena; it is one which is applicable to contagions as well as to ferment, to animal and vegetable substances in a state of fermentation, putrefaction or decay, and even to a piece of decaying wood, which, by mere contact with fresh wood, causes the latter to undergo gradually the same changes, and become decayed and mouldered."

We believe this to be so often the first cause of canker, that perhaps every other symptom is but secondary. And it is quite conceivable that the most inveterate condition of this disease, even in a hereditary form, may be referable to the seeds of the *virus* of decay, distributed in all directions through the vegetable fabric.

Supposing these views to be just, it is quite clear that the only courses which can be taken advantageously in order to secure ourselves against canker are two: the one not to plant such delicate varieties as no skill and care will ever reconcile to our climate; the other to compensate for an ungenial climate by scientific practice. We cannot make sunshine; we have no control over atmospheric temperature; rain will fall in spite of us; and it would be hopeless to struggle against a capricious winter, even if timber and glass were as cheap as brown paper. The evil must be arrested by other means.

The reason why wood does not ripen in an English summer is that the light is insufficient to cause an adequate amount of perspiration from the leaves and branches, so that they become water-logged as it were. The cure for this is to give the roots less water, for then the leaves and branches will have less need of relief by evaporation. In order to get rid of the excess of water, mere drainage is not enough, although indispensable. It is desirable that the earth in which the fruit trees are growing should be so raised above the surrounding level as to be maintained continually in a warmer and drier state than the level itself; for then the heat absorbed from the sun will be radiated back into the air, and maintain the atmosphere of the trees in a milder and warmer condition than would be otherwise possible; and the main fact of thus raising the usual temperature around the leaves and branches, will assist in promoting their healthy evaporation, which results in ripeness if carried far enough.

We would ask all those who have cankery gardens to consider how far these remarks apply to their own cases, after they have left out of the inquiry such tender and incurably diseased varieties as many of those which we named in a Leading Article last week.

It is a long time since the Tulip Growers of this country have experienced a more unpropitious season than the present has hitherto proved; for, with all the care and attention directed towards their collections which experience could suggest, many cultivators are doomed to suffer disappointment, and in many instances, heavy loss—loss in fact, which cannot even be replaced by money. Last December, towards Christmas, Tulips generally were a month in advance of their usual growth at that period, both in the northern and southern countries; fears were then frequently expressed that disastrous results would ensue; unfortunately these gloomy forebodings have in many cases been too sadly realised.

The mischief is attributed by some to a want of sun-light last season, and to improper elaboration of the sap; others attribute it to the open and moist winter, imagining that the roots became after planting overcharged with moisture. From reports from various parts of the country it appears that collections are similarly affected in different situations. Beds which have been carefully covered and sheltered from prevailing winds and frosts, have suffered equally with those which have been exposed to the vicissitudes of our varying winter.

Others, again, have had many bulbs which did not make their appearance above ground, and on examination proved to be perfectly decayed and mouldy, whilst of those which have thrown up flower stems, the buds are, in the majority of cases, malformed and diseased. A first-rate grower, who has a splendid assortment of most of the best varieties in cultivation, writing from Lancashire, says, "I here scarcely allude to my Tulips, for the very mention of them is painful. My new bed is a miserable wreck, there is not a fourth part in a healthy condition; whether to attribute it to the open and wet winter, or to the soil, or both conjoined, I know not, but one thing is certain, I never planted so fine a bed of bulbs. Most came up very promisingly, but soon began to show signs of disease, which has been most fatal and extensive. Even of kinds which I grew in quantity, I shall scarcely have any left."

From Leeds, Sheffield, Derby, Nottingham, &c., we have similar complaints. The stock of several fine seedlings in the latter neighbourhood being wholly lost. We are glad, however, to record, from the same counties, that some have escaped, at least comparatively so; for even beds that looked well a month ago are rapidly deteriorating, and considerable dismay appears to pervade the fancy. Can any of our friends give any information as to the probable cause of the malady?—*W.*

We announce, with great pleasure, that Mr. Fortune has just reached England, from China, in good health. His collections, in 18 glazed cases, have arrived in beautiful condition; and we have no doubt that the final result of his great exertions will be among the most important of the important measures which have been brought about under the auspices of the Council of the Horticultural Society.

Letters from Mr. Hartweg have also come to hand by the last steamer. He was still at Tepic, but was about to start immediately for San Blas, *en route* to Mazatlan, his baggage having just come up. Some new seeds and plants are on their way.

DIFFERENCE BETWEEN BROCCOLI AND CAULIFLOWER.

A correspondent inquires what is the exact difference between Broccoli and Cauliflower? Many varieties of Broccoli are easily distinguished; such are all those having purple or sulphur-coloured heads. However much they resemble Cauliflower in other respects, if the heads are not white, they must be considered Broccoli; and likewise those that do not form one compact regular corymb, whatever their colour may be, as in the case of sprouting Broccoli. Again, if a variety is so far different in constitution as to endure a degree of cold that would kill the Cauliflower, that variety is termed a Broccoli. There is, however, no very distinct line of difference between some of the white Broccolies and the Cauliflower. In the time of Miller, there appears to have been only two varieties of Broccoli cultivated, which he distinguished as the Brassica Italica purpurea, the Purple Broccoli; and the Brassica Italica alba, the White. In treating of them, he says, "The two sorts of Broccoli I take to be only varieties of the Cauliflower." Professor de Candolle, in a memoir of the different species, races, and varieties of the genus Brassica, &c., "Transactions of the Horticultural Society," vol. 5, first series, also states that the Broccoli and Cauliflower are only varieties of the same race, namely, Brassica oleracea Botrytis, flowering Cabbage; and which he describes as having a very peculiar organisation. "The bunches of flowers, instead of being loosely spread into a pyramidal form, like those of a panicle, are close from their basis, and form a kind of regular corymb; to which is added a second character that may be considered as a natural consequence of the first; the pedicles, from being tightly kept together before their time of blossom, lose their shape, grow fleshy from adhering to each other, and, in general, produce nothing but the rudiments of abortive flowers, so that, contrary to all other varieties, where the leaves and stalks are alone taken for culinary purposes, in this the floral footstalk is the only part eaten. This race comprehends two varieties, viz. the Cauliflowers and the Broccolies.

"1. The Brassica cauliflora (Cauliflower) has generally a short stem, white-ribbed oblong leaves, the pedicel uniting at the head of the primary branches into thick, short, irregular bundles, in the shape of a corymb: it appears to be a degeneration of the Brassica oleracea costata, Chou à grosses côtes, or Portugal Cabbage.

"The second variety is the Brassica cymosa (Broccoli); its stem is more elevated, the leaf-nerves less prominent, the pedicels altogether less thick and close; they are also longer, so that on becoming fleshy they resemble in shape the young shoots of Asparagus; hence the name of Asparagoides given by ancient botanists to the Broccoli. The Broccoli seems to be a degeneration of some variety of the Chou Cavalier, tall or open Cabbage. It is divisable into two sub-varieties. 1st, the Common or White Broccoli; 2d, the Purple or Maltese Broccoli; and each of these are again divided into several kinds by the practical gardeners."

The above are correct descriptions of Cauliflower and Broccoli as they were grown at the time; but since then great improvements have taken place as regards the varieties of Broccoli; some of which are now as close headed as a Cauliflower, and others have stems equally dwarf.

The Brassica oleracea, on the high authority of De Candolle, has given rise to Cabbages, early and late, red and white; Savoys green and yellow; other Greens plain and curled; Turnip-rooted Cabbages; Couve Tronchuda or Portugal Cabbages; as well as to Broccoli and Cauliflower. If, therefore, the Wild Cab-

bage has sported to a Cauliflower, who can define the closest approximation which may take place as regards the Broccoli and Cauliflower, some kinds of which are already blended together? As was above observed, there can be no mistake in the case of any Broccoli not white; for such can never be called a Cauliflower—a vegetable which has long been proverbial for its whiteness. The leaves of Cauliflowers differ from those of most Broccoli in having a more regular outline and evener surface; but the toothing on the margin is more prominent. Their colour is also paler, not of such a deep glaucous hue as the leaves of Broccoli usually are.‖

WINDOW GARDENS.

Believing that these gardens will prove a valuable acquisition to lovers of flowers in England, I send the following observations and lists of plants, in the hope of facilitating and promoting their general adoption.

The first published account of window gardens appears to be contained in a little work entitled "*Le Jardinier des Fenêtres des Appartemens et des Petits Jardins*," printed in Paris in 1823. The author states that one which he describes existed four or five years previously at the house of M. Gilet, Rue du Faubourg du Temple, and he states the interesting fact, as connected with the usefulness of those miniature greenhouses, that the Cereus speciosissimus there flowered for the first time in France.

But it would appear, although many amateurs visited M. Gilet's house to see the splendid novelty, they were not induced by his success to follow his example, and the window garden seems to have been forgotten, for ten years afterwards an engineer, of Mézières, passing through Boulogne, saw one at the house of an English admiral, and was so much struck with it that he made a communication on the subject to the Horticultural Society of Paris, and it was so new to the members that they referred the paper to one of their standing committees, who made the following report upon it:—

"The committee think this sort of greenhouse must be pleasing; easily constructed, although rather expensive,* and particularly adapted for a window presenting a disagreeable view."—*Annales de la Soc. d'Hort. de Paris*, for 1833, p. 260

Notwithstanding this public notice, it is only very lately that Parisian amateurs have adopted the plan, which is the more remarkable in a city where the taste or rather the passion for flowers is almost universal; but the fact is proved by M. Paquet having thought it worth while to give a figure of a "Fenêtre Serre" in his "Almanack" for the present year. He tells us, however, that they are common in Belgium, probably at Brussels, for at Ghent, the head quarters of horticulture in that country, they have only been introduced within the last two years—(*Annales de la Soc. d'Agric. et de Bot. de Gand*, for March, 1846).

One is naturally led to compare the advantages of a window-garden with those of a Ward's case, and probably few amateurs would hesitate for a moment in deciding that the former is beyond all comparison the more useful of the two. It has always appeared to me, that the utility of Ward's cases, when employed for growing plants in rooms, has been greatly overrated, while it is not possible to appreciate too highly the benefit they have conferred on botany and horticulture, by affording the means of transporting plants by sea, with the certainty of success, from distant parts of the world. A problem has thus been solved that had baffled the ingenuity of collectors, and appeared to defy the resources of science for several centuries.

But what does the amateur gain by filling his windows with these cases? After all that has been said and written on the subject, it is a fact that very few flowering plants will thrive in them, especially in town houses; but the great objection is that they give no occupation; there is no gardening to be done in a Ward's case. After the novelty is over it excites no more interest than any other article of furniture in the room, and whenever a few cut flowers and a basket of green Moss can be obtained, gratifying the sense of smell as well as pleasing the eye, it is almost useless.

Now one of the great advantages of a window-garden is the agreeable occupation it affords to those amateur gardeners who are imprisoned in towns, to invalids, and to lady amateurs, and young people who are confined to the house by bad weather, in town or in the country. Watering the plants, tying up climbers, making cuttings, and raising seedlings, shifting the plants, watching the daily progress and gradual opening of the flower-buds, may serve to beguile many a tedious hour, and persons unaccustomed to plant culture would hardly believe how much occupation, amusement, and instruction these little gardens will supply.

It will be found a great improvement, and tend to secure a healthy vegetation, to plunge the pots in Moss and to cover them with the same material. The green Moss is in itself a beautiful object, while it serves to conceal what is the very reverse, a collection of red garden pots; then by keeping it wet in summer, and dry or nearly so in winter, an atmosphere may be readily provided exactly suited to the wants of the plants, and the soil in the pots is kept at all times in an equable state with regard to moisture and temperature, protected alike from a burning sun in summer, and from the cold occasioned by evaporation, or by radiation under a clear frosty sky in winter.

The Moss likewise allows the plants to be frequently watered overhead, or syringed, without fear; in performing these operations, a part of the earth is liable to be washed out of the pots, which it then becomes necessary to remove, in order that the shelf may be cleaned.

In a French window, the glass case occupies the whole height when the casement opens from top to bottom, or three-fourths of the height when there is a division, as shown in the figure at p. 203 of the *Chronicle*. In an English window, and where economy is studied, the case need only reach to the top of the lower sash; but where expense is not an object, and if the room be otherwise sufficiently lighted, it is advisable to let it occupy the entire space of the window, covering both sashes. The additional height would give room for several shelves, which might be readily got at by drawing down the top sash; but the principal advantage would consist in the ample space gained for climbing plants, which might then be made to occupy not only the sides but the front.

When there are other windows in the room to secure ventilation, it is not necessary that the sloping light should open, especially if the window has not a southern aspect.

In most cases, where any opening is required, sufficient air might be admitted by a casement occupying a single square, either on one side or in the top-light.

In winter it is essential that the joints of all openings should be made air-tight by pasting slips of paper over them; in our ill-ventilated apartments the supply of air required for respiration, and the combustion of fuel, is obtained by allowing a cold atmosphere to rush through every chink and crevice about the doors and windows, and such currents in frosty weather would destroy the flowers and foliage of any plant exposed to them

Before I proceed to the subject of plants adapted for window gardens I would suggest that those who intend to adopt them would do well to study carefully the papers of Mr. Errington on "Winter Flowers," and those of an "Amateur Gardener," which have appeared from time to time in the *Chronicle*.

In furnishing the garden it is evident that in order to produce the best effect, the habit of the plants should harmonise with the limited dimensions of the structure intended to contain them; moderate sized flowers of clear and brilliant colours, delicate foliage, and a compact habit, are the points to be chiefly attended to in selecting the plants.

In summer and autumn there can be no difficulty in providing an abundance of plants among the endless varieties of Pelargonium, Fuchsia, Calceolaria, Verbena, and Roses. The following list consists chiefly of plants from which a succession of bloom may be obtained at the season when flowers in a room are most valuable, from the end of October to the middle of May, but many of them will flower in summer if it be desired.

Chrysanthemums, dwarf plants of small flowered varieties
Camellias plants of a similar character
Primula sinensis.
Cyclamen persicum
Cinerarias
Bulbous plants, Hyacinths, Narcissus, Jonquils, Van Thol Tulips Persian Iris, Ixias, dwarf Gladioli, &c. &c
Ericas
Epacris
Fabiana imbricata
Hepaticas
Auriculas
Omphalodes verna
Lily of the Valley
Mignonette
Phlox verna
Violet, double Neapolitan
,, tree
Anemones taken up from the ground with a ball and potted when the flower-buds are ready to open
Turban Ranunculus, treated in the same way
Cypripedium insigne
Crassula lactea
,, coccinea
Chorizema varium
Boltzia mexicana
Chironia frutescens
Daphne indica rubra
,, cneorum
Azaleas, dwarf plants of many hardy sorts, as well as varieties of A. indica with moderate sized flowers. A. viscosa is a very desirable species
Acacia armata
,, paradoxa
,, pulchella
Alonsoa incana
Mimosa pudica
Coronilla glauca
Genista canariensis
Siphocampylus bicolor
Epiphyllum truncatum
Mimulus rivularis, many varieties, with large dark spots
Mimulus moschatus
Pimelea decussata
,, linifolia
,, spectabilis
Portulaca Gilliesii grandiflora
P. Thellusonii, P. insignis and P. splendens. These plants do best when fully exposed to the sun
Verbenas, those of showy colours and the fragrant varieties are of course to be preferred
Polygala cordifolia
Anagallis coerulea grandiflora
Kalmia angustifolia
Centradenia rosea
Fuchsia globosa
Clintonia pulchella
Lobelia heterophylla major
Double flowered Pomegranate
Adiantum Capillus-Veneris
Spiræa japonica
Bouvardia triphylla
Boronia serrulata
Calceolaria bicolor
,, integrifolia
Campanula fragilis
,, garganica
Echeveria coccinea
Sedum Sieboldii
,, coeruleum
Rhodanthe Manglesii
Kennedya coccinea
,, Marryattæ
,, purpurea
,, nigricans
,, Towardi
Mahernia incisa
Stylidium adnatum
,, fasciculatum
Nierembergia intermedia
Nerium splendens, dwarf plants from cuttings *
Pentas carnea
Veronica speciosa
Gloxinias and Gesneras, these would do well in warm situations, if introduced when in flower
Stapelia gemmiflora
,, bufonia
,, venusta
Myrtles; single and double flowered
Myrtle-leaved Orange
Linum lychnidea †
Matthiola tristis †
Gaudia simplex †
Pelargonium gibbosum †
,, triste †
,, tricolor
,, gratum, Lemon scented
,, fragrans, Nutmeg do.
,, sanguineum

* A singular objection to have made to so simple a structure in a country where glass is so cheap as it is in France.

* Cuttings of this, and many other plants, emit roots readily if merely placed in a glass of water. It is, however, a great improvement to surround the end of each cutting with a little Moss, tied with a thread into a ball about the size and shape of a pigeon's egg. When the plants begin to push, they should be potted without removing the Moss, and they will grow immediately, as the roots do not receive the slightest injury.

† Although several of these plants have nothing in their appearance to recommend them, they are all very desirable on account of the delightful fragrance they exhale in the evening.

The Pelargoniums below the line are distinct species. Many of the common varieties will flower well in winter, but for a window-garden, where the space is so limited, and there are plenty of other plants to fill it, it is better to wait and enjoy their flowers at proper seasons. It is, however, desirable to have a plant or two of dwarf scarlet kinds in winter and early spring.

Roses.—Dwarf Roses in pots are now becoming so common that they may be had in flower at all seasons. Any of your correspondents who are Rose growers would render a service to window-gardeners by sending a list to the *Chronicle* of such varieties as from their habit, colour, or fragrance it would be most desirable for them to obtain. I may mention that the Craimoisie supérieure is an excellent variety for winter; and as all the Pompones and Lawranceanas are well adapted for window-gardens, I subjoin a list of varieties of each.

Pompone.	*Lawranceanas.*
De Meaux, rose	Alba minor, white
Carné, flesh	Caprice des Dames, rose
Toussaint, light red	Fairy, pale rose
De Bourgogne, deep purplish crimson	La Lapponne, bright pink
,, à fleurs blanches, white with blush centre	Pumila, rose
Kingston, rose	Rubra, bright crimson
Bizarre	De Chartres, rose
De la Queue, blush shaded	Blanc de Portoner, white
Camellia, rose	Gloire des Laurences, crimson
Bayard, delicate rose	La Désirée, rose
Petite Mignonne, rose	La Miniature, deep rose
Petite Beauté	La Mouche, reddish rose
Carmin, carmine red	Lilliputienne, deep rose
Bicolor, purple and crimson	Pompone bijou, light rose
Mossy de Meaux, rose	Jenny
,, Pourpre Feu	Double, rose
,, Picotée, purple	Multiflore, rose
	Pourpre brun crimson
	Retour du Printems, bright rose

CLIMBING PLANTS.

Maurandya antirrhiniflora	Tropæolum tricolorum
Ipomœa coccinea	,, brachyceras
,, Quamoclit	,, Lobbianum
Sciophanthus elegans	,, minus fl. pleno
Philibertia grandiflora	,, majus fl. pleno
Jasminum gracile	,, pentaphyllum

The above are suited for a frame of the height of the lower sash only; the following require more room, and are better calculated for a frame covering both sashes:

Tropæolum peregrinum	Jasminum odoratissimum
,, Moritzianum	Dolichos lignosus
Clematis bicolor	Maurandya Barclayana
,, azurea grandiflora	Mina lobata, and its varieties alba, pulchella, coccinea
Ipomœa purpurea	Manettia cordifolia
,, nil	,, bicolor
,, rubro cœrulea	,, coccinea
Rose Noisette, Aimé Vibert	
Jasminum grandiflorum	

When the window is large a Vine might occupy the upper part of the frame. To prevent loss of room, the Vine should be planted in a shallow box, placed in the frame, on which a wooden grating should be laid to stand pots upon. The whole being covered with Moss, the box would have the appearance of a step intended to raise the pots in front above the level of those next the room. It would be desirable to plant all climbers in a similar box; this would leave the space disposable for other things that would otherwise be occupied by the pots containing the climbers.

In a large frame there would likewise be room for suspended vases, containing Russelia juncea, Cereus flagelliformis, Saxifraga sarmentosa, Sedum Sieboldii, Vinca minor fl. pleno, Potentilla reptans fl. pleno, and other plants of similar habit.

I am afraid most of your readers will think this communication already too long for the subject it relates to. [No! no!] I must therefore reserve for a future occasion a few observations on some of the plants mentioned in the above lists, and on a very important point—warming the air of the window-garden in winter. [Hear, hear]—*A. C.*

SELECT PLANTS FOR BEDDING OUT, &c. IN FLOWER-GARDENS.

(*Continued from page 284.*)

9. *Oxalis carnosa.*—This species is still more adapted by its structure than the previously described one (O. floribunda) for absorbing an excessive amount of moisture from the soil, and thereby attaining a degree of vigour in its growth, unfavourable to the production of bloom. To avert this, the soil should be taken out to the depth of 18 inches, or 2 feet, and replaced by a bottom layer of coarse brick or stone refuse, to the depth of 9 inches, over which should be placed a stratum of very dry porous turf-siftings, wood-ashes, or charcoal, to 6 inches more, and filled up with equal portions of light garden-mould, and finely-broken brick refuse, well mixed. The plants (or tubers) should be firmly planted in this.

Oxalis carnosa is a dwarf, tuberous, half-shrubby perennial, of considerable interest, requiring a dry cold pit, or cool greenhouse, with protection from frost to preserve it in winter, producing a profusion of bright yellow flowers from May until October. It is well adapted for a small parterre or flower-bed, having full exposure to sunlight. In such a situation, the rose-coloured blossoms of O. floribunda would form a pleasing contrast, as an outer margin. The beautiful dark-green and glossy leaves, and their remarkably brilliant under-surface, constituting a museum in miniature, especially when observed through a magnifier, ought to ensure it a place in every flower-garden.

10. *Campanula stricta.*—(C. sylvatica of Paxton's Magazine).—This is a neat habited half-hardy biennial, growing from 12 to 18 inches in height (requiring a similar protection to the subject last described) producing diffuse panicles of azure blue bell-shaped flowers from June until October. From the very

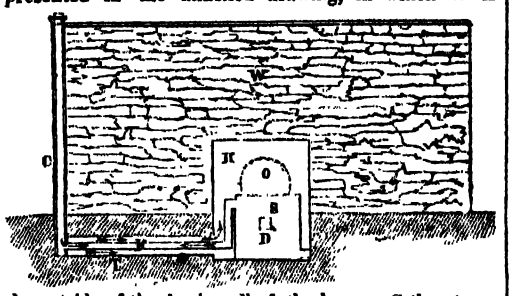
[illegible] seeds, it may by early sowing and other precaution in obtaining a vigorous growth previously to its summer bloom, be adopted as an annual, but to obtain its highest fertility it should be sown in *July*, and preserved in store pots for the following season. Amongst our recently introduced plants this is one of the most beautiful, and by far the most elegant of the Bell-flowers for producing a general effect, whether for massing in beds or for individual interest in the borders. Its prepossessing colour and adaptation for autumnal display will prove it to be a desideratum in every extensive establishment.

11. *Clintonia pulchella.*—This is a tender annual requiring to be sown about February or March, in a hotbed or forcing-house, at a temperature of 65° or 70°; when about one-eighth of an inch in height it should be carefully transplanted to pots of 5 and 6 inches diameter, drained with potsherds to nearly one-half their depth, using a tolerably fine compost of one-half light sandy garden loam, and the remainder in equal proportions of leaf soil and heath mould. When thus established in the above temperature, they should be removed to a shelf or platform, admitting a full exposure to light, or placed within a hotbed of a temperate degree in heat, and preserved from currents of cold air. After being established in store pots, as described, exposure to strong light, a genial temperature (from 60° to 65°), and, if within a frame, a partial shade from intense sunlight, are essential points of management. As the plants increase in vigour, gradually harden them off in a cold frame, with a temperature favourable to their continued growth, regulating the admission of air by the external atmosphere: it should always be given in an opposite direction to the wind, by elevating the lights sideways as the current varies. This plant is generally considered too delicate for open exposure in beds, and is mostly seen expanding its lovely flowers in the greenhouse or conservatory. Why it is not oftener seen in our parterres can only be attributed to an absence of the conditions essential to its growth. It would be as reasonable to expect the growth of timber trees equal to our navy in a gravel pit, as to look for the perfection of beauty from Clintonia pulchella in our ordinary flower-beds. It is a plant of slender and delicate habit, growing from two to four inches in height, and producing a profusion of sapphire blue flowers, with a yellowish white centre, from June until September.

Being one of the smallest, as well as the most beautiful plants that adorn our collections, a comparatively small amount of nutritive matter is sufficient to produce its highest vigour, and Nature has been so prodigal as to give it a tendency to form flower-buds in much greater profusion than is essential to its existence. To adapt its growth for producing a general effect in the flower-garden, the following treatment should be observed:—Take out the soil to the depth of 2 feet, and replace it with full 12 inches of bottom drainage of brick or stone refuse, over which add a stratum of coarse wood-ashes, or dried turf-siftings, and fil. up with a compost of one-half well-pulverised garden loam, and equal portions of heath-mould and leaf soil, well incorporated with white sand to one-sixth of the whole amount, and passed through a tolerably wide sieve. This artificial preparation should be made a short time previous to the season suitable for planting (latter end of May). The operation should be performed in warm moist weather, and, if possible, without dividing the plants, by inserting the balls entire from the pots. Should the season prove unfavourable, the transplanted stores should be covered with portable hand-glasses, partially elevated at the corners to admit uniform air when requisite, or elevated sideways, contrary to the wind, and covered close by night, if needful. It is also a charming acquisition for adorning rock-work, where it appears "at home," partially screened from the mid-day sun.—*W. Wood, Pine-apple Place.*

Home Correspondence.

Polmaise Heating.—Until I saw the facts from Polmaise (p. 251), I was under the impression that the fire of the stove was supplied with air from the cold drain, and consequently from the house; and that, in fact, the renewal of the air of the house, by a fresh supply from without, depended on the constant abstraction of a portion to feed the fire. On this supposition my communication at p. 285 was drawn up, and the plan it contained was intended to provide for bringing in and warming a fresh supply of air to meet this consumption, and prevent an injurious indraft of cold air through the laps of the glass and other crevices, mixing with and reducing the temperature of the warm current. I perceive, however, from Mr. Murray's statement, that the fire of his stove is supplied from the external air, without having any connection with the interior of the house; and he recommends this arrangement in order to obviate all chance of a reflux of the gaseous products of combustion from the stove into the house. But it does not appear how Mr. M. provides for renewing the air of the house—whether he has any specific provision for taking in a supply of fresh air and allowing that which has been used to escape, or whether these changes are left to take effect as they best may, through any crevices or undesigned openings left in the house. In the latter case the effect must be uncertain; and I should think little or no change or renewal of the air can really take place; for though in a state of constant movement and circulation, it must in the main be the same body of air, the particles of [illegible] the lungs of the plants in the house. Or if we suppose that a renewal of the atmosphere of the house is actually going on, by the escape of a portion of it, and the entrance of fresh air from without through the crevices of the house, it must obviously be done at the expense of the warm current, having its temperature reduced by the intermixture of cold air. In every view of the subject, therefore, it seems desirable that a distinct provision should be made for introducing a supply of fresh air, by such means as shall insure its being warmed before it can enter the house; and I do not know any way in which it can be so economically done as by means of an air tunnel surrounding the flue of the stove, and communicating with the hot chamber in the manner I have described, so as to appropriate the heat absorbed by the flue, which would otherwise escape and be lost. But the arrangements would require to be modified to suit the altered condition of the problem; for as the fire of the stove is supposed to have no communication with the interior of the house, the mouth of the air tunnel must be placed below the level of the cold drain; otherwise the source of the circulating current would be reversed, and the warm air would be discharged into the atmosphere through the tunnel. This arrangement is represented in the annexed drawing, in which W is



the outside of the back wall of the house; S the stove, the flue of which, F, first descends, and is then carried horizontally to the end of the house, where it enters an ordinary brick chimney C; the air tunnel T surrounding the flue communicates at one end with the external atmosphere (where it is fitted with a register plate or valve), and at the other with the hot chamber H; D represents the position of the cold drain, communicating with the hot chamber on the further side of the stove, on a higher level than the air tunnel; O is the opening by which the warm air enters the house.—*J. H. B, B—k, April* 30.

Morphology.—The following woodcut represents a curious and interesting instance of morphology in the branch of a Cape Heath. The specimen was cut from E. Hartnelli; it has been about 3 years in forming, and it is now beginning to decay. The plant is young and healthy, and about 4 years of age. I have seen similar illustrations of this doctrine in branches of other plants, but never before in the Heath tribe.—*W. M.*



Ventilation of Hothouses.—I think your modification of Mr. Williams' plan of aëration (267 *c*), is incorrect in principle, and I doubt if it would work. Heat is very slowly transmitted through still air, and I doubt if it would be transmitted at all downwards. The air at the top of the house heated by your plan, would expand and escape upwards through the interstices of the screen; but would not descend and displace the colder and heavier air below. It would, I think, be a more effective arrangement to place your perforated zinc at the bottom of the house (in an angle which might be made variable, so as to receive the sun's rays at right angles, as nearly as may be according to the season of the year, and the bottom or back of the aërating chamber to be painted black, so as to absorb heat during the day and radiate during the night.—*J. S. H., Perthshire.* [We are sorry to find our plan so misunderstood; but, upon referring to it, we do not see how we can make it plainer. *We* did not mention perforated zinc.]

Fruit-tree Borders.—In regard to the inquiry of your correspondent, p. 288, after a method of obtaining suitable soil for renovating a border without robbing arable soil of its vegetable mould, I would suggest an accumulation of common soil disposed in a long and not too broad heap like that of a Potato-pit, and allowed to remain for several years to "meliorate" by the influence of sun and air, as it is found to do in a remarkable degree. Soil in its natural position on the surface of the ground, even although thorough drained, contains too much moisture to admit of being permeated by the air; but when placed in a heaped mass, the rain which falls on it drains off, leaving behind its atmospherical treasures, the air itself follows, and thus a natural interchange and circulation of air is always passing through the mass. These beneficial influences would be increased by turning over the mass twice a year, and if the surface were sown with Grass or Turnip-seed, this when turned down, would create a portion of vegetable mould.—*J. S. H., Perthshire.*——The case of "worn out borders" appears a particularly suitable one for analysis of the soil. Not a "guinea" analysis, but a really effective and searching examination of its contents, organic as well as inorganic, to ascertain what the trees have left behind, as well as what they have drawn off. The latter may be, at this time, with the many recent analyses of vegetable ashes, roughly estimated from an average of the fruit; but the former has not yet been thoroughly gone into, notwithstanding the excellent and valuable experiments of Dr. Daubeny. And there is a further consideration, of probable practical importance—the state of composition of the soil in relation to the action of weather and vegetative force. Such an analysis should be performed by an experienced hand, who would not grudge his time nor hasten his results, but would, at every step of the process, bear in mind the importance of the object.—*P.*

Canker in Fruit Trees.—That one of its causes is atmospheric influence I think the following fact tends to prove:—In 1843, I think, far on in May or in the beginning of June, after a period of unusually warm weather, and after a very warm day, when vegetation was rife, and the sap running in full vigour, there was a night of severe, I may almost say, for this country, intense frost; previous to this I had a young standard Ribstone Pippin in the most vigorous growth, and perfectly free from the slightest appearance of canker, or any other defect, and the bark so smooth and healthy as to attract my particular observation the day preceding the frost. A few days afterwards I observed the canker had assailed it in every part—upon the trunk and upon branches; upon the former in numerous blotches, more or less deep, and showing themselves as if seared and contracted by the application of a hot iron; whilst in numerous of the branches the injury had entirely encircled and killed them. The tree continues to live, but not recover, although this season it bears some evidences of improvement. All the other Apple trees were affected in my garden, more or less, but as they had not previously attracted my particular attention, I can only say I had not previously noticed the canker in any of them, though it was speedily perceptible enough after the night in question. I will not trouble you with any theory or comments of mine; I merely state a fact which attracted my particular attention at the time of its occurrence.—*J. G. B., Exeter.*

Wireworm and White Mustard.—Two years ago I broke up some old sward; part is appropriated to a kitchen garden, and part for raising green and root crops for cattle. I have suffered from wireworm to a considerable extent; last year my crop of Potatoes was nearly cut off by them, and I am fearful many of my present year's sets will share the same fate. Lettuces and Cauliflowers have many of them fallen a prey to this destructive enemy; 57 were found at the root of one plant. I have seen it mentioned in some publication lately, that while Mustard sown on the land is a sure cure for wireworm; can anybody from experience throw a little light on the subject? I have tried sliced Potatoes and a skewer, and tiles baited with crumbs of bread, with success, but these are slow processes, and I want a more extensive and prompt one.—*M.*

Gold Mohur Plant.—There is more in your correspondent's inquiry respecting this than at first occurs to a person who has not been in India, and has only been accustomed to hear or read of a coin called by Europeans in India the "gold mohur," by a sort of tautological expression similar to the term "golden guinea" at home. Of course the natives of India know nothing of this bizarre union of an English and a Hindoostanee word; yet they have a term denominative of a certain tree or shrub which in sound so closely resembles gold mohur, that it might easily, and, in fact, I believe is taken to be identical with it by Europeans who are unacquainted with the real orthography and derivation of the native term; and hence the shrub referred to is vulgarly called the "Gold Mohur tree." The native word is gool mohur, or gool mor, a compound term from the Persian word gool, which specifically signifies a Rose, but in a more general sense means simply a flower, and in this sense combines with other terms and forms compound words, denominative of certain flowers, shrubs, &c. Thus gool-shubboo is the Tuberose, gool-abbas the Marvel of Peru, gool-mehudee the Balsam, and the word under consideration, gool-mohur or mor, is the Barbadoes Fence-flower, or Poinciana pulcherrima.—*J. H. H.* [See p. 286.]

Hydraulic Machines.—Soft water—so essential to the beauty and fertility of a garden, and so absolutely necessary in a dry season, not only to bring flowers to

[illegible] distance, by an [illegible] engine, manufactured by a working plumber. This hydraulic engine I have had erected about 100 yards from my garden, and it throws up a gallon of water per minute, or rather more—say 100 gallons per hour, from a small brook, from which, hitherto, the water has been carried by hand up an incline, a most laborious occupation. The machine cost about 20*l.* and by it I save the labour of two men when I require to give my garden a thorough watering, which is often the case during the summer, and what is of as much consequence, I can at any time thoroughly cleanse all my drains. The engine works so easily—it can be left going all night without fear of damage! and is, moreover, a pretty thing to look at.—*Hydrangea.* [*Pray* tell us more about this.]

Vine Forcing.—I perceive that some doubts are entertained as to what degree of humidity should be kept up while Vines are in bloom; and it is asserted that I recommend in my "Treatise on the Vine," a high temperature and humid atmosphere. True, I do recommend these at stated periods, and I consider a high temperature and a very humid atmosphere at those periods of the greatest importance to Vines in good health. I have not got Simmons's hygrometer, but the moment I enter any of my forcing houses I can tell whether the air is too dry or too moist; the latter it scarcely can be, unless in cloudy and wet weather. If your correspondent will refer to pp. 47, 48, and 49, and again to pp. 63 and 65, he will find that when the Vines are in bloom I recommend the atmosphere to be kept rather dry. I have, however, had Vines set their fruit equally well in a humid as in a rather dry atmosphere, keeping a low temperature at night and allowing the house to become dry before nightfall. The amount of humidity at other times, as mentioned in my Treatise, is obtained by saturating the flues, pipes, or pathways, or by keeping up on bright clear days a ceaseless vapour (keeping the house dry and cool through the night), from the time vegetation commences up to the time the Grapes change colour, withholding vapour partially when in bloom; and in wet dull weather as before stated, raising the temperature when in bloom to 75°, 80°, or 85° during day, admitting air cautiously at that time, so as to keep the temperature steady, and letting the temperature of the house fall to 60° or 65° in the night; by strict attention to these things success will assuredly follow.—*James Roberts, Raby Castle.*

Slugs and Snails.—I have used for snaring these (and with good success too), deals, slates, &c., but, above all, a good large Turnip, with a cavity scooped out, and a few notches made in the edges to admit the visitors. I then melt a quantity of butter and hogs'-lard, and brush it on the inside of the scooped Turnip while molten; then lay them down near any herbaceous plants in the borders, &c. I then send a boy round once, in the heat of the day, to collect the spoil, which often amounts to 30 or 40 in each Turnip.—*Banks of Doveron.*

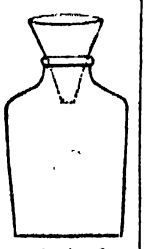
Green Wood for Furnaces.—Perhaps the evil complained of at p. 270 arose from over-heating the flue, which is not improbable, or by hot or foul air escaping, and not from its being impregnated with "deleterious materials," used as firing. It would be strange, indeed, if such fuel affected the flue in such a manner as to require the whole fabric to be built anew. I have myself often burned all sorts of green wood in furnaces, and can therefore speak from experience, and never perceived any ill effect from it, provided the flues were in good order. While on this subject I may mention that flues must be badly constructed when, as Mr. R. Crawshay justly observes, the heat is such at the top of the chimney as to be capable of roasting a beef-steak; in every such case the heat that was intended to be expended on the plants considerably escapes. The like often happens with flues in small houses or pits when they are built of strong and thick materials, and pass in a direct line to the chimney at the upper corner, which then acts simply as a vent for the hot air, without allowing time for its influence in the house itself. Such was the case with a flue in one of my Cucumber pits, until I had it rebuilt with very thin bricks and covered with common tiles used for roofing houses, called pantiles, with a few stronger tiles adjoining the furnace, having a damper in the chimney. I found that this flue with half as much fuel gave out more heat than the former one: and, in addition to this, another great advantage is that the pantiles covering the flue formed a trough capable of holding water, and, of course, answered the same purpose of generating a steamy vapour as the open gutters in hot water pipes do. I have no wish to enter into details concerning the various modes of heating hothouses now-a-days, still I should prefer the flue in question to some of the novel and costly plans which in some cases, in my own neighbourhood, have proved a failure.—*J. Wighton.*

Pyroligneous Acid.—Your correspondent's chimney, which has its bricks impregnated with pyroligneous acid, which it emits in vapour, would be amended, if not entirely cured, by having such bricks well whitewashed with quicklime, which would unite with the acid and decompose it when subjected to heat.—In reference to Dr. Kircher's weather rules, may I ask here they are to be obtained, and at what price?—*P.* [We do not know.]

Hedge Budding.—Your correspondent, Mr. Cassiles (p. 286), objects to my plan of budding Roses in the hedge, and considers that his practice, the old one, is preferable. I cannot help thinking, however, that his [illegible] transplanted in October of one year, capable of bearing perfect flowers of a budded Rose in vigour during the course of next year. My plan is invariable; and I have near my window at this moment a Madame Laffay Rose, budded last September, with a shoot of 9 inches in length, and with every likelihood of bearing a flower as early as any of my old standards in the garden. With respect to the danger of losing the plant in removal, I can say that none of mine have suffered by transplanting, but one, which was destroyed by accident. To prevent any such mistake in future, the method recommended by Mr. Rivers, of Sawbridgeworth, seems quite effectual. He advises the rambling tap roots of both fruit and flower-trees to be stopped by cutting them off with a sharp spade about a foot or two from the stem, and a trench to be formed at that distance and filled with good manure. This forces the plant, still growing, to make up for the want of its rambling tap root by forming during the winter and spring a bundle of fibrous roots that are quite sufficient for its nourishment, and tend more to the formation of flowering shoots during the succeeding year. Mr. Rivers remarks in his Essay, which was read before the Horticultural Society, that many of the Roses, as well as Apples, Pears, and Plums, may be checked in their over-luxuriance and tendency to form wood instead of flowers, and forced to produce blossoms in incredible abundance. In thus docking the main roots, Mr. Rivers recommends us not to meddle with the branches, which would give the plant too much to do in recovering itself, and seem to be like burning a candle at both ends. Mr. Cassiles has found his Roses quite established within a year of their being budded. I have not been fortunate enough to see any Roses so treated that have become fine-flowering and luxuriant plants under several years' growth. By my plan they must, under ordinary circumstances, become fine plants in less than 18 months, and thus time must be saved. In short, the system of hedge-budding gains two important points, which the usual plan cannot secure—a luxuriant start, and a steady vigorous growth, while the Rose is establishing itself in its new colony, without exposing it to any more casualties than are necessarily incident to the common system. My opinion is still in favour of budding in the early part of the day, or in the evening, as I have found out of 103 attempts, that those succeeded best which were made before breakfast, and after tea in the evening. The author of the "Tree Rose" advises his readers to choose those times, as evaporation is less, and growth less speedy then. The same writer recommends August and September as the best months, as the stock is not so impatient of being meddled with at that time, and the shoots are not so weak and pulpy as they are in June. I shall try to bud this summer, at this early period, however, according to Mr. Cassiles' practice, and with the encouragement of his experience, shall look for a fresh Rose garden of the finest quality among my hitherto untouched wild Briars, in the short space of 35 or 40 days. Mr. Cassiles, even at the shortest, cannot show the same effect in less than 10 months. Whoever possesses a field free from the intrusion of bird's-nesting or mischievous school boys, may pursue the same rapid process of horticulture.—*W. Thomson, Ockham Rectory, Surrey.*

Cotoneaster microphylla.—The communication under this head (p. 269), has induced me again to take up the subject. I will adduce a simple fact in favour of my assertions, which is probably not generally known in this country; namely, it being grown in greenhouses on the Continent, from the south of Germany northwards, and always with the same peculiarity of growth. My own opinion upon the subject, although perhaps a wrong one, is that it is the influence of the solar rays upon the young wood, but in what way I will leave physiologists to discover.—*Curiositas.*

Wasp Traps.—Your correspondent (p. 270) will find a large mouthed bottle, such as is used for preserves, with an inverted hollow tin cone inserted, to answer his purpose better than the trap figured at p. 270, for, by removing the cone, the bottle can be emptied much easier than the one just referred to.—*E. B.*



Virginian Nightingale.—The answer to the inquiry (page 152), as to whether Virginian Nightingales ever sing in this country—has already been given, but I can answer not only for their singing, but that they begin to sing so vehemently with the first dawn of light as to rouse every one within hearing of them; and a singular circumstance relating to one that I possessed three or four years ago was, that taking it frequently backwards and forwards on the Birmingham railway, it never failed to begin singing, and to continue its song (although covered up) from the moment it entered the Watford tunnel, till it emerged from it again. —*Genista.*

Cottage Garden Societies.—The following is a copy of the Rules of our Cottage Garden Society, and I can say from the experience of many years, that the results are gratifying; so much so, that we have thrown the exhibition open to the cottagers of the whole township, with increased funds contributed by the benevolence of the neighbouring gentry, who all act as judges, and take as much interest in dividing the prizes amongst the cottagers as they would have in obtaining them for themselves or for their own gardeners. We cannot but [illegible]

Rules to be observed by the Cottagers and Subscribers of the Cottage Garden Society of Haughton-le-Skerne.

1. That the term cottage garden shall be understood to be a garden of not more than 1 rood of cultivated land, and managed by the cottager and his own family; having no glass frames, excepting his small hand-glass, for striking pipings or cuttings, or to spring his Dahlias, &c.; although he may be allowed to occupy as much as 4 acres of Grass land for keeping a cow, &c.; and whose rent shall not altogether exceed 12*l.* per annum.

2. Any cottager may subscribe a small sum to the fund, as it will increase his interest in the concern; and any visitor may throw in his mite to increase the fund for the cottagers' prizes.

3. All specimens to be placed in their proper classes, as set down in the list of the 4 shows, by the exhibitor or assistant, with some private mark or device, whereby it may be proved or recognized, after the decision of the judges has been made, and of which the Secretary must have private or sealed notice.

4. All specimens shown for prizes shall have been in the possession of the exhibitor for at least 2 months prior to the time of exhibition, and if a half-hardy plant in a bouquet of border flowers, it must have been planted in the open border 2 months before it is shown.

5. No cottager residing out of the township of Haughton-le-Skerne shall have the privilege of exhibiting any specimens for prizes, excepting that township in which he resides shall contribute such sum into the fund as the judges allow to be a fair proportion.

6. No exhibitor to have more than 1 prize for the same variety in the same class, that is, he cannot be first and second with the same variety of fruit, flower, or vegetable.

7. The judges and committee shall be all the subscribers of 2*s.* 6*d.* and upwards, and a majority of those present at the time of judging shall be final, the chairman to give the casting vote if wanted.

8. To encourage the industry of the young, any boy of 16 years old or upwards may exhibit from his little garden, any specimen of flowers, cultivated by himself only, and obtain a prize in the class, if judged deserving.

9. The judges to commence precisely at the hour that all are to be in the room, and to place the specimens first, second, third, and fourth from left to right on the benches, the clerk or secretary then writing down the specimens, with the names of the exhibitors, as proved by the private mark attached when placed in the class.

10. The chairman or secretary will then announce to the company the successful exhibitors, with any notice necessary for the succeeding meetings, &c.

11. All subscriptions to be paid before the first show, except new subscribers or visitors, who may pay at the time of entering.

12. The whole of the subscription fund to be paid as prizes one week after the last show, when the books will be made up and open for the inspection of any subscriber, in the school room, where the prize money will be paid.

13. The garden in the best order will be confined as heretofore, to the 10 lots of cottage garden behind the school.

14. All questions or disputes to be referred to the judges or committee, and be decided by a majority of them.

15. That Mr. Scotson be the treasurer and secretary for the time present, and Mr. Stainsby assistant secretary and manager in the show room.

Bees.—The season for the swarming of bees being fast approaching, hives intended for their reception should now be exposed to the rays of the sun for a few days, that they may be thoroughly aired, then to be well brushed out, whether of straw or other material, after which to be thoroughly washed inside with honey or sugared ale previous to the reception of swarms. Should rainy or cold weather for three or four days take place, let the bees be bountifully fed either with honey or sugared ale, warmed over a slow fire to the consistency of syrup, pour it into a flat plate, covering the same with a piece of stout paper, perforated with holes by a stout needle; place it under the hive in the evening, and take it away every morning. Destroy spiders, shelter from the rain, and shade from the sun. —*Wm. Savage, Swaffham.*

Sibthorpia europæa.—The introduction of this plant as a covering for the Peat, Moss, &c., necessarily employed in the cultivation of many species of Orchids, would be a valuable acquisition. Its small green leaves and compact creeping habit, admirably adapting it to such a purpose. Instead, therefore, of the disagreeable appearance of dead Sphagnum, which meets the eye in all directions, the spectator would look with pleasure on this little native of our favourite isle, rambling with modest and delicate luxuriance amongst, and giving additional loveliness to, its nobler tropical acquaintance.—*Curiositas.*

Potato Crop.—As all information respecting the Potato crop of the forthcoming season is acceptable, I beg to mention that a large three-light frame planted with the sorts of Potato known in this part of the country by the names of Early Frame, Early Malta, and Cornish Kidney have as yet manifested no symptom of disease. I dug the first for Easter Sunday, and have twice since tried them; and sounder or better Potatoes I never ate, being more floury than frame Potatoes usually are. I have, moreover, in the open ground in my garden (the greater part of them fit to round hoe), well up, remarkably strong Early Malta, Early Frame, and White and Red Kidneys; they all were planted whole, and the generality of them have five or six stems to each tuber. My gardener was very particular in selecting the seed tubers, and I myself with him, looked over them all before they were planted; I then observed that many Potatoes that were themselves quite sound, and whose shoots were very strong, had at the rise of the shoot from the tuber a species of wet rot; and having tried two or three of them, found that they never came up. If other persons have not been thus particular, I fear that many a Potato has been put in that will never come up again.—*Italiano, Garrington House, April 20.*

Societies.

HORTICULTURAL SOCIETY.

May 5.—Mr. E. Beck in the chair. H. Petre and J. C. Weir, Esqrs., were elected Fellows. A curious

meeting came from the gardens of the Duke of Norfolk, at Arundel, at Syon, in the shape of Platycerium grande, one of those remarkable Ferns which grow on trunks of trees, deriving their sustenance from the atmosphere, and multiplying themselves by means of little patches of cinnamon-brown bodies, attached to the under sides of the leaves, looking something like diseased spots. A number of seedling plants, raised from these bodies was produced, exhibiting a curious peculiarity of growth. The young plant increases in a horizontal direction for a time, then strengthening, throws up from the centre numerous large fronds, having the appearance of antlers, a form of growth observed by all the Platyceriums. A Knightian Medal was awarded for this noble Fern, of which not more than two or three plants are as yet in England. To ensure success in raising seedlings, it was mentioned that the seed must be sown immediately when ripe. Messrs. Henderson, of Pine-apple-place, sent Hypocyrta strigillosa, a Solanum with lilac blossoms, misnamed Salvia azurea, said to be suitable for bedding out, and Tremandra verticillata, a pretty little Heath-like Swan River plant, with beautiful violet flowers, having reddish purple centres, the two colours strikingly contrasting with each other; a Banksian Medal was awarded it. From the nursery of Messrs. Rollisson, of Tooting, came Bifrenaria inodora, a rather pretty Orchid, having much resemblance to Maxillaria Harrisoniæ. Mr. Beck, of Isleworth, again sent a handsome green slate basket—an improvement on that produced at last meeting—containing two Orchids: Trichopilia tortilis, remarkable for its twisted petals, and Oncidium triquetrum, a rare East Indian species, with small pink spotted flowers. Sir T. D. Acland, Bart., sent blooms of a purple seedling Rhododendron from the open ground, and a bundle of Asparagus, for which a certificate was awarded. This was an exceedingly fine sample, 106 heads weighing 10 lbs. 15 oz., each head being thicker than the thumb. From Messrs. Keeling and Hunt, of Monument-yard, were two Yams, weighing respectively 10¼ lbs. and 7½ lbs., and samples of unprepared Ginger in a fit state for planting. Specimens in spirits received by Mr. Low, of Clapton, from his son, who is now in Borneo, were exhibited. One of the plants was stated to be a beautiful species of Hoya, with large white flowers with purple centres. All colour had, however, been extracted by the fluid in which they were preserved, and therefore little can be said about them in their present state. The other was an Epiphyte, and was mentioned to be an object of extreme beauty. It was found by Mr. Low, growing on old trunks of trees, producing long chains or racemes of inflorescence, 9 or 10 feet in length. Living plants of these were stated to be in England, and if we should succeed in flowering them in perfection, they cannot fail to be striking objects in cultivation.—Of Miscellaneous Articles, Messrs. Edwards and Pell, of Southampton-street, Strand, sent two glass milk pans.—From the Garden of the Society were Corethrostylis bracteata, a Swan River Shrub, of which much was expected, but which has proved a partial failure, its pink flowers although produced in abundance, wanting brilliancy of colour to render them sufficiently attractive; Eriostemum buxifolium covered with delicate pink stars; three Indian Azaleas, a Cape Heath, Gloxinia caulescens, a Cineraria, a variety of Gesnera Douglasii, a rambling Oncidium from Guatemala, something in the way of O. Wentworthianum; a variety of Gongora maculata, Cyrtochilum hastatum, and a plant named Mina lobata raised from seeds collected in Mexico by Mr. Hartweg, in his new expedition to California. From the appearance of the foliage of this pretty little plant, nobody could doubt its being a Convolvulus, which it certainly is, but the flowers are very unlike those of that tribe; instead of growing singly and spreading, they are contracted at the points, and produced in long, one-sided racemes, of a bright Orange in an early stage, but becoming pale yellow when full blown. From the same collection was also a bloom of the curious stove climber Aristolochia gigas, whose large concave helmet-like blossoms have attracted the attention of everybody who has visited the gardens for some time back. Various specimens of wood exhibiting curious expansions of different forms, looking as if they had been carved, were produced. These were, however, not carved except by the hand of Nature; they were the work of a parasite nearly related to our Mistletoe, which, insinuating itself among the ends of branches, and increasing slowly, stops all growth in that direction. The tree, however, makes an attempt to grow laterally, and in time almost encases the parasite in its woody embrace; at last the latter shrinks and tumbles out, leaving the beautiful anomalous expansions in question. These specimens were brought over from Guatemala by Mr. Skinner, and show what is going on in these respects in the woods of the tropics.

Rebiews.

Industry of the Rhine. Series 1. *Agriculture.* By T. C. Banfield. 12mo. Knight.

Here we have another of Mr. Knight's capital shilling volumes, containing more sterling information than used to be found in the fashionable two-guinea quartoes of but a quarter of a century ago. The object of the author is to describe the peculiar agriculture of the peasant population of the Rhine, to point out its merits, and to expose its defects, all which he has done well; and the picture which he draws may be looked upon with great advantage by our small farmers and their landlords. It is not, however, with the agriculture of the Rhine that we have to do, save only so far as that of the Rhine may be blended in this other half of our Empire on a future occasion. It is for some highly interesting information concerning the management of the forest lands in the Odenwald and the Black Forest that we recommend it to the notice of our class of readers.

In Germany, as in all countries where supplies of coal are scarce or unattainable, the practice of foresting reaches its highest degree of skill, in consequence of the immense importance of firewood. And it is to such countries that the young student of arboriculture, whether youthful in age or in experience, should turn his eyes. Mr. Banfield points out in a striking manner how much he might be so improved. We have no room just now for discussion of the principles observed by the German foresters, nor, indeed, does the subject call for it. We prefer giving the following extracts from the volume, in the hope that it may be read and studied as extensively as its merits deserve:—

"Our table (page 103) shows the quantity of timber that can be produced upon a given area of land in 120 years. The table is calculated for a measure which is about one-third less than the morgen of Prussia or Baden, so that the reader is here made to feel one difficulty that accompanies all these investigations in Germany, viz., the endless changes in the weights and measures that the various states adhere to. Another calculation of the forester is the ground or area that his trees cover with their branches. This area, when ascertained, shows the number of trees that he can allow to stand upon any given measure. The ground covered by all kinds of trees at the various periods of felling has been carefully ascertained, and a picture of an Oak wood divided into five portions, each portion, except the first or seedling period, being covered with an equal extent of shadow, may be presented by a table like the following. The number of trees to be felled at each period is here seen to be prescribed by the growth of the crown or upper branches.

	No. of Trees.				Total in Sq. Feet.	
	30 yrs.	60 yrs.	90 yrs.	120 yrs.	Trunks.	Crown.
First Period (Seedlings)						
Second Period	391	..	..	..	391	7820
Third Period	295	30	..	..	325	7820
Fourth Period	163	30	20	..	213	7820
Fifth Period	59	30	20	10	110	7820

"It is, however, not usual to cover the whole surface, and at the felling period seldom more than one-half is covered by Beech and Oaks, in order to leave light and air for the succession that is to replace what is taken away. Firs are differently managed, and are kept as much as possible at the same age. When a portion of a Fir-forest is felled, the ground is therefore left perfectly clear for the seedlings.

"The description of Oak that most abounds in Germany is a very beautiful tree that grows straighter than the Elm or the Beech, and when judiciously pruned, runs up to the height of 65 or 70 feet from the ground to the crown or top branches. The table we have given above supposes an Oak of 150 years' standing and 70 feet in height to cover with its branches an area of 346 square feet. A tree of 120 years' growth 65 feet in height covers 226 square feet; one 90 years old spreads over 132 square feet. The beauty of a tree of this kind consists in its perfect soundness and vigour, and the finest specimens are found in forests in Germany, where the trees afford each other protection against the cold winds. Hardy as the Oak and Fir appear when their growth is flourishing, yet the dangers they encounter are various. A severe winter often destroys whole acres of seedlings or of young plants. The wind in an exposed situation may tear off a branch, whose stump remaining jagged catches the rain, and beginning to rot, the decay penetrates into the core. Lastly, an orifice made in the bark by a small puncture when the tree is young, lets in moisture at an advanced age, and when the thaw sets in after the winter frost the splitting of trees that have suffered in this manner causes a report like that of a musket.

"An undefined notion of the cheapness of timber in Germany has long prevailed in England. We shall see that the Rhenish districts do not participate in this advantage. A rapid rise has everywhere been experienced in the price of wood, that is acknowledged to operate unfavourably on the general prosperity of the Rhenish states. Details that can be relied upon have only been published for the Grand Duchy of Baden; but these will suffice to show the relative increase in the price of timber and fire-wood when compared with other agricultural products. Within the last 10 years the price, according to recent statements, has advanced from 30 to 40 per cent. The average price for 1 cubic foot in the forests of Baden was in

		1833	1838	1843
		Kr.	Kr.	Kr.
Timber	Oak	17	23.6	21.6
	Fir	10	13.5	12.5
Firewood	Oak	12.6	16.7	16.7
	Beech	9.6	13.1	12.7
	Fir	7.4	10.7	10

Three kreutzers make exactly one English penny: the present price of choice Oak timber, in stems of 65 to 70 feet in length, with 3 to 4 feet circumference at 30 feet from the root, is now 7½*d.* per cubic foot in the forest, or 9*d.* to 10*d.* delivered at any spot on the Rhine. Firewood (Beech) has risen from 3½*d.* to 4½*d.* per cubic foot, an advance that renders the whole fuel consumed 30 per cent. dearer than in 1833. That this is oppressively felt is evident from the large proportion of wood consumed for coal, which in Baden is 76 per cent. of the wood annually felled, but which Mr. Hasse, that is best favourably situated for exportation, amounts to 94 per cent. of the whole.

"The rise in the price of wood is the more remarkable that it stands alone amongst the products of agriculture, as is shown by the following comparison of the values of timber and grain for long periods in Baden and Wirtemberg:—

Years between,	Price of wood.			Price of Corn.		
	Average.	Beech.	Fir.	Wheat.	Barley.	Wine.
1640-1680	1	1	1	1	1	1
1690-1730	1.32	1.54	1.10	1.42	1.46	.8
1740-1780	3.77	3.62	3.93	1.54	1.25	1.6
1780-1830	10.76	9.19	14.27	2	1.72	4

"This highly interesting table, which we borrow from a recent publication, shows that a moderate price of corn in no way reduces the value of other agricultural products. As we have already said, cheap food contributes to raise the demand for other things. This is evinced as well by the price of wine, in the last column, as by that of fire-wood; and it is further proved, if not by increasing prices, at least by the increasing consumption of all articles of clothing."

"The system of foresting practised at Siegen is founded upon the principle of obtaining the greatest possible yield of wood suited for charcoal-burning, combined with the best crop of bark, an article that latterly has very much improved in price. It is well known that of late years the greatest production both of charcoal and of bark for tanning has been ascertained to be derived from young trees and branches, and the forest system of Siegen turns both to the best account."

"The manner in which charcoal is burnt in the woods of Siegen is the following:—A plot of ground of a circular form is prepared by removing all stones from the surface, and making it perfectly level. The bottom is stamped hard, and if not raised by the accumulation of charcoal dust from former burnings, must have a ditch drawn round it to carry off water. In the centre is fixed an upright stake, round which the wood, split into pieces of 3 inches or little more in diameter, is piled on end. The wood is chosen as equal in sizes as possible, and is placed piece by piece in the round, the longer pieces 10 to 12 feet high in the centre, and the shorter gradually diminishing towards the outside until the mass assumes the shape of a flat cone. An inner covering of Moss and turf is laid over the heap, and is again covered with clay sifted to free it from stones. In this outer covering 12 to 14 holes are made after it has been stamped till it hardens. The stake in the centre is then drawn out and fire laid upon the top, the gradual progress of which is anxiously watched by the coal-burner, who opens or stops up the air-holes according to the direction and strength of the wind, that the whole may burn evenly and thoroughly. When all is burnt out, the earthy covering is loosened at bottom, and peels off the heap easily. The coals are spread out, and those not thoroughly burnt separated from the rest, which are carried as soon as they cool to the place where they are to be used."

A further notice will be found hereafter in the agricultural division of our Journal.

New Garden Plants.

26. Trichosanthes colubrina. The Serpent Cucumber, or Hairblossom. *Stove Perennial.* (Cucurbits). Spanish Main.

We believe that the sole possessor of this curious plant is Sir John Hay Williams, Bart., of Bodelwyddan, near St. Asaph. The seeds had been received from Puerto Caballo, and under the care of Mr. Sparrow, the gardener at Bodelwyddan, soon produced young plants. In growth, the species resembles a Cucumber, with leaves 10 or 12 inches across, and varying in form from heart-shaped to 3 or 5 lobed. The flowers are white, and beautifully cut into delicate threads, whence the botanical name Trichosanthes, which Sir James Smith translated Hairblossom. The fruits, which hang down from the rafter to which the Vines of the plant are trained, resemble serpents, are six feet long, and when unripe, are singularly striped with green and white, which changes to brilliant orange. We already possess in our gardens an allied species, from the East Indies, called the Snake Cucumber, which differs in having smaller flowers, hispid coarsely toothed leaves and fruit, which is scarcely half the length of this, and is therefore much less remarkable in appearance. From Mr. Sparrow we have received the following account of his mode of cultivating this plant: "I sowed the seeds last June in a small pot, and placed them in the Pine-stove, where they vegetated in about a week; and after the plant had attained the height of 18 inches, I planted one in the pit of the plant-stove, in a compost consisting of two thirds bog and loam in equal portions, to one-third leaf-mould and sand, where it grew finely, and ripened the first fruit about the middle of November. I may mention, that the pit in which I planted it is heated underneath with hot water pipes."—*Botanical Register.*

Garden Memoranda.

Knypersley Gardens, May 1.—Among the rarer species flowering in the Orchid-houses here may be mentioned Dendrobium Dalhousieanum, not less remarkable for its beauteous flowers than for the bright red marking of its stems; D. suleatum, bearing numerous large 20-flowered clusters of violet-scented orange blossoms; D. Heyneanum; D. pulchellum, a sheet of flower; Phaius Wallichii, of stately growth, and in every re-

apest superior to our old favourite the P. grandiflorus; Lælia cinnabarina; Cattleya citrina, this must always be suspended in such a way as to admit of its growing downwards, like Catasetum longifolium; Epidendrum aloifolium, E. Stamfordianum, E. elatum, E. aciculare, very elegant; E. Schomburgkii, E. macrochilum, &c. Barkeria spectabilis is flowering freely in a common Vinery, where it has grown for two years. Among Oriental air plants, properly so called, we may mention Aërides crispum, A. maculatum, A. odoratum, A. affine, A. quinquevulnera, &c.; Saccolabium præmorsum, S. guttatum, S. ampullaceum, and a new species from Nepal, with curious shell-like flowers, and which has been nine months in perfecting a raceme of only 2 inches in length. But the object of greatest interest is a plant of Saccolabium macrostachyum, which is throwing up a gigantic flower-stem. This species was discovered by Mr. Cumming in the Philippine Islands, and sent to all his subscribers, but none of the plants survived the voyage except those in the box received by Mr. Wilmore, from whom the Knypersley specimen was derived. The habit of S. macrostachyum is much larger than that of any other East Indian air plant, (measuring nearly 4 feet across), and is more graceful than that of Angræcum eburneum, the only plant in our collections that approaches it in dignity. If, as there seems every reason to expect, the cultivated specimens equal the wild in luxuriance, S. macrostachyum will prove to be one of the greatest ornaments of our stoves, the raceme in Dr. Lindley's herbarium (see "Sertum Orchid." sub. t. xlvii.), being, "as long as a field-officer's plume."

Calendar of Operations.

(*For the ensuing Week.*)

Flowers for Masses.—In order that half-hardy flowers may be induced to make rapid progress when planted out, it is absolutely necessary that those taken from in-door protection undergo a hardening process for at least a week. In no case is the old adage, of "the more haste the worse speed," more applicable than in this affair. To be well-established in their pots, and well hardened, is to insure success. Many persons, however (in fact, the majority), cannot command frame or pit room sufficient to receive a host of potted off Verbenas, Calceolarias, Heliotropes, Petunias, Fuchsias, Pelargoniums, &c.; such, therefore, cannot pot off stock singly. The next best plan is, to prepare some raised beds, in the kitchen-garden, with old vegetable mould (light and sandy), and to transplant, or, as the gardeners term it, prick out the struck cuttings from their store-pots by the middle of April into these beds, about 3 inches apart—in fact, so that they can be taken up with a trowel, with a ball of earth; they must have hoops and mats, or some good covering every night, and, in bad weather, perhaps all day. In the second or third week in May, they may be transferred to their destination, removing with good balls of earth.

CONSERVATORIES, STOVE, &c.

Conservatory.—Although repetition is tedious, I must again urge the propriety of weeding out all extraneous or fading plants from both this and other plant structures; better destroy inferior stock than suffocate the good. Where a system of high cultivation is carried out, crowding will assuredly defeat the end in view. *Stove.*—Have an eye to the propagation of stock for succession or winter flowering in due time. Make haste to secure cuttings of such plants as Brugmansias, Clerodendrons, Erythrinas, Poinsettias, Eranthemums, and those useful winter-flowering plants, the Euphorbia jacquiniflora and the Gesnera bulbosa. *Orchids.*—Those who have only one house in which to grow their whole stock, must make a compromise in point of temperature between the natives of the hot and moist valleys, or shady woods of the east, and those from the western hemisphere, which inhabit high and airy regions. To accomplish this, I would advise a very free circulation of air during the earlier part of the day, and even a little all night if possible, accompanied with a great amount of atmospheric moisture; and to accommodate, with the least sacrifice, such as Aerides, Saccolabiums, Dendrobiums, &c., I would shut up a considerable amount of heat very early in the afternoon.—*Mixed Greenhouse.*—Centradenias now exhausted with flowering, should be shook out of their pots and repotted. Fibrous loam, fibrous heath-soil, with charcoal and coarse sand, make an excellent compost for them. Make cuttings of them as soon as nice young wood can be obtained. See that all tender Annuals have timely attention in regard to shifting, pricking out, liquid manure, &c.

KITCHEN GARDEN FORCING.

Pines.—Let shifting take place as soon as the plants have filled their pots. Give air most freely to all growing stock, and above all plenty of atmospheric moisture. *Melons.*—If there be any room to spare on kerbs or over back flues of houses "at work," some of the finer Melons may be placed thereon in pots or boxes. These, however, should be roomy and filled with mellow turfy-loam, out of which the loose soil has been separated. *Vineries.*—Let late Vines now breaking have every attention in regard to disbudding, &c. The litter or dung covering should now be removed from all borders, whether of early or late Vineries. Litter in an unfermenting state keeps the soil cool instead of imparting warmth in the early part of summer.

KITCHEN GARDEN AND ORCHARD.

Potatoes of the early kinds have suffered much from the late frosts. Such as have lost their leaders should be replaced by good sets. In small breadths they may be introduced with a trowel. Sea-kale should now have the superfluous shoots thinned away—about four or five to each stool is amply sufficient. Keep down all blossom-shoots from both Rhubarb and Sea-kale; these exhaust the plant much. Stir the ground well between the rows of early Potatoes. Weed all Carrot and Onion-beds as soon as the weed can be got hold of. Those who are short of hands will find this the best economy. Let those who would have first-rate Asparagus see that plenty of manure or half-rotten vegetable matter is dug into the alleys forthwith. *Orcharding and Fruit-trees in General.*—Disbud Peaches and Nectarines. Pinch off the forerright shoots in Apricots, leaving a leaf or two at the base; these will sometimes cause natural spurs to develope themselves. Coverings may now be removed from protected fruit-trees in general.

FLOWER-GARDEN AND SHRUBBERIES.

See that all Roses budding have due attention: disbudding, stopping, &c., is as necessary here as in fruit trees. Watch the buds inserted last August. Rub off the stock buds in a progressive way, and let all Roses, whether standard or dwarfs, be well top-dressed with good rotton manure if not previously done. The Moss and Provins kinds, intended for forcing next winter, should have a rich mulching, fairly covering the pots. As Crocuses and other bulbs will now be on the wane, patches of biennials, which have stood the winter, may be planted close beside them: when the Annuals are decayed the bulbs, if necessary, may be removed at the same time. One of the most important matters in this department at this period, is the preparation of half hardy stock for the flower garden. The remarks given above will render a little assistance in this respect.

FLORISTS' FLOWERS.

Auriculas.—In order to prolong the season of these beautiful flowers, the pots should be removed from their frames to a stage having a north or north-east aspect, which may be covered with an awning of calico. As the pips wither they must be extracted, in order that the seed-vessels may be fully exposed. *Ranunculuses.*—Thoroughly weed the beds, keeping the surface soil as firm as possible. *Tulips.*—The top awning may now be put on; this of course must be regulated by the precocity or otherwise of the collections. In the neighbourhood of the metropolis they have been on some time; in fact most of the collections are fast coming into bloom. *Carnations and Picotees.*—After a shower, a watering with liquid guano may be applied most beneficially. *Pinks.*—Those grown in pots should never be allowed to get very dry. Tie the plants up as they advance. Seedlings which are throwing up many flower stems (those, I mean, of last year's growing), should have them reduced to at most two or three, in order to get the flowers as large as possible. Attend to other directions as previously given.

COTTAGERS' GARDENS.

A row of Cormack's British Queen Pea, in highly manured ground, sown at this period, would be almost all in the Pea way that the cottager will require for the year. This, however, should be well done. It is the habit of this Pea to produce in succession like the Scarlet Runner, and such crops are far more valuable than fugitive ones, which waste both labour and space. The soil for this Pea should be prepared as for a Celery trench, well manured, and the manure saturated with moisture to ward off the mildew. The Peas should be sticked to the height of 6 feet, and as soon as they reach this height they should be pinched or stopped. Mangold Wurzel, Swedes, and Greens, as before mentioned, must be provided without delay. All Potato planting should be instantly completed.

FORESTING.

The sudden changes of temperature will have impeded the barking process in many places. Here we have had a most severe frost, and it is to be feared the budding Oak in young plantations will have suffered in their leaders. Little can be added here at present.

ERRATUM.—In last week's Calendar, p. 288, col. *a*, line 36 from top, for "manuring" read "mowing."

State of the Weather near London, for the week ending May 7, 1846, as observed at the Horticultural Garden, Chiswick.

May		Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain
Fri.	1	5	30.325	30.262	56	51	53.5	W.	
Sat.	2	6	30.200	30.125	60	52	60.0	S.W.	
Sun.	3	☽	30.083	29.932	70	52	61.0	E.	
Mon.	4	8	29.856	29.721	66	46	56.0	E.	
Tues.	5	9	29.724	29.544	62	45	53.5	E.	.03
Wed.	6	10	29.568	29.494	62	43	52.0	S.W.	.13
Thurs.	7	11	29.750	29.665	66	43	54.5	S.W.	
Average			29.929	29.780	63.0	47.6	55.9		.16

May 1—Overcast and fine
2—Uniformly overcast; fine; overcast
3—Dry haze; hazy and mild; overcast
4—Slight haze; cloudy; partially overcast
5—Very fine; cloudy; showers
6—Cloudy; showers; thunder in afternoon; cloudy and fine
7—Cloudy and fine; clear at night.
Mean temperature of the week 2½ deg. above the average.

State of the Weather at Chiswick during the last 26 years, for the ensuing Week ending May 16, 1846.

May	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 10	60.1	39.2	50.6	4	0.10 in.	4	4	3	1	1	3	3	1
Mon. 11	62.1	41 9	52 6	5	0.26	3	5	3	1	4	2	1	1
Tues. 12	63 9	40.7	52.3	5	0.40	2	5	4	1	3	2	1	2
Wed. 13	65.3	39.5	52.9	7	0.10	2	6	2	—	3	2	3	2
Thur. 14	64.6	41.1	52.8	7	0 06	3	4	3	1	3	3	2	1
Fri. 15	65.7	41.5	53.6	3	0.41	2	5	1	1	7	3	2	—
Sat. 16	67.4	43.1	55.7	5	0.17	4	4	4	—	2	4	1	1

The highest temperature during the above period occurred on the 16th, 1833—therm. 88°; and the lowest on the 15th, 1838—therm. 29°.

Notices to Correspondents.

POST-OFFICE ORDERS.—In order to obviate the inconveniences which are now constantly being experienced by parties who wish to remit small sums to the office of the GARDENERS' CHRONICLE, we have to request that all Post-office orders may in future be made payable to Mr. JAMES MATTHEWS, at the Post-office, 180, Strand, London.

BOOKS—*M Anon*—"Maddeston's Flower Garden."‡

BROOMS—*W S*—Waldegrave Broomii has been occasionally advertised: but it is often untrue. A small quantity has been distributed this spring by the Horticultural Society, but it is so difficult to obtain it genuine that we dare not indicate any one who has it. It is of admirable quality.

GRASS UNDER TREES—*M M* says "The Grass grows so beautifully, so thick, and so fine underneath all the Larch I have seen in the north of England, that I think it might be useful to collect the fallen needles of the Larch and spread them over the Grass in my garden, which remains obstinately coarse, though it has been twice taken up and sown with well-recommended seed. Also beneath trees in places that are bare. I should try the experiment without troubling you, but that we should have to bring the needles from our woods in Cumberland to the garden in Yorkshire, and it would be foolish to do this on a guess of my own. Will you be kind enough to tell me whether the attempt would be worth while; also whether in that case we might not dig the needles into the ground before our next attempt at sowing, as they would look ugly outside, and I suppose should not be removed after they are decayed?" Can anyone answer these inquiries? We have no experience in the matter.

GREENHOUSES—*R S*—Considering that early forcing is not your object, we see no reason why your Vinery should not be built with a west aspect—the sun striking its south end so early as eight in the morning. You cannot have better Grapes for such a place than the Black Hamburgh and Royal Muscadine. If your Vines do not succeed it will be owing to bad gardening.

GUANO—*J F*—Guano is good for everything for which other manures have been found to be beneficial. You had better apply it to your Dahlias in a liquid state. 4 lbs. of guano to 12 gallons of water will be found a good proportion. It should remain for 24 hours before being used. The same guano will do for mixing again with the same quantity of water, after the first is drawn off.‡

INSECTS—*H*—It is not a slug, but the larva of the crane-fly, whose history you will find in vol. i. p. 612 of this Journal. There is not a worse enemy in the garden. *R.*——*A B*—The Potato was dried up, and nothing could be found but the slices. Please to put some of the insects in a quill well stopped with cork, and tell us what mischief they are doing, we can then answer your queries. *R.*——*Villager*—It is the Julus pulchellus that has attacked your Potatoes; a millipede which is accused of doing much damage in the garden, but it will only attack the decaying sets I expect. Its history was given in vol. i. p. 196 of this Journal. *R.*——*J S*—It is a species of red spider which you can only get rid of by fumigating with sulphur, or by regularly syringing the plants until the insects disappear. *R.*——*J M*—Your Camellias are attacked by a weevil called Otiorhynchus sulcatus, which breeds in your Vine border probably. You have adopted the best mode of extirpating them. Their economy has been published in the 1st vol. of this Journal, p. 292. *R.*

LAW—*M C W*—You are not legally entitled to remove or sell by auction your standard and dwarf Roses since you have no agreement or previous stipulation with your landlord to remove them, and since they are not articles of your trade.

PEARS—*Mary Dobson*—We must say that the account you give of your "old gardener's" opinion as to liquid manure does not increase our respect for him. If, however, your Pear-tree is in vigorous health, it is better without manure of any kind.

POLMAISE—Several inquiries are addressed to Mr. Davies, begging for plans of his apparatus, &c., at Wavertree. If he will favour us with them, we will publish them.——*W*—We can hear nothing of Witty's stove. It seems to have gone out of fashion.

PRIMROSES—*M W K*—Grow the Double White Primrose in heavy clay, at the back of a small rock or stone, which shades it in summer at noon, but allows the forenoon sun to enliven it.

VINES—*G B*—Muscats require a high temperature; 80° by *day* is not too much. Put your Camellias out of doors for the summer, under a south or south-west wall, plunging the pots. They do not want heat so much as sun and air.

MISC.—*T T*—We know little about the book you mention, and nothing of its author. The plant is Nicotiana undulata.——*A B*—Your Geranium is probably suffering from *bad potting*. Give it plenty of drainage, and coarse peaty lumps mixed with loam, and shade it till it begins to grow freely.——*A Wiltshire Florist*—You should settle beforehand with the society whether Chelone barbata is to be taken as a Pentstemon; it certainly is one.—*H W T*—A paper is on the anvil respecting Stocks. In the meanwhile consult the directions given at p. 296 of 1845.——*M W K*—We do not know of a purchaser.——*Lg.* will be given for No. 36, 1845.——*J W*—We are quite unable to answer your question.——*A Sub*—Nothing is so good for painting hothouse sashes as black oxide of manganese, and nothing is cheaper. We also prefer the colour. If you are afraid of black, then use anti-corrosive paint. Paint a little at a time and often. A fair coat of black will last three or four years.—*Doveron*—We cannot give you advice about expense; because everything depends upon your plan, and *the skill you have in making a bargain*. The proposed position of your greenhouse is unobjectionable, and you may use the kitchen-fire to heat your pipes, if you secure the means of stopping off the hot water when you do not want it. We do not recommend the Grass-mowing machines. You should water your Cabbages with *lime-water* when the slugs are at their feeding time.——*J Tyrrie*—You are right. We *do* notice many very trifling questions. But if people *are* ignorant, the only way to render them otherwise is to answer their inquiries.——*T W W R*—You will find a list of greenhouse plants at p. 4, and one of Roses at p. 88, of this volume.‡

SEEDLING FLOWERS.

AZALEA—*J R, Huddersfield*—Your seedling is a handsome variety, of a dense and pure white, with the flowers large and finely formed.*

CACTUS—*J R*—Your seedling Cactus is deficient in colour, and not equal to many varieties raised within the last two years.*

CINERARIAS—*J A*—The crimson variety is not uncommon in colour, but the circle is well filled up; in size and breadth of petal, it is equal to any we have seen. The white variety is also large and handsome, but not equal to the crimson in form.*

FUCHSIA—*C E*—The Maid of Honour is a flower of good form, pink with vermilion corolla; but it is not so large or so showy as some of the older varieties.*

PANSIES—*W B O*—The best flower in your collection is No. 8, a round and well proportioned flower; 6 and 9 stand next; the remainder are very inferior to the flowers now cultivated.——*M*—Your seedling (Plato) is a large, bold and rich coloured flower, of good substance, yellow and deep purple, with well defined eye; it will prove a very useful show flower, as, from the number of blooms sent, it must be very constant.*——*R S M*—The specimens you have transmitted being perfectly new in character, and indicating peculiarities in the distribution of the colour, &c., which may add a variety to this beautiful class of flowers, that may prove highly pleasing. We consider them well worthy some experiments.*——*B M*—We cannot assist you; the flowers you have sent are very inferior to the sorts grown at the present time for showing; they may have been sent out with names, but the present race are quite distinct from them.*——*J A*—Your seedling is a very pretty flower, not first-rate in form, but with a fine eye and perfect belting.——*B M*—Your seedling is only fit for the border; in form and marking it is very inferior to the present race.*

PINK—*A R*—Your seedling possesses none of the properties of a florist's flower.*

FARM OF EARLY GRASS.

TO BE SOLD BY AUCTION, at Mains of Durhar, near Castle Douglas, in the Stewartry of Kirkcudbright, N. B., on SATURDAY, the 23d of May, from 30 to 40 AYRSHIRE COWS of a superior breed, three and four years old, and, if not Calved, in Calf to a Jersey Bull, which was entered for competition at the Royal Agricultural Society's show at Southampton in 1844.

Also a few pure high bred Jersey and Alderney Cows, and some Shetland Heifers imported from the most northernly of these Islands, will be exposed for Private Sale.

Coaches leave Carlisle daily for Castle Douglas, the journey being performed in about five hours; and Steamers sail weekly between Liverpool and Kirkcudbright.

SUPERPHOSPHATE OF LIME, 7l. per ton, at MR. LAWES'S FACTORY, DEPTFORD CREEK.

BURNT SEA-WEED, OR KELP, in a concentrated and portable form.—The value of this article is well known in Scotland and Ireland, as well as the Islands of Guernsey and Jersey. A Cargo has been lately received by the Subscribers from an eminent Foreign House, a sample of which has been analyzed by Dr. Ryan of the Royal Polytechnic Institution, and found to possess 79 per cent. of Potash, Soda, and other fertilising matter.

Delivered in London or Plymouth at 8l. 5s., per ton, or 5s. per ton less when five tons are taken at once.

As much as 20 tons has been supplied to one farmer. A copy of Dr. Ryan's analysis can be had on application.

Apply to JOHN CLARANCE & Co., Cullum Street, Fenchurch Street, London; or WILLIAM E. RENDLE & Co., Plymouth.

This Manure is most confidently recommended for the Turnip Crop.

The Trade supplied.

The Agricultural Gazette.

SATURDAY, MAY 9, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, May 13—Agricultural Society of England.
THURSDAY, — 14—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, — 20 { Agricultural Society of England. Flax Society, Belfast.
THURSDAY, — 21—Agricultural Imp. Soc. of Ireland.
LOCAL SOCIETIES.—Renfrewshire—Bingham and Guttleross.

FARMERS' CLUBS.

May	11—Hereford—Great Oakley—Wenlock—W. Market—Cirencester—Yoxford. Exminster. Wellington—Bakewell—Selby—St. Austell	May	12—St. Peters — 13—Halesworth—Wadebridge — 18—Batley — 19—Bromsgrove — Plympton St. Mary

THE ECONOMY OF AGRICULTURAL LABOUR is one of the most important departments of the farmer's business—one than which no other exerts a greater influence on his success, or affords a better test of his ability. There is no point which generally distinguishes a well-cultivated district from one that is badly farmed more than the economical employment of its workmen. Its farmers may be better educated men and acquainted with the theory of their art, and doubtless a portion of the greater profit they derive from their business may be owing to their superiority in this respect—they may be wealthier men, and much must be attributed to that—but the main point is that they possess tact and dexterity in the employment of their labourers, and can set them to work so that each shall be an assistance to his neighbour, and in a measure a surety for his industry. The labour bill of an arable farm is a large sum, and a reduction of it would often be a considerable saving to the farmer; but if he possess the dexterity and skill that we speak of, he will benefit from them not so much by getting the same work as his neighbour's farm receives done by fewer hands than his neighbour employs, as by the larger returns of a higher cultivation, even though in its attainment a heavier labour-bill be incurred. Now, scarcely anything can be supposed to influence the performance of labour more than the mode in which it is paid for; and these observations are therefore not irrelevant to the subject of MEASURE WORK on which we would make a few observations.

The labourer, whatever the work in which he may have been engaged, is paid for it in one of two ways—either according to the time during which he has been occupied in it, or according to the quantity of work he has done. The latter method certainly appears on the first sight to be the more just. Two operations involving an equal amount of labour and skill, and equally well performed, ought to be paid for alike, whatever may be the circumstances of those who performed them, and also (unless, indeed, this be an element of value to the farmer), whatever the time which either of them may have taken. To be sure, work is justly remunerated only when paid for according to its quality as well as amount; but the former consideration is not left as the latter necessarily is to the will or ability of the labourer. Whatever be the mode of payment selected, the quality of the work to be performed can be insured only by the personal attention of the master. The *heedless* carelessness of the idle man on day wages is as much to be feared as the *dishonest* carelessness of the man paid by the piece who hurries over his work; and it may, we think, be fairly concluded that, provided the master properly attends to his labourers, his choice of the mode in which he shall pay them need not depend upon any anticipations of its influence on the *quality* of their work. Its influence on the *quantity* of their work is, however, a perfectly fair subject for the farmer's consideration, and payment by the piece is of course in this respect to be preferred.

But is not this mode of payment, as it has been frequently carried out, liable to serious objections? It is generally connected in the mind with the idea of large numbers employed at once, and then paid off all together—a practice which certainly tends to produce improvidence and dissipation. This, however, is no necessary part of the system. The farm work to be done in the different months of the year (and a benevolent master will endeavour to distribute it as evenly as possible), remains the same whatever mode of payment be adopted, and, if the farmer has resolved to introduce more generally the mode of paying for work by measure, the number of his labourers need not on that account be altered, neither need their employment be the less constant; nor indeed (and this is an important consideration) need the farm work generally be less qualified to bring up the lads employed in it, as steady and valuable farm servants.

Let us shortly state a method of payment by the piece which we know to be in practice. On the farm to which we allude, in addition to ploughmen, cattleman, and shepherd, &c., there are several labourers in constant employment; they have been chosen for their steadiness and ability, and on that account receive, even when employed at day-work, higher wages than are produced in the neighbourhood; it is to these men in every case, except during corn-harvest, that the piece-work is let; and they may be *thus* employed, on the whole, perhaps two-thirds of the year. When unable to do the whole themselves, they engage other men, or women, or boys, from among any who may be unemployed in the neighbourhood, and at wages which are stated to the master and receive his approval, or on terms which render them parties in the contract; the hired men, women, and boys are thus almost as immediately under the farmer's superintendence as if they had been engaged by himself, and their industry is secured by their forming part of a company, some or all of whom have an interest in the speedy completion of their work.

After the experience of a year or two, a satisfactory understanding grows up between the master and these men as to the real value of the several descriptions of work they contract for, and very little difficulty arises in settling the terms of the contracts. At the first establishment, however, of such a system, there may be some difficulty of this kind, and the best way to meet it is, to start the party at day's wages, and from their progress at the end of the first day (during which they have been kept from idling by constant superintendence), to calculate what the work is really worth. It may be mentioned, as a matter of detail, that it is of the greatest importance to the ultimate satisfaction of both parties, that the terms of the contract be fully understood by each before the work is commenced. Do not let the master start his men, saying, "Ah, well, you can commence, and we can settle the terms to-morrow;" this will be sure ultimately to breed discontent. And it is also well always to abide by the terms of the contract, even though the labourers should be losers; it may be made up to them on another occasion, by offering terms more favourable than fairness would require, but not by an extra sum as a recompense for their loss; for this would tend to give them on future occasions hopes of wages to be earned otherwise than by industry.

We have made the above remarks as an introduction to a series of papers which we propose laying, at intervals, before our readers, on the method and cost of executing the farm operations which, during the year, successively require the farmer's superintendence.

ON GORSE AS FOOD FOR CATTLE.

1. THE value of Gorse as a forage plant is well known, although its cultivation for that purpose appears to have been almost entirely overlooked, or to have had much less attention paid to it than it is justly entitled to. From time immemorial it has been used as food for cattle in various parts of the kingdom; but it is only the smaller class of farmers in England, and the cotters in Scotland, who resort to it, as a means of prolonging the little stock of fodder they may have stored up for their winter supply. To them it is of no small importance, and the avidity with which it is eaten by cattle and horses, after being prepared, shows very clearly that it must possess some valuable qualities which would almost render its cultivation desirable. It is to be hoped that the mode recently adopted by Lord Kenyon, through the Royal Agricultural Society, to bring this much-neglected plant into notice will be successful, and induce some of our landed proprietors to make trial of it as forage, by way of example to their tenantry. Whoever may do so, I feel confident that, where the soil and situation are favourable to the growth of Furze, they will not regret having made the experiment.

2. Botanists have characterised *three* distinct species of Furze as indigenous to this country, namely—

1. *Ulex Europæa*, The European Gorse, Furze, or Whin.
2. *Ulex nana*, the dwarf or Cornish Furze.
3. *Ulex stricta*, the upright or Irish Furze.

The first and second species are said to be more abundant in England and Scotland than in any other part of Europe; and it has been remarked by botanical travellers that, unless in the South of France, Furze is but sparingly found in other parts of the Continent. Loudon states that at St. Petersburgh it is ranked among the most valuable greenhouse plants that flower in winter. When Linnæus first saw a large extent of Furze in blossom he is said to have been in ecstacy, and to have lamented that he could hardly preserve it alive in a greenhouse in Sweden. Dillenius was equally delighted with it; and indeed every foreigner who passes through this country in Spring, when the Furze gilds every heath and hedge, cannot fail to be struck with its beauty.

The third species is peculiar to Ireland, having been discovered about 30 years ago growing in the Marquis of Londonderry's park, in the county of Down, and it is generally treated as a garden plant. I have never seen it grown for agricultural purposes; but in passing I may mention that a writer in one of the early numbers of "Loudon's Gardeners' Magazine" states that, in Carnarvonshire, and other parts of North Wales, the Irish Furze may be more profitably cultivated than any other kind, by reason of its branches not requiring to be bruised. It is propagated with great facility by cuttings which strike root as freely as the Willow, if taken off in autumn and made of the present year's wood. They will be fit for transplanting in March, and in the succeeding autumn (that is 12 months from the cutting), they will be fit for use as fodder.

3. The Ulex Europæa or common Furze is the best adapted for cultivating as a young forage plant, as it happens to be the most vigorous in growth and produces a much larger quantity of green food per acre than can possibly be obtained from an equal extent of the dwarfer kind. It is, however, by no means suited for being introduced in any system of rotation with other crops, owing to the length of time it requires to arrive at maturity, and the number of years it may be advantageously grown in the same situation after it has once taken possession of the ground. Under these circumstances it may be asked, why should the culture of Furze be so strongly recommended to farmers when it is admitted not to be fit for introducing into a regular system of husbandry? The answer is simply because it is not intended that it should displace any of the crops in general use, or be grown on land which can be more profitably occupied; but only on such outlets or waste pieces of ground as are unfit for anything else. Of these there are plenty belonging to many of the smaller farms or tenements in every county, which with a little trouble and expense may be rendered far more valuable than they are at present, if cropped with Furze and managed in the way I shall hereafter describe.—*M. E. H.*

MANURE FOR HOPS.

[THE following correspondence on this subject we extract from the columns of the *Maidstone Gazette*:]

To the Editor of the Maidstone and South-Eastern Gazette.

Sir,—The accompanying letter was kindly sent to me by Mr. Lawes, on my asking his opinion as to the manure recommended by Mr. Nesbit for Hops, and he has since given me permission to send it to you for publication, should you think, with me, that it contains matter well worthy the attention of all Hop-growers and other agriculturists. Mr. Lawes is the best practical and experimental agricultural chemist of the present day, sparing neither trouble nor expense to carry out his views by a series of careful and valuable experiments, and, as such, his opinion is of much value. At any rate, it is of value to hear both sides, and thus we are more likely to arrive at the truth. I certainly have very great confidence in Mr. Lawes, as every experiment tried at his recommendation has been with me successful. I remain, sir yours respectfully,

Milstead, April 21, 1846. J. M. TYLDEN.

"My dear Sir,—I have much pleasure in forwarding to you my opinion upon a pamphlet. 'On the Analysis of the Hop, and the Nature of the Manures beneficial to its growth,' by J. C. Nesbit. It is of essential service to agriculture that correct analyses of the ashes of the cultivated plants should be made, and the author of this pamphlet deserves the thanks of those interested in the cultivation of Hops, for having shown them the nature and quality of the minerals which are annually removed from the soil by that plant. But when he says that the large quantity of potash taken out of the land by the Hop is the main reason for the necessity of manuring this plant so highly, he adds another to the rash theories which Liebig and his followers have been of late years advancing; and which, if true, would have quite overthrown those principles of agriculture which the accumulated experience of all ages has pronounced correct. In the ash of the Hop, Mr. Nesbit found more potash than any other substance, and from this he concludes that manures are valuable in proportion to the amount of potash they contain; and he argues that as guano only contains 3 per cent. of potash, and dung about the same proportion, that farmers can supply themselves with potash from sources very much cheaper. Certainly, if potash was the essential ingredient in these manures, it would be an act of insanity

[illegible] in Peruvian guano, which is sold in Britain in the form of carbonate of potash for about 3d. per lb. As far as my own experience goes, I have never been able to find any distinct benefit from the application of potash to the soil in any form whatever, and the same result has been arrived at, indirectly, by agriculturists.

"Some years ago the application of nitrate of potash (saltpetre) was in very general use as a manure for grass and corn, and the benefit derived from it was said to be from the potash which it supplied to the soil; but, in a few years after, the discovery of a bed of nitrate of soda, and its being furnished at a lower price, the use of saltpetre was almost superseded; at the present day guano has taken the place of both. If potash was the valuable ingredient in these three substances, or so absolutely necessary to be applied to the soil, how could nitrate of soda or guano supply its place? for the first contains none, and the second often not more than 1 per cent. But when it is known that these three substances contain nitrogen, and that any of them can be replaced by an ammoniacal salt, there can be no difficulty in forming a correct opinion as to their value. If a farmer were asked which crop he considered the least exhausting to the soil, he would probably say Clover; and yet this plant removes a far larger quantity of potash from the soil than the Hop.

"According to Mr. Nesbit, half a ton of Hops, which I suppose would be considered an average crop, removes from the soil 22 or 23 lbs. of potash, while every ton of Clover hay removes 37 lbs. of the same substance; and yet it is well known that after the removal of perhaps 80 or 90 lbs. of potash in 2½ tons of Clover hay, the soil is more capable of producing a good crop of corn than it was previous to the crop of Clover. Mr. Nesbit gives two receipts for a manure for Hops, one of which is the following:—'1 cwt. guano, 1½ cwt. common salt, 1 cwt. pearlash or silicate of potash, 1 cwt. gypsum; cost, 3*l.* 0*s.* 6*d.*' With the exception of the small quantity of organic matter in the guano, this manure is composed solely of mineral ingredients, and would be almost useless. If I thought that the return of the minerals removed by the Hop would be of any service as a manure, without organic matter, I should be very glad to manufacture them, as they could be supplied for a few shillings per acre; but it is a very different thing to grow a good crop of anything theoretically in a crucible, and practically in a field. The most important element in a manure for Hops, as well as the most expensive, has not been mentioned by Mr. Nesbit. This is ammonia, and his reason for this is, doubtless, that he assumes with Liebig, that plants are capable of obtaining a sufficiency from the atmosphere. There cannot be a more erroneous opinion than this, or one more injurious to agriculture. Until very lately, the value of the different substances used as manures has been judged only by the effect produced on the crops, without the slightest knowledge, on the part of the agriculturist, of the component parts of such manures. After innumerable experiments, a certain class of substances are selected as being most suitable for various plants, and, if I mistake not, all the best manures for the Hop are organic substances, rich in nitrogen or ammonia, and with little mineral matter, such as rags, Rape-cake, oil-cake, dung—Peruvian guano, too, would probably succeed very well; for as long as abundance of ammonia is employed, there is little fear of the produce falling off for want of minerals. As all these manures contain some minerals, the annual decomposition of the soil will furnish more, and if the bine and leaf is returned to the soil (which should always be done) the loss annually will be confined to what is taken away with the Hop, which the usual manure would supply.

"Having cultivated Wheat for some years successively on the same soil, as an experiment, I am able to speak very decidedly upon the necessity of using abundance of ammonia to obtain large crops of corn; without it the produce quickly falls off, and no amount of, or combination of minerals is able to restore fertility. Although I have had no experience in the cultivation of the Hop, the fact of its requiring abundance of manure satisfies me that it derives its nitrogen from the manure, and not from the atmosphere; and I am sure you can follow no safer rule in selecting manures for that plant, than to buy those which contain the largest amount of ammonia at the least price.—*J. B. Lawes, Rothampstead, April* 16."

NEW ZEALAND.

We extract from the *New Zealand Journal* the following interesting document, which shows that notwithstanding the disturbed state of the Maories generally, during the last 12 months, and as regards New Plymouth in particular, from the circumstance of a large section of the most valuable settlers being compelled by Captain Fitzroy's proceedings to abandon land which they had cultivated and had possession of for three years previously, yet that the settlers have shown the strongest determination to remain, and extend their cultivations in spite of the obstacles thrown in their way.

THE NEW PLYMOUTH ASSOCIATION FOR THE ADVANCEMENT OF AGRICULTURE AND COMMERCE.

The first report of your Society, established only six months, cannot be expected to contain much actual information on the subjects discussed. Yet the experiments which have been instituted through the instrumentality of this Society, the results of which cannot be ascertained until the approaching harvest, lead us to hope that the foundation of much good has been already laid.

[illegible] its success in New Zealand." To Mr. Fitzroy we are indebted for drawing our attention to an article which may probably become the chief export from New Zealand, or, at all events, from Taranaki. The result of two evenings' discussion was, the firm conviction, in the minds of all present, that the English Flax, as (to adopt the distinctive name given it to distinguish it from the indigenous Flax of the country) the Anglo New Zealand Flax, was peculiarly suited to our soil and climate. This was no theoretical conclusion, but one arrived at from the results of actual experiment, and come to by practical men used to the cultivation of the article in England, who were convinced, from the quality of the samples grown and the amount of the produce, and from calculations of the expense of cultivation and the probable value in England, that the cultivation of the Anglo New Zealand Flax would be a very profitable occupation.

It is much to be regretted that these results were not known in time to obtain seed for the present season. Orders have, however, been sent to England for a supply, and samples of the Flax forwarded to manufacturers there, who will be able at once to determine the value of it. To the resident agent of the New Zealand Company here, and the principal agent at Wellington, this Society have to express their thanks, for the promptitude with which they undertook to forward these samples to England. The importance of your second subject of inquiry, "the most effectual remedy for the cure of smut in Wheat," cannot be over-rated. Owing to the seed, which was obtained from a neighbouring colony, being mostly infected with smut, several actual experiments were detailed at this meeting, the results of which encourage us to hope that, with due attention, this destructive disorder may be cured, or, at all events, so subdued as not to be of material injury to the farmer. The next subject—"the best means of protecting the Barley crop from the ravages of the caterpillars; and the crop most likely to pay—Wheat or Barley" was one which elicited much valuable information as to the proper time of sowing Barley, so as to avoid the ravages of the caterpillar, which attacks the grain at the period of its ripening. Great diversity of opinion was expressed on this point; the result of the different periods of sowing this spring will, it is to be hoped, enable us another season to save this valuable crop. No means at present have been discovered to destroy the insects themselves, although the extent of cultivation will, it is thought, greatly lessen their numbers. From the disadvantages to which Barley is subject in this respect, the opinion of the meeting was decidedly in favour of Wheat; although, from the circumstance of Barley being higher in price than Wheat in the neighbouring colonies, great exertions should be made to grow this article—particularly as it is believed that, as regards the climate and the quality of the water, we have a decided advantage over the Australian colonies in brewing. "The woods of New Zealand—more particularly of this settlement—their uses, and the probability of their becoming articles of export," was the inquiry that next engaged your attention. From the information given at this meeting it appears that our settlement produces several valuable woods, at the head of which stands the Rimu, the most valuable both for building and furniture; and so far as our knowledge extends, the most valuable also to export to England and the neighbouring colonies. For agricultural purposes, the Puridi, the Rata, and the Matepo have been found to answer exceedingly well: the first, in particular, has furnished very good cogs for the wheels of the two flour-mills in this settlement. Very good timber also abounds for the purposes of boat-building, and for staves; and it is much to be regretted that arrangements have not been made to supply ourselves with casks—an article now required for salt pork, and the demand for which is likely to increase largely as the settlement progresses. Tanning barks have also been discovered, and used with the greatest success; boots now being manufactured from leather made in this settlement. The next subject was, "the best artificial food for cattle;" and in the discussion of this inquiry, it was satisfactorily ascertained that very heavy crops of the different roots used for that purpose had been grown, more particularly of Carrots and Turnips; White and Red Clover has also been grown with the greatest success. The next subject discussed by your Society was, "the best remedy for the cure of cattle affected by eating Tutu." The best remedy stated—and that, in violent cases, quite an ineffectual one—was bleeding. The loss of time in finding cattle turned loose, and the damage often done by them in this state; together with the risk from the Tutu; and, above all, the comparatively trifling expence of growing food for them, will, there is little doubt, induce all parties to keep their cattle up.

Having thus given a brief sketch of the different subjects which have been brought under your notice, it will, we think, at once be admitted that this Society is likely to be of the greatest benefit. If in England, where they have had the same soil to work upon for ages, it is thought advisable to have agricultural societies in order to institute experiments and give premiums for the best methods of raising crops and the best agricultural implements, how much more are they needed in a new country where everything has to be learnt. What has raised the value of land in parts of Scotland from a rent of 5*s.* or 6*s.* an acre to 2*l.* or 3*l.*? The improved system of agriculture which has converted the Scotch from the worst to the best farmers in Great Britain, and land [illegible] Wheat per acre. And what was the original of this improvement? The Highland Agricultural Society, supported, and well supported too, by the Scotch landlords and farmers, who saw how much good such a society could effect. Enough has been said to prove the usefulness of such societies as these, but it must be borne in mind, that as we have no long subscription list to give premiums for information, we must ourselves furnish that information by carefully noting every particular of every proceeding, so that, by comparing them with others, we may arrive, in due time, at the proper seasons and methods of pursuing our occupation. A very careful account has been drawn up of the amount of land now in cultivation, from which may be gathered the cheering fact that, notwithstanding the great difficulties the settlers have had to contend with during the last two years, they have not allowed themselves to be cast down, but have manfully met those difficulties, pushing forward the plough wherever the natives would allow them to do so. The following is the account alluded to:—

	Acres.		Acres.
Wheat	635½	Brought forward ..	937½
Barley	128½	Turnips	86½
Oats	75	Grass	94½
Potatoes	98½	Artificials	14
		Garden	24
Carried forward ..	937½	Flax	½
			1106½
Cultivated land taken possession of by the natives ..			230½
			1943
Quantity of land cleared in June 1844			880
Increase of cultivation in the last 15 months			463

	Tons.
635½ acres Wheat yielding ⅔ of a ton of flour, or 28 bush. per acre	423
Estimated consumption, 3 tons per week	156
Flour ..	267

	Bushels.
128½ acres of Barley at 25 bushels per acre	3212
Say consumed in the settlements, one half	1606
	1606

1606 bushels of Barley, at 45 bushels to the ton of freight, gives 35 tons, which with the flour shows 502 tons to export from the produce of the land alone; added to this is the salt pork trade, which with other articles would, there is no doubt, increase the amount to 600 tons, sufficient to keep a vessel of 50 or 60 tons fully employed, allowing for detentions and one or two trips elsewhere during the time of harvest.

With this account the report of your Society closes, and as it establishes the fact of a very great advance in prosperity during the last 12 months, under the greatest disadvantages, we look forward confidently to the continued success of our endeavours, and with hope that the time will shortly arrive when we shall be enabled to carry on our operations without molestation, and with greater vigour than circumstances have hitherto allowed us to do.—R. Chilman, Hon. Sec.

New Plymouth, Sep. 17, 1845.

PERIODICAL SPRINGS.

A correspondent asks in a late *Gazette* whether or not he may expect to convert an occasional spring in the vicinity of the South Downs into a perpetual one by boring. I doubt much of the question being answered in the affirmative, unless by some person interested in seeing the inquirer involved in a useless and unprofitable job; and it is perhaps but neighbourly to suggest a "caveat" before he commits himself even with a "water doctor," who professes to work on the terms of "no cure no pay." For in such guise does many a "Douster-swivel" make his advances, and shake his divining-rod over the heads of the unwary.

Both above and below the chalk (to speak geologically), there are springs which are periodical, and whose periodicity is of great uncertainty, because dependent on the variety of our seasons. There are some localities in which the sources are dry for many months, and even years, and then after a series of rainy fits will burst out with streams of wonderful copiousness. Hampshire and Wiltshire abound in such, and in bi, tri, and even semennial streams. If your friend will consult his Gazetteer he will find a whole catalogue of "winter-bourines" in the vicinity of Salisbury alone. Some of the sources of the Wandle are of this description, and make their appearance, I believe, some annually, some bi and triennially.

The cause of this is very obvious; the chalk is porous, and cavernous, and percolates its water with great rapidity. But sometimes the supply is greater than the ordinary or more dependent issues can make off with, and then the higher reservoirs begin to overflow, and the rare springs burst forth, and run till the superfluity is exhausted, and no more water remains in the vicinity, or is supplied from the heavens than the perennial and ordinary channels can carry off.

Now, your correspondent's well is of this description, and it may be confidently predicted that he will not obtain any perennial supply by boring, or on the artesian principle, if he is above the chalk and under the London clay, unless he is prepared to bore many hundreds, perhaps thousands of feet; in short, to imitate the Grenelle boring near Paris. But if he is on the north side of the South Downs, or under the chalk, there is some chance of his procuring a supply by boring through the galt the next retentive stratum below the chalk, and answering with the lower green sand under it, to the London clay and plastic clay

the chalk, obtained by borings of very moderate depth; but such a thing is not to be expected unless there be a high inclination of the clay-beds in which the boring is made to one side or the other, and perhaps no lower natural issues in the neighbourhood likely to be supplied from the same sources, namely, the sand-beds into which his boring is carried.

Before the true relations of the distribution of coal-beds were understood, thousands of pounds were spent in fruitless borings for that mineral. More lately, many hundreds have been thrown away on ill-considered attempts to obtain supplies of water on the artesian principle. Very little is heard of such fruitless adventures, because men do not love to publish their failures, particularly if they have been costly ones. They are begun under the promises and plausible stories of designing or perhaps ignorant engineers, and abandoned from conviction of their hopelessness, or because it is discovered that "le jeu ne vaut pas la chandelle!"—* *

TAR COMPOST FOR YARDS AND FLOORS.

I am surprised to see how slowly many useful things make their way in this "working-day world" of ours. I have been prompted to the utterance of this sage remark by reading the communication of your correspondent, "H. B. Morris, of Ramsgate," on the Tarred Walk at Margate. I have now had some years' experience of tar compost, and have every reason to be satisfied with it. For all sorts of out-house flooring I know of nothing at all equal to it. For barns, stables, coach-houses, tool-houses, and even for plain village school-room floors it is unexceptionable, being at once thoroughly dry, wholesome, cleanly, smooth, easily repaired, noiseless under motion, and inimical to vermin, besides being so very cheap, only costing from 3*d.* to 4½*d.* per square foot, according to circumstances. The best way of laying down a floor appears to me to be the following:—Lay down a good solid concrete of broken bricks and tiles or chalk, or both materials mixed together, only they should be broken smallish; having made this quite level, pour on it coal tar (cold as it comes, I never heated it yet), until the rubble is just covered. Then sift through a fine sieve a mixture of coal-ash and sand, or coal-dust and powdered lime, or *all* mixed, or any one separately, it makes very little difference. I prefer quick-lime, ashes, and sand, in equal parts, but I have used lime-dust alone, and found it answer, though it is longer drying, and is not quite so firm. My plan is to sift on plenty, and have the work well rolled or trodden, supplying more siftings as it becomes necessary. The proper quantity of siftings will work in without any trouble at all if time be allowed, and the floor used while it is covered tolerably deep. Sometimes two or three coats are wanted, and are always best, often one will do. After the first coating upon the rubble, no more is necessary to be done, either for an extra coat or a repairing coat, than to pour down some tar and to spread it about with an old brush, covering it with siftings. Any labourer can mend or even make a floor of this sort. For an upstair floor, I should lath the tops of the joists as closely and strongly as would permit good "keying" for the mortar. Have it very roughly plastered with hair-mortar, and, while the mortar is wet, throw thinly upon it some small broken brick, chalk, or "lime traps," after the manner of "rough cast;" allow this to dry sufficiently, and then pour on the tar, and afterwards sift on the sand, &c. as before. The reason I prefer brick rubble, &c. to stones broken is this—I have found out that by long wear a small stone or an edge of a piece of larger size will work up, whereas broken bricks or chalk will saturate partly with tar, and will wear down with the rest of the surface. The floor should never be left so long without repair as to wear away so much as to show the bottom layer, and it will only happen so after several years of active traffic if the floor be well made at the first.

I think the value of such a bottom for a stable would be greatly enhanced by its impermeability to the drainage from the animals; it could, in consequence, never become saturated with material giving off ammoniacal vapour, and would therefore be so much the more wholesome.

There is another thing of great service for farmers to know, viz. that a pit smoothly dug, and the sides well covered with stiff clay, mixed with fine coal ashes, permitted to dry, and then well covered once or twice with coal tar, forms a good and useful, *i. e.* lasting, water-tight tank for liquid manure; such a pit any skilful farmer's labourer could make.—*Jacques De Sayrille, Old Church Side.*

The following is another communication on the same subject:—

Some observations which I saw in the *Gazette* a few days ago, suggesting a cement for a barn floor, induce me to mention one which I propose trying for a similar purpose in consequence of the complete success which has attended the use of it for very inferior purposes. It consists of very inexpensive articles, readily procurable in the neighbourhood of gas works, and is thus compounded:—Two parts sifted coal ashes and one part of quicklime, to be thoroughly mixed together in a conical heap; then proceed as in mixing up fine mortar, making a hollow in the top of the cone, and pouring in gas tar, not gas water or half and half as it sometimes comes out of the reservoir, but the thick tar, and gently stir it in.

In forming my yards and sheds for oxen, and those stabled to loose boxes for horses two years ago, in order that all the fluids should drain towards a tank, I employed this compound, spread about three-fourths of an inch thick, on a surface formed with stone broken very small, and a small quantity of fine gravel scattered over them and then rolled down, to prevent unnecessary waste of the cement. This was laid over and then patted down with an iron shovel. In the course of two or three days, just before it gets hard, pass an iron roller over it. In the course of a week, if properly done, it will be as firm as stone, and not affected either by drought or wet in any degree. My yards have been in use, covered with muck during two winters, and exposed dry and clean to the sun during two summers, and I perceive no change.

If the spent lime of the gas works be substituted for quick lime, a little more in proportion should be used. The cement made with the spent lime sets more quickly and answers equally well. I have also used this as a covering for the top of stone walls, for which it answers admirably. I have been inclined to use it in lieu of pitching for stables, but doubt whether it would stand the kicking of horses while being dressed, unless laid two or three inches thick.—*C. Lawrence, Cirencester.*

Home Correspondence.

Royal Agricultural College.—A visit which may lead to important results has been recently paid to the Royal Agricultural College, at Cirencester, by Monsieur Ouyrard, the celebrated French financier. He has brought to notice a process discovered by a Monsieur Encontre, for reducing farm and stable manure to a substance resembling guano for portability, but said to exceed it in durability and fertilizing qualities. The subject was laid before the Council of the Royal Agricultural Society, and the farm of the college has been selected for giving the process a fair trial previous to its being submitted to the public, and we understand the council of that promising institution are likely to give every facility to the object.—*From a Correspondent.*

Glass Milk Pans only want to be as cheap here as they are on the Continent to be generally used.—As the *Gardeners' Chronicle* has done so much towards cheapening glass for horticultural purposes, can you not assist to cheapen glass for dairy purposes. I see in the 1st vol. of the "Royal Agricultural Journal," on Rural Economy of Schleswig, &c., that glass milk-pans holding eight quarts are there sold for 8*d.* a piece, and they are very durable. I also have some recollection of reading in the *Agricultural Gazette* of glass milk-pans being imported from Hamburgh (I think), and costing there 13*d.* or 14*d.* each. Now, that the duty is off glass, why should we not have them equally cheap. I should think them far preferable to earthenware, wood, or zinc; but at present they are much too dear. I was asked the other day for green glass milk-pans, from 3*s.* 6*d.* to 3*s.* 9*d.* each; this is very dear compared with the Continental prices.—*James Eames, Chawton, Alton.* [Apply to the agents of the foreign houses, who advertise in our columns. They can doubtless import to your order, and supply the article cheaply.]

On the Value of Malt as Food for Cattle.—An article in your Paper of April 4th has attracted my notice, as it quotes the opinions of chemists to prove that no advantage would be conferred upon the farmer by permitting him to feed his cattle with malt free of duty. As it appeared to me that something in addition to Turnips or Potatoes is required to supply the demand for well-fed beef, and as oil-cake is dear and frequently adulterated, I turned my attention to Linseed, and have found that, if given in conjunction with other food, it will answer the intended purpose. To each animal is given daily as follows:—A mash composed of 4 lbs. of Barley-meal, 2 lbs. of Linseed, dissolved in boiling water, and a small portion of a sheaf of Oats chopped—this mash to be divided into 2 parts, and given twice a day; 7 stones of Turnips, divided in 3 parts, and given 3 times a day; dry straw is always in the rack, of which a beast may eat as much as he chooses. Several gentlemen in this neighbourhood have fed cattle with Linseed. In the winter beginning in 1844 and ending in 1845, I gave orders for an experiment to be made to ascertain the comparative values of malt and of Linseed, if given for the purpose of preparing cattle for the butcher; and 2 quarters of malt were given to 2 bullocks, 7 stones of Turnips being also given to each bullock daily. My agent, Mr. Faint, has come to the conclusion that malt, duty free, would be as cheap as Linseed and Barley; but he thinks it would be the cheapest of the two sorts of food, and it certainly would be less trouble to farmers, especially to small ones. The feeding quality of malt is proved by the effects which malt-combs have in feeding sheep, and which grains have in feeding cattle. The benefit of allowing the farmer to feed his cattle with malt, duty free, would be very great. The samples of Wheat, as well as of Barley, would be improved, as the small corn would be profitably employed in feeding cattle. But is a tax, as heavy as that imposed here, imposed on malt in the neighbouring countries from which cattle may be imported? and will Sir Robert Peel be guilty of the crying injustice of allowing cattle, fed with malt which has not paid duty, to be sold duty free in this country, and of levying at the same time a very heavy tax upon malt used to feed cattle here. If it is intended to remit the duty upon malt used to feed cattle here, the objection [illegible] for having appointed Dr. Thompson and Dr. R. Thompson, of Glasgow, to ascertain the value of malt as a food for cattle. I do not wish to question the ability of these gentlemen—I am not acquainted with them—but a scientific chemist may know nothing about the feeding of cattle; unless he has experience in this business, I consider his appointment may be the means of propagating a gross delusion. A farmer skilled in feeding cattle ought to have been selected to make the experiment. Is Sir Robert Peel's distrust of the farmers so great that not one can be found in whom he has sufficient confidence to entrust with the trial of this experiment? It is said in the *Agricultural Gazette*, "that after a time the bullocks became ill." This entitles me to inquire whether they may not have been mismanaged? Judgment and knowledge are both required to regulate the quantity of food which may be given to cattle which are intended for fattening. It is easy to surfeit them; and when this happens, the owner of the animals pays dearly for want of prudence. I have not seen the report made by Dr. Thompson and Dr. R. Thompson. If they are practical farmers, some of the objections raised by me are answered; still I see much that calls for inquiry. If the report is to be made the basis of legislation, the public have a right to know what was the cause of the illness of the cattle. Last year I sold about 30 fat beasts; in this year, since the middle of December I have sold 21 fat cattle, and I have 17 which are going on fattening, but none of them have been ill in either year; and I believe illness amongst cattle which are fattening is generally caused by mismanagement. If an effort was made to feed cattle with malt without any mixture of cooling food, such as Turnips, Potatoes, Cabbages, or other things of this description, no experiment could be more likely to end in complete failure. There would be as much sense in feeding a man upon beef without any other article of food.—*Wood End, near Thirsk, April* 23.

Horse Feeding.—I notice in your Paper a statement by Mr. Ramsay, at the Newcastle Farmers' Club, of his feeding his horses with cut hay, &c.; but he does not show the relative cost, or the saving by this mode of feeding. Perhaps Mr. Ramsay would state the quantity of cut hay and straw, and the quantity of corn per day or week, and the cost, and whether he allows his horses any long or uncut hay. This information would much oblige—*A Young Farmer, Newcastle.*

Indian Corn.—It is admitted that Indian corn meal will not keep sweet for a long time. The Mexicans remedy this evil by parching the grain, and then grinding it. In this state I know that it will keep. I travelled in Mexico with a bag of it for many weeks, and if my supply had lasted, I have no doubt it would have remained sound many weeks longer. When a Mexican undertakes a journey of many days, at a distance from towns or villages, he fills a bag with the flour of this parched corn, mixed up with sugar, and sometimes a small quantity of spice. With a bag thus filled tied to his saddle he considers himself to be well provided with food. When he reaches a stream, he puts half a handful of this corn in a cup, and filling it up with water, stirs it up to melt the sugar, and drinks it off; or if he gets a fire, he heats the water and stirs in the corn. For many weeks during a journey from the north of Mexico to the south, exposed to some hardships and great fatigue, I lived, and, with truth I may say, fattened on this preparation of corn. At breakfast, at the halt of the mid-day, and at the setting of the sun, my cup of hot water was on the fire, the parched corn-meal with its sugar and spice was put into it, and in a minute or two my repast was prepared. I thought nothing could be more agreeable or nourishing. I cannot relate the mode by which the Mexicans parch the corn, for I never saw it done. The grinding of it was on the stone so constantly described by all travellers who mention the corn cakes of Mexico called "tortillas."—*Thomas Falconer.*

Ireland—one of the finest countries in the world—is now suffering from famine and disease. Why? Not because Nature has dispensed her favours sparingly, but because her sons and her adopted sons have deserted their country. Look at the state of agriculture in the sister isle, and then picture to yourself the field for speculation staring you in the face. Coal, iron, marble, copper, &c. &c., capable of being converted into money, by the activity of man. Then cast your eye over the wilderness of waste land, requiring only the spade and plough, backed by industry and capital, to be converted into a mine of wealth. This is all true; but I may be told no man's life is safe in such a distracted island. I answer, the only remedy to allay the existing evils is for owners of property to go over in a body, and reside on their estates for 12 months, and if the experiment does not succeed, let them go where they will. It is not pleasant to be shot at entering your own door in broad daylight; but these lawless proceedings would soon vanish, did their natural protectors reside amongst the Irish. No race of men are more alive to kindness than the peasantry; give them a fair opportunity of improving the land, by instruction and example, and let them have a chance of consuming part of the produce they cultivate, and we should soon have our sister island as flourishing as England. Some slight sacrifice must be made by individuals who love their ease, but what is this compared with the welfare of millions? Let us hope soon to hear of meetings being convened by Irish landlords and owners of property, to consider

...collected, viz. visiting their lands, meeting together in a body, and introducing an improved state of agriculture.—*Falcon.*

Summers and Harvests from 1816 to 1845.—The enclosed was cut out of a Chester paper. Thinking you might not have seen it, I send it. My opinion is we shall have a dry summer and a dry May, which will not do for the Hay crops.

1816—Extremely cold and wet throughout. One of the worst harvests ever known. Bad times.
1817—Very cold and wet in July and August, but very fine in September, which favoured the harvest.
1818—Intensely hot and dry; the thermometer twice at 89° and often above 80°. Good harvest.
1819—A very fine hot summer; the month of August intensely hot. Scarcely any thunder. Good harvest.
1820—A fine summer on the whole, and very productive. Good times.
1821—Some very hot days occasionally, but for the most part cold and showery.
1822—A splendid year; hot and dry for the most part, but heavy rains at times, with much thunder. A very abundant harvest.
1823—A very cold showery summer. In July it rained every day except the 24th. Very little thunder.
1824—Very fine and warm throughout, but never intensely hot. The thermometer stood highest September 1st, and was at 78°.
1825—Very hot almost throughout. July 18, the thermometer stood at 90°, which is the highest observation in the course of all these summers. Good harvest.
1826—The hottest and driest summer ever known; it began early and continued late. The thermometer was twice at 88°, and often at 84°. Good harvest.
1827—Hot and dry, but not to such extremity as last summer. Much thunder.
1828—Immense rains, which began July 9, and continued almost without cessation. Large floods July 16 and 30. Heavy thunder-storms. Bad harvest.
1829—A very stormy summer. In September the rains were very heavy.
1830—Very cold and wet, especially in June. Much thunder.
1831—Warm, gloamy, showery, and electrical. A sickly summer. A great number of insects, especially house flies.
1832—Moderate for the most part, without much inclination either one way or the other.
1833—Very fine, the early part especially. An abundant harvest.
1834—A very fine hot summer, but heavy rains at the end of July. An early and productive harvest.
1835—Hot and dry, with some showery exceptions. Another abundant harvest. Good times.
1836—In the midland counties dry weather predominated. Remarkable for the almost entire destruction of the Turnip crop by the fly. Harvest not amiss.
1837—A fair average of hot weather, but preceded by a very severe spring. Harvest deficient.
1838—A cold wet summer, and a late unproductive harvest.
1839—Very heavy rains, almost without intercession. The harvest not unproductive, but much damaged. Bad times.
1840—A fine warm summer, with intense heat in August. Fine harvest weather. Feed deficient.
1841—Fine and warm weather in May and June, wet and cold in July and beginning of August. Fine harvest weather at the end and in September.
1842—Very fine spring, summer, and autumn. Harvest not abundant, but excellent grain. Mild winter.
1843—Mild May; tolerable summer; good harvest. Winter windy. Good times.
1844—Very dry. Deficient hay harvest Autumn fine Harvest excellent, and beautiful grain. Winter very severe. Frost from October to February, 1845.
1845—Spring late and cold. Summer not cold, but sunless. Harvest plentiful, but deficient in quality.—*J. B. H.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A MONTHLY Council was held at the Society's House in Hanover-square, on Wednesday last, the 6th of May; present: the Right Hon. Lord PORTMAN, president, in the chair; Duke of Richmond, Marquis of Downshire, Earl of Aylesford, Earl Spencer, Earl of Erne, Earl of Ducie, Earl of Lovelace, Viscount Hill, Viscount Newry and Morne, Lord Braybrooke, Hon. R. H. Clive, M.P.; Sir Hungerford Hoskyns, Bart.; Sir Matthew White Ridley, Bart.; Sir John V. B. Johnstone, Bart. M.P.; Sir Charles Douglas, M.P.; Colonel Austen, M.P.; D. Barclay, Esq. M.P., T. Raymond Barker, Esq.; S. Bennett, Esq.; W. R. Browne, Esq.; F. Burke, Esq.; Colonel Challoner; F. C. Cherry, Esq.; E. D. Davenport, Esq.: John Ellman, Esq.; H. Gibbs, Esq.; B. T. B. Gibbs, Esq.; C. Hillyard, Esq.; W. Fisher Hobbs, Esq.; John Hudson, Esq.; S. Jonas, Esq.; Rev. C. E. Keene; George Kimberley, Esq.; John Kinder, Esq.; Colonel MacDonnell; R. Milward, Esq.; E. W. W. Pendarves, Esq. M.P; Philip Pusey, Esq. M.P.; F. Pym, Esq.; J. Allen Ransome, Esq.; Prof. Sewell; J. V. Shelley, Esq.; W. R. C. Stansfield, Esq. M.P.; C. Stokes, Esq.; H. S. Thompson, Esq.; C. Hampden Turner, Esq.; George Turner, Esq.; George Wilbraham, Esq.; and Henry Wilson, Esq.

Viscount Newry and Morne, of Morne Park, county Down, Ireland, and Eaton Place, Belgrave Square, London, was elected a Governor, and the following gentlemen members of the Society:—

Elliott, Eustace, Smeaton-Pillaton, Landulph, Cornwall
Selby, Charles, Earle, Wooller, Northumberland
Shafto, Rev. John Duncombe, Brancepeth Rectory, Durham
Champneys, Rev. P., Hunton, Maidstone, Kent
Burrell, William, Broome Park, Alnwick, Northumberland
Greville, Algernon, North Lodge, Potter's Bar, Herts
Hunter, William, Loraine Place, Newcastle-on-Tyne
Hippesley, John, Stone-Easton, Wells, Somerset
Straker, John, Eldon Square, Newcastle-on-Tyne
Preston, Henry, Moreby Hall, York
Blayds, John, Oulton Hall, Leeds
Dunn, Mathias Wm., Hedgefield, Newcastle-on-Tyne
Dunn, George, Newcastle-on-Tyne
Robinson, Joseph, Tanfield, Chester-le-Street, Durham
Nairn, Henry, Newcastle-on-Tyne
Barkus, William, Elgiton Lodge, Gateshead, Durham
Dutton, T., Villa-Real, Hylton Grove, Newcastle-on-Tyne
Forster, Geo. Carnaby, White House, Gateshead
Bullock, Benjamin, Spittle Hill, Morpeth, Northumberland
Dunbar, Hon. Robert, Millfield Hill, Wooller, Northumberland

The names of 19 candidates for election at the next Meeting were then read.

FINANCES.—Col. AUSTEN, M.P., Chairman of the Finance Committee, submitted to the Council the state of the funds of the Society at the end of the previous month; from which it appeared that on the 30th of April last, the invested capital of the Society stood at 7000*l.* Stock; and the current cash balance in the hands of the bankers at 1462*l.* The quarterly statements of receipt and expenditure, estimated income and liabilities, and permanent investment, were also duly laid before the Council by the Chairman of the Committee, and approved.

PRIZES FOR ESSAYS.—Mr. PUSEY, M.P., Chairman of the Journal Committee, submitted to the Council the following schedule of subjects for essays and reports, to be competed for as prizes in 1847, agreeably with a detailed statement of conditions and dates of delivery, which would be drawn up and presented for publication at a future meeting, namely—

On the Farming of Northumberland	50*l.*
On the Farming of Suffolk	50*l.*
On the Farming of Somersetshire	50*l.*
On the Management of Sheep	20*l.*
On the Cultivation of Wheat	20*l.*
On the Cultivation of Mangold Wurzel	20*l.*
On Paring and Burning	10*l.*
On Flax	20*l.*
On the great Level of the Fens: history of the drainage, view of its present state, and account of the defects which still require to be remedied	50*l.*
For an account of the best Manure for Wheat, compounded of chemical ingredients; to be tried by Judges appointed by the Society	30*l.*
For an account of the best Manure for Turnips, compounded of chemical ingredients; to be tried by Judges appointed by the Society	30*l.*

CHEMICAL ANALYSIS.—Mr. PUSEY also laid before the Council the Report of the Committee on the Analysis of the Ashes of Plants, in which were detailed the progress made by the Committee in carrying out the views of the Council in reference to the question submitted for their consideration, the division of the subject proposed by the Committee for adoption, and the appointment of a Sub-Committee to confer, previously to the final arrangements of the Committee, with parties into whose hands it is intended that particular branches of the investigation shall be placed. The following are the six heads into which it is proposed by the Committee that the inquiry into the Ashes of Plants should be divided, namely:—

1. WHITE CROPS: Wheat, Barley, Oats, and Rye.
2. ROOT CROPS: Turnips, Swedes, Beet, Carrots, Parsnips, Potatoes, and Jerusalem Artichokes.
3. LEGUMINOUS CROPS: Beans, Peas, Vetches, Lentils, &c.
4. FODDER CROPS: The Clovers, Saintfoin, Rye-grass, and the Natural Grasses.
5. CROPS WITH OILY SEEDS: Hemp, Flax, Rape, Gold of Pleasure, Sunflower, &c.
6. THE WOODS of various trees.

The Council having confirmed this report, resolved that in addition to 350*l.*, the sum already placed at the disposal of the Committee for carrying out the investigation the further sum of 250*l.* should be granted, in order that 100*l.* as suggested by the Committee, may be placed to the account of each of the six heads of the inquiry, for the period of the ensuing two years, during which it is intended that the investigation shall be carried on, and for the exigencies of which, in their opinion, that sum will in each case amply suffice.

NEWCASTLE PRACTICAL DISCUSSIONS.—Mr. PUSEY further submitted to the Council the Report of the Newcastle Discussion Committee, containing the following recommendations:—

1. That Professor Johnston, one of the Honorary Members of the Society, should be requested to read a paper before the Members at Newcastle-upon-Tyne, at 5 o'clock in the evening of Tuesday, the 14th of July, on the Chemical Principles involved in the preparation of Manures, and their action upon Crops: with chemical demonstrations.
2. That Mr. Parkes, the Consulting Engineer to the Society, should be requested to read a paper before the members, at Newcastle-upon-Tyne, at 5 o'clock in the evening of Wednesday, the 15th of July, on the subject of Draining.
3. That the reading of each of these papers be followed by a discussion on the practical bearings of the respective subjects, and the communication of individual experience in reference to their details, under such regulations as the President may decide.
4. That the discussion, after Mr. Parkes' paper, on Wednesday, be closed by the reading of the Judges' award of Prizes.
5. That all persons attending on these occasions be admitted by free tickets, to be obtained of the Secretary; it being left to the consideration of the General Newcastle Committee in what manner regulations may be best effected for the admission of strangers, after due provision shall have been made for the accommodation of the members of the Society.

This report was adopted and confirmed by the Council.

EXHIBITIONS OF POULTRY.—The request of the Newcastle Local Committee for space in the Show-yard at the ensuing Country Meeting of the Society at that place in July, having been read, the Council resolved that such space should be allowed for that purpose as may be required, and that the notice, entry, and adjudication in reference to that portion of the exhibition in the Society's show-yard should be made agreeably with the 27th regulation of the Show.

EXHIBITION OF WOOL.—Mr. B. GIBBS having called the attention of the Council to the question of the entry of wool in competition for the prizes in that class offered by the Society for adjudication at Newcastle, on the motion of Mr. FISHER HOBBS, the Council agreed to the following resolution:—"The fleeces exhibited shall have been taken from the same flock, fed together during the six months prior to the time of shearing; such flock having during that period been *bona fide* the property of the exhibitor, who shall be required to specify on his certificate whether the sheep have been kept in a house or not."

AUCTIONEERS.—The Council having decided that it would this year be desirable that the sale by auction should be divided between two professional parties, on the motion of Mr. MILWARD, seconded by Mr. FISHER HOBBS, they unanimously appointed Mr. Wetherell, of Mr. James Chrisp, of Newcastle, to be the Society's auctioneer on the same occasion, for the sale of sheep, pigs, and implements, on the condition of each party's agreeing to abide by the established regulations of the Society in reference to the sale by auction.

CORPORATE AGREEMENTS.—The Duke of RICHMOND then moved the following resolution, of which Mr. Miles, M.P., had given due notice at a former meeting, namely:—"That in future no agreement which may be entered into with local authorities relative to the place of the annual Country Meeting, shall be held good, unless the corporate seal, attested by the signature of the mayor, shall be affixed to such document." This resolution was agreed to accordingly.

ANNUAL COUNTRY MEETING OF 1847.—EARL SPENCER, Chairman of the Local Inspection Committee for the Country Meeting of 1847, having laid before the Council the report of the Committee on the result of their personal inspection of the various localities they have visited in accordance with the instructions of the Council, Mr. RAYMOND BARKER, Mr. BENNETT, and Mr. BROWN proceeded to explain in detail the accommodation respectively afforded by each of the towns which as members of the Committee they had visited, and the nature of the sites proposed in each case by the authorities for the purposes of the meeting; and the Secretary laid before the Council the whole of the documents he had received from the authorities of cities and corporate towns throughout the district of that year's meeting. The Council then received the deputations who had come to town for the purpose of advocating the claims of the localities they respectively represented, and who having guaranteed to the Council the authenticity and accuracy of the memorial and other documents transmitted by their respective authorities, afforded such further information as the members present required. The President expressed to each of the deputations who had thus favoured the Council with their attendance, the best thanks of himself and the Council for the honour they had done the Society in the several invitations they had given to the members at large to hold their Country Meeting in one of their respective localities, and for the kind trouble they had taken in preparing and transmitting the various plans and reports required by the regulations of the Society, prior to the selection of any particular city or town as the place of the Country Meeting.

The deputations then withdrew, and the Council proceeded to the consideration of the relative capabilities of each of the localities proposed for the occasion of the ensuing meeting, and the largest amount of accommodation offered by each of them for the purposes of the meeting, and the general convenience of members of the Society, and the visitors attending on the occasion.

The Council finally decided that Northampton should be selected as the place of the Country Meeting of 1847, for the district embracing the counties of Northampton, Warwick, Bedford, Buckingham, Berks, Oxford, Huntingdon and Hertford, subject to a due execution within the ensuing week of the formal agreement required by the rules of the Society. The President stated that he should order a Special Council to be summoned for Wednesday next at 1 o'clock, to receive and ratify that agreement, and resume the consideration of the Report of the Rotation of Districts' Committee.

GENERAL MEETING.—The Council decided that 1 o'clock in the afternoon should be fixed as the hour of the General Meeting on Friday, the 22d instant. They also agreed to the house list of the Council, required by the bye-laws of the Society, and gave orders for the preparation of a provisional prize sheet for 1847, to be laid on the table for the inspection and suggestions of the Members who might attend on that occasion. The President stated that a Special Council would be held on Wednesday, the 20th instant, at 1 o'clock, for taking into consideration the Report of the Council to the General Meeting.

JUDGES.—The Council then appointed the following Committees for the recommendation to the Council of such Judges as they might select from the lists of nomination transmitted by members to the Secretary, or delivered by them personally to the President on the day of the General Meeting: all members of the Society being invited to nominate accordingly such Judges as they may wish to recommend for particular Classes of the Show, agreeably with the privilege granted to them by the bye-laws.

Committee for Judges of Stock:—Earl Spencer, Mr. Stokes, Mr. Druce, Mr. B. Gibbs, and Mr. Shaw.
Committee for Judges of Implements:—Mr. Thompson, Mr. Pusey, Sir John Johnston, Mr. Miles, and Mr. Shelley.

The Council ordered that the Committee appointed, Nov. 5, 1845, to consider the best mode of providing for the accommodation of the Judges, and regulating the rate of their remuneration, be directed to meet for business.

The President laid before the Council a collection of papers received from Sir John Ogilvy, Bart., connected with the proceedings of the Chemical Association in Scotland and the Potato disease; the Earl of Erne reported the steps he had taken to obtain the information on Flax requested by the Council; and Mr. Thompson presented 78 full-sized heads of Wheat grown from one grain, and 160 heads of Barley also from one grain, by Colonel Croft, in his garden, at Stillington, Yorkshire.

The Council then adjourned to Wednesday next, the 13th instant.

At the monthly meeting of this Association, held on the 8th ult., Professor Johnston said:—With regard to the Potato disease, there was a point to which Dr. Greville and himself had referred before, viz., whether a diseased crop could give a sound crop of Potatoes? In answer to this query there were three points to which he would refer. 1st. Sound Potatoes, from a diseased heap, are capable of producing healthy plants; this had been proved by experiments made by themselves. 2d. Apparently sound plants can also be produced from sound parts of diseased Potatoes. This we have verified by actual experiment, for the details of which see No. 7 of the "Potato Disease in Scotland," just published. 3d. Letters from Ayrshire say that they had planted diseased Potatoes, and got sound crops; nay, that they were the freest from disease of their whole crop. They say that the disease was identical with that of the present year. These facts are very encouraging for the country generally in regard to the crop of 1846.

From the inquiries he had made in his journey he found that the supply of seed north of the Forth was abundant, although the price was high, being from 20*s.* to 21*s.* a boll. He found also that the export this year was much greater than in former years.

Saving of Waste Manures in Public Hospitals.—In reference to this subject, there were certain parties connected with John Watson's Hospital, who wished to know whether they could not make use of a portion of land, about 11 acres, attached to the Hospital, and whether they could do so without much expense. John Watson's Hospital stands upon a bank above the Water of Leith. There were about 140 persons in it, and the liquid and other manures were run into the Water of Leith, causing—1st, the pollution of the wator; and, 2d, the waste of these substances. The first point was to see whether it could be saved or not. He went there with Mr. Girdwood and Mr. Milne, and found, from the situation, that it might be saved easily; but the question arose, what use could be made of it? Now, it happened that this piece of land belonged to the hospital; what required to be done was to see if they could cultivate it themselves with profit. Now, he found that there was expended annually for milk 213*l.*, and for vegetables 32*l.* The point, therefore, was to see whether they could save this expense. For this purpose Mr. Girdwood drew up a plan of a six crop rotation, and detailed the method to be pursued, and gave an account of the expenses necessary for cultivating, which he calculated would be about 150*l.*, while the produce would be 244*l.*, being 94*l.* to pay the rent, which, at present, was 70*l.*, that being the sum they got for the ground, so that they would save 20*l.* This calculation at the same time leaves so broad a margin that he thought the profit might be doubled.

Refuse of Breweries.—Professor Johnston said that there were several refuses in the brewery. There were—1st, The cummins, which was the dried root of the Barley. 2d, After the Barley had been exhausted of the sugar, &c., there was the draff. 3d, The distiller, after the first distilling of this wort, had another refuse; and there was another left after the second distillation, which was not of much use, but he referred them to Part IV. of their Proceedings for a fuller account of these two refuses. In reference to the analysis of draff, he found it to contain a large quantity of water, about 75 per cent., leaving 25 per cent. of dry matter (it therefore was like Potatoes in this respect, as they contain about the same quantities); of this 25 per cent. of dry matter 20 per cent. was husk, the rest consisting of a little starch, sugar, gum, and compounds of protein, chiefly albumen, attached to the husk. (The Professor here explained why casein, albumen, and fibrin, were called protein compounds, from protein being a substance which they all contained.) These compounds amounted to 6-10ths of a per cent. in draff. The ash was a little more than in the Potato, being about 1-5th more; it was, therefore, very like the Potato, the latter only containing more of the protein compounds. He here referred to a table showing how much of these compounds were contained in the dry Potato. With regard to the analysis of the ash of the draff it contained one-half its weight of phosphates. These are extremely valuable as they supply the material of bones, and also the feeding of cattle, as they are contained in the milk, as seen from the following table:—

Composition of Milk of the Cow.

Casein	4.5
Butter	3.1
Milk sugar	4.8
Saline matter	0.6
Water	87.0
	100.

Milk contains more than ½ a per cent. of saline matter, which was chiefly phosphates. 10 gallons of milk contained ½ lb. of them, and 100 lbs. of draff contained the same. Draff weighs about 46 lbs. a bushel; and, in Edinburgh, it costs 2*s.* 6*d.* a qr., while in Wigtownshire it is 2*s.* If a cow therefore eats ½ a bushel a-day, that is about 25 lbs., it gets but a very small quantity of phosphates—much less than it ought to get. The protein compounds supply casein; now milk contains 4½ per cent. of this valuable substance. It exists in Wheat to the amount of 10 or 12 per cent., and in Oats to 16 per cent. In Beans a pound of this substance would cost 6½*d.*; in Peas about the same; in Wheat, 1*s.* 4*d.*; in Oats, the same; in flesh, 2*s.* 2*d.*; in Potatoes, 2*s.*; in Turnips, 2*s.* 9*d.*; and in Draff, 1*s.* Therefore, if it was wished to have cheesey milk it should be given mixed with [illegible] for the purpose, as it only cost 2*d.*; but with regard to the phosphates, draff was much better, as draff contained 1 lb., while oilcake had only half that quantity; therefore, to give the same amount of phosphates, oilcake would cost 3*s.* to 1*s.* for draff; it was therefore better for building bones—thus the principle of mixing substances was borne out by analysis. The value of draff was more to the cowfeeder than to the farmer, as the former wanted milk, &c. It contained a large quantity of water; but there was another advantage, as the water was diffused through every part of it, it was therefore much more soluble, as it was brought by this diffusion of the water to something like what it was in the young state; and, like green grass, it was more soluble in the stomach than hay. The knowledge of this was important, as it showed a connection between the method by which the draff was brought to this state and that method of preparing food by steaming.—Mr. Johnston here read the following letter from Mr. John Hutton, Esq., Jowber-hill, near Northallerton:—"I am quite sure you would be much pleased by the new method I am using in keeping and feeding store cattle. A gentleman, about three years ago, took a small plot of land near me. He came from the West Riding. For amusement, he contrived a plan to boil Linseed by steam; the Linseed is crushed, and boiled with water for two hours; when hot it is mixed with meal and cut straw, 2 lbs. of Linseed, 5 lbs. of meal, and 9 lbs. of straw, for each beast a day, given at twice, two hours after mixing, with 70 lbs. of the best Turnips divided into two meals. It is quite wonderful how fast the cattle feed, and how well the holding stock do, the latter having about half quantity of Linseed and meal. I am quite sure if, when in Durham, you come over, it would amply repay you. Mr. Thomson, of Kirby Hall, was so much pleased with it, that he has put one up, and Lord P—— has seen it, and has offered to fit one for a tenant. By this we use not quite half the quantity of Turnips in feeding, while it makes most beautiful manure. Last year we sold 20 more fat cattle than we could have fed in the old way with Turnips and cake, and this winter shall feed at least 30 more. In December the cost, including labour, corn, and Linseed, not valuing straw, was 5*s.* 11¾*d.* for a week."

Cummins are also sold by the brewer; others give them away with the draff. Of all the substances he knew they were the most valuable as dry food. They contained more of the protein compounds than oatmeal, having about 29 per cent. of that substance necessary for forming the curd of milk, and for laying on muscle. The ash contains more than half its weight of phosphates, about 40 per cent.; and they are therefore valuable for forming bone. Cummins leave about 7 per cent of ash, while draff leaves about 1. To show how quickly some parties take advantage of these things, he might mention that a party in Glasgow, learning that the cummins were given away by the brewer, came through and made a contract with a number of the brewers to purchase them at 3*d.* per bushel.

He had a letter from Mr. Caird, of Baldoon, stating the results he had found in feeding stock with draff. He gave, in the first experiment, the following:—

Each, ½ a bushel, at 3*d.* ..... £1 5*s.* } Making for the
— 22 lbs. of Turnip, at 10*s.* a ton. 1 0 } 200 days, 2*l.* 5*s.*

In the second—

Each, 2 bushels of Beans, at 4*s.* 6*d.* £0 9*s.* } Making 2*l.* 9*s.* for
— 4 tons of Turnips, at 10*s.* ..... 2 0 } the 200 days.

Those fed on the former gave more milk and richer, while that from those fed on the beans was very strong tasted.—*Abridged from Ayrshire Agriculturist.*

Farmers' Clubs.

Darlington.—At an adjournment of the annual meeting, on the 30th ult., Mr. Dixon, the honorary secretary, read the report of the committee at the close of the second year. During the past year they had numbered upwards of 60 members, and it was fully expected that the number would be augmented during the current year. One leading object in establishing the club was to get up a good farmers' library of the most popular agricultural books; the funds, therefore, had been applied, as far as possible, to that purpose; and several volumes had been received as donations. The report further stated, that as the object of the institution was to benefit the landowners and farmers of the district, by stirring up such a spirit of inquiry as might lead to improvements in cultivation, by the diffusion of useful knowledge amongst its members on all subjects connected with good farming, it was arranged that all members could not only attend the discussions and lectures, but they could have books and periodicals from the library at all times to read at their own houses.—The Chairman then called attention to the subject for discussion, viz., "The best manure for the Turnip crop, and the advantages of an analysis of the soil previous to manuring."—Mr. Phillips explained what appeared to him to be the true principle on which manures should be applied, having due regard to the nature of the soil and of the crop. He next pointed out the great difference in the composition of different species of plants, taking as illustrations the analysis of Wheat and Turnips; and showed when even guano or stable-dung were applied to the soil as a manure for these crops, there was a waste of some of their elements. He then went on to explain why the crops did not in all cases succeed where artificial manures had been applied; this he considered to arise generally for want of analysis of the soil previous to applying those manures, the consequence of which was, the farmer sometimes added to it substances in which it was already [illegible] land actually required, and which he might probably at even a less cost have applied, and thereby have realised abundant crops of the plant he intended to produce. After noticing the use of oil of vitriol when applied to bones as a manure, he stated that from the chemical composition of the Turnip, he should consider the best manure for its inorganic elements would be pearl-ash and bones treated with oil of vitriol, and a little magnesian limestone added, to absorb and neutralise the excess of acid used for the bones.—The Chairman then mentioned a field where he had tried on equal quantities of land superphosphate of lime, guano, and farm-yard manure, for a crop of Turnips; and he could not discover any material difference between the different plots in the crop; and in the succeeding crop of corn there still was no material difference.—Mr. Johnson said that on his land the effect had been quite different. He had tried bones dissolved in oil of vitriol, Peruvian guano, African guano, and good farm-yard dung, at the rate of 20 loads per acre, on plots of ground of 14 rows each. The guano and the dissolved bones were of equal expense; the farm-yard manure was at least twice the value of each of the others. In the Turnip crop the 14 rows manured with the dissolved bones was the best; those plots done with the guanos were very good, but not so great a crop as the dissolved bones; but they were any of them twice as good as the plot done with the farm-yard dung. He also further remarked that he had as good crops of corn after guano as farm-yard dung.

Newcastle: *The Best Methods of Fattening Horn Cattle.*—In the absence of the gentleman who was to have opened this discussion, Mr. Glover, the Secretary, made the following remarks: In stall feeding it was of the utmost importance for the person in charge of the cattle to be regular in his attendance; for they knew perfectly when meal-time had arrived, and were restless and uneasy when disappointed of their food. Salt should be given to them—which they would readily resort to, if placed within reach; and a convenient mode of supplying it was in the form of a lump of rock-salt. Cleanliness, and a good supply of litter, should never be neglected. To keep the skin clean, and use the curry-comb liberally, tended to fatness. Food should also be given with regularity as to quantity. They should not be exposed to alternations of hunger and surfeit. The food of cattle should also be varied as much as possible. Like human beings, they were fond of variety, and capricious in their appetites. 2 lbs. of oilcake, 5 lbs. of Barley-meal, and 5 lbs of hay-chaff, with a plentiful allowance of Swede Turnips, had been recommended as a daily allowance. Mr. Curtis, of West Readham, Norfolk, had used Linseed oil with much success. The oil was sprinkled on good Oat-straw, layer after layer, at the rate of a gallon of oil to a week's allowance of straw. The straw to be frequently turned over, and kept two days before used—by which time the oil would be absorbed, and there would be a slight fermentation in the food. The cost of the oil per gallon would be about 2*s.* 10*d.* Mr. Warnes, of Trimmingham, Norfolk, made a mixture of Linseed meal and crushed Barley. Crushed Oats, boiled Peas, and Bean flour, might any of them be substituted for the Barley. He put 166 lbs. of water into an iron cauldron, and, when boiling, stirred into it, for five minutes, 21 lbs. of Linseed meal. 63 lbs. of crushed Barley was then sprinkled upon the boiling mucilage by one person, while another rapidly stirred the mixture. This occupied another five minutes. A cover was next put on, and the furnace door thrown open. Should there be much fire it was put out. The mass continued to simmer until the Barley absorbed the mucilage, and the operation was complete. The food might be used on the following day. When put into tubs it should be rammed down, to exclude the air, and prevent the mass from becoming rancid. The quantity mentioned would afford a bullock a stone a day for a fortnight. Mr. Warnes stated that the last of his experimental bullocks was sold at 8*s.* 6*d.* per stone. It weighed 60 st. 5 lbs. (14 lbs. to the stone), and cost 7*l.* 17*s.* 6*d.* thirteen months before the sale; so that it paid 17*l.* 10*s.* for little more than one year's keep. Its common food was Turnips or Grass. 14 lbs a day of Barley or Peas compound was given for 48 weeks, and in unlimited quantity the last six weeks. The total weight of compound did not exceed 2 tons 4 cwt., at a cost of 3*l.* 16*s.* per ton.—Mr. M'Bryde was of opinion that to obtain the greatest amount of beef in the shortest time, the cattle should be tied up in stalls, and fed for six or eight weeks on oilcake, bruised Oats, Beans, &c.—Mr. Macculloch, of Logan, in using Turnips, preferred to have them cut into slices, from 1½ to 2 inches thick. The plan adopted at Logan Mains, in giving oilcake to cattle, was to grow and preserve the seed. It was bruised, and boiled with equal proportions of bruised Oats and Bere (a kind of Barley); of this mixture from 4 to 6 lbs. per day was given, hot, after the cattle had been tied up about two months. The manure was enriched, and the expense of the diet repaid. In Lincolnshire, oilcake was given largely, from 8 lbs. to 12 lbs. and even 16 lbs. daily, to three-year-old beasts; but the cattle, Mr. Glover supposed would only pay the bill for the oilcake. Indeed the Lincolnshire farmers described such cattle simply as their machines for converting fodder into dung. The comparative merits of stall, yard, and box-feeding, had been much canvassed. Box-feeding, the *Agricultural Gazette* observed, was, perhaps, as good as any other, for the conversion of hay, roots, and other food into beef; but it was only

...ation. All animals fed for the kitchen. The object ...ld to be attended to were to keep them well supplied with litter, and to be regular in giving them the requisite kinds of clean food in a clean place. They should be littered early in the morning (the litter being all cleaned out), and fed with a basketful (about 50 lbs.) of cut Swedes. A large beast would eat this quantity clean up, and then lie down for two or three hours. A lot of chaff from the thrashing-machine, or cut straw, should be laid before each beast, as it was lying down. It was a good plan to prepare the chaff thus: Linseed meal, at the rate of half a pound to a gallon of water, should be put into a boiler, with two or three handsful of salt. When hot, the liquid should be poured over the chaff, previously spread out for the purpose. The food thus became savoury, and was relished by the cattle. About 11 A.M. all those beasts that got oilcake received their allowance. Some of them had, at this time, from 4 lbs. to 12 lbs. of a sort of porridge of Linseed and Pea-meal, mixed up with the chaff. At 1 P.M. they each got about three-fourths of a basketful of cut Swedes; and before night a basketful, with some straw-chaff. The *Gazette* also had an article on manures, and referred to Mr. Warne's system of box-feeding, in which the litter accumulated under the cattle, and was supplied in sufficient quantity to absorb all the urine. The manure was excellent. An ox, in a box 10 feet square, and well littered, would rise only 3 inches in a week; but the manure below it was hard compressed, and would monthly, when turned out, form a heap of at least 6 cubic yards of first-rate material, containing all the urine. Box-feeding was advocated on the ground of uniting all the advantages of having the cattle loose (or at liberty to move themselves as far as was beneficial), without allowing them to be checked in fattening by annoyance from other animals.—Mr. G. Bates said he had always seen cattle get fat with plenty of Turnips and straw. Oilcake might be all very well, if there were no reckoning day; but the bill was sure to come in, and dig deep into the grazier's purse. He very much doubted if he would get the money back in profit.—Mr. Milburn, of Crawcrook, observed, that if the farmer got but half the money back he might still be in pocket, from the increased value of the manure.—Mr. Bates was inclined to think that Linseed must be preferable to oilcake. But in his opinion Turnips and straw would be found the most profitable provender for the farmer. It was desirable to use the produce of the farm, as much as possible, in the feeding of cattle, and not to be too often putting your hand into your pocket. He had never failed to see an animal get fat, when put into a hamel with straw and Turnips. He spoke, of course, of animals that would feed. The value of oilcake, price considered, was over-rated.

Miscellaneous.

Spreading, Lifting, and Drying Flax.—Select, when possible, clean, short, thick, pasture ground for this operation; and mow down, and remove, any weeds that rise above the surface of the sward. Lay the Flax evenly on the Grass, and spread thin, and very equally. If the directions under the head of rippling have been attended to, the handfuls will come readily asunder, without entangling. Turn it two or three times, while on the Grass (with a rod about 8 feet in length, and an inch and a half in diameter), that it may not become of different shades, by the unequal action of the sun, which is often the case, through inattention to this point. Turn it when there is a prospect of rain, that the Flax may be beaten down a little, and thus prevented from being blown away. A good test of its being ready to lift is, to rub a few stalks from the top to the bottom; and, when the wood breaks easily, and separates from the fibre, leaving it sound it has had enough of the Grass. Also, when one stalk in fifty is perceived to form a bow and string, from the fibre contracting and separating from the woody stalk. But, the most certain way is, to prove a small quantity with the handbreak, or in a Flax mill. In lifting, keep the lengths straight, and the ends even, otherwise great loss will occur in the rolling and scutching. Tie it up in small bundles; and if not taken soon to be scutched, it will be much improved by being put up in small stacks, loosely built, with stones or brambles in the bottom, to keep it dry, and allow a free circulation of air. Stacks built on pillars would be the best. Drying, by fire, is always most pernicious. If properly steeped and grassed, no such drying is necessary; but, to make it ready for breaking and scutching, exposure to the sun is sufficient. In some districts, it is put to dry on kilns, in a damp state, and is absolutely burned, before it is dry, and the rich oily property of the Flax is always greatly impaired. On this point, the Society can scarcely speak too strongly, as the Flax is either destroyed, or rendered not worth one-half of what it would be, if properly dried.—*5th Report, Flax Society.*

Breaking and Scutching Flax, if done by hand, should be on the Belgian system, which is less wasteful than that practised in Ireland. If by milling, the farmer will do well to select those mills in which the improved machinery has been introduced. The Society would also recommend, that the farmer should endeavour to have his Flax scutched by a mill owner who pays his men by the day, and not by the stone, even if it should cost him higher in proportion—the system of paying the scutchers by the stone, rendering them more anxious to do a large quantity in the day, than to produce a good yield from the straw.—*5th Report, Flax Society.*

Calendar of Operations.

MAY.

Management of Young Stock.—We continue our extracts, commenced in an early Calendar, from Mr. Wilson's article on this subject (see page 94). "When the calves are from 4 to 6 weeks old, they are removed from their separate cribs to a house where several can be accommodated together, and have room to frisk about. So soon as the feeding-yards are cleared of the fat cattle the calves are put into the most sheltered one, where they have still more room, and are gradually prepared for being turned to Grass; and when this is done, they are still brought in at night for a time. At 6 weeks old the mid-day allowance of milk is discontinued, and at about 14 weeks old they are weaned altogether. When this is done, their allowance of Linseed cake is increased, and as they have been trained to its use they readily eat enough to improve in condition at this crisis instead of their growth being checked and acquiring the large belly and unthrifty appearance which used to be considered the inevitable consequence of weaning. The cake is continued until they have so evidently taken to the Grass as to be able to dispense with it. They are not allowed to lie out very late in autumn, but as the nights begin to get chilly are brought in during the night and receive a foddering of Vetches or cut Clover. When put on Turnips, the daily allowance of cake, say 1 lb. each, is resumed and continued steadily through the winter and spring until they are again turned to Grass. This not merely promotes their growth and feeding, but (so far as the experience of 5 or 6 years can determine the point) seems a specific against blackleg which was often so fatal as altogether to deter many farmers from breeding."

As regards farm work for the ensuing week.—The principal operations will be planting Mangold Wurzel where that has been delayed, planting Potatoes, and cross ploughing for the Turnip crop, in every case immediately harrowing, rolling, again harrowing, and then gathering the weeds. Wheat and Bean hoeing will also proceed.

Notices to Correspondents.

Books.—*W. L.*—Low's "Elements of Practical Agriculture" (for the farmer), and Low "On Landed Property" (for the landlord).—*I. R. N.* Bevan on the Honey Bee. Gypsum mixed with earth and soaked with urine will make a good manure for any crop.

Butter.—*Mr. Hepburn* asks how the bad taste of "Turnip or rancid" butter may be removed? It may be removed in the cream by the proper use of saltpetre. Can any one remove it from butter after manufacture?

Drainage of Flooded Land.—*P. Q. R.* Next week.

Drinking Place for Cattle.—*A. C. R.*—The drains we understand you will provide the water. Then, let the main run into a small well, from which let there be a waste drain at a proper level. Let this well be situated so as that a pump placed over it shall with the least length of pipe fill stone troughs in several fields. That is the method adopted on Mr. Smith's farm at Denston.

Gorse.—*J. J. Biddington*—You will see we have just commenced the publication of a Paper on this subject.

Guano.—*Beta*—It should not be mixed with wood ashes if they are *fresh*, if old they will not injure it. But in any case we should prefer placing it in the earth *previously to* sowing the mixture broadcast in wet weather *after* sowing rather than mixing the Turnip seed with it.

Pickled Oats.—*R. B. D.* Your account is very extraordinary. Can the difference be owing to nothing but the one seed being pickled and the other not? Was the pickling done as we recommended, or did it soak for any length of time? If the Oats are not up too high, we would advise you to harrow the land well open to the healthful spring showers that we are at present enjoying. We should feel obliged by any further particulars you can give.

Silex.—*Derby.* Sand and flints exercise an influence only on *the texture* of the soil: they are of no use as *food* for plants until portions of them have been dissolved by potash or soda and thus rendered soluble in water and capable of being absorbed by the roots of plants. But silicates of potash or soda are of little value in general as manures, for most soils contain them naturally in sufficient abundance.

Stall Feeding Cows.—*Leyton.* A cow will eat nearly 30 tons of green food in the year. You may grow that of the right kinds in succession on 1 acre: but you cannot grow enough for two cows on that extent. Sow ¼ of an acre to Lucerne, ¼ of an acre to Swedes, and ¼ of an acre to Mangold Wurzel and on the other ¼ you may have succession of Vetches, Turnips following the earlier, and Cabbages the later cuts.

Sulphuric Acid.—*Gloucestershire Farmer.*—4 bushels of bones and 1 cwt. of sulphuric acid mixed together will make a good dressing per acre. Dry with say 6 to 8 bushels of ashes.

Tormentil.—*A Craven Grazier.*—"Horse leas' slopes but little over the greater part of it. The drains were in every case placed right down the descent.

Vetches.—*J. J.* Cut them when the flowers are beginning to fade. Half dry them, and build with alternate layers of good Oat straw and plenty of salt. The rick will make very good chaff for horses in winter. Lucerne will do in a deep rich light soil though it prefers a somewhat adhesive loam. It is never economical to plough in good green crops. Make hay of your Vetches, and buy guano for the succeeding crop.

Windmill.—Will *D. L.* give us his address? We have a letter which may concern him.—*H. H. I.* says, "I or a 5 horse power windmill 21 feet by 5 feet 6 inches will be a sail of sufficient size, and by tightening or slackening the spring through which it acts you may vary the power from 3 to 7 horse-power if properly constructed. Four sails minus the cross and shaft will cost about 30*l.*, with spring and shades complete.

Markets.

SMITHFIELD, Monday, May 1.—Per Stone of 8 lbs.

Best Scots, Herefords, &c.	3s 10	to 4s 2	Best Long wools	-	-	4s 0	to 4s 2
Best Short Horns	3 8	4 4	Ditto (shorn)	-	4 0	4 4	
Second quality Beasts	3 10	4 4	Ewes and second quality	-	-	-	
Calves	4 0	5 0	Ditto (shorn)	-	3 8	4 0	
Best Downs & Half-breds	4 2	5 0	Lambs	-	-	5 8	6 8
Ditto (shorn)	4 4	4 8	Pigs	-	-	3 8	4 8

Beasts, 3886. Sheep and Lambs 23,450; Calves, 85; Pigs, 200.

We have a full supply of Beasts and trade dull. Some few of the best Scots have made 4s 4d, but these are rare occurrences.—There is a considerable increase in the supply of Sheep and, owing to the weather setting in suddenly warm, the demand is very limited, consequently a large number remain unsold.—Lambs freely disposed of, the weather being suitable, but the late high prices cannot be supported.—Veal has a tendency downwards.—Pork trade is tolerably steady.

Friday, May 8.

We have a sufficient supply of Beasts, although not very large, indeed. It is difficult to effect sales, in consequence of the rate having been so exceedingly bad at the dead mark to-day (Monday). The prices of that day are barely supported for the best qualities, and inferior descriptions suffer a small reduction.—We have not a very large supply of fresh sheep but, together with those left from Monday, there are quite enough. Trade is dull at Monday's prices.—Lamb trade is steady.—There being a large supply of Veal from the west of England to-day the dead mark is the Calf trade here to-day is exceedingly dull, at a reduction of full 2*l.* per 8 lbs.—Pork trade is active at fully late prices.

Beasts, 847; Sheep and Lambs 6150; Calves, 185; Pigs, 680.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

Whitechapel, May 8.

Fine Old Hay	78s	to 86s	Old Clover	80s	to 110s
Inferior Hay	60	70	Ditto	40	60
New Hay	—	—	New Clover	—	—
			Straw	28s	to 32s

Hops, Friday, May 8.

We have more doing in Hops this week. The bine is growing, but from the present appearance of other vegetation, we may expect soon to hear of an attack of blight.

Farebrother & Smith, Hop Factors.

Corn Exchange, Monday, May 1.

We have had a very large supply of English Wheat this morning, and the trade has been very dull, at a decline of 2*s* per qr. on the prices of last week. Foreign Wheat has also been in large supply, and the trade very heavy, at a decline of 2*s* per qr. Barley has been in large supply, and the trade very heavy, at a decline of 2*s* per qr. Oats have been in large supply, and the trade very heavy, at a decline of 2*s* per qr. Beans have been in large supply, and the trade very heavy, at a decline of 2*s* per qr. Peas have been in large supply, and the trade very heavy, at a decline of 2*s* per qr.

Mark Lane, Monday, May 1.

The supply of Wheat this morning from Essex and Suffolk was better than for some time past, that from Kent only moderate. The market opened heavily and in order to make any progress in sales, it was necessary to submit to a decline of 1*s* to 2*s* per qr., to have effected a clearance a further abatement would have been taken. There was no demand for free Foreign or bonded on the spot, some inquiry however, was experienced for floating cargoes of Polish Odessa and Mediterranean qualities for Belgium but we did not hear of any sales having been made. Both Malting and Grinding Barley must be written 1*s* per qr lower.—Beans sell freely on fully as good terms as do also White and Maple Peas. There is rather a better supply of Oats, which move off slowly at 6*d* to 1*s* per qr lower than this day se'nnight, good qualities are very scarce.

British, per Imperial Quarter	s	s		s	s
Wheat, Essex, Kent, and Suffolk	White	55	65	Red	50	61
—— Norfolk, Lincolnshire, and Yorkshire		50	58	White	60	69
Barley, Malting and Distilling	36s to 38s			Chevalier	30	36
Oats, Lincolnshire and Yorkshire		Potash	24	29	Feed	22	26
—— Northumberland and Scotch				Feed	24	27	Potato	28	31
—— Irish				Feed	22	26	Potato	26	30
Malt, pale, ship					54	60			
—— Hertford and Essex					60	65			
Rye					34	36			
Beans, Mazagan, old and new		38	to 40	Tick	39	46	Harrow	41	48
—— Pigeon, Heligoland		34	to 38	Winds	—	—	Longpod	—	—
Peas, White		36	to 40	Maple	39	43	Grey	38	41

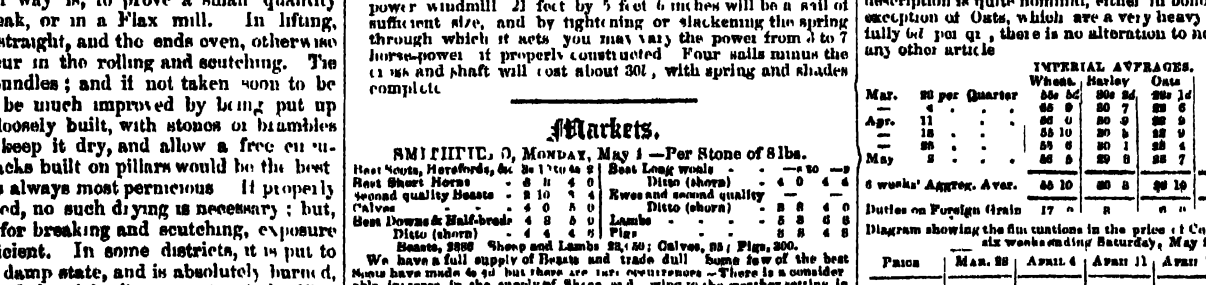
Friday, May 8.

The arrivals of English Wheat during the week have been larger than of late, from abroad only moderate, and where sales of the former have been made this morning, a reduction of 1*s* to 2*s* per qr was submitted to, the value of the latter description is quite nominal, either in bond or free.—With the exception of Oats, which are a very heavy sale at a decline of fully 6*d* per qr, there is no alteration to notice in the value of any other article.

Imperial Averages.

		Wheat.	Barley	Oats	Rye.	Beans	Peas
Mar.	28 per Quarter	55s 5d	30s 2d	22s 1d	34s 6d	35s 0d	32s 2d
—	4	55 9	30 7	23 6	33 7	34 10½	34 0
Apr.	11	56 0	30 9	23 9	33 4	35 1	33 8
—	18	55 10	30 5	23 9	33 5	34 9	34 5
—	25	55 6	30 1	23 4	33 7	34 10	33 10
May	2	56 5	29 8	23 7	33 5	34 11	33 10
6 weeks' Aggreg. Aver.		55 10	30 3	23 10	33 9	34 11	33 10
Duties on Foreign Grain		17 0	8	6 0	9 6	8 8	9 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, May 2.



Potatoes.—Southwark, Waterside, May 4.

This market during the past week was much the same as in several of the preceding weeks. The principal demand was on the York and Scotch Reds, and the supply continuing to be moderate, there was a further advance at the latter part of the week, but the dealers being unwilling to give the advanced prices there was little business done during the last three days, and there was some cargoes left on hand that should have been disposed of. The prices ranged as follows: York Reds, 100s to 160s per ton; ditto Regents, 75s to 110s per ton; ditto Shaws 40s to 60s per ton; common Reds and Blues, 80s to 100s per ton. Perthshire Reds, 100s to 110s per ton. Montrose Rifles and Pinkeyes, 80s to 90s per ton. Several cargoes of Scotch Reds arrived on Saturday and Sunday last that were opened this morning, but there is little doing at present.

Seeds, May 6.

Canary	per qr	44s to 48s	Linseed Cakes, Foreign, p ton	7l	to 8l
Caraway	per cwt	46	48	Mustard, White	per bush.	—	—
Clover, Red, English		70	80	—— Superfine	,,	—	—
—— —— Foreign		30	60	—— Brown	,,	—	—
—— White, English		58	68	Rapeseed, English, per last	27l	30l
—— —— Foreign		30	38	Rape Cakes	per ton	—	—
Coriander	per qr	10	16	Saintfoin	,,	—	—
Hempseed	per qr.	38	44	Tares, Rag winter	per bush.	—	—
Linseed	per qr	48	52	—— Foreign	,,	Rockfield	
—— Baltic	,,	37	46	Trefoil	per cwt	30	30
—— Cakes, Eng.	per 1000	11l	12l	Turnip (two variable low qualities)			

Kinnersley and Lay.

Sales by Auction.

TO NURSERYMEN, GENTLEMEN, FLORISTS, & OTHERS

MESSRS PROTHEROE and MORRIS are instructed to submit to Public Competition by Auction, on the premises, Vassal-road, North Brixton, on Wednesday, May 18, 1846, at 2 for 3 o'clock, A Superb Bed of TULIPS (the property of Mr BURRUP, an Amateur, giving up their further cultivation), amongst which will be found Pandora, Salvator Rosa, Brown's Louis XVI, Dickson's Duke of Devonshire, Beteral's Brulante Eclatante, Strong's King, Ely's Lady Louisa Queen, Parmegiano, Musidora, Thalia, and Wallace, Brown's Marcellus General Bourneville Ulysses, Fabius, Maid of Athens, and Sheet Anchor, Sharp's Victory, Duchess of Kent, Carmuse de Crabs, and Violet Alexander &c Also an excellent Iron Tulip Stage, Iron Hoops, Canvas, Rollers a capital Tulip Cabinet for about 120 rows, &c May be viewed the day prior to the Sale Catalogue may be had of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone

TULIPS

TO BE SOLD, a Choice Bed of TULIPS, 66 rows, together or separately, with the Draws and Iron Hoops they consist of a fine strain of Louis XVI Madame Vestris, Carlo Dolce, Duchess of Kent, Titian Rainbow Ada, Lavinia, David Hero Goldham a Maria, Polyphemus Boadicea Claude, Rose Brilliant &c &c 462 Roots in about 300 varieties may be seen in bloom any day Sundays excepted, at 1 CONSTABLE s Grocer &c, Church street, Mackney

GLENNY & Co will Sell MR. DAVIDSON'S SUPERB BED OF TULIPS, Camden Grove Penkham on MONDAY at 12 o clock Catalogues on the premises where they are on view to day and Monday, and at the Horticultural Agency and Gardeners Gazette Office 420, Strand

MR. LAWRENCE'S SUPERB BED of TULIPS will be Sold by AUCTION, at the Red Lion Hotel Hampton on MONDAY 18th May and are now on view daily Catalogues on the Premises, and at the Gardeners' Gazette Office 420 Strand

TO BE SOLD, the whole of an Amateur's Collection of PLANTS and BULBS —Inquire at WADE s Library Kensington

TO BE SOLD BY PRIVATE CONTRACT, a Bed of first-rate TULIPS containing 500 Plants two Beds of Mixtures and a Bed of Offsets being a collection of a gentleman who has spared neither trouble nor expense in bringing them to the perfection in which they now are

To view and for further particulars, apply to Mr SEABRIDGE Inworth Hall Kelvedon Essex

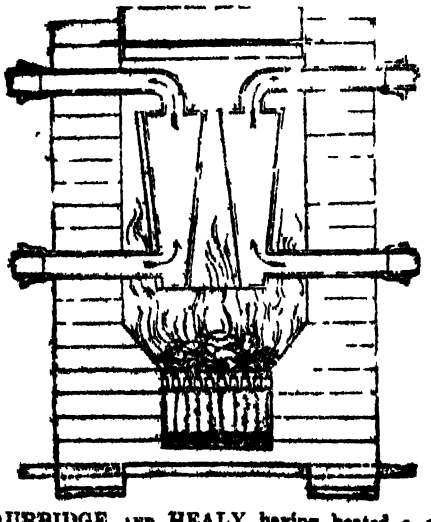
TO BE LET, on Lease, or by the Year, in one of the Midland Counties Nine Acres of Freehold capital Garden Ground with Dwelling house Barn Stables &c all in good repair Four acres of the ground are planted with Fruit trees now in a full bearing state which are allowed by all judges not to be excelled There are about 250 large trees which consist of Apples Pears Plums and Cherries and several thousands of Gooseberry and Currant trees The Gooseberries alone will more than pay the rent It is 6 miles from Leicester which is one of the best Market towns in England Any Gardener wishing to commence business on his own account will find this worthy of notice Direct or apply personally to Mr GLOVER Croptson Mountsorrel, Leicestershire Possession may be had immediately

TO BE LET, with immediate possession a COTTAGE RESIDENCE suited for a Respectable Family or is well adapted for a Hunting Box together with 40 Acres of Land Tithe Free Compact Farm Buildings, and a Cottage adjoining, situate in the parish of King s Walden Hertfordshire For further particulars apply to GEORGE JACKSON junior, Auctioneer &c Hitchin, Herts

TO SEEDSMEN AND OTHERS

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THE TANK SYSTEM.



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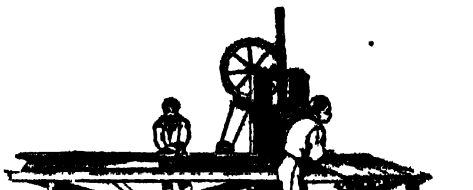
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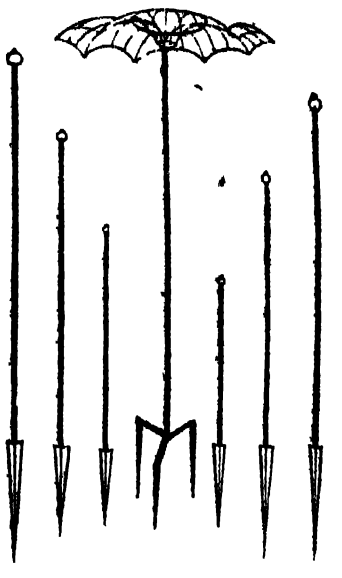
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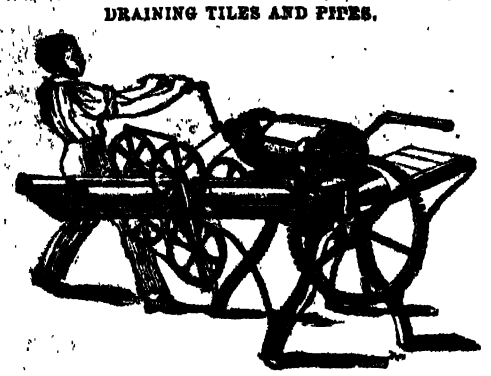
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JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

MERCANTILE LIFE.—It has been remarked by intelligent foreigners that cases of Baldness greatly prevail in this country, and as a cause, that the unwearied application to mercantile pursuits contributes largely to this result. Be this as it may, nowhere is a protective and restorative preparation more needed, and probably there is no European people to whom artificial appliances have been so eminently serviceable. The numerous cases of recovery of the hair after having fallen off, or partial baldness, are truly astonishing. The testimonials of the efficacy of

OLDRIDGE'S BALM OF COLUMBIA

place its power and virtues beyond all doubt or cavil; 3s. 6d., 6s., and 11s. per bottle. No other prices are genuine.—Oldridge's Balm, 1, Wellington-street, the second house from the Strand.

UNDER THE PATRONAGE OF ROYALTY AND THE AUTHORITY OF THE FACULTY.

KEATING'S COUGH LOZENGES.—A remedy for all disorders of the Pulmonary Organs—in difficulty of Breathing—in redundancy of Phlegm—in incipient Consumption (of which Cough is the most positive indication) they are of unerring efficacy. In Asthma, and in Winter Cough, they have never been known to fail.

KEATING'S COUGH LOZENGES are free from every deleterious ingredient; they may, therefore, be taken at all times, by the most delicate female and by the youngest child; while the Public Speaker and the Professional Singer will find them invaluable in allaying the hoarseness and irritation incidental to vocal exertion, and consequently a powerful auxiliary in the production of melodious enunciation.

Prepared and sold in Boxes, 1s. 1½d., and Tins, 2s. 9d., 4s. 6d., and 10s. 6d. each, by THOMAS KEATING, Chemist, &c., No. 79, St. Paul's Churchyard, London.

Sold by SANGER, 150, and DIETRICHSEN and HANNAY, 63, Oxford-street; BLAKE, SANDFORD, and BLAKE, 47, Piccadilly.

PHOSPHORIC RAT POISON.—This preparation is offered to the Public with the greatest confidence, being decidedly superior to all those poisons containing arsenic and other minerals. It is most greedily eaten by rats and mice as long as it is offered to them, and invariably proves certain destruction. Prepared only by EDWARD PURSER, 40, Bridge-street, Blackfriars, London. Sold in pots, with full directions for use, at 4s., 8s., and 20s. each.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FRANCIS MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their office in Lombard-street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, May 9, 1846.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 20—1846.] SATURDAY, MAY 16. [Price 6*d*.

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TO THE SUBSCRIBERS OF THE GARDENERS' BENEVOLENT INSTITUTION.
FOURTH APPLICATION.

The Votes of the Subscribers are earnestly solicited, at the ensuing Election, on behalf of BERNEY FARRELLEY, aged 69 years, who has been all his life a Gardener, but, from a continuance of ill health, is unable to support himself, and is entirely dependent on the charity of a few kind friends. He is highly recommended by the following gentlemen:—Messrs. Knight and Perry, King's-road, Chelsea; Messrs. Henderson & Co., Pine-apple-place; Messrs. Noble & Co., Fleet-street; Mr. Charlwood, Covent-garden. To all of the above-named gentlemen B. Farrelley begs to return his sincere thanks for their pecuniary and other assistance.—May 16.

MESSRS. LANE AND SON'S NEW SEEDLING FUCHSIA "MRS. LANE" has fully established itself as the best of the day by carrying off the First Prize at the Grand Horticultural Show, at Chiswick, on Saturday last. It is now being sent out at 10*s*. 6*d*. per plant.

Nurseries, Great Berkhampstead, May 16.

PINE PLANTS.

J. C. WHEELER has a quantity of fine, healthy PINE PLANTS of the best varieties to dispose of at very moderate prices. His Catalogue of Dahlias, Verbenas, and other plants for bedding out is now ready, and may be had free on application.—Gloucester Nursery.

H. GROOM, Clapham Rise, near London (By Appointment Florist to Her Majesty the Queen, and to His Majesty the King of Saxony), begs to say his Catalogue of GERANIUMS, AURICULAS, LILIUM LANCIFOLIUM, and NEW PLANTS is ready, and will be forwarded by post on application.

H. G. has a fine stock of CARNATIONS and PICOTEES, and expects to have a fine bloom of RANUNCULUS and ANEMONES this season.

*** Foreign orders executed.

J. WATERER begs to announce that his splendid collection of RHODODENDRONS, AZALEAS, and other AMERICAN PLANTS, will be in bloom about the 20th inst., and will continue in perfection the ensuing fortnight.

American Nursery, Bagshot, Surrey, near Farnboro' Station, South-Western Railway, where conveyances may be obtained.—May 16.

KNAP HILL NURSERY, near Bagshot, 2½ miles from the Woking Station, South Western Railway.

HOSEA WATERER begs to announce the AMERICAN PLANTS are now in bloom, and may be seen any day, except Sunday, gratis. The Woking Station is within an hour's ride of London, and there are always conveyances to be obtained from it to the Nursery.—16th May, 1846.

GREATLY REDUCED PRICES.

WILLIAM E. RENDLE & Co. have a very considerable stock of GERANIUMS, DAHLIAS, FUCHSIAS, AZALEAS, PETUNIAS, VERBENAS, PANSIES, ANTIRRHINUMS, LOBELIAS, GLOXINIAS, CACTUS, Miscellaneous Plants, &c., which they are now sending out *at very low prices*: for instance, 12 of the newest Dahlias are sold for 15*s*.

All who are in want of good sorts of the above should refer to their List in the Chronicle, *April 25th, or procure a Catalogue, a copy of which can be had, on application, gratis.*

N.B. An early application is necessary, as many of the sorts offered are already getting scarce.—Plymouth, May 16.

CHOICE PLANTS, &c.

CHARLES HART, Florist, Guildford, Surrey, begs to inform the Public that he has fine healthy plants of Pansies at 4*s*., 6*s*., 8*s*., and 12*s*. per doz., either for border or show flowers. Newest Verbenas, 4*s*. per doz.; Petunias, 4*s*. per doz.; Fuchsias, 8*s*., and strong Heliotropiums, 4*s*. per doz. Anagallis, 4*s*. per doz.

Diplacampylus coccinea	5*s*. 0*d*.
Diplosperinum spectabile	3 0
Alcea coelestis	1 6
Statice Dickensonii	1 0
Fuchsia Venusta	2 6
— Queen Victoria	2 6

Twelve New Dahlias, 10*s*. per doz. Package included with above prices.

GREAT FALL IN TURNIP SEED.

J. C. WAITE begs to inform the Trade that he has made a considerable reduction in the price of TURNIP SEED, a Priced List of which may be had on application.

N.B. Dwarf French Beans, 24*s*. per bushel, in any quantity.

1, Eyre-street-hill, Hatton-garden, London, May 16.

E. BECK informs the Public that the various Articles manufactured by him in Slate for Horticultural purposes, may be seen in use at Worton Cottage, Isleworth, upon application to the gardener (*Sundays excepted*).

THE NEWEST AND VERY BEST FUCHSIAS, VERBENAS, PETUNIAS, &c.
DELIVERED IN PERFECT ORDER, PER POST, FREE, TO ANY PART OF THE UNITED KINGDOM.

YOUELL AND CO. are now sending out per post, free, the newest and very best FUCHSIAS, including Serratifolia, and other new varieties at .. 21*s*. per doz.
Very fine first-rate Show Varieties .. .. 12*s*. „
Fine ditto .. .. 9*s*. „

NEW AND SUPERB WHITE FUCHSIA, "SANSPAREIL," 10*s*. 6*d*. per plant.

YOUELL AND CO. beg to call the attention of cultivators of FUCHSIAS to the above Seedling, which they will guarantee is not surpassed by any light variety yet raised, and will give general satisfaction, and refer to the following remarks upon it:—

"An elegant flower, light tube and sepals, with purple crimson corolla." *See Gardeners' Chronicle, Sept 20th*, 1845.

"A New White Fuchsia.—We have just seen a magnificent white seedling Fuchsia, raised by the Messrs. Youell. The flower is about 3 inches in length, the tube and sepals white, and resembles 'Venus Victrix,' but is three times its size, and is much more brilliant and fair in colour. It should be called 'Sanspareil,' as it is most assuredly one of the most beautiful of its species."—*Editor of the Cambridge Advertiser, Oct* 1, 1845.

Their 5 other fine Seedlings are now ready for sending out with the above; and when the set is taken, will be charged 1*l*. 11*s*. 6*d*.

SELECT SEEDLING VERBENAS (raised 1845.)

Exquisite, 5*s*.; Grandissima, 5*s*.; Helena, 3*s*. 6*d*.; Celeste, 5*s*. 6*d*.: Aurora, 2*s*. 6*d*.; Auberon, 2*s*. 6*d*. For description of the above, see their Advertisement of March 1st. They are now ready for sending out, per post, free, or otherwise, at 21*s*. the set.

12 fine varieties	6*s*. per dozen.
12 Extra ditto, very superior	10*s*. „
PANSIES, fine varieties	10*s*. „
6 Extra ditto, very superior, first-rate show flowers, consisting of the best varieties in cultivation	18*s* „
PETUNIAS	9*s*. „
CINERARIAS	12*s*. to 18*s*. „

ERICAS, fine and free-flowering sorts, by name, 9*s*., 12*s*., and 18*s*. per dozen.

CHRYSANTHEMUMS, the best and newest sorts by name, per post, free, 9*s*. and 12*s*. per dozen, including a new species just imported from Chusan.

Those favouring Y. and Co. with their orders for the above, are respectfully requested to state the varieties they already possess, that a repetition may be avoided, every care being observed in making improvements, by adding such varieties as will give satisfaction.

CALCEOLARIAS for bedding out .... 6*s*. per dozen.
GERANIUMS ditto. 6*s*., 9*s*., and 12*s*. „
30 packets of NEW and CHOICE FLOWER SEEDS, per post, free, for 6*s*.

The Second Edition of their CATALOGUE is in the Press, and will be published in a few days, and may be had by enclosing two postage stamps.

Great Yarmouth Nursery, May 16

VERBENA SEED.—Its simultaneous and healthy germination complete in 4 to 6 days.—Full and explicit particulars for effecting this *desideratum* can be furnished by M. BREWER, Florist, 4, St. John's-wood-terrace, Regent's-park, London, where inspection of his numerous seedlings, the produce of his mode, is respectfully invited. In case of 20 communications being received by Wednesday next, the 20th inst., the parties will be required to forward pre-payment fees of 5*s*. each, receipt of which would command direct dispatch of required information.

Verbena Seed sent, post free, to M. B., would be accurately labelled with owner's name or mark; safe and securely returned in plants, per post free, within 8 days, at a charge of 2*s*. 6*d*. per 100 seeds.

R. B. BIRCHAM, Hedenham Rosery, Bungay, Suffolk, begs to offer the following First-rate PERPETUAL and BOURBON ROSES, in pots fit for transplanting into borders, or to form beds of Perpetual Roses:—

Hybrid Perpetual.	*Bourbon.*
Aubernon	Cérès
Augustine Mouchelet	Comte de Rumbuteau
Clementine Duval	Crimson Globe
Comte d'Eu	Dupetit Thouars
Dr. Marx	Edouard Desfosses
Duc d'Aumale	Enfant d'Ajaccio
Duc de Chartres	George Cuvier
Duchess of Sutherland	La Gracieuse
Fulgoria	La Grenadier
La Bouquitierre	Madame Aubis
La Reine	Paul Joseph
Lady Alice Peel	Proserpine
Madame Emma Dumpierre	Pierre de St. Cyr
Madamé Laffay	Princess Clementine
Marquise Boccella	Queen of Virgins
Melanie Corun	Souvenir de la Malmaison
Mrs. Elliot	Splendens
Prince of Wales	Virgil.
Prince Albert	*Noisette.*
Rivers (Laffay).	Solfatorre
Thibaut't	Pourpre de Tyre
William Jesse.	Cloth of Gold.

R. B. B. will supply orders upon the most liberal terms. A remittance or reference is respectfully requested from all unknown correspondents. Carriage paid to London by Norfolk Railway.—Hedenham, May 16.

MESSRS. J. AND H. BROWN can now supply good Plants of the following desirable varieties for bedding, &c.—

	s.	*d*.	
Dahlias, all the newest and best sorts in cultivation	5*l*. per 100, or	15	0 per doz.
Fuchsias, 50 of the most approved show sorts ..		30	0
Do 25 do. do. do. ..		16	0
Verbenas and Petunias, the newest and best sorts		4	0 per doz.
Calceolarias and Cinerarias	6*s*. and	9	0 „
Heliotropiums, Pinks, and Pansies		4	0 „
Lobellas, upright and training varieties ..		6	0 „
Salvia Patens, Fulgens, Variegata, and 4 others		6	0 „
Pentstemons, 6 sorts		6	0 „
Potentillas, 6 sorts		6	0 „
Phloxes, 18 sorts		6	0 „
Antirrhinums, 6 sorts		6	0 „
Œnothera Taraxifolia, and 4 others		6	0 „
Catananche bicolor		4	0 „
Gazania, 4 sorts		8	0 „
Oxalis floribunda		8	0 „
Campanula, 6 tall and 6 dwarf varieties ..		6	0 „
Alstræmerias, 6 sorts		1	6 each.
Iberis sempervirens		8	0 per doz.
Scarlet flowering Stachys inodora		9	0 „
Gaillardia coccinea, and 3 others		6	0 „
Scutellaria splendens, and Euthalis microphylla		8	0 „
Anagallis Brewerii, Grandiflora, and Bicolor ..		6	0 „
Rouvardia Splendens, Flava, Angustifolia, and Strigosa		8	0 „
Double blue Tree Violet		8	0 „
Linum flavum		6	0 „
Chrysanthemums, choice sorts		6	0 „
Scarlet and other Geraniums		4	0 „
Variegated do.		4	0 „
Duke of York, new strong grower		2	6 each.
Perpetual Queen, fine new scarlet		2	6 „
General Tom Thumb	1*s*. each, or	9	0 per doz.
50 superior species of Herbaceous and Rock Plants		20	0
25 do. do. do. ..		10	6
Tea-scented Roses (in pots), one of a sort, including Elisa Sauvage, De-Mont, Belle Allamand, Bride of Abydos, Devoniensis, &c.		12	0 per doz.
Cloth of Gold, Noisette Rose		3	6 each.
12 superior varieties of Climbing Roses		8	0 per doz.

HARDY CLIMBERS.

Colewa Maurandyas, Lophospermums, Calampelis, and Rhodochiton		6	0 „
Clematis aurea grandiflora		2	0 each.
Do Bicolor, Sieboldii, and Double Purple ..		1	6 „
New Scarlet Trumpet Honeysuckle		2	0 „
New Yellow Honeysuckle		2	0 „
Double Red Pomegranate and Solanum crispum		1	6 „
Wistaria Sinensis and Passiflora, of sorts ..		1	6 „
Jasmines, of sorts, Aristolochia, Virginian Creeper, Variegated Ivy, Buddlea globosa, and New Blue		2	0 per doz.

Greenhouse and Stove Plants in great variety.

Flower Seeds, 36 papers 10*s*.: 18 do. 5*s*., forwarded free by post.

Fuchsias, Petunias, Verbenas, and many other plants, could be sent by post. Foreign commissions for Seeds and Plants of all kinds carefully executed.

Albion Nursery, Stoke Newington, near London.

C. LODDIGES & SONS, Hackney, have now ready for delivery a limited number of superb Plants, 2 feet high, very bushy, of RHODODENDRON ROBUSTUM—a new species from the Himalayan Mountains, perfectly hardy, and of magnificent foliage. Price 5*l*. 5*s*. each. A remittance will be expected with orders from new correspondents.

DAHLIAS AND GERANIUMS were never before offered at such prices, and the plants are all strong, in the best health, and are the very best varieties in cultivation, the best new kinds being regularly purchased, and propagated up to the present season.

THOMAS APPLEBY, Nurseryman, York, being about to decline Dahlia growing (to make room for other stocks), is determined to offer his remaining stock of this popular Flower at the following tempting prices:—

100 Plants in 50 of the best varieties	..	£2 10 0
100 „ mixed (all good kinds)	..	1 5 0
50 „ in 25 of the best varieties	..	1 10 0
50 „ mixed (all good kinds)	..	0 15 0
20 „ in 20 best varieties	..	0 15 0
20 „ mixed, good kinds	..	0 7 0

Older and commoner kinds, 3*s*. per dozen.

T. A.'s collection of GERANIUMS contains all the best varieties in cultivation, and the plants are robust and stocky, the foliage covering the pot over, and the same quantities and proportions as the Dahlias will only be charged one-fourth more in each lot. The Trade will be supplied with Thurtell's Plants at 12*s*. per dozen; Thurtell's Othello and Regulator at 42*s*. per dozen; and Lyne's Princess Alice and Redworth at 30*s*. per dozen, and other kinds equally cheap. Scarlet Geraniums of sorts, 6*s*. per dozen; ditto, General Tom Thumb, 9*s*. per dozen.

T. A. can also supply Heliotropes for bedding out, established in pots 2 months and twice stopped, at 4*s*. per dozen. Also, Fuchsias, Verbenas, Petunias, Salvias, Anagallis, Pansies, and Lobelia erinus grandiflora, from 3*s*. to 6*s*. per dozen, according to strength of plants. The best Fuchsias sent out last season, 1*s*. each, or 9*s*. per dozen, strong plants.

*** The above prices are all *exclusive* of Hampers, or Postage, &c.

In addition to the above variety of articles, T. A. has also to offer a very choice selection of all the best varieties of POT ROSES, in cultivation, at the lowest catalogue prices. That the Public may form some idea of what T. A. has in this way, he begs to state that he obtained an extra and Presidents' Prize for a Stand of Cut Blooms at the York Horticultural and Floricultural Society's Exhibition on the 15th ult., and also all the Prizes for Roses in pots (1, 2, 3, light, and 1, 2, 3, dark) at the same Exhibition.

All other Greenhouse, Stove, and Hardy Herbaceous Plants equally cheap.

Orders will be executed in strict rotation as received, and the best Plants (where there is choice) taken first.

NEW, GOOD, AND CHEAP.

BENJAMIN W KNIGHT, Florist, &c., Tivoli, near St. Leonard's on Sea, Sussex, begs to call the attention of his friends and the public to the following CHOICE PLANTS, which are now ready to send out.

Twelve new choice and distinct Fuchsias, fit for exhibition, for 6s.; 12 extra first-rate very distinct varieties, all sent out for the first time last season, for 12s.; 12 distinct Verbenas, for 3s. 6d.; 12 extra new, good varieties, for 6s.; 12 choice Petunias, for 6s.; 12 good and distinct Cinerarias, for 6s.; 12 extra good kinds, for 12s.; 12 fine Anagallis, for 3s. 6d; 12 fine Salvias, for 4s.; 12 Heliotropiums, for 4s.; 12 choice kinds of Phloxes, for 6s.; 12 extra new, very distinct varieties, for 12s.; 12 choice Antirrhinums, for 6s.; 12 choice new kinds, for 12s.; 12 fine show Pansies, for 6s.; 12 extra good, for 12s.; choice Seeds, selected with great care from the best varieties: Verbena, 3s. 6d. per paper; Antirrhinums, 2s. 6d. per paper; Dahlia, from the best show flowers, 3s. 6d. per paper; German Aster, extra fine, 2s. 6d. per paper.

Also will be ready in May, 12 good show Dahlias, for 6s.; 12 superior, for 12s.; 12 extra good, distinct kinds, all new last season, for 21s.; 12 choice fancy, or variegated varieties, for 6s.

Any of the above can be securely packed, and forwarded post-free, on receipt of the amount with the order. Catalogues of the above may be obtained on pre-paid application.

May 16, 1846.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD and SON have the pleasure of offering the following Plants adapted for Bedding, at the prices named when the selection is left to themselves:—

FUCHSIAS.

12 fine varieties	6s. 0d.	12 superb new vars., for exhibition	18s. 0d.
12 superior do	9 0	50 fine do.	30 0
12 superb do.	12 0	50 superb do.	50 0

VERBENAS.

12 fine varieties	5s. 0d.	25 extra fine vars.	15s. 0d.
12 superior do.	9 0	25 superb new do.	20 0
12 superb new do.	12 0		

PETUNIAS.

12 fine varieties	6 0
12 superb do.	9 0

Young plants of the above can be sent securely packed in tin cases by post, if required.

CINERARIAS.

Strong plants coming into bloom.

12 fine varieties	6s. 0d.	25 extra fine varieties	15s. 0d.
12 superior do	12 0	25 superb do.	25 0
12 superb new do.	18 0		

NEW AND DISTINCT PHLOXES IN POTS.

Select sorts, one of each, named	2s. 0d. ₰ doz.
Superior do. do.	12 0 ,,
Superb newest sorts, do., do.	18 0 ,,

AZALEA INDICA.

12 fine varieties	12s. 0d.
12 superb do.	18 0
12 extra new do.	30 0

GREENHOUSE PLANTS.

12 fine species, one of each	12 0
12 do. do. of newer kinds	18 0
12 do. do. do. very superior	24 0
12 choice Climbers	12 0

STOVE PLANTS.

12 very fine species, one of each	18 0
12 superior do. do.	24 0

NEW PLANTS.

	Each—s. d.		Each—s. d.
Bouvardia flava (new yellow)	3 6	Pleroma Benthamiana	3 6
Calceolaria floribunda (Veitch's), an elegant yellow species, highly recommended for bedding per doz. 18s.	2 0	Polygala Dalmaisiana	3 6
Fuchsia serratifolia	3 6	Rondeletia, yellow species (Havanna)	10 6
Platycodon grandiflora	5 0	Ruellia macrophylla, splendid scarlet species	7 6
		Siphocampylus coccineus, splendid	5 0
		Tacsonia mollissima	3 6

For Select List of Plants, see Advertizement of April 18th.

Catalogues of the above will be sent gratis on application.

A proportionate number of plants presented to each order towards defraying the expense of carriage, &c.

A remittance or reference required from unknown correspondents.

SELECT FLOWERS FOR BEDDING, VASES, EDGINGS, ROCKWORK, &c.

Free by post to any part of the Kingdom.

M. BREWER, Florist, 4, St. John's-wood-terrace, Regent's-park, London, offers the following plants, with package and stout tin case included, at 4s. per doz., mixed or in separate kinds, as may be required:—

Gaillardia picta coccinea, scarlet and yellow, with dark centre.
Beautiful Phlox Drummondii, a fine full-petalled, bright crimson rose-coloured variety, perpetuated by cuttings.
Verbenas, per name, most attractive and oppositely distinct, very best kinds.
Anagallis Parksii superba, bright orange red, large, fine, and showy.
,, coerulea grandiflora, large, deep, and glossy blue.
Lobelia Erinus grandiflora, deep and blue, elegant and profuse bloomer.
,, ,, compacta, fine sapphire blue, true from cuttings.
Zinnia elegans coccinea, violacea, and do. aureum, robust plants, 6 inches high.

A few good named Dahlias at 6s. per doz.; Lobelia heterophylla major, in seedling plants once transplanted, at 1s. per doz., a fine large bright blue flowering half hardy perennial.

Applications, enclosing Post-office Orders on Upper Baker-street, Portman-square, London, will be dispatched on receipt.

FUCHSIAS.—Pride of Peckham, Ivery's; Duchess of Sutherland, Gaines'; Nobilissima, Coronet, Modesta, Vesta, Smith's; Norfolk Hero, Barkway's; Expansa, Queen Victoria, Miller's; Candidata, Girling's; Robusti, Hope, Goldfinch, Cassandra, at 12s. per dozen.

Duke of Wellington, Monarch, Kentish Hero, Kentish Bride, Maria, Epps'; Queen Adelaide, Holmes'; Euterpe, Gaines'; Queen Victoria, Princess Royal, Lady Walsingham, Prince of Wales, Youell's; Aurantia, Smith's: Aurita, Iveryana, Fosterii, Formosa elegans, Stanwelliana, Blanché, Harrison's; at 6s. per dozen.

Colossus, Cornackii, Adonis, Paragon, Floribunda magna, Rosseri, Lanelli, Exoniensis, Transparens, Blanda, Victory, Banglinea, Britannia, Venus Victrix, Arborea, Smith's; Fairy, Majestica, Eppsii, Beckenhamii, Gem, Conspicua arborea, Princess, Speciosa, Flora, Tricolor, Mirabilis, Magnifica, Hayesii, Invincible, Magnificent, Racemiflora, Brewerstii, Victoria; at 3s. per dozen.

PETUNIAS.—Girling's new striped and other kinds, 3s. per dozen.

VERBENAS.—The best scarlets, blue, white, and rose, 3s. per dozen.

HELIOTROPIUMS, 3s. per dozen.

TREE VIOLETS, 3s. per dozen.

Good rooted plants, true to name, at the above prices, 6d. per dozen being added for postage, will be sent free by post, carefully packed in tin cases, on the receipt of postage stamps or a Post-office order.

Joseph and Stephen Shilling, Nursery and Seedsmen, Northwambro', near Odiham, Hants.

HORTICULTURAL SOCIETY OF LONDON.

EXHIBITION AT THE GARDEN,

May 9th, 1846.

AWARD OF THE JUDGES.

THE LARGE GOLD MEDAL.

1 To Mr. J. Robertson, gr. to Mrs. Lawrence, F.H.S., for a collection of 40 Stove and Greenhouse plants
2 To the same for 20 species of Exotic Orchids.

THE GOLD KNIGHTIAN MEDAL.

1 To Mr. Barnes, gr. to G. W. Norman, Esq., of Bromley-common, Kent, for a collection of 40 Stove and Greenhouse plants
2 To Mr. Frazer, of Lea-bridge-road, for a collection of 20 Stove and Greenhouse plants
3 To Mr. Mylam, gr. to Sigismund Rucker, Esq., F.H.S., for 20 species of Exotic Orchids
4 To Mr. James Williams, gr. to C. B. Warner, Esq., F.H.S., for 12 species of Exotic Orchids
5 To Mr. Hunt, gr. to Miss Traill, of Hayes-place, Bromley, for 20 species of Cape Heaths
6 To Messrs. Fairbairn, of Clapham, for the same.

THE GOLD BANKSIAN MEDAL.

1 To Mr. Hunt, for a collection of 20 Stove and Greenhouse plants
2 To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for a collection of 12 Stove and Greenhouse plants
3 To Messrs. Rollisson, of Tooting, for 20 species of Exotic Orchids
4 To Mr. Carson, gr. to W. F. G. Farmer, Esq., F.H.S., for 12 species of Exotic Orchids
5 To Mr. G. Eyles, gr. to Sir George Larpent, Bart., F.H.S., for 6 species of Exotic Orchids
6 To Mr. W. Cock, of Chiswick, F.H.S., for 12 new varieties of Pelargonium in 8-inch pots
7 To Mr. Dobson, gr. to Mr. Beck, of Isleworth, F.H.S., for the same
8 To Mr. W. Cock, for 12 vars. of Pelargonium in 8-inch pots
9 To Mr. Catleugh, of Hans-place, Chelsea, for the same.
10 To Mr. Slowe, gr. to W. R. Baker, Esq., F.H.S., for 12 varieties of Roses in pots
11 To Messrs. Paul and Son, of Cheshunt, for 18 varieties of Roses in pots
12 To Mr. Robertson, gr. to Mrs. Lawrence, F.H.S., for 20 species of Cape Heaths
13 To Messrs. Rollisson, of Tooting, for the same
14 To Mr. May, gr. to E. Goodheart, Esq., of Langley-park, Beckenham, for 12 species of Cape Heaths
15 To Mr. Frazer, of Lea-bridge-road, for the same
16 To Mr Green, gr. to Sir E. Antrobus, Bart., F.H.S., for 12 Greenhouse Azaleas
17 To the same, for Tall Cacti in flower
18 To Mr. Scott, gr. to Sir George Staunton, Bart., F.H.S., for Cyrtopodium punctatum.

THE SILVER GILT MEDAL.

1 To Mr. Ayres, gr. to James Cook, Esq., F.H.S., for a collection of 12 Stove and Greenhouse plants
2 To Mr. M. Clarke, gr. to W Block, Esq., of Muswell-hill, for a Collection of 6 Stove and Greenhouse plants
3 To Mr Catleugh for the same
4 To Mr. Carson, gr. to W. F. G. Farmer, Esq., F.H.S., for the same
5 To Messrs. Veitch and Son, of Exeter, for 12 species of Exotic Orchids
6 To Mr. Plant, gr. to J. H. Schroder, Esq., F.H.S., for the same
7 To Mr. Hunt, gr. to Miss Traill, for the same
8 To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for 6 species of Exotic Orchids
9 To Mr. Catleugh, for a collection of 12 new varieties of Pelargoniums in 8-inch pots
10 To Mr. Gaines, of Battersea, for a collection of 12 varieties of Pelargoniums in 8-inch pots
11 To Messrs. Lane and Co., of Great Berkhampstead, for 18 varieties of Roses in pots
12 To Mr. Taylor, gr. to J. Coster, Esq., of Streatham, for 20 species of Cape Heaths
13 To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for 12 species of Cape Heaths
14 To Messrs. Veitch and Son, of Exeter, for the same
15 To Mr. T. Malyon, gr. to T. Brandram, Esq., of Lee-grove, Blackheath, for 6 species of Cape Heaths
16 To Mr. Dawson, of Brixton-hill, for the same
17 To Mr. Falconer, gr. to Archdale Palmer, Esq., of Cheam, for 12 varieties of Greenhouse Azaleas
18 To Mr. Barnes, gr. to G. W. Norman, Esq., for 6 varieties of Greenhouse Azaleas
19 To Mr. Robertson, gr. to Mrs. Lawrence, F.H.S., for Tall Cacti in flower
20 To Mr. Kemp, gr. to P. Grillion, Esq., of East Acton, for Grapes
21 To Mr. Ingram, gr. to Her Majesty, at Frogmore, for the same
22 To Mr. J. Davis, of Oak-hill, East Barnet, for the same
23 To Mr. John Povey, gr. to the Rev. J. Thornycroft, Thornycroft-hall, Congleton, for Pine Apples
24 To Mr. J. Davis, for the same.

THE LARGE SILVER MEDAL.

1 To Mr. Bruce, gr. to Boyd Miller, Esq., of Collier's-wood, Mitcham, for a collection of 12 Stove and Greenhouse plants
2 To Mr. Slowe, gr. to W. R. Baker, Esq., F.H.S., for the same
3 To Mr. Malyon, gr. to T. Brandram, Esq., for a collection of 6 Stove and Greenhouse plants
4 To Mr. Cooper, at Mr. Pawley's, White Hart Hotel, Bromley, Kent, for the same
5 To Mr. Taylor, gr. to J. Coster, Esq., of Streatham, for the same
6 To Mr. Gaines, for a collection of 12 new varieties of Pelargonium in 8-inch pots
7 To Mr. Stains, of Middlesex-place, New-road, for a collection of 12 varieties of Pelargonium, in 8-inch pots
8 To Mr. Dobson, gr. to Mr. Beck, F.H.S., for the same
9 To Mr. Parker, gr. to J. H. Oughton, Esq., of Rochampton, for a collection of 6 vars of Pelargonium, in 12-inch pots
10 To Mr. Gaines, for the same
11 To Mr. Francis, of Hertford, for 18 vars. of Roses, in pots
12 To Mr. Dobson, gr. to Mr. Beck, F.H.S., for the same
13 To Mr. Plumbley, gr. to C. J. Dimsdale, Esq., of Essenden-place, Herts, for 12 species of Cape Heaths
14 To Mr. Ayres, gr. to J. Cooke, Esq., F.H.S., for the same
15 To Mr. Epps, F.H.S., for the same
16 To Mr. Pamplin, of Walthamstow, Essex, for the same
17 To Mr. E. Jack, gr. to R. G. Lorraine, Esq., of Wallington, Surrey, for 6 species of Cape Heaths
18 To Mr. Plumbley, for a specimen Cape Heath
19 To Messrs. Fairbairn, of Clapham, for the same
20 To Mr. Robertson, gr. to Mrs. Lawrence, F.H.S., for 12 Greenhouse Azaleas
21 To Mr. Bruce, for 6 Greenhouse Azaleas
22 To Mr. Francis, of Hertford, for a collection of new hardy Evergreens, in pots.
23 To Mr. Gaines, for 6 varieties of Calceolaria, in 8-inch pots
24 To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for Azalea rubra plena
25 To Mr. May, gr. to E. Goodheart, Esq., for Erica vestita coccinea

HORTICULTURAL SOCIETY'S AWARDS—*continued*.

26 To Mr. Fraser, for Boronia serrulata
27 To Mr. Bruce, for Helichrysum humile
28 To the Rev. John Clowes, F.H.S., for Oncidium phymatochilum
29 To Mr. Dods, gr. to Sir Geo. Warrender, F.H.S., for Grapes
30 To Mr. Mitchell, of Kemp-town, Brighton, for the same
31 To Mr. Brewin, gr. to Robert Gunter, Esq., F.H.S., for Pine Apples.

THE SILVER KNIGHTIAN MEDAL.

1 To Mr. Epps, of Maidstone, F.H.S., for a collection of 12 Stove and Greenhouse plants
2 To Mr. Pamplin, for the same
3 To Mr. E. Jack, for a collection of 6 Stove and Greenhouse plants
4 To Mr. G. Stanly, gr. to H. Berens, Esq., F.H.S., for the same
5 To Mr. Slowe, for a specimen Rose, in a pot
6 To Mr. Barnes, gr. to G. W. Norman, Esq., for 6 species of Cape Heaths
7 To Mr. Bruce, for the same
8 To Mr. Clarke, for the same
9 To Mr. A. Balston, of Poole, for a specimen Cape Heath
10 To Mr. Smith, of Norbiton, for 6 Greenhouse Azaleas
11 To Messrs. Lane and Son, for a specimen Fuchsia
12 To Mr. Pamplin, for Epacris grandiflora
13 To Mr. M. Clarke, for Dimelea spectabilis
14 To Mr. H. Waterer, F.H.S., for Seedling Rhododendrons
15 To Mr. Carson, for Azalea lateritia
16 To Mr. Beck, for a Seedling Pelargonium "Competitor"
17 To Mr. G. Stanly, for 6 vars. of Calceolaria, in 8-inch pots*
18 To Messrs. Veitch and Son, for a new species of Sacculabium
19 To Mr. Mylam, gr. to S. Rucker, Esq., F.H.S., for the best named collection of plants (*one error in 30 names*)
20 To Mr. Walter, gr. to Captain Hart, of East Hoathly, Sussex, for Grapes.
21 To Mr. Chapman, of South Lambeth, for Grapes
22 To Mr. Fleming, gr. to the Duke of Sutherland, F.H.S., for Peaches and Nectarines.
23 To Mr. D. Judd, gr. to W. H. Whitbread, Esq., F.H.S., for Melons
24 To Mr. J. Davis, of Oak-hill, for British Queen Strawberries.

THE SILVER BANKSIAN MEDAL.

1 To Mr. A. Kendall, of Stoke Newington, for a specimen Fuchsia
2 To Mr. Ayres, gr. to J. Cook, Esq., F.H.S., for Crowea saligna
3 To Mr. Frazer, for Chorozema Henchmanni
4 To Mr. Ivery, of Peckham, for a collection of Cinerarias
5 To Mr. Beck, F.H.S., for a Seedling Pelargonium, "Hebe's Lip"
6 To the same, for a Seedling Pelargonium, "Bacchus"
7 To Messrs. Veitch & Son, for Eranthemum variabile
8 To Mr. Robertson, gr. to Mrs. Lawrence, F.H.S., for Hydrolea spinosa
9 To Mr. May, for a specimen Cape Heath
10 To Mr. Frazer, for the same
11 To Mr. Robertson, gr. to Mrs. Lawrence, F.H.S., for the second-best named collection of plants (*no error in 20 names*)
12 To Mr. Taylor, gr. to J. Coster, Esq., for the third-best named collection of plants (*no error in 20 names*)
13 To Mr. Fleming, gr. to the Duke of Sutherland, F.H.S., for Grapes
14 To Mr. H. Eyre, gr. to R. W. Barchard, Esq., F.H.S., for Keen's Seedling Strawberries.

THE CERTIFICATE OF MERIT.

1 To Mr. Dods, gr. to Sir Geo. Warrender, F.H.S., for Diosphylla stellata
2 To Messrs. Veitch and Son, for Rhodostemma gardenioides
3 To Mr. Cameron, of the Botanic Garden, Birmingham, for Anthericum cæruleum
4 To Mr. Beck, for a Seedling Pelargonium, "Patrician"
5 To Mr. Miller, of Ramsgate, for a Seedling Pelargonium, "Mount Etna"
6 To Mr. Kinghorn, gr. to the Earl of Kilmorey, Orleans House, Twickenham, for a Seedling Calceolaria, "Masterpiece"
7 To Mr. Gaines, for a Seedling Calceolaria, "Lord Hardinge"
8 To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for a Seedling Calceolaria, "La Polka"
9 To the same, for Achimenes picta
10 To Mr. Brunsell, gr. to J. C. Weir, Esq., of East Acton, for Azalea indica alba
11 To Messrs. Rollisson, for the fourth-best named collection of plants (*one error in 20 plants*)
12 To Mr. Barnes, gr. to G. W. Norman, Esq., for the fifth-best named collection of plants (*four errors in 40 plants*)
13 To Richard Brook, Esq., F.H.S., for a collection of Apples and Pears.

* N.B. Nos. 1 and 2 (Mr. Geo. Elliott) would have received a medal had they not been disqualified by being shown contrary to the regulations.

TURNIP SEEDS.

W. DRUMMOND and SONS, Stirling, N.B., and Dublin, have on sale a large and select Stock of TURNIP SEEDS. Terms, particularly moderate. The following are the most approved sorts, viz.—

Swedish, Skirving's Improved Purple-top.
Ditto East Lothian Purple-top.
Yellow Aberdeen, with Green-top.
Ditto ditto, with Purple-top.
Ditto ditto ditto, Improved.
Ditto Improved Early, now much esteemed for sowing late in season.
White Globe.
Green-top Globe.

N.B.—Delivered free in London, Liverpool, Hull, Newcastle, Cork, Belfast, and Londonderry, when not less than 40 lbs. are ordered.

*** Priced Catalogues of Implements, Garden and Farm Seeds, Nursery Plants, &c. sent free on application.

Agricultural Museum, Stirling, and 58, Dawson-street, Dublin.—May 16.

GORSE OR WHIN SEED.—We offer the above, of good quality, at One Shilling per lb. Any quantity above 1 cwt. delivered free in London or Liverpool.

Dublin, May 2. Joseph Higgins & Sons.

☞ Potato Seed, 3s. 6d. per packet.

WASP CATCHERS.

UNDERWOOD, Cutler to Her Majesty, 56, Haymarket, begs to inform Amateurs, Gardeners, Nurserymen, and others, that he has just completed a number of WASP CATCHERS, from 6 to 12 inches in square and oval shapes. It is well known that every Wasp caught in this month is the destruction of a whole nest, therefore an early application of this useful article is recommended. A large assortment of improved Budding Knives, Pruners, &c., always ready.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

ARAUCARIA IMBRICATA, or CHILIAN PINE. YOUELL AND CO.'s Stock of the above magnificent hardy tree will be found unequalled in this country or the Continent either for extent or luxuriance of growth; and they beg to call the attention of planters in general to the fact that those they offer are not nursed plants or drawn up in close pits, but fine sturdy plants possessing dark rich green foliage, and such as have stood the severity of the winter for several years in this the most eastern point of England, proverbial for its excessive cutting winds. The following is the scale of prices for plants in pots, and may be planted out with advantage at the present season.

2 years old	9*s.* per dozen.
3 ,, ...	12*s.* ,,
4 ,, ...	18*s.* ,,
5 ,, ...	30*s.* ,,
6 ,, ...	60*s.* ,,
Cedrus Deodar, 1 year, fine	18*s.* ,,
,, ,, 1 foot	30*s.* ,,
Pinus excelsa, 3 inches	9*s.* ,,
,, ,, 4 to 5 inches	18*s.* ,,
,, ,, 18 inch, fine bushy plant	42*s.* ,,
,, ,, Gerardiana, 2 years, ..	30*s.* ,,
Abies Khutrow, 2 years	9*s.* ,,

Also fine specimen plants of older growth from 10*s.* 6*d.* to 2*l.* 2*s.* per plant.

Agents in London for the sale of the above, Messrs. FLANAGAN and Son, 9, Mansion-house-street, where samples may be seen.—Great Yarmouth Nursery, May 16.

ROYAL BOTANIC SOCIETY.—The FIRST EXHIBITION this Season in the Gardens of the Society, in Regent's Park, will be held partly in the New Conservatory, on WEDNESDAY next, May 20. Tickets can be obtained at the Gardens by presenting an order from a Fellow or Member, price 5*s.* each, except on the days of Exhibition, when they will be 7*s.* 6*d.* Carriages to set down either at the front gate or at the new north gate, which is connected with the Conservatory.

HORTICULTURAL SOCIETY OF LONDON.—EXHIBITIONS AT THE GARDEN.—The second Meeting will take place on Saturday the 13th of June.

The gates will be open to Visitors at One, P.M. Tickets are issued to Fellows at this office, price 5*s.* each, or at the Garden, in the afternoon of the days of Exhibition, at 7*s.* 6*d.* each, but then only to Orders from Fellows of the Society.

N.B. No Tickets will be issued in Regent-street on the day of Exhibition.—21, Regent-street.

The Gardeners' Chronicle.

SATURDAY, MAY 16, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS

Wednesday, May 20	Royal Botanic Gardens	. .	2 P.M.
	Society of Arts . .	. .	8 P.M.
Thursday,	— 21—Royal South London	. .	1 P.M.
Monday,	— 25—Linnean (Anniversary)	. .	1 P.M.

COUNTRY SHOW.

Wednesday, May 27 Norfolk and Norwich Horticultural.

NOTHING could be more propitious than the weather of Saturday last for the FIRST GREAT EXHIBITION in the Garden of the Horticultural Society; and as for the flowers, their beauty was beyond description. Never before was such a blaze of rich colours, delicate tints, and magnificent vegetation assembled. The great table on which the Chinese Azaleas and Cacti were assembled was a pyramid of flame, and the exhibition of Orchids alone was 48 yards long, in a double bank: nor was there a bad specimen among them.

This, indeed, was the great and gratifying feature of the whole show—that an ill-grown plant was not to be found. In former days fine plants were collected and so combined as to make a gay display, but they might have been compared to officers in full dress in front of a ragged regiment. Now, however, the rags have disappeared—there are no privates, but all wear full dress uniforms. And this it is which really proves the good effect upon the country of the ceaseless stimulus applied to gardening by the Horticultural Society. Not only has the highest kind of gardening been promoted, but bad gardening is ashamed to appear; it may be said, indeed, hardly to exist near the metropolis, except in some favoured situation under the auspices of an ancient man who tenaciously clings to the routine of the "middle ages" of gardening.

The Heaths were in capital order, but the growers ruin their collections by the sameness of the varieties; and unless more pains are taken to cultivate the rare and varied forms that are now so seldom seen, this part of the Exhibition will cease to be attractive, be the skill of the gardener never so great.

The show of Fruit was unworthy such a country as England; the best of it, indeed, was excellent, and was suitably rewarded, but much was indifferent; and the obstinacy with which gardeners continue to send it in an unripe state met with its deserts, by their contributions being excluded from consideration, as we foretold would be the case. The perseverance with which one person maintained the ripeness of his sour Grapes was quite amusing, and, considering his disappointment, pardonable enough; for the fruit itself was fine. We trust, however, that the Judges will not flinch from their duty of passing by unripe fruit, and that the growers will learn in time to distinguish between vinegar and sugar.

Of novelty there was little. Messrs. VEITCH as usual were the most successful exhibitors under that head; but their Rhodostemma gardenioides, though sweet-scented, is a dingy thing, and the Eranthemum variabile is but a third-class plant, though pretty. Oncidium phymatochilum, was much finer than either, for it bore a great panicle of flowers which looked as if they belonged to a Brassia. The finest specimen, beyond all comparison, was Sir GEORGE STAUNTON'S spotted Cyrtopod (Cyrtopodium punctatum), which was probably the most remarkable plant ever brought to a public exhibition. It is fully described in the detailed account of the meeting, to be found in another column. It received the large reward of a Gold Medal, and it deserved the prize.

A drunken gardener was turned out of the garden early in the morning, and as he was thus sufficiently disgraced we forbear to give his name, in the hope that it will be a lesson for his future guidance.

THE establishment of a New Botanic Garden at Cambridge, which we long since announced, appears to have been attended by the usual difficulty in such cases—the want of funds sufficient to render it efficient. The authorities who keep the key of the University strong box, or manage its Exchequer, seem inclined to withhold their aid; and if it should be found impossible to induce them to relent, it is expected that a public subscription will be opened for raising the necessary funds.

The following paper was circulated last week in Cambridge:—

The Undersigned, being anxious that the University should enjoy the full advantage offered by the site that has been obtained for the New Botanic Garden, invite Members of the Senate to meet at the House of the Philosophical Society, on Tuesday next, the 12th inst., at 2 o'clock, to consider whether some plan may not be devised for securing this object.

THE MASTER OF TRINITY.
THE DEAN OF ELY.
DR. CLARK.
DR. PAGET.
PROFESSOR SEDGWICK.
PROFESSOR HENSLOW.
C. C. BABINGTON.
JOS. POWER.
W. HOPKINS.
J. J. SMITH.
W. H. STOKES.
GEO. STOKES.

In compliance with this invitation, a meeting of Members of the Senate took place at the house of the Philosophical Society on Tuesday the 12th inst., and the Master of Trinity having been called to the chair, the following resolutions were passed unanimously:—

I.—That the New Botanic Garden should be constructed upon a scale adequate to meet the demands of Modern Science.

II.—It appears that a very considerable sum of Money will be requisite to complete and support a Botanic Garden of the dimensions required.

III.—This Meeting believing that the University are desirous that the New Garden should be laid out on such a scale as may meet the demands of Modern Science, it is proposed that a Deputation be formed to wait on the Vice-Chancellor, to enquire of him what may be the resources likely to be forthcoming on the part of the University for securing and supporting such a Garden.

IV.—That the Deputation consist of Dr. Paget, the Professor of Botany, Mr. Williamson, Mr. Smith (of Caius), and Mr. Babington: and that the Chairman of the present Meeting be requested to call another Meeting, by adjournment, on Tuesday next.

The deputation has our best wishes. The result of it we shall duly report. We cannot suppose that the University will refuse substantial assistance; we are confident, at least, that the noble Duke who now holds the office of Chancellor will support the views of the meeting, for no one knows the value of such institutions better than his Grace. But if, unhappily, the application to the Vice-Chancellor should prove abortive, we shall then look without alarm to the liberality of the truly great men who call Cambridge their *Alma Mater*.

WE are not about to revive the POTATO question; that is unnecessary; for those who would listen to advice, and were capable of understanding the value of evidence, have taken such precautions as their means would admit; while others, upon whom facts, experience, and reasoning are alike thrown away have followed their own devices. In either case it is now too late to do more than point out one circumstance which still may prevent a part of the disasters that are to be anticipated.

That the new Potato crop will suffer greatly under various circumstances is beyond a doubt. It is too certain that the small losses sustained in pits and forcing-houses are now to be experienced on a grand scale in our gardens and fields, unless indeed such assertions as those which Lord GEORGE BENTINCK and Mr. SHAW have made in one House of Parliament and as a Noble Duke is reported to be preparing for the other, should root out the Potato murrain as effectually as they have succeeded in destroying all confidence in the judgment of violent party-men.

To the daily accumulating evidence of the unsoundness of the crop out of doors, we have to add the following striking instance:—

"The enclosed I send you for your inspection, and I fear you will pronounce that these leaves are blighted by the 'murrain.' They were brought to me on Saturday from Writtle in this county (Essex), from plants *forced* on a heap of stable dung; but not much, as you will infer by their being but little in advance of the sets in the natural soil. I did not hear whether the tubers were yet of any size, or even formed. My informant stated that some plants, in a more forward stage, had all assumed the *worst appearances of last year*. The leaves and stalks are quite black and cankered to the ground."

Such will of course be the condition of the Potato crop in other cases, during the coming season. Happy the men whose fields are blighted *now*; for they may plough them up and grow something else. We need not say that the evil once declared thus early is irremediable. But as it may be most generally expected in July and August, when the Potato haulm has nearly completed its growth, it is as well to state at once that mowing down the haulm the instant the disease appeared in a district had last year the effect of saving the crop. The quantity of Potatoes was of course greatly diminished, but such as it was they were found to keep. There is, however, this difficulty, that if the cutting down is delayed too long disease appears with its usual virulence, and that we know too little of the early symptoms to judge with certainty when to ply the sickle. Hence the conflicting assertions that are to be found upon this, as upon so many other points connected with the Potato murrain.

The fact, however, is as we have given it, and we trust that those who shall unhappily be afflicted by the coming visitation will be successful in applying the remedy before it is too late.

WE are confident that all classes of Society will join with us in congratulating the GARDENERS' BENEVOLENT INSTITUTION on the prosperous state of its finances. It appears from the account just published that the Trustees have 25 pensioners on their list, 1700*l.* in the funds, and a subscription income of about 600*l.* a-year. We earnestly hope that those means will be much increased. No class of men ministers so largely to the enjoyment of society as gardeners, none have so much expected from them, none are more badly paid. They are required to have the education and appearance of at least a farmer, and they have often not the wages of a footman.

We do not quarrel with the regulations of the world. On the contrary we have always maintained that a public journalist has no right to enquire into or interfere with the arrangements between a master and his servants. It is mere impertinence in him to do so; and when he does he only injures those whom he pretends to serve, while his true object is to serve himself. Many worthy persons have fancied that we have deserted the gardeners' cause when we have refused to mix it up with the question of pounds, shillings, and pence; but we know the world better than they, and we must persevere in our course, however much unpopularity the refusal may produce. Gardeners are too much injured by false friends—perhaps well meaning ones—to afford that their real advocates should increase their difficulties by disgusting those from whom their wages flow.

But we may say, without offence to any one, that it is very desirable for those who enjoy the services of gardeners when in health and youth, to do something to sustain them when in adversity; and we once more urgently beseech our friends to use the Gardeners' Benevolent Institution as the means through which their charity shall be dispensed. Most deserving, we will even add pitiable, cases are before the committee, and the rich man's guinea cannot be placed in more fitting hands. Thousands are annually collected for hospitals, intended to alleviate the sufferings produced too often by men's vices; how much stronger is the claim of an institution which only steps in to the relief of worthy men of excellent character when bowed down by the infirmities incident to old age.

If this charity were but supported in real earnest it would confer a greater amount of good than the world can easily believe possible; and we do hope that this appeal will be productive of some solid effect. We shall be most ready to forward any subscriptions that may be entrusted to us.

We observe that the Committee propose to make some alterations in the management of the Society's funds; for they have given notice that, at the next half-yearly meeting, the following motion will be submitted for consideration:—"That no further sum or sums of money be funded than the amount of donations or life subscriptions, in accordance with No. 16 of the Society's regulations, without the consideration of the general body." In this we

think the Committee are right. Annual donations should be applied to annual relief, and not hoarded. Donations and casual receipts will form a fund quite large enough to fall back upon in time of difficulty.

SELECT PLANTS FOR BEDDING OUT, &c. IN FLOWER-GARDENS.

(*Continued from page* 301.)

12. *Phlox Drummondi formosa.* (Wood's variety).—This is by far the most beautiful variety that has yet been raised. It is a half-hardy annual, but only permanently continued by cuttings, being liable to degenerate from seed, growing from 6 to 12 inches in height under proper management, requiring a cool greenhouse, with protection from frost in winter, and succeeding well in equal portions of friable yellow loam (or garden soil) and highly fermented leaf-mould, or manure, with the addition of a sixth part of white sand, producing a succession of bright rosy crimson flowers from June until October. Though a plant of the easiest culture, a close attention is required to obtain an early vigorous growth, by shortening its leading shoots, and unless due caution is observed in raising a young stock from healthy plants, and restricting them from blooming, its excessive fertility soon renders its increase impracticable. It is invaluable for a small parterre or flower-bed, or for individual effect in borders. I have obtained a remarkably vigorous growth, and proportionate bloom, in this plant, by adding large flakes of dried manure to the soil in which it was planted. With these recommendations, it has often been a matter of surprise with me that we do not oftener meet with it in our gardens.

13. *Fuchsia pumila, or General Tom Thumb.*—This is one of the best varieties for bedding, being neat, erect, and compact in habit, growing from 12 to 18 in. in height, and producing a profusion of rich crimson pendent blossoms, contrasting well with its small dark-green leaves, which give it the appearance of an evergreen variety.

14. *Stachys inodora.*—This is one of the best plants of its class, greatly superior to S. coccinea, and preferable to S. speciosa. It is a hardy perennial, but requiring in common with most other profuse blooming plants, an annual renewal by divisions, or by cuttings. It is readily trained to a neat and compact habit of growth, producing numerous spikes of rich flame-coloured flowers, from 9 inches to 2 feet in length, during August, September, and October. Where variety of effect is required, this is a valuable and interesting plant for large beds, or for single specimens in borders.

15. *Antirrhinum majus pictum* (syn. "Iveryanum").—The merit of this genus for decoration is too generally known to require comment; but the picturesque character of this variety is worthy of special notice. Our gardens abound with a host of seminal varieties, amongst which we must admit A. splendens, Fowleii, luteum, Supreme, and several others, as exceptions to the many inferior ones which claim an undeserved regard. The present one is much superior to all I have yet seen in its brilliantly-contrasted colours.

There are, however, several inferior varieties. The subject in question is distinguished by an exceedingly rich crimson ground colour, with the external part of the throat of a pure white. It grows from 1 to 2 feet in height, and is easily cultivated in any soil. It continues long in bloom, and forms a very beautiful effect in large groups or beds, or as single specimens. No genus of plants is perhaps equal in neatness of habit and brilliancy of colour to Antirrhinum (Snapdragon) for adding a rich and ornamental effect to the front of large shrubberies and borders. A. pictum is far from being a new plant. I remember it being grown 14 years ago, but it has now nearly disappeared from our collections for more novel but not better kinds. Some of our newer varieties of plants remind me of Napoleon's answer to an inferior officer, who in offering his services to reach an object to which the stature of the former was unequal, remarked, "Sire, allow me, I am a greater man than you." "A taller, a taller," replied the Emperor hastily, "not a greater."—*William Wood, Pine-apple Place.*

NEW BOILER FOR HORTICULTURAL PURPOSES.

Although the Polmaise system can never supersede, in my opinion, a well-arranged hot-water apparatus, I am far from thinking that the latter has attained its greatest perfection. Much heat is still thrown away; some is uselessly expended on the surrounding walls and brick-work of a furnace, in all those boilers in which the fire is outside them; and in every boiler yet in use that I have seen, an immense loss of heat takes place in the ash-pit, and a still greater loss up the chimney. Flues, also, are, in consequence of being planned and constructed badly, constantly a source of annoyance, until at last they are altogether discarded and voted a nuisance, and thus fuel is burnt to waste. This is about as wise as if a man were to cut off his finger or his hand because he had a sore on it. To me it appears a much better course to endeavour to find out a remedy for the evil. Flues, as they are frequently made, lose half their heat by being placed with one face next a wall and another face resting on the floor, leaving only the remaining two faces to throw off heat into the house. This is the smallest of their defects. They are constantly opening at their joints and giving forth deleterious gases. Now, all these and other faults may be remedied easily enough by having the flue of thin metal running in a trough an inch larger than it all round. The trough may be kept partly or entirely filled with water so as to cover the flue, and it may be covered when the air is too damp by any kind of lid, or by a roll of coarse canvas. This would save a great deal of heat which is now wasted, and render unnecessary one tier of the pipes at least.

The following is a plan of a boiler intended purposely to remedy some of the defects I have named. Every particle of fuel burnt in it must give a return to the owner:—

I think "The Captain" will do a tenth more work than any boiler yet in use, or the same work at a tenth less cost of fuel, which in large establishments will amount to something considerable at the end of a year. It differs from all others now in use, not only in shape, but in principle. I now proceed to give the dimensions of its several parts. These can, of course, be enlarged or diminished, to suit any size or range of buildings. The letters of reference are the same in each of the figures.

a a a a, is an opening for the grate and ash-pit, 15 inches square by 12 inches high. A movable iron grate (*x*) is placed inside of this space, the bottom or floor of which is just 6 inches from the bottom of the boiler. It stands on four legs (*y*), and it has two front bars, 2 inches apart, the highest of which comes to within 2 inches of the boiler. It has no back to it or sides, and can be removed at pleasure. Projecting 2 inches from it to the front are four iron brackets to rest a couple of fire bricks on when the front is to be closed.

b b b b, is the neck of the furnace; it is 10 inches square: it is 16 inches from where the furnace begins to incline inwards, at each of its four faces; it is 18 inches from the opening for the grate, and exactly 24 inches from the floor of the grate (*x*), upon which the fuel rests; below this there is the ash-pit, 6 inches, making 2 feet 6 inches, the lower portion of which for 14 inches up is a square of 15 inches, from which it gradually diminishes at each of its four faces to 10 inches at its neck. The front line of this neck is about 4½ inches inside the feeding mouth at *c*.

c c c c, the feeding mouth for putting in the fuel; it is 15 inches broad, by 12 inches high, having a tight filling door, *c c*.

d d, is the farther end of the boiler, and the commencement of the flue; it is 10 inches square, and 21 inches from the back line of the neck of the furnace, *b b*.

e e e e, is the door drawing in and out, as shown in the plan; it has its top and sides inclined, to fit the shape of the boiler completely when pushed in close. The lower line is horizontal. *f* is the blower, to regulate the draught. It is very simple, but may give place to a more scientific method, if desired, although it would be quite as effectual in practice as any now in use, and much more simple. It has four holes *g* near its top, to hang on two hooks in the boiler; by using either of these holes the space below for the admission of air to the under side of *x* is enlarged or diminished.

h h, are the two fire bricks which rest on the four brackets from *x*, and should fill up the space exactly before the fire bars to the boiler *j k*. The flow pipe *j* is just over the furnace. *k* is the return pipe.

These pipes, and also those proceeding from them through the houses, are square, 4 inches in diameter, and will therefore expose one-third more radiating surface than round pipes of the same diameter, and of course require one-third less piping to do the same work. These pipes are both fixed to the top of the boiler, the only difference being that the pipe *j* has the advantage of being just over the source of heat; *l* is the commencement of the flue, 10 inches diameter. To derive all the advantage of the fuel consumed, the flue should always pass through one or all of the houses.

Fig. 1.

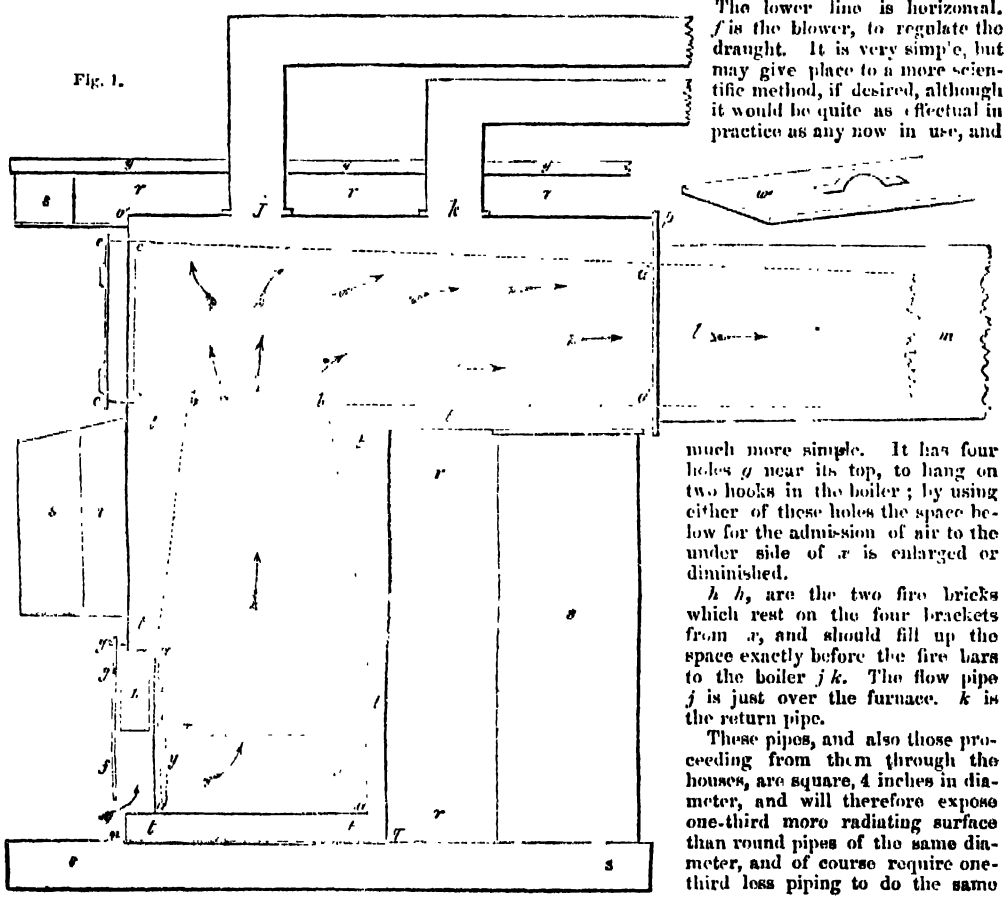


Fig. 3.

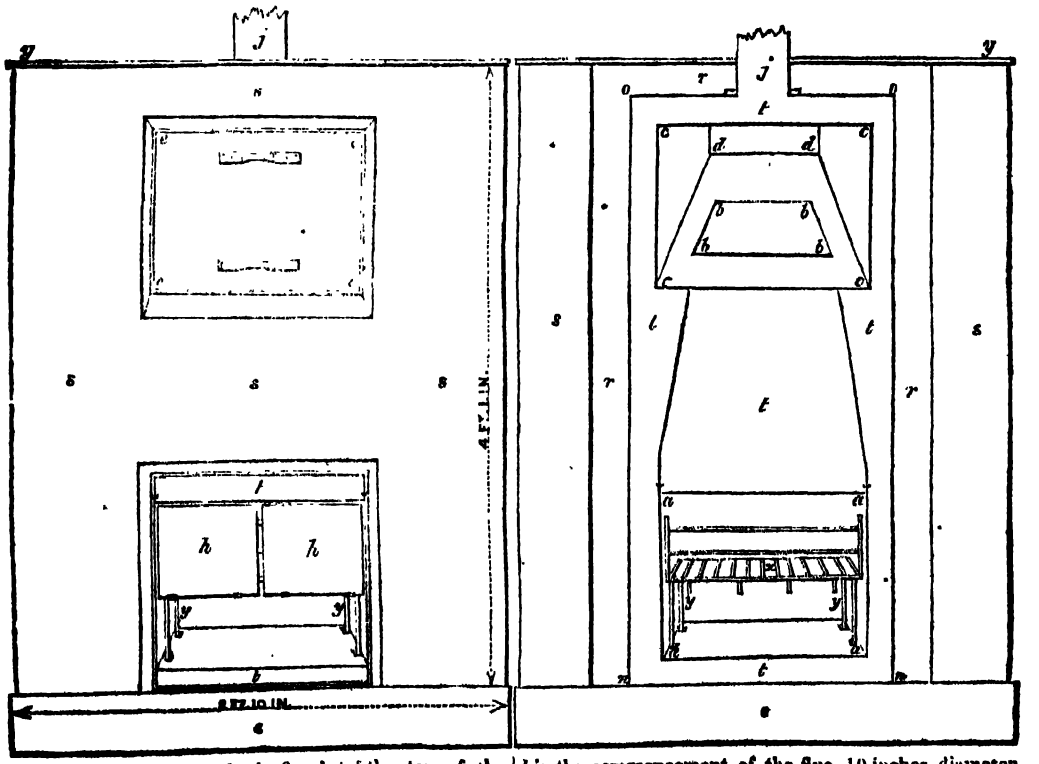


Fig. 2.

In "The Captain," less heat will escape by the flue than with other boilers, because the heat from the furnace will strike directly under the flow-pipe, as seen in Fig. 1, and then it must pass through the boiler 2 feet more before it reaches the flue. It will pass chiefly along the upper surface directly under the pipes, which surface is purposely made descending, thereby detaining the heat as long as possible inside the boiler, as heat descends with difficulty. Notwithstanding the advantages of this arrangement there will always be an immense quantity of heat pass into the flue, as soon as the fuel has become ignited throughout, which will generally be towards morning, when it is least desirable to throw the heat away. To save this, I have in the accompanying plan of "The Captain" shown how the flue is to be brought inside the house without the possibility of damage; *m* is a thin metal trough, 12 inches square, open at top; the flue (also of thin metal) passes through this, being clear of it all round. This trough is to be wholly, or in part filled with water as required, and a cover of some kind (*w*), or even a roll of coarse canvas, to be used when wanted. The trough should be a little clear of the floor, in order that the heat from it may be given out from all its faces. If this flue be made quite straight through the houses, the cleaning of it out (it not being intended to return, the chimney being placed at the far end), will be a very easy matter. The sweeper may commence at either end, and draw or push the soot to either opening with any of the instruments at present in use in any ordinary chimney.

From *a* to *o*, the height of the boiler, is 3 feet 10 in.
From *o* to *p*, the length of ditto, is 3 ft. 2½ in.
From *a* to *n*, and *o* to *q*, breadth of front is 19 in., and of side.

The space all round the boiler, and at top and bottom, for water, is generally two inches only, except where the sides and top of the furnace slope in, when it becomes rather more. It is not in the boiler-house that a large quantity of heated water is wanted. *r r r r* is a space of three inches all over and around the boiler in every direction, except under it (and it may be under it too) for sawdust or any non conducting material; the masonry is outside of this. *s s s s* is masonry. This may be of any thickness; in the sketch it is only 4½ inches, or half-brick, except where the boiler rests upon the wall of the houses, where it is 9 inches thick. *t t t t* is water of the boiler, all round the fire in every direction, except the feeding mouth and ash-pit. *g g* is a stone slab, resting on the sawdust above the boiler, with holes 1 inches square, for the pipes to pass through.

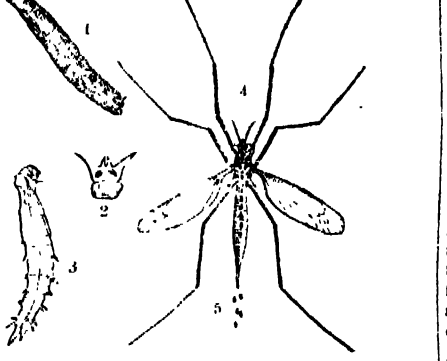
Fig. 1 is a side view, showing the wall of the house, the boiler passing through it, and the flue in its trough, &c.—the latter may be brought outside of the houses at any part of its progress, if inconvenient to other arrangements; placing the chimney where it comes out, with a damper, &c. Fig. 2 is the front view, without the masonry, &c. in front. Fig 3 shows "The Captain" completed, except the blower, which can be hung high or low, as the draught requires. No fire will continue to draw well after it is choked up with the ashes of the fuel consumed. At the last making up of the fires at night, rake out the whole fire to within 6 inches of the bottom, then add 18 inches deep of fresh fuel, and give a brisk draught for half-an-hour or longer, till the whole is thoroughly ignited; then set your draught or lessen it, to last out the night, according to the sort of fuel used. A portion of coke or cinders, or the "coal balls" described by me at page 119, may be used in various proportions with other fuel. It will require a little extra attention at first, till the amount of draught it takes is ascertained, which of course will differ with different kinds of fuel. There must be a damper in the chimney at the further end, and when fresh fuel is added a portion may be heaped up from *b* to *d*, fig. 1st, which will enable the gardener to increase his draught to any extreme required without wasting heat, for the fuel from *b* to *d* will absorb the extra heat completely on its way to the flue, and by it be rendered fit for immediate combustion when raked down into the furnace in its turn. The tools required are a poker, a hoe, and a shovel with a narrow blade, the two latter having iron handles instead of wood. In increasing its dimensions for greater work, I should not recommend its being increased in depth. The one in the plan is 24 inches from the bars on which the fuel rests to the top of the neck, which is deep enough for any size, except the very largest. In lessening its dimensions as much as 4 or 6 inches may be taken off, making the furnace about 20 inches deep, and 10 to 12 in diameter at bottom, which diameter it should keep for 14 inches upward, before its sides incline inward, as in the present plan. Whatever the dimensions of the furnace may be, the space for the water all round it should remain the same, viz., 2 inches only. The boiler may be made round instead of square or angular by those who prefer it.—*H. J. D.*

ENTOMOLOGY.

TIPULA MACULOSA (*the Spotted Garden Gnat*).—The history of the Cabbage Crane-fly has been already given,* and having long suspected that there were at least two distinct species of these destructive grubs, I placed two kinds in flower-pots, with some tufts of Grass, and after failing for several years, I at last had the satisfaction of rearing the smaller ones, and found they were the offspring of T. maculosa. These larvæ are of the same dirty earth-brown colour as those of T. oleracea; but they are only three-fourths of an inch long, and as thick as a large crowquill (fig. 1); they are wrinkled, and when at rest they contract themselves, drawing in the head and thoracic segments, so that this portion looks more like the anal extremity; the animal, is able, however, to thrust out its head and crawl along very well, although it is destitute of feet; the head is small, brown, and furnished with two black jaws, short antennæ, and I believe minute palpi, which is not the usual structure of larvæ that change to dipterous flies; two vessels of a pale colour are visible down each side of the back, and one in the centre; the tail is furnished with two divaricating hooks, and two short teeth between them; the stern being truncated (fig. 2), which will readily distinguish the larva from that of T. oleracea; it has two large spiracles, with two tubercles below, and two fleshy masses, which are capable of great dilatation, and assist it essentially in walking.

In the spring these larvæ change to pupæ in the earth; they are about the same length as the larvæ, but scarcely so stout, and of the like dirty colour; the head and thorax are defined, the latter having a short slender horn projecting on each side; the wings are small but distinctly visible, as well as the legs which are placed between them; there is a spiny elevated line on either side of the abdomen, each segment having a transverse row of minute spines above, and five larger ones beneath; the penultimate joint is surrounded by six longer spines and two small ones, and the apex produces a large conical process above, and a shorter one beneath (fig. 3).

The flies are abundant in May and June in meadows, gardens, fields, hedges, and especially on the sea coast. I remember having seen multitudes once on the sand banks in the Isle of Portland in the middle of May, also in the Isle of Wight and on the coast of Suffolk, and I bred several last July. The truth is that there must be either two or three broods in the year, or a constant succession of the flies, although the spring may be the season when the greatest number are hatched, but that will vary with the temperature; and I am also inclined to believe that many other species of this genus are equally destructive in the garden; but the larvæ so greatly resemble each other that it will be only by a better knowledge of these insects, to be acquired only by breeding them, that we shall be able to ascertain the truth. Certainly I do not remember to have seen the Tipula maculosa in my garden near London, but the T. quadrifaria, an allied species, was very abundant there, as well as a larva so similar to the one before us that I cannot, in the absence of living specimens for comparison, detect any difference.



T. maculosa of Hoffmannsegg is a pretty Gnat, not quite half an inch long; but the wings expand one inch. The male is of a fine yellow colour, the black horns are longer than the thorax, and taper; they are 13-jointed; the first joint is elongated; the second small and cup-shaped, all the others are elliptical, with a few bristles at the base of each, excepting the apical one, which is very minute; head with a large black patch on the crown; forehead conical, with a little black dot on each side; the face forming a cylindrical rostrum, with a hairy beak, bearing a black spot on the top; the palpi are longish and black; the eyes are hemispherical and black, but there are no ocelli; the thorax is marked with three black stripes down the back, the central one the shortest, and the sides are spotted with black; the scutel has a black dorsal stripe; the abdomen is linear and obtuse, with a row of black spots down the back, and smaller brown ones on the sides; the wings divaricate or rest horizontally on the body; they are of a smoky yellow tint, the costa is yellow, there are an areolet, two little stigmatic cells, and seven apical ones; balancers brown and capitate; six long black legs, very slender and tapering; base of thighs pale yellow, and of shanks yellowish-brown. The female is rather larger, the horns are shorter; the abdomen is fusiform; the apex acuminated, and furnished with two fine sharp lateral valves, and a smaller central one; (fig. 4, the female.) The eggs, which are scattered by the female, are intensely black, but dull, oval, and spoon-shaped (fig. 5); this, however, might arise in my specimens from their not being fertile.

Some idea may be formed from the following data of the mischief committed by this insect. On the 23d of April I found the grubs at the roots of my Peas. On the 29th some had eaten off trusses of flowers in the Strawberry beds, close to the crown, retiring afterwards just beneath the surface of the earth, and I think it was the same or the larvæ of T. oleracea which used to cut through the runners of the same plants. The first week in May they were not uncommon among the roots of the Lilacs and under tufts of Grass. On the 23th of the same month I observed some recently transplanted Lettuces drooping, and on examination I found the roots separated from the crown a little below the surface, and close by were these grubs, which are difficult to detect, owing to their colour and their remaining quite motionless when disturbed. The end of July they were eating the roots of Dahlias, Carnations, and various flowers; and the 7th of August they infested some Potato ground with the T. oleracea larvæ, after which I lost sight of them.

Lime-water will not kill them, and the only mode I have been able to adopt with any success has been to search round sickly plants, and dig up all that have been killed by them, and destroy the culprits; but this must be done speedily, otherwise they will soon decamp to feast upon other plants. I should think watering with brine, nitrate of soda, or perhaps strong liquid manure, would keep them from our crops.—*Ruricola.*

* T. oleracea, *Gardeners' Chronicle*, vol. i, p. 612.

THE AMATEUR GARDENER.

ON SLUGS AND SNAILS.—Passing through King William-street this spring, I observed a splendid brass plate at the door of one of its spacious buildings, bearing this inscription:—"Office for extirpating all kinds of Vermin." As I presume this comprehensive notice includes all pests which crawl or creep, whether rural or metropolitan, I am surprised the Society is not very popular. The *Gardeners' Chronicle* might save much type and paper every week, and the editor much trouble, if this patent mode of destroying insects were adopted. Perhaps the subject will be soon taken into consideration by the Royal Agricultural and Horticultural Societies, and an invention so very important to gardeners brought out of its obscurity.

But, joking apart, knowing no royal or patent mode of extirpating things which increase and multiply every day, we must proceed by ordinary methods, endeavouring to find out that which is best. To begin with snails and slugs. By the former, I mean those with shells, and by the latter, those which are not provided with such an accommodation. Both kinds are very rapacious, and commit sad havoc in a little time, if their inroads are not watched. Snails do not burrow, and therefore they are more easily caught. Look for them during the winter in the chinks of walls, and the hollows of the roots of old trees. If you have Ivy in your garden, you will find that it is their favourite resort for hybernating, and there you will seldom look in vain. I once collected half a bushel of snails from a wall which had been covered with Ivy for many years. The fact is, these creatures increase very fast in the autumn, when the productions of the garden being beyond their power of doing them much injury, they are allowed to crawl with impunity in the rank vegetation. The first frosts drive them to their winter quarters, and you will find them in large masses, sometimes looking like conglomerate or plum-pudding stone. The winter, therefore, should never be allowed to pass without a search being instituted, so that they may be taken in their retreats collectively, by which much loss of time, and much vexation, may be prevented in spring.

In gardens of moderate size, hand picking is recommended as the surest mode of keeping under both slugs and snails. This may be done in the day-time when the weather is moist. In the kitchen-garden you will find the enemy at the stems of Lettuces and Cabbages, and in the flower garden among the Box, or at the edges of the turf which skirts the beds. Practice will tell you where to look, and an experienced eye will allow but few to escape, provided time enough is given to the work. As slugs burrow in the ground, it will be necessary to trap them. This is done by strewing Cabbage leaves on the spots they frequent, or where their ravages are to be feared. Hand-picking and trapping will soon relieve you from the fears which sometimes invade the amateur, when in early spring all his handy-works are threatened with destruction. In a small garden they may be, and ought to be nearly extirpated, and when we see such little spots covered with the slimy traces of this toe, we conclude that carelessness has secured them an impunity, and favoured their propagation.

It is well known that powdered quicklime is fatal to slugs, if it fall on them in very small quantities, and if the land is much infested, this remedy should be adopted, a still damp evening being chosen for the purpose. But this is an untidy procedure in a flower garden. Lime water is more useable, and may be applied with success at the shrubby stems of Hollyhocks, &c., where the eye cannot conveniently reach. But lime-water often fails if only used once; the dose should, therefore, be repeated. I have tried experiments on slugs with lime-water, and sometimes they will cast off a slough and crawl away apparently all the livelier for the infliction; but if you then again sprinkle them they soon die. A piece of quicklime as large as your fist will be enough for a pail of water. When it is dissolved, let it settle, and pour off the water clear. These directions are very common-place, and have often been repeated in the *Chronicle*, but some amateurs may read these papers to whom the mode of treatment may be new.

But what is to be done with the guilty parties when they are in safe custody? This question has sorely perplexed many gardeners, especially those of the gentler sex. Ladies do not like killing (one mode only excepted), and such substantial things as snails are not despatched easily. Slugs have a hole which, like the skin of a rhinoceros, will resist the tread of a heavy foot. If you keep ducks, the matter is easily arranged, for they will eat all you give them. It is curious to see a large snail, shell and all, make its way down the distended neck of a duck. The [illegible] marvellous way

is to get your gardener to tread on them, if you cannot do it yourself, though it is astonishing how soon the most squeamish will avail themselves of this summary way, if they are troubled by snails in their gardens.

I have known persons whose gardens are bounded by green fields, throw all slugs and snails over the walls, to regale themselves at the expense of their neighbours. This is manifestly a breach of the golden rule; besides, our object should be to lessen the number of injurious insects in our country. If the ground of the farmer is infested with these creatures, neighbouring gardeners will not escape. The walls will be surely, though slowly sealed, and the foe will return to the scene of his former pleasures.—*H. B.*

CONSTRUCTION OF FORCING HOUSES.

It has been a matter of surprise to me, that amidst the rage for improvement exhibited by all classes of society, and certainly not least among horticulturists, more attention should not have been paid to the structure of forcing houses. The heating of them has had, and still holds, a large share of interest; but very little has been said, and less done, for improving their construction. The only writer, so far as I am aware, who has done anything to attain this end is Mr. Paxton; but even he has been for a long time silent on this important subject. I beg, therefore, to call attention to the advantages derivable from the adoption of the ridge and furrow instead of the lean-to roof; I am not aware, excepting in one or two instances, of any place where forcing has been attempted in a ridge and furrow house, although there are many for the growth of plants; but as it has been done with the best results, I have more confidence in bringing the subject before your readers.

In the first place, a more equal diffusion of the sun's influence may be obtained from the ridge and furrow than any other description of building. My reason is this, a house fronting the south, that is, with the ridges south and north, inclining upward from front to back, at the usual angle of a lean-to roof, say 28°, the angles from the ridge to the valley will then be east and west, thus presenting a surface to the direct ray of the morning and evening sun, and at mid-day the rays of the sun will strike the angle obliquely, thus producing a more equal temperature; and the benefits arising from the longer duration of the sun's influence, thus distributed, will, I think, be appreciated by all. In the course of a conversation lately with Mr. Mitchell, late gardener to Lord Vernon, at Sudbury Hall, Derbyshire, who has had the management of erecting and working houses for early forcing on the ridge and furrow system, he stated, that in two houses alike in situation and aspect, and both shut close, the only difference being that the one was a ridge and furrow and the other a lean-to, he had observed the thermometer to rise in the morning 15° in the ridge and furrow house before it moved in the lean-to; he also stated that Peaches did much better with less trouble than ever he had them in any other description of house. He was awarded the first prize for Peaches two seasons, at the Gardens of the Horticultural Society of London. Indeed, so much is he convinced of the superiority of the ridge and furrow that he will venture to assert they are better and have a far more ornamental appearance than any description of house that has come under his notice. Thus, my opinion is sufficiently backed up by experience.

The next point to which I allude is, the forcing of Vines; and I think the ridge and furrow has decided advantages for this purpose. Suppose a house to be planted with Black Hamburgh Grapes, it is seldom desirable to have the fruit all ripe at once; on the contrary, is it not better to have them in perfection as long as possible? Now with one Vine under the ridge and one under the furrow rafter, throughout the house, this object will be attained, as the heat will always be greatest in the angles under the ridge, and least under the furrow rafter; consequently, the Grapes under the ridge will be considerably earlier than those under the furrow; besides, a better distribution of the sun's rays will be secured for each Vine than under a plain surface. The same advantage will be gained if the house is planted with various sorts, by keeping those requiring most heat, such as Muscats, Frontignans, &c., under the ridges, and Hamburghs, Sweetwaters, &c., under the furrows.

The next point is the economy of heat; it must be apparent that when the direct influence of the heat of the sun is maintained for a longer period during the day, in the same ratio will the demand for artificial heat be reduced; thus a less amount of fuel will be necessary to keep up the required temperature, the night (if I may use the expression) being shortened.

I have no doubt the expense of erection will be a question with many; but from the calculation I have made, and I think I may claim some knowledge of the matter, it will not add more than 8*l.* to a common lean-to that would cost 100*l.* and I am convinced the advantages gained will far more than compensate for this difference.

In conclusion, I may add that I have frequently, in looking at a range of forcing houses, been struck with the sameness of their appearance, for however varied the height or angles of the roofs, still there is the flat surface throughout; now, by introducing a part, if not the whole, on the ridge and furrow style, the houses would not only be improved in their adaptation to the purposes of forcing, but would have an ornamental appearance, a point which should not be lost sight of.—*James Gray, Chelsea.*

CULTURE OF HORSE-RADISH.

Roast-Beef being identified with our history as a national peculiarity, Horse-radish as an accompaniment to it, is likely, as long as we exist as a nation, to be largely in demand. The quantities always to be found in Covent-garden market is proof of this; but it is also proof of something more. It shows that those who live by supplying the market find it necessary to cultivate it, and to produce the root in a very different state from that usually found in private gardens. Mr. Knight, no mean authority on these matters, was fully sensible of this when he directed the attention of the Horticultural Society of London to the subject, by a communication which appeared in the first volume of their Transactions; other papers have subsequently made their appearance in different publications. Still we find little progress made in regard to the production of a better and more useable article. This may in part be attributable to the spontaneous growth of the root itself, in almost any situation, and gardeners may have considered it beneath their notice, as we may fairly presume from the continued appearance of little distorted rootlets, quite a disgrace to the subject it is meant to garnish, instead of large succulent and pungent full grown stalks. This discrepancy may arise from the fact, that it has not attracted the attention of the gardener, from some cause or another, so much as it has that of the cook. Hence, the Horse-radish bed once made, is made for ever. The cultivation of it is out of the question. It never entered the head of the gardener that such was necessary; he has always found the root in the same spot, perhaps for 20 years; he has seen his men burrowing day after day and year after year, an hour at a time, still they have been successful; they have found something which has passed for Horse-radish. The cook has grumbled a hundred times to no purpose; the gardener declares there is plenty; and of the kind the bed to be sure yields annually a supply. It is, besides, the most untidy spot in the whole garden, the rubbish-yard not excepted. Why should this be? There is no occasion for it, if a proper system of cultivation is pursued. The soil most eligible for the production of Horse-radish in perfection is that which is light and friable, and of considerable depth, and if any part of the garden is damper than another, that should be appropriated, but it should not be wet from stagnant water. In autumn let the ground be trenched 3 feet deep, turning down with the surface-soil a liberal dressing of good farm-yard manure; let it lie, rough, and exposed to the weather, during winter; in spring, when it should be planted, add a second dressing of decomposed manure, turning it in 2 feet deep. The whole of the manure will thus be 2 feet or nearly so under the surface of the ground. In proceeding with the planting, first measure the ground into rows 18 inches and 4 feet apart alternately; stretch the line at the first row and remove the soil 18 inches deep in a narrow cut, and place it beyond the last row. Take pieces of the roots 6 inches long and place them a foot apart in the bottom of the trench. It is quite immaterial which part of the root is planted, as every part grows, and that is sufficient for our purpose; when this is done remove the line to the next row, and take this out as before, placing the soil over the first row planted, and so continue until the last row, when the soil taken out of the first will complete it. During the summer keep the ground well forked over and clear of weeds; and, to strengthen the plants, two or three supplies of manure water will be of great service, as the plant delights in moisture. When liquid manure is applied it should be given in sufficient quantities to reach the lowest roots. If these directions are carried out I have no hesitation in stating that in one season an article will be produced creditable to any garden. In taking up Horse radish for use, a trench should be opened at one end of the double row, as deep as the lower roots, so that it may be taken up whole, and that a sufficient supply may be dug at one time to last for a month, as it may be kept in excellent preservation for a long time in sand in the root-room. It is scarcely possible to clear the ground entirely of every portion of the root, and whatever part is left amongst the soil is sure to grow. This, however, will be of no consequence, as the same ground may be continually apportioned to its culture; but then the same system which has been here detailed must be again pursued, in order to secure a continual supply in the same perfection. When this mode of culture is commenced for the first season, enough must be planted to last until the second autumn, when the succeeding crop will be fit for use.—*Cochlearia Armoracia.*

Home Correspondence.

Disease in Tulips.—The following is some account of my Tulips, which are the admiration of everybody who has seen them. I planted the bulbs on the 13th Nov., 1845, the ground then being in a very moist state, I immediately put on my irons, netting, and waterproof covering, which with careful management kept the bed perfectly dry, until the plants appeared above ground, when I perceived that about a dozen were cankered in a slight degree, which I believe has been very general this spring. I carefully cut away the diseased parts (even to the quick), and eventually arrested its progress, exposing them to the full action of the sun and air. After they were a little above the bed—say two inches—and before the foliage began to expand, I gave the bed a thorough saturating with rain water, repeating it again when the buds were above the foliage, carefully excluding the frost, which though not severe would have been very injurious to them in so forward a state; they are now in the healthiest condition possible, and the bloom perfect, the stand with which I gained the first prize at the Maidstone Horticultural show, being greatly superior to any that were shown against it. The foliage is mostly very broad and crowded in the bed, although the bulbs were planted six inches apart every way. I have several leaves measuring 15 ins. long and 5 ins. in breadth, of a very healthy green, without any appearance of spot or rust, which I noticed to be so prevalent in some of the best beds near the metropolis, —at Clapham-rise for instance. I am sorry to say that there are several collections in this part of the county very severely cut; one bed in particular I have seen is lost nearly altogether.—*An Amateur, Maidstone.*

Destruction of Insects.—The following is the result of some experiments which I have made this year with gas-water, as applicable to the destruction or removal of many of the noxious animals with which our gardens are, and have been, so unfortunately infested for many months past. I have tried it of various strengths, but I have reason to think that unless diluted in six times the quantity of pure water, it cannot be applied without injury to vegetation. At this strength it appears to be almost instantaneously destructive to snails, slugs, and earwigs, and drives away every species of worm, including that most destructive species known by the name of the rook-worm. Ants will not remain where it has been used, but they only retire just beyond the influence of the effluvia. It may be objected that the smell is abominable, but this passes off quickly, while the effect underground remains; as I have had the soil turned up several days after the gas-water had been applied, and found the smell nearly as strong as at first. I am not as yet aware what influence the water may have upon fruit, if touched by it (as, for instance, the Strawberry), after it is set.—*C. H. R.*

A Good Trap for Wasps.—Open the windows and doors of your greenhouse (or dwelling) 2 or 3 inches, and set within a plate of honey or molasses. The scent will entice wasps to enter, and they will not find their way out.—*A.*—I perceive that you recommend the use of insect forceps for the destruction of wasps. This plan, as you will find by a reference to page 330 of your volume for 1845, has been adopted by me for several seasons; and I need now only add, that another year's experience fully confirms the opinion of its efficacy, expressed in my former note.—*E. G. S.*

Grass under Trees.—In answer to the inquiries on this subject, I beg to inform your correspondent that, by sowing nitrate of soda in small quantities in showery weather under his trees, he will obtain a most beautiful verdure. I have used it under the Beech-trees in my grounds, and the Grass always looks green. Having succeeded so well on a small scale, I have now sown nitrate of soda amongst the long Grass in the plantations, which the cattle never would eat; I now find that the herbage is preferred to the other parts of the field, which have been marled, and is a very good pasture.—*A Subscriber, Dunchan.*——Your correspondent "M. M." seems to imagine that the leaves of the Larch furnish a manure for Grass, and this opinion is maintained by the Scotch. It is true, that under Larches Grass grows, and that under the Scotch Fir it does not. But the reason of this is two-fold: 1st, the Larch being deciduous allows some sun to shine upon the Grass, which the Fir does not. 2d, the Larch throws its roots more horizontally, and thereby serves as a drain to the Grass, and lifts the sward up out of the wet subsoil.—*H. D. A.*——In reply to "M. M." p. 304, who says his Grass "remains obstinately coarse," I would advise him, as a better remedy than Larch needles, to remove his turf, and then to place upon the surface from 2 to 4 inches in depth of gravel or sand, replacing the turf, which will look neat, and in the end be cheaper than digging it up and sowing afresh; the turf will, in the course of a few months, become quite fine. His soil, I imagine, is too good to have fine turf. —*H. H.*

Polmaise Heating.—In your Number of the 2d May there is an article on Polmaise heating signed "J. H. H. B. B—k," making a comparison between that system and hot water pipes, in which it is stated that the "fire in the Polmaise stove is fed from the air of the house, which has already been warmed, and that this is partly essential to the success of the Polmaise system." As this assertion is contrary to fact, and may mislead some of your readers, it is necessary to contradict it. In the Polmaise or Hayden's stove there is no communication between the fire-box and the air of the house; the supply of air to the fire-box is from the external air directly to itself, therefore any reasoning founded on such an assertion must fall to the ground, and the ingenious contrivance furnished by "J. H. H." is unnecessary. The simplicity of the Polmaise system is one of its great advantages, rendering unnecessary flues or hot-water pipes, which are in other houses the medium used to heat the air; in the Polmaise system the hot air is introduced at once to the house, a circulation being caused by opening the drain from the house to the hot air chamber at its lowest point, but in order to give a constant change of hot air, a supply is brought into the lowest part of the hot air chamber (from the external air), heated in the chamber, and then passes into the house, not direct but through the hot air chamber, and at such a temperature as the gardener wishes. In short, it is like the hot air blast in iron furnaces in place of the cold air as formerly used.—*W. M., Stirling.*

[The mistake has been rectified by "J. H. H." himself. See last week's Number, p. 285.]

Pine Growing at Thornfield.—The following facts are the result of what I term a threefold advantageous mode of Pine culture; for by it I can produce fine fruit with expedition, and with little labour. Almost everybody now, I presume, is favourable to the anti-mangling system, and are prepared to make the most of the matter stored up in the old stole, which is ready to supply the wants of the sucker. Who, indeed, I would ask, would not seize on this gratuitous storehouse, and at once discard the root-mangling system? One or two good houses, having a pipe or tank for bottom heat, might be turned to a better account by my system, than several houses by the ordinary mode of cultivation. The Jamaica, with me, has produced two fruits on one stem, 10 lbs. in weight, which is double that of any single fruit ever produced from a maiden plant in the neighbourhood of Manchester or Stockport. Thus has been achieved, at least in effect, what Mr. Barnes is straining every nerve to accomplish. The following is a list of 12 Enviles grown at this place during these few years past. Only two or three of this sort are fruited here each season, on account of their inferior flavour compared with that of the Montserrat. Their weights were—7 lbs. 8 oz.; 7 lbs. 15 oz.; 8 lbs. 8 oz.; 7 lbs. 12 oz.; 8 lbs. 6 oz.; 7 lbs.; 8 lbs.; 7 lbs. 6 oz.; 8 lbs. 10 oz.; 9 lbs.; 8 lbs. 12 oz.; and 8 lbs. 12 oz., respectively. These weights are taken from a diary kept by the butler here, who books the Pines when taken into the house. Mr. Barnes inquires, "to what weights have I grown Queens?" The black kinds, he states, may be grown to any size. Now, upon inquiry, I find that where the Queen and Jamaica have been grown together in this locality, the former in most cases has proved larger than the latter. My neighbour, Mr Hayward, has produced the Ripley Queen 1 lb. 12 oz. heavier than the Jamaica. Mr. Adderley grows the old Queen and Jamaica of equal weight. Mr Lodge, of Heaton Villa, informs me that he has produced the Queen upwards of 7 lbs. I have now in the Pine stove four fruits, of nearly equal age, swelling off: they consist of an Enville 14 pips high, weighing about 3 lbs. 12 oz.; a Ripley Queen, 10 pips high, weighing about 4 lbs.; a Sierra Leone, 7 pips high, weighing about 3 lbs. 4 oz.; and a Montserrat Black Jamaica of the South, 7 pips, weighing 3 lbs. 4 oz. These are all planted out except the first. The Enville and Queen, to all appearance, will swell much larger; and there is, moreover, every probability of cutting other two fruits from the Queen some time during the present year. These are good for this season of the year, but nothing beyond what has already been accomplished by others who have followed the same course as myself, and in some instances I have been surpassed. The principal agents of success are light, heat, and moisture; but the greatest and most important of these three is light. Whoever cannot command a sufficiency of these three elements must lag behind. Young gardeners and amateurs who have commenced my system (at least in this locality) have succeeded nearly as well as myself—thus showing the simplicity, economy, and merits of a system destined ere long, I am persuaded, to triumph over the old method. With regard to expedition, I may mention that a plant of the Jamaica is now showing two fruits very strong, whose former fruit was cut in August last; another is showing two fruits, from which I cut one in September last; a third is showing two fruits, whose former fruit was only cut in February last; a fourth is showing two fruits which ripened one in December last. I might proceed to some length, but I trust enough has already been said to show what may sometimes be accomplished under a good glass roof, with skilful management. If spared, I hope yet to produce three fruits from one plant in about six months, which only a few years ago would have occupied a period of six years. Now, is not this expeditious mode far preferable to our present system?—*Joseph Hamilton, Thornfield, Stockport.*

Morels.—I do not know what growth Morels have made in other parts of the kingdom this year, but we yesterday gathered, with many other fine ones, five, which weighed together no less than 2 lbs. 12 oz. But this, I may observe, is quite a Morel country, from the ancient woods and plantations about us, which encourage their growth.—*W. Mason, Necton, May 8.*

Weather Rules.—In reply to "G. W." I beg to say that my observation respecting the wind at the time of the late vernal equinox was made in the immediate neighbourhood of London (north side); 16 March, S.W. strong gales, and squally with rain; 17th, 18th, 19th, and 20th, N., weather moderate and cloudy; 21st, S., blowing hard, with squalls of rain, and very cold; 22d, 23d, and 24th, S.W., fresh breezes, with hail and rain. The observations for former years alluded to in last reply were made in a village about seven miles S.S.W. of London. It is no uncommon occurrence for the weather as well as the wind to be very different at the same time in different parts of our island, and this occasionally happens, though more rarely, to the whole season. It being warm and dry on one side, whilst it is cold and wet on the other; so that the observations both as to wind and weather, though opposite and apparently contradicting one another, may each be correct in its respective locality.—*M. E. A.*

The Romance of Gardening.—An able writer in your columns once observed that an ingenious man would experience little difficulty in writing a book on the "Eccentricities of Vegetable Life;" and I think it may be said, with equal truth, there would be no great difficulty in compiling a similar one from notes furnished from time to time by theoretical correspondents, on the "Romance of Gardening and Natural History." We have the "Romance of Life," the "Romance of History," and fifty other "Romances:" then why not "The Romance of Gardening!" I trust I shall not be misunderstood. I have a full conviction of the benefits gardening, in common with all other sciences, has derived from good theory, well digested by practice, and cleared of its superfluous matters, and would be the last to give even the slightest hint calculated in any way to check its full development. Some of the greatest improvements in our arts, our manufactures, in all that relates to our physical and, consequently, social and moral comforts, are, to speak figuratively, the kernels of rough and uninviting fruits (theories), divested of their thick and useless husks by the forecast and perseverance of minds gifted beyond the "million," minds capable of observing the good concealed beneath the rough exterior—capable of inferring that the uninviting subject

"Wears yet a precious jewel in its head"

It rarely happens that thorough practical men are good theorists, and, *vice versa*. It requires a combination of the two to effect the ultimate object The master-mind of the theorist must conceive, that of the practical man execute. But there are some men who will write, who will be theorists, without one real pretension to either, who can only be compared to Pope's young aspirant for literary honours, who "Penn'd a stanza when he should engross." The class of writers alluded to would do well to study and practice Bishop Butler's excellent maxim—"Never to speak but when you have something to say." But, "to our tale." I think no one can have failed to be struck with some very absurd articles which from time to time have appeared in the "Home Correspondence." As I have made no notes of them, I shall only allude to a few which I can at the moment recollect, but which I trust will be thought sufficient to illustrate the point in question, and to point out the character of the correspondence to which I allude. Thus one correspondent details with the utmost perspicuity and gravity his system of cultivating Coniferæ during the first twelvemonths of the young plant's growth, and would have us believe that at the close of that period his plants have attained such magnitude as to require a bushel pot to accommodate them comfortably. Another, equally sagacious, has succeeded in combating the effect of frost on his plants by burning pieces of rush-light in his frames. The originator of such a scheme ought surely to receive the acknowledgments of all horticulturists, by whom a subscription should be set on foot to raise to him a monument In natural history, too, we have some excellent articles—the result of close observation. We are told by one that he has seen the wonderful phenomena of a cat eating a raw Potato. Another, that a friend of his was actually obliged to destroy a magpie because it continually flew at a particular window. And, to return to the subject of gardening, a writer, in a late Number, advises those who would secure good crops of Asparagus to bare the crowns of their plants and allow them to be well frozen up, thereby greatly increasing the produce!—*G.*

Potato Crop.—Although you are probably tired of the Potato discussion, I shall take this opportunity of submitting to you an idea I have formed of a mode of renovating the constitution of the plant for seed. The Potato in its indigenous state in South America I understand to be a small, moist, waxy tuber, about the size of a Walnut. In our hands it has become a very different article, greatly enlarged, highly farinaceous, and very superior in quality as food. It seems probable, however, that a long course of cultivation and continual forcing with manure in high conditioned land has materially altered its constitution and lowered its vitality, so as to render it less capable of resisting unfavourable hygrometric and thermometric conditions of the atmosphere. If this supposition be just, it would seem that the rational mode of renovating the constitution of the plant should be to adopt, for Potatoes intended for seed, such a course of cultivation as should in a period of two or three years, bring back its structural condition to a state more or less approaching to its original nature—a small, hard, waxy tuber, from which to commence a new course of stimulating cultivation. With this view it might be planted this year in land with the manure ploughed in during or before winter, next year with a dressing of vegetable mould without manure, and the third year in altogether unmanured land, possibly repeating the same treatment for a fourth year. I should be much inclined to recommend a trial of this process on a small scale, and purpose to attempt it myself. Of the different kinds of Potatoes, I found the Buffs and Reds most affected by the disease. Two-thirds of the crop were more or less affected by it, but fit for the use of the cattle, and the refuse of the worst, which were grated for making starch, was found, when boiled with chaff and Turnips, excellent feeding. The Potato most exempt from the disease was the black Potato with purple heart (I am ignorant of its proper name), of which not more than about 1-16th was touched by the murrain. Of a quantity of Potatoes picked carefully from the crop as sound for seed and summer use, a considerable part decayed during the winter, not, however, from the spread of the murrain, but from common rot.—*J. S. H., Perthshire.* [Read the account of Mr. Shepherd's capital plan of invigorating the Potato, as stated in a Leading article some weeks since. Our Black Potatoes *all* rotted in the ground.]

Potato Disease.—I am happy to state that everything relating to the Potato crop looks more cheerful than we anticipated; the old white ones are keeping very well. Any seed that has been sown is not failing, and at this time of the season I never saw a larger breadth in ground. I look forward to have plenty by St. John's-day (24th June), and some of my neighbours will have them soon.—*J. B. Warren, Warren's-grove, Crookstown, Cork.* [We *hope* you may be right; but—.]

Marine Glue a Substitute for Putty.—Being about to make a pit last autumn, and having seen in the *Chronicle* much said in the praise of the marine glue, I wished to use it instead of putty in glazing the lights. I, however, found it unmanageable till I had recourse to a heated iron instrument, with which I applied the glue as I would solder. There was no fracture of the glass from the heat of the iron, and it has answered very well.—*S. M., Melksh. m.*

Canker.—I think you mistake when you assert that the Glout Morceau Pear trees never canker; such, I am sorry to say, is not the case. I have seen them badly diseased, and have one now that is very much infected with it, though only six years old. My own opinion of canker is, that it is produced from our short summers not sufficiently ripening the timber; and I always found the trees that were well cut back in autumn less infected than others.—*J. B. Warren, Crookstown, Cork.*

——To the list of fruit trees that invariably canker in gravelly soils, either as dwarfs or standards, I would add the Golden Reinette, and the Ribston Pippin. To those that do not canker, I would add the Keswick Codlin, and the Manx Codlin, the Sykehouse Pippin, the Doctor Harvey, and pre-eminently the Downton. All Cherries, more especially Bigareau, and the May Duke are liable to canker: this I state after many years' experience. To the list of Pears that do not canker, I would add the Sweetwater, the latter Laumas, the Passe Colmar, and generally the later Flemish varieties. My plantation is a sharp gravel, sloping gently to the south and east; four years ago I subdrained it completely, and the drains are in constant action. One drain ran close to a row of Hawthorn-dens, horribly cankered, but the drain has not been of any service to them. Very many of my trees were planted upon brick platforms, many feet square, but the sorts liable to canker went off the same as the others. The orchards in the deposit commonly called the London clay, with its varieties of sharp gravel, coarse gravel, tenacious brick earth, blue clay, and black sand, are on the whole unproductive. It would be useful if fruit growers would notice those fruit trees which succeed best on their respective soils, naming their soils and their sorts. Such information would have been very valuable to me, as very many sorts have been tried, and after some few years have been found unprofitable. I have just read the article on this subject at p. 299. I have always planted my fruit-trees on small mounds, with the surface of the earth just covering the crown, whence the roots spring, and yet sorts liable to canker have still been cankered.—*Este.*——The canker, or erasion of the bark and wood, is a disease produced often in trees by a poverty of soil; and it is invariably connected with old age. The cause seems to be an excess of alkaline and earthy matter in the descending sap. I have often found carbonate of lime on the edges of the canker of the Elm. The old age of a tree, in this respect, is faintly analogous to the old age of animals, in which the secretions of solid bony matter are always in excess, and the tendency to ossification great. The common modes of attempting to cure canker are by cutting the edges of the bark, binding new bark upon it, or laying on a plaister of earth; but these methods, though they have been much extolled, probably do very little in producing a regeneration of the part. Perhaps the application of a weak acid to the canker might be of use; or, where the tree is of great value, it may be watered occasionally with a very diluted acid. The alkaline and earthy nature of the morbid secretion warrants the trial, but circumstances that cannot be foreseen may occur to interfere with the success of the experiment.—*A. B., South Shields.* [We regret our inability to assent to this doctrine.]

Bees.—Communications have appeared in former Numbers detailing the facts I have witnessed in connection with these interesting insects. At p. 739 for 1845, I gave an account of my success in making an artificial swarm, and I am pleased to be able to add that the parent hive and the artificial swarm have continued in the best possible condition, remarkably strong and healthy; and, so far as I have been able to observe, the number of dead bees in front of the hives have not exceeded 30 altogether from each, since the period of the destruction of the drones, in the autumn of 1845, until the present date, Feb. 21, 1846. The parent hive I have never fed or assisted in any way, as it evidently contains ample store of honey, and there is plenty of pollen to be had now from the Crocus and blossoms of Furze, and other flowers which are daily expanding. The artificial swarm I have fed from the 27th of Jan. last with about half a pound of honey in combs in consequence of having observed them endeavouring to rob their more wealthy neighbours in the parent hive, which caused the destruction of a few, but now all is harmony, and the inmates of each hive are as industrious and active on every favourable occasion as I could wish to see them. Having taken a particular interest in the success of my artificial swarm, which I made in a side box 8 inches square inside and 10 inches deep, lined with matting, and having two glass windows each,

4 inches by 3, one on the south side and the other on the north, I have looked at the bees every day, and sometimes two or three times a day since the drones were killed, to ascertain the state they continued in during the whole winter, and I have never witnessed them to be completely dormant even on the very coldest days; on the contrary, I have observed those in the rear of the combs press forward, and those thoroughly warm retire from the centre and take their places in the rear while the others acquired warmth in their turn. I have never noticed a record of this trait in their character in any of the works I have perused relative to bees, but I can vouch for the fact by personal observation. I have heard that coveys of partridges adopt a similar mode of keeping each other warm during night, when the country is covered with snow, by alternately relieving each other, changing their positions from the outer to the inner circle and *vice versâ*. I may mention that the entrances to my hives front the south, and that I have not shaded or contracted them, but have left them 2½ in. wide and ¼ in. deep, all the year round, and I never stop the communications betwixt the side boxes and the straw hives at any period of the year, as I am of opinion that ventilation from the bottom is essential to a healthy condition of bees; I am also of opinion that any attempt at ventilation by openings above or opposite the combs is decidedly injurious, and that the bees lose much of their valuable time in endeavouring to correct human aid in that respect. I have come to this conclusion by observing that the combs in the parent hive were all constructed from west to east, and in the side box, which joined on the east side of the straw hive, from south west to north east. When the bees became very crowded last year in the side box I opened an entrance to it for the purpose of ventilation, and on the following day they altered the course of their combs, and constructed them from north-west to south-east. I afterwards closed up the entrance in the side box and they resumed their original course, from south-west to north-east, and undid a considerable portion of their immediately previous course, throwing an arch as a support where the courses changed. In making their combs last year they covered nearly 2 inches long by rather more than 1 inch broad, on the glass windows before they discovered that the glass was a greater conductor of heat than the matting, but they soon withdrew all the wax, and formed arches supported on each side of the windows, to secure the combs in the most perfect manner. It has been stated that bees could never be seen at work in forming combs, but I have been fortunate enough to witness mine repeatedly, and for four or five minutes at a time carry on their labours without paying any attention to my having opened the window on the north side. I have seen them extract the small fragrants or rather scales of wax from under the wings of the bees on which the wax was formed, and observed them carrying the scales and applying them to form the cells; and I have often seen them unload others of the pollen and deposit it in the places prepared for its reception. I am now satisfied that bees require very little attention to render them profitable, dryness being evidently the most essential object to preserve them in the best health. It is my intention to repeat my experiments in making artificial swarms during the ensuing season, and shall communicate the result.—*John Grant, Woolwich.*

The Nuthatch (Sitta Europæa).—This, on account of its habits and diet, is deservedly a welcome visitor to our gardens. It belongs to the family of woodpeckers or creepers, and is about the size of a hedge-sparrow. It is tolerably plentiful in some parts of the eastern counties, but is unknown in the west of England. It is not met with either in Ireland or Scotland, although it is found in more northern latitudes on the Continent. As it lives chiefly on insects, it cannot be want of proper food that keeps it from certain districts, other birds nearly related to it being met with in Scotland. Even the jarring noise, and the hollow notes of the green woodpecker, are heard as far north as the Falls of Foyers Moreover, the nuthatch is very hardy. In the depth of winter, when hardly a chirp is heard from any of the feathered race, it will utter its notes, sounding like pick-chick-a-wick, repeatedly, and make a tapping noise while striking forcibly with its beak upon a nut placed in the chink of a branch. Hence its name of nuthatch or nutjar. It is a question whether this bird cracks nuts for the sake of the kernels, or for the insects or grubs which they may contain. It certainly does not store up nuts as some assert, or pilfer them from bushes, but merely picks up those laying about; and it is probable that in mid-winter or early spring such nuts are more likely to contain insects than kernels. The description given of the bird in the "Museum of Animated Nature" is correct. "The plumage above is of a fine blue gray. The quills and base of the tail feathers, except the two middle ones, black; the outer tail feathers on each side have a black spot near the tip; a black band passes from the bill through the eye down the sides of the neck, ending abruptly near the shoulders. The throat is whitish, the rest of the plumage blue brown, blending with chesnut on the flanks; the bill and feet are black; iris, hazel; sex alike." It has only two toes before, and one behind. It receives no support from its tail, when climbing, unlike others of its kind; consequently it cannot ascend trees so fast as they can, but it can twist about the latter in all sorts of ways, and even descend rapidly, head foremost. The most remarkable peculiarity of the nuthatch is its singular mode of plastering up with clay, and thereby lessening the entrance to its nest in an aged tree, from which the French call it, *Pic Maçon*, or mason bird. During the past spring, my attention was attracted to a nest of this bird in the hollow of a tree, the entrance to which was so plastered up as to leave only just room for the bird to go in and out. The plaster seemed to have been at first smooth, and afterwards picked full of small holes, as if the bird was sensible that a rough surface would be less liable to crack. Some are of opinion that this plan is adopted to keep the young from falling out, but as the bird sits closely, I imagine that it is intended rather for its own preservation during the time of sitting. Some evidence of this may be found in the fact that, when to get at the nest speedily I sawed off the projection with the plastered entrance, the bird sat quietly all the time, and remained after the nest was exposed; she even allowed me to take her off and replace her on the nest, and sat quietly on the nest while I nailed the stump on again. There were six small white eggs, with brown spots, in the nest, fresh laid, so that the extraordinary tameness of the bird did not proceed from long sitting. I took away three of the eggs, and found seven more on a second inspection. The nest was not made of dry leaves, which the work above quoted asserts that bird employs for its nest, but of the fine smooth bark of the Scotch Fir; some of the pieces of bark were large enough to be mistaken for dry Beech leaves. From other observations respecting the nuthatch, it does not appear to be a shy bird, though some maintain that it cannot be tamed; Sir W. Jardine mentions a good instance to the contrary. Therefore a correct judgment could not be formed of its real habits from observing the freaks of an old one confined in a cage.—*J. Wighton, Norwich.*

Ulcers in Fir Trees.—In the county of Hants, and on the estate of Sir G. T. Gerris, situate about four miles from Christchurch, and consequently contiguous to the sea, stands a plantation of Firs, Larch, and Scotch intermixed. What the age of the trees may be I know not, as the facts I am about to relate are from observations made during a few casual rambles through the plantation in the winter of 1841. But, from their appearance, I should suppose them to be sixteen or eighteen years old. On entering the plantation the most casual observer would not fail to be struck by the black ulcerated appearance of the Scotch Firs. They are affected, with scarcely an exception; while their companions—the Larch—are *vice versa*, offering scarcely a diseased subject. On examination, the trees seem to have grown to half their present size unaffected by the disease which now so disfigures them; after which, as if some ulcerating matter had entered the tissues of the tree and there engendering itself, had destroyed the woody layers and tissues of the trunk, producing the black unsightly ulcers above alluded to. The last layer of wood formed previous to the breaking out of the disease is sound and firm, and has the appearance of wood stripped of its bark and left to dry in the sun and air. But every layer formed subsequently has been destroyed in the vicinity of the first appearance of the ulcers (I call them ulcers as not being similar to canker in fruit trees), which as successive seasons furnished its stratum of tissues, the diseased matter extended itself till, in some instances, wounds six inches in diameter, and in others extending the whole circumference of the tree, have been produced. When the latter has been the case (and the instances are by no means rare) the accumulation of the trunk and branches above the diseased part, previous to a complete circle of the wood being destroyed by the disease, has been so great, and the original and unaffected portion been so small in comparison, that the wind has broken the tree in two at that part, and left a headless trunk to tell the tale. The annexed woodcut will convey some idea of the way in which the trees are affected. Around these ulcers the secreted juices of the tree have oozed and collected. The volatile portions have evaporated, & large lumps of pure resin remain collected round the wounds, like old and dry sores. The wounds can be found in almost every stage, from the first outbreak of the little running ulcers (which, of course, in the present age of the trees, commence near the tops) to the old and spreading sore which has caused the destruction of the tree.—*Pinus Sylvestris.*



Peaches and Vines, to grow together.—I have a range of hothouses 300 feet in length and 15 feet in width, that were formerly divided with six partitions, and heated by the common flue system. Four divisions contained Peaches, and three Vines, alternately; the flues and partitions, except one, have been removed, the latter dividing the whole length in two, one portion comprising 200 feet, the other 100 feet, each being heated with hot water from two boilers, the long house having 4 inch pipes, the short one 3 inch pipes. The whole range is filled with Peaches, Nectarines, and Vines of different sorts, the latter comprising Hamburghs, Muscats, Frontignans, Sweetwaters, &c., all in full bearing, and most of them old trees, covering the whole roof alternately with Peaches and Vines, just as they occurred before the partitions were taken down. All are subjected to the same treatment in regard to heat and air, &c., and the whole house is loaded from one end to the other with a fine crop both of Peaches and Grapes, the Peaches nearly ripe, as they have always been in May, the Grapes coming in in June. The boilers are placed in the centre of both houses, and it so happened that Peaches are nearest both fires, and of these the four Peach trees in the hottest situation do the best, and produce the finest fruit. They are all, however, very fine. I keep the temperature from 60° to 70°, and commence forcing so as to have the Peaches in bloom by the 1st of January.—*Q. V. Z.*

Gardeners' Troubles.—Among the numberless vexations to which we poor gardeners are subjected, few are more annoying than having one's choicest Grapes totally spoiled in being dished up for dessert by the awkward, careless, or malicious handling of a fine lady house-keeper, or a greasy cook. You, Mr. Editor, who can appreciate the pride with which a devoted gardener regards his choicest productions, might easily imagine what a man feels when he sees the beautiful fruit which has cost him months of unremitting care to bring to perfection—noble bunches and noble berries, blooming as a newly gathered Plum—ruthlessly diverted of a shoulder by the aforesaid personage, for her own private tooth, or that of one of her fashionable friends, or, peradventure, mauled like a piece of raw meat, till not a particle of bloom remains upon the fruit, and thus sent to his employer's table much in the same state as if they had travelled from Portugal packed in sawdust. The fantastical taste of some of these ladies, too, would amuse, if less annoying. I once saw a London housekeeper who had the arrangement of a large dessert at a private fête, cut a hole in the crown of a fine Melon, and then she cut a shoulder off a fine bunch of Grapes, and stuck the piece into the hole in the Melon! thus disfiguring two handsome fruits to make one ugly monstrosity. Nor is it Grapes alone that suffer from the prigging propensities of the persons I am alluding to; for many a time the finest Peach, Plum, or Pear, graces the housekeeper's cupboard instead of the master's table, for which it was intended. Having seen some service in gentlemen's families, I can speak from experience on this subject, and therefore so far as may be to prevent such practices, I would suggest that gardeners be in all families authorised to dish up their own fruit. Not that I would sanction the interference of the gardener in the planning or arrangement of the dessert, which is strictly the housekeeper's province; I would merely allow him to place upon the dishes all the fruit of his own producing which the housekeeper might require to make up such dessert. This arrangement would prevent many heart-burnings, and would enable gentry to see their fruit in the state in which it ought to appear.—*Visitator.*

Wireworm and Mustard Seed.—I beg to inform "M." that white Mustard-seed sown on the land is no cure for the wireworm. I have now a field of Barley suffering from the attacks of that pest where white Mustard was sown last summer. The most effectual remedy I know is 1½ cwt. of soda-ash applied broadcast, on an acre of land. The following memorandum may be interesting. Mr. Palmer, M.P., read at a late meeting of the Farringdon Agricultural Association extracts from a letter on the use of soda-ash for killing wireworm, as follows:—"The way I use soda-ash is to sow it broadcast; I have never found it fail. The last year I had a failure of Beet-carrots, which I attributed at the time to the season, but upon examining the soil carefully I found wireworm. As it was to be Wheat this year, and my last sown Wheat, I mixed it with soda-ash. It is now growing faster than any Wheat upon the farm, and not a blade missed. Until I adopted the use of soda-ash, I suffered sometimes to the amount of 60*l.* in a field. The discovery was accidental; I had sown a headland with it as a fertiliser, on the principle laid down by Sir H. Davy that all alkalies were stimulants to plants: it certainly improved the crop, but upon the whole I considered it a failure. The following spring it was Turnips, and a man hoeing them asked me if anything particular had been done to the headland? I asked him why? He said there was not a plant attacked by wireworm, and the rest of the field had 15 at a nest. I then determined to try it upon another field which was full of wireworm; I have never seen one in it since. In the following year I had 25 acres of Oats attacked most generally. I happened to have a cask by me, and ordered it to be sown. From that day the ravages ceased, and within a week the whole field had changed its colour to a vivid green. I have since ceased to consider it as an experiment, and always have a cask by me ready in case of any appearance of the wireworm and have not a patch as large as my hand from wireworm on my farm." It may be applied broadcast on a fallow, with the seed, or on the growing crop, at the rate of 1 cwt. per acre; and in addition to its effect on the wireworm (which are found to be kept off by it for three years), it invariably acts as a good fertiliser. As it is a very powerful alkali, gloves must be worn by the person sowing it, to prevent any injury to the hands."—*F. R. L., Andover.*

Canker and Brown Scale.—The following communication on the canker in fruit-trees and the brown scale has been handed me by an intelligent gardener in this place, who has had considerable experience in the matters to which it refers, and who desires me to trans-

mit it for insertion in the hope that it may tend to direct attention to the subject:—"The canker, as it is called, in fruit-trees I have invariably observed to be occasioned by external injuries, either from insects or otherwise, causing stoppages in the flow of the sap, and thus creating ruptures or cracking in the bark; and not by anything in the sap itself, proceeding from roots reaching the subsoil, as is most generally supposed. The insect I find to be generally the cause of the disease is equally destructive wherever I have seen it gain admittance to the bark—Pears, Apples, Cherries, and Geans, all suffering alike from its ravages. I have never yet been able to detect the insect in the winged state, although the caterpillar is easily found at all seasons. It is, I may remark, evidently distinct from the caterpillar which commonly infests the leaves of fruit-trees, and when picked out of the holes or burrows which it makes in the inner bark of the tree, it allows itself to fall gently down by means of its fine silk thread, as is the manner of most small caterpillars. I have found the following cure successful in exterminating this pest. With a sharp knife scrape off all the dead part of the bark of the diseased parts of the tree in the wood, leaving the mouth of the wound clean and neat all round; if this is done it will immediately begin to close round about, and heal. Another mode of cure I have found also very successful is as follows:—Over a gentle fire mix the following ingredients in the quantities given: viz., tobacco water, 4 pints; train oil, 7 gills; soft soap, 1 lb.; turpentine, 1 gill; nux vomica, 1 ounce; flower of sulphur, 1 lb. When this has become like thin paint, brush it well into the insect-burrows in the bark, and it will assuredly kill all the small insects it may meet. In large trees, however, it is sometimes scarcely possible to anoint the tree so well but that some will escape to appear in the following spring (which circumstance causes many persons to consider such applications of no use); but by applying the mixture carefully in the spring or the fall of the year, when there is no foliage on the tree (for it must be borne in mind it is hurtful to the foliage), the numbers will be greatly diminished, and this is the end in view so far gained. The brown scale is another enemy of the orchard, its attacks being not confined to the greenhouse and hothouse, but extending to the Apple, Pear, Plum, Peach, and Apricot trees out of doors. Eradication of this pest is peculiarly difficult; for the female insect, after having deposited her eggs, forms an almost impenetrable shield to them by her own body. Scarcely anything short of scraping the bark will remove it. Where, however, this is inconvenient, or the disease too far extended to allow of scraping being done with safety to the tree, there are various remedies resorted to, such as washing with tobacco water, soft soap and water, lime water, &c., all destructive of insect life. Vegetable solutions will seldom be found injurious to trees; but mineral washes are generally much so, and often dangerous; lime water is, however, an exception. I have tried it often and found it harmless to vegetables if administered sparingly, although most destructive to insects. It is, however, not an easy matter to get any application to bear upon this pest, from the circumstance I have already stated, of the female covering the eggs closely with her own body after being deposited. If applied in spring, however, when the young begin to be locomotive, the lime water will generally be found to be successful. I may remark that in the spring the insect may be seen by the aid of a pocket microscope moving along the branches. A second application may be made after the leaves have expanded; this may destroy such individuals as may have escaped the first anointment, and thus prevent them injuring the young wood. The lime water will not hurt the leaves if carefully applied."
—*George Lawson*, 108, *Hawkhill, Dundee*.

Societies.

HORTICULTURAL SOCIETY OF LONDON.

The first of the Annual Series of Exhibitions in the Chiswick Gardens took place on Saturday last. The weather was most propitious, and the exhibition perhaps the best that has ever graced the gardens. It was inspected by H. R. H. Prince Albert at an early hour, and 1841 Fellows and their friends passed through the gates. As the general features, however, of this wonderful display appear in a Leading Article in another column, we proceed at once to describe the scene in detail, commencing with the large collections of 40 Stove and Greenhouse Plants. Here the competitors were Mr. Robertson, gr. to Mrs. Lawrence, of Ealing Park, and Mr. Barnes, gr. to G. W. Norman, Esq., of Bromley. The Large Gold Medal on this occasion was awarded to Mr. Robertson. The collection was composed of large and altogether fine specimens of cultivation. At the back stood a beautiful plant of the purple Azalea phœnicea, and supporting it were Epacris grandiflora, 3 feet in height, and nearly as much in diameter; Eriostemon myoporoides, about 5 feet in height and 4 feet in diameter; two immense bushes of Chorozema varium; a Hardenbergia macrophylla, closely covering an upright cylindrical trellis, about 6 feet in height; two fine specimens of the showy Pimelea spectabilis; and a luxuriant Statice macrophylla, producing three flowering spikes not quite in beauty. Associated with these were Eriostemon buxifolium, about 2 feet in height and as much through, thickly studded with little white stars; immense bushes of Pimelea decussata; and P. hypericifolia; the latter covered with little tufts of white blossoms; a very luxuriant Clerodendron Kæmpferi, and a Gnidia pinifolia, about 2 feet in height, and 3 feet in diameter, perhaps the finest plant of the kind over exhibited. The group contained, moreover, a tall Eriostemon cuspidatum, Zichya inophylla floribunda, trained over a circular trellis; a somewhat naked, but well bloomed plant of Leschenaultia Baxteri; a handsome L. formosa; a small, but neat Hovea Celsi, in fine bloom; and the curious yellow-flowered Anthocercis littorea, with a splendid Boronia pinnata, covered with multitudes of pink star-shaped flowers. In front were Acrophyllum venosum, a pretty little plant with numerous whorls of yellowish-white flowers; Chorozema Hendersoni, trained over a wire trellis; Podolobium staurophyllum, a mass of bloom; Gastrolobium spinosum, a fine plant covered with multitudes of Chorozema-like flowers; a neat well-bloomed Daviesia Fraseri; and a luxuriant growing plant of the scarlet-flowered Siphocampylus coccineus. Of Azaleas, in addition to the centre one, the collection contained a finely-grown, but thinly-bloomed specimen of lateritia, a lovely variegata, about 2 feet in diameter, and the same in height; a fine plant of the yellow-blossomed sinensis; and a large indica alba. Of the genus Erica, we remarked a large intermedia, well bloomed; a good Cavendishii, not quite in perfection; two fine specimens of persoluta alba, about 5 feet in height, literally masses of white blossom; and a good vestita alba, richly ornamented with whorls of white flowers.—Mr. Barnes's collection consisted too much of Azaleas and Heaths; but in addition to these it also contained other plants remarkable for fine cultivation. In the centre, at the back of the stage, stood a noble white Indian Azalea, and supporting it were Epacris grandiflora, a large plant in fine health; an immense specimen, 3 feet in height and 4 in diameter, of Phænocoma prolifera, and a famous Aphelexis vestita. Other remarkable plants were Eriostemon buxifolium, hardly sufficiently in bloom; Polygala oppositifolia, 4 feet in height, and a mass of blossom; an excellent Podolobium staurophyllum, covered with flowers; a pretty Pimelea Hendersoni, 2 feet in height and the same in diameter; Daviesia latifolia, trained on a wire trellis, with the lateral branches hanging gracefully, and loaded with flowers; a neat plant of Acrophyllum venosum, with flower spikes 4 inches in length; and a famous plant, well bloomed, of the larger flowered Aphelexis purpurea. In the same group were Leschenaultia formosa, in capital condition as regards health, but insufficiently in bloom; a fine bush of Boronia denticulata, 3 feet in height, and as much in diameter; Dillwynia clavata, trained hemispherically, and a good Polygala cordifolia. Of Azaleas, the collection contained two finely bloomed plants of Smith's coccinea, a beautiful plant of splendens variegata, 5 feet across and 3 feet in height, studded with bloom; a good specimen of the double red, triumphans, loaded with brilliant rosy pink blossoms of large size; a low spreading bush of Gledstanesii, macrantha purpurea, a mass of bluish-purple flowers, a large variegata studded with blossoms, and two fine plants of the brilliant red-flowered lateritia, together with a fine specimen of A. sinensis. The group comprised from the genus Erica, a fine plant of grandinosa, 4 feet in height and 3 in diameter; a Hartnelli of similar dimensions, and finely in bloom; a large and fine intermedia; Thunbergia, 3 feet in height and as much across, covered with small orange flowers; two pretty plants of Cavendishii, and one of vestita alba; a large ventricosa tricolor, not sufficiently in bloom; a good favoides elegans, and a small but well grown depressa.

Collections of 20 Stove and Greenhouse Plants were contributed by Messrs. Fraser, of Lea Bridge-road, and by Mr. Hunt, gr. to Miss Traill, of Bromley. In the former group were some very remarkable examples of first-rate cultivation. Of these may be mentioned an immense bush of Pimelea linifolia, 4 feet in height, and upwards of 5 feet in diameter; a large P. lanata, and a remarkably well-grown P. spectabilis, the latter hardly sufficiently in blossom; along with these were Eutaxia pungens, a tall and fine Daviesia latifolia, a small Erica suaveolens, covered with whorls of lilac blossoms; a large but thinly-bloomed purple Azalea; Franciscea Hopeana, loaded with white and blue flowers; and a beautiful Aphelexis humilis. In the same group were also Zichya villosa, 5 feet in height; an admirably grown Podolobium staurophyllum, a finely bloomed Azalea lateritia, and an excellent Chorozema Henchmanni, 4 feet in height, and 3 feet in diameter. The collection, moreover, contained Polygala acuminata, a splendid specimen of the yellow-blossomed Erica campanulata, a pretty Boronia pinnata, an immense bush of Epacris grandiflora, and two Azaleas. In Mr. Hunt's group was a famous Gompholobium polymorphum just coming into bloom, covering beautifully a shield-formed trellis of large dimensions; a pretty little plant of the best variety of Erica aristata, a good Boronia serrulata, a large and fine Pimelea decussata; Azalea variegata, 2 feet in height and 3 feet in width, literally a mass of flowers: Erica Hartnelli, 4 feet in height and the same in width; a white Indian Azalea, a small Leschenaultia formosa, and a very fine Erica perspicua nana, covering the pot, together with a tall Ixora coccinea, having 14 heads of bloom, and a very fine Azalea lateritia, measuring 4 ft. in height and about 3 ft. in width. Along with these were a small Pimelea hispida, an immense spectabilis, at least 5 feet in diameter, hardly enough advanced in bloom; Zichya villosa, covering a wire trellis; a small but fine Aphelexis humilis, and a lovely Tropæolum grandiflorum. The collection, moreover, contained an exceedingly fine Azalea splendens; a pretty Hovea Celsi, Dillwynia splendens, and a large Eutaxia myrtifolia.—Of 12 Stove and Greenhouse Plants, there were six collections; that contributed by Mr. Green, gr. to Sir E. Antrobus, Bart., was the best. It contained a blue Leschenaultia, and a pretty L. formosa, Pimelea Hendersoni, a very fine large Azalea Gledstanesii, a pretty plant of the Heath-leaved Dillwynia, Hovea Celsi in lovely condition, an Ixora coccinea, a splendidly grown Aphelexis humilis in fine bloom, and a pretty Boronia serrulata. Along with these were, moreover, Eriostemon buxifolium, not sufficiently in bloom, the yellow-flowered Gompholobium splendens, and Epiphyllum rubrum cæruleum, the latter quite a mass of flowers. The next group in point of merit was produced by Mr. Ayres, gr. to J. Cook, Esq., of Brooklands, Blackheath. In this collection we remarked a good Pimelea decussata, a famous Leschenaultia formosa, Erica Hartnelli in fine condition, a large finely grown Pentas carnea, and admirably managed plants of Ixora crocata and coccinea. In addition to these were, moreover, the excellent Stephanotis floribunda, noticed on a former occasion, a pretty little Boronia serrulata; a fine plant of the large flowered variety of Aphelexis spectabilis; large well grown plants of Polygala oppositifolia and Begonia coccinea, and a most beautiful dwarf compact Azalea, composed of 3 varieties, lateritia, Gledstanesii, and variegata, inarched on one stock, the various coloured flowers with which it was studded contrasting finely with one another. A third group came from Mr. Bruce, gr. to B. Miller, Esq., of Colliers Wood, Lower Tooting, who contributed an admirable Aphelexis sesamoides, beautiful plants of the red and blue flowered Leschenaultias, a good Chorozema varium, Stephanotis floribunda, in lovely condition; a famous Erica propendens, covered with little pink bells; and a fine plant of Chorozema varium. In the same group were also a small Boronia pinnata, Gompholobium polymorphum, trained over a wire trellis; an Epiphyllum, and a splendid plant of Aphelexis humilis, and another of Adenandra speciosa, the latter forming a complete ball of flowers, nearly 3 ft. in diameter.—Mr. Slowe, gr. to W. R. Baker, Esq., of Bayfordbury, sent a large spreading white Azalea, a good Vinca rosea, Pimelea spectabilis, a good plant, but badly coloured; a pretty Leschenaultia formosa, Chorozema ovatum, an Aphelexis humilis, Polygala oppositifolia, and a small but good Boronia serrulata. Other collections of nearly equal merit came from Mr. Epps, of Maidstone, and Mr. Pamplin, of Walthamstow. In Mr. Epps's group we remarked a small but pretty Aphelexis spectabilis grandiflora, a small Siphocampylus coccineus, a large Begonia coccinea, two small plants of the red Ixora, Erica Hartnelli, large plants of Chorozema varium, and Pimelea decussata, the latter bare at the bottom; a very fine Tropæolum tricolor, trained over a circular trellis; Eutaxia myrtifolia, and a small Boronia serrulata. Mr. Pamplin's group contained a large Coleonema gracilis, the beautiful purple-flowered Crotolaria elegans, a plant well deserving of more extensive cultivation; a good Corræa ventricosa, a famous plant of Prostranthera violacea, Epacris grandiflora, a good Adenandra speciosa, a small Chorozema Dicksoni, an Azalea, and a somewhat bare Pimelea linifolia.—Of 6 Stove and Greenhouse Plants, there were no fewer than 11 collections, all of them highly creditable to the contributors. The group to which the first prize was awarded was from the garden of W. Block, Esq., Muswell-hill; it contained a good Aphelexis humilis, an Ixora coccinea, a large Tropæolum tricolor, a Genista, Boronia serrulata, and a good Chorozema varium. Mr. Catleugh, of Chelsea, produced a well-grown Lantana mutabilis; Euphorbia splendens, in fine condition; a capital Statice arborea; a small, but good Pimelea spectabilis; a pretty Chorozema varium, and a well grown Gardenia radicans. Other six plants from Mr. Carson, gr. to W. F. G. Farmer, Esq., of Nonsuch-park, Cheam, were a large Epacris grandiflora; Hardenbergia monophylla; a large Pimelea decussata; a standard Azalea Gledstanesii; a good Polygala oppositifolia; and a pretty Tropæolum tricolor. In addition to these, Mr. Malyon, gr. to J. Brandram, Esq., Blackheath, sent a small, but well bloomed Epacris pulchella, Azalea Woodsii, a good Leschenaultia formosa, and a pretty Erica ventricosa prægnans. Mr. Cooper, at Mr. Paxley's, Bromley, produced Erica intermedia, a tall Coleonema pulchra, good plants of Euphorbia splendens and Pimelea spectabilis, and a fine Tropæolum tricolor. From Mr. Taylor, gr. to J. Costar, Esq., of Streatham, were a white Azalea, Boronia serrulata, a pretty Erica propendens, a beautiful Azalea lateritia, and a good Aphelexis humilis. Mr. Jack, gr. to R. G. Loraine, Esq., of Wallington Lodge, Surrey, sent a famous Chorozema Dicksonii, a small but neat Gnidia pinifolia, Aphelexis humilis, a capital Achimenes picta, the yellow-blossomed Erica sulphurea, and a well managed Polygala cordata. Another group of six plants came from Mr. Stanly, gr. to H. Berens, Esq., of Sidcup, Kent. These were Zichya inophylla, the beautiful Aphelexis sesamoides, the large-flowered variety of Tropæolum tricolor, a somewhat bare plant of Gompholobium polymorphum, and a Boronia serrulata, with the branches trained downwards. Other collections inferior to the above in point of merit were produced by Mr. Poole, of Leyton, Essex, by Mr May, of Woodford, in the same county, and by Mr. Hill, gr. to P. Davies, Esq., of East Acton. In these groups were good plants of Leschenaultia Baxteri, the pretty purple flowered Crotalaria elegans, not often seen in collections; a fine Hardenbergia monophylla, Pimelea decussata in fine condition, and a well-grown Epacris grandiflora.

The collections of Orchids though numerous, were scarcely so rich in large and fine plants as we have

seen them in former years; we must, however, except a single specimen from the garden of Sir George Staunton, of Cyrtopodium punctatum, which was probably the largest and finest plant of the kind ever exhibited. It could hardly have been less than 7 feet in height, and quite as much in diameter, the large spreading Palm-like branches hedged in by a circumvallation of blossoms, which appeared in the highest colours and in quantities innumerable. This noble plant, equalling in beauty and luxuriance the native specimens, was an object of general admiration, and reflected the highest credit on Mr. Scott, Sir George Staunton's gardener. It was rewarded by a Gold Banksian Medal, the largest prize ever given for a single plant. For rare Orchids, a large Silver Medal was awarded to Mr. Hammond, gr. to the Rev. J. Clowes, of Broughton Hall, near Manchester, for Oncidium phymatochilum, and a Silver Knightian to Messrs Veitch and Son, of Exeter, for a new species of Saccolabium. Three collections of 20 species were exhibited, and on this occasion the large Gold Medal was awarded to Mr. Robertson, gr. to Mrs. Lawrence, of Ealing Park. In this group we remarked a fine Saccolabium guttatum, with 9 pendent racemes of purple blossoms; the well-known Stanhopea grandiflora; the curious Cycnoches ventricosum; a large Dendrobium cupreum, with buff blossoms having a dark spot in the centre; D. macrophyllum, producing one strong flower spike; the gracefully drooping Oncidium divaricatum; and a large and fine Dendrobium fimbriatum; together with the curious brown-streaked Vanda cristata, and a good plant of the rare Barkeria spectabilis. In the same group were also a tall Oncidium luridum, with 6 fine spikes of dingy flowers; a splendid Dendrobium densiflorum, having 11 large drooping clusters of yellow blossoms; Oncidium ampliatum, with 3 spikes of yellow flowers; the pretty Saccolabium præmorsum, and the handsome Aerides affine; Dendrobium secundum and two plants of D. aggregatum. The next group in point of merit was contributed by Mr. Mylam, gr. to S. Rucker, Esq., of Wandsworth. In this were Oncidium pulchellum, with 5 spikes of delicate pink flowers; Lycaste tyrianthina, having 2 flowers something like those of Maxillaria Harrisoniæ; the beautiful Saccolabium præmorsum, with 6 spikes of purple blossoms; a large and fine Acanthophippium bicolor; the rare Chysis bractescens, in lovely condition, and a most beautiful Cypripedium barbatum. In the same group were, moreover, a large Dendrobium fimbriatum, in fine bloom; Epidendrum cochleatum, with 5 flower spikes; a splendid Oncidium, with 14 spikes of blossoms; Lycaste Deppei, producing upwards of 50 flowers; a splendid Saccolabium guttatum, with 8 drooping racemes of purple blossoms; the sweet-smelling Lycaste aromatica, together with Dendrobium densiflorum, with 5 spikes, 3 of which were scarcely in bloom; D. moschatum, and a tall Oncidium roseum. The third group was produced by Messrs. Rollisson, of Tooting; it contained among other things a fine Phaius bicolor, the rare Burlingtonia rigida, the pretty red-flowered Broughtonia sanguinea; Myanthus cernuus, with spotted green blossoms; a small specimen of the showy Cattleya Mossiæ, and a good Brassia maculata, together with the curious Bifrenaria inodora, with Lycaste-like flowers; the larger variety of Oncidium ampliatum, the dull yellow-flowered Brassia Lawrenceana, and an Acanthophippium bicolor. From the same collection were also Rodriguesia planifolia, with drooping spikes of pale green blossoms, the rose coloured variety of Epidendrum microchilum, E. variegatum, and a pretty Oncidium divaricatum. Collections of 12 were numerous. That which gained the first was from the garden of C. B. Warner, Esq., of Hoddesdon. It contained a small specimen of the beautiful Dendrobium nobile, Epidendrum crassifolium, Cœlogyne cristata, Catasetum purpureo-fuscatum, a fine Calanthe veratrifolia, with 6 spikes of snow-white flowers, Oncidium flexuosum, in creditable condition; O. sphacelatum, with five flower-spikes; Maxillaria tenuifolia, with chocolate flowers; and a small pretty Dendrobium moniliforme. In another group from Mr. Carson, gr. to W. G. Farmer, Esq., we remarked Huntleya violacea, with curious shell-like flowers; a good Gongora maculata, with long pendent chains of brown blossoms; the larger variety of Brassia maculata; a Dendrobium densiflorum, with six spikes of yellow blossoms; a good D. pulchellum; a beautiful Cattleya intermedia, with three flowering spikes; and two species of Epidendrum. Other collections of 12 came from Messrs. Veitch, of Exeter; from Mr Plant, gr. to J. H. Schroder, Esq.; and from Mr. Hunt. Among these we remarked the rare white-flowered Phalænopsis amabilis; a fine Calanthe veratrifolia, with 10 flower-spikes; the showy Cattleya Skinneri; Dendrobium densiflorum, with six gracefully drooping racemes of yellow blossoms; a fine plant of Maxillaria Harrisoniæ; a beautifully coloured Oncidium divaricatum, in fine condition; the charming Aerides crispum; a large Dendrobium calceolaria; a good Cypripedium barbatum; and a fine Oncidium ampliatum majus, with eight flowering spikes. Groups of six plants were produced by Mr. Eyles, gr. to Sir G. Lampet, Roehampton; and by Mr. Green, gr. to Sir E. Antrobus, Bart. In the former set were Vanda Roxburghii cærulea, with spotted-green petals and light blue lip; a good Oncidium luridum; the singular Coryanthes macrantha, with large chocolate spotted blossoms, and a capital Oncidium altissimum. Mr. Green had a fine Cymbidium aloifolium, with seven long drooping spikes of brown and buff flowers; an excellent plant of the Indian Phaius Wallichii, with 10 flower-spikes; Calanthe veratrifolia, having five spikes of white flowers; and a pretty Gongora atroperpurea. Finally, a specimen of the green-veined Chlorea virescens, one of those beautiful terrestrial Orchids inhabiting the subalpine pastures of the Cordilleras of Chili, was exhibited by Mr. Cameron, of the Birmingham Botanic Garden; and the larger variety of Oncidium ampliatum, by Mr. Dobson, gr. to Mr. Beck.

Collections of AZALEAS were numerous, and the plants, being large and finely in bloom made a most brilliant display. From Mr. Green, whose group demands our first attention, were exquisita, a very distinct variety, with delicate pink blossoms edged with white; Jenkinsoni, lilac; speciosissima, very fine; eximia, bright red; a fine plant of variegata; the yellow-flowered sinensis; Smith's coccinea, 6 feet in height, and a mass of blossom; triumphans; a fine plant of lateritia, thickly clad with blossoms at the top; a rather thin plant of alba multiflora; Georgiana, lilac; and Conqueror, rosy pink.—Mr. Falconer, gr. to A. Palmer, Esq., of Cheam, had a collection scarcely less interesting; it contained Rawsoni, Palmeriana, excellent plants of lateritia and variegata, a large Gledstanesii; Theresa, small bright rose; Agnesii, fine crimson; Emmeline, and a tall plant of Danielsiana.—Another group from Ealing Park contained fine specimens of coronata, splendens; optima, a bright red variety; Rawsoni, bluish purple; variegata, rosea superba, fulgens, double red; speciosissima, very fine rosy pink; and a good Gledstanesii.—Of 6 plants Mr. Barnes produced splendens, 2 feet in height and 4 feet in width; a fine plant of Smith's coccinea; a capital lateritia; sinensis, speciosissima, and purpurea superba.—Mr Bruce sent beautiful plants of Gledstanesii, lateritia, fulgens, single white, and double red.—From the Lea bridge-road Nursery, Messrs. Fraser sent phœnicea; fulgens, a very bright blossomed sort; triumphans, rosy pink; Fielder's white; purpurea superba, bluish purple; and sinensis.—Another group, containing small plants came from Mr. Smith, of Norbiton.

Collections of CAPE HEATHS were very numerous, and presented a fine display; but there was a want of diversity among them, the various groups containing nearly the same species. In Mr. Hunt's collection we remarked a pretty odore rose; the little pink-blossomed ovata; the lilac-flowered suaveolens; Sprengelii, a variety something in the way of Hartnelli; a large plant of one of the numerous varieties of ampullacea; a beautiful little depressa; Hartnelli, 4 feet in height and about the same in diameter; and an equally large specimen of gemmifera. In the same group was also a pretty little plant of elegans; Westphalingia, ornamented with numerous bright rosy tubes and a lovely little aristata major. In the collection from Ealing park, were vasiflora, a small pink flowered sort; gelida, with greenish-white blossoms; the lovely pink-flowered propendens; trossula a beautiful variety, with small white flowers; several varieties of ventricosa; a good plant of splendens; and a beautiful purpurea, with drooping yellow flowers.—Mr. Taylor, gr to J. Costar, Esq, of Streatham, sent, among others, the neat white-blossomed nigricans, grandinosa, covered with little hail-like blossoms; Bergiana, loaded with little pink bells, and Macnabiana, a good and rather scarce variety. In the excellent group contributed by Messrs Fairbairn of Clapham, we remarked dilecta, a sort something in the way of mundula; the pretty little yellow blossomed denticulata moschata; the beautiful vestita rosea; Wilsoni, a good and scarce variety; the bright rosy-blossomed metulæflora and Beaumontia, the latter densely covered with small lilac bell shaped flowers. From the Tooting nursery, Messrs. Rollisson sent the curious Halicacaba, favoides purpurea; nivea; a fine grandiflora; a pretty variety of jasminiflora, and a beautiful fimbriata. In the group of twelve Heaths contributed by Mr. May, of Bromley, were some remarkable plants, especially Hibbertiana, in fine condition; the larger variety of aristata major; the pretty white flowered mirabilis; fastigiata bractescens, in capital order, and a pretty depressa. A second collection came from Mr. Green, and a third from Mr. Plumbly, gardener to J. Dimsdale, Esq; the latter group contained a large translucens mucronata, with small lilac flowers; vestita fulgida, a bright red flowered variety; florida campanulata, and a good hybrida. Mr. Ayres contributed rubra-calyx, in fine condition; a small ventricosa tenuifolia; the pretty denticulata moschata, covered with yellow flowers, and a lovely propendens. In the Nurserymen's Class the best group was exhibited by Messrs. Fraser, of Lea-bridge, and contained fine plants of mundula, intermedia, and Hartnelli, the latter hardly sufficiently in bloom. Other exhibitors in this class were Messrs. Veitch, Epps, and Pamplin; but in these groups we did not observe anything different from what we have already detailed, except a curious and very scarce variety among Messrs. Veitch's plants, named Pezza, producing numerous small round white waxy-looking blossoms. Collections of six species were numerous, and several fine plants were shown as single specimens. Of the latter may be mentioned a very large plant of E. vestita coccinea, in fine condition, from Mr. May; propendens 4 feet in height, and about the same in diameter, from Messrs. Fraser; and another equally large plant of the same species, from Mr. Pamplin. Messrs. Fairbairn, of Clapham, sent, moreover, a large vestita coccinea, and a lovely small specimen of ventricosa coccinea minor.

The ROSES in pots, although not so fine nor so numerous as we have seen them, attracted much attention. Among amateurs, Mr. Slowe was the only competitor. In this group of *Tea-scented* there were, Hymene white; Safrano, yellow; Bougère, rose; Triomphe de Luxembourg, large buff; Devoniensis, creamy white; and Caroline. Of *Bourbons*, Bouquet de Flore, deep carmine. Of *Chinas*, Napoleon, large blush; Mrs. Bosanquet, pale flesh; Triomphante, crimson; and Paris. In the Nurserymen's Class, Messrs. Paul and Sons, of Cheshunt, produced the best collection. Among them there were, of *Hybrid Perpetuals*, Clementine Duval, bright rose; Louis Bonaparte, rosy crimson; Lane, large deep rose; Aubernon, crimson; Madame Laffay, rosy crimson; Mrs. Elliott, lilac; Pauline Plantier; Antinous, purplish crimson; and Great Western. Of *Tea-scented*, Nina, Clara Sylvain, and Taglioni. Of *Bourbons*, Souvenir de la Malmaison, pale flesh; Bouquet de Flore, deep carmine; and Madame Nerard, delicate blush.—A second collection came from Messrs. Lane and Son, of Great Berkhampstead. It contained *Alba*—Blanchefleur, white, with blush centre. *Hybrid Perpetual*—Aubernon, pale crimson; Comte de Paris, pale blush; Madame Emma Dampierre, purplish red; Madame Laffay, crimson; Marquis of Ailsa, crimson; Mrs. Elliott, pale lilac pink; William Jesse, crimson tinged with lilac; Grand Capitaine, velvety, fiery crimson; Duc de Chartres, shaded carmine. *Tea*—Adam, glossy blush with salmon centre; Barbot, reddish rose with yellow centre; Hamon, blush, shaded with crimson; Mimi, rich cream; Moiré, pale yellow; Nisida, shaded buff; Triomphe de la Guillotiere, fawn; Triomphe de Luxembourg, buff and rose.—Mr. Francis, of Hertford, contributed among others, of *Tea scented*, Bougère, Melville, Safrano, Goubault, Caroline, Nina, and Mansais. Of *Hybrid Perpetuals* there were, Fulgorie, Duchess of Sutherland, William Jesse, Rivers, and Madame Laffay. Of *Chinas* — Clara Sylvain, Comte de Paris, and Gardenia. In addition to these the group contained Bourbon Queen, and Ponctué nouvelle, moss. Mr. Dobson, gr. to Mr. Beck, of Isleworth, contributed of *Bourbons*—Mrs. Bosanquet, Souvenir de la Malmaison, large, pale flesh; Queen, beautiful fawn coloured. Of *Perpetuals*—William Jesse, crimson, tinged with lilac; La Reine, glossy rose; Louis Bonaparte, rosy crimson; Madame Laffay, crimson; Princesse Hélène, deep purplish red; Comte de Paris, crimson, tinged with lilac. Of *Teas*—Comte de Paris, pale blush. Goubault, bright rose; Hardy, pale flesh, rosy centre; Taglioni; Belle Allemande. Of *Chinas*—Victoire d'Aumay, Henry V., and Fabvier; and of *Hybrid China*—General Allard, a rosy red, distinct and fine sort. A small group of *Roses* in pots was moreover produced from the garden of A. Rowland, Esq., of Lewisham. In this, we remarked Harrisonii, Rubens, Persian yellow, Rival de Posthume, and Marshal Villiers. Of *Single Specimens*, only one plant was sent, and that was Elise Sauvage, from Mr. Slowe. It was a fine plant, producing nine expanded pale yellow blossoms, with orange centres, which, united with a clean healthy foliage, rendered it an object of considerable attraction.

Collections of CACTI, in fine condition, were sent by Mr. Green, and by Mr. Robertson. Mr. Green's plants were Epiphyllum speciosum, the larger and smaller varieties of E. Ackermanni, E. Russellianum, a gracefully drooping variety with small purple flowers; the larger E. speciosum, E. Jenkinsoni, and a splendid Cereus speciosissimus. The most remarkable plants in Mr. Robertson's collection were Cereus speciosissimus, Epiphyllum Lawrenceanum, E. Ackermanni, and two of E. splendens.

As SINGLE SPECIMENS of superior cultivation a considerable number of plants were exhibited. Mr. Green sent a very large double red Azalea, at least 6 feet in height, and nearly the same in diameter, a blaze of red blossoms. From Messrs. Frazer was Boronia serrulata, displaying first-rate management, and the same may be said of a noble Helichrysum humile, from Mr. Bruce, of Tooting. A large Epacris grandiflora was produced from the nursery of Mr. Pamplin; a famous Pimelea spectabilis was sent by Mr. Clarke; and a no less remarkable plant of Crowea saligna, in the most robust health, from Mr. W. P. Ayres. Other plants were blue Leschenaultias, from Mr. Falconer, of Cheam, and Messrs. Veitch and Son; a Gesnera discolor, from Mr. Kenyon, gr. to H. Brown, of Hackney; an Epacris grandiflora, from Mr. Pamplin; two Polygalas, and a Pimelea decussata, from Mr. Hill, and finally a large and rather fine Hovea Celsi, from Mr. Balston, of Poole. Of Specimen Fuchsias, Messrs. Lane sent Mrs. Lane, and two nicely-grown plants were contributed by Mr. Kendall, of Stoke Newington.

NEW PLANTS were neither numerous nor remarkable. Messrs Veitch sent Eranthemum variabile, a plant with silvery-streaked leaves and purplish lilac flowers; Rhodostemma gardenioides, with sweet-scented dingy-looking blossoms; and Mussœnda frondosa, a long lost, but recently re-introduced plant, with yellow tubular blossoms and large white bracts. Mr. Robertson produced Hydrolea spinosa, a blue-flowered plant, which is possibly better suited for planting out in a warm situation in the flower garden than for pot culture; the little starry Dysophyl (Dysophyllum stellatum), was sent by Mr. Dodds, gr. to Sir G. Warrender, Bart.; and Anthericum cæruleum, a blue-flowered well-known plant, was produced by Mr. Cameron, of the Birmingham Botanic Garden; who also sent a species of Goodia. Mr. Dobson contributed the ugly little silvery-spotted Achimenes argyrostigma. Mr. Ayres, Crotalaria verrucosa. Mr. Luff, of Larkfield-lodge, Richmond, Chirita sinensis. Mr. Hoyle, of Guernsey, an Epiphyllum superbum; and Mr. Fairbairn, a Polygala named Dalmaisiana.

Of New Hardy Evergreens in pots only one group was exhibited, and that was from Mr. Francis, of Hertford. In addition to seven species of Abies, the same number of Pinus, and nine Junipers, it contained Cryptomeria japonica, four species of Cypress, Thuja filiformis and articulata, Taxus adpressa, Ilex latifolia, opaca, and platyphylla; Taxodium sempervirens, Araucaria imbricata, and Pernettya mucronata, the latter producing little red berries.

Miscellaneous Objects comprised an Azalea lateritia, from Mr. Carson; the large-flowered variety of Aphelexis spectabilis, from Mr. W. P. Ayres; a Cape Heath, from Mr. Malyon; a fine Chorozema Henchmanni, from Messrs. Fraser; a beautiful white Azalea, from Mr. Bamsell, gr. to J. C. Weir, Esq., of East Acton; a Leschenaultia formosa, from Mr. Bruce; an Achimenes picta, from Mr. Green; a collection of seedling Rhododendrons, from Mr. Waterer, of Bagshot; and a group of arborescent seedling Gloxinias, noticed on a former occasion, from the gardens at Syon.

In the tent appropriated to the Pelargoniums, there was a freshness and gaiety peculiar to this beautiful flower. The collections were numerous, and, as regarded growth and fine development of colour, they were never seen in finer condition. The improvement in the colour is doubtless attributable to the new sorts, which are driving from the exhibitions the older and inferior varieties; hence the benefits which arise from the establishment of that class in which the merits of the new flowers form the objects of emulation. In the Amateurs' Class, for new and first-rate varieties, the Gold Banksian Medal was awarded to Mr. Cock, whose collection contained the following varieties: Duke of Cornwall, Hector, Atalanta, Rosetta, Mustee, Emma, Milo, Sultana, Duchess of Leinster, Eliza Sauvage, Orion, and Isabella.—In the same Class for Nurserymen, Mr. Dobson, gr. to Mr. Beck, of Isleworth, was awarded the Gold Banksian Medal for the following new and fine sorts: Hebe's Lip, Susanna, Master Walter, Mustee, Isabella, Lurida, Hector, Resplendent, Rosy Circle, Desdemona, Aurora, and Arabella.—The Silver Gilt Medal was voted to Mr. Catleugh, for Milo, Magog, Emma, Orion, Free Briton, Duchess of Sutherland, Sultana, Mary, Rosetta, Luna, Duke of Cornwall, and Rosetta superba; and the Large Silver was obtained by Mr. Gaines, whose flowers were Xarifa, Milo, Nosegay, Athenian, Acbar, Don Juan, Lady Smith, Amelia, Cossack, Prince Albert, Redworth, and Lady Caroline Douglas.—For 12 varieties of Pelargoniums of superior cultivation in 8-inch pots, the Gold Banksian Medal in the Amateurs' Class was presented to Mr. Cox, who exhibited Orion, Emma, Cicero, Eliza Sauvage, Sarah, Queen Philippa, Sir R. Peel, Sultana, Erectum, Cyrus, Superb, and Princess Alice.—In the Nurserymen's Class the Gold Banksian Medal was awarded to Mr. Catleugh, for Madonna, Sultana, Juliet, Hebe, Queen of Beauties, Charles the Tenth, Coronation, Madeline, Luna, Symmetry, and Duke of Cornwall.—Mr. Gaines received the Silver Gilt Medal for Coronation Superb, Sultana, Augusta, Queen of Bourbons, Gaines's Pirate, Emma, Rising Sun, Saxon King, Egbert, Albion, Vanguard, and Lady Prudhoe.—Mr. Staines received the large Silver Medal* for Rosalie, Adonis, Sunbeam, Ackbar, Erectum, Clio, Sylph, Lady Ebrington, Lady Sale, Duke of Cornwall, Marchioness of Lothian, and Duke of Wellington; and a similar Medal was awarded to Mr. Dobson for Rosy Circle, Luna, Sultana, Hero, Zanzummin, Arabella, Matilda, Sir R. Peel, Margaret, Mustee, Lord Chancellor, and Duke of Cornwall.—For Pelargoniums in 6 varieties in 12 inch pots, the Amateurs' Prize, the Large Silver Medal, was awarded to Mr. J. Parker, gr. to — Oughton, Esq., for Coronation, Erectum, Duke of Cornwall, Mabel, Unit, and Master Humphrey.—In the Nurserymen's Class, Mr. Gaines received the same award for Cyrus, Rising Sun, Erectum, Albina, Lady Sale, and Coronation.

The Calceolarias were limited in number, and two collections were disqualified in consequence of nonconformity to the regulations of the Society.—The Silver Knightian Medal was awarded to Mr. G. Stanley for his collection, comprising British Queen, Queen of Fairies, Prince Alfred, Monarch, King John, and Mammoth; and Mr. Gaines was awarded the Large Silver for the following 6 varieties: Gaines's Compacta, Mirabilis, Alpha, Enchantress, and Kinghorn's Mab, and Miss Houston. But few seedling Pelargoniums were exhibited, and none of the present season were considered an improvement upon those already in cultivation. Among those exhibited as specimens two years old, four were exhibited by Mr. Dobson, gr. to Mr. E. Beck, and were named Competitor, Bacchus, Hebe's Lip, and Patrician. To the first named, the Silver Knightian was awarded: it is a rich coloured flower, the top petals are covered with an even tint of velvety-maroon, leaving a narrow rim of rosy crimson on the edge. The centre of the flower is light, slightly tinged with blue, with lower petals of a bright rosy purple, with a deeper rose-coloured spot in each. Bacchus was awarded the S. B.; the upper petals to this flower are of a deep maroon, with a narrow border of rose, centre white, rose-coloured under petals, having dark veins and blotches in each. Hebe's Lip received a similar award; velvety top petals surrounded with crimson, white centre, with bright rosy pink under petals. A Certificate was awarded to Patrician; a flower having rosy pink lower petals with dark top petals, changing to rosy crimson on the edge. These flowers are large and finely formed, free bloomers, and of excellent habit.—Mr. Hoyle also received a Certificate for again exhibiting his Mount Etna. This flower possesses extraordinary brilliancy and beauty of colour. The pervading colour is a deep and bright scarlet lake or crimson rose, with a dark blotch in the top petals. The flowers are rather small, and the plant does not appear to be of robust habit. There were several seedling Calceolarias exhibited; three were selected by the judges as desirable varieties, named Masterpiece, from Mr. Kinghorn, Gaines's Lord Hardinge, and Green's La Polka. Some seedling Cinerarias were shown, but none possessing novelty or striking peculiarities appeared amongst them.

The exhibition of Fruit was limited, and, with some exceptions, indifferent, some of the Grapes being hardly ripe, notwithstanding the warning previously given that such would be excluded from consideration by the judges. For Grapes the Silver Gilt Medal was awarded to Mr. Kemp, gr. to P. Grillion, Esq., of East Acton, for famous bunches of White Muscat; and Mr. Ingram, of the Royal Gardens, Frogmore, received a similar award for Black Hamburghs.—Mr. Dodds, gr. to Sir G. Warrender, Bart., and Mr. Walter, gr. to Capt. Hart, also both sent fine bunches of the same variety.—A Silver Banksian was obtained by Mr. Fleming, gr. to the Duke of Sutherland, at Trentham, for Black Hamburghs, Sweetwater, and White Muscadine; and Cannon Hall Muscats were shown by Mr. Wilson, gr. to Earl Howe, Gopsall.—Black Hamburghs and Sweetwaters from Mr. Toy, gr. to Col. Challoner; and Mr. Slowe, gr. to R. Baker, Esq.—Among Market Gardeners, Mr. Davies, of Oakhill, East Barnet, was awarded a Silver Gilt Medal for Black Hamburghs and Sweetwaters.—A famous box of Black Hamburghs also came from Mr. Mitchell, of Kemptown, Brighton; and Mr. Chapman, of South Lambeth, likewise sent Black Hamburghs and Sweetwaters.—For Pine-apples Mr. J. Povey, gr. to the Rev. J. Thornycroft, of Thornycroft Hall, Congleton, obtained a Silver Gilt Medal for three Providences, all of them fine specimens of cultivation; and a Large Silver Medal was awarded to Mr. Brewin, gr. to R. Gunter, Esq., Brompton, for Blood Queen, an Antigua Queen, Providence, Black Jamaica, and Enville; Mr. Davies, moreover, showed 5 Providences and 4 Black Antiguas, all of them fine-looking fruit.—Of Peaches and Nectarines Mr. Fleming sent of the former fine specimens of the Royal George and Violette Hâtive Nectarines.—Other fruit consisted of Keen's Seedling Strawberries and 4 Melons, viz., Snow's Hybrid Green-fleshed, Spivey's Hybrid Green-fleshed, and the Beechwood, from Mr. Judd, gr. to W. H. Whitbread, Esq., Southill, Bedfordshire; British Queen Strawberries from Mr. Toy; Keen's Seedling Strawberries from Mr. Eyre, gr. to R. W. Barchard, Esq.; Apples and Pears from R. Brook, Esq., of Petistree Lodge, Suffolk; and from Mr. Baldwin, of Turnham-green; and British Queen Strawberries from Mr. Davies.

* Some error appears to have occurred with regard to Mr. Staines's plants, and we understand that this part of the award will be brought again under the notice of the judges. In the meanwhile we give the return as it stood in the official declaration.

LINNEAN SOCIETY.

Tuesday, May 5th.—The Bishop of Norwich, President, in the Chair.—A note was read from Dr. Forster, on the migration of the swallow. The author gave the results of his observations on the migration of the swallow (Hirundo rustica) on the continent of Europe, being an extension of his former observations on the same subject in Great Britain. A note on the impregnation of the British species of Viola was read by Thomas S. Ralf, Esq, in which the author pointed out that the particular form of the stigma in the flowers of Viola was connected with the development of hairs in the spurred petals, upon which the pollen falls. This paper was illustrated by specimens which were exhibited by the aid of the microscope of the Society. In these specimens it was observed that in those cases where the stigma is globose and the style bent, that a number of submoniliform hairs were present in the claw of the petal. The hairs are covered with pollen, and it is through these that the pollen gains access to the interior of the style. At the conclusion of the first paper, Mr. Richard Taylor observed, that as it was not in opposition to the by-laws of the Society, he would make a few observations on the paper he had just read, and drew attention to the tables drawn up by the Belgian naturalists for the registering phenomena like those recorded by Dr. Forster. The President stated that it had long been his conviction that discussion should be allowed at the meetings of the Society, and hoped that as the by-laws of the Society did not forbid it, that for the future the Fellows would be induced to discuss the papers brought forward. In our report of Mr. Quekett's paper at the last meeting, it was stated that that gentleman had observed grains of starch are always developed on the outside of a cytoblast in Exogens and Endogens. We are requested by Mr. Quekett to state, that although he had always found starch granules on the outside of the cytoblast in Exogens, he had found them inside in Lilium bulbiferum, and outside alone amongst Endogens, in Iris germanica.

New Garden Plants.

27. Paeonia Wittmanniana. The Yellow Paeony. *Hardy Perennial.* (Crowfoots). Siberia.

A more remarkable acquisition than a yellow Paeony, not a pale straw-coloured species, which is only a spoiled white, but a true yellow flowered plant, does not often occur. All that we know for certain of its history is, that it was received in October, 1842, in the Garden of the Horticultural Society, from Mr. N. de Hartwiss, the director of the Nikita Garden in the Crimea; that it is just mentioned in the "London Journal of Botany," for April, 1842, p. 207, by Dr. Fischer, of St. Petersburgh, who, in a letter to Sir William Hooker, makes the following statement:—"Mr. Hartwiss has received many interesting plants from Abcharia, sent by Count M. Woerontzoff. Among them he has found a yellow-flowered Peeony, Epimedium pinnatum (confined hitherto to Talysch alone), and Pinus Nordmanniana (an Abies), said to be a showy and beautiful tree." We understand that 25 guineas was demanded for a single plant of it in one of the great continental nurseries. The species has much the appearance of Paeonia Cretica, is quite hardy, grows where any other Paeony will grow, and flowers in May. At present we believe that the plant in the Garden of the Horticultural Society is unique in this country.—*Botanical Register.*

28. Graellsia saxifragaefolia. Saxifrage-leaved Graellsia. *Hardy Perennial.* (Cruciferæ.) Persia. A little plant, with long-stalked kidney-shaped or roundish leaves, very coarsely notched, and smelling strongly of Garlic. The flower stems are about 9 inches high, and bear a compound corymb of small white flowers, resembling those of the common scurvy Grass. It grows freely in any good, rich garden-soil, and is well suited for rockwork. It flowers in July and August, and is increased by dividing the old plants in autumn or spring, or by seeds.—*Journal of the Hort. Society.*

29. Ophiopogon prolifer. Proliferous Snake's-beard. *Stove Perennial.* (Lilyworts.) Sincapore.

This has a slender stem slowly rising by means of roots which its leafy shoots throw out, in the manner of a screw Pine. The stems are not thicker than a swan's quill, and bear at intervals clusters of bright-green sword-shaped leaves, which curve downwards, and are longer than the flowering stems. The latter are bright purple, and bear in an interrupted manner a few clusters of nearly sessile small, white, obovate flowers, whose texture is between fleshy and spongy. It succeeds in rough, sandy peat. During summer an ample supply of water is necessary; also a very moist atmosphere, at a temperature of not less than 80° by day. In winter it requires to be treated almost like an Orchidaceous plant; if a humid atmosphere is kept up, little or no water will be required for a few weeks.—*Journal of the Horticultural Society.*

Calendar of Operations.

(*For the ensuing Week.*)

The spring disbudding of fruit-trees is a matter of considerable importance at this period; for on thinning in due time, and in a proper way, success in ripening both wood and fruit is mainly dependent. This process should not be completed at one dressing—the operation is too severe. The trees should be looked over about thrice, viz.:—First, when the young shoots are about 2 inches long; second, in about a week afterwards; and finally, finished in about another fortnight. The first dressing should consist chiefly in rubbing off forcright and ill placed shoots; at the second thinning a selection of wood as to the necessary quantity and position may be made, and finally, at the last, all gross shoots, or robbers, should be stopped, in order to equalise the sap.

CONSERVATORIES, STOVE, &c.

Conservatory.—Camellias making their wood should have constant shading; the house should be kept very moist day and night, and the plants frequently syringed. Pay every attention at this period to plants of climbing habit, whether festooning from the roof, up pillars, or on trellises in pots. Let stopping, thinning, training, &c., proceed in a methodical way. Many of these plants are unproductive of blossom for want of stopping the gross shoots. To stop such frequently is to gain both time and space. *Stove and Orchids.*—Centradenias, Eranthemums, Poinsettias, Justicias, Geissomerias, Clerodendrons, Euphorbias, Bragmansias, Gesneras, Vincas, with other ornamental stove plants, more especially those intended to relieve the dull winter months, should at this period have the highest of cultivation. They should be allowed plenty of room, and clear manure-water, and should, if requisite, have their rambling shoots stopped occasionally. The latter should be done forthwith, as young wood made late in the season will not produce winter flowers. *Mixed Greenhouse.*—Those who grow that delightfully sweet winter flower, the Cyclamen persicum, will find it the best plan to plant it out at this period in a highly raised bed in the kitchen garden. This bed should be composed chiefly of peat soil and coarse sand, to which a little sandy loam and a little leaf soil may be added. It is truly astonishing what superior plants they make in this way, as I have proved for the last 10 years.

KITCHEN GARDEN FORCING.

Pineries.—If the weather proves very sunny, it will be advisable to shade fruiters in their first swelling, in order to dispense with the necessity of giving so much air; this will preserve a greater amount of atmospheric moisture in the house. *Vineries.*—Early houses now ripening should have abundance of air. Let a few of the laterals which had been reserved, for fear of breaking the principal buds, be removed if they shade any of the principal leaves. Do not, however, remove them to throw sunlight on the fruit. *Late Vineries.*—These will be now in blossom in most places; keep up a lively circulation of air with a warmer atmosphere, and cease syringing. Continue, however, to moisten the tan or floors as well as foot-

paths every evening; this facilitates the bursting of the calyx, a necessary step to secure fecundation. Vines not possessing a lively and safe action at the root, have sometimes much difficulty in bursting this. *Melons.*—Those now ridged out for autumnal crops should have a good depth of soil; light and superficial soils will lead to red spider. The soil should be a stiff loam, filled in when dryish in rough lumps, and trod somewhat firm. After this a slight casing of common sandy soil may be laid over the whole. *Cucumbers.*—Stop, thin, and water freely; those for the ridge if hardened should now be planted out. See that the ball of earth is well soaked with water previous to planting. *Kidney Beans* for transplanting, raised in hot-houses, should now be transferred to a cool frame; after hardening for a week or so they may be trusted out of doors.

KITCHEN GARDEN AND ORCHARD.

A little Endive for a first sowing may be got in. With regard to Peas, Beans, Spinach, Radishes, Cresses, Lettuces, Horn Carrots, &c., I may repeat the advice offered in one of my earlier Calendars, viz., to sow a little more it possible when the preceding sowing is fairly above ground. A good sprinkling of the Cape Broccoli may now be sown; likewise Grange's Impregnated Cauliflower, and Walcheren Broccoli; these will succeed the Cauliflowers sown in February. Sow a row of Gherkins if not done. Those raised in heat in boxes should be hardened forthwith, preparatory to planting out. If a slight amount of fermentation could be provided for them, after the manner of those on the ridge, by means of cut Grass, or other refuse fermenting matter, it would tend to insure a crop; these things are not so easily managed in the northern parts of the kingdom as about the metropolis. *Orcharding and Fruit Trees.*—Carefully attend to disbudding, according to directions in the early part of to-day's Calendar. Effect thinning of Apricots in a gradual way; remembering that, as the spring has been rather capricious, many may drop in the stoning process. Use the engine where the red spider is feared; those, however, who have followed my directions as to the use of sulphur, will save themselves endless trouble, and the trees much starvation, which these cold evening ablutions are sure to produce. No wonder at the Peaches gumming; a rich and deep soil beneath, and such sudden depressions of temperature in the shoots, are quite sufficient of themselves to produce the evil.

FLORISTS' FLOWERS.

Auriculas must not be forgotten because the amateur has now many demands on his time; shade them in very hot sunny weather, though they cannot at this season of the year be easily too much exposed, provided the regular attendance is given to water, &c. &c. *Polyanthuses* cannot bear the mid-day sun, except on very cool subsoils. A shady situation, under a hedge, with a north aspect, will be suitable for them during the next three months (that is to say if grown in pots). *Tulips.*—Do not forget to fertilise some of the best breeders, in order to obtain good seed. It would be time and trouble thrown away to cross yellow grounds with white ones, or *vice versa*. In choosing sorts to get seed from, let them be as thick in the petal, round at the top, pure in the cup, clean in the stamens (for foul stamens, though perhaps not yet acknowledged, are a very great defect) as much like the old Catafalque in the cup as possible; and then the raiser of seed will not be far wrong. Apply the farina with a small camel-hair brush to the stigma of the variety intended to be operated upon, covering the flower with a hand-glass. *Carnations and Picotees.*—Should the present dry weather continue, they will want occasional waterings, which when done, should be done well.

FLOWER-GARDEN AND SHRUBBERIES.

It is now high time to think of bedding out some of the mass flowers; at least, such as are least liable to injury by frost, and have undergone a proper hardening process. Much may be done, as to display, by a judicious arrangement or combination of both colour and figure. As a general principle, our best authorities seem to agree, that the various shades of orange and yellows will class well with the various purples and blues; whites are suitable with the blues, oranges, and reds. White, however, deranges the effect of the yellows, as also the violet shades; whilst the various red or rose-coloured flowers are, as far as colour is concernod, capable of forming a bed by themselves. Every individual bed of a flower-garden should, in my opinion, be complete in itself, both with regard to colour, and also outline, as to the arrangement of the heights.

COTTAGERS' GARDENS.

A small Cucumber bed may now be made, by digging a trench 1 foot deep, by 3 feet wide, in a sunny and sheltered spot; well sheltered from the wind, which is of the utmost importance. A thorough collection of all the weeds around the garden, the trimming of ditch-sides, old Ferns, hedge dubbings, &c., blended with a little hot manure, will do well. Keep the manure low, and fill up the trench as a mound, nearly 2 feet above the ground level. Soil it over slightly, and raise deeper hillocks where the plants are to be set. Those who cannot get hand-glasses may stretch some sticks or hoops across, and cover up at nights with old mats or cloths. Such, however, should not trust their plants out until another week.

FORESTING.

Little can be said at present. Barking will of course have made much progress. Keep an eye to young seed beds.

State of the Weather near London, for the week ending May 14, 1846, as observed at the Horticultural Garden, Chiswick.

May	Moon's Age.	Barometer.		Thermometer.			Wind.	Rain.
		Max.	Min.	Max.	Min.	Mean.		
Fri. 8	13	29.821	29.780	69	41	55.5	W.	
Sat. 9	14	29.974	29.903	72	49	60.5	S.W.	.03
Sun. 10	14	29.947	29.787	70	40	55.0	W.	.01
Mon. 11	0	30.093	30.056	72	34	53.0	N.W.	
Tues. 12	16	29.904	29.830	69	40	55.5	E.	
Wed. 13	17	29.734	29.709	69	46	57.5	E.	.88
Thurs. 14	18	29.995	29.889	67	39	50.0	E.	
Average		29.909	29.831	69.0	42.4	55.7		.92

May 8 One cast; exceedingly fine, clear
9—Light clouds; very fine throughout; clear
10—Slight rain, cloudy and fine, hail shower in afternoon
11—Very fine throughout; clear and cold at night
12—Very fine, partially overcast at night
13 Light clouds; overcast, rain
14—Clear, cold and very dry air, clear at night.
Mean temperature of the week 3 deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending May 23, 1846.

May	Average Highest Temp.	Average Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain	Prevailing Winds							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun 17	68.8	42.5	54.4	7	0.88 in	1	5	4	—	1	3	4	2
Mon. 18	61.7	44.4	54.5	6	0.14	1	5	4	2	1	4	3	—
Tues 19	65.5	44.4	54.9	7	0.80	2	5	5	1	1	4	2	—
Wed 20	66.1	44.8	55.4	9	1.14	1	4	3	3	3	3	—	1
Thur 21	66.2	44.3	55.2	8	0.56	2	4	7	1	4	1	—	2
Fri 22	66.5	44.0	54.7	10	0.10	5	6	3	3	2	3	2	—
Sat. 23	67.6	47.0	57.3	7	0.21	1	4	2	4	1	2	1	4

The highest temperature during the above period occurred on the 17th, 1835—therm. 89°; and the lowest on the 17th, 1838, and 23d, 1817—therm. 29°.

Notices to Correspondents.

BACK NUMBERS OF THE GARDENERS' CHRONICLE.—The Volumes for 1844 and 1845 can be had, bound in cloth, price 1*l.* 10*s.* each. The following Numbers in the respective years can also be had. Any Subscriber who will forward to the publisher post-office stamps equivalent to as many Numbers as are requested, will have them sent free by post

1844—1, 8, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 34, 47.

1842—3, 4, 6, 7, 8, 9, 11, 12, 14, 15, 16, 18, 20, 23, 24, 25, 27, 30, 31, 32, 34, 35, 38, 40, 41, 42, 45, 46, 47, 48, 50, 51, 52.

1843—10, 11, 12, 13, 14, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 48.

1844—All but Nos. 36, 46, and 50.

1845—1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 31, 32, 33, 39, 40, 41, 42, 43, 44, 47, 49, 50, 51.

1846—All the Nos. to the present time.

POST-OFFICE ORDERS—In order to obviate the inconveniences which are now constantly being experienced by parties who wish to remit small sums to the office of the GARDENERS' CHRONICLE, we have to request that all Post-office orders may in future be made payable to Mr. JAMES MATTHEWS, at the Post-office, 180, Strand, London

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each copy. An index has been added to this present edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

BOOKS—*G*—Lindley's "Guide to the Orchard," if you do not want very great detail. Neill's book is a good one. The other we cannot recommend.—*R G*—All the information you seek is to be found in the "Vegetable Kingdom," which is crammed full of such matters.——*Swainsonia*—Lyons on Orchideous Plants. There is such a Gesnera. Will you explain more particularly the inquiry about Orchids? We do not understand the question.

BROCCOLI—*J & Wade*—Your variety appears to have been bred from Knight's Protecting, but it is scarcely so white, and the curd is not so close and firm, being what is termed frothy.‡

GREENHOUSES—*A B*—Outside shades are only required on the sunny side The simplest way is to construct them like rolling blinds, guiding the canvas by cords at each side. The canvas should be worth about 5*d.* a yard; a cheaper sort is too perishable. Copper wire is much better than iron; let it run 8 or 9 inches from the glass. Keep Symmons's hygrometer at from 50° to 70° while the Grapes are swelling, and as soon as they begin to colour, gradually bring it to a range between 55° and 60°. We are not aware that water in zinc pans is injurious.——*C W B*—You will not obtain flowers without sunlight. But you may have leaves in health, and if you can expose your greenhouse plants to the sun, out of doors, one summer, they will flower the next in the absence of direct sun rays

GREENHOUSE PLANTS—*Paul Pry*—Greenhouse plants requiring to be grown in peat mould are numerous. 19 out of every 20 of the magnificent specimens annually shown at Chiswick, are grown exclusively in sandy peat mould. The following do best in peat, viz.:—The different kinds of Azalea, Heaths, Epacrises, Chorozema varium, Correa speciosa, Brachysema platyptera, Eriostemon buxifolium, Helichrysum proliferum and humile, Hovea Celsi and pungens, Eutaxia myrtifolia, Pimelea spectabilis and decussata, Leschenaultia formosa, Boronia anemonæfolia, Hardenbergia monophylla and macrophylla, Kennedya Marryattæ, Polygala speciosa, Hibbertia perfoliata, Gardoquia Hookeri, Bossiæa linophylla, and Witsenia corymbosa.‡

HEATING—*A Subscriber*—It is impossible for us to judge correctly of what is the matter with your flue. There is something wrong in the fire-place we presume. Flues are never heated by iron stoves; a well-constructed fire-place is all that is required. If you are near Glasnevin, you would get the best advice from Mr. Moore.

INSECTS—*Clapworth* We cannot say what occasions the excrescences upon the leaves of the Lime tree; never having been able to breed any insects from them, we much doubt if they be galls. *R.*——*W M*—You will find in the entomological article of this day all the information we can give you respecting the larvæ, which are the offspring of the Gnat called Tipula maculosa. *R.*——*Amicus*—The above answer given to "W. M." will apply equally to yourself. *R.*——*Nazara*—It is impossible to give a satisfactory answer without seeing the grubs. Is it the larva of Tipula maculosa above alluded to? *R.*——*H C*—We cannot give you an opinion without seeing the worms you complain of *R.*——*J B H*—Please to send us some of the worms in a quill stopped with cork at both ends, and we will give you an answer. *R.*——*A Row Amateur*—Unless you send us the small grub we cannot advise you. There are various species that attack the Roses, and their economy varies considerably. *R.*——*J B W*—Instead of stopping the quill with cork you used sealing-wax, which was crushed out by the post, and no insects were to be found. *R.*

KALE—*Hortensis*—Your Siberian Kale is probably the same as the Buda Kale, known also by the names of Russian, Prussian, and Manchester Kale. The following is a statement respecting it, by Mr. Wedgwood, "Horticultural Transactions," vol. 4, page 570.—"I have been trying an experiment with Buda Kale, which has answered completely; this is blanching it as you do Sea Kale by turning a pot over it and letting it remain covered till it is quite blanched. When cut and dressed in that state it is excellent, and one advantage will be that the same plant will furnish two cuttings, for the sprouts are more delicate than even the original heart of the plant. I used no dung to force it; but this might be applied with great advantage; and I think it would be an excellent substitute for Sea Kale."‡

KITCHEN GARDENS—*Corkscrew*—In order to drain it you must have a sufficient outfall. Having found this, make a main through the centre 4 feet deep, and run the side drains into it 2½ feet deep at the highest point; so you will get 1½ foot fall, which is enough for the distance the pipes must run. Connect the main drain with the outfall.

MANURES—*Amateur*—You may apply guano-water to your Strawberries with advantage. Do not give it strong, but often; 4 lbs. of guano to 12 gallons of water will be found to be a good proportion. Roses will also be benefited by it, administered in the same proportion. Diluted ammoniacal liquor will do, but not so well as guano.‡

MISTLETOE—*J W N*—As soon as the seeds are ripe rub them into chinks in the bark; they will adhere by their own viscidity. It is, however, necessary that they should be in contact with live bark, and so placed that birds cannot find them. Mistletoe grows freely on Whitethorn, Apple-trees, Sycamores, and Limes. We never saw it on a Walnut, and doubt if it would take. The peculiar juice of the Walnut-tree would probably disagree with the parasite.

POLMAISE—*T P*—We cannot improve upon your plan, except that we would connect the warm air flue at the back of the house with a ground flue or two brought from the front. Of course you will effectually dry the air.

NAMES OF PLANTS—*D S*—Appears to be a starved specimen of Acacia pulchella.——*J W G*—Epidendrum oncidioides.——*D L*—Lonicera alpigena.——*S B*—Menziesia ferruginea?——Veronica fruticulosa.——*Lady M.*—Pittosporum Tobira.——*F A M*—Yes; it does not seem different from it.—We must tax the patience of a few questioners till next week, when we shall be able to answer all their inquiries. It takes a long time to name some plants *correctly*.

SPECIMEN PLANTS—*Spectator*—We know nothing of the grounds upon which the judges decided the Fuchsia prizes in Saturday. In determining the merits of that kind of plant the *quality of the flower* must be very carefully considered. Otherwise, the following may be regarded as the great points in a specimen plant:—It should be well grown, the foliage clean and healthy in appearance, with abundance of richly-coloured flowers; to this must be added good and judicious training, keeping in view the natural character of the growth of the plant, whether drooping, semi-drooping, upright or bushy. It has a good effect when the lateral branches commence near the surface of the soil, in order to hide the upper part of the pot.

TREES—*C Cumming*—Trees may be thinned at any time; but if you wish to use the thinnings for timber the work should be done between October and March. When trees once become bare poles from neglect they rarely feather again.

VINES—*P N W*—We cannot guess what has happened to your Vines But if the "corkscrews" remain healthy, no harm is likely to come of the alteration. We should like to hear the result hereafter——*J M*—You will get *excellent* advice from the party you name; and your questions would be better answered on the spot. If we understand your plan it will work while the water is hot; but what will you do when the fires are discontinued?

YAMS—*J B*—These are stove plants not worth growing. They take up a great deal of room, and are very uninteresting. You may grow them in summer in a Melon frame in light vegetable soil. Do not cut them or they may rot.

MISC.—*C G M*—Your specimen is the Parrot Tulip, differing somewhat in colour from the common varieties.——*Inac*—The word is rhodopaxo and signifies rose scented It is a wild species from the Canaries.——*O P*—We do not anticipate any injurious effects from galvanised iron, but we have no experience of it. For water-pots nothing is better than tin well painted. Directions how to use Symmons's hygrometer should certainly be given with it. We will draw up some. Copper wire is cheap, though expensive.——*S L*—The Broccoli is very good indeed, but not better than Knight's Protecting or the Walcheren. *J W J*—You will deprive your water of its impurity if you compel it to filter through a thick bed of sand; which, as it comes from a hill, will be easily done.—*W B*—The account you furnished was little more than a list of names, and not fit for publication. We are much obliged, but we threw the paper away as useless.——*A B* Asplenium septentrionale is an Alpine plant, and is entitled to be shown as such. So is any other Alpine Cryptogam which is *usually cultivated*.——*S M* It is not uncommon for Pansies to be sweet smelling, but it is rarely they possess the fragrance of the white Violet.†——*J Kelly*—You cannot obtain new varieties of Fuchsia by potting your seedlings in different composts. The reason why your plants drop their flowers before they expand is, they are either starved or kept too dry. The Fuchsia is a thirsty plant, and should be well attended to with water, in which, if a little guano is added now and then, the plants will thrive all the better.†——*T H*—Your Pelargoniums grow too luxuriantly, and produce few flowers in consequence of your soil being too rich. What you must do is this, you must remove a portion of the soil in your beds and mix the remainder with material of a poorer nature, or you must cramp the roots by plunging the plants in the pots as you propose, or by some other means, over-luxuriance being always incompatible with a fine display of bloom.‡

SEEDLING FLOWERS.

AZALEA—*J S*—Your seedling is of a very pure white; in form it is not equal to Gledstanesii, which it somewhat resembles, and the striping is scarcely visible in the specimens sent.*

CALCEOLARIAS—*A R G*—Both your seedlings are pretty varieties; at the same time they are too small, and not uncommon in the marking.*——*W C*—There is too strong a family likeness among your seedlings—for instance, 3, 4, 12, 17, 19, 25, are so much alike that one of the number is sufficient; of these 19 is the best. Again, 6, 7, 14, 16, 18, 8, 21, are merely repetitions of flowers already in many hands—they are also deficient in form; 5, 9, 20, and 22 are the best; 20 is a well-formed flower, clear in colour and distinct in marking, but small; 5 is novel, from possessing three colours, yellow ground, brown spots and black stripes; this flower also is undersized.*——*B B*—These are large and fine specimens, measuring from 1¼ inch to 1½ inch in diameter; the general fault in form is the flatness in front. 1, 2, 3, 7, buff grounds, with large well-defined blotches in front; 5, 6, and 8, yellow grounds, spotted with brown. These seven are well worthy cultivation, 4 is too deficient in form.*——*A C*—Very common.*——*W*—Pretty, but not uncommon.*——*G S M*—Your specimens are pretty, but common in colour and marking; 3 appears to be the best.*——*S W H*—A large flower, of good form, but weak, and undecided in colour.*

CINERARIAS—*A C*—Your seedling is similar to others in cultivation.——*W L*—Your seedling is common in colour and deficient in substance.*

PANSIES—*A B, a Constant Reader*—A flower rich in colour and of good substance, but rather deficient in a circular outline.*——*B B*—Both your specimens are large, and No. 1 is rather coarse, having rough edges to the petals, with the ground-colour not perfect; it is, however, a well-formed flower. No. 2, white ground, with fine eye; top petals, with broad margin round the lower ones, of a deep bright blue; a useful show flower, bold and handsome.*

PELARGONIUMS—Both your seedlings want size, and they are inferior to similar varieties in cultivation.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—The GENERAL MEETING will be held at the Society's House in Hanover-square, on FRIDAY, the 22d inst., at One o'clock precisely.

By Order of the Council, JAMES HUDSON, Sec.
London, May 6, 1846.

THE LONDON MANURE COMPANY beg to offer Genuine PERUVIAN GUANO, delivered direct from the Importers' bonded warehouses:—

Nitrate of Soda,	Fine Bone Sawdust,
Sulphate of Ammonia,	Sulphuric Acid,
Superphosphate of Lime,	Sulphate of Soda,
Gypsum,	Petre Salt,

And every article of Artificial Manure in the most genuine state.—No. 40, New Bridge-street, Blackfriars.
EDWARD PURSER, Secretary.

CHEAP AND DURABLE ROOFING,
AND THE BEST RESISTER OF FROST FOR GARDEN PURPOSES.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, Manufacturers and only Patentees of THE PATENT ASPHALTED FELT FOR ROOFING, and which for many years has been in extensive use for Roofing Houses, Verandahs, all kinds of Farm Buildings, Sheds, and for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, *which has been exhibited at the Great Agricultural Shows of England, Scotland, and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c.*, and is also patronized by Her Majesty's Board of Ordnance, Commissioners of Woods and Forests, the Hon. the East India Company and the Botanical Gardens, Regent's-park. It is extensively used in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference is made. This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET). NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'s, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy.—Price ONLY ONE PENNY PER SQUARE FOOT.

*** Samples, with Directions for its Use, and Testimonials of seven years' experience (which contain much useful information), from Noblemen, Gentlemen, Gardeners, Architects, and Builders, SENT FREE to any part of the Town or Country, and orders by Post executed.

The new Vice-Chancellor's Courts, the Offices attached, and Passages leading to Westminster-hall, Dr. Reid's Offices, and other Buildings at the New Houses of Parliament, are roofed with F. M'NEILL and Co.'s Felt, and is known by its having the appearance of lead roofs.

☞ The Public is respectfully cautioned against misrepresentation, as the only Works in Great Britain where the above Patent Roofing is made is F. M'NEILL & Co.'s Manufactories, Lamb's-buildings, Bunhill-row, London.

The Agricultural Gazette.

SATURDAY, MAY 16, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY,	May 20	Agricultural Society of England. Flax Society, Belfast
THURSDAY,	— 21	—Agricultural Imp. Soc. of Ireland.
FRIDAY,	— 22	—Agricultural Society of England
WEDNESDAY,	— 27	—Agricultural Society of England.
THURSDAY,	— 28	—Agricultural Imp. Soc. of Ireland

LOCAL SOCIETIES.—Shropham and Guiltcross—Renfrewshire.

FARMERS' CLUBS.

May	18—Botley		May	27—Newton
—	19—Bromsgrove St. Mary	Plympton	—	28—Ottery St. Mary
—	20—Welll ginn		—	29—Ilkins of Galloway

THE growth of vegetables is a branch of the farmer's business much better understood than the conversion of them into beef, mutton, pork, &c. The experience of farmers on the former subject is much more generally known. We are in possession of many well-established facts regarding the agency of drainage, cultivation, and manures; while as regards the process of feeding, we have but few details of individual experience. There are not many published experiments on the relative nutritiveness of different kinds of food. This should induce us to place greater value on the few worthy of our reliance which we do possess. And among these we have no hesitation in naming those by DR. THOMSON ON THE VALUE OF MALT AS FOOD FOR CATTLE.

We have observed that most of the agricultural periodicals in which the Government report of these experiments has been noticed have dissented from its conclusions on the ground that the experimenter not being a farmer was unqualified for his task; and a correspondent makes the same assertion on similar grounds in the last Number of the *Agricultural Gazette*. But let us consider what this objection is really worth. The account given of these experiments in the report is most detailed and particular. Why have objections not been made to the treatment which the cattle received? It is all stated in fullest detail. Why has fault not been found with the trial because of unsuitableness in the animals or unfairness in the circumstances in which they were placed. The results of the experiment are necessarily the consequence of certain causes acting either in accordance with, or in spite of the will of the experimenter. Why have dissentients not pointed out the operation on the animals of causes besides those to which DR. THOMSON attributes his results? No doubt, many have searched diligently for them through the bulky report of the investigation, for it was not to be borne that the main prop of the Anti Malt-tax agitation should thus be knocked away from under it: but the search was fruitless—the experiment was carefully conducted, its results were accurately recorded. It is the only piece of exact evidence, we believe, that exists on the subject; it is founded on a lengthened and careful investigation; it is in accordance with the preconceived opinions of intelligent man. How, then, can it fail to bring conviction?

It is objected that Dr. THOMSON, not being a farmer, was unable fairly to conduct the experiment. Well, but here is a full report of the investigation. Point out the fallacy in his results—where is the mistake into which he has fallen? Suppose, however, that we admit the objection. What does it amount to? It is said that had a farmer had charge of this experiment its results would have been trustworthy. Now, we are persuaded that all whose opinion on the subject is worth anything will agree with us in saying that nothing requires a more careful previous education than the art of observing. Now, Dr. THOMSON stands confessedly at the head of British chemists—at the head of a body whose science has been laboriously worked out by constant experiment, whose occupation indeed consists in experiment, in applying causes and measuring effects. A practical chemist is the man of all others to conduct a quantitative experimental investigation, let the subject of it be what it may—the whole habit of his mind fits him for this task. And, for whom is Dr. THOMSON, the first practical chemist of the country, to be set aside? For a practical farmer—one, on the other hand, of a body low in the scale of profession, as regards the habit of observation and experiment, and therefore possessed, and especially in the branch of it here concerned, of but few well established data on which to found anything like consistent practice. What does Mr. HUXTABLE say in the late Number of the "Journal of the English Agricultural Society"? "The want of accurate weights and measurements, and therewith of just valuation, is the great opprobrium of English agriculture." Now, looking at the present condition of their respective professions, which is likely to be the more competent to conduct a nice investigation, the chemist, whose science, in consequence of his labours, may now be called "exact," or the farmer, of whose art, in consequence (must we not say) of his negligence, there is hardly a point which is not obnoxious to the widest diversity of opinion?

We are persuaded that the experiment could not have been placed in more competent hands than those of Dr. THOMSON; where inexperience in any respect disqualified him, as in the purchase of the animals, &c., he had the assistance of the ablest practical men in the west of Scotland, and as to keeping the animals free from the action of causes disturbing the results of the investigation, no one was better able to direct that than himself.

WE have often had occasion to point out THE LEASE for a term of years as the only beneficial bond of connection between landlord and tenant. It is, we are persuaded, the only kind of tenure under which the high cultivation of land can be either induced or maintained, and notwithstanding that there are landlords who will not grant leases for lengthened periods, and that there are tenants who will not accept them, it certainly must be for the national good that this mode of tenancy should more readily obtain. Farmers may fear being tied for more than one year to a bad bargain; this only exhibits a want of energy, and of enterprise, and of confidence in their own judgment. Landlords may fear abandoning their estates for so long to incompetent tenants; they forget that when a farmer is tied to the land for so many years, his interest in maintaining its fertility is equal to, if not stronger than that of its owner. And it is capable of demonstration, both on *à priori* grounds and by an appeal to fact, that the increased profit of both parties, dependent as it is upon the exercise of capital and intelligence in the cultivation of the land, can be looked for only in those districts where the fruits of high farming are secured to the farmer by a sufficiently long lease.

How, then, must it be where neither intelligence nor capital are abundant amongst farmers? Why, then we fear they cannot look for more than yearly tenancy. This, fortunately, is to *them* no hardship; for where there is not capital to carry out, nor intelligence to direct the higher cultivation of the land, there is rarely enterprise desirous of any change from things as they are. Nevertheless here, also, it will be for the landlord's interest to state openly and publicly his desire, whenever these shall appear in his tenants, to give them the security of a lease. And it is only under protest that tenancy at will is a great national evil, though, unfortunately at present, in some cases, an unavoidable one, that we proceed to consider how it may be turned to the best account.

The object of the landlord in settling the terms on which his land shall be let necessarily is, to induce the thorough cultivation of it; he is urged to this not merely by self interest, on the ground that thereby the value of his estate will be increased, but also by his care for the labouring population, for whom employment is to be found. He must get his tenants to exert themselves, and this can only be done by ensuring to them a reward for their exertions. He declines to secure this reward to them by lease; it must be done, therefore, by an agreement, in which, reserving the right to give six months' notice to quit, he binds himself on the tenant's leaving to pay him for such improvements over and above the common "custom of the country," as may then remain unexhausted. There is no doubt that in practice this involves great difficulty and perplexity, but it appears to us that no other alternative offers. Is the connexion between landlord and tenant to be such as shall tend to the better cultivation of the land? Then farms must be let so as to secure to their occupants a full return for every *extra*-ordinary exertion they may make. And we do not see how this is to be done unless the landlord shall either give up the control of the land on certain conditions for a term of years, or, under a system of yearly tenancy, acknowledge to the fullest extent the justice of what has of late been termed "tenant right." The best method of developing this subject in an agreement between a landowner and his yearly tenants is a matter likely to excite some discussions; we shall give a form of agreement next week, and hope that our readers will suggest any alterations that may appear advisable. The main points in which *the tenant* should be bound, appear to be to cultivate his land on the alternate system, and to take nothing off his farm but grain, and the produce arising from the consumption of his green crops. And the chief point in which *the landlord* should bind himself, is to repay on a certain stated scale all improvements made with his sanction, which may remain unexhausted when the tenant leaves.

OUR readers will have seen that the Committee appointed by the Council of THE AGRICULTURAL SOCIETY, to report on the propriety of adopting a plan of operations at their annual meetings somewhat similar to that of THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, has recommended that the two subjects—Drainage, and the Chemistry of Manures—shall be discussed at the ensuing Newcastle meeting, under the guidance respectively of Mr. PARKES and of Professor JOHNSTON. This is but a timid step in the direction pointed out to them some weeks ago by Mr. THOMPSON, and alluded to at page 257; but there can be no doubt of these discussions being an admirable substitute for the Council dinner, the place of which they have taken; and we heartily hope that the success of this step may induce a bolder one in the same direction another year.

ENGLISH AND SCOTCH FARMING.

THE following very impartial statement is somewhat abridged from a communication which lately appeared in the columns of the *Galloway Agriculturist*:—

When you asked me to report on English farming, I believe both of us thought that my report must be all against English farming, particularly in this and other central counties, when compared with Scotch farming. We were both very much mistaken. In passing hurriedly through these central counties of England, as we have formerly done on our way to London, we see little of the details of farming, and form our opinion of the state of agriculture chiefly from the great clumsy waggons, the heavy and inefficient ploughs, and the expensive misapplication of horse-power which meet our eyes on all sides, and which we hastily conclude must belong to an age of prejudice and general ignorance. But these are only the outside defects of the machinery, and a minute examination of the farm leads to a very different conclusion as to the details of English farming. I hesitate not to say, that the farming in many parts of Warwickshire is as good, or better, than in Wigtownshire or Ayrshire: though it is much in the same way as I would say a man is a good walker if he beats another on a road, at great cost of physical power—although loaded with his great grandfather's boots, which happened to weigh each a hundred weight.

I do not mean to say that an English farmer is able to pay more rent for his farm than a Scotch farmer would do—quite the contrary; but he grows better crops on the same quality of land—feeds better—raises more manure—puts on more compost—keeps his land more clear of weeds, and his houses, farm roads, and fences, in better order—so that in my opinion, the English farmer only requires to throw off his grandfather's great cumbersome implements to beat us both in neat and profitable agriculture.

I cannot better point out in what we are inferior to English farming than by quoting a criticism upon us by an English farmer. He told me last night that a friend of his, a gentleman who had farmed 2000 acres in Lincolnshire went to reside in Scotland—that he had there an opportunity of seeing a good deal of Scotch farming, and the distinguishing characteristics of it was slovenliness. If slates were blown off the houses, he said there was no repair till the houses were half ruined, and perhaps cattle injured by cold and wet, unless the landlord made the necessary repair—the windows and doors never painted, but allowed to take water and become rotten in a few years—fences neglected and openings left when a trifle would have repaired them, till the crops are damaged, or cattle injured by wandering, to ten times the amount which would have repaired the fence, or even have made a new one—farm roads neglected, or no farm roads, when a day or two of the farm horses at an idle season would have saved twenty days work at the busy season, and much tear and wear both of horses and carts—(true, most true!)—slovenliness in cleaning fences and cutting down weeds, and also about the houses and courts, where a very little taste and exertion at odd hours would add very much to the comfort and health both of bipeds and quadrupeds. There was a further catalogue against us, but I will now conclude with one more item—our slovenliness in a great many little things, as stepping over a tool, or a stone out of order, without putting it in its proper place, and following in fact "a well enough system," which you may understand; or as an Englishman would say, we want the activity and taste required to carry out that order and cleanliness on our farms which an Englishman delights in.

You will think my English friend a little severe in his criticism, and of course it does not apply to half-a-dozen top farmers in every district; but I fear if we take the mass of Scotch farmers, there is too much truth in all of it. At least we will all do well to look at home, and throwing aside our Scotch prejudices, consider each of us how far we are liable to the criticism. Every system of farming has its good and evil points, and our study should always be to consider the details and results, in the good as well as the ill farmed districts of both England and Scotland; and in my experience I have never failed to find something to adopt from ill farmed districts as well as something in Norfolk or the Lothians inferior to our own practice. By bringing the above criticism before your readers, they may see something to adopt or correct, but I am not sure the instruction will come home to them with such force as it did to me from an intelligent English farmer, with English neatness and order, and convenience of farm roads, &c., all laid out before me.

But now for the other side of the picture, and to show in what our Scotch farming has the advantage—this may best be done by pointing out the evils of the English system—and,

1st. The great hindrance to profitable English farming is the unwillingness of landlords to grant leases for a term of years. To a Scotch farmer it appears wonderful how much some tenants have expended under so discouraging a system; but the general and only possible result of short leases is to check improvement—to cause draining and other expensive improvement to be either neglected or imperfectly executed, and no inducement is held out to the great body of farmers to forsake the clumsy implements and expensive system of working of their fathers, the effect of which would be to put all the profits of the change into the pockets of their landlords within a year or two after the improvement is adopted. A great part of their clay lands are undrained, and on the very best managed farms, the draining is quite inefficient—the drains being perhaps 36 feet asunder, and only 2 feet deep, where they should have been placed at every 16 or 18 ft., and 2½ ft. deep.

2d. This inefficient draining, or the wetness of the land, forms an excuse for a great misapplication of horse power in ploughing the land. A Scotch ploughman would be amused to see five horses in a plough going one before the other in a furrow, under the management of two men, turning over a furrow, which we could do much better in Scotland with our well-formed light plough and two horses abreast; and when this regiment of cavalry comes to turn at the land, and gets into close column, he would hardly avoid breaking into a broad *horse* laugh. The ploughs are no doubt generally of a bad construction—formed to resist draught rather than to throw it off, and with short ill-formed arms, which must make them difficult for the ploughman to hold, even with the aid of two wheels in front, which all the ploughs here seem to have. I saw some new ploughs, at a maker's near Warwick, of a better construction, but all too heavy for efficient and economical work. I have no hesitation in saying that a Scotch ploughman, with a pair of good horses, will do as much work, and certainly make a better seed furrow, than the two Englishmen will do with their five horses.

3d. So with their great waggons, drawn by four or five horses, in universal use, there is an immense loss of horse power, as well of man's labour. The only purpose for which their immense waggons are at all suited, is to carry manure from the towns, or heavy loads to distant markets, and for that work they are not economical; they draw in them, with five horses, 4 or 4½ tons of manure, and the hand labour in loading these monster waggons, throwing the stuff to such a height, must be enormously greater than what is required to load our Scotch one-horse carts—the horse power cannot be equally or effectively applied; and the unequal burden thrown occasionally on the wheel horse must often strain and injure it. I know from experience that five horses in our single-horse carts, will with great ease draw from six to seven tons, and are filled at probably half the expence, so that even for long carriages our one-horse carts have greatly the advantage. But when we compare the English waggon with the Scotch single-horse cart, in ordinary work on the farm, they bear no comparison at all. On the farm the large waggons are unmanageable, and with four or five horses are hardly more than equal to the work of a single-horse cart. An intelligent English farmer in this neighbourhood admitted the superiority of our one-horse carts, and said that if he were beginning now to farm he would decidedly adopt them in preference to the English waggon.

4th. The English farmer suffers a great loss, both in the cost and dispatch, in preparing his grain for the market, from the want of thrashing machines; and this evil is not reduced by occasionally hiring a clumsy ill-constructed machine, which is done even on farms of a considerable extent. In Scotland and even in the north of Ireland, now, almost every farm of 100*l.*, or even 80*l.* rent, has its well constructed thrashing machine, drawn by two horses, if water power is not at command, completed at an expense of 30*l.* or 35*l.*, or with winnowing machine attached, a few pounds more. The English farmers must adopt this improvement, and they or the labourers need not fear that they will not find every economy to the farmer produces increased employment and benefit to the workman.

5th. I may observe that while I greatly admire the neatness of the English stackyards, I think unnecessary expense is incurred in raising such very large stacks, containing generally 900 or 1000 bushels of Wheat, and also in the very large barns required to receive them. I would recommend the extra expense thus thrown out in a large barn being laid out in the erection of additional cattle houses, enabling the farmers to keep more stock, and to consume part of their straw for fodder along with Turnips, in place of sinking their whole straw for litter in their houses or straw-yards. Experience shows in Scotland that, with Turnips, cattle require little fodder, and do very well with Wheat straw.

From the remarks thus hastily thrown together, you will see that I blame the English farmer for unnecessary expense or extravagance in his management, and the Scotch farmer for unwise economy in many things, or niggardliness, and to cure our mutual faults, may yet take some time; but there is that spirit abroad now which will, I have no doubt, tend to the improvement of both countries. An Englishman, for odd work, might bring neatness and order to our Scotch farms; and the alarm among English landlords on account of the proposed change in the Corn-laws, will force them to grant leases, and tend to a more economical management on the part of English farmers. If a Warwickshire farmer can work his farm with half the number of horses he now employs, (as I am convinced he could do,) here would be a source from which he could draw security for a very considerable fall in the price of grain. If such were to be the result of the change in the Corn-laws, the possession of a farm for a lease of 19 or 20 years would certainly lead to such safe means of realising profit. The great objection is the expense of purchasing new carts and ploughs, and the difficulty of getting workmen to go heartily into the change. As to the mere expense, I believe the saving in one year would pay for all the new implements, and one or two Scotch ploughmen, brought in by intelligent farmers, would shame the ploughmen from these old clumsy ploughs, and induce them to compete in the march of improvement. The ploughmen of Warwickshire seem a superior race of men physically, and they might depend upon it the more economically and profitably farm labour is done, the more labour will be done, the more hands employed, and the better wages given.

Again, for a few hints for the improvement of our Scotch farming from the detail of English practice: we don't, in the west of Scotland, use the drill machine for Wheat so much as we should do. Here almost all Wheat is sown with the drill machine, and the workers are now busy with the hoe, cleaning between the drills, and cutting down all those seed weeds with which our fields are so often disfigured, and at the same time breaking the hard crust, allowing the air and moisture to get into the ground, and thereby increasing the growth of the Wheat.

A dibbling machine has also lately got into use here to dibble in the seed. Wherever this has been used the grain looks much more fresh and forward than where it has been sown either drilled, or broadcast—I have not yet seen the machine, and am unable to report further about it at present.

Some of the farmers here, immediately after harvest, use a scuffle with very broad soles, to cut under the stubble and seed weeds, which are harrowed and gathered to put into their feeding yards or muck heaps. This serves the double purpose of cleaning their land and raising their manure, and in some lands with us might be done with considerable advantage. The English farmer is indefatigable in raising manure and making up compost heaps; along all his fences, and all his roads, every particle of earth, even pure clay, is mixed up with lime or farm-yard dung, and his pastures, from such top dressing, have a depth and richness even on very second rate land, that would surprise and delight a Scotch farmer.—*G., Leamington.*

ON MEASURE WORK.

Farm operations are of two kinds, and I shall in the first place just name them and arrange them in two columns, according as they are suitable for payment by the day or by the piece; some may be paid for in either way, and will find a place in both columns. The first kind includes all those which only occasionally demand the farmer's superintendence; most of them, indeed, are more generally performed under the superintendence of the landowner or his agent: the other comprises the whole routine of farm operations which necessarily demand attention as the year revolves.

I.—OCCASIONAL OPERATIONS.

All of these properly come under the name of measure-work:

1. Drainage
2. Grubbing up hedgerows and timber.
3. Paring and burning.
4. Quarry work.
5. Mason work.
6. Carpenter's work.
7. Road-making.

II.—ANNUAL FARM OPERATIONS.

Day-work.	*Piece-work*
(1.)	
Subsoil ploughing.	.. ..
Ploughing.	.. ..
Scarifying.	.. ..
Harrowing.	.. ..
Rolling.	.. ..
(2.)	
.. ..	Turning manure one or more times.
.. ..	Filling it into carts for the field.
Emptying dung-carts in the field.	Spreading dung in the field in drills or broadcast.
(3.)	
Sowing broadcast, or drilling, or dibbling by hand or machine, Wheat, Barley, Oats, Beans, Peas, Grasses, Clover, Turnip seed, Carrots, Mangold Wurzel.	Dibbling Wheat or Beans. ,, plants of Swedish Turnips and Mangold Wurzel.
Setting Potatoes.	Cutting Potatoes for seed. Planting Potatoes.
(4.)	
Hoeing corn of all kinds, and hoeing Turnips, Mangold Wurzel, and Carrots.	Hoeing corn of all kinds; hoeing and singling Turnips, Mangold Wurzel, Carrots, and hacking and moulding Potatoes.
Moulding up Potatoes by plough.	Paring and burning stubbles.
Horse-hoeing corn, and root crops.	Hedging and Ditching.
(5.)	
Haymaking.	Mowing Clover.
Corn harvest.	,, meadow Grass.
Mowing and harvesting Rye-grass seed.	,, and Haymaking.
.. ..	,, Barley.
.. ..	,, Oats.
.. ..	Harvesting Wheat by sickle or scythe.
.. ..	Carrying Corn to rick or barn.
.. ..	Stubble mowing.
.. ..	Harvesting Potatoes.
.. ..	,, Carrots.
.. ..	,, Mangold Wurzel.
.. ..	,, Turnips & Swedes.
(6.)	
.. ..	Threshing Wheat.
.. ..	,, Barley.
.. ..	,, Oats.
.. ..	,, Beans.
.. ..	,, Peas.
.. ..	,, Clover Seed.
.. ..	Cutting Chaff.
(7.)	
Management of Horses.	Blacksmith's work.
,, Cattle.	Saddlery.
,, Sheep.	
,, Pigs.	

I wish to add just one word in explanation of the principle which has for the most part directed the placing of the above-named operations respectively under the heads of day-work and piece-work. The principle simply depends on this—that it is advisable for the ploughman to have charge of the horses which he works, in consideration of the pride he should and will feel in keeping them in good condition; and it is rarely good policy in the farmer to place his cattle at the entire disposal of men whose interest it is to get their work speedily done, and thus to work the horses fully up to, perhaps beyond, their strength. In further papers I will state the cost and nature of these operations.—*M. S.*

CULTIVATION OF GORSE.

(*Continued from p.* 305.)

4. *The soil best adapted for the growth of Furze* is a dry friable loam—if sandy so much the better, provided it be not of too light a nature or too shallow. It is seen in greatest perfection on upland hilly districts, and is rarely met with in low damp situations, from which it may be inferred that it would be useless to attempt to grow it successfully in moory ground, which has not been properly drained. A loose yellow loam, inclining to a sonpy or sandy clay, suits it well, and from a soil of this description it will produce a large return of strong succulent shoots. In all cases, whatever may be the nature of the land intended for Furze, it is desirable to have it pretty well prepared previous to putting in the seed; for although no plant requires less attention during the period of its growth, it is advisable at first starting to give it a little kind treatment, such as getting the ground broken up if possible, early in autumn, and exposing it during winter so as it may become friable and well pulverised by the time of sowing the seed. Instead of applying manure, nothing answers better than burning the Grassy lumps along with any faggots of old brambles or Furze which may have been cut from the waste before it was broken up, and then spreading the ashes equally over the ground either before they are cold, or as soon after as may be convenient.

5. With respect to the time and method of sowing Furze, there seems to be some difference of opinion, but I believe it may be regarded as certain that the fittest period under all circumstances is the spring;

about the latter end of March, or beginning of April, after the principal corn crops are sown. When deferred until May or June, they will undoubtedly answer tolerably well, but it is not advisable to delay the sowing so long if it can possibly be done earlier. The common practice is to take a crop of Oats the first year from off the land, in which case the Furze is sown broadcast immediately after the Oats, and both harrowed in together the same as Clover and Grass seeds. A better plan, however, in situations where the ground will admit of its being done, is to sow the Oats and then drill the Furze seed in rows a foot apart, and afterwards brush or cover them with a light harrow. This will be found superior to sowing broadcast, less seed will be required, and, what is of far more importance, the vacant spaces between the rows may be cleaned after the corn has been cut, and some fresh soil, if necessary, drawn to the plants before winter, which will be of great service in promoting their growth, and at the same time prevent them from being drawn up by the frost and destroyed.

6. The quantity of seed required for an acre will vary according to their quality and the mode in which they are intended to be sown. If broadcast, and the seed can be depended on as being fresh and good, from 6 to 8 lbs per acre may be reckoned a fair average; but if in drills, little more than half the quantity will be sufficient. The usual cost of the seed ranges between 1*s.* and 1*s.* 6*d.* per lb., which is of little importance when compared with the loss of a crop. On this account, therefore, it is desirable to sow rather thickly, so as to avoid the chance of failure, by saving the price of a few extra pounds of seed.—*M. E. H.*

ON THE STATE OF HUSBANDRY IN LOWER BRITTANY.

WITH INCIDENTAL OBSERVATIONS ON THE CONDITION OF THE FARMING POPULATION THERE, COMPARED WITH THE SOCIAL STATE OF THE ANALOGOUS CLASSES IN IRELAND

By Martin Doyle.

(*Continued from p.* 289)

It is to be borne in mind that there is not in Brittany, as in Ireland, generally, a redundancy of rural population (relatively with the quantity of land in cultivation) spressing forward upon new soil, having overpopulated the old enclosures. There is a sufficient extent of the raw material for profitable employment to the population in the present amount of enclosures in Brittany, if draining and alternate husbandry were introduced without that absolute necessity for encroachment on the wastes which partially exists in Ireland, and in parts of Great Britain too: for example, within a circle of 20 miles round London, which contains an enormous pauper population, of which a considerable part might be located on the numerous commons which are still unineloscd and barren, because neglected. Any one who looks at the cottager's enclosure on the most miserable common may see what human industry can do on the poorest soil; how soon the surface becomes productive mould from the effects produced by sheltering enclosures.

So well known, indeed, in past times, was this influence of enclosures upon the fertility of the soil that, in upland parts, they were frequently formed for this sole purpose. In many of the open districts of Scotland, for instance, it was (perhaps in some still is) the regular practice to enclose small crofts by mounds and banks of earth; and to accommodate the cultivator of these curtilages, huts were constructed having their sides composed of the same materials, and thatched with a covering of straw, rushes, or dried ferns. In the course of years, these raised banks, as well as the huts, became so thoroughly saturated with vegetable matter, as to form heaps of rich manure. This tempted the crofter to demolish them; their materials were carefully spread over the surface of the ground; while in another situation he built for himself a new hut, and around his field new enclosures. Under a system very similar to this, at least in its effects, was a very large proportion of the soil of England, also, raised to its present state of fertility. Human labour, combined with the operation of natural causes, rendered the crofts productive. The period at length arrived when the consolidation of many of the small crofts into one farm appeared profitable to the owner. A substantial farmhouse was built; two-thirds of the cottages were pulled down; the enclosures were enlarged; the rubbish of the demolished cottages, together with the material of the banks and hedges which were removed, were spread over the land and made a valuable addition to the depth and fertility of the soil. In this arrangement we recognise the dispensation of a wise and benevolent Providence, which wills that, in the economy of nature, nothing shall be lost. Enclosures are necessary to protect the growing crops against the depredations of animals; but in order that the space which they occupy, and the earth of which they are composed, should not become entirely unprofitable, they of necessity arrest at the same time the progress of the volatile and fertilising particles floating in the atmosphere; and embankments which, to unreflecting persons appear in the light of encumbrances, make in the end a very material addition to the productive capacity of the field which they enclose.

No doubt the moors, such as we have been treating of, should be looked upon more as reserves for the location of the labouring classes when the old-established farms no longer yield the means of occupation proportionate to their population; extension of area is in such case imperatively called for, and the surplus lands have a widely opening field, both in the dry heath moors, and the humid bogs. But as long as a peasant possesses an adequate allotment of naturally good or artificially rich soil, with abundant shelter, he will not willingly abandon it to colonise a new and poor soil, which will require years of patient industry to render it good; but where, as in our case, tens of thousands of men have no alternative but those of location on wastes or intolerable distress in their present circumstances, it is to be expected that the legislature would energetically promote their occupancy of land now useless to the community, and yet capable of maintaining in comparative independence the surplus numbers who would joyfully avail themselves of any fair opening for their reception.

Leaving France for the present, let us see what has been done in other foreign countries in reclaiming poor soils.*

We are told by Mr. Jacob that—"In the Netherlands the district called Waesland, between Ghent and Antwerp, which is a mere agricultural country, is better peopled, better cultivated, and more productive than any other spot in Europe of similar extent. It was in the time of the civil wars in Flanders a mere sandy heath without inhabitants, without cultivation, and without live stock. The change has been effected by persevering labour through many generations, and the results of that labour are more strikingly exhibited in the fruitful fields, the beautiful cattle, the healthful and cleanly population, the comfortable residences and all other visible marks of rural prosperity."

Again, the Abbé Man says, "It is well known that the Campine of Brabant, which is the northern part of that province, consisted originally of sand, covered with Heath, interspersed with lakes and extensive marshes, and here and there with woods of Fir. Tradition reports it to have been once a part of the sea. To this day, where cultivation has not extended, the soil of itself produces nothing but Heath and Fir; the sand is of the most barren and harsh kind, nor can it be rendered fertile but by continued manuring. As the property of this ground may be acquired for a mere trifle, many have been the attempts of private persons to bring tracts of it into cultivation; every means have been tried for that purpose, and government has given every possible encouragement to it. But I have not yet heard of any one, however considerable might be his fortune, that has succeeded in it, and many have been ruined by the project. What is cultivated in the Campine is owing to the religious houses established in it, especially to the two great abbeys of Tongerloo and Toerlode. Their uninterrupted duration for 500 or 600 years past, and their indefatigable industry, have conquered those barren harsh lands, and rendered many parts of them highly productive. The method they follow is simple and uniform; they never undertake to cultivate more of this barren soil at a time than they have sufficient manure for, seldom more than 12 or 15 acres in a year; and when it is brought by labour and manuring to a state capable of producing sufficient for a family to live on, it is let out to farmers on very easy terms after having built them comfortable habitations. By these means many tracts of the Campine are well cultivated and covered with villages, well built houses, and churches. I may here add, and that from the undoubted testimony of the historians of the Netherlands, that the cultivation of these rich provinces took its rise from the self same means, 800 or 1000 years back, when they were in a manner one continued forest."

* "Observations on the Cultivation of Poor Soils, &c."

THE BEST WAY TO KEEP FARM HORSES.

My mode of proceeding, then, will be, after a few preliminary remarks, in the first place to lay before you various methods of horse management, with their maintenance, which have been resorted to by individuals practically engaged in business to a large extent, and adopted by them after the test of long experience, and then, after having made such observations as may seem to suggest themselves to my mind on a review of the whole, to leave the subject in the hands of those better able to cope with it; hoping by this means to induce other more practical men to turn their attention to a matter very deserving serious thought; so that by comparing different modes of treatment, practised by different persons, they may amend their own system, where it may be found defective. An old and a trite saying, but nevertheless equally a true one, declares that "great plenty oftentimes occasions great waste." Thus it has ever been in our good vale of Gloucester, where, from pasturage being abundant, a large extent of Grass land is annually cut, and made into hay; the articles being plentiful and easy to come at, we are apt to presume on our abundance, and without much calculating the cost (as I can speak from experience), prodigally lavish that which might be applied elsewhere with far greater profit to ourselves. The present season of difficulty will, however, set some of us a thinking; and even then, after the best system of management pursued, many of us will scarce win through the coming winter. Our carters seem to think that, if by a plentiful supply of hay and water they can give the horses under their care a large carcass, or, as they say, fill their bellies (and, I must add, plough a little more than half an acre of land in a day), all is well; not in the least considering the necessarily great expenses attending the support of a team of horses, even when fed with every due regard to economy.

It has oftentimes been a question in my mind, whether, from the manner in which our horses are kept, and from the little work performed, we should not be better off without any arable land at all, or whether, if a separate account were opened of it, we should not (in very many instances) find that it clearly brought us in debt. I cannot now, I think, do better than lay before you several extracts, which I have collected from various sources, and which relate to the subject in question. They are well worthy your attentive consideration. "Hints on the most economical manner of feeding horses." (Copied from the "Quarterly Journal of Agriculture," No. 11, p. 721. By S. Menteath.) After speaking of a variety of articles generally in use for this purpose, he goes on to say, that in North Wales, where there is oftentimes a scarcity of hay during winter and the early part of spring, Gorse or Furze is frequently employed to feed both cattle and horses; being bruised by a small water mill, it is mixed with a small proportion of Oats, or cut hay and straw, and found to be a strong and nourishing food. Gorse is similarly used in parts of the county of Devon. Steamed Potatoes are strongly recommended as a cheap and useful article as food for horses; but he says that they should on no account be given in a raw state. In feeding with any kind of grain, it should always be bruised, or, what is better, coarsely ground. The hay should be cut into chaff, mixed with a proportion of straw, and cut into lengths from a quarter to half an inch. Then follow some examples of successful practice founded on long experience. In the stables of Hanbury and Trueman, in Spitalfields, 82 horses are kept; the animals receive all their food in the manger; no hay is ever put in the rack; the whole are in excellent condition, evincing the goodness of the management adopted. They are fed in the following manner:—Each horse consumes in the 24 hours 18 lbs. of cut hay and straw, of which the latter is in the proportion of 1-8th—14 lbs. of bruised Oats, and 1 lb. of bruised Beans; making in all 33 lbs. of food. In summer Beans are not given, being found too heating, but instead of the Beans a small addition is made to the quantity of Oats. Half a pound of salt is given weekly to each horse divided into two portions; one given on Saturday night and the other on Sunday, which so given purges moderately.

In Mr Higgins' stables, in Long-lane, 300 heavy cart-horses are kept and daily perform much hard labour. No hay is ever given in the rack. Clover hay is generally used mixed with half Barley straw; the whole cut into short chaff. The corn given is always coarsely ground before it is mixed with the cut food. The hay chaff given is 19 lbs. for a very large horse, and 14 lbs. for a small one. In winter a larger proportion of Beans is given than of Oats, being 2-3rds of the former and 1-3rd of the latter. In spring the Beans are diminished 1-3rd, and the other 2-3rds are made up of Barley, which is considered more cooling as a spring food, but in summer Oats are substituted for Barley. Of the ground corn the large horse has given him 20 lbs., the small one 16 lbs., with the addition of 3 lbs. of bran in winter, and 4 lbs during the rest of the year. Thus, every large horse gets in the 24 hours about 40 lbs. of the mixed provender, and the small one 33. Salt is not given during the winter, but always in the other quarters of the year, one ounce being then daily given. The following method is adopted in mixing the food. The cut chaff is first laid on a floor, over it the bran, next the bruised Beans, and lastly the other grain. Afterwards all the ingredients are tossed together, and are then ready for use.

Dr. Sully, of Wiveliscomb, in the county of Somerset, has, with success, adopted the following method of feeding his horses, which constantly work hard, and travel at the rate of eight or nine miles an hour. He has for upwards of 20 years followed the same plan. In his stables there are no racks to hold hay, as he considers it a wasteful method of feeding; and that the horses, when they have the command of their heads, pull the hay out of the rack, and throw a considerable portion of it under their feet, and that 30 lbs. of hay and upwards are often consumed in this way, and spoiled in the 24 hours; whereas when it is cut and mixed with a due proportion of cut straw and bruised corn, 10 lbs are sufficient. In the loft above the stable proportional quantities of food sufficient for the daily consumption of each horse are prepared; a pipe is made to pass from the loft into each manger, and close by the top of the pipe is placed a tub capable of containing sufficient food for a horse for 24 hours. To prevent the horse from tossing the mixed food out of the manger, cross bars are nailed on the top of it at 12 inches apart; the cut hay and straw, and also the grain, are regularly weighed out, and when the ingredients are prepared, the proportions for each horse are allotted. The table, which follows, shows the articles of food given, as also the quantities and weight, which the horses should receive.

No.		1st	2d	3d	4th
		lbs.	lbs.	lbs.	lbs.
1	Farinaceous substances, consisting of bruised or ground Beans, Peas, Wheat, Barley, or Oats	5	5	10	5
2	Bran, fine or coarse	..	..	..	7
3	Potatoes, boiled or steamed, mashed in a tub with a wooden beater	5	5	..	..
4	Fresh grains (boiled Barley)	6	..	..	..
5	Hay, cut down into chaff	7	8	10	8
6	Straw, ditto	7	10	10	8
7	Malt dust or ground oil cake	..	2	..	2
	With 2 oz. of salt in each class	30	30	30	30

By this table it will be seen that each horse receives 30 lbs. of food in 24 hours; a quantity which will in all cases be found to be amply sufficient; the addition of 2 ounces of salt is necessary to assist digestion. It is known that all herbivorous animals in their wild state

resort to this condiment wherever it is to be met with, and where native salt abounds.

In Cheshire there is a farm on which there is a salt spring, to which the cows daily resort; and this farm is particularly noted for the excellence of its cheese, and it is believed that the tasting this brine by the cows adds to the flavour of their milk.

Of the four classes into which Dr. S. divides his ingredients for feeding horses, those two which contain the steamed Potatoes are most recommended.

It will be apparent, that although in the methods here adduced for the feeding of horses, some difference exists in the articles made use of as food, yet that they all agree in certain essential points, viz., in the practice of invariably bruising or coarsely grinding the grain and Beans—in cutting down the hay and straw—in giving no hay in the rack—in giving salt—and in weighing each article separately before mixture, in place of adopting the fallacious guide of admeasurement.

From the "Quarterly Journal," vol. 3, p. 1024. Extract from a paper by Mr. W. Dick, V.S., Edinburgh, "On cooking food for horses." The whole paper is well written, and deserving your perusal. Mr. Dick says, that Mr. Croal, an eminent coach proprietor, has found that by cutting the hay into chaff, 8 lbs. per day, with 16 lbs. of Oats, is sufficient for one horse; and that his horses are in excellent condition; and that by it he saves in his establishment 150*l.* per annum.

Mr. Isaac Scott allows his post and job horses, which are larger than Mr. Croal's, from 10 to 12 lbs. of cut hay, with 16 lbs. of Oats.

But the advantages of preparing food for horses have been pursued still further by Captain Cheyne, late of the Civil Engineers. Finding that each horse was consuming a stone of hay per day, at a cost of 1*s.* 4*d.* per stone, and straw at 6*d.* per stone, and being constantly annoyed by daily waste, he determined to give cut food only, and to bruise all the corn given: he was soon enabled to reduce their allowance of hay, increasing at the same time the quantity of straw given: each horse being allowed per diem 15 lbs. of the following mixture:—

	lbs.		lbs.
10 bus. of cut straw	90	Or thus—of Oats	8
6 do. of bruised Oats 29 lbs. per bus.	174	Beans	2¾
1 do. of bruised Beans ..	59	Straw.....	4¼
	323	To each horse....	15

And at night in addition to the above, about 25 lbs. of the following mixture:—

	s.	*d.*		lbs.
One boll of Potatoes at..	7	6	5 cwt. steamed	560
Fine Barley dust at per st.	0	10	2 1	36
Cut straw at per do	0	6	1	40
Salt at per cwt.....	3	0	2	6

The cost of each horse was about 5*d.* for supper, and about 1*s.* for daily forage and cooking—in all about 1*s.* 5½*d.*

"Quarterly Journal," vol. iv. p. 378, Captain Cheyne's method is carried out still further. He says that much economy will arise from the introduction of steamed Potatoes mixed with cut straw. That Potatoes should be steamed slowly, that they may be thoroughly done to the heart before they crack: they require from half an hour to three-quarters: and when done they should be emptied into a tub and mashed to a pulp. Captain Cheyne supposes a farm horse to be fed three times a day; then his food may be thus divided:—

Morning.	lbs.	Mid day.	lbs.	Night.	lbs
Oat and Bean meal.....	3½	Meal as before..	3	Meal	1½
Cut straw	11½	Cut straw.....	12	Cut straw.....	2
				Potatoes steam.	11½

In the whole per diem 45 lbs.

Put the meal and the cut straw into a tub, and sprinkle a little salt over them; then add the steamed Potatoes, and mash up the whole together. The weight of the mixture can be then easily ascertained by measure. Captain Cheyne advises that the mangers be made of iron; for, if made of wood, the Potatoes will stick to the bottom: also that iron bars be fixed across the mangers to prevent the horses from tossing out their food; the bars to be made of small round iron cut into lengths.

I could have quoted many valuable extracts from papers written by other practical men; but lest I should tire out your patience, and since enough has, I think, been said to convince you all of the very great importance of attention to the economy of horse-keep, which of itself must necessarily form an expensive item in all farm establishments, I shall content myself with giving you a reference to some other papers which have fallen under my notice, and which I consider well worth your perusal: viz, No. 18 in the "Farmers' Series" in the Library of Useful Knowledge, being the third report of select farms.—Sinclair's "Husbandry of Scotland," vol. i. p. 126 to 148; and in the Appendix, No. 23 of the 2d vol. of the same work; also "British Husbandry," vol. i. p. 124 to 153.—*Mr. N., in the 5th Report of the Gloucester Farmers' Club.*

(To be continued.)

Home Correspondence.

"How do Savings Banks effect a rise in Wages?" is a question which concerns the interest of the employer as well as the employed. It has been admitted on all sides that there is a great disproportion in the rate of wages among the agricultural population in this country, yet no plan has been devised to effect a more equal ratio; how far the influence of savings banks is capable of attaining this end we shall endeavour to show. We would, however, here notice, that while our rural labouring population are urged to become depositors, it may be remarked by many that their scanty allowance and low condition will not allow them to range under this class; that in reality the accumulation of a sum, very trifling in the eye of the rich, is to the working classes a most difficult task; and that the rate of wages and means of employment are seldom adequate to do more than provide them with a bare subsistence. This statement is in some respects true; those who depend only on labour can certainly save money while single, but cannot certainly after marriage. Let them keep single then till 30, by which time a man's savings will provide him from want in old age; by his good habits and constant industry he is enabled to gain greater accumulations. We are supposing the case of a young man who goes into farming service (and the like remark is applicable to a domestic female-servant); he may lay by between 18 and 30 under ordinary circumstances at least 6*l.* a year (!) This will augment to 84*l.*, sufficient to purchase an annuity of nearly 20*l.* a year from the age of 55. Again, to show that the labouring classes, farming and operative, can and do save, it is a striking fact, that a prodigious majority of savings bank depositors are parties who do not earn individually more than 16*s.* per week. On the other hand, let us suppose the case of a farm labourer who has not, but might have, saved; what difficulty, for instance, does he not experience, where any portion of land is held, in obtaining seed for his ground, in purchasing a cow, pigs, or other profitable stock, and in effecting any improvement, or commencing operations on his small allotment? how has he provided for the decline of life? how will he have kept himself independent of the parish and thus benefited society? But there is a higher consideration in saving, and which we started with, namely, the influence of savings banks in effecting a rise in wages. This is so forcibly illustrated by Dr. Chalmers in an article on Savings Banks in a late number of the "North British Review," that we will at once quote his remarks. He affirms, "that a little stock in the hands of labourers, such as that laid up by themselves in a savings bank acts, both by an equalizing and an elevating power on the wages of labour;" and adverting to the fears of a general combination among labourers and a strike for a rise of wages, he proceeds:—"The observation of Adam Smith, on the impossibility of a general combination among the farmers of a country for raising the price of corn, applies with tenfold emphasis to the impossibility of a general combination among the peasants and artizans of a country everywhere for raising the price of labour. Such a combination could not be effected, yet still a rise of wages would be effected, but without combination—without the plots, or the outbreakings, or the secret conspiracies, or the open violence, which are the accompaniments of our present partial combinations, taking place like so many volcanic eruptions here and there over the face of the country. A rise in the price of labour would just take place as a rise in the price of corn does; not by combination, but by the silent though sure and resistless operation of a market law—the one rising in proportion as the corn gets scarcer, and so there ensues a keen competition among the purchasers to buy, and no impatience because no immediate necessity among the holders to sell; and the other rising in proportion as labourers get rich, because then a courting of them and competition for them by employers or the buyers of labour, and no extreme or urgent necessity with the sellers of labour to give in on lower terms than such as might please them. And so a general elevation in wages by a sort of general and silent pressure throughout society at large—and this without any fierce or fearful disorders of any sort. But might not the rise be such as to annihilate rents and to ruin capitalists? This apprehension, too, will be found a chimera, though we have not space here to repeat a demonstration which has been given elsewhere on this truly interesting subject, and one of such vital importance to the well-being of society. What we once heard from an eminent silk-manufacturer in Spitalfields, we believe to be thoroughly consistent with the experience of all enlarged and enlightened capitalists—that he made more of those well-conditioned and well-conducted workmen to whom he gave two guineas a-week, than he made of those misthriven, reckless, dissipated characters, generally the refuse of poor-houses, to whom he gave half-a-guinea a-week. The truth *is*, that the difference of the wages is, generally speaking, made up by the superior faithfulness of the workman, and the superior quality of his work; and when once a general high wage throughout the country comes in the train of a general economy and good conduct throughout the operative population, what is found now to hold true in the particular instances, will be found then to hold true on the large scale. Masters will find ample compensation for the higher price of labour, in the higher moral and mental accomplishments of labourers, and higher value of their services. And here we must modify what we said a little ago respecting the benefit of a higher wage being only to be realized by the depositors in savings banks, after that the habit of such depositions had become general. From the very first, it is a benefit which might often be realized by the individual depositor; and just because his being so is at once the cause and the evidence, and therefore the guarantee of a sobriety and a moral superiority which make him all the more valuable to his employer: qualities these which are worthy of a price, and for which he often will be paid accordingly. It will illustrate, and make still more obvious, the influence of these deposits in raising wages, if we contrast it with the opposite influence of debts. We have often heard of an oppressive and unprincipled master, under the infamous truck system who tempted his servants to expend beyond their wages that he might become the dictator of his own terms with them when he had thus got them into his power. The advocates of a poor-rate, and more especially in the application of it to the support of able-bodied labourers, little dream that such is precisely the depressing effect of their system, arrayed though it be in the smiles and promises of benevolence to the lower orders, but fraught in effect with the most mischievous consequences, not on the state of our pauper labourers only, but on the general condition of the working classes all over the land. We do not say that these consequences are perceived or within view, either by the enemies of savings banks on the one hand, or by the friends of a poor-rate on the other. We cannot imagine aught so diabolical as a wish or design—whether to restrain the ascent of the common people to a higher status by an attack on savings banks, or to ensure their helpless continuance on the level and along the margin of pauperism by the operation of a poor-rate. Certain it is, that the two act as antagonists to each other: for no one can deny, that the prospect of sustenance for themselves and their families, even though in a poor-house, must have a tendency to paralyze the inducements for laying up in a savings bank. With the provision of a legal charity to count upon, the inclination generally, if not universally, will be to spend rather than to save—to dissipate all the means at present on hand, rather than to lay by any portion of them for an evil day, seeing that a security against this is already provided for by the laws of the country." We are afraid that we have already trespassed too much on the indulgence of your readers; we would, however, just in conclusion strongly recommend those who have not perused the article above quoted to do so; it contains a striking exemplification of the mode of attaining higher wages and in a more equal ratio, a desideratum which would tend to raise the labouring and industrious classes in the social and intellectual scale of society, and which every true philanthropist must heartily wish to see brought about.—*J. H.*

Artificial Hatching.—I beg to state a fact upon a subject which has appeared several times in your Paper. When I was a boy, some partridges' eggs were given to me which had been taken from a nest that had been mown over; I wrapt them in flannel, and put them in a box, and placed over them two stone bottles filled with hot water; which I supported by hollowing the opposite sides of the box, so as to receive the end of the body and the neck of the bottles. I regulated the heat by that which I found, by a thermometer, as the greatest heat of my own body; and at night filled the bottles with boiling water, covering them with several folds of flannel, which I took off successively, so as to preserve a considerable degree of warmth up to the morning. This apparatus answered perfectly as to hatching; for though the eggs got broken one after the other through awkwardness and accident, yet I had the pleasure of seeing the progress of organisation, the spread of the blood-vessels, and the motion of the heart. When there remained one egg only, I broke it, and the bird was so far advanced that the head moved, and the eyes had a ghastly expression, which horrified me. I have never tried the experiment again, but it is easily made.—*W.*

Drainage.—The subject of draining land, and especially clay soils, having now engaged the attention of the more intelligent and scientific portion of agriculturists, and the importance of it as the foundation of good farming being at length generally admitted, I am induced to seek, through the medium of your *Gazette*, some practical information on the best mode of operation. I have lately become possessed of about 120 acres of stiff clay land, in a bad state of cultivation, and I am inclined as an amateur, despite the repeal of the corn-laws, to see what the land is capable of doing. The farm lies in fields of about 20 acres each, with a fall of 1 in 60 to 1 in 100, and a sufficient outlet. The lands average 8 yards wide, and are about 350 yards long. The soil is a very tenacious clay, to the depth of upwards of 6 feet. I propose to drain 25 acres of summer fallow now. The better opinion appears to be in favour of deep draining, and I have read with much interest Mr. Mechi's articles on the subject, and also the able Leaders in your *Gazette*; the latter of which, at present, however, have only gone to the theory of the operation. The farmers here, when I tell them I propose to drain 3 feet deep with 1½ inch pipes, and to fill in with the clay soil, console me by stating that my money will be thrown away, and that I shall get laughed at into the bargain for adopting the theoretical views of men who have probably never put foot in a farmyard. I am no sceptic, however, and should be thankful if some one of your contributors, who has had experience in draining land similarly placed to that I have described, will answer the following questions:—Can the land be thoroughly drained by pipes placed 30 inches deep in each furrow. The pipes to be ½ of an inch thick, 1½ inch in the bore, and 12 inches long, and would the pipes be improved by having flat bottoms? Will the drains be injured by putting stubble and brushwood over the pipes? Will 1½-inch pipes carry the water from lands 350 yards long and 8 yards wide? Is it desirable to have mains, or should each furrow-drain, where practicable, open to the ditch? And where mains are necessary, from what quantity of land will pipes 3 inches in diameter carry the water?—*A Country Subscriber.* [We never had anything to do

with the drainage of "very stiff clay;" but we have drained stiff loamy soils, and are safe in advising you to drain in every furrow at least 3 feet deep. If the furrows are 350 yards long, you had better have two mains 3 feet 6 inches deep, one across the middle of the field and one across the bottom; the former for the water oozing out of the upper, and the latter for the water from the lower half of the field. Use pipe-tiles of 1½-inch bore, and of at least ⅝ thickness in the material. You may put in stubble above them, and then fill in the clay carefully and firmly.]

Tenure of Land.—It being desirable to remove every obstacle that might stand in the way of the only wholesome tenure for the cultivation of land by farmers, the tenancy by lease of some duration, and as engagements for a fixed rent for many years, with uncertain and sometimes great variations in the price of produce, are viewed as objectionable by some tenants, as well as by many landlords, a clause is subjoined adopting in some degree the principle of corn rent, but avoiding its complexity, and not liable to the objections made by many against carrying that principle to its full extent. After covenant from lessee for payment of rent reserved, "And that in case the average price of Wheat during the first years of the said term of years deduced from the averages taken for tithe commutation shall exceed the assumed present price of a quarter more than 5 per cent. and less than 10 per cent., then that the said lessee, his executors, administrators, and assigns shall and will pay unto the said landlord, his heirs and assigns, a sum of money as additional rent amounting to 5 per cent. on the sum or rent hereinbefore reserved yearly and every year during the remaining or next succeeding years of the term hereby granted by equal half-yearly payments as aforesaid. And in case the average price of Wheat deduced as aforesaid shall exceed the said present price 10 per cent. or upwards, then that the said lessee his executors, administrators, and assigns shall and will pay unto the said lessor, his heirs and assigns, a sum of money as additional rent amounting to 10 per cent. on the said reserved rent every year during the years of the term hereby granted by equal half-yearly payments as aforesaid." A covenant from the lessor is afterwards to be inserted that the rent shall be reduced in the same proportion in case the average price of Wheat taken and shown as aforesaid should fall below the present price in the degrees mentioned. The periods for adjustment of the rent might be every three, five, or seven years of the lease. And the adjustment might be carried further to a larger per centage of increase or reduction of rent in case of greater variations in the price of Wheat, if thought expedient.—*H.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A WEEKLY Council was held at the Society's House in Hanover-square, on Wednesday last, the 13th of May; present: the Right Hon. Lord PORTMAN, president, in the chair; Duke of Richmond, Hon. R. H. Clive, M.P.; Sir Charles Lemon, Bart., M.P.; Sir Matthew White Ridley, Bart.; Sir John V. B. Johnstone, Bart., M.P.; Colonel Austen, M.P.; T. Raymond Barker, Esq.; H. Blanchard, Esq.; F. C. Cherry, Esq.; Colonel Challoner; H. Gibbs, Esq.; C. Hillyard, Esq.; W. Fisher Hobbs, Esq.; John Kinder, Esq.; J. H. Langston, Esq., M.P.; Colonel MacDonall; E. W. W. Pendarves, Esq., M.P.; Prof. Sewell; George Turner, Esq.; Geo. Wilbraham, Esq.; T. B. Batard, Esq.; Colonel Blagrave; Capel Cure, Esq.; A. E. Fuller, Esq., M.P.; W. Hervey, Esq.; Rev. C. E. Keene; A. Ogilvie, Esq.; E. Parkyns, Esq.; G. Parsons, Esq.; H. Price, Esq.; J. Roddam, Esq.; H. Smith, Esq.; T. Turner, Esq., and T. R. Tweed, Esq.

The following new Members were elected:

Crallan, Thomas, Bolesworth Castle, Tattenhall, Cheshire
James, Robert, Chalkside, Wigton, Cumberland
Hobson, Dr., Park House, Leeds, Yorkshire
Smith, H., Stamford, Lincolnshire
Downes, William Henry, New House, Much-Wenlock, Salop
Russell, Sir Robert Frankland, Bart., 15, Cavendish-square, London
Smith, Timothy, Hoyland Hall, Sheffield, Yorkshire
Chrisp, James, Newcastle-upon-Tyne
Brewer, John, 8, Upper Bedford-place, London
Burrell, Bryan, Bolton House, Alnwick, Northumberland
Stevens, John, Oxford
Colbeck, Henry, Low-Weetslid Farm, Denton, Newc.-on-Tyne
Colquhoun, J. C., M.P., 8, Chesham-str., Belgrave-sq. London
March, John, Greenside, Newcastle-upon-Tyne
Loraine, Edward, Cocadon, Callington, Cornwall
Thorold, Richard, Weelsby Hall, Grimsby, Lincolnshire
Stretton, Alexander, Adbolton, Nottingham
Boulay, Rev. Francis Wm., Rector of Lawhitton, Launceston
Anderson, Robert, Grey Street, Newcastle-upon-Tyne.

The names of 25 candidates for election at the next Meeting were then read.

TUSSAC GRASS.—Viscount PALMERSTON, M.P., transmitted to the Council the following communication on the subject of Tussac Grass, addressed to his Lordship by Lieut. Moody, Governor of the Falkland Islands:—

"*Government House, Port William, Falkland Islands, 8th Jan.*, 1846.

"I have the honour to acknowledge the receipt of a note from your Lordship, dated 5th April, 1845, and have much pleasure in attending to the wishes therein expressed. I beg to state that the person who collects the Tussac seed is a poor man, named C. J. Dettleff (a native of Hamburgh), whom I am encouraging to make a trade with it. I am forwarding 8 lbs. of the seed by the merchant brig "Hebe," C. S. Anderson, master, bound for London; agent for the brig in England, Captain Faith, Lloyd's Coffee House, London. I have given the master ample directions to ensure the delivery of the seed to your lordship. Dettleff's charge for the seed is 2*l.* 10*s.* per lb. I beg to suggest that the best way to pay Dettleff for the seed would be for your lordship to cause the sum, namely, 20*l.*, to be paid to my account at my agents, Messrs. Cox and Co., Charing Cross, and advice of the same to be forwarded to me. I will then pay over the amount to the man, and forward the receipt to your lordship's agent.

"The price charged at present for the seed appears to be high, but it takes a long time and much care to collect, as well as considerable personal inconvenience to the poor man under the present circumstances of the colony.

"The portion of your lordship's property described in the note appears to be well suited for the growth of this Grass, if the blowing sand be not more than two feet deep near the beach, and fortunately rest on peat or peaty soil, no matter how thin. If the shore be bold, and the sea bank high and rocky, I should choose the most exposed points. If the spray, but not the actual wave, dashes over it, so much the better. I do not think that sowing it in the shifting sand would answer in the first instance, though when the Grass once takes root in any soil, the drift sand blowing over it, amongst it, and almost burying it, does not seem to injure it. I would try some in the sand that has been fixed by the bent, but as near the sea as possible. The Tussac loves the spray, and the finest plants are almost growing in the water. If the breezes from the sea carry a great quantity of moisture to the peat bog behind the tract of sand, I conceive the Tussac Grass would answer extremely well in it. We have Tussac Grass growing on peat bogs on exposed islands in the Falklands, in places 800 and 1000 feet above the sea, but these sites are exposed to the westerly gales, which are laden with moisture. Some of the finest young plants I have seen grew from seed sown in rich mould in my garden, 300 yards from the shore of a deep inland harbour, and protected from the winds by a high turf wall. This artificial mode seems to contradict what I before stated. Nature prefers the first mentioned places, but as the latter is a fact, I would recommend both to be tried. In the garden I was so successful with the plants from seed, that I proceeded to transplant suckers from the wild ones on the rocky shore to the rich mould in the garden, and I found them to thrive vigorously. I took suckers from these again, also from the plants raised by seed, and planted out more rows. Every plant answered admirably. I cut them down, and they grew more bushy and spread, throwing out fresh suckers. I should soon have filled a paddock with the plants, but as it was necessary to change the site of the chief town, I had to abandon my garden, and begin new and arduous labours, which have occupied the time of all hands too much to spare any for experimental agriculture. In laying out a piece of ground for Tussac Grass, the following circumstances must be borne in mind. The plant grows in bunches, occupying from 2 to 3 and sometimes even 5 feet in diameter, and the blades of Grass, when full grown, are 7 or 8 feet long. The roots seem forced up from the ground, and I have been in patches of fine full-grown Tussac, in which a man on horseback is almost concealed. I should, therefore, sow the seed in rows 2 feet apart, some in a garden, and some on exposed points of peaty soil close to the sea, and within reach of the spray, carefully weeding between the plants as they grow up. When they are 9 inches or a foot high the suckers might be separated and planted out 3 feet apart in rows. As the plants grow large every alternate row should again be planted out, in order to leave room for a man, cow, or horse, to pass between the rows without treading down the plants. To raise from seed appears a more uncertain and much slower method than that of planting out suckers from the finest plants.

"With regard to the value of Tussac as a fodder, particularly for winter, I will mention a few facts that may be interesting. It is green all the year round. Frost does not appear to injure it, nor does snow cover it. It is a soft, succulent, and highly nutritious Grass, extremely relished by all animals, cattle, horses, sheep, and pigs. Cattle and horses fatten upon it in a surprising manner. They eat the whole blade down to the root, which, by the way, they relish most. They will eat old dry Tussac thatch from off the roofs of houses. The tracts of wild cattle and horses in the Falklands extend from many miles inland to the exposed sea-beaten points covered with Tussac. There is an island in Berkeley Sound that can be reached at low water from the main. The area of this island is as nearly as possible 800 acres, and there are about 400 acres of Tussac Grass upon it; the remainder of the island is thinly covered with coarse wing Grass and Rush, on peat bog, a very wretched piece of pasture land, affording scarcely any nutriment. Last autumn I caused the Government herd, consisting of 800 head of cattle and about 60 or 70 horses, to be placed on this island for the winter months. A small house is at the extremity of the ford, in which I placed a guard. The animals remained on the island nearly six months, with no other nutriment than what the island afforded. Towards the end of that time they began to get poor, and the Tussac was eaten down to the roots. By next autumn it will have entirely recovered. I am compelled to let the cattle graze the Tussac from want of hands and means to make different arrangements; nor do I consider any other plan a matter of sufficient moment in the present state of the colony, as to warrant the outlay requisite to economise properly this invaluable food. But, in England, where labour is cheap, I would act differently. The cattle could be folded in an adjoining paddock to the field of Tussac, and fed over the wall or fence by men cutting the Tussac in bundles, commencing with the upper row and passing regularly through the field; by the time they had cut the last row the first would be ready to cut again. Had such a plan been adopted by me in the island I mentioned above, I feel confident the 400 acres of Tussac would have amply supplied the 800 head of cattle for 12 instead of 6 months; it is incredible how much is injured by being trodden down and eaten too close, and the horses, from preferring the root, do more mischief than the cattle. I have no data to say decidedly how many animals one man could cut food for in a day, and to attempt to do so might only mislead your lordship. I ought to mention that the plant is of slow growth, and would probably be three years in coming to perfection, during which period, however, it might be cut annually with advantage. When once full grown it springs up rapidly after being cut down, the blades reaching their full height of 7 feet by the end of summer, though cut down in the spring. I kept up a favourite horse in a loose box one winter, and had him fed entirely on Tussac cut for him and given green. He ate it greedily, and was always in excellent condition; but, as a general rule, I should consider it soft food for a horse doing any work.

"When it is remembered that this invaluable provision of Nature thrives luxuriantly where scarcely any other vegetation will exist, that it is most nutritious and much relished by cattle, it is impossible to resist feeling the most earnest desire to see it extensively tried in those portions of the United Kingdom which, in climate and soil, bear some resemblance to the Falkland Islands. I might easily expatiate on the extreme beauty of its vegetation, covering rocky storm-beaten promontories and small islands with a dark rich verdure, always reminding me of tropical luxuriance; but its importance in a practical point of view is what I am desirous of making fully known to your lordship, and to all interested in agricultural pursuits. I should wish to send a large quantity of Tussac seed to England every season, but the settlers here are, as yet, far too few in number, and far too busy to spare time to collect it. It appears to me it would be money well laid out, if one of our leading Agricultural Societies were to send here an intelligent person, to remain the six summer months, collecting seed. He would be absent from England about a year, and the whole expense would not exceed 300*l.* He should bring either a wooden or iron house, 10 feet square, with a small stove; 3 tons of coal; provisions, such as biscuit, pork, coffee, and sugar; gunpowder, shot, warm clothing, bed and blankets, a folding table, two stools, and a military canteen. More things would be an incumbrance. Dettleff, whom I have mentioned above to your lordship, usually goes from the settlement on foot, and takes only a good dog and a stick. He is absent about two months, sleeps under a rock, lives on wild geese and rabbits, and occasionally a calf, and invariably returns in the best possible health. A person from England might, however, fix his little residence on a small Tussac island, close to the settlement, and at present reserved by Government, and in one summer collect such a quantity of seed, with Dettleff's aid, as would more than cover his expences, to say nothing of the advantage of having a good authority at home that could be referred to at any moment. I have given a close attention to this Grass for four years, and though at first it may appear a dreamy kind of enthusiasm, I do not hesitate to say, that should it be found on trial to succeed in the United Kingdom as well as it does in the exposed portions of the Falkland Islands, it will raise the annual income of many landed proprietors from hundreds to thousands. A Tussac-fed ox is in the finest order here at the end of the winter, though never housed or cared for in any way. In the *Falmouth Packet and Cornish Herald* newspaper of 23d August, 1815, I have been shown a paragraph stating that I. Matheson, M.P., of Lewis and Achany, sent some Tussac Grass seed, procured from the Falkland Islands, to Stornaway, and that Roderick Nicolson, Esq., tackman of Colb, has been perfectly successful in raising Grass from the seed. I should be glad to hear of some of the seed being sown in the salt-water marshes near Southampton, Dungeness, Isle of Sheppey, the fens near the Wash in Lincolnshire, the banks of the Thames and south shore of Essex round to Harwich; in short, anywhere near the sea, preferring, as a general rule, marsh and peat bogs to sand hills or downs, although I would always try both. I would also be glad to hear of some having been tried on inland bogs, as the bog of Allenand, Chalmop. I have forgot to mention that I would sow the seed very early in the spring, and not too deep. I need not say that it will be a source of pride to me to be of any service to your lordship, either in procuring seed or affording information at any time." (Signed) "R. C. MOODY."

LORD PALMERSTON, as a Member of the Society, particularly called the attention of the Council to that part of the communication which had reference to the collection of the seeds of the Tussac Grass, and thought that if the Royal Agricultural Societies of England and Ireland considered it worth while to act upon Governor Moody's suggestion of sending out some person to the Falkland Islands for that purpose, they might make an arrangement together for sharing the expence and

dividing the produce of the expedition proportionally between them.

The Duke of Richmond favoured the Council with the result of his own trials of the Tussac Grass on different soils in the north of Scotland, on his estates near Gordon Castle. The seed had been furnished to his Grace by Sir Wm. Jackson Hooker, of the Royal Gardens at Kew, and was sown in garden mould, sandy soil, and peat. The peat consisted of a waste marsh or bog, covered in easterly gales with spray from the sea, on which nothing grew, and where snipes were the only tenants. It was found that not a single blade of the Tussac Grass grew excepting in the peat, where it was found to succeed well, and appeared a good Grass.—Colonel MacDouall stated that his own trial of the Tussac Grass had furnished a result exactly corresponding with that obtained by the Duke of Richmond, none of the plants coming up excepting in peat.

The Council ordered their best thanks to be conveyed to Lord Palmerston for the favour of his communication, with a request that his Lordship, as well as the Duke of Richmond and Colonel MacDouall, would from time to time lay before the Society the progress of their respective experience in the cultivation of the Grass in question.

Clover Hay.—Mr. Joseph Blundell, of Maidenstone Heath, near Hound, Hampshire, transmitted to the Council a sample of White Dutch Clover hay, stacked in 1841, along with the following explanation of the advantages which he had found it to possess as a fodder, in conjunction with Turnips, for his early lambs:—"Being a member of the Royal Agricultural Society, I have taken the liberty of sending for inspection a sample, or a specimen, of White Dutch Clover hay; and although taken from the centre of a stack, and being a little too much heated to be a good sample of well-made hay, still I consider it a perfect specimen of the herbage and kind of Clover requisite for the making first-rate hay for the purpose of feeding early lambs, in conjunction with Turnips, &c. This sample was taken from a stack of 16 tons, the produce of 11 acres of land, and grown in the year 1841 on my farm at Maidenstone Heath, Hound, Southampton. I shall feel obliged if you will present this sample of hay to the Council at their next meeting, my object being to inform them of the sort of hay which I have found to be highly beneficial in the fatting of early lambs, for which purpose I have used it with great success for some years past. Should this communication be deemed worth notice by the Council, and any statement be required regarding the cultivation of the Clover, or the making of the hay, I shall feel happy to furnish it at any time."—The best thanks of the Council were ordered to Mr. Blundell for this letter and the sample of Clover hay which accompanied it.

Weeds among Wheat.—Mr. Fuller, M.P., of Ashdown House, near East Grinstead, transmitted fresh specimens in yellow bloom of a weed which proved very troublesome in his Wheat-land, and remained still in possession of the soil, having resisted all his efforts to effect its extirpation. It is known locally as the "hedge hog," or "periwinkle" weed; and is of so vigorous a character, that unless the Wheat-plant is very strong, it soon over-runs it. The weed comes up along with the Wheat, and stands the winter equally well, its growth in summer being of corresponding amount to that of the Wheat, to the plant of which it is very injurious. The seeds are very rough. Mr. Ogilvy remarked, that he had found as the result of his own experience, that wild Mustard and all other weeds likely to infest a crop of Wheat, may be destroyed previously to the sowing of the grain, by having the land ploughed several weeks before sowing, in order to give the weeds an opportunity of vegetating by such exposure of the under-soil to external influences: the weeds, at the time of sowing, having become so far advanced in their growth as to be irrecoverably injured by the harrows passing over them.

Prizes for Sheep.—As the Society's prizes for mountain sheep to be awarded at the ensuing Newcastle Meeting are not exclusively designed for any particular variety of mountain breed of established celebrity, but open without exception to the general competition of "sheep best adapted to a mountain district," Mr. Glover, Secretary of the Newcastle Local Committee, addressed a communication to the Council on the part of that committee, recommending that the general character of the Society's prizes should be changed into an exclusive one in favour of the Cheviots, and that the offer of prizes now made to the Council by the members of such committee for the black-faced breed should be accepted; and Mr. Robson, as Secretary of the North-Tyne and Redesdale Cheviot Sheep Show, conveyed the wish of its members that the Council would accept their offer of a first, second, and third prize for the best pen of three 18 months old or shearling rams, of the pure Cheviot breed. The Council decided—1. That the Society's object is to have their prizes awarded, without distinction, to such sheep as, in the opinion of the judges, are the best adapted to a mountain district. 2. That, by the bye-laws of the Society, no alteration can now be made in the prizes offered by the Society. 3. That, by the 27th regulation, namely—"In case any gentleman, or number of gentlemen, should wish to offer a prize for any class of stock not distinctly specified among the prizes offered by the Society, he or they will be allowed to offer such prize at the meeting at Newcastle-upon-Tyne. The stock which may compete for that prize shall be exhibited subject to the conditions that shall be decided upon by the Council, and the prize awarded by such of the judges as the Council shall select. Animals exhibited for that prize shall not be prevented from competing for any of the prizes offered by the Society for which they are qualified."—The gentlemen composing the two bodies in question are allowed to offer the prizes for Cheviots and black-faced sheep. The Council then instructed the Secretary to communicate with Mr. Glover and Mr. Robson accordingly, informing them at the same time that by the rules of the Society June the 1st would be the latest day on which certificates for the entry of any stock whatever for the Show could be received.

Glass Milk-Pans.—Messrs. Edwards and Pell, of 15, Southampton-street, Strand, presented to the Council two glass Milk-pans of their manufacture—one of a dark, and the other of a light green colour. The manufacturers informed the Council that as the Milk-pans were cleaned with so much ease, the use of scalding water for the purpose of cleansing them was found to be unnecessary; and also that they were of such strength of material as to be enabled to stand a very severe blow without breaking. The average weight of the pans of dark green glass was 8 lbs., and the price 3*s.* 9*d.*; that of the light green glass 10 lbs., and the price at the rate of 8*d.* per lb.

Mr. Wetherell communicated his acceptance of the appointment of Auctioneer at the Newcastle Meeting, subject to the regulations of the Council.—The Rev. John Barlow, Secretary of the Royal Institution of Great Britain, signified his willingness to give a free admission to Members of the Society on the occasion of the Rev. E. Sidney's Lecture in the theatre of that establishment on the 15th of May, "On the Nature of certain Fungi attacking the Agricultural Produce of this Country."—Communications on the growth of sound Potatoes from diseased tubers, from Mr. Fuller, M.P., and Mr. Wing, of Fordingbridge; and on the storing of Potatoes of the "Hen's-nest" variety in fine Lynn sand, from Sir M. W. Ridley.—A paper from Mr. H. B. Morris, of Ramsgate, on the Keeping of Farm Accounts; which the Council referred, along with all other documents on this subject, to Colonel Challoner, Mr. Tawney, and Mr. Kimberley, as the Committee appointed by the Council to report on the best mode of Keeping Farming Accounts.—The Weekly Council then adjourned to Wednesday next, the 20th of May, and the Members of Council and Governors present proceeded to the business of the Special Council.

Special Council.—Lord Portman, President, in the Chair.

The agreement of the Society with the authorities of Northampton, was duly ratified by the Council, and completed in duplicate agreeably with the terms of the Charter.

The following arrangements were made for the Districts of the Country Meeting.

1848.—The Yorkshire District (comprised of the County of York).

1849.—The Eastern District (comprised of the Counties of Essex, Suffolk, Norfolk, and Cambridge).

1850.—The Western District (comprised of the Counties of Wilts, Dorset, Somerset, Devon, and Cornwall).

Farmers' Clubs.

Probus: *A Lecture on Manures* was delivered by Mr. Karkeek, of Truro, at the late annual meeting of this club. We make a few extracts from the report of the proceedings given in the *Cornwall Gazette*. The lecturer observed of the action of lime on the soil, that it sometimes was to supply a valuable mineral ingredient absent from many of the slate soils; but it more frequently acted by liberating the silica, potass, phosphate, and carbonaceous matter to be administered to the wants of vegetation. If a chemist wished to liberate potass or silica from the soil he was analysing, he mixed it with lime, and then heated the whole together, by which means he rendered soluble in acid or in water, all that was insoluble before. "The farmer," said the lecturer, "when he limes his land, performs exactly the same operation as the chemist; he liberates from the soil more of the alkaline and earthy phosphates, &c., in one year than could be extracted by any other means in three or four years." But it generally happened that no equivalent was furnished to the land for that which was removed by the crops; and hence the continuance of the system of liming was no better than a rapid method of exhausting the soil. When considering the organic elements of plants which were derived, partly from the atmosphere, and partly from the soil in the shape of manure, Mr. Karkeek showed the importance of preserving the various manures made on the farm, which contained the various alkalies, phosphates, and other earthy salts, as well as nitrogenized and carbonized elements. Farmyard manure, with others of like nature, contained all the elements plants required; and by applying them to the soil in proper quantities, the farmer supplied all that had been taken away by the different crops. Guano also was another manure which contained nearly all the required elements. This part of the lecture was illustrated by analyses of the principal chemical fertilizing ingredients contained in the various manures usually employed by farmers; showing that by the preservation of the manure, the farmer might obtain the raw material of guano at home, instead of importing it from abroad. For this purpose the lecturer recommended the farmer to collect together road scrapings, weeds of every kind, old banks and marls, to mix with the liquor of their dung heaps, which would fix the volatilised portion, and prevent its wasteful escape into the atmosphere. All the more valuable parts of a dung heap would either run away, or fly away, unless means of prevention were adopted; and the substances he had named contained salts of various kinds which absorbed and fixed the ammoniacal parts of a dung heap, as well as could be done by the application of gypsum, sulphuric acid, or any other chemical ingredient. This was a very important subject for the farmers' consideration; many of them willingly paid pounds yearly in the purchase of guano, but grudged the expense of a day's work for a man, to preserve the raw material on their own farmyards—allowing it either to escape into the atmosphere or into the water-courses, spreading disease and death among themselves, their families, and their live stock. Another part of the lecture treated of the conditions for manuring land generally expressed in leases. These the lecturer strongly condemned as injurious to the farmer, the landlord, and the country generally, by tending to perpetuate bad farming. In one lease, a tenant was bound, by way of manuring the land for Wheat, to use 100 butt loads of mixens, consisting chiefly of the scrapings of the road, the field, and the farm-yard. Another was bound to dress the land with 100 bushels of lime; another was not allowed to employ lime oftener than once in nine years; and another was obliged to carry so many loads of sea sand and dung, and road scrapings. These ridiculous clauses should be set aside, founded as they were upon obsolete and unprofitable systems of husbandry, equally inconsistent with modern improvements and with prudent discrimination of the characters of the tenantry. That certain restrictions were necessary, no one could deny; but they should be so framed that while the tenant was prevented from doing injury to the estate, he should not be so fettered as to bar improvement. Mr. Karkeek also alluded to a clause generally inserted in Cornish leases, restricting the farmer from selling his Barley and Oaten straw. This he considered to be a wise and necessary restriction, for the ashes of straw consisted for the greater part of silicate of potash, and if this article was sold off the farm, it was robbing it of those very essential materials on which the success of corn crops greatly depended. "Nothing," he said, "could justify the selling of straw except the applying to the land, for every ton, the value of the same in some chemical manure containing those ingredients removed from the farm."—Mr. Trethewy said as Mr. Karkeek had made some allusion to the soil on the Carnwinnick estate, and the use of bone-dust there, it might not be amiss to state that the use of bones had been found very serviceable there, and that their effect, ten years since their application, was still visible. He would also observe that where they had continued the use of bone-dust, it had also been successful, not only with Turnips, but with the following crops of corn and Grasses.—The Chairman asked Mr. Trethewy if he had tried lime on Carnwinnick where he had previously tried bone-dust.—Mr. Trethewy said—Yes; he had carried 100 bushels of lime last year, in addition to other manures for Turnips. The first Turnips looked very stunted and ill; but, after a time, they made a start, and they were now the best Turnips in the field. This land had been previously dressed with bone-dust, and was also dressed with bone-dust in addition to the lime, for Turnips. There was nothing in the shape of mineral manure carried besides the lime. Perhaps it might be well for him to say that, some 20 years since, some of this land was broken and limed, but it was a total failure. It was then tilled—some to Wheat, and some to Turnips—but the crop was very inferior, and the land was allowed to go to waste again; and he believed it would have so remained to the present moment, had not bone been brought into use. They had taken repeated crops successively on the same ground, but not in regular rotation—merely as they suited best. That was done in order to destroy the young Furze, which was constantly sprouting. It was well known to most persons who were in the habit of farming rough land in this country, that there was great difficulty in destroying the Furze; and, indeed, it was thought almost impracticable, because they could not get a second crop, until bone-dust came into use. Now, he found no difficulty in producing a crop of Turnips from that land—either from fallow, or from Wheat or Oat stubble; he had grown Turnips repeatedly, after Wheat or Oats, with a single ploughing—the land ploughed down in November, and not touched again till the seed was sown. The quantity of bone-dust he had used was about 2½ qrs. per statute acre; and no other manure but that.—Mr. Karkeek: But you consumed part of your Turnips on the ground with sheep.—Mr. Trethewy had meant to say that they carried nothing in on the farm but bone-dust, and lately, some guano. He had made of late a deal of yard manure, which had been principally carried for Wheat every year; and he had been successful in growing Wheat after Oats with yard manure. He found this the best method of keeping back the Furze. He took two white crops following, and then a crop of Turnips.—Mr. Doble said, it appeared that Mr. Trethewy had formerly carried lime on his land without effect; but, after the soil had been bone-dusted, the lime produced a good effect.—Mr. Karkeek said Mr. Trethewy had been not only carrying bone-dust on the farm, but had also been manufacturing manure. All the organic and inorganic elements had been carried on the farm, in yard manure. When the lime was applied, the land had been under cultivation for 5 or 6 years. He thought the plan adopted by Mr. Collins, of Truthan, for bringing waste lands into cultivation,

was very good. His plan was to cultivate with bone-dust a crop of Turnips; half of which was eaten off by sheep folded on the land. After that, he took a crop of Barley or Oats; and then let the land to Grass for two years. Then he put in a crop of Rape which was also eaten by sheep; then followed Wheat; then Turnips, Barley, and seeds again. That was the plan which Mr. Collins had pursued on those barren lands which many respectable farmers considered as worth nothing at all; but which Mr. Karkeek believed he had converted into a valuable property.—A gentleman referring, we believe, to the Carnwinnick experiment, said, they must not consider that all the merit was due to the bone-dust alone, but to its having come into contact subsequently with lime.—Mr. Karkeek said he believed the operation was thus:—The bone-dust produced large crops which led to the production of a large quantity of manure; and, by this means, there was a larger proportion of humus in the soil, when the lime was applied the second time.—Mr. P. Davis: But supposing no dung were applied?—Mr. Karkeek said again, if the land contained the mineral elements to which he had before alluded, the lime would bring them into active operation. If he were a farmer, and looking out for a farm in the neighbourhood, he would try to select one that had not been limed for a good many years. He would then immediately begin to use lime, particularly if he had but a seven years' lease; but, of course, he should impoverish the soil by so doing.—Mr. Davis: But as you would be making other manure on the land, you would not impoverish the soil.—Mr. Karkeek: There can be no doubt it would impoverish the soil to a great extent; because the farmer did not carry everything back on the land which he took from it; he sold all the Wheat straw he could, and all the hay which he did not consume on the farm, besides the cattle and sheep fed and sold. After repeated applications of lime, what was required was a quantity of night-soil, and farm-yard dung or guano, which contained the elements that had been removed by the application of lime.—In reply to the chairman, Mr. Trethewy said, with bone dust or guano, he would rather take the chance of a crop of Turnips on waste land just broken up, than on the best land they had.—The Chairman: Can you get as good crops from waste land just broken up, as you can from land that has been kept in cultivation for several years?—Mr. Trethewy replied that he saw but very little difference. They might expect the best crop from land just broken up, because generally it was burnt, and the effect of the ashes was to be considered besides that of the bones. But still he would as soon take the chance of a crop of Turnips from Wheat or Oat stubble, as he would from land just broken up, at Carnwinnick.—Mr. Karkeek should think the best crop would be from the land just broken up. He did not call Carnwinnick a bad soil. But the best land for farming was near Penzance, on the greenstone rock. Considering its mineral elements, and the climate in which it was situate, he believed it was both theoretically and practically the best land in England. It was the only land in England that could produce two crops of Potatoes in the year. 1000 acres of the land round Penzance produced a rental of nearly 10,000*l*.—Several complimentary toasts were now given; after which the Chairman said as there were present some gentlemen who were not members, it might not be amiss to state that the club were now trying some experiments. It must be well known that a club like theirs could do much more in the way of trying experiments than could individuals. A single individual might incur serious loss; but if they, as a club, incurred loss it would be of less consequence. It had been considered by the club that they could not spend their money better than in trying experiments; and they had therefore requested Mr. Doble to conduct one with regard to the feeding of sheep. Mr. Doble had five sheep feeding in a dark house; five others in an open house; and five others in a field. The sheep were all weighed before they were put under the experiment; and the food given them was all weighed.—The club was also going to make some experiments as regards sulphuric acid with bone-dust against other manures.—Mr. R. Doble said, as far as the experiment on sheep feeding had gone, he had found that the sheep in the dark house ate more Turnips and hay than those in the open house or the field, which was opposed to the result of the experiments on Whitfield Farm, by Messrs. Playfair and Morton. In the field, the sheep had had no hay; they had only Grass and Turnips. He did not know anything about the present weight of the sheep; he intended to weigh them next Saturday. It might prove that the sheep in the dark house were paying best rthating dough emost food.

Calendar of Operations.

MAY.

Dairy Management is now an important point for the farmer's attention in many districts. We extract the following article on the subject, from an account of a Gloucestershire farm published some years ago by the Society for the Diffusion of Useful Knowledge:—It is acknowledged by every one, at all acquainted with the subject, that the quality of cheese does not depend upon the superior richness of the soil or the fineness of the herbage; for cheese of the first quality is frequently made from land of an inferior description, and from herbage of a coarse nature. Nor does the quality of the cheese depend upon the breed of the cows, for cheese of the best quality is made from the milk of cows of all the different breeds that are to be found in the country; we think it principally depends on the management of the cows as to their food, &c., of the milk in converting it into cheese, and of the cheese till it is fit for market. The following circumstances are injurious to the quality of cheese:—allowing the cows to get rank or ill-flavoured Grass or hay, these conveying a bad flavour to the milk and cheese—allowing the cows to run and heat themselves—driving them far to be milked, which makes the milk froth much in milking—carrying the milk from the place of milking to the dairy; and allowing it to remain long after it is milked, before it is set with the rennet. The greatest dependence is upon the dairy-maid, and the chief art of making cheese of the finest quality lays in her management. The superintendency of the dairy invariably devolves upon the farmer's wife, who attends to every minute circumstance in this department, and the following is a report of the information she has obligingly communicated to us respecting the whole economy of the dairy of this farm. The management of a dairy should be conducted with the greatest regularity. Every operation should be performed precisely at the proper time. Either hastening or delaying the execution of it will cause cheese of an inferior quality to be made of milk from which the best may be obtained. A dairymaid is selected for skill, cleanliness, and strict attention to her business. Her work commences at four o'clock in the morning, and continues without intermission till bed-time.

Dairy-house.—The dairy-house should be kept at a temperature of between 50° and 60°, and the drier it is kept the better, as both milk and cream retain their sweetness much longer in dry than in damp air. Every time, therefore, the dairy is washed, it is dried as quickly as possible. Around two sides of the dairy there are broad shelves, made of Elm, for putting the vessels that hold the milk and cream, and the newly-made cheese upon. On another side there is a frame with three large stone cheese-presses. In the middle of the north side is the door; and in the corner, on the left, is the stair leading up to the cheese-lofts; and behind the door is a single cheese-press which is generally used in pressing the cheese the first time, before it is cut down and put through the mill. In the middle of the floor stand three leaden vessels, large enough to hold all the whey of one "meal" or milking; and by the side of these stands the cheese-tub. Above the dairy there are two cheese-lofts, around the sides of which there are broad shelves for holding cheeses; and in the middle stands a frame for holding two rows of boards, called here "cheese-rack," which being only about eight inches apart, contain a much greater quantity of cheese than could be disposed on the floor. The stair to the cheese-lofts is of Oak, and seems to be the pride of the dairy-maid, for it is dry-rubbed and polished so smooth that is dangerous to walk upon; but this sort of pride is encouraged as evincing an attention to cleanliness. Along the north side of the dairy there is a shed, which communicates with the dwelling-house. In this shed the utensils are kept upon a stand for the purpose, the cream is churned, and other work performed nothing being done in the dairy, but the making of the cheese and the making up of the butter. Opposite to the door of the dairy and detached from the shed, is a wash-house with a pump-well at the door of it. In this wash-house the water and the milk are heated in boilers for the purpose; and all cleaning work is performed.

Utensils.—The milking pails are made of Maple, on account of the lightness of the wood and its cleanliness of appearance. They hold about six gallons each, and the cheese tub is of a size large enough to hold the whole of the milk. The ladder, the skimming-dish, and the bowl are of Maple. The sieve for straining the milk is about 15 ins. in diameter, and has a hair-cloth bottom. There are a number of cheese vats sufficient to hold all the cheese made in four or five days. They are made of Elm, and turned out of the solid. That which gives five cheeses to a cwt. is considered the best size for double Gloucester, the inside diameter of which is 15½ ins., and depth 14 ins.; and that is considered the best for single Gloucester which gives eight to a cwt. the diameter within being 15½ ins., and depth 2½ ins. Round boards called "suity boards," made of Elm, of the diameter of the cheese-vats, and thicker in the middle than at the edges, are occasionally necessary to place on the cheeses, when in the press, if the vats are not quite full. Without the assistance of these boards the cheeses will be round in the edge (a proof of not being well pressed), and not so handsome. The cheese presses are made of stone, as being the cleanest material for the purpose, and of steadiest pressure. They weigh about 7 cwt. each; they are raised by a block and tackle, and the whole apparatus is painted white. From the whey leads, which are oblong and about 8 ins. deep, there are leaden pipes which convey the whey into an underground cistern near the pigs'-houses, whereby means of a pump it is raised when wanted, for the pigs. Leaden keep the whey longer sweet than wooden vessels, and are much easier kept clean. This is done by scouring them with ashes of wood, and washing them well every time they are emptied, which is every 36 hours. Tin vessels are used in preference to earthenware for holding the milk that is set for cream, and also for holding the cream. Those used for the cream hold about four gallons each, and are made with a lip for the convenience of shifting the cream from one of these vessels into another. This is done once every day during summer, and there is a wooden slice or knife always kept in the cream vessel, with which the cream is frequently stirred during the day, to prevent a skin from forming on the top of it, which is injurious to the quality of the butter. The skimming-dish used for taking the cream off the milk, differs from that used in cheese-making, being made of tin, with holes in it, to let the milk run out that may be taken up with the cream. The butter-scales, prints, and butter-boards are of Maple. The boards for making up the butter in half-pound rolls are about one foot long and nine inches wide. The barrel-churn is made of the best Oak, and great attention is paid to its cleanliness. The butter-milk is never allowed to remain in it; but it is washed, scalded, and put up to dry, as soon as the butter is taken out.

Milking.—This is performed in three separate courts, to which the cows come from their several fields. The milkings should be as near as possible at equal divisions of the day, commencing at about four o'clock in the morning and three in the afternoon. To each milker eight cows are assigned, and one man carries the milk from all the milkers to the dairy. The milking should be finished in an hour. The dairy-maid sees that the milkers do their duty, and that all the cows are milked clean; for the milk that comes last is the richest, and besides, if the cows are not clean milked, there will be a gradual diminution of the milk, perceptible daily; for these reasons the greatest care is taken that the cows are clean milked.

Cheese Making.—The cheese-tub being put in its place in the dairy, the ladder is put across it, and a large thin canvas cloth covers the whole tub and ladder to catch any of the milk that may drop from the pail, and to prevent dirt from falling into the tub. Above this and upon the ladder is placed the sieve, through which the milk is strained. If the milk should not be of the temperature of 85°, a portion of it is put into a deep tin, kept for the purpose, and placed in a furnace of hot water in the wash-house, by which means the whole is warmed to a proper degree. It is of the utmost moment to attend to this; for if the milk is not warm enough when the rennet is put into it, the cheese will be "tender," and will bulge out in the edge, which spoils its appearance, and a great quantity of sediment of small curd will be found in the whey leads, which is so much curd lost. If, on the other hand, the milk is too warm, it will cause the cheese to "heave," or ferment, which injures both its appearance and quality. When the milk is sufficiently warm, the colouring and the rennet are put into it. The colouring or anatto is put in by rubbing a cake of it on a plate amongst the milk until, from its appearance, it seems coloured enough. One pound of anatto, at five shillings, is sufficient for half a ton of cheese. The rennet being added immediately after the anatto is put in, the tub is covered with a woollen cloth for, at least, an hour.—Rennet or runnet is made from the stomachs of calves, called here "vells." Irish vells are the best: they are cured, and sent to England, and sold by the grocers to the dairy-farmers. They should not be used till they are twelve months old, for, if they are not old, the rennet made from them causes the cheese to "heave," and to become full of "eyes," or holes. The rennet is prepared from them by adding to every vell a two gallons of brine and two lemons. The lemons do away with any disagreeable smell, and give the rennet sweetness and agreeable flavour. Twenty or thirty gallons of it are made at a time, as it is found to be much better, when made in large quantities. It should never be used till it has stood for at least two months. When the curd is sufficiently firm for breaking, it is gently and slowly cut with a three-bladed knife, even to the bottom of the tub, (the knife being about fourteen inches long,) both ways or at right angles and around the sides of the tub. The cuts should be about an inch apart. When it has stood five or ten minutes to allow it to sink a little, and the whey to come out as clear as possible, some of the whey is dipped out of it with the bowl, and the curd is cut a second time with the three-bladed knife—very slowly to begin with, for, if the cutting is done hurriedly, a great sediment of very small curd will pass through the sieve and be found in the whey leads, and there will also be an increase in the quantity of whey butter which should have been in the cheese, and the value of the butter, thus obtained, will not compensate for the waste of curd, and for the loss of credit which the cheese will sustain from the abstraction of butter from it. The cutting being, therefore, performed very slowly at first, and with the strokes of the knife at a considerable distance from each other, is gradually quickened, and the strokes are taken nearer and nearer every time. At last, one hand, with the skimming dish, keeps the whole in motion, turning up the lumps suspended in the whey, while the other, with the knife, is in constant motion, cutting them as small as possible—and this operation is continued till no more lumps are brought to the surface, and the whole mass is reduced to one degree of fineness. This process may occupy a quarter of an hour. The curd is now allowed to stand a quarter of an hour, and being, thus, sufficiently settled, the whey is taken from it with the bowl, and poured through a very fine hair sieve, placed over the whey leads. When the greatest part of the whey has been separated from it, the dairy-maid, folding over a portion of it, and beginning at one corner, goes around the tub, cutting the curd into lumps, and laying them on the principal mass, by which operation the mass is carried all around the tub, and most of the remaining whey escapes between the cut fragments, as they lie and press upon each other. From time to time the whey is taken from the tub, and put through the sieve into the whey leads. The curd is then put into vats, and pressed down with the hand. The vats, being covered with cheese-cloths, about one yard and a quarter long, of fine canvas, are placed in the press for half an hour, when they are taken out and the curd cut into slices, and put into a mill fixed on the top of the tub, which tears it into very small crumbs, as small as vetches. This mill is a great improvement, not only as it saves the dairy-maid the most laborious part of the process, that of squeezing and rubbing the curd into small crumbs with her hands, but as it allows the fat to remain in the cheese, which the hands squeeze out. In its pulverized state, it is customary with most dairy-maids to scald the curd with hot whey; but some consider cheese richer, when made without scalding the broken curd, this washing the fat out of it. Therefore, without scalding it, put it into the vats, and press it closely together with the hand in filling them. In making double Gloucester cheeses, particular care is taken to press any remaining whey from the curd as the vats are being filled, and they are filled as compactly as can be done with the hand, being rounded up in the middle, but just so much so, as that the whole can be pressed into the vat. Cheese cloths are then spread over the vats, and a little hot water is thrown over the cheese-cloths, which tends to harden the outside of the cheese and prevent it from cracking. The curd is now turned out of the vats into the cloths, and the vats being dipped into the whey to wash away any crumbs of curd that may clung to them, the curd, inverted and with the cloth around it, is again put into them. The cloths are then folded over and tucked in, and the vats, as they are filled, are put into the press one upon another. The bottoms of the vats are smooth and a little rounded, so as to answer the purpose of cheese-boards, which, therefore, are only wanted for the uppermost vats, or when the other vats are not quite full. The vats are allowed to remain under the press about two hours, when they are taken out and dry cloths are applied, which with double Gloucester cheeses should be repeated some time in the day.

Salting and Salting-presses.—The vats, when the clean cloths are given, as just mentioned, are changed from the single press to the one next to it, and placed in it, one upon another, as before. They remain in this press till the cheeses are salted, when those made in the evening take the place, in the press, of those made in the morning, and those made in the evening are, in their turn, displaced by those made the following morning, the cheeses of the last making being always placed lowest in the press, and those of the other makings rising in it according to the priority of making. The same order is observed in the other two presses, the last or newest making in each being lowest, and each making having next above it that which was made last before it. The cheeses pass through the three presses in this order, advancing a step in their progress at each "meal" or making, till, at last, in four or five days, they come out of the presses and are put upon the shelves. They are generally salted at the end of twenty-four hours after they are made, though this is done by some at the end of twelve hours. The salting should never be begun till the skin is all closed, for if there be any crack in the skin of the cheese at the time of salting, it will never close afterwards. The salting is performed by rubbing with the hand both the sides and the edge of the cheese with finely-powdered salt. The cheese after this is returned to the vats, and put under the press, care being always taken, according to what has been said, to put the newest cheese lowest in the press, and the oldest uppermost. The salting is repeated three times with the single, and four times with the double Gloucester, twenty-four hours being allowed to intervene between each salting. After the second salting the cheeses are returned to the vats without the cloths, that the marks of the cloth may be effaced, and the cheese may get a smoothness of surface and "keenness of edge," which is a peculiarity of Gloucestershire cheese. The double Gloucester remain in the presses five days, and the single four; but in damp weather they should remain longer. The quantity of salt generally used is about 3¼ lbs. to a cwt. of cheese.

The Cheese Room.—When the cheeses are taken from the salting-presses, they are put on the shelf in the dairy for a day or two, where they are turned once in twelve hours. They are then taken to the cheese-loft to make way for the new ones. In the cheese-room, either on the floor or on the "cheese-rack" they are turned once every day; and in general in a month from the time they were taken out of the vat, they are ready for cleaning, which is done by scraping them with a common knife. The dairy-maid in doing this, sits down on the floor, takes a cheese in her lap, and with the knife scrapes both sides and edge clean, taking off all scurf they may have contracted. The cheese, if intended for the London market, as is generally the case, when it has been thus cleaned, is rubbed all over with a paint made of Indian red, or of Spanish brown, or of a mixture of both, and small beer. It is rubbed on with a woollen cloth. After being painted it is turned over twice a week, and oftener in damp weather; and as soon as the state of the paint will permit, the edges of the cheese and about an inch of each side is rubbed hard with a cloth at least once a week.

Characteristics of true Gloucester.—The marks of true Gloucester cheeses are—"the blue coat," which arises through the paint on their sides, and which is a sure sign of their richness

and sweetness—the yellow golden hue of their edges—a smooth, close, and wax-like texture—a very mild and rich flavour—not crumbling when cut in thin slices, nor parting when toasted, with the oily matter they contain, but softening without burning. If cheese has been soured in the making, either from being too long in hand, or from want of attention in scalding the utensils, nothing will cause it to assume the blue coat. If the curd is salted, when ground down before being put into the vats, the salt has the effect of giving a skin to each of the particles of the curd it comes in contact with, which prevents them from intimately uniting; and although the curd may be pressed together and become good cheese, yet it never becomes a smooth, close, solid mass, like that which is salted after it is made, but is of a loose texture, and crumbles when cut; and although it may be equally fat, yet in toasting the fat melts out of it, and the cheesy part burns. The skin of the cheese too is not tough and solid, but hard and brittle, and when examined seems to be formed of many irregular portions, something like mossic work.

Notices to Correspondents.

ARTIFICIAL YEAST—*If "A Farmer's Wife"* will look back through one or two late numbers, she will find many receipts. See pages 243 of this year, and 616, 632 of last year's volume.

BARLEY—*Inquirer*—You may safely roll, sow seeds, and lightly harrow them in over Barley that is "well up." Do not let it be *too* far gone. You see, we have no means of informing you; the terms we use are necessarily indefinite. There is no help for this but in *experience*. Nevertheless we may say, that young plants will generally bear with impunity, if not with advantage, much rougher treatment than inexperienced men can imagine. Wheat will not do to roll heavily when 12 inches high.

BLANKS IN POTATOES—Potatoes planted 5 inches deep in October not up yet! Ours were put in (both early and late sorts) 8 inches deep in January, and are already many of them in strong foliage. If you have not Potato sets to dibble in, plant Cabbages in the blanks.

BREEDING SOWS—*Constant Reader*—Next week.

BURNT CLAY—*Horton* asks for the method pursued in burning clay in Essex. We are not aware of any particular mode adopted there. He will find some papers on the subject in the current and some of the late numbers of the English Agricultural Society's Journal.——*S S S*—It may be advantageously mixed with guano for a broadcast application of the manure. But read Mr. Dudgeon's article in another column.

CAPILLARY ATTRACTION—*Bell*—The effect of the capillary attraction of soil for water is in proportion to the fineness of the soil. In a clay soil it is greater than in sand, just as the former is made up of much finer particles than the latter. Take two glass tubes of very small bore (thermometer-tubes), and dip them into your ink bottle, you will find that the ink will rise higher in the one of smaller calibre. And so (the water standing in your land at say 3 ft. from its surface) will the height to which your soil is thus kept damp, depend on the fineness of its parts and the consequent smallness of the interstices through which the water rises.

CHOICE OF FARM—*Constant*—Of the two we should prefer that the subsoil of which is composed of the waste of the sandstone and lime. Its soil is likely to be of a more mixed nature than the other, and, so far, it is likely to be the better soil.

DOGS—*T H* asks for information as to the most economical way of feeding large dogs in town. Will any of our correspondents be so kind as to give the information sought for?

GAS TAR—*R P E jr.*—All we know about it is, that Mr. Bowley, of Cirencester, Gloucestershire, has been in the habit of making it into a compost with his dung; in alternate layers of 3 feet of dung, a coating of tar, another layer of dung, and then gas lime over all. He has also tried it by itself poured out of a watering-pot, "in a small stream," regularly over half an acre of Rye; Feb 18 8. The tar destroyed the Rye where it *touched*, but the strips of Rye untouched looked all the more luxuriant; and the Wheat in the following year was very much better on this half acre than on the rest of the field.

GRAZING—*Inquirer*—Grass varies greatly in quality; but, no doubt, generally, cattle will fall off on being put to Grass, after feeding in stalls on roots and meal, if the latter be removed.

LAND LIABLE TO FLOODS—*P Q R*—You should let all your drains terminate in a main, and that should open into the brook at the lowest end of the field, through a bricked passage, perhaps 6 inches square in the internal section. On to the end of this, which should terminate in a flat sloping surface, you should fasten a wooden framework inclosing a hanging-door, or valve, which will permit egress, but not ingress. It will permit the water to escape till a flood comes, which will shut the door, and the natural drainage of the land will accumulate in the main till the water subsides, when the door will again open. In addition to this, the surface of the land should be laid out with water furrows, so as to permit the ready escape of any of the surface-water which the floods may leave. This will be better than your upright shafts, the operation of which would be very doubtful.

SUPERPHOSPHATE—*W Northam's oasis*—You had better apply it in the way recommended for guano, by Mr. Dudgeon. See another column.

TO APPLY GUANO—*Gloucestershire*—See another column.

TO ROT REFUSE TURNIPS—*Pecaun*—Cut them up and place them in a heap together. If you put some dung in rapid fermentation along with the heap, it will, no doubt, hasten the process.

YOUNG SOW—*J L* must sell her at Michaelmas, and he has only green food for her in the meantime. We should prefer selling her then in farrow rather than attempt to fatten.

Markets.

SMITHFIELD, MONDAY, May 11.—Per Stone of 8 lbs.

Best Scots, Herefords, &c	4s	0s	0s	0d	Best Long-wools	—	—
Best Short Horns	3	8	4	0	Ditto (shorn)	4	0
Second quality Beasts	3	0	3	8	Ewes and second quality	—	—
Calves	4	0	4	10	Ditto (shorn)	3	8
Best Downs & Half breds	4	10	5	0	Lambs	5	8
Ditto (shorn)	4	0	4	8	Pigs	3	8

Beasts, 2518. Sheep and Lambs, 22,010; Calves, 231; Pigs, 290.

Our supply of Beasts is moderately good; buyers are more plentiful than last week, at a small advance on the best qualities.—The number of Sheep is small, and the demand increased, consequently we are making rather better prices.—Lamb trade is active.—Calf trade is dull, a good one with difficulty make 5s.—Pork trade is steady.

FRIDAY, May 15.

We have a full supply of Beasts and trade dull; it is difficult to obtain Monday's prices for anything. The best Scots cannot be quoted over 4s. and Short-horns 3s. 10d. Second qualities are lower, and many are unsold.—There are a few more Sheep but prices remain the same as on Monday.—Lamb trade is brisk, the choicest make nearly 5s.—Veal trade is rather better; a good Calf readily to 4s.—Pork trade is about the same as of late.

Beasts, 1184; Sheep and Lambs, 7833; Calves, 218; Pigs, 320.

41, West Smithfield.

POTATOES.—SOUTHWARK, WATERSIDE, May 11.

The supply to this market continues to be unusually limited for the season notwithstanding, there is little or no demand for any inferior samples. The account York Regents and Shaws are selling from 10s to 80s per ton; and the French and Jersey Blues are still unsaleable. The York and Scotch Reds are the only samples in request; there has been a few fresh samples of Regents from the ships that have been selling as quoted below.—York Reds, 130s to 190s per ton; ditto Regents, 60s to 150s per ton; Scotch Reds, 110s per ton. At the close of the week 115s per ton was asked for some of the fresh samples Scotch Reds.

HOPS, FRIDAY, May 15.

The market is very firm, and gradually advancing. The fly continues to increase.

PATTENDEN & SMITH, Hop-Factors.

COVENT GARDEN, MAY 16.—Vegetables of all kinds have been well supplied. All kinds of Fruit in season is plentiful, and trade begins to get a little brisker. Several good-sized Pine-apples have been offered. Hothouse Grapes are becoming more plentiful, and a considerable quantity of Peaches and Nectarines, of apparently good quality, have been offered during the week. Ripe Cherries and Strawberries are pretty plentiful, more especially the latter, and for which there is little demand. Green Gooseberries and Apricots are also plentiful. Apples and Pears are very scarce, and are for the most part sold at nominal prices. Oranges are plentiful, and Nuts of all kinds are sufficient for the demand. A few Melons have just made their appearance. Of Vegetables, Broccoli is good and pretty plentiful. Asparagus is excellent, and Cabbages, Greens, &c., are good and plentiful. Young Carrots and Turnips may be obtained at last week's prices. Green Peas have been offered at from 18s. to 1l. per half-sieve. Celery is good in quality, and sufficient for the demand. Potatoes of the very best quality still fetch 9l. a ton, and in one or two cases 10l. and 12l. a ton; but inferior samples may be obtained at much lower prices; on account of the variety and abundance of other vegetables, however, few sales are effected at any price. Frame Potatoes are pretty plentiful. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Auriculas, Tropæolums, Jasmines, Lily of the Valley, Pentas carnea, Stephanotis floribunda, Burchellia capensis, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Rhododendrons, Cinerarias, Gardenias, Moss and other Roses.

FRUITS

Pine Apple, per lb., 6s to 10s	Lemons, per dozen, 1s to 2s
Grapes, Hothouse, per lb., 7s to 8s	— per 100, 8s to 14s
— Spanish, per lb., 2d to 1s	Almonds, per peck, 6s
Apples, Dess., per bush., 7s to 30s	Sweet Almonds, per lb., 2s to 3s
— Kitchen, 1s to 15s	Filberts, English, p 100 lbs., 30s to 60s
Gooseberries green per half-sieve, 3s to 10s	Nuts, Cob, per 100 lbs., 30s to 35s
Strawberries, per pint, 4d to 1s	— Barcelona, 20s
Oranges, per dozen, 1s to 2s 6d	— Brazil, 12s to 16s
— per 100, 4s to 18s	— Spanish, 14s
— Seville, per 100, 5s to 16s	Walnuts per bushel, 10s to 20s
— per dozen, 2s to 3s 6d	Chestnuts, per pk, 4s to 7s

VEGETABLES.

Cabbages, per doz., 6d to 1s 3d	Carrots, per bunch, 1d to 2s
— red, per doz., 2s to 12s	Parsnips, per doz., 3d to 1s
Broccoli, Brown, per bdle, 9d to 1s 6d	Scorzonera, per bundle, 1s to 1s 3d
— White, 1s to 4s	Salsify, do., 1s to 1s 6d
Cauliflowers, per doz., 4s to 12s	Onions, per bushel, 1s 6d to 3s
Greens, per doz. bunches, 1s to 1s 6d	— Spanish, per doz., 1s 6d to 2s
Artichokes, per doz., 3s to 9s	Shallots, per lb., 1d to 2d
French Beans, per 100, 2s to 3s	Garlic, per lb., 3d to 6d
Scarlet, per half-sieve, 6d to 1s	Lettuce, per score, Cabs, 4d to 1s
Potatoes, per ton, 70s to 180s	— Cos, 6d to 1s
— cwt., 4s to 9s	Radishes, per 12 bunch, 2d to 4s
— bushel, 4s to 6s 6d	Mushrooms, per pottle, 1s to 1s 6d
— Kidneys, per bushel, 8s to 9s	Small Salads, per punnet, 2d to 3d
— Frame per lb., 1d to 1s 6d	Fennel, per bunch, 1d to 2d
Turnips, per bunch, 2d to 3s	Savory, per bunch, 4d to 6d
Red Beet, per score, 1d to 1s 6d	Thyme, per bunch, 4d
Horse Radish, per bundle, 2s to 7s	Watercress, p 12 sm bun 6d to 8d
Rhubarb, per bundle, 3d to 1s 6d	Parsley, per bunch, 1d to 2d
Asparagus, per bundle, 1s to 6s	— Roots, per bundle, 1s
Cucumbers, each, 6d to 2s	Tarragon, per bunch, 6d
Spinach, per sieve, 6d to 1s	Mint, green, per bunch, 6d to 8d
Leeks per doz bunches, 1s 6d to 1s 6d	Marjoram, per bunch 4d
Celery, per bun., 6d to 1s 6d	Chervil, per bunch, 6d to 8d

HAY.—Per Load of 36 Trusses.

SMITHFIELD, May 14.

Prime Mead Hay	80s to 85s	New Hay	—s to —s
Inft. New & Rowen	60 70	Clover	85 1 0
		Straw	0 33

JOHN COPPER, Salesman.

CUMBERLAND MARKET, May 11.

Prime Mead. Hay	80 to 85s	Old Clover	110 to 115s		
Inferior	60 70	Inft.	90 100	Straw	30s to 36s
New Hay	— —	New Clover	— —		

JOHN & BANKS, Hay Salesman.

WHITECHAPEL, May 15.

Fine Old Hay	80s to 85s	Old Clover	110 to 115s		
Inferior Hay	60 70	Inft.	90 100	Straw	28s to 32s
New Hay	— —	New Clover	— —		

Trade very dull; middling articles scarcely saleable at any price.

MARK LANE, MONDAY, May 11.

There has been a fair supply of Wheat from the neighbouring counties fresh for this day's market, which met a heavy sale at a decline of 4s. to 5s. per qr. from this day week, and some quantity remained unsold at the close. Bonded maintains its late value, and sells in small parcels to millers to release by certificates, which have declined to 9s. per qr., this being the means resorted to for procuring it free, the free stock, with very few exceptions, being cleared off. All descriptions of Barley must be written 1s. per qr. cheaper. Beans and White Peas support last week's rates, Maple and Grey the turn cheaper. The best descriptions of Oats are fully 1s. per qr. lower; ordinary sorts cannot be disposed of, unless at a still further abatement in price.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	White	58	62	Red	50 60
—— Norfolk, Lincolnshire, and Yorkshire		57	59	White	76 80
Barley, Malting and distilling 32s to 36s Chevalier		30	33	Grind.	25 28
Oats, Lincolnshire and Yorkshire	Polands	24	29	Feed	21 24
—— Northumberland and Scotch	Feed	24	25	Potato	27 30
—— Irish	Feed	22	26	Potato	30 36
Malt, pale, ship		54	60		
—— Hertford and Essex		60	64		
Rye		34	36		
Beans, Mazagan, old and new	28 to 40	Pick	40	Harrow	31 48
—— Tigeon, Heligoland	31 to 32	Winds	—	Lookpod	— —
Peas, White	32 to 40	Maple	32	Grey	33 34

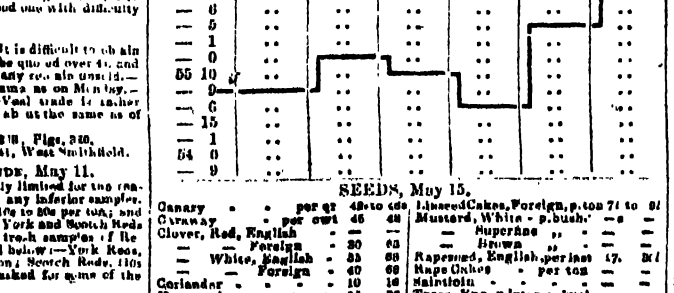
FRIDAY, May 15.

The arrivals of all descriptions of Corn in the river during the week have been moderate; the English Wheat at market, either left over or fresh up since Monday, is held on that day's terms, some portion of which still remains unsold. Bonded is taken as heretofore in small parcels to release by certificates, which are now held at 10s.—There is very little doing in any other article; the Oat trade is dull, and to make sales to any extent less money must be accepted.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats	Rye.	Beans.	Peas.
Apr. 4 per Quarter.	53s 8d	30s 7d	22s 6d	33s 7d	34s 0d	34s 0d
— 11	56 0	30 9	22 9	33 4	35 1	35 8
— 18	55 10	30 0	22 9	33 8	34 9	36 6
— 25	56 6	30 1	22 4	33 7	34 10	35 10
May 2	56 5	29 8	24 7	32 5	34 11	34 10
— 9	56 8	29 7	27 9	34 5	35 8	34 7
6 weeks' Aggreg. Aver.	56 0	30 2	23 1	33 7	35 0	34 1
Duties on Foreign Grain	16	8 0	5 0	9 8	7 6	8 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, May 9.



SEEDS, May 15.

Canary	per qr	48s to 68s	Linseed Cakes, Foreign, p. ton	7l	8l
Caraway	per cwt	46 48	Mustard, White - p. bush.	—	—
Clover, Red, English	—	—	— Superfine	—	—
— — Foreign	—	60	— Brown	—	—
— White, English	—	55	Rapeseed, English, per last	17l	21l
— — Foreign	—	60	Rape Cakes	per ton	—
Coriander	per qr	16	Saintoin	—	—
Hempseed	per qr.	38	Tares, Eng. winter p. bush.	—	—
Linseed	per qr	45	— Foreign	8s	6d 4d
— Baltic	—	42	Trefoil	per cwt	16 25
— Cakes, Eng. per 1000, 11l		12l	Turnip (too variable for quotation)		

KIDGEDOOD AND LEE.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE & MORRIS will submit to public competition, at the Auction Mart, Bartholomew-lane, on Thursday, May 21, 1846, and following day, at 12 o'clock, about 600 DAHLIAS, comprising all the new varieties of the season; also a splendid assortment of GERANIUMS, and other Plants, in bloom; together with the newest varieties of FUCHSIAS, VERBENAS, HEARTSEASE, BENGAL ROSES, and a variety of Plants for the borders.—May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

MEXICAN ORCHIDS.

MESSRS. J. C. & S. STEVENS beg to announce that they will sell by Auction, at their Great Room, 38, King-street, Covent Garden, on Monday, May 25, at 12 o'clock, an IMPORTATION OF ORCHIDS from the temperate regions of Mexico, comprising many fine plants in good condition.—May be viewed on Saturday and morning of Sale, and Catalogues had of the Auctioneers, 38, King-street, Covent Garden.

TO NURSERYMEN, FLORISTS, AND OTHERS.

TO BE DISPOSED OF.—The original Plant, with a number of Slips, the under-named Seedling—"CEREUS MELDONIENSIS"

R. MILTHORPE, through the liberality of his employer, is enabled to offer to the public this most unique of all Cactus, combining habit and flower.—See *Gardeners' Chronicle*, p. 382, May 17, 1845. "R. M.—Your Seedling Cereus is a very handsome variety, large, bright, and fine in colour; it may be necessary to say it is of strong and healthy growth, a well-grown plant; placed on a pillar, will perhaps surpass anything yet introduced into the conservatory or greenhouse, and will give pleasure at all seasons. The Plant continued in bloom six weeks, and was the admiration of all who saw it." A correct Drawing of the Plant, showing its habit, may be seen at the Office of this Paper.—For further particulars apply to R. MILTHORPE, Meldon Park, Morpeth.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND."

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

GLASS FOR CONSERVATORIES.

APSLEY PELLATT AND CO., Falcon Glass Works, Hollandstreet, Blackfriars, are prepared to supply (in quantities not less than 100 square feet), SHEET AND CROWN GLASS OF BEST QUALITY, at the following *Ad Usk Prices*.—

Any size under 10 ins. long.	Per square foot.
14 oz. weight per foot	4d.
16 oz. " "	5
21 oz. " "	7
26 oz. " "	11

SMALL Squares from 5 ins. by 3 ins. up to 10 ins. by 8 ins., from 1½d. to 3d. per square foot.

N.B.—The 16 oz. is full strength for Greenhouses.

PROPAGATING GLASSES, White, 1s. per lb., or from 2s. 6d. to 2l. per dozen. CUCUMBER GLASSES, from 6d. to 4s. each. GRAPE SHADES, with holes, 1s. 9d. to 2s. 6d. each. FISH BOWLS, from 1s. 6d. each.—APSLEY PELLATT & Co., Falcon Glass Works, Holland street, Blackfriars.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

per gross.		per gross.		per gross.
6 in. by 4 .. 6s.		8 by 5 .. 14s.		9 by 7 .. 18s.
7 in. by 4½ .. 9s.		8 by 6 .. 14s.		10 by 8 .. 26s.

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists apply to R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square, London.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

BRITISH AND FOREIGN SHEET AND HORTICULTURAL GLASS.

PHILLIPS AND WELCH have to announce to the Nobility and Gentry, that they have just concluded arrangements with J. WELCH, jun., PHILLIPS and CO., for the purchase of the business lately carried on by them, at 12, Panton-street, and beg to call attention to their extremely low prices for Horticultural Glass of every description

PRICES OF HORTICULTURAL GLASS:

Not above 40 in. long by widths from 5 in. to 18 in.

No. 13	British or Foreign sheet			
	13 oz. to the foot	4d.	per foot.	
" 16	16 "	"	.. ..	5d. "
" 21	21 "	"	.. ..	7d. "
" 25	26 "	"	.. ..	11d. "
" 32	32 "	"	.. ..	1½d. "

SMALL SQUARES.

Packed in 100 feet Boxes, not particular to thickness.

Under 5 in by 3 in.	.. ..	1½d	per foot.
5 by 3 and under 6 by 4	"	2d.	"
6 by 4 " 9 " 7	"	3d.	"

FOR GLAZING.

Black Cement, as used at Chatsworth. 24s. per cwt.
Best Linseed Oil Putty .. .. .. 10s. "
White Lead, Window Lead, Solder, &c. &c.

Horticultural Glazing Executed in any part of the United Kingdom.

The selection of Patent Plate, Sheet, and fluted Crown Glass, for Pictures, &c., particularly attended to.—12, Panton-street, Haymarket.

IMPORTANT TO HORTICULTURISTS.

THE ARTICLE GLASS.

MESSRS. DAINES AND BRUDDOCK solicit the inspection of Glass Dealers, Horticulturists, and Builders, to an entirely new description of BRITISH SHEET GLASS, which, upon trial, will be found unequalled in strength, utility, and price, by any now in the market, for Sashes, and particularly Horticultural purposes; and by patronising this article the evil results attending the use of Foreign and other Glass of ordinary composition will be entirely avoided, as in manufacturing the above Metal great care and skill has been used to divest it of the slightest tendency to concentrate the rays of the sun, a fault in many cases ruinous to plants.

6, Farringdon-street, May 16.

N.B.—The best assortment of Coloured Glass in London

NEW SEEDLING DAHLIAS, VERBENAS, PETUNIAS, &c.

BENJAMIN W. KNIGHT, Florist, &c., Tivoli, near St. Leonard's-on-Sea, Sussex, begs to offer the following new Seedlings, which he can with confidence recommend as superb and distinct Varieties:—

		each—s.	d.
DAHLIA—	Pizarro; primrose-yellow, superb	10	6
,,	Verta; fine delicate blush, superb	10	6
,,	Striata delicatissima; white, purple spots and stripes	5	0
FUCHSIA—	Admirable; a fine large light Variety	7	6
VERBENA—	Antler; large lilac, dark eye, fine	5	0
,,	Purpurea elegans; the best purple ever offered	5	0
,,	Queen of Beauties; lilac, changing to flesh, with a dark eye, very fine	5	0
PETUNIAS—	Captivation: rosy pink, puce centre, and striped with puce, very fine	5	0
,,	Fascination: rich glossy crimson, with distinct stripes of dark puce, extra fine	5	0
,,	Prince of Oldenburgh; bluish lilac, dark bluish purple centre, and striped with same, of immense size, very fine	5	0
,,	Rol de Purpurea; violet purple, large size, of superb shape, very fine	5	0
ANTIRRHINUM—	Enchantress; large white, spotted and striped with rose, very fine	5	0

MISCELLANEOUS PLANTS.

	each—s.	d.		each—s.	d.
Ascle umi coeruleum	1	0	Gesnera elongata	1	0
Æschynanthus parasitica	1	0	Gloxinia rubra	1	0
,, floribundi	1	6	,, bicolor	1	6
Angelonia Gardneriana	1	0	,, tubiflora	1	0
Abutilon striatum	1	0	,, magnifiora	1	6
Aphelandra cristata	2	6	Hoitzia coccinea	1	6
Anisa zygomeris	1	0	Habrothamnus cyanus	1	6
Azalea Jennerii	2	0	,, fasciculatus	1	6
,, Smithii	1	0	Inga pulcherrima	2	0
,, macrantha rubra	1	6	Justicia purpurescens	1	6
Achimenes formosa	1	0	,, azurea	1	6
,, coccinea	0	9	Lythrum roseum superbum	1	0
,, grandiflora	1	0	,, superbum	1	0
,, hirsuta	1	0	Lantana mixta	1	0
,, picta	1	0	,, crocea speciosa	1	0
,, longiflora	0	9	,, malvifolia	1	6
,, picta	1	6	Monettia cordata	1	6
,, pedunculata	0	9	Nymphea oblongata	1	0
,, rosea	1	0	Plumbago rosea	1	6
Bouvardia flava	2	6	Physianthus albens	1	0
,, strigosa	1	0	Pentas carnea	1	0
Begonia chiensis	1	0	Pædera fœtida	2	0
,, Coccinea	1	6	Ruellia ziziaca	1	0
,, ignis	1	0	,, formosa	1	0
,, nivea	1	6	Statice Dicksonii	2	0
,, zebrina	1	6	,, pedella armeria	1	0
Bruguiansia Knightii	1	6	,, sinuata	1	0
Buddlea Lindleyana	1	0	,, arborea grandiflora	1	0
Cuphea Greevilli	1	0	,, Rendwardii	1	6
Columnea Schediana	1	6	,, grandiflora	1	6
Cranothus divaricata	1	0	Scutellaria Japonica	1	0
Chironia floribunda	1	6	Spinea aspalathoides coccinea	5	0
Convolvulus pentanthus	1	0	,, betulæfolius	1	0
Calceolaria floribunda	1	0	,, lantanifolius	1	0
Drymonia punctata	1	6	Tropeolum Lobbianum	1	6
Epacris myrtifolia	1	0	Thunbergia chrysops	1	0
Fuchsia corallifolia	2	6	Veronica speciosa	1	0
Gesnera mollis	1	6	,, Lindleyana	1	6
,, zebrina	1	6	,, salicifolia	1	6

Catalogues of the above will be sent gratis on application. A proportionate number of Plants presented to each order, towards defraying the expense of carriage. No charge made for box and packing.

A remittance or reference required from unknown correspondents.

GLASS MILK PANS.

EDWARDS & PELL, Foreign Glass Agents, 15, Southampton-street, Strand, are now prepared to supply these admirable utensils in dark and light glass. They are made of such strength as to bear a severe blow without breaking, and they clean with so much ease that the use of hot water is unnecessary, and consequently no risk of cracking.

EDWARDS & PELL also supply Foreign Sheet Glass of excellent quality and colour, for Horticultural purposes; this Glass has been much approved by parties who have used it extensively, and to whom reference can be given.

Bell Glasses from 11 inches by 6 to 4 inches by 2½, in clear white flint glass, at 10d. per lb.

GLASS.—BRITISH AND FOREIGN PLATE, CROWN, AND SHEET GLASS WAREHOUSE, 49, Broad-street, Bloomsbury. (Established 1798.)

The Proprietor begs to inform his Friends and the Horticultural Public that he has on hand a large Stock of British and Foreign Sheet and Crown Glass of a very superior quality, and such as he can confidently recommend from its equality of surface, complaints having been repeatedly made, since the duty has been taken off, of the inequality of the surface of Glass which has been used for Hothouse purposes. It is now a well-known fact that irregularities or blights and dents on the surface of Glass are found to act as a lens, concentrating the rays of the sun, and thereby injuring the more delicate plants.

Superior Sheet Glass, weighing 16 oz. to the square foot, from	5d.	to 6d.	per foot
Ditto, ditto, 21 oz. to the square foot	7	to 9	,,
Thick Crown Glass, from	2	to 6	,,
Violet-coloured Crown	7	to 9	,,

According to size.

The Proprietor has also on hand an inferior quality of Sheet Glass, varying from 13 oz. to 16 oz. to the foot, from 3½d. to 4d., to use which for Greenhouses or Conservatories would be mistaken economy, experience having proved to us the positive injury produced by its use for Horticultural purposes, being suitable only for windows and skylights in inferior buildings.

The most economical Glass to be used with safety to the plants is Crown, in sizes from 6 by 4 to 8 by 6, both to the first expense and in repairing; some people forget that large panes of glass break as well as small ones, and the larger the piece the greater the chance of its breaking.

Glazing done in any part of the country by contract, or at so much per foot.

ALEXANDER MARSHALL, 49, Broad-st., Bloomsbury, London

TO THE NOBILITY, GENTRY, NURSERYMEN, IRONMONGERS, AND OTHERS.

LINGHAM BROTHERS, 170, Little Hampton-street, Birmingham, sole Manufacturers of the IMPROVED MENOGRAPH, or Labels for Garden Borders, Flower Pots, &c. Engravings of the same, with prices attached, sent per Post to all parts of the Kingdom, on application as above.

Sole Agents in London, G. and J. DEANE, Horticultural Implement Warehouse, 46, King William st., London Bridge.

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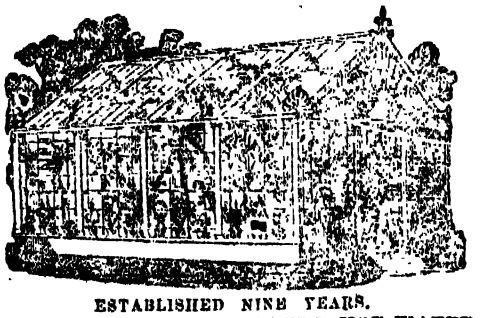
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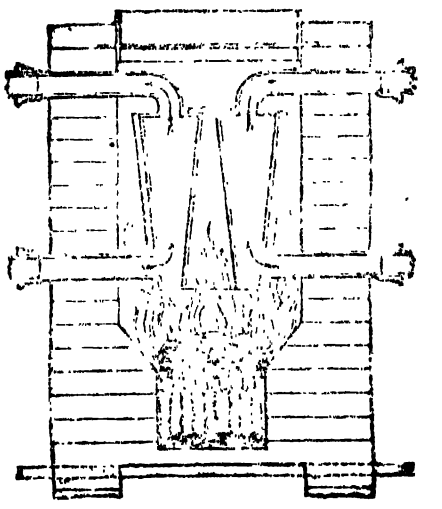
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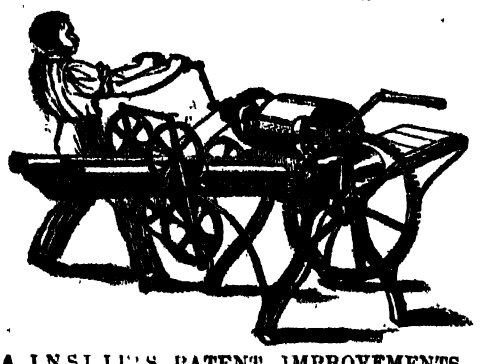
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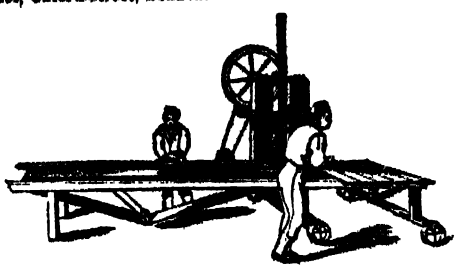


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*** See Letter of Thomas Law Rodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, Vol V.

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RAILWAY LITERATURE.—Thornton Hunt's Unity of the Iron Net Work.
PARLIAMENTARY PROCEEDINGS.—Programme of Parliamentary Business—Progress of Bills—Committees on Opposed Bills—Lord Brougham's Resolutions.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 21—1846.] SATURDAY, MAY 23. [Price 6d.

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RHODODENDRON CASTANEUM FLORUM. See *Gardeners Chronicle* 1844 p. 18. Your hybrid from Castaneum is a large and handsome flower with ground having the margin of the segments tinged with delicate pink and the interior of the upper division of the corolla beautifully spotted with maroon. The blooms sent indicate a very ornamental variety. Strong plants 1s each.

PELARGONIUM MARIA very fine large rose purple. See *Gardeners Chronicle* 1841 p. 52. Your Seedling is an improvement on many of the same sort with which I am acquainted. Plants 1s each.

LOBELIA LINDLEYANA MULTIFLORA. See *Gardeners Chronicle* 1844 p. 30. Your Seedling Lobelia is a very handsome variety. The top is large and broad, of a rich and dazzling scarlet colour, the spikes of flower increasing from 12 to 18 inches in height. Plants 1s 6d each, 15s per dozen.

Laxodium micranthum 6 to 9 inches	10s 6d
Lycoris pumatilda	1 0
Alstroemeria	2 0
Veronica speciosa	2 0
Stachys lanata recommended for bedding at 1s per dozen	0 0
Andromeda arborea tomentosa	2 0
Euchlaena ciliata	1 6
Calceolaria herbeauda for bedding	2 6
Roses two species Chusan each	1 6
Do one do Amoy	3 6

With all plants carefully packed. Carriage An allowance to the Trade. Taunton Nurseries, May 2.

C. LODDIGES & SONS, Hackney, have now ready for delivery a limited number of Exotic Plants, of fine high very bushy of RHODODENDRON MINIATUM a new species from the Himalayan Mountains, perfectly hardy, and of magnificent habit. Price 7s 6d each. A remittance will be expected with orders from new correspondents.

NEW GOOD AND CHEAP

BENJAMIN WHITE KNIGHT, Florist, &c., Tivoli, near St Leonards on Sea, Sussex, begs to call the attention of his friends and the public to the following CHOICE PLANTS which are now ready to send out.

Twelve new choice and distinct Fuchsias fit for exhibition, for 6s. 12 extra first rate very distinct variation, all sent out in the first time this season for 4s. 12 distinct Verbenas, for 3s 6d, 12 extra new and various for 6s. 12 choice Petunias, for 6s, 12 good and distinct Cinerarias for 6s, 12 extra good kinds for 12s. 12 fine Snapdragons for 3s 6d, 12 fine Salvias, for 4s, 12 Heliotropiums for 4s, 12 choice kinds of Phloxes, for 6s, 12 extra fine very distinct varieties, for 12s, 12 choice Antirrhinums for 6s, 12 choice new kinds for 12s. 12 fine show Pansies for 6s, 12 extra good for 12s, choice Double, selected with great care from the best varieties. Verbenas, 6s per paper. Antirrhinums 2s 6d. per paper; Dahlias, from the best show varieties, 3s per paper, Germans Asters, extra fine 2s 6d per paper.

Also will be ready in May 12 good show Dahlias for 6s; 12 superior for 12s. 12 extra good, choice kinds, all new last season for 18s. 12 of the finest Warranted varieties for 6d.

Any of the above can be sent safely packed for carriage post free on receipt of the amount with the order. Catalogues of the above may be obtained on the usual application.

May 1 1846.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS CIBBS and CO.

(By Official appointment) the SEEDSMEN to the ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Beg to remind the Members of the Society and Agriculturists in general that their only Country House and Seed Warehouse is at the Corner of HALF-MOON STREET, PICCADILLY London as before the Fire in Mary Axe.

Priced Lists of Agricultural Seeds are always ready and may be had on application.

TURNIP SEEDS

W. DRUMMOND and SONS Stirling, N.B. and Dublin have on sale a large and select Stock of TURNIP SEEDS. Terms particularly moderate. The following are the most approved sorts viz.

Swedish Skirving's Improved Purple top
Ditto Laing's Improved Purple top
Yellow Aberdeen with Green top
Ditto ditto with Purple top
Ditto ditto ditto improved
Ditto Improved Early Swedish esteemed for sowing late in season
White Globe
Green Globe

N.B.—Delivered free in Liverpool, Hull, Newcastle, Cork, Belfast and London at any time not less than 40 lbs are ordered.

* Priced Catalogues of Implements, Garden and Farm Seeds, Nursery Plants, &c. sent free on application.

Agricultural Museum, Stirling and 9 Dawson-street, Dublin, May 1.

FURZE OR WHIN SEED.—We offer the above, of good quality at One Shilling per lb. Any quantity above 1 cwt delivered free on board in Liverpool.

Dublin, May. JOSEPH HIGGINS & SONS.

Packages included 6d per packet.

COOPER'S PATENT PRESERVED FRUITS.—



have been proved to keep in a sound and perfect state for family use for five years. An assortment of fruits that are usually preserved Raspberries and Currants Cherries Greengages Gooseberries, Damsons &c. are put in strong glass bottles of different sizes and well filled with the whole particulars of the patent process and testimonials, are packed in hampers and will be delivered at any part of London TEN SHILLINGS by an old established Manufactory (the upper part of St John street, Clerkenwell London. These fruits are presumed to be of a superior quality to any ever before offered for public notice a trial will prove the excellence. The list of contained in these packages has met with a decided and acceptable present for country friends as they retain much of the modern information for the preservation of fruits.

The Patent Apparatus for preserving fruits are now on Sale at the Manufactory as above.

WASP CATCHERS

UNDERWOOD Cutler to Her Majesty, 56, Haymarket begs to inform Amateurs Gardeners Nurserymen and others that he has just completed a number of WASP CATCHERS from 1 to 2 inches in square and oval shapes. It is well known that every Wasp caught in this month is the destruction of a hive; must therefore an early application of this will be recommended. A large assortment of improved Budding Knives, Pruners, &c. always ready.

IMPORTANT TO HORTICULTURISTS

THE ARTICLE GLASS

MESSRS DAINES and BRADDOCK solicit the inspection of Glass Dealers Horticulturists and Builders, to an entirely new description of BRITISH SHEET GLASS which for its brilliancy and great strength, utility and price by any now in the market, it pushes and particularly if used in pine pits and hot houses raising this article the evil so much complained of is entirely avoided, as in manufacturing the above Machinery and skill has been used to drive out of the air or water which by coming in contact with the rays of the sun, fault in the glass is found to plants.

Farringdon-street May

N.B.—The best assortment of Crown Glass in London.

CUCUMBER AND MELON FRAMES AND LIGHTS.—One Hundred 1, 2, and 3-light Frames and Lights of all sizes ready for immediate use. Warranted best, materials packed and sent to all parts of the kingdom. 3-light Frames and Lights from 1l. 6s. Garden Lights of every description. Conservatories, Green and Hot-houses made and fixed in all parts of the Kingdom. References given to the Nobility, Gentry, and the Trade, in most of the counties in England.
JAMES WATTS, Hothouse Builder, Claremont-place, Old Kent-road, London.

BRITISH AND FOREIGN SHEET AND HORTICULTURAL GLASS.
PHILLIPS AND WELCH have to announce to the Nobility and Gentry, that they have just concluded arrangements with J. WELCH, jun., PHILLIPS and Co., for the purchase of the business lately carried on by them, at 12, Panton-street, and beg to call attention to their extremely low prices for Horticultural Glass of every description
PRICES OF HORTICULTURAL GLASS:
Not above 40 in. long by widths from 5 in. to 18 in.

No. 15	British or Foreign sheet 13 oz. to the foot	.. ..	4d. per foot.
,, 16	16 ,, ,,	.. ..	5d. ,,
,, 21	21 ,, ,,	.. ..	7d. ,,
,, 26	26 ,, ,,	.. ..	11d. ,,
,, 32	32 ,, ,,	.. ..	1s. 2d. ,,

SMALL SQUARES.
Packed in 100 feet Boxes, not particular to thickness.

Under 5 in. by 5 in.	.. ..	1½d per foot.
5 by 3 and under 6 by 4 ,,	.. ..	2d. ,,
6 by 4 ,, 9 ,, 7 ,,	.. ..	3d. ,,

FOR GLAZING.

Black Cement, as used at Chatsworth.	24s. per cwt.
Best Linseed Oil Putty	10s. ,,

White Lead, Window Lead, Solder, &c. &c.
Horticultural Glazing Executed in any part of the United Kingdom.
The selection of Patent Plate, Sheet, and Rolled Crown Glass for Pictures, &c., particularly attended to.—12, Panton-street, Haymarket.

GLASS.—BRITISH AND FOREIGN PLATE, CROWN, AND SHEET GLASS WAREHOUSE, 49, Broad-street, Bloomsbury. (Established 1798.)
The Proprietor begs to inform his Friends and the Horticultural Public that he has on hand a large Stock of British and Foreign Sheet and Crown Glass of a very superior quality, and such as he can confidently recommend from its equality of surface, complaints having been repeatedly made, since the duty has been taken off, of the inequality of the surface of Glass which has been used for Hothouse purposes. It is now a well-known fact that irregularities or heights and dents on the surface of Glass are found to act as a lens, concentrating the rays of the sun, and thereby injuring the more delicate plants.

Superior Sheet Glass, weighing 16 oz. to the square foot, from	5d. to 6d. per foot	According to size.
Ditto, ditto, 21 oz. to the square foot	7 to 9 ,,	
Thick Crown Glass, from	2 to 6 ,,	
Violet-coloured Crown	7 to 9 ,,	

The Proprietor has also on hand an inferior quality of Sheet Glass, varying from 13 oz. to 16 oz. to the foot, from 3½d. to 4d., to use which for Greenhouses or Conservatories would be mistaken economy, experience having proved to us the positive injury produced by its use for Horticultural purposes, being suitable only for windows and skylights in inferior buildings.
The most economical Glass to be used with safety to the plants is Crown, in sizes from 6 by 4 to 8 by 6, both to the first expense and in repairing; some people forget that large panes of glass break as well as small ones, and the larger the piece the greater the chance of its breaking.
Glazing done in any part of the country by contract, or at so much per foot.
ALEXANDER MARSHALL, 49, Broad-st., Bloomsbury, London.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 28, Castle-street East, Oxford-street. For Ready Money only.

FOREIGN SHEET GLASS, GLASS TILES, &c., Imported by and sold at C. JARVIS'S old-established Window Glass Warehouse, 38, Great Castle-street, a few doors from Regent-street, good in quality, very stout, and low in price. English manufactured Glass of every description, on the lowest terms for ready money only.

GLASS FOR CONSERVATORIES.
APSLEY PELLATT AND CO., Falcon Glass Works, Holland-street, Blackfriars, are prepared to supply (in quantities not less than 100 square feet), SHEET AND CROWN GLASS OF BEST QUALITY, at the following *Net Cash Prices*.—

Any size under 40 ins. long.	Per square foot.
13 oz. weight per foot	4d.
16 oz. ,, ,, ...	5
21 oz. ,, ,, ...	7
26 oz. ,, ,, ...	11

SMALL Squares from 5 ins. by 3 ins. up to 10 ins. by 8 ins., from 1½d. to 3d. per square foot.
N.B.—The 16 oz. is full strength for Greenhouses.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—R. C. having again reduced the prices for small crown squares invites a comparison of the present quotations with his former lists:—

per gross.	per gross.	per gross.
6 in. by 4 .. 6s.	8 by 5 .. 13s.	9 by 7 .. 18s.
7 in. by 4½ .. 9s.	8 by 6 .. 14s.	10 by 8 .. 26s.

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.
PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists, apply to R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square, London.

CURTIS'S BUDDING KNIFE.—"This is the neatest Budding Knife we have seen, the ivory handle is shaped like the blade of a curved Penknife, sharp and turned up at the point, and is evidently extremely well contrived for the purpose it is intended."—*Opinion of Professor Lindley in the Gardeners' Chronicle, July 29, 1843.*
GEORGE PLUM, Surgical Instrument Maker and Cutler, No 282, Strand, London, and at No. 3, Dolphin-street, Bristol, begs to call the attention of the public to the above desirable article. Sent free to any part of the kingdom, on receipt of 38 penny postage stamps, or a post-office order for 3s. 2d.
G. P. cautions Floriculturists and the Public in general against numerous imitations of the above article, he being the only appointed Manufacturer.

FLOWER-POTS AND GARDEN SEATS.
[illegible]RTLOCK, 250, Oxford-street, respectfully [illegible] that he has a very large assortment of the [illegible] in various colours, and solicits an early inspec[illegible] description of useful CHINA, GLASS, and [illegible] at the lowest possible price, for Cash.—250, [illegible] Hyde-park.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists, and all interested in Gardening pursuits, are invited to examine G. and J. DEANE'S extensive Stock of GARDENING AND PRUNING IMPLEMENTS, best London made Garden Engines and Syringes, Coalbrookdale Garden Seats and Chairs.

Averuncators	Garden Scrapers	Pruning Bills
Axes	Grape Gatherers and Scissors	,, Knives, various
Bagging Hooks	Gravel Rakes and Sieves	,, Saws
Bills	Greenhouse Doors and Frames	,, Scissors
Borders, various patterns	Hammers	,, Shears,
Botanical Boxes	Hand-glass Frames	Rakes in great variety
Cases of Pruning Instruments	Hay Knives	Reaping Hooks
Chaff Engines	Hoes of every pattern	Scythes
Chaff Knives	Horticultural Hammers and Hatchets	Scythe Stones
Daisy Rakes	Hotbed Handles	Shears, various
Dibbles	Labels, various patterns, in zinc, porcelain, &c.	Sickles
Dock Spuds	Ladies' Sets of Tools	Sickle Saws
Draining Tools	Lines and Reels	Spades and Shovels
Edging Irons and Shears	Marking Ink	Spuds
Flower Scissors	Mattocks	Switch Hooks
,, Stands in Wire and Iron	Menographs	Thistle Hooks
Fumigators	Metallic Wire	Transplanting Tools
Galvanic Borders and Plant Protectors	Milton Hatchets	Trowels
Garden Chairs and Seats	Mole Traps	Turfing Irons
,, Loops	Mowing Machines	Wall Nails
,, Rollers	Pick Axes	Watering Pots
	Potato Forks	Weed Extractors and Hooks
		Wheel Barrows
		Youths' Sets of Tools

G. and J. DEANE are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with the Illustrated List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom.—DEANE'S Horticultural Tool Warehouse, opening to the Monument, 46, King William st, London-bridge.

TO THE NOBILITY, GENTRY, NURSERYMEN, IRONMONGERS, AND OTHERS.
LINGHAM BROTHERS, 170, Little Hampton-street, Birmingham, sole Manufacturers of the IMPROVED MENOGRAPH, or Labels for Garden Borders, Flower Pots, &c. Engravings of the same, with prices attached, sent per Post to all parts of the Kingdom, on application as above.
Sole Agents in London, G. and J. DEANE, Horticultural Implement Warehouse, 46, King William st., London Bridge.

TO FARMERS AND BREEDERS OF STOCK.
SKIRVING'S PURPLE-TOP YELLOW BULLOCK TURNIP.—The attention of Agriculturists is earnestly solicited to this very superior Turnip, which has proved itself to be the best Yellow Turnip in cultivation. In good Turnip soils last season, it yielded from 40 to 45 tons per acre, its feeding qualities are excellent. The Seed offered by the Subscriber is carefully saved in this neighbourhood by the raiser, Mr. Skirving, and warranted genuine; also the following Turnip Seeds, carefully hand picked and saved from transplanted bulbs:—

White Globe.	Purple-top Swede, pure East-Lothian, highly approved of
Green ditto.	Skirving's true Liverpool
Border Imperial Yellow.	Swede.
Aberdeen Green-top Yellow Bullock.	Green-top Swede.
Dale's Hybrid.	Laing's Improved Swede, small size, but yields a good crop.

Quantities of not less than 28 lbs. delivered free at all the principal seaports of the United Kingdom.—ROBERT T. MACINTOSH Seedsman, 4, St. Andrew's street, Edinburgh.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.
D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.
D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.
D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch street, London, and 77, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.
S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.
Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and price, at 130, Fleet-street.

BEE-HIVES.—All persons desirous of Cultivating the most pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. NEUMANN & SON, that they have prepared, for the season, a extensive supply of their various improved BEE-HIVES; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a postage stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

NUTT ON BEES, (6th Edition) just published.

SUPERPHOSPHATE OF LIME, 7l. per ton, at MR. LAWES'S FACTORY, DEPTFORD CREEK.

GUANO AND OTHER MANURES.—The undersigned begs to offer the following on the best terms, viz.:—

GUANO—Peruvian, Bolivian, and African. Ditto—British, (made on the strict analysis of Peruvian.) SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal vol. vi. part 2.) BONE DUST and HALF-INCH BONE. BONE SHAVINGS. GYPSUM—For Clover, Cinquefoil, Trefoil, Vetches, &c. NITRATE OF SODA—As a stimulant for Wheat, Oats, Barley, Grass, &c.	For Wheat, Oats, Barley, Beans, Turnips, Mangold Wurzel, Potatoes, Tares, Grass, &c.
NITRATE OF POTASH. SILICATE OF SODA. SILICATE OF POTASH.	As a top dress for Wheat.

PETRE-SALT—as a top dress for Old Pastures, Clover-leas, &c., being a complete purifier.
AGRICULTURAL SALT—for Compost Heaps, &c.
URATE—for Wheat, Oats, Barley, Turnips, &c. on hot land.
SULPHURIC ACID—for dissolving Bone Dust and Bone Shavings.
SODA ASH—for destroying Wire-worm.
Also Sulphate, Muriate, and Phosphate of Ammonia, Sulphate and Muriate of Potash, Sulphates of Soda and Magnesia, and all other Manures of known value.
Apply to MARK FOTHERGILL, 40, Upper Thames-street, London, Agent for Dingle's Hand Dibbles, adapted for every description of seed. The Machines may be seen, and further particulars had as above.

THE PATENT CORNWALL WHITE MANURE is an efficient preventative to the ravages of the Wire-worm, and a strong fertiliser, consequently most advantageous in its application to Turnips. The following analysis was laid before the "Royal Agricultural Society," by W. Shaw, Esq.

Silicate of Lime	Silica	..	28.0
	Lime	..	17.0
Carbonate of Soda ..	Carbonic Acid		8.5
	Lime ..	..	10.8
Caustic Lime	.. ..	..	28.2
Magnesia and Alkaline Salts	.. ..	..	3.8
Oxide of Iron	.. ..	..	2.7
Phosphates	.. ..	..	1.0
			100 0

Price 42s. per ton, in bulk.—THOMAS JOHN CROGGON, 8, Lawrence Pountney hill, Cannon-street, London.

TURNIP SOWING.
THE URATE OF THE LONDON MANURE COMPANY, Four Guineas per Ton. The experience of the last five years has fully established the above as one of the best of all the light manures for the production of Turnips, for which crop it is particularly adapted, seldom failing in the driest season to secure a good plant, and to produce a great weight per acre. Availing themselves of the many improvements in the science of artificial manures, the Company so manufacture the Urate, that the food requisite for a rotation of crops is fully maintained, therefore parties using the Urate for Turnips will find their succeeding crops of Barley and seeds materially improved. Full particulars, with testimonials, forwarded on application. No. 40, New Bridge-street, Blackfriars. EDWARD PURSER, Secretary.

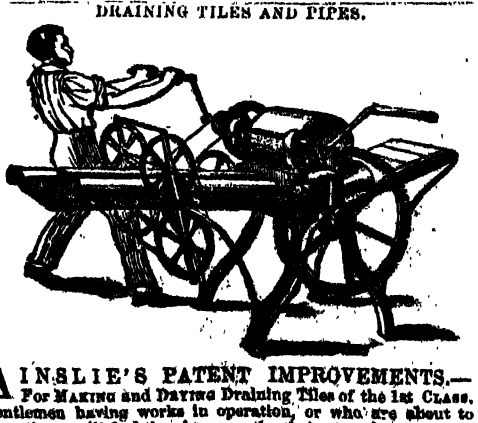
THE LONDON MANURE COMPANY beg to offer Genuine PERUVIAN GUANO, delivered direct from the Importers' bonded warehouses:—

Nitrate of Soda,	Fine Bone Sawdust,
Sulphate of Ammonia,	Sulphuric Acid,
Superphosphate of Lime,	Sulphate of Soda,
Gypsum,	Petre Salt,

And every article of Artificial Manure in the most genuine state.—No. 40, New Bridge-street, Blackfriars.
EDWARD PURSER, Secretary.

SHANKS'S IMPROVED GRASS-CUTTING AND ROLLING MACHINE.—The complete success which has attended the introduction of this Improved Machine for Mowing Grass, and its fine adaptation for Cutting the Grass of Lawns, has been fully proved by the numerous instances where it has been tried, and now in common use, particularly at Rossie Priory, Camperdown, and Kimblethmont, Forfarshire; Broadalbane, Perthshire; Clumber, and at many other Noblemen and Gentlemen's seats in England, as well as abroad. The Machines are made to cut breadths of 42, 30, or 20 inches, as required, the latter being adapted to hand-power. The Machine works with perfect ease, producing a beautiful smooth surface, and attended with great saving in abridging labour.
Orders may be addressed to MESSRS. ALEXANDER SHANKS, jun., & SON, Machine Makers, Arbroath, N. B., by whom further particulars will be given.

DRAINING TILES AND PIPES.



AINSLIE'S PATENT IMPROVEMENTS.—FOR MAKING and DRYING Draining Tiles of the 1st CLASS. Gentlemen having works in operation, or who are about to erect them, will find the above worthy their attention.
The Process combines EFFECT with ECONOMY, as Tiles can be made ready for BURNING at all seasons; generally from ten to thirty hours, according to the nature of the clay. To be seen at Alperton, Acton; Middlesex; Mr. HOWE, Engineer, 118, Great Guildford-st., [illegible] the Polytechnic Institution, Regent-street, London. [illegible] may be had from JOHN AINSLIE, Alperton, Acton, Middlesex.

H. GROOM, Clapham Rise, near London [By Appointment: Florist to Her Majesty the Queen; and to His Majesty the King of Saxony], begs to say his Catalogue of GERANIUMS, AURICULAS, LILIUM LANCIFOLIUM, and NEW PLANTS is ready, and will be forwarded by post on application.

H. G. has a fine stock of CARNATIONS and PICOTEES. His Anemones are now in flower, and may be viewed every day from 9 o'clock until 6, Sundays excepted. Admittance Gratis.

*** Foreign orders executed.

The Gardeners' Chronicle.

SATURDAY, MAY 23, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Monday,	May 25—Linnean (Anniversary)	. . .	1 P.M.
Wednesday,	— 27—Society of Arts	. . . .	8 P.M.
Monday,	June 1—Entomological	. . . .	8 P.M.
Tuesday,	— 2—Horticultural	. . . .	3 P.M.
Friday,	— 5—Botanical	. . . .	8 P.M.

COUNTRY SHOW.

Wednesday, May 27—Norfolk and Norwich Horticultural.

The plague of Wasps is not the only one with which the gardener will this year have to contend. We hear of nothing but the mischief which Slugs, Snails, and Insects are doing, as might have been expected after so mild a winter. Peas, Carrots, Onions, are disappearing before their advance, and unless some effectual means can be found to stop them, a good many people seem likely to have no crops left.

We strongly advise all those who are attacked by slugs to try the effect of lime-water, which does not at all injure any crop, and immediately destroys the animal. To make the application efficient, it is, however, necessary to use it late in the evening and very early in the morning, say at daybreak, when the slugs are feeding. A couple of applications of lime-water has completely exterminated legions of slugs beneath our own eyes.

The confinement of English University Education within the narrow bounds of classical and mathematical studies is one of those remains of mediæval society which even Young England herself repudiates. It was a wise system when no other branches of positive knowledge were accessible; but it is not to be defended in the present state of human learning. When Paracelsus and Agrippa were chemists, Aldrovand a zoologist, and Culpepper a botanist, natural science was very properly excluded from a University curriculum; but the whole aspect of science is changed; the chariot wheels of Bacon crushed the Greek philosophy; exact observation and severe reasoning hurled romance and speculation from their ancient throne, and no intelligible reason can now be assigned for shackling learning with fetters forged in the dynasty of the Tudors.

A strong feeling of this kind has at last begun to manifest itself at Cambridge, and since certain branches of Natural History, especially Botany, are the main objects of this Journal, we venture to trespass upon the patience of our readers with a short account of the actual state of affairs in that great University; more especially since the proceedings that have been taken have arisen out of the difficulties incident to the establishment of the new Botanic Garden.

An application by the Botanic Garden Syndicate has been made to the Senate of the University of Cambridge for pecuniary assistance; and as the funds of the University are thought not to be flourishing, it was proposed to raise the necessary sum by levying a tax upon its members. This proposition has been rejected by a majority of about three-fifths of those in the Senate who voted. And yet the burthen sought to be imposed was not particularly onerous, for Mr. Smith* tells us that about 1600*l.* a year would be raised by a tax so small as not to amount to more than "a coach fare in London—the half-price of a concert—little more than the cost of wine at one dinner—the price of a small volume bought, read, and thrown aside—or the amount of a few curiosity shows."

We have no doubt that the *non placets* had very good reasons for their decision, but we agree with Mr. Smith in thinking that, considering the importance of the object sought for, it would be satisfactory to the world if those reasons were put in print. It is alleged, indeed, that the great cause of refusal was that Government already taxes the Cambridge degrees; this, however, must be a malicious invention. We cannot believe that any Cambridge man would argue that because degrees are taxed, therefore proper means are not to be taken to render candidates worthy of them. On the contrary, one would say that the more a degree costs, the more should the University strive to render it worth its money.

Of course there are other reasons, and perhaps those reasons, when they shall have been made known, will explain why so many things in Cambridge, necessary to the education of those who wish to study, are in the same plight as the Botanic Garden. We borrow the following statements from Mr. Smith's pamphlet:—

"There is the Fitzwilliam Museum—the collection, after so long an expectancy, still detained in a cramped space, in a temperature alleged to be seriously prejudicial to the paintings; objects of art, presented to it, carefully preserved for years in their packages, out of sight and out of mind to almost all of us; and the whole without any curator such as a collection of that kind and that value ought certainly to have."

"The Geological Museum, once in such close durance that its existence was for a long time matter of tradition, is now installed in a fit and worthy domicile. But what is the present position of this Museum? It is *never* open. If strangers ring at the bell to ask admission, a man appears, or if he be out after other work, one of his boys, and ushers the party into the room, where they are left to employ themselves in inspection, dispersed over the room, as they please. This attendant receives day-labourer's wages, and wears the appearance of this class; and that is the only curatorship existing in this quarter. It ought also to be mentioned that, as if to balance the want at the entrance, there is a surplus caution within; for to the lower part there is *no* access at all, not even to members of the Senate; as if none of us could be trusted to walk about among skeletons and dry bones. Here, then, is a Museum, a fine one, I believe, in its kind, rendered practically almost useless to the University; we were almost as well without it, as let it be as it is."

"The Mineralogical Museum.—About the position and condition of this Museum exactly the same description may be given. It is close kept from all inspection. A grand pair of *folding doors*, with panels of *plate glass* above, designed to give a continuous connection both real and in appearance to the whole suite, is put up, and immediately afterwards the doors are locked up, so as to break the suite, and the plate-glass is clouded over to destroy the continuity of perspective. Who will present objects which they value, to be shut up from view and from use, and so wanting all appearance of being valued?"

"The Botanical Museum is in the same hapless condition. Its existence is scarcely known to one in a hundred, and a still much smaller number have any notion of its contents."

"The *Public* Library, too, is shut against a number of members of the University, who, nevertheless, expressly contribute to the funds of the Library. The University has the power to do this, and exercises that power: and much more cannot be said."

Mr. Smith may well add to these deplorable statements that "it seems time to alter this state of things." We trust that the measures now taken by some powerful members of the University will extend their beneficial influence beyond the walls of the New Garden. If it be really true that the University is so poor as to be helpless; if its members are so afflicted by penury, parsimony, or selfishness, that they cannot afford the few shillings annually that are required to infuse some reasonable vigour into its scientific institutions, then let them represent their miserable condition to the Premier, and we venture to hope that his sympathies will be enlisted on their side, and that means may be found for relaxing the hard gripe of the Chancellor of the Exchequer.

The writer of these remarks may be thought biassed in favour of Natural History, and especially of Botany, by his own peculiar pursuits. Instead, therefore, of putting forward his own opinions on the subject, he prefers to avail himself of those of others. What says the Master of Trinity, Dr. Whewell?

"I have said that a portion of the sciences which have come into existence in modern times, and which are still in progress, should be introduced into a liberal education, to such an extent as to acquaint the student with their nature and principles. It is an important inquiry, in determining the proper scheme of a liberal education, what portion of science is best fitted for this purpose. I have already remarked elsewhere, that among the sciences, Natural History affords very valuable lessons which may beneficially be made a portion of education: the more so, inasmuch as this study may serve to correct prejudices and mental habits which have often been cherished by making pure mathematics the main instrument of intellectual education. The study of Natural History teaches the student that there may be an exact use of names, and an accumulated store of indisputable truths, in a subject in which names are not appropriated by definitions, but by the condition that they shall serve for the expression of truth. These sciences show also that there may exist a system of descriptive terms which shall convey a conception of objects almost as distinct as the senses themselves can acquire for us, at least when the senses have been educated to respond to such a terminology. Botany, in particular, is a beautiful and almost perfect example of these scientific merits; and an acquaintance with the philosophy of Botany will supply the student with a portion of the philosophy of the progressive sciences, highly important, but for the most part hitherto omitted in the usual plans of a liberal education. But the philosophy of Botany cannot be really understood without an acquaintance with a considerable portion, at least, of the details of systematic Botany. On these grounds I should much desire to see Botany, or some other branch of Natural History, or Natural History in general, introduced as a common element into our higher education, and recommended to the study of those who desire to have any clear view of the nature of the progressive sciences: since it is, in fact, the key and groundwork of a large portion of those sciences."

We can add nothing to the cogency of these arguments. Dr. Whewell's experience as a tutor, and intelligence as a man, have doubtless taught him that the minds of students cannot all be constituted alike. One young man may have a great aptitude for languages, and so may highly distinguish himself in classical learning. Another has a more mathematical head; and if we are not misinformed cases have actually arisen where men of the highest attainments as scholars have been "plucked" in mathematics. But others may from natural bias, or from professional objects, or for many other reasons, incline much more to natural science than to either. We are at a loss to know upon what grounds such persons should be prevented from following the pursuits that are most agreeable to them, or best suited to the peculiar construction of their minds. The whole aim of early education is *mental training*. The learning of the schools is directed to this great end, and to nothing else. When a boy is kept for years at classical studies, it is not because it will be necessary for him to read Pindar or Juvenal; nor is he tied down to difficult mathematical reasoning for the sake of understanding, when he is thrown into the world, the laws of equilibrium and motion in a system of material points. He may very possibly never look at Greek again, and as for molecular motion, he may in time even forget the meaning of the words. These great branches of education are not enforced for the sake of their application, but because of their supposed influence upon the human mind. If they fail of producing that influence they are useless, and time should be otherwise bestowed. That they do fail in many cases is notorious; and therefore it is that it becomes so desirable to give young men some choice in the branches of knowledge which they will follow for distinction.

"Every one," says Professor Henslow,* "who has had much experience in preparing pupils for an Ordinary Degree can bear testimony to the fact of there being minds naturally incapacitated for clearly and fully comprehending a mathematical problem. Now, there are many persons with this want of mathematical ability, who will delightedly occupy themselves in one or other department of the natural sciences. It has long appeared to me a mistaken policy to bind down such persons to one particular routine of dull anxious plodding, without allowing them the opportunity, before quitting the University, of proving that they have not laboured unsuccessfully in the general field of human knowledge."

That many men, of sound judgment and enlightened views, are of opinion that Botany is unsuited for mental training we can readily understand. This, however, arises from their not being sufficiently aware of the real scope of this science, or of the manner in which it now is taught.

"Many persons, both within and without the Universities, suppose its objects limited to fixing names to a vast number of plants, and to describing and classing them under this or that particular 'system.' They are not aware that systematic Botany is now considered to be no more than a necessary stepping-stone to far more important departments of this science, which treat of questions of the utmost interest to the progress of human knowledge in certain other sciences which have been more generally admitted to be essential to the well-being of mankind. For instance, the most abstruse speculations on animal physiology are to be checked, enlarged, and guided by the study of vegetable physiology. Without continued advances in this latter department of Botany, the progress towards perfection in general physiology must be comparatively slow and uncertain. As regards the progress of botanical physiology, even chemistry itself must be viewed as a subordinate assistant, whilst it is making us acquainted with those physical forces by which mere brute matter is regulated and arranged. Those forces are themselves to be restrained and modified by the instrumentality of vegetable life, in bodies whose appointed position is to prepare all the organic matter that is destined for the support of a still higher race of creatures in the general scheme of Nature."—*Henslow's pamphlet, already cited.*

Of course, if Botany were nothing more than the art of drying plants and gluing them on paper, and making out their names—if it were what is generally called Linnean Botany, and nothing more—it would be quite unsuited to the higher purposes of tuition, and would be deservedly excluded from

* "Address to the Senate on the Subject of the New Botanic Garden," &c. By the Rev. J. J. Smith, M.A., Fellow and Tutor of Gonville and Caius College.

* "Address to the Members of the University of Cambridge, on the Expediency of Improving, and on the Funds required for Remodelling and Supporting the Botanic Garden." By the Rev. J. S. Henslow, M.A., St. John's College, and Professor of Botany in the University of Cambridge.

all University curricula. But that it is not this limited will be better shown by extracts from some modern Examination papers, than by any train of reasoning whatever. We take those of University College, London:—

Senior Class, 1845.—"Describe the flower of the plant now placed in your hand; point out any peculiarities that may occur to you; explain their nature theoretically, and refer it to its natural order; or, if you are unable to do so, state to what order you suppose it to be most nearly allied, and give your reason for the opinion you may express.—Leaves alternate, exstipulate. Sepals 5. Petals 5. Stamens indefinite in number and hypogynous. Carpels 5, connate as high as the ovary extends, but free at the styles; bearing many seeds on an axile placenta. Embryo minute at one end of hard albumen. What properties would you expect to find in the seeds of such a plant, and why?—What are the sources from which plants derive their food? and what is that food?—What kind of tissue is that in which the functions of elaboration are carried on? and in what parts of a plant does it occur?—Would a plant growing on a sunny mountain-side be likely to form its peculiar secretions more or less abundantly than if it were growing in a similar situation in a low-land station? Give your reasons for the opinion you may express.—An ovary contains one erect ovule whose foramen is at its apex. Will the embryo which is eventually found in such an ovule, when changed into a seed, direct its radicle to the apex, base, or side of the fruit?"

Junior, 1846.—"What is the difference between a bulb and a corm?—In what sense are the words *regular* or *irregular*, *symmetrical* or *unsymmetrical*, used in Botany?—Distinguish Solanaceæ from Primulaceæ; Labiatæ from Boraginaceæ; Saxifragaceæ from Rosaceæ; Papaveraceæ from Cistaceæ.—On what do you rely for distinguishing Grasses from Sedges (Cyperaceæ)?—State the Botanical differences between Wheat, Barley, and Rye.—Let a European Endogen have this structure:—*Ovary inferior. Flowers hexapetaloid. Stamens* 6. *Anthers turned inwards.* Would you suppose it to be poisonous or inert?—Suppose that of three European Corollifloral Exogens, with regular symmetrical quinary flowers and epipetalous stamens, one has parietal placentæ, another free central placentæ, and the third axile placentæ, would these differences in structure correspond with the uses to which such plants can be applied in medicine? and if so, what peculiar properties are to be expected in each plant?—What common European Natural Order is that with calycifloral flowers, and an inferior ovary with a pair of parietal placentæ?"

It should be stated that these questions are chiefly intended for Medical Students, and that the existing regulations of the Society of Apothecaries, and other governing bodies render the time for teaching Botany much too short; nevertheless such questions are well answered. It is, therefore, obvious that if it were an indispensible branch of general education it could be easily adapted to higher purposes.

Natural History has one great advantage over Classics and Mathematics, which is not sufficiently insisted upon by its advocates. Those subjects train the memory and the reasoning faculties, but they do not touch the habit of observation. Yet the habit of observing correctly is not inferior in importance to that of reasoning. "How to observe" is the great question with all of us, and which so few know how to answer. If two men of equal attainments and intelligence, of whom one has gained honours in Classics and Mathematics, and the other distinguished himself in Natural History, were called upon to describe an event or a given object, the naturalist would have this enormous advantage that in consequence of his whole perceptive powers having been steadily directed towards minute and accurate observation, he would be able from mere habit instantly to apply himself to a task, for which his competitor would be unprepared, and the nature of his studies would have so familiarised him with the use of words that his description would be made without an effort. In illustration of this argument we cannot do better than quote the words of Professor EDWARD FORBES, of King's College, London.

"The first lesson of Natural History is observation. The study of an animal or vegetable species is the perfection of observation as far as that species is concerned. The form, the substance, the qualities, the phenomena of existence, the influence of surrounding objects, are all observed with the greatest precision, and defined so as to be capable of expression in words. No point affecting that species is left untouched. The study of a group or genus of animals or vegetables is in like manner the perfection of discrimination. All the members of the group are compared in all their parts with each other, the relations which they have in common are summed up, and their differences recorded in every possible point of view. The causes of those relations and differences are anxiously inquired into, and a survey is taken of the bearings of the whole group to its proximate allies, and, finally, to all equivalent assemblages in organised nature. Whereon rise up from such a study, and not feel mentally strengthened? The mind through such an exercise must gain in both its analytic and synthetic powers."

We have dwelt on this subject at greater length than usual, because we regard the present conjuncture at Cambridge as one from which important consequences must flow, and because it is connected with some of the highest considerations in which all men are interested. Had it not been for these reasons, and for the sake of putting the public in possession of the main arguments employed by those who advocate the introduction of Natural History into our Collegiate education, we should have been silent; for when the Members of an ancient University themselves arrive at the conclusion that its institutions require reformation, the world will not be disposed to think them in the wrong. And if the reasonable proposals which may on such an occasion be made are resisted by the men in authority, it requires no great foresight to perceive that a struggle is at hand, the end of which must be concession.

Since writing the above, we find that an adjourned meeting of the Members of the Senate has been held at the Philosophical Society's Rooms, when Dr. PAGET was called to the chair, and the following resolutions were passed unanimously:—

1. That it is desirable that a Syndicate should be appointed for the purpose of considering the best means of providing funds for making and maintaining a new Botanic Garden.

2. That the Chairman be requested to report the previous resolution to the Vice-Chancellor; and that the present meeting be adjourned to Friday next, the 22d instant, at 2 o'clock, to receive the result of his conference with the Vice Chancellor.

THE VALUE OF A WEED.

Few persons seem to be aware of the value of some of our native plants; in fact, it is considered by some cultivators belonging to the old school, as a sign of a frivolous disposition in a young gardener, when they see him studying the flora of his own country, and admiring the beautiful structures of wild flowers; or, as these venerable worthies would term them, weeds: and would even qualify the term weed by adding, in the case of the plant which I am about to praise, an adjective in the superlative degree, such as a most vile, a most troublesome weed. Be it so then. But, since the plant in question is a Briton like ourselves, let us at least state both sides of the question fairly, and acquit or condemn it after a patient hearing.

Now, I would beg it to be borne in mind, that the mere fact of a thing being common, or accounted troublesome, or even nauseous, and that for ages, and in the opinion of many, is still no proof of its worthlessness, although we may be unacquainted with its value. The valuable mineral substance, cobalt, was accounted for ages a very troublesome article to the miner. The article bone, now so valuable as a manure, was, in my own recollection, allowed to whiten on the lone heath, as a thing unworthy of notice. The richest portion of our manures are often, even in our enlightened and manure-hunting-day, allowed to waste their fertilising properties on a hole in the earth, or, what is worse, on the air that we are to breathe. These examples might teach us to give common, troublesome, and even nauseous articles, a patient trial before we condemn them as worthless; and ought to humble us, when we see blessings of no mean order showered upon us, and, as it were, even dogging us through life without our knowing their value, or being able to turn their useful properties to account, notwithstanding our boasted knowledge. Hoping, therefore, now, for an impartial verdict, I beg to introduce to your notice a truly British plant, of great beauty, and known value; and, moreover, of the easiest culture, yea, even to be obtained for the plucking up in many instances without any consideration whatever. But hold, for the plucking up of this plant is sometimes a matter for grave consideration, for it has deep and cross-laid fangs in the earth; and the best of it being under-ground, it requires a strong spud to dislodge the treasure.

The beautiful name Dandelion (Leontodon taraxacum) lion's-tooth, would in heate something of a tearing fellow among weeds, a sort of superior free booter, after the fashion of Robin Hood or Donald Caird; and such is really the case, for Dandelion picks his time and chooses always the best of everything that he requires—he never opens a flower in foul weather, nor even in fair weather unless the sun shines; but this is not all, for he not only chooses the best hours of sunshine to flower in, but (robber that he is) makes free to ride in his airy car over hedge and wall, into the choicest sheltered nook of the amateur's Tulip bed, or the nobleman's walled garden; for his seeds have a mane like a shuttlecock, and the wind that carries them only allows them to rest in some region of settled calm, which is precisely what this uncultivated child of flora wanted, namely, a sheltered situation where he might establish himself. I observed, one beautiful sunny evening, a silvery speck slowly lowering itself into the most sheltered compartment of the garden; it was followed soon after by another, and shortly after by a shower of rain: the dry seeds of the Dandelion had thus winged their way, and were now planted, watered, and sheltered, without the aid of a man to manure their ground, or the skill and labour of children to search their a smooth bed and a suitable locality. "But," says my old friend, "what after all will you make of such a weed? What use can it be turned to? for it will neither yield bread, corn for a man, nor good provender for a beast. Horses will eat Gorse, and asses will eat Thistles, but I never knew Dandelion relished by any animal." Very true: and so fully am I convinced of the truth of this, that I would not have risked my reputation as a gardener, or even as a man endowed with common sense, to recommend Dandelion in any shape to man or beast, were I not supported by some whose reputation and character are already established. I, therefore, state at once that I cultivate Dandelion side by side with other crops, planted in rows like any other culinary article. Extract of Dandelion has been long known in medicine as a diuretic. The herbage of the Dandelion is well known in gardening as a beautiful and delicate blanched salad. But, besides these uses, the root is capable of producing, when roasted, a beverage equal to Coffee, and actually sells at a much higher rate. Might not some of the many hard earned shillings of labouring men that go to purchase Coffee be saved, and Dandelion be drunk in its stead. The trial of the experiment would do good, since the collecting of the roots from waste ground and weedy gardens, would improve the land, and the cleaning, drying, and roasting of the roots are processes simple enough. In regard of taste or flavour, let it be borne in mind that the tastes of Coffee, porter, Tobacco, &c., are all acquired tastes, and I should think that those who have persevered to acquire the habit of using Tobacco in any form need not feel very squeamish about trying the thrifty use of Dandelion. Now, although Succory or Chicory may be more profitably cultivated than Dandelion as a substitute for Coffee (and is really cultivated extensively in Europe for this purpose); the mere fact of the one requiring culture, whilst the other is to be had gratis, gives Dandelion the preference. In conclusion, then, let me entreat cultivators to give it a trial; large plants fit for use may be obtained ready for roasting, and now is the time to make a plantation of the smaller roots, and if the flowers are picked off, the roots will soon attain a large size. Seeds may be sown now, and seedsmen might take notice to provide themselves with a supply of seeds, as it is just possible that it may be wanted, notwithstanding all the foul names by which it has been called, and all the pains we have hitherto been at to extirpate it.

I see no reason why the roots of Endive and Lettuce, so nearly allied to Chicory and Dandelion, should not join to make a substitute for the expensive and exotic Coffee berry, and should this prove to be the case, the scarce and little known article, Salad, so rare among cottagers, might be obtained by blanching the leaves, thereby securing much wholesome food to every poor family. Endive would come in as a crop after Potatoes, and Lettuce will produce a greater weight of eatable vegetable than any plant with which I am acquainted; three or four good sized plants will grow on a square foot of ground, and come to maturity in six or eight weeks, thereby allowing three or four crops annually from the same land; but I have not the leisure now to enter upon the subject of Salad herbs, but would beg of your able practical correspondents to come forward with plain directions as to the best articles for a supply of Salad for poor people, thereby enabling many to augment their resources. The love of Salad, in some shape or other, seems to be natural, and even necessary, to the rudest portion of the community. Witness the Highlander of Scotland greedily eating the seaweed Dulse, which the fish carriers bring inland in sacks, and find a ready sale for; to such a people the introduction of Salad herbs would be a boon indeed, and as for land to cultivate, I never heard a highlandman complain of any lack of that.—*Alexander Forsyth, Alton Towers, April* 21.

Home Correspondence.

Culture of Tomatoes, &c.—Sow the seed early in March, allowing the plants to be raised in a very gentle heat, and as soon as the second leaves appear, pot off the plants into 4-inch pots, gradually hardening them until they are prepared for final planting out, which ought not usually to be done until the first week in June. The interstices between Wall-trees on a south or east aspect are a favourable situation for planting them, where there is space without fear of intrusion; but where this is impracticable they are usually planted in the open ground; and our ordinary summers are so short that it usually happens they are just beginning to ripen when they are destroyed by the first autumnal frost. As an improvement on open ground planting, there is probably no better mode of cultivation than that of forming a bank or slope in the direction east and west; the base of the slope may be from 5 to 6 feet, the apex as much above the ground level as the nature of the soil will conveniently allow, or we will suppose at an angle of about 45° to the south, and from 55° to 60° to the north, so as to have the most space facing the most favourable aspect, increasing or diminishing the angle according to the nature of the soil; add a little fresh soil at the base of the slope, where the Tomatoes are intended to be planted, taking care, as the season advances, to displace all superfluous growth, and peg the branches to the slope. By this means, from their exposure to the sun's rays, they will have a greater tendency to fruitfulness, rather than over-luxuriant growth; and from the same cause an

earlier maturity will be induced, as heat, light, and comparative dryness are the conditions which must be taken advantage of, being much more important than a protracted mild season. At the time of planting the Tomatoes, a crop of Lettuce should be placed on the north slope, and immediately the Tomatoes are gathered the slope will be found equally useful planted with Endive intended for use during the most severe winter months; it will be more to be relied on than the late crops stored in sheds or elsewhere, by using thatched hurdles, or using any other means of forming a sort of roof to keep the Endive dry, or, in the absence of this, slates, stuck into the slope horizontally over the plants, may be adopted with success, using straw or mats as a protecting material during frosty weather.—*J. H., Amport House, May* 20.

Disease in Fir Trees.—Your correspondent "Pinus Sylvestris" makes a statement respecting a disease in Fir trees in Hants, which, judging both from his description and the woodcut, I have no doubt is perfectly correct as far as appearances go; but I believe he has quite mistaken its cause. My Fir-trees have suffered in the same manner; the evil is produced by squirrels, and has compelled me to destroy hundreds of these pretty animals. They generally attack the budding shoot of the current year, or perhaps rather those of the two immediately preceding; sometimes scoring the bark all round, but more often several inches longitudinally on one side. In the former case, no serious permanent mischief is done, a new leader being formed, as is the case after the ravages of that pest, the little Fir beetle; but in the latter the tree continues its growth for many years, a large wound growing with its growth—till having attained a considerable size, the first heavy gale of wind snaps it off at the wound.—*E. D.*

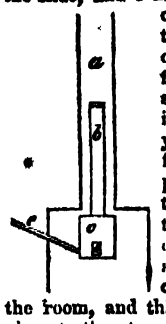
Fraudulent Seedsmen.—I have lately seen complaints in your Paper, by correspondents who have forwarded money to seedsmen and nurserymen, and expected to receive seeds or plants in return, but who, alas! can never afterwards obtain even a reply to their numerous letters. Now although I perfectly agree with these correspondents that they are in duty bound to expose such fraudulent dealers, so as to put other purchasers on their guard, still I think there is another thing the latter ought to attend to, and that is, carefully to read over the advertisement before ordering, and note the wording of it—in other words, when they see a dozen plants advertised for so much money per post, do not let them for one moment suppose that these two words mean free per post,—no such thing! And if they want them free per post, I should recommend them to enclose another shilling or so, to pay for the tin case and postage, otherwise they may find that they will be charged with unpaid postage, to say nothing of the tin case.—*Luxor.*

Hydraulic Machine.—The only further information I can give relative to the hydraulic machine is, that it continues to work in a most satisfactory manner. I cannot enter into any particulars on the mechanism of the engine, as it might be an injury to the man who has been, as he says, "brooding over it for ten years." I trust, however, he will advertise the hydraulic engine, in order that others may benefit by his ingenuity as well as myself.—*Hydrangea.* [It will be extremely unwise in him not to make himself known. Can you not favour our correspondents with his name and address?]

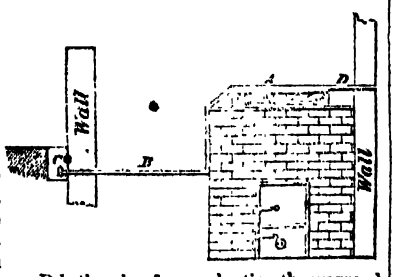
Potato Disease.—A gentleman a short distance from this place planted about two acres of diseased Potatoes, which were quite black, and taken from a pit in which many were so rotten that it sent out a strong steam on being opened. He is now about to supply his steward and men (who laughed at him when planting them), with the shoots of those Potatoes, to plant in their own ground. It is now well known here that it matters not how diseased a tuber may be, it will almost invariably succeed if it has one sound eye when planted. It must be put down whole; if a diseased Potato is cut into sets, even if all the eyes are sound, nine-tenths most probably will fail. The diseased tubers are not now worse than when planted two months since.—*H. H., Cork.* [We should be glad to hear what the issue of this experiment will be in September or October. No judgment can be formed at an earlier period.]

Slugs.—In addition to the observations of "H. B.," p. 317, I recommend a bucket with salt. Throw into this all the slugs and snails you pick up; it will kill them almost directly; but if you lay Cabbage-leaves as traps, the bucket and salt is indispensable, as in no other way can you hope to kill all the very minute slugs, but by striking the leaf against the side of the bucket so as to let them fall into the salt. I have not found any effectual remedy for getting rid of woodlice; if you find where they hide themselves hot water will kill them instantly; but how can you clear box-edgings, &c., from them—46. [Toads are their best antagonists.] ——"F.J.H." employs earthen jars, filled with a strong solution of salt and water, which he finds to kill the slugs almost immediately. —— Another correspondent uses strong urine, in large flower-pot pans, with the same effect.

Cure for Smoky Chimneys.—Since my article on Polmaise Heating appeared in your paper I have received a number of communications on the subject; some wishing for a plan of my pit, others desiring to be informed respecting the general applicability of this mode of heating, &c. All these inquiries I have been compelled to leave unanswered, every moment of my time being fully occupied with my own business. The invention which I have now the pleasure of presenting to the public is an effectual cure of smoky chimneys; that is to say, I have discovered a plan to prevent the descent and assist the ascent of smoke in chimneys; if theory and the experiments I have tried are worth anything the cure is inevitable. The plan is as follows: Place an iron chamber at the back of your grate; let the front of the chamber be the back of your grate; in this let there be a slide; from the top of the chamber carry an iron pipe half the length of your chimney; from the bottom of the chamber, let a pipe be taken through the wall, with a little rise if possible, to communicate with the external air. The sketch given below will be sufficient to show the plan. Let *a* be the chimney, *b* the pipe in the chimney, *c* the chamber, *d* the slide, and *e* the pipe passing through the wall to convey air; the vacant space round the chamber may be considered the other part of the grate. Before a fire is made in the grate, draw your slide, and put a quantity of shavings into the chamber; light them; close your slide, and proceed to make the fire in the grate. In considering this plan the first question suggested to the mind is, what are the causes which tend to obstruct or impede the ascent of smoke in chimneys? The causes are clearly these: the air in the chimney is more dense than that of the room, and this, with the pressure of still colder air at the top, assisted by strong currents, prevents its ascent. The next question is, how does the plan I have given remove these impediments? The answer to this will be founded on the experiments I have made; first, the burning of the shavings in the chamber generates heat, the air expands, not in the direction of the cold air-pipe, the resistance is there too great; it takes the more direct and easy passage through the pipe in the chimney; on its way it gives warmth to the iron; a fire is kindled in the grate, the chimney being warmed, its air attenuated, and a partial vacuum created above the pipe, the smoke ascends, joins the current from the pipe, and this united force overcomes the resistance at the top of the chimney; as the fire burns brighter the chamber becomes hotter, and the draught increases. It would, therefore, be well to have a valve on the cold air pipe, that the draught might be partly or wholly shut off if desirable. In the building of houses cold air flues can be made in the walls. A greenhouse, or any other adjoining apartment, may be warmed, if the hot air could be spared from the chimney by turning the ascending pipe into it. I hope soon to give your readers a plan of a portable heating apparatus upon the same principle, and also a new mode of fumigating greenhouses, &c.—*Isaac Davies, Larkfield Nursery, Wavertree, near Liverpool. May* 20.



Aëration.—I am glad to see that you have taken up the subject of aëration, for it is evident that the means generally adopted for the admission of fresh air in forcing and plant structures are miserably inadequate to the purpose. What happens in a clear frosty day, for instance, say in March? Why, the gardener has no other alternative than to have his plants either frosted or roasted; he must either admit cold frosty air which, in spite of the sunshine, is very injurious to tender shoots, or else he must allow the temperature to rise to a scorching height. Again, perhaps a cloud passes over the sun, and down goes the mercury, perhaps to freezing; the consequences are, that the plants come away weakly, and some of the more tender shoots die off altogether, and nobody knows the reason why all this happens. Now, I imagine that the simplest and most efficient mode of obviating these drawbacks will afford exercise for the ingenuity of your "long-headed" correspondents. In the meantime what do you think of the following:—Let us suppose that we have a house supplied with a hot water apparatus, and that we procure an iron tank 6 or 8 inches deep, the broader the better, air tight, excepting in two places for the insertion of pipes (as in the accompanying figure), and a place for supplying water, keeping it full minus 1 or 2 inches. A is the tank, B the cold air pipe opening outside the boiler shed *C* into a box in the ground covered with an iron grating; D is the pipe for conducting the warmed and moistened air into the house, there to be distributed by a perforated zinc pipe running the whole length of the house, and kept as low down as possible, provided that we keep it above the level of the mouth of the pipe *C* outside. Now, besides supplying plenty of fresh air, would it not render available a very considerable amount of heat which is continually wasted? and goes for nothing but for keeping up a choking heat in the shed, sometimes warmer, indeed, than in the hothouse itself. I hope that this, or some other more efficacious plan, will be adopted, and I think then we will have taken a step in the right direction.—*W. Martin.* [This proposition deserves attention; although the introduction of air at the back wall, without providing a counter current, is objectionable. It is a good *hint.*]



Societies.

ROYAL BOTANIC SOCIETY.

The First Exhibition for the Season was held on Wednesday last, in their Gardens, Inner Circle, Regent's-park. The weather was very unpropitious, heavy showers continuing to fall at intervals during the whole day. The exhibition itself, although much inferior to that at Chiswick, contained a large number of well grown plants. It was inspected by H.R.H. Prince Albert at an early hour, and after the gates were opened at 2 o'clock the weather did not deter above a thousand visitors from entering the gardens. As a large amount of the plants shown was, however, present at Chiswick, we shall not re-describe them, but will confine our remarks to what was not produced on that occasion, commencing with collections of 30 Stove and Greenhouse Plants. Here the exhibitors were Messrs. Fraser, of Lea-bridge-road, and Mr. Barnes, gr. to G. W. Norman, Esq., of Bromley. The Gold Medal, as first prize, was awarded to the Messrs. Frasers' group. The plants in this fine collection were, however, fully described at p. 321, with the exception of a well grown Bossiæa disticha plumosa, producing multitudes of dull yellow and brown flowers; a very fine Gardenia radicans, covering the pot with healthy foliage, and ornamented with upwards of 50 of its sweet-smelling blossoms, together with Azalea indica ledifolia, 6 feet in height and 4 feet in diameter, and a Chorozema spectabile in good condition.—Mr. Barnes contributed an exceedingly healthy Gompholobium tenellum, hardly advanced enough in bloom, a good Oncidium luridum guttatum, Dillwynia splendens, with bright orange and red blossoms, a good Boronia serrulata, and Rondeletia speciosa, hardly sufficiently advanced in bloom, measuring 2½ feet in height and nearly as much in diameter. In the same group were also Cyrtoceras reflexum, a plant nearly related to Hoya, and a large Ixora grandiflora.

Collections of 20 Stove and Greenhouse Plants were numerous. Mr. Hunt again produced a fine group and another from Messrs. Lucombe, Pince, & Co., contained the comparatively new Epacris miniata, producing rosy pink tubes, passing into white at the ends, Azalea leucomegiste, 4 ft. in height, and as much in diameter, a good Ixora coccinea, Erica intermedia, 4 feet in height and nearly as much in diameter; Cattleya Forbesii, with 11 flowering spikes; and a large Gompholobium barbigerum, covered with large yellow flowers. In the same group was also a lovely Azalea variegata, 2½ feet in height and 2 feet in diameter, quite a mass of bloom; the handsome stove climber Dipladenia crassinoda, with two fully expanded rosy pink flowers, measuring 2 inches across; a lovely Erica Westphalingia, 2 feet in height and about 2½ in diameter, literally a mass of bloom; a pyramidal Eriostemon buxifolium, 4 feet in height; the charming Saccolabium guttatum, and a rather thin plant of Acrophyllum venosum. Associated with these were Epacris grandiflora, Cattleya Mossiæ, having two spikes; a small Gompholobium Hendersoni, Erica Sprengelii, and an immense Erica ventricosa incarnata, 5 feet across and 4 feet in height.—Mr. Catleugh, of Chelsea, sent Sollya heterophylla, trained in the form of a regular pyramid, nearly 7 feet in height, a neat Pimelea spectabilis, together with Epiphyllum Jenkinsoni, good plants of Aphelexis spectabilis, Hardenbergia monophylla, and Cytisus canariensis.—Mr. Pamplin, of Walthamstow, sent a group, the chief features of which were a large white Azalea in full bloom, and a large and good Cytisus racemosus.—In a group from Mr. Pawley, of Bromley, we remarked a large Burchellia capensis, two plants of Tropæolum grandiflorum, Coleonema pulchrum, 6 feet in height; and a good Pimelea spectabilis, 2½ feet in height, and nearly as much in diameter.—Of Collections of 10 Plants, a considerable number were produced. The group from Mr. Green, gr. to Sir E. Antrobus, Bart., was the best. It contained Pimelea Hendersoni, 2 feet in width and 18 inches in height; Aphelexis humilis, 2½ feet in height and 3 feet in diameter, literally a mass of bloom, the branches depending over the pot; Boronia serrulata, in robust health; a neat little Gompholobium splendens, and a large Ixora coccinea.—The next group in point of merit was from Mr. Ayres, gr. to J. Cook, Esq., of Blackheath; in it we remarked Leschenaultia formosa, 2½ ft. in diameter, and 18 ins. in height; Polygala oppositifolia, 2½ ft. in height, and 3 ft. in diameter, quite a mass of blossom: Aphelexis splendens, very fine; and A. spectabilis grandiflora, the best of the genus, together with a charming Azalea lateritia, and an exceedingly healthy Crowea saligna.—Mr. May, gr. to E. Goodheart, Esq., of Bromley, sent Hovea Celsi, a rather bare plant, but finely in bloom; a well-flowered Azalea lateritia, trained to a face; a large Erica hybrida in fine bloom; Aphelexis purpurea grandiflora, Oncidium altissimum, and Polygala acuminata.—Another collection came from Mr. Kyle, gr. to R. Barclay, Esq., Leyton. It contained a small Clerodendron splendens, with two trusses of red blossoms; a neat bush of Pimelea linifolia; Stephanotis floribunda, well grown, but scarce of bloom; Tropæolum tricolorum, trained over a balloon-shaped trellis, and a good Podolobium trilobatum.—Other groups were from Mr. Slowe, gr. to W. R. Baker, Esq.; Mr. Taylor, gr. to J. Costar, Esq.; and Mr. Cockburn, gr. to the Earl of Mansfield, Kenwood. In the first we remarked a pyramidal Mahernia incisa, nearly 5ft. high; a large Kennedya [illegible] trained over a wire trellis, quite a mass of [illegible] and a large Epacris grandiflora. In the second [illegible] some good plants, especially a very fine [illegible] formosa; a good plant of Achimenes [illegible] Acacia cordifolia, and Boronia serr[illegible]

here, and, among other things, the white flowered variety of Swainsonia galegifolia; a splendid Tropæolum tricolorum; a good Stephanotis floribunda, but insufficiently in bloom, and a large Indigofera australis. There were several collections of 6 Stove and Greenhouse Plants. Mr. Kaye, gr. to B. D. Colvine, Esq., of Norwood, contributed Epiphyllum Jenkinsoni, hardly enough advanced in bloom; a small Erica Macnabiana; a large Pimelea decussata; a well-managed Selago Gillii, and Azalea variegata, in fine condition. Mr. Clark, gardener to W. Block, Esq., Muswell Hill, sent a small bushy plant of Ixora crocata, with upwards of 30 heads of bloom; and from Mr. Chalmers, gr. to A. Janson, Esq., Walthamstow, were Pimelea linifolia, 3 feet in height and as much in diameter, a mass of bloom; a large Epacris grandiflora, and a good Polygala oppositifolia. Finally, Mr. Malyon, gr. to T. Brandram, Esq., Blackheath, sent Erica quadriflora, with every little branchlet producing a cluster of 4 round delicate pink flowers, together with good plants of Vinca rosea alba and Epacris grandiflora.

The display of Orchids was below the average. For 15 plants, the gold medal was awarded to Messrs. Rollisson, of Tooting. In this group we noticed a scrambling plant of Aerides crispum; two species of Epidendrum; the curious rather than beautiful green-flowered Myanthus cernuus; three species of Maxillaria; the handsome Dendrobium chrysanthum; two Brassias, Cœlogyne undulata and testacea, and the beautiful Phaius bicolor, together with the red-flowered Broughtonia sanguinea; Cirrhæa fuscolutea, with two pendent racemes of green flowers, more curious than beautiful; the Mexican Trichopilia tortilis; Calanthe veratrifolia, and some others. Another group of 15 plants came from Mr. Plant, gr. to J. H. Schroder, Esq., of Stratford. It contained, among others, the well-known Brassia maculata, the rare and delicate white-flowered Phalænopsis amabilis; and a good Myanthus cernuus. For collections of 12 species Mr. Green obtained the first prize; and the next group in point of merit came from Mr. Hunt. The latter contained a fine plant of the Indian Phaius Wallichii. Mr. Rae, gr. to J. J. Blandy, Esq., Reading, sent a good group, for which no reward appeared to have been assigned; among other things it comprised a small plant of the very handsome Dendrobium Devonianum; a good Cattleya Skinneri, with six spikes of purple blossoms; the best variety of Oncidium ampliatum; and Vanda Roxburghi, with pale brown-veined petals and violet lip. Mr. Don, gr. to F. G. Cox, Esq., of Stockwell, sent among others a fine plant of Brassia Lanceana, with dense drooping racemes of buff blossoms, of no great beauty; Stanhopea eburnea; Cyrtochilum maculatum; and Mr. Gibson's variety of Cymbidium lancifolium.—Of Single Specimens, Mr. Vernon, gr. to Earl Cornwallis, sent Cattleya Mossiæ; and as a new plant, Mr. Wood, of Longleat, produced a Cyrtochilum.

Collections of Cape Heaths were numerous; but among them there was nothing very striking or novel. —Mr. Barnes obtained the first prize for 15 plants; Mr. Hunt was second, and another group equal in point of merit was produced by Mr. W. P. Ayres. In a group from Mr. May, was a pretty plant of fastigiata lutescens. —In collections of 12, the first prize was awarded to Messrs. Fairbairn, who produced, among others, jasminoides, a fine ventricosa alba, and metuleflora, having numerous heads of flowers, the violet tinge of whose reflexed petals contrast well with the red waxy looking tubes. The next group was contributed by Messrs. Fraser. It contained a lovely propendens ventricosa breviflora, clad to the pot with foliage and flowers, and a pretty daphnoides.—Messrs. Rollisson sent denticulata moschata loaded with small white and yellow flowers.—Mr. Pamplin, a fine spuria, a mass of blossoms, and Mr. Dawson, of Brixton-hill, hybrida and Linnæoides in the most robust health.—Mr. Pawley also sent, among others, a good sulphurea, and a large hybrida. Several groups of 6 plants were produced; but among them we did not observe anything remarkable. Of Seedlings, Messrs. Henderson sent vestita eximia, with dense rosy pink heads of bloom; and Mr. Pamplin, a variety, with white flowers, something in the way of perspicua.

The Roses in pots, though limited as to quantity, formed by no means the least attractive feature of the Show, the foliage being clean and healthy, and many of the plants producing from 8 to 12 full-blown Roses. In the Nurseryman's Class, the best collection was from Messrs. Lane and Son, Great Berkhampstead. In it we remarked, in addition to the sorts given in our last report, Miellez, Barbot, Psyche, Reine Victoria, Proserpine, Anteros, and Princesse de Lamballe. — A second group from Messrs. Paul and Sons, of Cheshunt, contained Armosa, Paul Joseph, General Allard, and Persian Yellow.—Mr. Dobson, foreman to Mr. E. Beck, of Isleworth, sent Prudence, Reser, Comte d'Eu, and Le Grenadier; and Mr. Francis, of Hertford, Triumphans, Marjolin, Eugene Beauharnais, and Lady Fordwich. Mr. Slowe, gr. to W. R. Baker, Esq., sent a collection, in capital condition, containing Celestial multiflora, with nine blooms; Archduke Charles, with eight blooms; Alcine, with nine fully expanded blooms; and a fine Cramoisie superieure. Other groups came from Mr. Kaye, of Norwood; and Mr. Don, of Stockwell.

Of Azaleas, we remarked in Messrs. Frazer's group a beautiful small Gledstanesii, with flowers prettily marked with pink; and fulgens, a very bright red variety. Among Mr. Barnes's plants, lateritia, Herbertiana, variegata, and macrantha purpurea; and in the group by Mr. Allnutt, of Clapham, phœnicea, large plants of indica alba, and variegata, the latter hardly sufficiently advanced in bloom. Another group from Mr. Green, contained nothing different from what was formerly shown; and the same may be said of a collection of tall Cacti, from the same exhibitor.

Cut bunches of Seedling Azaleas were shown by Mr. Waterer, of Bagshot; and two Seedling Rhododendrons, from the same place, named delicatum and erectum, were produced by Mr. Standish.

Of Single Specimens of fine cultivation: Mr. Clark sent a splendid Pimelea decussata, quite a mass of bloom. Mr. Barnes, a beautiful Aphelexis humilis, about 2 feet in diameter, and 2½ in height. Messrs. Lucombe, Pince, and Co., a pyramidal Eriostemon buxifolium, about 7 feet in height; and a tolerably good Acrophyllum venosum. Messrs. Henderson, of Pine-apple-place, produced Hydrangea japonica, in fine condition; as was also their Armeria cephalotes; and another Hydrangea japonica, with pink and white flowers, was shown by Mr. Joynes, of Totteridge. From Mr. Kaye, of Norwood, were four admirably grown plants of different species of Achimenes. Mr. Pamplin sent a capital Epacris grandiflora; and the beautiful Thunbergia chrysops was shown, in fine condition, by Mr. Gaines, of Battersea. Mr. W. P. Ayres produced a small plant of the best variety of Aphelexis spectabilis, and a capital Erica ventricosa coccinea minor came from the nursery of Messrs. Fairbairn, of Clapham.

Of novelty there was little. Mr. Barnes sent Chorozema ericoides, and Gompholobium Hugelii; the latter was also produced by Messrs. Lucombe and Pince, who likewise sent another species in the way of G. polymorphum; and a rutaceous plant named Erythrochiton braziliensis, with large white flowers half enveloped in a sheathing buff-coloured calyx. From Messrs. Rollisson's were Theophrasta Jussiei, a well known plant; Mr. Henchman, a small Kennedya; and Lyperia pinnatifida and Franciscea acuminata, both well known plants, were shown by Mr. Dods, Sir. G. Warrender's gardener.

Of plants remarkable for the beauty of their foliage, Mr. Robertson, gr. to Mrs. Lawrence, sent Pavetta Borbonica, a noble looking plant with prettily mottled leaves, having large red midribs; Messrs. Lucombe and Pince the curious little Cephalotus follicularis, and the singular Nepenthes-like Sarracenia Drummondi, and Sisyrinchium cyaneum and Libertia azurea were exhibited by Messrs. Henderson, of Pine-apple-place. — Mr. Wood, of Norwood, also sent a collection of variegated plants, among which we remarked Rubus saxatilis, Hedera Helix, Viburnum Tinus, Castanea vesca, Euonymus japonicus, Syringa vulgaris, a variegated Strawberry, and several interesting little Alpines.

Among other objects of an interesting but not showy kind may be mentioned several collections of British plants, especially from the Chelsea Botanic Garden and Kew, and collections of British Ferns were shown by Mr. Smith, gr. to J. Anderson, Esq., of Regent's Park, by Mr. Taylor, gr. to J. Costar, Esq., and by Mr. Fletcher, gr. to J. F. Young, Esq., of Kennington.

The Pelargoniums formed an attractive portion of the exhibition. For 12 new and distinct varieties grown in 8 in. pots, the 1st prize was awarded to Mr. Cock, who exhibited Erectum, Cora, Marc Antony, Rosy Circle, Milo, Emma, Sir R. Peel, Mustee, Sultana, Hector, Shield of Achilles, and Rosetta. — Mr. Staines received the second prize for Erectum, Nestor, Staines's Adonis, Rosalie, Sunbeam, Duke of Wellington, Sir R. Peel, Duke of Cornwall, Ackbar, Sylph, Aurora, and Marchioness of Lothian.—In the same class, for Nurserymen, the 1st prize was awarded to Mr. Dobson, foreman to Mr. Beck, who showed the following: Bellona, Isabella, Aurora, Desdemona, Rosy Circle, Zenobia, Hindoo, Arabella, Hebe's Lip, Resplendent, Mustee, and Favourite.—Mr. Catleugh received the second prize for Free Briton, Rosetta, Milo, Duchess of Sutherland, Orion, Grand Monarch, Hebe, Mary, Magog, Madeline, Luna, Symmetry.—Third prize, Mr. Gaines, for Nosegay, Augusta, Cotherstone, Gaines's Prince Albert, Lady Prudhoe, Don Juan, Excelsa, Alba superb, Cossack, Pilot, and Imperialis.—Fourth prize, Mr. Smith, of Battersea, for Hebe, Vanguard, Sylph, Madeline, Duke of Cornwall, Lady Sale, Fair Maid of Devon, Queen of Beauties, Cleopatra, Coronation, Leona, and Queen of Fairies. — For 12 distinct varieties grown in 11-inch pots, the only exhibitor in the Amateurs' Class was Mr. Parker, gr. to J. Oughton, Esq., who exhibited the following finely-grown specimens: Superba, Comte de Paris, Unit, Duke of Cornwall, Erectum, Queen of Beauties, Caroline, Madeline, Hebe, Nymph, Priory Queen, and Gipsey. In the same class, for Nurserymen, Mr. Gaines had no opponent; Lady Isabelle Douglas, Nymph, Rising Sun, Una, Erectum, Victory, Matilda, Lady Sale, Vanguard, Coronation, Albina, and Sylph.— For collections of 8 distinct varieties, in 8-inch pots, by private growers not competing in the other classes, the first prize was taken by Mr. Coysh, gr. to R. Hudson, Esq., for Hebe, Erectum, Unit, Madeline, Alice Gray, Comte de Paris, Evening Star, and Lady Sale.—A third prize was given to Mr. Miller, gr. to R. Moseley, Esq., Susanna, Marchioness of Lothian, Duke of Cornwall, Cleopatra, Enchantress, Mulberry, Duchess of Sutherland, and Erectum.—For *Calceolarias* in 6 distinct varieties grown in 11-inch pots, Mr. Garrod, gr. to R. B. Forman, received the first prize for Surprise, Standishii, Sir R. Sale, Fruticosa elegans, Lady of the Lake, and Prince of Wales.—A second prize was awarded to Mr. Wren, gr. to B. Neville, Esq., for Andromache, Anna, William Paine, Standishii, Sir R. Sale, and Artilleryman; and a third prize was given to Mr. Lewis, gr. to — Hard, Esq., for Magnet, Artilleryman, Defiance, Target, Lady Constable, and Cerymbiflora.— It will be seen that the first prize was withheld in the Amateurs' Class. Mr. Gaines was the only exhibitor as a nurseryman; his plants were well grown, and finely bloomed. Gaines's Ada, Madeline, Duchess of Beaufort, Prince Alfred, Alpha, and Enchantress.—For *Cinerarias*, in collections of 4 distinct varieties, the 1st prize, a Silver Medal, was awarded to Mr. Kaye, gr. to B. D. Colvin, Esq.; and the Bronze Medal to Mr. Gaines for a similar collection. Of *Fuchsias*, Mr. Kendall sent Queen Victoria, Erecta elegans, Cassandra, Sappho, Lady Sale, and Miss Prettyman. Mr. Robinson, Goldfinch, Hope, Vesta, Magnet, Unique, and Iveryana; and Mr. Gaines, Favourite, Clara, Princess Mary, Duchess of Sutherland, Unique, and Queen of Bourbons. — Several stands of *Pansies* were exhibited in fine condition.—Mr. Turner, of Chalvey, obtained the first prize for Diamond, Azurea grandiflora, John, Hamlet, Hero of Bucks, Regulator, Tom Pinch, Juno, Mary Jane, Arethuse, Exquisite, Dido, Purple Perfection, Perseus, Star, Isabella, Titus, Victory, Nymph, Uterpe, Optimus, Daughter of St. Mark, Duke of York, King's Seedling, and Pizarro. The second prize was awarded to Mr. Bragg, and the third to Mr. Thomson, of Iver. —Among seedling Pelargoniums of 1845, specimens of which were exhibited, prizes were awarded to Mr. Beck, for Hebe's Lip, Competitor, and Patrician, and to Mr. Hoyle for Mount Etna. These specimens we have recently noticed; there were many seedlings of the present season, but there did not appear to be any of great merit. The following were selected by the judges, as worthy another trial. Queen of Tyre, Flora's Flag, and Lord Stanley, from Mr. Hoyle; Vulgais, Mr. Miller; and Compactum, from Mr. Beck. The Seedling Calceolarias were very numerous; those exhibited by Mr. Kinghorn were very fine, novel, and distinct in marking, and fine specimens of form. Emperor Oscar and Masterpiece, from Mr. Kinghorn, received prizes; these specimens are of a rich bright brown, with minute spots of the yellow ground, visible upon the surface; and from Mr. Gaines were selected Auro-maculata, Lord Hardinge, and Lady Smith, three flowers of great merit. A Seedling Fuchsia from Messrs. Lucombe and Pince, named Corallina, to which a third Silver Medal was awarded, is a very large and highly coloured variety, tube and sepals of a bright rosy scarlet, with a deep purple corolla; the colours are very brilliant, the sepals are rather long, but the flower contrasted with the foliage is very brilliant. Lord Hill, a large and stout specimen, from Mr. Gaines; and Delicata, from Messrs. Fairbairn, were selected by the judges for reward. A Pansy, from Mr. Thompson, of Iver, named Satirist, received a Certificate; this flower is well shaped, flat, and of good substance, and quite novel in colour: the shield or ground colour, which is generally white or yellow, is of a warm brown, and the eye, top petals and broad margin round the lower ones, are of a deeper bronzy brown. A Seedling Azalea, from Mr. Pawley, named Gledstanesii formosa, received the Bronze Medal; it is a very pretty flower, white slightly striped with rose.

Tulips were exhibited by Mr. Wilson, of Ashwell Thorpe, Norfolk, to whom the second Silver Medal was awarded, and by Mr. Norman, of Woolwich, who received the third Silver Medal.—From Mr. Smith, of Hornsey, there was a neat tray of Verbenas, containing some of his new varieties.—Mr. Smith, of Dalston, exhibited (not for competition) several of his Fuchsias, among which Queen Victoria, Eximia, and Beauty of Dalston appeared the most conspicuous. — We also noticed from Mr. Gaines, a pretty little fancy Pelargonium named Anais, bright and lively in appearance, and marked on the top and bottom petals with bright rose. From the same source a fine specimen of a Calceolaria (Marquis of Bute).

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

May 21.—This, the second show for the season, was held in the Surrey Zoological Gardens. A large number of well-grown plants was brought together, and upon the whole the exhibition may be considered an improvement on former meetings. As most of the plants are, however, fully described in another column, we shall confine our remarks chiefly to the collections of Florists' Flowers, merely making mention of the more prominent features in the other departments. Among Orchids, Mr. Redding, gr. to Mrs. Marryat, produced an extremely fine Stanhopea oculata, with numerous drooping spikes of large spotted blossoms; and in the same group was also a fine plant of the showy Cattleya Mossiæ. Several fine groups of stove and greenhouse plants were produced, and a large bank of the beautiful genus Erica attracted no inconsiderable degree of attention. The Roses too appeared in their gayest colours, and several remarkable single specimens graced the tables. Some fruit was shewn, in the shape of Strawberries and Grapes; and Vegetables were not wanting. Among Cucumbers we noticed a remarkable seedling from Mr. Attlee, measuring at least 2½ feet in length, quite straight and well grown. That portion of the Exhibition more immediately the province of the Florist was well supplied, and the different departments formed most interesting displays of beautiful flowers. In the Amateurs Class for Pelargoniums the first prize was awarded to R. Hudson, Esq.,

Elephant, for 6 varieties of finely grown plants in great perfection; they were Duke of Cornwall, Hebe, Alice Grey, Comte de Paris, Madeline, Marchioness of Lothian, Erectum, and Unit; second, Small Silver Medal to Mr. Foster, of Paddington; and a first prize, the Large Silver Victoria Medal, was awarded to Mr. Parker, gr. to J. Houghton, Esq., for Comte de Paris, Caroline, Priory Queen, Coronation, Mabel, Superbe, Duke of Cornwall, and Master Humphrey. For Class 2, the first prize, the Gold Adelaide, was voted to Mr. Gaines, for fine specimen plants of Pride of Surrey, Albina, Lady J. Douglas, Nymph, Lady Sale, Rising Sun, Una, Erectum, Matilda, Sylph, Excelsa, Pilot, and Ackbar; second prize, Large Silver Victoria, to Messrs. C. and B. Smith, Pimlico.

In the Amateur's Class for Tulips, the 1st prize, the Large Silver Linnean, was awarded to Mr. Hunt, of Wycombe, for Fabius, Triomphe Royale, Bijou des Amateurs, Holmes' King, Catalani, Ulysses, Aglaia, Violet Blandeau, Astrea, Polyphemus, Princess Charlotte's Cenotaph, and Vestris. 2d prize, the Large Silver Addaide Medal was given to the Hon. and Rev. R. Wilson, Ashwelthorpe, Norfolk, whose stand contained Coriolanus, Aglaia, Reine de Siam, Optimus, Holmes' King, Surpasse Salvator Rosa, Manteau Ducal, Cerise Beleforme, Junius Brutus, Charlotte, and Triomphe de Lisle. 3d, Small Silver Victoria, Mr. Reeves, for Surpass Polyphemus, Prima Donna, Franklin's Invincible, Triomphe Royal, Optimus, Franciscus primus, Rubens, Caudiana, Polyphemus, San Joe, Alcon, and Lord Byron. 4th, the Small Silver Linnean, to Mr. Edwards, of Holloway; and Stands from Mr. Venables, of Kennington, Mr. Dottson, and Mr. Hunt. In the Nurserymen's Class, the 1st prize, the Large Silver Linnean was voted to Mr. Bushell, for Aglaia, Reine de Sheba, Claudiana, Lord Hawke, Polyphemus, Triomphe de Lisle, Platoff, Optimus, Triomphe Royal, Rubens, Junius Brutus, and Vandyke. 2d, Small Silver Victoria, to Mr. Norman, of Woolwich, for Royal Albert, Matilda Mason, Lord Blomfield, Maria, Rubens, Charbonnier Noir, Prince of Wales, Optimus, Claudiana, Polyphemus, Triomphe Royal, Roi de Siam. 3d, Small Linnean, to Mr. Batten; collections were also contributed by Mr. Bushell, S. Sanders, Esq., Mr. Chapman, and the Hon. and Rev. R. Wilson.

In the Amateurs' Class for Pansies, 24 blooms, the first prize, Small Silver Victoria, was awarded to Mr. Hunt, of Wycombe, for Victory, Curion, Grotius, Eclipse, Exquisite, Tom Pinch, Hunt's Wellington, Buxton's Ne Plus Ultra, Hamlet, Hooper's Wellington, Purity, Pizarro, Mary Jane, Duke of York, Hero of Bucks, Hannibal, Montem, Mulberry Superb, Isabella, Dido, Ploughboy, and Goliah; 2d, Small Silver Linnean, to Mr. Hall, of Enfield; 3d, Small Silver Adelaide, to Mr. Edwards, of Holloway; 4th, Small Silver ditto, to Mr. Hale, of Hillingdon. Stands were also contributed by Messrs. Over, Brown, Wren, and Battie.—In the Nurserymen's Class the 1st prize was awarded to Mr Turner, of Chalvey, for King's Seedling, Dido, Optimus, Prior, Juno, Euterpe, Novelty, Star, Duke of Wellington, Advancer, Regulator, Isabella, Duke of Beaufort, Subelegans, Azurea, Duke of York, Ne Plus Ultra, Seedling Exquisite, Hero of Bucks, Mary Jane, Perseus, Eliza, Hunt's Wellington, Diamond, Daughter of St. Mark, Delight, President, Eclipse, Jehu, Arethusa, Hannibal, Yellow Defiance, Pitho, Tom Pinch, Imogene, Companion, Victory, Hamlet, Negro, Mary Anne, Seedling, Prince Royal, Caractacus, Pizarro, Titus, Curion, and Pelops; 2d, to Mr. Thompson, of Iver. Stands also came from Messrs Cutler, Henbrey, and Agate.

For Seedlings, a Certificate was awarded to Mr. Scarnell, for a seedling Tulip, a flower having a well-formed cup, pure white ground, with deep feather, and beam of a cherry-rose. *Pelargoniums*: 1st class Certificate to Mr. Miller, for Mount Etna, and Vulgais. *Pansies*: Certificate to Mr. Thompson, of Iver, for a fine seedling named Duchess of Rutland, and Satirist; and the same to Mr. Hall, for a seedling named Rainbow.

Reviews.

A Dictionary of Modern Gardening. By Geo. W. Johnson, Esq. 12mo. Baldwin.

The name of Dictionary has always been received favourably by gardeners ever since Philip Miller applied it to one of the best books that has been written. The form of such a work renders it so convenient for reference, and it is so especially suited to persons who have not received a high education, or been specially trained in the knowledge of Horticulture, that it will always be acceptable to the mass of readers. But in these days of shilling volumes, a great practical difficulty attends the compilation of such a work on account of the extent of the subject. In Miller's time, when gardening was in its youth, a heavy folio was not too large to contain his instructions. How impossible then must it be to compress into a duodecimo the endless details of modern horticulture.

Nevertheless, Mr. Johnson has made the attempt; his work consists of 700 pages and upwards, and it contains, perhaps, 3500 subjects, as near as we can calculate. Such being the case, the reader will not expect much discussion, or extensive details; nor does it appear to have been the author's purpose to give them. On the contrary, a large number of the articles are like the following:—

"*Oxotheamnus.*—Three species. Greenhouse evergreen shrubs, probably hardy. Young cuttings. Loam and peat.

"*Pentstemon.*—Seven species. Greenhouse tree kinds. Suckers and cuttings, slightly dried. Sandy loam and calcareous rubbish.

"*Pachyphodium.*—Two species. Greenhouse deciduous succulents. Cuttings slightly dried. Sandy turfy loam and peat.

"*Pachyrhizus angulatus.*—Stove evergreen twiner. Tubers, seed, and cuttings. Rich light loam."

Others are longer, as

"*Gentianella* (*Gentiana acaulis*) is a hardy and herbaceous creeper. Sow the seeds of this as soon as they are ripe (otherwise they soon lose the power of vegetation), in pans filled with rather heavy peat. Sow on the surface, without any covering except a slight sprinkling of silver sand; then place the pans either in a cold frame facing the north, and kept close, or on the north side of a wall, where they are completely screened from the sun, and cover them with a hand-glass. *Soil.*—A light loam suits it best; manured annually with leaf mould. If the subsoil is dry, the soil may be advantageously more clayey."

The plan of the author is to give space to matter according to its assumed importance. But where the subject requires it, this brief style is cast off, and good dissertations are introduced, as those under the heads of Hedge, Greenhouse Plants, Pelargonium, Cucumber, Monthly Calendars, Bombyx, &c. As an example of the latter, we take a part of the article on the *Law relating to Gardens*.

"*Landlord and Tenant*—Lord Kenyon was of opinion that market gardeners and nurserymen may remove the greenhouses and hothouses which they have erected on the land of which they are tenants, even without an agreement; but this is doubtful; they may, however, remove trees, or such as are likely to become so, in the necessary course of their trade. If it were otherwise, the very object of their holding would be defeated (*Penton* v. *Robart*, 2 East, 90). But the out-going tenant of a garden must not at the end of his term plough up Strawberry-beds in full bearing, which when he entered he bought of a former tenant; although it is the general practice to appraise and pay for these plants as between outgoing and incoming tenants. For such conduct is malicious and not in the due course of business. (*Wetherell* v. *Howell*, 1 Campbell, 227.) So a tenant (not a gardener by trade) must not remove a Box edging planted on ground rented by him of another. Neither is he entitled, says Mr. Justice Littledale (unless by special agreement), to remove flowers which he had planted. (*Empsom* v. *Soden*, 4 Barn. and Adolph. 655.) And a similar decision has determined that a farmer who raises young fruit trees on the land he hires, for filling up an orchard upon the premises, is not entitled to sell those young trees; but it is otherwise of a nurseryman by trade. (*Wyndham* v. *Way*, 4 Taunton, 346.)

"Even if nurserymen are entitled, without a special agreement, to remove the hothouses they have erected upon their landlord's land, which is very doubtful, that right does not extend in every instance to other tenants. Thus, a tenant was adjudged not entitled to remove a conservatory erected by himself on a brick foundation, attached to a dwelling-house, and communicating with it by windows and a door, and by a flue passing into the parlour chimney. (*Buckland* v. *Butterfield*, 2 Brod. and Bing., 54.) A tenant is liable to pay for the waste if he cuts down any fruit-trees in the garden or orchard he holds, but not if they are not growing within the garden or orchard. (Coke's Litt. 53 a.) But he may take away a wooden shed which he had built on brickwork, and posts and rails he had put up. (*Fitzherbert* v. *Shaw*, 1 H. Blackstone, 259.)

"*Law Protecting Gardens.*—Gardens were not sufficiently protected by law until the year 1828, when the statute 7 & 8 Geo. IV., c. 29 was passed.

"Section 38 of this statute enacts that to steal, cut, break, root up, or otherwise destroy or damage with intent to steal, the whole or any part of any tree, sapling, or shrub, or any underwood, above the value of 1*l.* respectively growing in any park, pleasure-ground, orchard or avenue, or in any ground adjoining or belonging to any dwelling-house, or above the value of 5*l.* in any other situation, is felony, and punishable as simple larceny.

"By section 39, if the injury to the trees, shrubs, &c., amounts to less than 1*l.*, but to 1*s.* at the least, then summary punishment may be inflicted by a justice of the peace. A fine may be imposed not exceeding 5*l.* above the injury done, upon the first conviction; by imprisonment, with hard labour, not exceeding twelve months, upon a second conviction, and if the conviction take place before two justices of the peace, by public or private whipping; and the third offence, after two previous convictions, is felony, punishable as simple larceny.

"By sections 40, 41, and 43, to steal, or to cut, break, or throw down, with intent to steal, any part of any live or dead fence, or any wooden post, pale, or rail, set up or used as a fence, or any stile or gate, or any part thereof; or to have possession of the whole or any part of any sapling or shrub, or any underwood, or any part of any live or dead fence, or any post, pale, rail, stile or gate, or any part thereof respectively, of the value of 2*s.*, without satisfactorily accounting for that possession; and to steal, or destroy, or damage with intent to steal, any cultivated root or plant used for the food of man or beast, or for medicine, or distilling or dyeing, or for or in the course of manufacture, growing in any land, open or inclosed, not being a garden, orchard, or nursery-ground, is punishable upon summary conviction, by fine, imprisonment with or without hard labour, and by public [illegible] according to the nature of the offence.

"So, by section 42, to steal, or destroy, or damage with intent to steal, any plant, root, fruit, or vegetable production, growing in any garden, orchard, nursery ground, hothouse, or conservatory, is for the first offence, punishable, upon summary conviction, by imprisonment, with or without hard labour, not exceeding six months, or by fine, not exceeding 20*l.*; but the second offence is felony, punishable as simple larceny.

"Lastly, by section 44, to steal, or rip, cut, or break with intent to steal, any glass or woodwork belonging to any building whatsoever, or any lead, iron, copper, brass, or other metal, or any utensil or fixture, whether made of metal or other material, respectively fixed to any building, or anything made of metal fixed in any land, being private property, or for a fence to any dwelling-house, garden, or area, or in any square, street, or other place dedicated to public use or ornament, is felony, punishable as simple larceny."

These specimens serve to show the general nature of Mr. Johnson's book. Its utility is indisputable, especially to amateurs and young gardeners, to whom we recommend it. Its faults are those which are inseparable from its conciseness; its merit is the skill with which the matter is condensed and selected. We should have been glad, however, to have seen fewer typographical errors among the names of plants; but they are blemishes rather than drawbacks from usefulness, and will hardly be remarked by the majority of the readers for whom the work is intended.

Calendar of Operations.

(For the ensuing Week.)

Watering out of Doors.—Some persons are for morning watering, and others for evening; all, however, will agree in the propriety or even necessity of a timely application of this most important element. For my own part, I like the morning as a general rule; more especially for such things as have been recently planted out, such as bedded plants in the flower-garden, and young vegetables transplanted from the seed-beds in the kitchen garden. To saturate the soil in such cases is, in my opinion, highly improper, as leading to a considerable waste of the accumulated ground heat, and also as tending to exclude the genial influence of the atmosphere. With regard to young stock of this kind, frequent sprinklings are all that is required; in fact, a kind of cutting treatment, chiefly in order to prevent undue perspiration in the leaf. If this waste is prevented through the day by early morning watering, the plants may safely be left to the dews during the night. Fine-rosed pots should at all times be used, and light sprinklings repeated will prevent the soil from becoming puddled.

CONSERVATORIES, STOVE, &c.

Conservatory.—Towards the end of the month some of the hardier stock in this structure, such, for instance, as the hybrid Rhododendrons, Camellias forming buds, and Orange-trees in tubs or pots, may be set out of doors. This will give liberty to such of the stock as must be suffered to remain, both on account of their tenderness and of the display they make. A sheltered spot should be selected, but by no means under the drip of trees. A temporary awning should be suspended over them for a week or two at first, but of a very thin character. When they are reconciled to the change, such as the Oranges may be removed to other situations in the open air. *Stove and Orchids.*—Such of the stove plants or those belonging to an intermediate house as have made a good and early growth, may now be removed to a cooler shade, which will arrest their rapid vegetation in some degree, causing robustness of habit, and in many a tendency to produce autumn and winter flowers. *Orchids.*—Every attention should now be paid to keeping down vermin in the Orchidaceous-house; nothing short of extermination should ever satisfy the zealous cultivator. I find nothing better than fresh and sweet bran for snails and slugs. This may be placed about the pots either in oyster-shells or crocks in the afternoon, and should be examined by candle-light at eight or nine o'clock; choosing such plants for baiting as possess tender buds and roots above the level of the soil. *Mixed Greenhouse.*—Heaths in full growth will, at this period, require abundance of water, at least in bright weather. Many good specimens are lost through imperfect watering. The Erythrina Crista-galli is a fine old plant; cuttings may be made of the young shoots of those which have been headed down. The old plants started on heat in January, and now exhausted with flowering, if removed to a cool and light greenhouse, and suffered to go to rest, will bloom well a second time in September, by the excitement of heat and moisture, after resting a few weeks. *Pits or Frames.*—After the stock for the flower-garden masses are removed hence, all the surplus Verbenas, Fuchsias, Geraniums, Calceolarias, Petunias, &c., remaining in store pots, should be potted off forthwith into 3-inch pots, and should receive every attention in the way of cultivation. As soon as they grow freely they should be stopped, and made to form bushy plants. These will be a reserve, to succeed plants in full bloom at this period, and also to fill up gaps as they occur in the beds or borders.

KITCHEN GARDEN FORCING.

Pines.—This is the period in which both rapid and substantial growth should take place in the young Pines. Having secured a powerful action of root, by the use of thorough drainage, mellow and wholesome soils, and a quiet but uniform bottom heat; the next points are, to feed (where watering is required) with

thoroughly clear liquid manure; and to give abundance of air, night and day. The night air of course must be regulated by the temperature of the structure; 70° must be secured. After this is effected, give air freely. *Vineries.*—As in last Calendar. The sorts setting in late houses, now in blossom, may be assisted by applying the pollen of the Hamburgh. *Peach House.*—Persist at all times in stopping gross shoots. Liquid manure should be applied with freedom to those trees carrying a full crop; in fact it will benefit all, unless excessively luxuriant, provided the stopping gross wood is constantly attended to. If the early forced trees have naked limbs, some of the earliest made wood may be taken from the trees, and buds inserted from it in the barren parts. Buds inserted now may "push" in the course of July, and should be stopped when about six inches long, in order to get the wood well ripened. *Melons.*—If the spider or thrips become troublesome, sprinkle the frame or pit at 9 o'clock in the morning, and shut up a solar heat of 95° until 3 o'clock in the afternoon. This done for two or three sunny days in succession will generally defy the ravages of those destructive insects. The process, however, requires care; it must be well performed.

KITCHEN GARDENING AND ORCHARD.

Asparagus-beds in full cutting, that is to say, in their prime, may have every shoot cut away until the middle of June. Spruce, or very small Asparagus, may, however, be permitted to grow. This will hardly prevent the development of the dormant buds. Tomatoes, if hardened, may now be planted out; the blanks on the walls are most eligible. Plant them on raised mounds, which will have the effect of reducing their grossness. Capsicums may also be planted under the front of Vineries, or other warm situations. Let Celery plants in all their stages have due attention as to pricking out, watering, stirring the soil, &c. The watering, above all, is a most important point; it should ever be borne in mind that Celery will grow in a ditch. See to sowings of Cape or other autumn Broccolies. *Orcharding.*—In spite of the cold and wet summer of 1845, and a climate 53° N., my Peaches and Nectarines out of doors were never in such high perfection. They are absolutely unblemished in every respect, and carry heavy crops of fruit. I have pulled off immense quantities. My trees are on platforms of barely a foot in depth, all of sound adhesive loam. Let mulchings be applied where borders are shallow, or in any degree exhausted.

FLOWER-GARDEN AND SHRUBBERIES.

Newly planted shrubs will require thorough waterings, in periods of drought, until the beginning of June. Masses of American shrubs, under or near large trees, should have a top-dressing of some kind to keep them cool, and to compensate for the exhaustion occasioned by the roots of the trees. A coating of bog-earth sphagnum, half-rotten leaves, or old tan, will be perfectly suitable. Conservative walls, trellises, or ornamental arcades, should have close attention at this period. Some of the remarks as applied to Conservatory climbers are applicable here. Continue getting out masses of flowers as soon as they are hardened. If they flag, screen them with boughs of trees stuck amongst them.

COTTAGERS' GARDENS.

Where the cottager keeps a cow, he will find the August sown Spinach a very good spring feed: more especially if his cow has been fed on Mangold or Swedes, as part diet for months. The Spinach bed will be available for a little Celery, or may be planted with winter greens of any kind. Thorough cleaning should now be the order of the day, in small gardens as well as large. If wet weather prevail, hand weeding may be resorted to; if dry, the hoe should be continually in use.

FORESTING.

All hedges should have close attention at this period, more especially young or newly-planted ones, as to thorough freedom from weeds. Recently made plantations also, as well as those of one or two years standing, should be looked over, and the young plants kept from being choked by weeds.

State of the Weather near London, for the week ending May 21, 1846, as observed at the Horticultural Garden, Chiswick

May	Moon's Age.	Barometer. Max	Barometer. Min.	Thermometer. Max	Thermometer. Min.	Thermometer. Mean.	Wind	Rain.
Wed. 15	19	29.998	29.858	63	34	48.5	E.	
Sat. 16	20	29.693	29.590	63	40	51.5	E.	.34
Sun. 17	21	29.818	29.684	60	36	48.5	S.	.01
Mon. 18	☾	29.788	29.623	62	46	54.0	S.W.	.17
Tues. 19	24	29.868	29.681	63	49	56.0	S.W.	.12
Wed. 20	25	29.858	29.644	69	44	56.5	S.W.	.02
Thurs. 21	26	29.949	29.677	71	50	55.0	S.W.	
Average		29.800	29.682	64.8	42.0	53.0		.80

May 15—Very fine; white clouds, with clear intervals
16—Uniformly overcast, dry haze; densely overcast; heavy rain at night
17—Overcast; rain; clear and cold
18—Rain; cloudy, boisterous with rain at night
19—Very fine, thunder showers; densely overcast
20—Rain; heavy clouds and showers; P.M. rain and hail; showery throughout
21—Cloudy and fine; very fine; clear.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending May 30, 1846.

May	Aver. Highest Temp.	Aver. Lowest Temp	Mean Temp	No. of Years in which it rained	Greatest quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 24	68.0	48.7	58.3	9	0.44 in.	3	4	6	—	3	8	2	1
Mon. 25	68.6	45.6	58.1	7	0.66	1	2	1	1	1	6	3	—
Tues. 26	69.3	43.4	56.3	9	0.17	1	3	2	1	2	2	3	—
Wed. 27	69.2	44.7	56.9	11	0.61	1	6	4	1	1	3	1	1
Thurs. 28	68.1	45.8	56.9	8	0.69	—	5	5	1	3	6	2	—
Fri. 29	68.4	44.7	56.6	9	0.67	1	2	1	1	4	3	3	—
Sat. 30	67.8	46.4	56.9	8	0.29	2	5	4	—	2	4	2	1

The highest temperature during the above period occurred on the 25th, 1846, and 27th, 1841—therm. 92°; and the lowest on the 25th, 1838—therm. 29°.

Notices to Correspondents.

Post-office Orders—In order to obviate the inconveniences which are now constantly being experienced by parties who wish to remit small sums to the office of the Gardeners' Chronicle, we have to request that all Post-office orders may in future be made payable to Mr. James Matthews, at the Post-office, 180, Strand, London.

The Reprint of Mr. Paxton's Cottagers' Calendar is now ready, price 3d. each copy. An index has been added to this present edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5s.

Books—*D Nicklin*—Yes, some day.——*Narcissus*—What are the exact objects of the gardener? All depends on that. For the Orchard and Kitchen Garden we recommend Mr. George Lindley's work; London's "Suburban Gardener" may suit him: or Mackintosh's work, in three small volumes.——*T*—The "Vegetable Kingdom" contains the most ample information upon every point among your very numerous inquiries, and we must refer you to its pages.

Climbers—*T W W L*—In selecting two hardy climbers, much depends upon what you intend to cover, whether a large or a small space, and the nature of the covering you want, whether evergreen or for flowering only, and also upon the aspect. If you want to cover a large space, plant Glycine sinensis and Clematis montana; if small, take Clematis azurea or Sieboldi, and Pyrus japonica. If you prefer evergreens, plant Cotoneaster rotundifolia and Crataegus pyracantha; all these plants do well in most aspects, if planted in good soil. Two good climbers, where there is plenty of room in a greenhouse, are Tecoma pinnatisfipula and Tecoma capensis; but if the room is limited, Hardenbergia macrophylla and Brachysema latifolium will answer better. Two good Passion-flowers for a greenhouse are Passiflora cerulea-racemosa and P. Colvilli.¶

Cucumbers—*J B* writes thus: "I inclose a specimen of Cucumbers which are in a very bad state, and they have been so for many years past. I have seen them thus myself for three seasons, and I am disheartened in attempting to grow them, as I have tried all possible means without success. The plants grow strong as you see by the specimen I have sent; the disease appears in the stem, leaves, and fruit, the fruit is full of small holes, and the sap flows out; the same happens in the leaves and stem. I have shown them to many good gardeners, but they all appear ignorant of the cause. I have tried all kinds of soils. I have painted my frames throughout, and removed them to various parts of the garden, without any better success; the ridge Cucumbers are the same." It is impossible to say what these Cucumbers ail. They are cankered. One would have thought that they were over-watered in too low a temperature—for they are much in the state of late autumn ridged Cucumbers. It may also be conjectured that they are attacked by woodlice. But which of these conjectures is right, if either, it is out of our power to say without watching the operations of the gardener. That the evil arises in some way from want of skill is most likely the case.

Diseases—If our correspondents are right we are to have a murrain in everything. Lilacs, Laurels, Cucumbers, Larches, Spruces, Yams, &c. &c., are reported to be suffering. This is a point of so much importance that we wish for time for further inquiry; we shall notice the matter in a Leading Article next week.—*H H E*—The appearance in your Vine leaves is probably caused by your syringing them with hard water, the lime in which is deposited on their surface. Employ rain water in future; indeed, no gardener should ever use any other.——*J G*—We do not attribute the evil to guano; but to over-watering and a cold damp atmosphere. Under such circumstances leaves are always affected. Aërate your house well, and the plants will by degrees recover; or if you cannot do that, be more moderate with watering. Also give your plants all the sun-light possible. The best form of guano for gardens, especially potted plants, appears to be dissolved in cow's urine, fermented and diluted. A handful of guano to a pail of fluid.

Grapes—*W C*—The Royal Albert Grape forms a large, rather loosely-shouldered bunch, with black somewhat oval berries, and is later than the Black Hamburgh. It requires to be compared with the large Black Ferrar, for probably it may be found not different.‖

Heavy Soil—*L S C*—Dress it copiously with the lime-rubbish of old buildings, and with soot or cinder-ashes, and let them be dug in roughly at the approach of winter. Before all these things, however, drain it thoroughly, or all your expense will be thrown away.

Honeydew—*Ab*—This is owing to your house being too hot and dry. You should syringe your plants frequently, except when in flower.

Insects—*R J S*—We presume that it is the causticity of soda ash that renders it useful against wire-worm; nitrate of soda is not caustic.——*A Subscriber*—Our uniform advice to those whose frames are infested with woodlice is to keep them down by means of toads, which live upon them.——*H D*—Ants are driven away by gas tar in their runs, or by turpentine. Aphides are killed by a weak solution of smelling salts in water, or by gas water diluted with six times its bulk of water. The former is the neatest.——*D L*—Your bees are a species of Andrena. Why do you not water the Grass with Tobacco-water, or liquid manure, or dust it well with soot and lime? The salt and water will probably injure the Grass. *R.*——*C Y*—Our remedy, and a never failing one, is to pour boiling water upon the ant's nest. Cannot you do the same? *R.*——*W B*—Slugs delight in damp and mild weather, and there has been neither frost or snow to check their increase during the past winter. *R.*——*H J*—The large grubs belong to the Crane-fly, figured and described in the *Gard. Chron.*, vol. 1, p. 612; the small ones probably change to another gnat. Dust Tobacco powder over your wall fruit, and dip the Rose shoots into Tobacco water. *R.*——*G P*—I am sorry you did not send more caterpillars, as I am unable to tell you the species from a single specimen. Phalæna fluctuata has been abundant for the last three weeks; it may be the larva of that moth, in which case I know of no better remedy than hand picking. On shaking the trees they will fall by a thread. *R.*——*T P*—It is the Cinara Picie, one of the Aphides, of which you will find winged specimens next month. Cold will not destroy them, but heat may. The humble-bees are only in search of the saccharine exudations. I fear nothing can be done to arrest the progress of these Aphides, but in all probability some parasitic fly will shortly arrive to effect what seems to be beyond the power of man. *R.*

Law—*M H*—We have already answered your question to the best of our judgment, although we particularly object to giving legal opinions. Indeed they can never be safely acted upon without the aid of a solicitor. We entertain no doubt that the law is against you, whatever may be the justice of your case. See Johnson's "Dictionary of Gardening," noticed in another column.

Manures—*Ignoramus*—Don't add lime to soot; it ruins it. Add soot to chamberlye, and you will do well, but not lime.

Names of Plants—*J L S*—The young state of some Phallus; a kind of Fungal, one species of which is very fetid when full grown. But yours has no smell, and it may be worth while watching to ascertain if it be not the rare violet-scented P. iosmos, which has been found at Lowestoft, and would therefore be likely to occur at Southrepps.——*W Townsend*—Sempervivum arboreum, and Platylobium ovatum.——*F G R*—The Gloxinia is a very common form; the other is some Hydrophyl not determinable without much better specimens, accompanied by leaves.——*Chesh*—551, Chysis laevis, *a fine thing.* The remainder were shrivelled up, or the flowers had dropped off the stalks and they could not be identified. 1, Fig. 7 Stanhopea grandiflora; 1762, Schomburgkia unguinata 1763, Cyrtopodium Andersonii. We cannot undertake to name plants out of flower. The Rhododendron robustissimum, is a very fine *double* variety, and very well worth cultivation. Its double condition is owing to the ten stamens being nearly quite converted into a second monopetalous corolla; some of the flowers are 9 inches in circumference. We have nothing so good in this country; we should not, however, have suspected it to be a cross between R. catawbiense and ponticum, it having so much the habit and the violet tint of the latter. The box was returned before your second note arrived. No. 557 is Notylia trisepal.——*Hereulensis*—Aspcrula odorata, or Woodruff.——*W H Hayle*—Octomeria Bauerl.——*F E*—Your canary-coloured Ulex is new to us.——*Countess . . .*—Gerastium tomentosum.

Pak Choi—*M M M*—This is the Brassica sinensis, cultivated as an oil plant by the Chinese. It resembles Rape more than it does the common Cabbage.‖

Polmaise Heating—*R J S*—We are sorry to hear of your difficulty, especially since we cannot remove it. You are in possession of all that we know of the matter, and that, to our apprehension, is very plain. If you want some working plan, then in that case you will probably be gratified shortly.——*J N*—We have read your note, and studied your plan with all attention: but the details you furnish are so few that we cannot advise you. If you want a *plan for heating*, you had better apply to Mr. Davies, of Wavertree, near Liverpool, who will no doubt advise you professionally. It is beyond our power to furnish plans in reply to correspondents. There ought to be no difficulty in doing what you want.

Potato Crop—*J. Snow*—We are glad to hear of your success; and trust it will be permanent. Of course, some people will have sound Potatoes; the difficulty is to know beforehand who they are to be. Wait till your young Potatoes are ripe, before you are sure of success.——*Fidoon*—Much obliged: but the subject is threadbare; and has been fully mentioned in a late leading article.

Rat Poison—*P D H*—The phosphorus pills have been advertised in our columns by Mr. Purser, from whom we imagine you would do better to buy them than to make them yourself. If you prefer the latter mode, however, we reprint, from p. 855, 1845, Dr. Ure's directions for your guidance:—"Melt hogs'-lard in a bottle plunged in water heated to bout 150° Fah.; introduce into it half an ounce of phosphorus for every pound of lard; then add a pint of proof-spirit, or whiskey; cork the bottle firmly after its contents have been heated to 150°, taking it at the same time out of the water-bath, and agitate smartly till the phosphorus becomes uniformly diffused, forming a milky-looking liquid. This mixture being cooled, with occasional agitation at first, will afford a white compound of phosphorus and lard, from which the spirit spontaneously separates, and may be poured off to be used again, for none of it enters into the combination; but it merely serves to comminute the phosphorus, and to diffuse it in very fine particles through the lard. This fatty compound, on being warmed very gently, may be poured out into a mixture of Wheat-flour and sugar incorporated therewith, and then flavoured with oil of Rhodium, or not, at pleasure. The flavour may be varied with oil of Aniseed, &c."‡

Training—*M C*—For many reasons which cannot be fully adduced at present, the horizontal mode of training is to be preferred in the case of Flemish Pear-trees against 4 feet high iron hurdles. You may look upon it as the happy medium between the fan-shape represented in your sketch No. 1, and the pendulous form, sketch No. 3; the former encouraging too much luxuriance for your space, and the latter inducing too much weakness after the trees begin to bear.‖

Mise—*J H M*—No doubt they will bulk, and well too, provided you manure them well and hoe them very often; much depends on that.——*Tolla Cerium*—We fear something else must eat the foliage of your Melons than woodlice. For the destruction of the latter in your frames nothing is better than a toad or two.‡——*H W*—A gardener growing fruit, &c., for private use and sometimes for market, will be allowed to show at Chiswick as a private grower.——*Sigma*—Two very healthy climbing Roses, with good foliage, are Lamarque, white, and De Lisle, pink.‡——*Thomas*—We are not in possession of the information, but will inquire.——*W J D A*—Much obliged. The information has already been given at p. 785, 1845.——*An Amateur*—Mr. Dobson is Mr. Beck's foreman, and Mr Beck is a nurseryman, at Isleworth, as you may have seen by his advertisements of Pelargoniums.——*Inquirer*—Yes. Your condemned Firs will form underwood till they are killed by the other trees. We cannot give any rule for thinning: that is a practical question to be decided on the ground.——*Un Anglois*—Your list is under consideration.——*J K*—The slugs which cut your Asparagus under ground may certainly be destroyed by salt, and, fortunately, unlike most other plants, the Asparagus will be benefited by the application, or rather repeated applications, of the above substance. To make doubly sure, after cutting all the shoots before night, dust the beds over with quicklime very early in the morning—by break of day will not be too early.‖

SEEDLING FLOWERS.

Auriculas—*Adam*—Your seedling has no value as a florist's flower, but it makes a showy and handsome border variety.*

Cacti—*D D*—Your seedling between E. Jenkinsonii and Ackermanii forms a handsome flower. The petals are well formed, the flowers open freely, and are of a fine colour.*

Calceolarias—*W P*—The markings upon 1, 2, and 3 are pretty and varied, but neither colour nor form can be determined by the manner in which the blooms are sent.*——*J J H H*—It is impossible to form an opinion of your seedlings, as they were quite dry and shrivelled up on their arrival; they appear to be of the same spotted character, but smaller than those we are in the habit of seeing.*——*J B*—The yellow varieties spotted with brown are become very common, and your seedlings are very much like those we are in the habit of seeing; they are varied and pretty. 3 and 4 are the best; 7 wants a better outline; 7 is too like 4.*——*W J E*—No. 3 is rather common; 5 is imperfect in the outline; 1, 2, and 4, delicate buff grounds with maroon spots, are very pretty varieties, but not of a superior character; great improvements are in progress in this class.*——*X Y Z*—No. 1 is the best of your seedlings, but this is very common in colour, the others are small, and very inferior to the sorts now being brought before the public.*——*J B D*—Of your seedlings 4 and 11 are the best; the yellow and brown sorts are now very common; and a great defect in your specimens consists in the blotch terminating with small specks of colour instead of a clean edge.*

Cinerarias—*H C A R*—It is a great defect in the Cineraria when the petals grow so irregularly round the disk as in No. 1, which is a pretty coloured flower; 2 has the same defect, but in a less degree; 3 is too small.*——*E C*—Your seedling is showy in colour, but the flower is very deficient in form.*——*R B*—Your seedling is of a rich and fine purple, but the flowers are too small——*J B*—Your seedling is the best variety of its colour we have seen; in form it is rather deficient, the petals being too narrow.*

Fuchsias—*J B*—Your specimen is very large, but the sepals are long and coarse; it also wants more opposition in the colour.*——*A B*—Your seedling is a very good flower, there are two or three varieties out very similar to it, but your flower is quite equal to them.*

Petunias—*H C A R*—No. 2 is your best seedling; it is good both in form and colour. 1, 3, and 4, are repetitions of common varieties.*

TURNIP SOWING.—POTTER'S GUANO.

POTTER'S GUANO was used by Dr. Daubeny last season against 11 other Artificial Manures for TURNIPS. It beat them all,—360 lbs. producing 6900 lbs. more Bulbs per acre than the same weight of Peruvian Guano, at 25 per cent. less cost; 18,000 lbs. more than 10 cwt. Bone Shavings, at one quarter the cost; and 7000 lbs. more than 12 cwt. Superphosphate, also at one quarter the cost. For particulars, see p. 331 of last No. of "Royal Agricultural Journal," and p. 224 of *Gard. Chronicle* of this year. To be had, genuine, direct from the Factory, 28, CLAPHAM-ROAD-PLACE, LONDON, or of any of Mr. Potter's accredited Agents.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS, ANTONY GIBBS AND SONS, LONDON; WM. JOSEPH MYERS AND CO., LIVERPOOL; And by their Agents, GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL; COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps: also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

TO BE LET, with immediate possession if required, an extensive KITCHEN GARDEN, walled round, of nearly four acres and of excellent soil, well stocked with good Fruit-trees and three Forcing-houses, viz. 2 Vineries and 1 Peach-house, with Pits and Frames; together with a good Dwelling-house, situate within 22 miles of London and one mile from the railway station of a county town. The Garden can be let with or without the Forcing-houses.

For further particulars apply to Mr. GEORGE SIMSON, Book seller, Hertford.

The Agricultural Gazette.

SATURDAY, MAY 23, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, May 27—Agricultural Society of England.
Thursday, — 28—Agricultural Imp. Soc. of Ireland.
Wednesday, June 3 { Agricultural Society of England. { Highland and Agricultural Society.
Thursday, — 4—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.

Galston—Renfrewshire—E. Lothian—N. Lincoln—Shropham and Guilteross.

FARMERS' CLUBS.

May 26—Wellington
— 27—Newton
— 24—Otley St. Mary
— 22—Rhins of Galloway
June 1—Moreton Hampstead — St. Neots — Ware — Uxbridge — Newark — Markethill
— 2—Abergavenny
— 3—Braintree and Bucklebury
— 4—Richmondshire—Blofield and Walsham—Hawick
— 5—Wrentham — Hadleigh — Wakefield — Claydon — Lichfield
— 6—Northampton — Swansea—Melrose—Durham—Cardiff—Columpton — Winchcomb — Probus—Dartford.

Our readers will find in another column an interesting discussion on TENANTS' RIGHTS, which lately took place at the monthly meeting of the WATFORD FARMERS' CLUB. We had also hoped to have laid before them a form of agreement between landlord and tenant, in which this subject should be recognised and developed, but have to apologise for its unavoidable postponement. The subject, however, shall not be lost sight of: we shall resume the consideration of it as soon as possible.

THE important labour of the Committees of the House of Lords, appointed to inquire into the BURDENS ON REAL PROPERTY, and the IMPEDIMENTS TO AGRICULTURAL TRANSACTIONS, has terminated, and a report has been presented to the House of Lords. With the political discussions which must grow out of the mass of invaluable evidence thus collected we have nothing to do; but we may briefly mention a few remarkable facts from which our readers may draw their own conclusions. They are taken from Lord MONTEAGLE'S admirable report, of which a few copies are in private hands.

1. In the reign of ELIZABETH we find that the agricultural population was 3,000,000, and the non-agricultural 1,000,000. At this time the agricultural population is 6,000,000, the non-agricultural 12,000,000.

2. In 1814-15 the value of lands, £
&c. was 60,130,330
In 1842-43 94,810,599

Increase . . 34,680,269

3. There has been an enormous increase in the value of property in the agri-manufacturing districts, amounting in

Salford to 194 per cent.
West Derby to 76 per cent. } between 1815 and 1841.
Blackburn to 78 per cent.

On a smaller scale, but as a more signal instance of the enormous increase of value given to landed property by the progress of manufactures, we have the two following cases. The Chorlton Hall estate was sold in 1640 for 300*l.*; in 1794 it was purchased for 42,914*l.*; in 1815 it was rated at 19,484*l.*, a year, in 1829 at 66,645*l.*, and in 1841 at 137,651*l.*, or an advance of 53,000 per cent. Calculating the increased value at 25 years' purchase, the value has augmented, between 1644 and 1844, from 300*l.* to upwards of 3,000,000*l.* So, again, the forest of Rossendale has increased in value 41,000 per cent. on the original valuation in the reign of James I. In like manner there has been a vast increase in the value of both land and houses within the last 30 years, wherever the manufacturing population has extended. Thus,

		Value of Land.	Of Houses.
YORK.			
North Riding ..	1814	£1,037,106	£74,259
,, ..	1842	1,237,765	167,063
West Riding ..	1814	1,612,786	537,556
,, ..	1842	1,864,811	2,130,152
LANCASTER.			
Lonsdale, North	1814	89,730	10,346
,, ..	1842	103,149	32,060
Salford	1814	121,372	418,717
,, ...	1842	144,847	1,612,623

4. In consequence of the vast accession of houses which have sprung up in all directions, the pressure of county rates has been greatly diminished. This has been shown to be the case in the purely agricultural county of Bedford, which has been revalued by Mr. RUSSELL, after an interval of 107 years. This county, containing 283,135 acres was valued in 1739 at 149,461*l.*, and in 1845 at 457,449*l.*, showing an increase of more than 300 per cent.

5. The total value of real property assessed for the year 1841-2, was 85,802,735*l.* 8*s.* 6½*d.*; the proportion of which belonging to lands was 40,167,088*l.* 5*s.* 7½*d.*

6. We have the following unexpected fact as regards the diminution of money expended on the relief of the poor—

	Population in England and Wales.	Rate per head on population expended on poor.
		s. *d.*
1813	10,505,886	12 8
1818	11,876,217	13 3
1824	12,817,921	9 2
1832	14,105,645	10 0
1837	15,008,963	5 4½
1844	16,543,010	6 0½

"It is thus shown that the rate has been decreasing, the property on which it is levied augmenting, the relative amount apportioned on land diminishing, and the whole amount expended, as compared with the population, been greatly reduced."

7. The increase of fire insurances of farming stock, since it was exempted from duty, is as follows for England;—

	Amount of property Insured.
1835—First year of exemption ..	.. £37,211,603
1845	.. 51,927,572

We would have our readers weigh these great facts carefully, before they proceed to the consideration of the opinion that land is burthened by taxes more than any other kind of property.

WE have already on various occasions directed the attention of our readers to the POLICY OF BREAKING UP GRASS LANDS. Let us again, and in greater detail, lay before them the merits of this subject. Its importance is very great. No intelligent person can disregard it. The profits of the farmer, the rents of the landowner, due employment for the labourer, sufficient food for the people, are considerations all exhibiting the necessity of a thorough cultivation of the land. And who can say that the permanent growth of the Grasses is compatible with thorough cultivation?

Let us enter fully, so far as we are able, into this subject and exhibit the circumstances which must guide, and the motives which must induce the landlord when he resolves to alter the practice which has hitherto prevailed in this particular. A full discussion of the subject may occupy at intervals considerable space in our Paper—its importance will fully justify that.

We consider the question—"Shall I break up my Grass lands?" to be but a particular case of the more general inquiry—"What crops, under given conditions, is it most for my interest to cultivate?" Under some circumstances, no doubt, and especially when that crop has already obtained an establishment, an intelligent review of the case will indicate Grass as the most profitable plant to grow; and then it will of course be unprofitable to adopt arable culture. In other cases (and in these it is necessary to adopt a *rotation* of crops) Wheat, Barley, Oats, Swedish Turnips, Mangold Wurzel, Clover, &c., will appear to promise the greater profit; and then the fact of the land being at present in Grass does but afford the stronger inducement to convert it, for the "rest," &c. which it has enjoyed for so long are circumstances greatly conducive to fertility. We put the matter thus, because it appears to us that the question—"Shall I plough up my meadow-land?" is but one of a class—and that the following are perfect parallels to it:—"I have hitherto adopted the following rotation of crops;—1st year, Wheat; 2d, Turnips; 3d, Barley with seeds; 4th, Clover mown; 5th and 6th, Clover depastured. Is it for my interest to dispense with two out of the three years of Clover involved in my present system of cropping?" or—"My land as at present cropped yields in the first year, Wheat; in the 2d, Turnips; 3d, Oats; 4th, Beans; 5th, Wheat and seeds; 6th, Clover. Ought I not to alter this arrangement so as to enable the cultivation of crops of greater money value, and affording more employment than some of these, such, for instance, as Flax in the fifth year in place of Wheat, and Potatoes in the fourth, in place of Beans?" Of course the true answers to these questions will depend on the circumstances—not to speak of climate, soil, and market considerations—of the additional capital required to adopt the higher cultivation, and the extra intelligence necessary to the profitable manipulation (so to speak) of the new plants grown. And we contend that the inquiry "Shall we break up our Grass lands?" is perfectly parallel to these: it is but one form of the question "What crops shall we grow?" And the answer to it must be determined by our possession of the capital and intelligence necessary to the successful development of the plan — not to speak of the circumstances of climate, soil, and market to which we have already alluded. The substitution of Wheat, Potatoes, &c., accompanied by the mode of cultivation which suits *them*, for natural Grass and the simpler treatment found to favour *its* production, is of course a greater change than that merely of Wheat for Flax, or of Beans for Potatoes; it is, however, a change of the same genus or description, and it involves a question whose answer is to be determined by the same rules. And we have no doubt that when the greater intelligence, which the better system doubtless does require, shall become more general, the clauses in our leases which attach pains and penalties to the putting of plough into pasture will be as commonly condemned as those already are which refuse a place in the rotation to certain crops now known as profitable for all parties to grow.

But we must further consider the circumstances which may affect the determination of the landowner in any particular case. Agriculture is, throughout, so entirely a system of expediency; it is so completely dependent for its character on the circumstances in which it is placed, that a writer on any department of it, who wishes his remarks to be useful, must do more than merely urge the accuracy of a principle whose truth he is convinced of—he must present and develope it under every possible variety of condition.

Look at the subject under consideration:—What can be clearer than that it is the interest of the nation that its present Grass lands should be made to yield the larger acreable produce of arable culture? Would not the change be productive of more food for the people? Would it not occasion more employment for the labourer? And would it not yield larger profits and higher rents for the tenant and the landowner? And, it might be further asked, are not the industry and foresight which the change would call into exercise preferable in every point of view to the sluggish indifference which the present system permits? For over large districts at present the farmer does but take what Nature, almost unassisted, puts into his hands, and the more artificial system which we recommend would require both energy and thoughtfulness for its successful development. These questions, put generally, doubtless all rightly claim answers in the affirmative; and yet he who should hastily proceed to put the altered practice they imply into extensive or indiscriminate execution, might find at the close of his operations that he himself has derived no benefit from them, and that they have been productive of no permanent good to the neighbourhood. The peculiar results of his case have been the consequence of its peculiar circumstances; and these, it now appears, he had not duly considered. He had not sufficiently calculated on the large outlay for farm buildings which the improved cultivation has required; he had not thought of the larger capital involved in arable culture which his tenants have not been able to provide, and he had not considered the greater energy and intelligence which are necessary in arable farming, and which they did not possess. It appears, too, that in his hurry he converted pastures which were more profitable in their original condition; and that in his zeal he refused to leave the *single* fields of meadow which his farmers would afterwards have found so convenient; and lastly it appears that the prospect of employment having induced the settlement of labourers from a distance, the parish poor-rates have not been lessened by his improvements. To be sure, the annual value of the estate was raised; but the tithes not having been commuted, this must, for all time coming, be shared with the clergymen of the parishes in which it lies; the increase in its rental was indeed considerable, but not permanently so, for the cultivators of the land took undue advantage of its fertility, and its value to farm was soon reduced by their mismanagement; the profits of

its farmers at first were certainly great, but they fell off as the land deteriorated; the number of labourers employed was indeed large to begin with, but it diminished as profits fell, and those who in the prospect of employment had obtained a settlement in the parish are now simply an addition to the burden which oppresses it; and lastly, in consequence of all this mismanagement, the annual gross amount of human food produced on the estate, doubled or quadrupled as it was during the first two or three years of its arable culture, does not now exceed its original amount.

What has been the cause of this failure? For it was by no means a necessary consequence. It must be attributed to want of consideration in the landlord; and to want of intelligence in the tenant. In the above few sentences we believe we have stated most of the advantages which have been urged in favour of the practice under consideration, as well as the principal objections or misfortunes to which it is liable. We have thus simply enumerated the considerations which this subject involves, and hope to have opportunities of illustrating them in greater detail in future Numbers of the *Agricultural Gazette*.

METHOD OF APPLYING GUANO FOR TURNIPS.

Now that the season for the application of guano for green crops is so near at hand, I am desirous, through the medium of your Journal, to call the attention of agriculturists to the proper and economical mode of employing this valuable manure. I have every reason to believe that want of success or disappointment, from the use of this article, in so many instances in England, has arisen altogether from inattention to the proper way of applying it; and I have no doubt that were a fair trial in every instance made, according to the method adopted in my own practice, and so generally followed here, guano would soon be in as universal repute in England as it is now throughout Scotland.

I feel the more called upon and encouraged to communicate my further experience, and to make the present recommendation to my brethren of the south, as I believe I was among the first to point the attention of agriculturists generally to the practical value of this first of manures in the growth of Turnips, and have since very successfully, and without one instance of failure, extended its application to this crop, to the extent of considerably upwards of 100 acres in each of the last two seasons.

My method, then, is simply this:—After reducing the guano, by means of bruising and sifting, to an equal and uniform consistency, to apply it in the drill by the hand without any admixture of other substance. The drills being formed in the usual way, as in Scotland generally, for the reception of other manures, in preparation for Turnips (see Stephens' "Book of the Farm," vol. 2, pp. 491 and 743), not quite so deep, perhaps, as for farm-yard dung, the guano is applied from the hand in the centre of the original rib, or drill, which, being reformed by being split, the manure is effectually covered, so as to prevent injury to the seed by contact, which, it is presumed, has been the entire cause of failure when a different method has been pursued. The seed is then sown by the ordinary drill-machine on the top of the drill so made up. In no case ought it to be attempted to put in the guano along with the seed, or by means of any implement where a full covering of earth does not intervene between this manure and the seed; and, indeed, from the nature and consistency of the material, it is very doubtful if it is at all possible, by any machine, to distribute it in that equal manner necessary for the growth of a uniform crop.

I may further mention that the guano is here applied by women or boys, who upon the land being stepped off are supplied from a cart at either end of the drills, with no more than is sufficient for each; and in this way, after a few turns, they obtain an exactitude in the operation which is abundantly evidenced from the precise equality of the crop, and which may be said to be characteristically indicative of Turnips manured with guano. The usual quantity I have applied per acre, is 3 cwt.; and though it does seem of small bulk to distribute so far, and indeed, when scattered along the drill, to appearance almost invisible, still there will be found no practical difficulty in the operation, and I have no doubt perfect satisfaction in the result. The quantity required for any ordinary length of drill is thus easily carried in an apron, and is much more manageable than if any admixture had taken place. Thus upon a length of 200 yards, the drills being 27 inches apart, not more than 11 lbs. will be necessary at the above rate, so that one woman can easily accomplish 3 acres per day. The expence of the operation is thus almost nothing, while it affords great facility to increased expedition at so important and precarious a season, seeing the success of the Turnip crop requires the operation of sowing to be limited to a very short period of time.

It will be noticed that guano, to be properly adapted for being used in the manner above recommended, must be of a consistency fitted for equal distribution, and in all cases farmers should particularly observe, besides, that the analysis is favourable, that the material is free from moisture, and so composed, if containing lumps, that these may be capable of easy reduction by pressure, or with the hammer. When guano is so moist as to resist being again reduced to powder after having been compressed, or the lumps already existing refuse to yield to trituration, it is quite unfitted for efficient distribution with a view to the growth of Turnips in the manner I have proposed; and by no process of admixture with other bodies can it be rendered so suitable, but could only be applied with any advantage as a top-dressing to green, or other growing crops.—*John Dudgeon, Spylaw, May 4.*

THE AGRICULTURAL SOCIETY'S PRIZE FOR AN ESSAY ON FLAX CULTURE.

This subject I wish should once more find a place in your columns. I have brought it several times before the Royal Agricultural Society, through the medium of transmitted documents, which conveyed a mass of incontrovertible evidence as to the benefits derivable by farmers and the working classes if an improved system of Flax cultivation were introduced and encouraged in this country. Observing, in your *Gazette* of May 9, that the Council of the Royal Agricultural Society have determined on giving a Prize for the best Essay on Flax Culture, I cannot but express my satisfaction at having been in any way an humble instrument to induce the Society to concede its countenance and support to so promising a cause. I rejoice in this commencement toward promoting an object alike important and desirable to farmers, Flax-spinners and their respective labourers; and I hope and expect it will in due time create a feeling between English landowners and the eminent houses engaged in Flax-spinning in this country, similar to that which happily exists between these two great interests in the north of Ireland.

As an advocate for Flax culture, and fully persuaded that both the agricultural and commercial communities will greatly benefit therefrom, I hail the Society's boon (restricted though it be), as a pledge of those extensively advantageous effects which my position enables me confidently to expect will result from adequate encouragement being in various ways afforded to this important object; still I cannot but regret that the Council should have deemed this one solitary prize sufficient of itself to create a desire amongst farmers for experimental knowledge of the Flax plant; and therefore I respectfully suggest measures which I think will more effectually conduce towards the production (of quantities sufficient for our wants, and of quality equal to our foreign supplies. To this end I consider practical farmers should be prompted by premiums to experimental trials on a moderately broad scale, and that for the best sample of Flax, the growth of 3 or 4 acres (not less than 50 stone to the acre produce), a prize should be offered of 30*l.*; for the second best, 20*l.*; and for the third quality, 10*l.* This would encourage them to ascertain whether or not they are able to grow Flax worth 100*l.* to 150*l.* per ton, as readily as the Belgians. I would also suggest that a prize of 20*l.* be given for the best, and 10*l.* for the second best "Portable Mill" for dressing and preparing Flax for market. This would bring practical science to bear on the subject; and, although instructions and an Essay are very desirable, still I cannot but regret that the farmers should be lacking the stimulant of a premium and the honour appertaining thereto, to induce them to compete with their continental rivals. I therefore consider the intended solitary prize will produce but one effect; it will be an inducement to many theoretical scribblers (to whom the 20*l.* may be an object) to supply themselves with the Reports of the Belfast Flax Improvement Society; and if, in addition to such information, they are able to take a marine steam trip hence, and get 24 hours' contemplation of the Cave Hill or Giant's Causeway in the north of Ireland, they are certain to return full of pretensions, as able instructors of British farmers in Flax culture, although they know no more of Flax, its management, quality, or value, in the rough or dressed state, than they do of the Tea plant.

The cultivation of Flax, and a correct economical knowledge of its management, is not to be picked up in one, two, or three years' trifling experiments, although some think otherwise, and have presumed on hearsay evidence, and facts gleaned from others, to write upon the subject; and I have already proved how ridiculous some of your correspondents have made themselves appear by attempting to instruct, aided only by an industrious collection of information borrowed from others

A three-fold apprenticeship to the Flax trade induces me to prefer that premiums be held out to farmers, to urge them to the trial of the capacities of their soil and climate in relation to Flax culture, rather than that prizes should be offered to bring a host of theorists into the book market.

I therefore hope the Council of the Royal Agricultural Society may reconsider the subject, and bear in mind that the farmer should, in these days of severe competition, be urged and encouraged to enter the lists, not only manfully to maintain his ground in self-defence, but even to make inroads upon his adversaries.—*J. Hill Dickson, 29, Broad-street Buildings, May, 1846.*

Home Correspondence.

Abortion in Dairy Stock.—[The following question was asked in the *Carmarthen Journal*, and has been forwarded to us:]—Will you allow me, through the medium of your *Journal*, to inquire if any of its numerous readers can name any probable cause why so many as 12 of my cows should have slipped their calves this season. I have lived at Asgood (which is the property of George Bowen, Esq., of Llwyngwair,) 21 years, and have never known of half the number of cases on any farm in this neighbourhood; nor can any person to whom I have mentioned the circumstance assign any cause for it this year. As it is of consequence to the farming interest in general, I trust you will give this a place in your next paper, and hope some of your readers will afford me some satisfactory information on the subject.—*David Harris, Asgood, Llanfihangel-Abercowin, Carmarthenshire.* [In the absence of any information as to the mode of treatment pursued with the cows in question, we are inclined to attribute the calamity either to the wetness of the season, or the luxuriance of the pasture, both which causes have often operated in inducing the disease. It must be confessed, that the cause of abortion, which is so frequent amongst cows, is often involved in considerable obscurity; one thing, however, is certain that it possesses a sympathetic influence by which it is propagated from one cow to another, and this, when once established in a herd, is kept up during a long course of years. Chabert relates a case of a farm in France being subject to abortion for 30 years, in spite of every precaution or endeavour to avoid the pest. It was caused in the first instance by a single cow, which was purchased at a fair, and which cow warped, and it was only got rid of at last by changing the whole herd: a remedy which we would not fail to adopt if we had good reason to fear the establishment of abortion in a dairy. —*W. C. S.*]

Rabbits.—In answer to a correspondent, who inquires in a recent Number what will cure the canker in the ears of rabbits, I beg to inform him that the strong mercurial ointment lightly smeared over the part affected, will cure it generally in a very few days; if not well in five or six days it may be repeated. I have used it frequently, for the disease is very common, and always with success.—*R. C. B.*

Deep Drainage for Surface Water.—For the information of numerous inquirers who are unacquainted with the practical details of my deep drainage in strong clays, I state the following particulars:—The trench is opened 18 inches with the broad spade; a second man with a narrower spade continues the trench in a narrow sloping direction; a third man with a dagger-like spade, 14 inches long, 3 inches wide at the shoulder and 2 inches wide at the point, removes the last spit. This spade is put in edgeways, parallel with the side of the drain, first on one side and then on the other, the workman working it backwards and forwards so as to cut a deep slice on each side. He then inserts it as one would a common spade, and (the two side cuts having been previously made) removes a considerable mass or spadeful. I must observe that this last spade or tool is dagger-like, being thickest in the middle, with cutting edges on each side, like a two edged sword. There is a great strain on this tool. The scoop then follows to remove any crumbs or loose pieces that may have fallen into the drain. In tenacious clays or tile earths it is mostly necessary that a boy or girl should be pouring or dropping water on the men's spade as they work, otherwise they could neither insert their spades readily or get rid of the tenacious clay, which sticks like putty or bird-lime; but by wetting the earth or the tools (sometimes the men have a tub of water by them and dip in their spades), all adhesion is prevented. I would strongly recommend drainers to get their tools in sets from Mr Lyndon, of Birmingham, who has a patent for his spades, which are so hard, thin, and well tempered that they permit a much larger amount of labour to be performed, and in fact will act where the common spade cannot be used. I know nothing personally of Mr. Lyndon, nor have I any motive in mentioning his name, except to benefit the cause of agriculture by facilitating its operations; 18 inches does not seem a wide enough trench for a man to work in, but it really is so, and I strongly caution drainers against the too prevalent error of opening broad trenches, which adds enormously to the expense. As to pipes, I presume no one will be so miscalculating as to use tiles or soles when pipes at half the price will answer better. I say better, because the more rapid and confined the stream the less chance is there of deposit. As to pipes, there requires a thorough reform amongst the great body of draining-pipe makers, who are quite at sea as to the best mode of making and proper price to charge. At Caversham, near Reading, 1-inch pipes 12 in. long are to be bought at 10*s.* per 1000 (for cash payment in quantities), and in the Isle of Wight at about the same price; these are made by Clayton's machine. Reason and calculation tell us that there is an outrageous discrepancy between the price of pipes and that of building bricks. One thousand of bricks weigh 4,500 lbs., and cost generally in country districts about 32*s.* to 34*s.* One thousand of tiles or pipes should only weigh about 1,000 to 1,500 lbs., and yet they are frequently charged at 24*s.* to 28*s.*, or even 30*s.* This is preposterous, there being only one-third the weight of earth to dig, to wheel, to pug-mill, to handle, and to burn; besides, there is no duty on pipes, but a large tax of 6*s.* 2*d.* per thousand on bricks. I apprehend one cause of this difference has been that pipes have been hitherto a hanging stock, rarely purchased, and then only in paltry retail quantities, but now that farmers are throwing off their prejudices, and are beginning to believe that water will really percolate through strong soils, the matter of price becomes a very serious question, nationally and individually. I have already stated elsewhere that the cost of draining an acre of land 33 feet between each drain, 5 feet deep (which is probably an average from the ditch mouth of not more than 3 feet 6 inches to 4 feet), is about 3*l.* 2*s.* 6*d.*, reckoning the pipes at 12*s.*

per thousand; and the digging, placing, and filling in, at 6d. per rod of 5½ yards. I hope we shall hear no more of filling drains with stones, bushes, or other costly or useless matters. I have practically proved the past year, on 33 acres, that they are not required, and that inch pipes at the depth and distance mentioned are in every respect sufficient to carry off the water. In fact, my drainage has proved itself cheap and perfect, nor do I see any room for improvement—unless some machine could be invented to supersede hand labour in the lower cuttings; this I have reason to believe will soon be accomplished. As I have said before, doubters on deep drainage are quite at liberty to inspect my farm, and satisfy their minds at any and all times.—*J. J. Mechi, Tiptree-hall, near Kelvedon, Essex, May 9*, 1846.

Gas Lime.—"G. M." has just purchased a quantity of lime which has been used in purifying gas, and also of ashes from the furnace of the gas works, the latter having been saturated with the ammoniacal water. He is desirous of information as to the best method of applying these substances to the Turnip crop, and wishes to know if the lime in its present state will injure the manuring properties of coal ashes and night soil procured from a neighbouring town, when mixed in the proportion of one cart-load of the lime to six of coal ashes and night-soil, and if this mixture would injure bones or guano, the latter being sown separately in the bottom of the Turnip drill. "G. M." takes this opportunity of mentioning the singular effect which sulphate of copper had upon some common Oats when used as a steep for the prevention of smut, as was recommended in the Calendar of Operations in the *Agricultural Gazette*, of March 14th, 1846. The seed, which was steeped, came through the ground about the same time as the unsteeped, but soon had a very bad appearance, owing to the plants not having any roots. After some days roots appeared a little way up the shoots, and now the roots, which should at first have come out in the opposite direction to the shoots, have turned and are bursting out at the side of the husks, anywhere but in the right direction. The crop has a better appearance than at first, but still looks very inferior to the part that was not steeped. "G. M." would be glad to know if any others have experienced similar injurious effects from the use of this steep. [With regard to the gas lime, if it has been perfectly saturated at the gas works it will not injure any ammoniacal manure, but if it still contains caustic lime unsaturated it will drive off ammonia wherever and in whatever form it may meet it. You may apply it without fear of injury in a mixture with coal ashes. The best plan to prepare it for use is to mix it in a compost with some loose vegetable material which shall keep it open and free to the action of the air; and it should also be turned frequently. It is a hydrosulphuret of lime, and by the absorption of the oxygen of the air it becomes a sulphate of lime or gypsum. You may apply a couple of cart-loads per acre, after this exposure to the air, broadcast, before drilling the land up for Turnips. We shall be glad to hear the further history of your Oats.]

Feeding Horses.—In reply to the inquiry of "A Young Farmer," at Newcastle, Mr. Ramsay begs to say, the subject of the feeding of horses was introduced by Mr. Bates at the Newcastle Farmers' Club, he (Mr. R.) being chairman, made the few remarks alluded to; the subject was not considered sufficiently elucidated, and it is intended to re-introduce it, in order that the information required by "A Young Farmer" may be furnished. In the mean time, if "A Young Farmer," thirsting for knowledge, will add his yearly mite of 10s. 6d. to the club, he will gain much of the information he requires, and Mr. R. will also be happy to show him the process of cutting hay, &c., and feeding horses, or anything else on his establishment.—*G. H. R.*

Wind Power for Threshing.—I noticed in your Paper of 2d inst., an enquiry respecting the cost of wind power to a thrashing machine. I take the liberty of writing, to say that if the enquirer has a pretty good barn, and well situated for wind, I would humbly recommend a kind of horizontal sail which I have contrived, but which has not been tried except with a small model, which fully answered my expectation; the cost of this would perhaps be about 20*l.* for a 5 horse-power, but not being a mechanic I do not know what the exact cost would be. If your correspondent would favour me by post with an account of the sort of barn, &c., he has, with his address, I would be glad to give him further information, and at the same time let me state that I have no further interest in the matter than that of being useful to my brother farmers.—*John Nowgate, Hay Park, Knaresbro', Yorkshire.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A WEEKLY COUNCIL was held on Wednesday, the 20th May; present, the Rt. Hon. Lord PORTMAN, President, in the chair; Duke of Richmond, Earl Spencer, Earl of Egmont, Hon. R. H. Clive, M.P.; Hon. J. Carnegie; Sir M. W. Ridley, Bt.; Sir Robert Price, Bt., M.P.; Sir John V. B. Johnstone, Bt., M.P.; W. R. Browne, Esq.; Col. Challoner; S. C. Cherry, Esq.; E. D. Davenport, Esq.; H. Gibbs, Esq.; C. Hillyar, Esq.; J. Kinder, Esq.; Col. MacDouall; W. Miles, Esq., M.P.; R. Milwood, Esq.; E. S. Chandos Pole, Esq.; P. Pusey, Esq., M.P.; F. Pym, Esq.; E. A. Sanford, Esq.; Professor Sewell; R. A. Slaney, Esq.; W. R. C. Stansfield, Esq., M.P.; W. B. Wingate, Esq.; B. Almack, Esq.; T. B. Browne, Esq.; H. Burr, Esq.; G. Darby, Esq.; C. Eyre, Esq.; Dr. Fownes; A. E. Fuller, Esq., M.P.; J. B. Glegg, Esq.; H. Hudson, jun., Esq.; E. Hussey, Esq.; Rev. C. E. Keene; H. Price; J. Roddam, Esq.; S. Solly, Esq.; T. R. Tweed, Esq.; D. C. Webb, Esq.; J. Wood, Esq.; and Francis Woodward, Esq.

The following new members were elected:—

Wright, William, Crosford Bank, Chester.
Bryan, Frederick Thomas, Knossington, Oakham, Rutland.
Lowndes, Robert, Tattenhall, Chester.
Gibson, Wm., Northumberland-street, Newcastle-on-Tyne.
Dew, Tomkins, Whitney Court, Hereford.
Stubbs, Frederick, Wetmoor, Ludlow, Salop.
Donville, Rev. William, Winforlin, Hereford.
Butler, Thomas, Walwick, Hexham, Northumberland.
Stable, George, Waugh, Newcastle-upon-Tyne.
Bagot, Lord, Blithfield, Rugely, Staffordshire.
Loraine, John Lambton, Newcastle-upon-Tyne.
Russell, George Greenwell, Willington, Northumberland.
Drewry, George, Holker-house, Cartmell, Lancashire.
Grace, Edward, Walls' End, Newcastle upon-Tyne.
Patterson, John, Holbeck, Ulverstone, Lancashire.
James, John, Pilgrim-street, Newcastle-upon-Tyne.
Stevens, Alford, Tongham Manor, Farnham, Surrey.
Bell, Richard Hansell, Deckham Hall, Gateshead, Durham.
Tallant, John, Little Houghton Lodge, Northampton.
Williams, Hugh, Kineton, Warwickshire.
Euston, James, Nest House, Gateshead, Durham.
Jackson, John Somerville, Eastham, Chester.
Eastwood, Richard, Brunshaw, Burnley, Lancashire.
Smith, Alexander, Gallate House, Norham, Berwick-on-Tweed.
Anderson, Robert, Weston, Gateshead, Durham.

The names of 41 candidates for election at the next meeting were then read.

On the motion of the Duke of Richmond, seconded by Sir Robert Price, Bt., M.P., the thanks of the Council were voted to the Railway Companies who had granted a reduction on their usual charges in favour of exhibitors at the Newcastle meeting of the Society.

Communications were received from Mr. Chrisp, of Newcastle, accepting the office of one of the auctioneers at the ensuing Country Meeting of the Society, under the regulations prescribed by the Council; from Mr. Dickson, presenting a copy of his work on Flax; from Mr. Glover, Sec. to the Newcastle Local Committee, on the subject of Prizes for Poultry and Black-faced Sheep; from Mr. Curtis, R.N., on a manure composed of fishy matter and lime; from Mr. Milward, a present of a work on Keeping Farming Accounts from Mr. Parkinson, of Leyfield; from Mr Purchas, on results in the employment of Acid and Bones as a Manure; and from Prof. Sewell, a specimen of Salts which having been sold as "Glauber's Salts," had poisoned three cows, the salts proving to be not Glauber's Salts (sulphate of soda) but the nitrate of soda. Interesting discussions and statements of facts, followed the reading and presentation of these several communications, the Council adjourned to Wednesday, the 3d of June.

A SPECIAL COUNCIL was then held, the Rt. Hon. Lord Portman in the chair, for the purpose of agreeing to a report of the Council to the General Meeting.

THE GENERAL MAY MEETING was held Yesterday at the Society's House in Hanover Square, the Right Hon. Lord PORTMAN, President, in the chair.

On the motion of Lord Camoys, seconded by Colonel Challoner, the Earl of Egmont was unanimously elected President of the Society for the year ensuing the rising of the Newcastle Meeting, on the 18th of July next.

On the motion of R. A. Slaney, Esq., seconded by J. Dean, Esq., the Vice-Presidents, and on that of J. Berens, Esq., seconded by T. Raymond Barker, Esq., the Trustees of the Society, were unanimously re-elected.

E. A. Sanford, Esq., James Dean, Esq., and Thomas Knight, Esq., having been nominated Scrutineers for the election of 25 members of Council, the House List was unanimously adopted by the meeting; 18 of the members who went out this year by rotation being re-elected, and the following new members of Council elected, for the ensuing two years, namely, John Bell Crompton, Esq., of Duffield Hall, near Derby; Samuel Druce, Esq., of Eusham, near Oxford; Lord Southampton, Whittlebury Lodge, near Towcester, Northamptonshire; Richard Garrett, Esq., of Leiston, near Saxmundham, Suffolk; William Shaw, jun., Esq., of Far-Cotton, near Northampton; Robert Smith, Esq., of Burley, Rutlandshire; and Thomas Umbers, Esq., of Wappenbury, Warwickshire.

The Secretary, by direction of the President, then read the following Report from the Council:

"The economy of remunerative farming is one of the great objects of the Royal Agricultural Society of England, and at the same time one of the principal means through which that science included in the terms of their motto is to be derived and regulated; the observation of well established facts, and the results of actual experiments, being the only ground-work on which they admit that improvements in agriculture can be successfully based; while a clear knowledge of cause and effect under given circumstances, and a detail of the particular cases to which such knowledge is applicable, is, in their opinion, the only safe science to be recommended to their members. The theories of chemical agency, physical forces, and organic action, under the varying conditions of local circumstance or the control of vital influence, are in themselves important objects of inquiry for the philosopher; but it is only when the practical application of their results becomes apparent, that they assume a form in which they can be submitted to the test of trial, or be rationally expected to lend any aid in promoting the improvement of practical agriculture. Accordingly, whilst calling in the aid of science to agricultural practice, the Council have felt it their duty to discourage every attempt to introduce [illegible] theories, especially when it has been found by experience that much steady progress may be made in the improvement of agriculture, by the obvious means of applying to one locality that system of management which has been proved to be successful in another similar locality.

"In order to obtain a knowledge of the most approved systems of husbandry, practised in different localities, the Society not only holds its Country Meetings, from year to year, in various districts, but incites and remunerates by its prizes for County Reports, and Essays on distinct topics of inquiry, that communication of practical experience which, by publication in the 'Journal,' becomes accessible to the agricultural community. At those Meetings, the knowledge of local excellence, acquired on the spot, is repaid by the exhibition of whatever has been found most desirable in breed of stock, or economical in the construction of implements; and that mutual interchange of opinion amongst farmers themselves which tends to establish a good understanding among all parties connected with agricultural pursuits, and to remove those local prejudices which have so long retarded its progress.

"Since the last General Meeting in December, the Council have had under their consideration the details connected with the following general subjects:—

1. The FINANCES of the Society.
2. The ANNUAL COUNTRY MEETINGS; and
3. The PRIZES for Reports and Essays for 1846 and 1847.

"FINANCES.—The Finance Committee have prepared, agreeably with the order of the Council, the first return of a quarterly statement of the receipts and payments, estimated income and liabilities of the Society, which will in future be made at the end of every three months. They have also submitted to the Council their Report on the funded property of the Society, and the arrears of subscription, as well as their final balance-sheet of the Shrewsbury Meeting account.

"The Finance Committee reported, at their last monthly meeting, that the invested capital of the Society consisted of 7000*l.* stock, and that the current cash balance in the hands of the bankers amounted to 1482*l.*; and that the arrears of subscription on the 31st of December stood as follows:—

1841	3 Governors at 5*l.* each	.. .. ..	£ 15
	321 Members at 1*l.*	.. .. ..	321
1842	4 Governors at 5*l.*	.. .. ..	20
	617 Members at 1*l.*	.. .. ..	617
1843	10 Governors at 5*l.*	.. .. ..	50
	1094 Members at 1*l.*	.. .. ..	1094
1844	18 Governors at 5*l.*	.. .. ..	90
	1582 Members at 1*l.*	.. .. ..	1582
1845	47 Governors at 5*l.*	.. .. ..	235
	2702 Members at 1*l.*	.. .. ..	2702
	Total	.. .. ..	£6726

"76*l.* has been discharged from the arrear account between the last general meeting on the 3d of December, and the end of that month; and a further reduction of 336*l.* has been effected during the present year. According to the bye laws all subscriptions for the current year remaining unpaid on the 1st of June become in arrear, and no member whose subscription is so in arrear, is allowed to enjoy any of the privileges of the Society.

"Since the last General Meeting in December, 243 new members have been elected, 30 have died, and 81 have been struck off the list, and the Society now consists of—

Life Governors	92
Annual Governors	291
Life Members	554
Annual Members	6105
Honorary Members	19
Total	6971

"The Auditors of Accounts on the part of the Society have presented, through the Finance Committee, their report of the Society's accounts to the end of the last half-year, which will be read to you by the Chairman of the Committee.

"COUNTRY MEETINGS.—The Council have decided that the Annual Country Meeting of the Society to be held this year at Newcastle-on-Tyne, shall take place in the week commencing the 13th of July; Thursday, the 16th of that month, being the principal day of the show, and the day of the Pavilion dinner; and in order to increase the interest and usefulness of the occasion, they have been led by the success of their weekly Council Meetings in London, at which discussions and communications of important matters have so frequently occurred, to give up the Council dinner on the Wednesday, for the purpose of adopting in its place discussion and interchange of opinion, having reference to agricultural topics of practical interest, on a more extended scale, and under distinct regulations for insuring to the members present the opportunity of both acquiring and communicating information. The Council have accordingly arranged that on the evening of Tuesday the 14th of July, at 5 o'clock, Prof. JOHNSTON, of Durham, one of the honorary members of the Society, will read a paper 'On the Chemical Principles involved in the Preparation of Manures, and their Action upon Crops; with chemical demonstrations:' and on the following evening, at the same hour, Mr. PARKES, the consulting engineer of the Society, will read a paper on the subject of 'Draining;' each of these papers being intended to form only preliminary introductions to the practical discussions which it is hoped will follow their perusal, under such regulations as the President may at the time decide to adopt. The Judges' award of prizes will be read at the close of the discussion on Mr. Parkes's paper.

"In addition to the Society's Prizes for 'Sheep best

adapted to a Mountain District, the Newcastle Local Committee have offered special prizes under the 27th rule of the Prize-sheet, for Sheep of the Black-faced Breed; and the North-Tyne and Redesdale Cheviot Sheep Show, also special prizes for Sheep of the Cheviot Breed, under the same Rule.

"By a distinct regulation, the Council have made it a condition with the exhibitors, that they shall execute all orders for Implements given to them in the Show-yard, at the price stated in their certificates.

"The Newcastle Local Committee have undertaken to place the land for the trial of Implements under the cultivation desired by the Stewards; and are actively engaged in carrying out the various details connected with other departments of the trial.

"The mode adopted last year for the appointment of Judges for the Show was found so satisfactory to all parties, that the Council have decided again to act upon it. They have accordingly requested the members of the Society at large to send to the Secretary, or deliver personally to the President, at the General May Meeting their nomination of persons to act as Judges in any or all of the several departments of the Show; and have appointed two Committees,—one for Judges of Stock, and the other for Judges of Implements,—to select from these nominations, and to report to the Council for confirmation, the names of those gentlemen, who, in their opinion, are best qualified to perform those important duties.

"The great amount of actual expences, independently of personal charges and loss of time, incurred by the exhibitors at the Country Meetings of the Society, has frequently engaged the attention of the Council. Last year these expences were diminished by the liberality of the London and Birmingham, and the Grand Junction Railway Companies, who carried implements and stock to and from the Society's Country Meeting, free of any charge whatever; and the Council have this year the gratifying duty of announcing to the members of the Society, not only a renewal on the part of those two companies of the same most liberal concession, but a free grant of similar privileges in favour of the Society's exhibitors, made by the Great Western, the South-Eastern, and the Newcastle, Shields and Tynemouth Railway Companies. Other companies, though not granting so entire a freedom of gratuitous transit along their respective lines of railway, have made certain concessions, under special conditions, which the Council have directed to be communicated to the several exhibitors for their information; namely, the South-Western Railway Company consent to convey stock or implements for the Society's show at one-half the usual charges each or either way, an arrangement which that Company considerately remarks in conveying the grant, 'will give the exhibitors the benefit of the reduction, should they sell any of their stock or implements previously to returning from the show':—the Newcastle and Carlisle Railway Company agree to convey all stock and implements, as well as the persons in charge of them, at half fares, either going to or returning from the Show; also, in case the Council decide to have any ploughing-match, or other exhibition of practical trial, a few miles from Newcastle, they are willing to convey the ploughs and horses, together with the ploughmen and attendants, to and from the place of such exhibition free of any charge whatever:—the Newcastle and Darlington, and the Midland Counties Railway Companies decline to accept half-fares, but are willing to give a free back-passage to such implements or stock as shall have already paid the full charges in proceeding along their respective lines to the Show.

"In order to complete the schedule of information required by the exhibitors, the Council have directed a statement to be drawn out of the various conveyances and rates of charge by sea from every point of embarkation along the eastern coast to Newcastle-upon-Tyne, where the authorities have obtained for the Society certain reductions in the port dues in favour of exhibitors at the meeting.

"At the date when the Council arranged their first succession of the rotation of districts for the Country Meetings, ending with the South Wales district as the one intended for the meeting of 1847, they had not ascertained by actual experience the indispensible necessity of railway accommodation. With a knowledge of the absence of adequate railway accommodation throughout South Wales, and the consideration that the Bristol Meeting of 1842, and the Shrewsbury Meeting of 1845 had been held within the reach of the Principality, the Council have felt themselves compelled to abandon their intention of holding the meeting of the Society for 1847 in the South Wales district.

"The Council have decided on the following as the districts of the Country Meetings for the ensuing four years, and have resolved that every year a new district shall be added in advance to compensate for the one which will annually elapse:—

1847.—The South Midland District (comprised of the counties of Bedford, Berks, Buckingham, Hertford, Huntingdon, Oxford, and Warwick).

1848.—The Yorkshire District (comprised of the county of York).

1849.—The Eastern District (comprised of the counties of Essex, Suffolk, Norfolk, and Cambridge).

1850.—The Western District (comprised of the counties of Wilts, Dorset, Somerset, Devon, and Cornwall).

"The Council have accepted the invitation of the authorities of Northampton to hold the country meeting of the Society for 1847 at that town; and already the Mayor and Corporation, under the great seal of the borough, have granted to the Society such liberal accommodation for the occasion, as to give reason to hope that the Northampton Meeting will prove in every respect a most successful and important one. In order to ascertain more fully the local feeling on the subject of the prizes offered for any particular year, the Council have, by an alteration in their bye-laws, postponed the final settlement of their prize-sheet from June to December in the year previous to that of a Country Meeting at which such prizes are to be awarded. Accordingly the prizes for the Northampton Meeting will not be finally settled until the month of December, 1846. In the meantime a preliminary prize-sheet for that occasion is laid before the members at their present General Meeting, for the purpose of receiving from them such suggestions as they may think proper to make to the Council.

"Report and Essay Prizes.—The Journal Committee have reported the several Essays required to be sent in for competition by the 1st of March last, to which the judges have awarded the Prizes offered by the Society; namely:—

To Thomas Rowlandson, of Liverpool, the Prize of Fifty Sovereigns for the best Report on the Farming of North Wales.

To Samuel Jonas, of Ickleton, Cambridgeshire, the Prize of Fifty Sovereigns for the best Report on the Farming of Cambridgeshire.

To John Bravender, of Cirencester, the Prize of Fifty Sovereigns for the best Report on the Advantages or Disadvantages of Breaking up Grass-land.

To George Nicholls, of Hyde Park-street, London, the Prize of Thirty Sovereigns for the best Essay on the Improvement of the Condition of the Agricultural Labourer so far as it may be promoted by private exertion without legislative enactment.

To Hugh Raynbird, of Hengrave, Suffolk, the Prize of Twenty Sovereigns for the best Account of Measure-Work, locally known as Task, Piece, Job, or Grate work, in its application to agricultural labour.

To W. C. Spooner, of Southampton, the Prize of Ten Sovereigns for the best account of the use of Superphosphate of Lime produced with acid and bones for manure.

To T. C. Beardoghes, of Gazeley, Cambridgeshire, the Prize of Ten Sovereigns for the best Account of the Cultivation of White Mustard.

To Wm. Linton, of Sheriff Hutton, Yorkshire, the Prize of Ten Sovereigns for a description of the best method of Draining Running Sands.

"The judges on the 16 Essays on the Keeping of Farming Accounts, having reported that none of the Essays are worthy of the Prize offered by the Society in that class, the Council have appointed a Committee to report on the best mode in their opinion in which a practical farmer may be enabled in the simplest manner to keep the requisite accounts connected with his farming establishment. The Council are indebted to the kindness of Mr. John Clarke, of Long Sutton, Lincolnshire, in having placed at the disposal of the Journal Committee his Essay on Grass Lands, commended by the judges.

"The Council have adopted the following schedule of subjects and amount of prizes for the Reports and Essays of next year, subject to such conditions as will hereafter, in due time, be published:—

On the Farming of Northumberland	£50
On the Farming of Suffolk	50
On the Farming of Somersetshire	50
On the Management of Sheep	20
On the Cultivation of Wheat	20
On the Cultivation of Mangold Wurzel	20
On Paring and Burning	10
On Flax	20
On the Great Level of the Fens, history of the drainage, view of its present state, and account of the defects which still require to be remedied	50
For an account of the best Manure for Wheat, compounded of chemical ingredients, to be tried by Judges appointed by the Society	30
For an account of the best Manure for Turnips, compounded of chemical ingredients, to be tried by Judges appointed by the Society	30

"The Council have adopted the following regulations in reference to any question of disputed patent-right that may be made by exhibitors of such implements as may be selected by the Judges for trial, namely:—'That the Stewards of the Yard, on receiving a notice in writing that any invention is considered to be an infringement of the right of another party, shall be directed to inform the exhibitor that he will be at liberty to direct the trial, under the inspection of the Judges; and if, on such trial, his invention should be found to merit the prize, the prize shall be awarded, subject to the condition of payment being suspended for a reasonable period, to allow the trial of the rights of the parties at law; and that if no steps at law are taken in the next term, the award shall be absolute.'

"The Council, judging from the entry of stock and implements already made, have every reason to anticipate an extremely good meeting at Newcastle: and, in conclusion, have not only to report the continual accession of new Members from every part of the kingdom, but to congratulate the Society on the steady progress made in the gradual development of its established principles, and in the attainment of a more exact knowledge, derived from experience of the means best adapted to ensure their advancement. The Council rely with confidence on the continued support and co-operation of all the Members of the Society, and trust they will thereby secure the prosperity of this great national institution.

(Signed) "By order of the Council,
James Hudson, Secretary."

The President took that opportunity of taking a review of the proceedings of the Council during the past half-year, and concluded by expressing his confident hope that the Society would eventually attain a steady amount of 10,000 on its list, and reminding them that it was established for the promotion of practical agriculture, aided by that science which is gained by experience.

On the motion of Sir Richard Todrell, Bart., seconded by the Hon. H. W. Wilson, the Report was then unanimously adopted by the meeting.

Colonel Austen, M.P., Chairman of the Finance Committee, having read to the Meeting the Auditors' Balance-sheet and recommendations, and the Balance-sheet of the Shrewsbury Meeting, on the motion of Viscount Torrington, seconded by E. A. Sanford, Esq., the thanks of the meeting were voted to Charles Tawney, Esq., C. Hampden Turner, Esq., and Thomas Knight, Esq., the auditors of accounts on the part of the Society.

On the motion of Richard Milward, Esq., of Thurgarton Priory, seconded by John Kinder, Esq., the thanks of the meeting were voted to the Railway Companies, for their liberal concessions in favour of the Exhibition of the Society.

On the motion of the Earl of Ducie, seconded by Peter Pole, Esq., the best thanks of the Meeting were voted by acclamation to the Rt. Hon. Lord Portman, the President, for the invaluable services he had rendered to the Society for his unceasing attention to its interests.

The Meeting then broke up.

ROYAL INSTITUTION.

May 15.—Lecture, by the Rev. Edwin Sidney, *On the Nature and Habits of certain Minute Fungi attacking the Agricultural Produce of this Country.*

After a few preliminary remarks on the growing importance of a due acquaintance with these minute pests of growing plants, by the agriculturist, Mr. Sidney, expressed his intention to introduce the particular subjects of his lecture by some observations on the general characteristics of fungi. They belong to the second alliance of the class of thallogens, and live in air. Their proper definition is cellular flowerless plants, nourished by a thallus called spawn or mycelium, and propagated by naked spores or sporidia, enclosed in vesicles. The normal mode is an elongation of the episporium or protrusion of the inner membrane. A deviation from this mode will have soon to be noticed. Fungi absorb oxygen, and exhale carbonic acid, which is similar to the result of animal respiration. They assume various forms; the simplest is that of articulated filaments, laid end to end like beads in a necklace, and so called Monilia. Such are all the tribes of Mucor and Mucedo. In a state a degree higher, they assume a determinate figure, the centre of which consists of spores attached to cellular tissue, of which the most ready example is a common Puff-ball. In the Agaries or Mushroom tribe, the form is far more complete; they have two surfaces, one not perforated at all, and the other separated into plates or cells, and called the hymenium, where the spores are found on little processes mostly in fours. It seems that they might fairly be broken up into six different orders, for a description of which the audience was referred to Lindley's "Vegetable Kingdom." Some fungi are edible, some poisonous, others medicinal, while a few are phosphorescent, giving a brilliant light in certain mines. In analogous climates, and where the range of the thermometer is the same, fungi are so nearly identical, that one might almost draw *iso-fungal* lines on the map of the earth. More observations are wanted on the real nature of all the plants called fungi; and, in fact, some diseased leaves which were shown this evening appeared to have fungi on them, but the matter having this appearance was in one case Erineum, which is merely a disease of the superficial tissue; and in the other it arose from the blisters of acari. Amidst the various speculations respecting the causes of the development of fungi none wears the aspect of genuine truth, except that of the almost universal diffusion of their exceedingly minute sporules. As to their places of growth, their usual matrices are composed of organic matter in a state of greater or less decomposition. But those of the simplest organization are not, it is considered by some very high authorities, confined to such conditions, but attack plants and even parts of animals in apparent health. Indeed, fungal disease may be produced in them by inoculation, as in the case of silkworms, by the Botrytis bassiana, and in Wheat by the Uredo fœtida. Some, in the opinion of Mr. Berkeley, one of the most eminent observers, are truly terrestrial. The cereal fungi have their mycelium present in healthy plants, and when circumstances become favourable are developed from it. It may be asked, what is mycelium? It is merely the development of the spores of fungi, or of mycelium already produced; and its appearances vary in the different tribes of fungi, being sometimes mucedinous, sometimes gelatinous, and sometimes vesicular. The curious Rhizomorpha is matter of fungi developed in an anomalous condition. Two curious specimens were exhibited, one of them taken from the woollen round a body in a leaden coffin, out of a vault of Roman construction; and it was stated that the opinion sometimes given that the hair has grown after interment should rather be that a hair-like Rhizomorpha has made its appearance. It was proposed this evening to explain the most frequent instances of fungi attacking (1), Cereals; (2), Leguminous plants; (3), the Potato; (4), a few other vegetables grouped together for want of time; (5), to propound certain remedies or pallintives.

1. *The Cereals.*—The straw is attached by Puccinia graminis, or mildew. It appears in brown patches, which are masses of spores that have burst the epidermis. It is generally believed, and with good reason, that the sporules enter the stomata. The mycelium pervades the tissue of the straw, as was well shown

in a drawing by Leonard, taken from Corda. The joints of the straw also are not unfrequently attacked by a small species of Depazea. The leaves and chaff are principally infested by the Uredines, one bearing the epithet Rubigo, the other linearis, and called in the country rust, or red-robin. It has prevailed extremely this season, in the form of a red rust, exuding from the inner surfaces of the young leaves. A question has been agitated whether these Uredines are not imperfect forms of Aregma in the Rose, and of Puccinia in the straw of Cereals and Grasses. In the case of the Uredo of the Rose, some specimens were shown which appeared clearly to indicate such a change; but in that of Puccinia, though the arguments of Professor Henslow are of great weight on this point, the specimens shown seemed only to indicate an appearance of Uredo before the development of the septum which divides the pear-shaped spores of the former into two chambers. The florets of Cereals are attacked by common smut, or Uredo segetum. The interior becomes abortive, the pedicel swells, and a powder looking like soot, which has caused this fungus to be called in some places chimney-sweeper, makes its appearance on the withered ear. The diameter of a spore is only $\frac{1}{2000}$ inch, according to Mr. Bauer. The grain of Wheat only is preyed upon by the bunt, Uredo fœtida, so called from its fœtid smell. In some localities it goes by the name of pepper-brand. The diameter of a spore is $\frac{1}{1000}$ inch, whence it is calculated that a single grain, in which it invariably replaces the flour, may hold four millions. It destroys all the ovary, except the integument and the stigmata. Some have supposed these two last fungi, especially the smut, to be only a mass of diseased cells; but diseased cells would not germinate, and the bunt may be seen growing on its mycelium, very distinctly, by a good microscope. This growth was well illustrated by a diagram. The farmers in many places conceive that the Barberry disease Æcidium produces Wheat fungi; but the only analogy between the fungi on one and the other is, that the Æcidium is like the Uredo, orange-coloured, and that, like these several Uredines, this is also of the order Coniomycetes; but the form is quite different. These fungi apparently are developed on healthy plants. The Cladosporium herbarum, of which a figure was given from Corda, never appears except where the corn is undoubtedly diseased. Mr. Sidney also mentioned two curious foreign fungi, which have been recently described in this periodical—the Chionyphe and Lanosa nivalis. With regard generally to the growth of Uredines, they may be looked upon as propagating by sporules, and may be called *entophyta*, in contradistinction to *entozoa*, which propagate by eggs. These sporules have generally been supposed to be taken up by the roots and to circulate in the vegetable tissues. No one, however, has seen them grow. Mr. Berkeley has lately made some experiments, repeated with success, which, as far as they have gone, tend to show that they do grow. The seeds of Wheat were immersed in water in which there was bunt. The spores of bunt soon had formed on these a singular mould, with conjugated spores. Those plants which have come up are decidedly infected, but no communication can be traced between the cells and the shoots thrown out by the spores. There is no intrusion of the mycelium developed by the spores into the Wheat, which looks as if the fine contents of the spores do really propagate the fungus; and if the plants yield bunted ears in the autumn, it may be considered that the spongioles of the young plants imbibed them. This is not, however, as we have seen, the normal mode of growth.

2. The next division was that of *Leguminous Plants*. They are particularly subject to various parasites. It has been lately discovered abroad that a Medicago is attacked exactly like bunted corn. A Depazea also completely destroys crops of Peas in wet seasons, attacking all parts, but especially the pods. The chief enemy, however, of healthy plants is Erysiphe of various kinds. Its growth was described in the *Gardeners' Chronicle* of last April. It belongs to the order Ascomycetes, the spores being in asci. Botrytides also destroy leguminous plants. This year the Botrytis vicia has done great mischief. When decay has decidedly commenced, the Botrytis vulgaris appears. The seeds are also subject to mucedinous decay, and are somehow almost replaced by mycelium.

3. But for a description of the development of *Botrytis*, Mr. Sidney proceeded to the celebrated Botrytis infestans, attacking the Potato. He, however, wished to premise that all the best evidence contradicts the opinion that the disease of last year is due to this fungus. Moreover, it should be noted that it is still an undecided question whether the sporules of any fungi are or can be developed without an incipient alteration in the tissues of the vegetables they attack. Once started, they may increase the malady, and perhaps they are started in such early stages of the disease as to give fair ground for believing that they originate it. The Botrytis infestans was singularly connected with the disease. Its mycelium traverses the intercellular passages of the leaf, and emerges from the stomata, but its most luxuriant growth is in the diseased tubers, where also many other fcurious fungi have been found. The habits of this Botrytis are well described by Mr. Berkeley, in Vol. I. of the "Journal of the Horticultural Society." In general the growth of moulds is a most curious subject for investigation. Dutrochet made some curious experiments upon it. He, however, clearly disclaims the least tendency to the idea of equivocal generation. In solutions of gum, isinglass, &c., certain filaments may be seen. These are the mycelia of moulds, and from them there spring two kinds of moulds—Monilia, which are articulate; and threads producing Botrytides, which are never articulate. Albumen, or white of egg, mixed with distilled water kept for a year, yielded no mould, but a drop of almost any acid gave Monilia; while any caustic alkali, on the contrary, was followed by Botrytides. These experiments, with the apparent exceptions, are all detailed in the 2d series of the "Annales des Sciences Naturelles." Mr. Sidney stated that he had recently made some kindred experiments. Albumen gave rise to no mould in distilled water. One drop of nitric acid yielded in about a week abundance of Monilia; a little oxide of lead added to it, which increased and quickened the growth, in Dutrochet's case gave no mould. Probably there was rather too much acid, the proper quantity being about a drop to an ounce. Sulphuric acid gave Monilia in a month. Æthiops mineral, added to the same mixture, gave a quantity both of Monilia and Botrytides; acetic acid, with red oxide of mercury, stopped all growth; red oxide of lead added to the same gave a great quantity of Monilia; alone, acetic acid had the effect of much development of the same; caustic potash added to the albumen gave Botrytides, some white and some deep red. All perfumes almost stop the growth of moulds.

4. The other plants mentioned, with the fungi infesting them, were Onions by the Botrytis destructor, Turnips by Botrytis parasitica on the leaves, the root by a kind of Fusisporium. Beet has a Uredo, and last year Morren says it was subject to Botrytis. Hops are attacked by an Erysiphe, having the habits of that of the Pea.

5. *Remedies or Palliatives.*—For Puccinia graminis, amendment of the texture of the soil where it has much prevailed; ventilation and light where shade seems to have caused it; checking by various practicable methods the over-luxuriance of the young plants; growing early varieties of corn in places much disposed to Puccinia; avoiding putting on manure directly before sowing the seed; hoeing the Wheat when young and getting rid of the weeds. Nature does her own work in dissipating the rust. A few days of sunshine dries up the superfluous moisture, and the Uredo rubigo does not spread. For smut and bunt, careful alkaline dressings afford the surest remedy. They adhere by an oleaginous principle to the seeds, and alkali converts this oil into soap, which enables them to be readily washed off. All dressings of sulphate of copper, of arsenic, &c., are undesirable, if not pernicious, and the latter really dangerous. Wherever there is a careful dressing the bunt does not appear; if the corn seed is not dressed it almost always comes largely. Barley ought to be dressed as well as Wheat, for an immense quantity is destroyed by smut almost every year. Still the smut will not be so easily got rid of as the bunt, as it is dissipated early in the season, and is much smaller. But the more the farmer can diminish it, notwithstanding a foolish prejudice to the contrary, the better. For Erysiphe and Botrytis, Mr. Sidney said he had known flowers of sulphur slightly dusted over the leaves an effectual remedy. Probably, also, the experiments on the growth of moulds would be found hereafter to lead to practical results. At all events, until the agriculturists of England knew the nature of these enemies of their crops, they never could be led to certain methods of diminishing their encroachments, which seem almost every year to be threatening them with augmented power and numbers.

Farmers' Clubs.

WATFORD: *Tenant Rights.*—The discussion of this subject was continued on the 5th of May. Mr. CURRIE said: The principle of Tenant Rights having been so fully admitted by both landlords and tenants at our last meeting, which has obtained a degree of notice which will I hope be beneficial, I shall at once proceed to the discussion of them in detail, not offering resolutions to your notice, but going through the various heads of them by making such statements as may, after consideration and discussion, lead to certain propositions being laid down. In order to narrow the discussion which will embrace so many points, I shall confine myself to tenancies from year to year, because upon such Tenants' Rights as shall be established the foundation of a lease can be made, and because, as I stated at the last meeting, I believe leases are not much sought after in this part at least of England; and from what I have seen and read, I believe that as good farming may be obtained and as much security given to a tenant by yearly agreements, founded on a proper knowledge of Tenants' Rights, as by any lease that can be framed. In discussing the question it will be necessary to go much into detail with regard to "improvements;" for under this word I shall include both permanent and temporary outlay, and it seems more according to the importance of the subject to begin with permanent improvements, such as buildings. It is not very usual for tenants from year to year to erect buildings on their farms at their own expense. I believe, according to law, a tenant has a right to remove any building put up by himself on "buystones," where the buildings do not enter into the ground, but he cannot remove a building attached to the freehold, or even claim an allowance for it, except by special agreement. It is quite clear that, even in the first case, a tenant cannot be indemnified for his expenses by removing the building, and a right to be paid for it would be a much more satisfactory course for him as well as for his landlord: and I think it clear, therefore, that on this head as well as with regard to buildings attached to the freehold, a tenant right should exist without special agreement; but, for the protection of the landlord against fanciful or useless buildings, I think he should have some discretion as to the class of buildings; and to reconcile the reservation to him of this right, consistently with the right of the tenant to put up such buildings, seems to me one of considerable difficulty, and requiring much consideration. The easiest course seems to be to leave this as a matter for the arbitrators, who are to value other improvements; but I should prefer some course which would diminish the uncertainty of this reference, or form some guide to the referees as to the mode of their valuation. Perhaps the best rule would be that no tenant should be repaid for any building erected by him unless the same shall have been done with the consent, in writing, of his landlord; and, as a guide for the referees, accounts should be made out and settled by the landlord and tenant of the expenses of such buildings. It would be desirable also that some period should be fixed within which the allowance should be made, as it is evident that after a tenancy of many years the tenant will have been repaid the expense of the buildings. Proceeding with the consideration of permanent improvements, we arrive at draining. The same observation as to this being generally done by the landlord arises, and the recent Act of Parliament enabling proprietors of settled estates to borrow money for drainage made it more unlikely that the draining should be the act of the tenant. I shall not refer to any other draining than pipe or tile draining, for any other mode is seldom now adopted, and the cheapness of those materials, since their manufacture by machinery, renders them preferable to any other. Suppose, however, the draining with pipes, or tiles, or stones to be done entirely at the expense of the tenant, it seems that the fair allowance to him should be seven years; but supposing the tenant has put in the tiles or stone at his own expense, with the consent and under the superintendence of his landlord, and having had no allowance for doing so, and supposing he has had a crop off the land, it appears to me he should have, on outgoing, an allowance for five years from the time of putting in the drains; I have heard seven years mentioned as well as three for the period of allowance, and I have also taken five years as appearing to be the fair medium. It would also be of much assistance in ascertaining the sum to be allowed to the tenant, that he should make out a yearly account of the expenses of draining for the landlord; and in all cases I conceive the plan of draining should be submitted to the landlord, as I have seen too many cases where the draining having been unskilfully done has been worse than useless. I do not find much difference of opinion as to the allowance for marling or claying land; it seems that seven years is a fair allowance for the carriage and labour, and that five years should be allowed for lime and carriage. I shall now proceed to the question of allowances for such as cannot be called permanent improvements. Opinions vary as to the length of time to be allowed for bone-dust; between three and four years are considered fair, but it is material to consider the quality as well as the form in which bone dust has been used. If combined with sulphuric acid, by which means the phosphate of lime is more quickly taken up by the plant, and consequently sooner exhausted, it seems to me that two years' allowance will be sufficient to repay the tenant. It has been suggested to me, by a gentlemen of great practical experience, that the allowance should depend upon the application of the bone-dust. If used for Barley, Wheat, Beans, Peas, &c., there should be no allowance, but if used for top-dressing on Grass-land, allowances ought to be made under three years; if for green crops or fallows the outgoing tenant should be paid in full. The subject of an allowance for oil-cake is one of considerable difficulty; but so valuable is the manure from it when used for cattle, that it seems a fit subject for allowance. Mr. Williams, the agent of Lord Yarborough, in his letter to Mr. Pusey ("Agricultural Journal," vol. vi. p. 44) says the allowance is based on the assumption that the manure is improved to the extent of half the value of the oil-cake consumed; but to get a fair average as to both quantity and price, it is made to extend over the last two years, and the allowance is two-sixths of the cake used in the last year and one-sixth of that used in the previous one, making together the half of a year's consumption. Oil-cake given to horses is excluded, as I conceive the benefit to their manure would be comparatively trifling, and an allowance for it would tend to make cake supersede the legitimate food of the horses in the last year of a tenancy. Cake given to sheep in the field is also excluded. This decision has been come to after careful consideration and inquiry, partly on the ground that the benefit to the sheep is sufficient to make it worth while to give cake without regard to the manure, and partly from the greater difficulties attending the getting a correct account, and the increased liability to fraud. And in a letter to the same gentleman (Mr. Pusey) from the Loughborough Agricultural Society, containing Suggestions for Improved Agreements between Landlords and Tenants, the two following resolutions are stated to have been adopted (10 and 11): "For linseed oil-cake and corn used for feeding cattle or sheep, one-third of the cost ought to be paid for the first year and one-sixth for the second. Where the manure belongs to the landlord and where the manure so made from oil-cake and corn belongs to the tenant, an extra allowance ought to be made on the value of the manure, in the same proportion as in the foregoing rule." I am inclined to think that no better

rules can be laid down than the last two, but in these cases the allowance ought greatly to depend upon the management and keeping of the manure. The next consideration is, what allowance should be made for the cost and carriage of all bought dung and night-soil which may be spread upon the land, and this seems to vary from three to four years. The Loughborough Agricultural Society considers that four years should be allowed, and that for Rape-dust one-third of the bill after a crop of Corn, Hay, and Clover should be allowed. The same Society recommends that an allowance should be made for Turnip fallows, namely, the working, rent, and taxes to be calculated, and the crop of Turnips to be valued, and one-half the value of the Turnips to be given to the out-going tenant; two-thirds of the Turnips to be consumed on light soils, and I may add that for naked fallows on strong land he should be allowed for ploughing, and on the labour performed, but not for rent or taxes, unless he paid for them on entry. The cost of seed and labour of corn sown for the incoming tenant is, of course, always paid by the latter. The allowances before referred to are made on the presumption that all the produce, except corn, meat, wool, and the produce of the dairy, are consumed on the farm, and all allowances are to be made in equal proportions in each year for the period over which they extend, except with regard to the foregoing propositions, as to Linseed-oil-cake and corn, supposing also the tenant has the right to sell the hay and straw off his farm. With regard to guano, and the chemical manures now coming so much into use, it is extremely difficult, from their recent introduction and the want of sufficiently accurate information as to any beneficial effect beyond the season, to prepare any rules. I should say that they are so quick in their operations, that no allowance should be claimed by an out-going tenant, except in the case of fallows, and in that case, when the incoming tenant takes to, and the out-going tenant has no benefit, the prime cost should be allowed. Where Sainfoin has been sown, and other permanent pastures laid down by a tenant, I submit that an allowance should be made within three years' growth, provided the tenant has shewn the necessary judgment in selecting the proper Grasses and Clovers for the soil laid down. I believe there has been much abuse in the allowances, and seed bills incurred much greater in amount than commensurate with the improvement of the land from want of proper judgment. I shall now quote *verbatim* the four last resolutions adopted by the Loughborough Agricultural Society:—"Such system of cultivation ought to be adopted as may be most suitable for the quality of the land, and an allowance ought to be made to the landlord if such system be not adopted, and for any dilapidations in the buildings, fences, gates, and drains. At the termination of each year, the tenant shall give an account to his landlord or his agent of all money expended by him during the previous year, for which he is entitled to claim an allowance on quitting his land. If the out-going tenant refuses or neglects to enter into an agreement with his landlord or agent, on or before the 17th day of October next preceding the termination of his tenancy, then the landlord ought to have the power of entering to sow Wheat where the crops do not belong to the tenant, the tenant receiving compensation for herbage and stubble. The landlord ought to have the power of entering, to plough for and sow spring corn on the 2d February previous to the tenant's quitting the farm." All these claims and matters are to be settled by two arbitrators and an umpire, to be appointed in the usual manner. There are other provisions to be inserted in agreements, such as not breaking up old Grass land, lopping timber, &c., but these are usual, and need not form the subject of discussion on the present occasion. I shall be very glad if the result of the consideration of these questions not only here, but at other farmers' clubs, should lead to the framing of short and plain agreements, which will lead to mutual confidence between landlord and tenant; and perhaps, in speaking as much as I have done of tenant rights, I have omitted some precautions which should have been suggested on the part of the landlord, for we must bear in mind that there are bad tenants as well as hard landlords. I am not an advocate for laying down stringent rules for cropping, and I should be content with a condition that in no case shall a tenant take a second white straw crop. In other respects, I should leave the tenant to discover the style of farming that will best suit his land, for it must be borne in mind that to make farming pay, it should be assimilated to a manufacture; that is, to obtain the quickest and largest return, and this can only be done by judicious cropping, and by keeping the land clean and in good heart.—Mr. CLUTTERBUCK said that although the question of Tenant Rights might at first sight seem an easy one, the more it was investigated in detail, the more difficult it appeared. The arbitrators between landlord and tenant were required to use their utmost exertions to decide fairly and justly on the difficult questions which constantly presented themselves to them, and more particularly as to the subject of unexhausted manures. The buildings usually found on farms were not adapted to the present improved mode of keeping stock, he thought that the erection of more suitable buildings, unless done entirely at the expense of the landlord, presented some difficulties which might perhaps be obviated by the landlord agreeing to take them at the expiration of the tenancy as materials; the next tenant might then take them from the landlord at a valuation, or pay an increased rent for them; he conceived that both landlord and tenant should be satisfied if the latter should be guaranteed a return for all his expenditure. He was glad to see that this subject had been so often discussed, from which he conceived that much good would arise; but he did not believe that the least benefit would be derived from any legislative enactment on the subject.—Mr. HIBBERT did not think that the tenant would be sufficiently remunerated in all cases if paid only for the materials of buildings; but at the same time he could not conceive how any landlord could refuse to repay a tenant his expenditure in doing anything that was really useful. He believed the present race of valuers as a body totally incompetent to decide on many questions which must necessarily be presented to them; they did not keep pace with the march of improvement; he conceived they must necessarily possess some scientific attainments to decide in many cases on unexhausted manures. In one instance a field of his had been top-dressed with bone-dust, and in another instance a field had been limed, and although in the latter case he had previously ascertained that the field contained little or no lime, in neither case had these manures produced any benefit; although therefore he was perfectly ready and willing to admit that a tenant should be paid for all he did, still it was very clear that the landlord ought to be satisfied that he was paying for that which was beneficial to his land.—Captain FOSKETT thought that if guano applied to the land enabled a tenant to feed on that land an increased amount of stock, that the quitting tenant should therefore receive a remuneration for the guano.—Mr. CLUTTERBUCK replied that where a tenant grows and feeds a large crop of Turnips for instance, he must certainly make an increased quantity of manure; but it must be recollected that he has also fed and improved a greater amount of stock. If any guano is still left in the soil the quitting tenant ought certainly to be paid for it.—The Secretary (Mr. HUMBERT), did not think that tenants, except perhaps in the commencement of a long term, would erect buildings if they were only to be paid for them as materials. In many localities it was the custom for the landlord to find materials and the tenant to find labour, and in this case it might be readily guessed that the tenant did not expend much such labour when his tenancy was drawing to a close. As it was manifestly to the advantage of landlords to encourage the erection of suitable and commodious buildings on their estates, he considered that they should be taken from a quitting tenant at a fair valuation: but then the landlord should previously have had an opportunity of deciding whether or not these buildings would be useful to any succeeding tenant, and consequently beneficial to the property. He was fully aware of the difficulty of deciding on many questions of unexhausted manures, and he feared that but very few valuers united "science with practice" sufficiently to enable them to master the subject; in fact, he almost doubted whether anything short of chemical analysis could afford a decisive answer to certain points.—*C. Humbert, Secretary.*

Miscellaneous.

Lime Sand a Cornish Manure.—We have a very great proportion of lime in our sea sands, the fertilising properties of which are valued according to their contents of comminuted shell; the amount of carbonate of lime being a correct index of the quantity of shell, and of the fertilising power in a given specimen. The following are the proportions of lime found in the sands from 14 different districts, by different chemists:—

1.	Gwithian and Phillack ..	70 per cent. of carb. of lime
2	Gannel (near the mouth)..	83½ ,,
3	Porth Towan	50 ,,
4.	Portreath	25* ,,
5.	Perranzabuloe	70 ,,
6.	St. Mawes	61 ,,
7.	Falmouth Harbour ..	80† ,,
8.	Padstow sand	86½‡ ,,
9.	Harlyn Bay	94 ,,
10.	Trevose Bay	91½ ,,
11.	Blown sand from Bude ..	68 ,,
12	Beach sand do. ..	40 ,,
13.	Stanbury Mouth ..	52 ,,
14.	Widemouth	41 ,,

Besides carbonate of lime, these sands contain silica, alumina, and traces of oxide of iron. The shell also contains traces of phosphoric acid. In Worgan's time the carriage of sea-sand was estimated at 32,000*l.* per annum.§—*Mr. Karkeek, Eng. Ag. Soc. Journal.*

Cost of Barley Culture.—The cost of cultivating an acre of Barley and Grass-seeds is as follows:—

One ploughing—Wheat stubble	6s.	0d.
One harrowing	3	0
Second ploughing..	7	0
Second harrowing, sowing, tillage, &c.	10	0
Seed—Barley	12	0
6 lbs. white and red Clover ..	4s.	4d.
2 lbs. Trefoil	0	8
6 to 8 gallons Rye-grass seed ..	4 0—9	0
	£2	7 0

—*Mr. Karkeek, Eng. Ag. Soc. Journal.*

Calendar of Operations.

MAY.

THE preparation of land for the Turnip seed is now the most important point for the farmer's attention. The rains of the last few days will, on most soils, have greatly assisted the tillage of the land. Where there is plenty of manure, the best method is to apply any two-thirds of it (if well rotten) ploughed in broadcast, and one-third in the drills, as we described when on the culture of Mangold Wurzel. The young Turnip plant has thus the advantage of an immediate supply of food for its earlier wants, and the succeeding grain crop also has the advantage of a uniform manuring. As to the quantity of seed which should be sown, 3 or 4 lbs. per acre will be advisable; for thus only can it be arranged between ourselves and the Turnip fly to act upon the principle of "Live and let live." The braird from a less quantity might be destroyed, but so large a number of plants as 3 or 4 lbs. of seed will produce can hardly be all devoured. We prefer paying the penalty of additional expense in seed and in hoeing, to incurring the risk of having our plants destroyed. The proper season for sowing differs in different localities. In Scotland the third or fourth week in May is considered the proper seed time of the Swedish Turnip. In South England the first week of June will be early enough.

The young Carrot plants will now be coming through, and so also will the Mangold Wurzel. Immediate attention must be given to clean the land between the rows as soon as they are distinguishable. The horse-hoe may also be kept at work between the rows of Beans. Forward Wheats may be mowed within 6 inches of the ground. Dissect a plant first to know where the young ear is. Do not let the scythe come near it.

Notices to Correspondents.

RURAL CHEMISTRY, by Edward Solly.—The Second Edition revised and enlarged, is now ready, price 4*s.* 6*d.*

AGE OF CATTLE. *G. B.*—The information shall be given.

ARTIFICIAL MANURE.—*J. Randell*—Please to excuse the delay of a week.

BREEDING OF FARM HORSES.—*Centricensis*—See another column.

BREEDING SOWS.—*Constant R.*—They are put in a large yard as soon as their pigs are weaned, having been previously, or being, as soon as possible, put to the boar, and there they are fed, *now*, on Clover, cut Mangold Wurzel, Cabbage-leaves, &c., and, *in winter*, on Potato-wash, cut Swedes, &c., taking care by the occasional admixture of oilcake, &c., if required, never to let them get very poor. A fortnight before farrowing they are put up, and fed on steamed Potatoes, and Barley-meal, the former *ad. lib*; the latter about 2 to 3 lbs. daily.

BREWING.—*H. P. T.* asks for information about brewing beer from Mangold Wurzel. [We have not received your former letter.]

BULL *versus* OX.—*Enquirer.*—The greater size of the former when fat, will not balance its inferior quality. We have tried the similar question in the case of sheep, and must give the same answer.

COOKE'S GUANO.—*E. Weld*—We do not remember, and on looking back cannot find any reference we have made to this guano. We do not know it: and cannot imagine a guano deserving the name purchasable for 3*l.* per ton. You may be assured that all letters asking for information, *that have reached us*, have been noticed, whatever their signature. This notice may perhaps elicit the information you are in search of.

CLOVER.—*Clericus.*—If your first crop is good, and you intend to mow again, you had better apply a *liquid* manure *if any*, between times. You might apply guano at that season, and it might be not merely inert and useless, but wasting for weeks on the surface of the ground for want of rain to wash it in.

CUTTING CHAFF.—*Enquirer.*—When animals have not been accustomed to eat chaff we would not introduce it, if we could not get it cut for less than ½*d.* per bushel. That is a great price; there are many machines which will cut it cheaper.

GAS-TAR, &c. *Gasometer.*—See last week's Notices. Gas-water may be applied at the rate of 300 or 400 gallons per acre, and this will be best done directly by water-cart.

ITALIAN RYE-GRASS.—*A. B. C.*—It may on most soils be sown on the stubble (scarified and harrowed) after harvest. Please to excuse the delay of answers to your other questions.

MANGOLD WURZEL.—*L. L. D.*—We suppose that the soaking rains we have had have rendered an answer almost unnecessary. The seed may soak, *i. e.* lie damp, for five or six days without harm, if you are hindered from planting it by wet weather; and as to hindrance by dry weather, one can generally foretell the state of his land 24 hours, and if he expects it then to be perfectly *dry*, he should not soak his seed at all.

PIGEONS.—*J. C.* asks what is the most efficient method of attaching pigeons to their home? Pigeons' dung may be used in compost as a manure. Consider it as 10 or 12 times as strong as good horse manure, and apply it accordingly.

SHOT OR HUMOURS.—*Ball.*—It can be cured. Consult a veterinary surgeon.—*W. C. S.*

TASTE OF BUTTER.—*H. F.*—See page 91. You might try the plan there detailed.

TRESPASS.—*H. M. L.*—If nothing is said about game in your lease you *may* prosecute for a trespass. Give notice and then proceed if any party after that comes on your ground.

WIREWORM *Desiderata.*—See page 320. We have little faith in the remedy there proposed, but you may try it.

MISC.—Can any one furnish a correspondent with the title, &c., of the best book or books on fancy pigeons?

*** Communications reaching town after Wednesday, cannot be answered the same week.

ERRATA. At page 325, col. *b*, line 36 from top, for "profession" read "professions;" and in line 28 from bottom, for "readily" read "generally."

Markets.

SMITHFIELD, MONDAY, May 18.—Per Stone of 8 lbs.

Best Scots, Herefords, &c.	4s	0 to 4s	2	Best Long-wools - -	—s to —s
Best Short Horns -	3	8 4	0	Ditto (shorn) -	4 0 4 2
Second quality Beasts -	3	0 3	6	Ewes and second quality	— —
Calves - -	4	0 5	0	Ditto (shorn) -	3 6 4 0
Best Downs & Half-breds	—	—		Lambs - - -	5 4 6 4
Ditto (shorn) -	4	4 4	6	Pigs - - - -	3 6 5 0

Beasts, 2651; Sheep and Lambs, 25,590; Calves, 98; Pigs, 210.

We have to-day a tolerably good supply of Beasts, and trade for them is brisk, the best qualities making rather more money.—Sheep are more plentiful, and the demand very limited, especially for big Sheep; many remain unsold.—Lambs to-day, generally speaking, are of inferior quality; the choicest, because there are few of them, are sold dear.—Good Calves are in demand, but second rate qualities are unsaleable.—Choice Porkers are selling well; in other qualities little is doing.

FRIDAY, May 22.

The supply of Beasts is very short to-day, and trade is better. East Scots readily make 4s 4d, and Short-horns 4s to 4s 8d; second quality 3s 8d to 3s 8d.—Sheep are rather plentiful, trade is dull as Monday's quotations.—The supply of Lamb considerably exceeds the demand. There are a great many of very inferior quality; the choicest make about 6s 4d, but the more general rate is from 5s to 6s.—The Calf trade continues about the same.—Pork is lower; prices range from 3s 4d to 4s 8d.

Beasts, 666; Sheep and Lambs, 7700; Calves, 270; Pigs, 300.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, May 21.

Prime Mead. Hay	80s to 85s	New Hay	—s to —s	New Clr.	—s to —	
Infr. New & Rowen	60 70	Clover	85 to 105	Straw	25	34

JOHN COOPER, Salesman.

CUMBERLAND MARKET, May 21.

Prime Mead. Hay	80s to 85s	Old Clover	110s to 115s			
Inferior -	60 75	Inferior do.	90 100	Straw	32s to 36s	
New Hay -	— —	New Clover	— —			

JOSHUA BARER, Hay Salesman.

WHITECHAPEL, May 22.

Fine Old Hay -	80s to 85s	Old Clover	110s to 115s			
Inferior Hay -	60 70	Infr. do.	90 100	Straw	32s to 36s	
New Hay -	— —	New Clover	— —			

Supply limited. Trade very dull.

HOPS, FRIDAY, May 22.

The accounts from Kent and Sussex received this morning state a decided increase of fly, and our market in consequence is advancing.

FAIRBANK & BEECH, Hop-Factors.

COVENT GARDEN, MAY 23.—Vegetables of all kinds have been well supplied. All kinds of Fruit in season is plentiful, and trade begins to get a little brisker. Pine-apples are plentiful. Hothouse Grapes are also excellent in quality, and becoming very abundant; and a considerable quantity of Peaches and Nectarines have been offered. Ripe Cherries and Strawberries are plentiful, more especially the latter, and for which there is no great demand. Green Gooseberries and Apricots are also plentiful. Apples and Pears are very scarce, and are for the most part sold at nominal prices. Oranges are abundant, and Nuts of all kinds are sufficient for the demand. Melons, of apparently good quality, have made their appearance in considerable quantity. Of Vegetables, Broccoli is not quite so plentiful as it has been. Asparagus is excellent, and Cabbages, Greens, &c., are good and sufficient for the demand. Young Carrots and Turnips may be obtained at last week's prices. Green Peas have been offered at from 18s. to 1l. per half-sieve. Celery is good in quality. Potatoes of the very best quality still fetch 9l. a ton, and in one or two cases 10l. and 12l. a ton; but inferior samples may be obtained at much lower prices; on account of the variety and abundance of other vegetables, however, few sales are effected at any price. Frame Potatoes are pretty plentiful. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Auriculas, Tropæolums, Jasmines, Lily of the Valley, Pentas carnea, Stephanotis floribunda, Burchellia capensis, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Rhododendrons, Cinerarias, Gardenias, Moss and other Roses.

FRUITS.

Pine Apple, per lb., 6s to 10s	Lemons, per dozen, 1s to 3s
Grapes, Hothouse, per lb., 5s to 8s	— per 100, 6s to 14s
— Spanish, per lb., 9d to 1s	Gooseberries green, per half-sv., 6s to 10s
Apples, Dess., per bush., 7s to 20s	Strawberries, per oz., 3d to 1s
— Kitchen, 2s to 4s	Almonds, per peck, 6s
Melons, each, 4s to 10s	Sweet Almonds, per lb., 2s to 3s
Peaches, per doz., 10s to 24s	Filberts, English, p. 100 lbs., 50s to 60s
Nectarins per doz., 10s to 24s	Nuts, Cob, per 100 lbs., 80s to 90s
Cherries, per lb., 2s	— Barcelona, 20s
Oranges, per dozen, 1s to 2s 6d	— Brazil, 12s to 16s
— per 100, 4s to 18s	— Spanish, 14s
— Seville, per 100, 3s to 16s	Walnuts, per bushel, 10s to 20s
— per dozen, 2s to 2s 6d	Chesnuts, per peck, 2s to 3s

VEGETABLES.

Cabbages, per doz., 6d to 1s 3d	Carrots, per bunch, 2d to 3d
— red, per doz., 6s to 12s	Parsnips, per doz., 3d to 1s
Broccoli, Brown, per bdle., 9d to 1s 6d	Scorzoneres, per bundle, 1s to 1s 6d
— White, 1s to 4s	Salsify, do., 1s to 1s 3d
Cauliflowers, per doz., 4s to 8s	Onions, per bushel, 1s 6d to 3s
Greens, per doz. bunches, 1s to 1s 6d	— Spanish, per doz., 1s to 3s
Artichokes, per doz., 3s to 5s	Shallots, per lb., 10d to 1s
French Beans, per 100, 2s to 4s	Garlic, per lb., 6d to 8d
Sorrel, per half-sieve, 9d to 1s	Lettuce, per score, Cab., 4d to 1s
Potatoes, per ton, 70s to 180s	— Cos, 6d to 9s
— new, 4s to 9s	Radishes, per 12 bunch, 4d to 1s
— bushel, 3s to 4s 6d	Mushrooms, per pottle, 1s 6d to 2s
— Kidney, per bushel, 4s to 6s	Small Salads, per punnet, 2d to 6d
— Frame, per lb, 6d to 1s 6d	Fennel, per bunch, 2d to 3d
Turnips, per bunch, 2d to 1s 6d	Savory, per bunch, 4d to 6d
Red Beet, per doz., 6d to 1s 6d	Thyme, per bunch, 4d
Horse Radish, per bundle, 2s to 7s	Watercress, p. 12 sm. bun. 6d to 9d
Rhubarb, per bundle, 3d to 1s 6d	Parsley, per bunch, 1d to 3d
Asparagus, per bundle, 1s to 6s	— Roots, per bundle, 1s
Cucumbers, each, 6d to 2s	Tarragon, per bundle, 6d
Spinach, per sieve, 2d to 1s	Mint, green, per bunch, 3d to 6d
Leeks, per 4 sm. bunches, 1s to 1s 6d	Marjoram, per bunch, 4d
Celery, per bundle, 6d to 1s 6d	Chervil, per punnet, 3d to 6d

POTATOES.—SOUTHWARK, WATERSIDE, May 18.

This market is fast coming to a close. The supply is getting small by degrees, but the high prices have considerably decreased the previous small consumption, therefore the supply is fully adequate to the demand. Although the best samples are fetching great prices, there is but little demand, even at ruinously low prices, for York Regents, Shaws, or Jersey or French Blues from the stores, those that are sold are not worth a quotation, the prices being, in many cases, nominal, and in few cases sufficient to pay the storing expenses. The prices from the ships are as follows:—York Reds, 140s to 160s per ton; ditto Regents, 40s to 120s per ton; Perth Reds, 110s to 120s per ton. Montrose Buffs, 100s per ton.

MARK-LANE, MONDAY, May 18.

The supply of Wheat from Essex, Kent, and Suffolk, by land carriage samples, was moderate at this morning's market, and in order to make sales it was necessary to submit to a decline of 2s. per qr. from this day week, and at which reduction the stands were not cleared at a late hour. Foreign remains nominally the same; sales, however, can only be effected in retail quantities to release by certificates, which are held at 11s.—Of spring Corn the quantity fresh up has been very trifling.—Barley, Beans, and White Peas, are unaltered in value, whilst Hog Peas scarcely maintain late prices.—The demand for Oats is limited, which, with rather more offering, causes a heavy trade, and quotations of this day se'nnight cannot be supported.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk . . White	55	62	Red .	50	60
—— Norfolk, Lincolnshire, and Yorkshire	50	54	White	50	55
Barley, Malting and distilling 28s to 30s	30	33	Grind.	24	28
Oats, Lincolnshire and Yorkshire . . Polands	24	28	Feed	21	24
—— Northumberland and Scotch . . Feed	26	25	Potato	27	30
—— Irish . . . . . Feed	21	24	Potato	25	28
Malt, pale, ship	54	60			
—— Hertford and Essex	60	65			
Rye	36	38			
Beans, Masagan, old and new 2s to 40	29	44	Tick	29	44
—— Pigeon, Heligoland . 34 to 38	Winds	—	—		
Peas, White . . . . 36 to 40	Maple	29	32	Grey	28	31

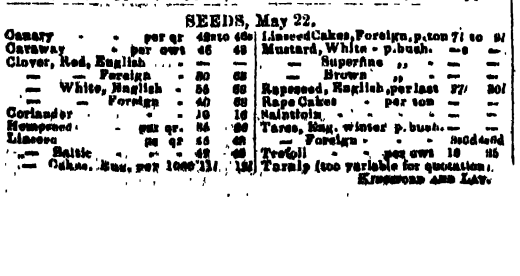
FRIDAY, May 22.

The arrivals of English Wheat and other grain have been small during the week, vessels having been kept out by contrary winds. Of Foreign Wheat the quantity reported amounts to upwards of 15,000 qrs.—The attendance at this morning's market being thin, and the weather remarkably fine, in addition to the uncertain state of the Corn-laws, business in either English or Foreign Wheat was very trifling, each description is held for Monday's quotations. In spring Corn there is no alteration to notice.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats	Rye.	Beans.	Peas.
Apr. 11 per Quarter.	56s 0d	30s 9d	23s 9d	35s 4d	38s 1d	39s 8d
— 18 . . .	55 10	30 5	23 9	35 5	34 0	36 5
— 25 . . .	55 6	30 1	23 4	34 7	34 10	39 10
May 2 . . .	56 5	29 8	22 7	32 5	34 11	38 10
— 9 . . .	56 8	29 7	23 9	33 8	35 8	36 7
— 16 . . .	57 0	29 4	24 1	33 5	35 11	36 11
6 weeks' Aggreg. Aver.	56 3	29 11	23 4	33 7	35 3	34 3
Duties on Foreign Grain	18 0	9 0	5 0	9 0	7 6	8 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, May 16



SEEDS, May 22.

Canary . . per qr	42s to 46s	Linseed Cakes, Foreign, p. ton	7l to 9l
Caraway . . per cwt	46 48	Mustard, White . p. bush.	— —
Clover, Red, English . .	— —	— Superfine "	— —
— — Foreign	30 32	— Brown "	— —
— White, English	56 60	Rapeseed, English, per last	27l 30l
— — Foreign	40 52	Rape Cakes . per ton	— —
Coriander . .	10 16	Saintoin . .	— —
Hempseed . . per qr.	36 40	Tares, Essex, winter p. bush.	— 4d
Linseed . . per qr.	46 48	— Foreign . .	8d 4d
— Baltic . . "	42 46	Trefoil . . per cwt	16 18
— Cakes, Eng., per 1000	13l 15l	Turnip (too variable for quotation).	

KINGSFORD AND LAY.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition, at the Auction Mart, Bartholomew-lane, on Tuesday, May 26; Thursday, 28; and Friday, 29, 1846, at 12 o'clock, about 2000 DAHLIAS, comprising all the new varieties of the season. Also, a splendid assortment of GERANIUMS and other plants in bloom; the newest varieties of Fuchsias, Verbenas, Petunias, Heartsease, and a variety of other plants for the borders.—May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneer's, American Nursery, Leytonstone.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MR. J. ELLIOT will sell by Auction, at the Chapel Nursery, Battersea-fields, on Wednesday, May 27, at 12 o'clock, a splendid COLLECTION of PLANTS IN POTS, consisting of all the best sorts of Geraniums, Dahlias, Pansies, Verbenas, Antirrhinums, Calceolarias, Salvias, Tropæolums, Maurandyas, Petunias, Fuchsias, Stocks, Myrtles, Clematises, Roses of all sorts, &c. &c.

To be viewed the day before or morning of Sale. Catalogues to be had on the Premises, and of the Auctioneer, Putney, Surrey.

FINE COLLECTION OF ORCHIDEÆ, HOTHOUSE, AND GREENHOUSE PLANTS.

MESSRS. WILKINSON are instructed by the Executors of JOSEPH JANSON, Esq., to sell by auction on the premises, Church street, Stoke Newington, on Monday, June 1st, at 11 o'clock, without reserve, the valuable and rare ORCHIDEÆ, AQUATIC, HOTHOUSE, and GREENHOUSE PLANTS, which have been selected with great judgment by the late proprietor; Carnations and Picotees, fine Heartsease, the Erection of the Orchidæ House, with the Warm-water Apparatus, all the Green and Hothouses, Tulip-house, rare Rockwork, Forcing Frames, Garden Implements, and a variety of Out-door Effects. May be viewed Saturday preceding and morning of sale. Catalogues had at the garden, and of the Auctioneers, Ludgate-hill.

MEXICAN ORCHIDS.

MESSRS. J. C. AND S. STEVENS beg to announce they will sell by Auction, at their Great Room, 38, King-street, Covent-Garden, on Monday, the 25th May, at 12 o'clock, an IMPORTATION OF CHOICE ORCHIDS, from the temperate regions of Mexico, comprising many fine Plants in good condition. May be viewed on Saturday and morning of Sale, and Catalogues had of the Auctioneers, 38, King-street, Covent Garden.

TERRESTRIAL ORCHIDS, BULBS, &c., JUST ARRIVED FROM THE CAPE.

MESSRS. J. C AND S. STEVENS, will sell by Auction, at their Great Room, 38, King street, Covent-garden, on Saturday, 6th June, at 12 o'clock, a rare collection of ORCHIDS, BULBS, &c., from Africa, containing some new Species, and many very rare, such as Orchis Victoria, violaceum, barbatum, &c.; Disa grandiflora, &c., beautiful varieties of Watsonias, Ixias, Brunsvigias, &c., and a few Seeds. On view the day prior and morning of Sale, and Catalogues had of the Auctioneers.

ESTATE Wanted to Purchase—Comprising a handsome Residence, with from 50 to 250 acres of land, or if offering opportunity for an investment, will be no objection. Must not be very distant from a railway, in a good district, and not more than four hours from London. Particulars to be addressed to Messrs. HEDGES, Land Agents, 10, New Bond-street, opposite the Clarendon.

WIRE-WORK HOT-WATER APPARATUS, GREENHOUSES, &c.

ST. THOMAS BAKER, MANOR HOUSE, MANOR-PLACE, KING'S-ROAD, CHELSEA, Manufacturer of INVISIBLE WIRE-FENCE, to resist Grazing Stock, and rendered Rabbit proof. WIRE WORK in Trainers, Arches for Walks, Bordering, Flower Stands, Pheasantries, &c. HORTICULTURAL BUILDINGS, Green and Hothouses, Conservatories, &c. The same heated by HOT WATER APPARATUS, on improved and economical principles.

Parties waited on in Town and Country, and Drawings and Estimates free. Work for the Trade as usual.

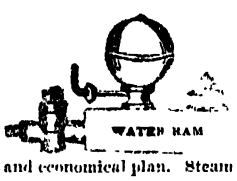
Ward's Cases, or Domestic Greenhouses.

ORNAMENTAL TILES for Floors, Walls, &c., of Greenhouses, Conservatories, Garden Terraces, Encaustic, Venetian, &c., in EVERY VARIETY. May be seen at Messrs. PARKER and WYATT'S, Surrey-street, Blackfriars, London. Agents to Messrs. MINTON & CO., the Patentees, of Stoke-upon-Trent. Also Patentees of the PORCELAIN BUTTONS, cheaper and more durable than Mother-of-Pearl, &c.

HYDRAULIC RAMS, to be had of FREEMAN ROE, Engineer and Fountain Maker, 70, Strand, London. Rams adapted to all situations.

No. 1 Ram, Supply Pipe, 4 in.
No. 2 Ram, Ditto 2 in.
No. 3 Ram, Ditto 1 in.

Deep Well Engines and Pumps worked by Steam, Horse-power, or Manual-labour. Fountain Basin in Iron, from W. Rowley's pattern. Jets made to any device. Buildings, Baths, &c. heated upon the most simple and economical plan. Steam Closets, Cooking Apparatus, &c.



Sole Agent for TRUMAN'S PATENT WATER PURIFIER.

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PATENT VULCANISED INDIA-RUBBER HOSE-PIPE and TUBING, for Gardeners, Brewers, Fire Engines, Plumbers, Gas Fitters, and all other purposes where a perfectly Flexible Pipe is required.

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PHOSPHORIC RAT POISON.—This preparation is offered to the Public with the greatest confidence, being decidedly superior to all those poisons containing arsenic and other minerals. It is most greedily eaten by rats and mice as long as it is offered to them, and invariably proves certain destruction. Prepared only by EDWARD PURSER, 40, Bridge-street, Blackfriars, London. Sold in pots, with full directions for use, at 4s., 8s., and 20s. each.

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	Per lb.		Per lb.
Mixed, ...	1s 0d	Best For. Grey Goose	2s 0d
Grey Goose	1 4	Best Irish White Goose	2 6
Foreign Ditto ..	1 8	Best Dantzic	3 0

Warranted sweet and free from dust.

A List of every description of Bedding, containing Weights, Sizes, and Prices, sent free by post on application to HEAL and SON, Feather Dressers and Bedding Manufacturers, 196, Tottenham-court-road, opposite the Chapel.

HATCHER'S BENNENDEN TILE MACHINE.

Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Wineley-street, Oxford-street, London.



*** This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz. . .

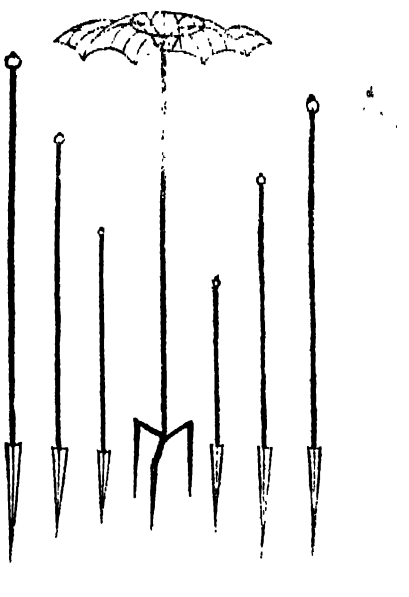
1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ "	8,000	2½ "	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, Vol. V.

This Machine is moveable down the drying sheds on its wheels. It is so simple in its construction as to require but little practice in its use. There is no charge made for patent dues or license.

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A set of Three Draining Spades and Swan's-Neck, 1l. 1s.

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4 ft.	4 ft. 6.	5 ft.	6 ft.	7 ft. out of the ground.
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HAND GLASS FRAMES, HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principles, either of iron or wood and iron combined, which can be fixed complete with hot water apparatus for heating in any part of the kingdom.

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On and after the First of June,

THE DAILY NEWS,

LONDON MORNING NEWSPAPER,

AT

TWOPENCE HALFPENNY!

THE Newspaper is the intellectual life of the Nineteenth Century—the great agent of modern civilisation. Not to speak of the moral and political safeguards which it affords, it places all, whatever their varieties of fortune and position, on a level as to information. By its means only the small capitalist is enabled to contend successfully against his wealthy rival for a knowledge of those changes which affect supply and demand—and therefore prices. Without the daily Newspaper, a man and his family might be located as well in the back settlements of Canada as within ten miles of the great centre of European Civilisation. These facts are felt—the gain is understood—and the number and character of the Newspaper press of any country are an admitted test of the enterprise and intelligence of the people. It is remarkable, then, that more than a century since, there were *eighteen* papers published in London, daily or three times a week—while now there are only *fifteen!* though the population of to-day bears a ratio to that of the period in question of more than 3 to 1; and, by means of the post and other facilities, the whole kingdom has been brought within the easy range, and under the direct influence, of the London press. *In the single City of New York, more daily papers are published than in all England, Scotland, and Ireland, put together. The circulation of papers in Paris exceeds that of London twenty-fold. How is this? Of a fact so startling, where lies the explanation; what is the cause?*—PRICE!

That the public know the advantage of having a Daily Paper is manifest, from the thousands and tens of thousands who pay twopence for an hour's reading, and threepence for a paper the day after publication. What, then, are the causes which maintain the high price? First, the amount of capital required to be invested in a Newspaper speculation—with whose extent and proper application the man of business and the capitalist are for the most part unacquainted. Next, the various talent, knowledge, and experience which must combine to produce the result. The number and greatness of the requirements have, in truth, occasioned something very like a monopoly—and monopoly always commands its own price. Thus, whilst energy, enterprise, capital, and competition have been doing good service in all other things, including literature in various branches, nothing has been attempted, in the direction indicated, for the political, social, and intellectual wants of three great nations—and a Daily Paper still remains a costly luxury, in which only the wealthy can indulge.

IN PARIS WITHIN THE LAST FIVE YEARS A REDUCTION OF ONE-HALF OF THEIR OLD PRICE HAS BEEN MADE IN THE MOST DISTINGUISHED JOURNALS, AND SUCH AN ATTEMPT IN LONDON DOES NOT SEEM TO HAVE BEEN THOUGHT OF.

[1] . . . τούτων οὖν ἰσομένων, καὶ τῶν δέκα δακτύλων τῆς εἰκόνος εἰς δημοκρατὸ τέταρτον, οὐ ἐπλήγη ἡ κεφαλὴ καὶ πάλιν ἐθιραπεύθη, διὰ τὸ καταλυθῆναι αὐτὴν, ἢ καὶ ἀτιμασθῆναι, καὶ εἰς δέκα διαδήματα ἀναλυθῆναι· ὃς τότε παν-

[1] . . . τούτων [2] . . . τοῦτο σημαίνει, ὅτι κατὰ τὸν Αὐγούστου νόμον, ἀφ' οὗ καὶ ἡ βασιλεία τίας χωρησάντ Ῥωμαίων συνέστη, οὕτω καὶ αὐτὸς κελεύσει καὶ διατάξει ἅπαντα ἐπικυρῶν, λείας μερισθέν διὰ τούτου δόξαν ἑαυτοῦ πλείονα περιποιούμενος. Τοῦτο γάρ ἐστι τὸ θηρίον

Its success depends upon the Public. In the first instance, however, it was necessary to prove that the projectors are capable of competing with the high priced—that in energy and ability they are able to perform all that is required, and of this the Public have now had sufficient experience. THE DAILY NEWS appeared in January last, and no one has hinted a suspicion that it is inferior to its contemporaries in any respect. The time has now come when the proprietors are prepared to develope their plans; whatever has hitherto attracted public favour to their enterprise, will be continued and extended, and, working in the spirit of the age, they will publish,

On the First of June,

THE DAILY NEWS

At Twopence Halfpenny.

The Paper will be of the same size as all other journals were within seven years; it will be larger than many of the high-priced daily journals are now; and, in every particular of interest, it will contain as much information as the most successful amongst its contemporaries. But it will be expansive; and double sheets will be given whenever an important Debate, a pressure of News, or Advertisements, seems to require it.

THE DAILY NEWS, therefore, will contain everything that is to be found in other journals; and all accounts of Markets—all trade information—will be so arranged that the merchant and man of business shall find what he wants always, as nearly as possible, in the same place, and in the fewest possible words. The modern newspaper has not been devised and planned as judgment might have originally directed, but has grown up under circumstances which it could not control; and the establishment of a new paper affords the opportunity for a revision, which shall effect a saving of the reader's time, and present the information which he seeks in a more systematic form.

The Daily News will be published in Time for the Morning Mails.

LET US REPEAT THE MARKING FEATURES OF OUR SCHEME. 1st. We give to the reader, in what we hope will be an improved and more convenient form, all that he can find in the most approved of our competitors; enlarging always our surface to embrace whatever of unusual interest the times may present. The difference between them and us will be only in that host of Advertisements, which we too will be happy to give in an additional sheet whenever the public shall supply us with the occasion. 2ndly. To the reader who now pays Fivepence for his paper, we offer the same thing at half the price; and to the man who hires his paper, a paper of his own at about the cost of the hire. It, then, only remains for the public to justify the experiment; remembering that their interest in the issue is no less than our own.

Let him who would support us in this seasonable attempt, subscribe *at once*. Where even the reduced price is beyond his means, let him *at once* join with a friend or neighbour in subscription. If, again, these friends can arrange with others in the country to receive the paper, by post, on the day of publication, at half price, the cost to each, of the New Daily Paper, will be little more than one *halfpenny*.

Every News Agent, will, we hope, supply the paper at Twopence-halfpenny, *where payment is made in advance;* the same proportionate allowance as with other papers—something more than twenty-four per cent—being allowed by the proprietors to the trade. When credit is given, it is a matter of private arrangement, with which the proprietors have nothing to do. As, however, in an undertaking so bold and so novel it is advisable to guard against possible inconvenience, the proprietors of THE DAILY NEWS will undertake to get all persons supplied who shall forward a post-office order payable to JOSEPH SMITH, DAILY NEWS OFFICE, Whitefriars, London.

For THREE MONTHS . . . 16*s.* 4*d.*

Let all who are interested in the success of this undertaking—and who is not?—be active, and success is certain.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT BRADBURY, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5 Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed.—Saturday, May 23, 1846.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 22—1846.] SATURDAY, MAY 30. [PRICE 6d.

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GARPINERS' BENEVOLENT INSTITUTION An ELECTION of FOUR PENSIONERS on the Funds of this Charity will take place on WEDNESDAY next 3d June, at the London Coffee House, Ludgate Hill from annon, the following Candidates whose testimonial &c have been examined and approved of by the Committe

John Adamson	4th application	aged	69
Barney Lately	4th		60
John Carnell	4th		79
Christopher Gibbons	4th		60
James Everest	3rd		62
William May	3rd		57
William Havers	2nd		73
Edward Marshall	2nd		65
Ann Platt	2nd		63
Henry Riches	2nd		71
Francis Chamberlain	1st		6
John Mc	1st		8
Sarah Spurs	1st		6

The Chair will be taken at 12 o'cl k precisely By order

97 Fa rin don street London Edward Cutler Sec.

SMITH'S FUCHSIAS BEAUTY OF DALSTON AND ENIMA

JOHN SMITH, NURSERYMAN, Dalston, Middlesex, begs to call attention to his Advertisement of the above in the *Chronicle* of the 18th of April post stamps, plants are now being sent out at 10s 6d each An allowance to the trade when three of either sire taken at once

Vesuvius and Queen Victoria in flower 5s and upwards

The above may be seen in flower at the Nursery Dalston May 30

THE FUCHSIA CHALLENGE

MESSRS. LANE & SON having observed, with some surprise in the *Chronicle* of Saturday last that Mr HALLY charges them with having unwarrantably asserted that their Fuchsia MRS LANE is the best of the season they are induced in justice to themselves to repeat that such was proved to be the fact at the late Chiswick show it being awarded the First Prize upon that occasion Messrs L & Son cannot consider that they have acted unfairly in exhibiting their Fuchsia, and which exhibition and award fully warranted the assertion complained of inasmuch as they would have been glad to have seen the beautiful EMPRESS in playful competition with MRS LANE at the time alluded to and they take this opportunity of saying that should the stakes be given away from them at the forthcoming show they shall not lose their temper with their money, all they desire is, a fair stage and no favour and may the best production be declared the winner Great Berkhampstead May 30

BLACK informs the Public that the various Articles manufactured by him in Slate for Horticultural purposes, may be seen in use at Worton Cottage, Isleworth, upon application to the gardener (*Sundays excepted*)

KNAP HILL NURSERY, near Bagshot, 4½ miles from the Woking Station, South Western Railway

HOSEA WATERER begs to announce the AMERICAN PLANTS are now in bloom, and may be seen any day except Sunday gratis The Woking Station is within an hour's ride of London, and there are always conveyances to be obtained from it to the Nursery —30th May, 1846.

H. GROOM, CLAPHAM RISE, near LONDON (By APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY), begs to say his Catalogue of GERANIUMS AURICULAS, LILIUM LANCIFOLIUM, and NEW PLANTS is ready, and will be forwarded by post on application

H. G. has a fine stock of CARNATIONS and PICOTEES. His Anemones are now in flower, and may be viewed every day from 9 o'clock until 6, Sundays excepted Admittance Gratis

*** Foreign orders executed.

CHRYSANTHEMUMS

CHANDLER AND SONS, NURSERYMEN, Vauxhall, are now sending out strong healthy plants of CHRYSANTHEMUMS, of fine and good sorts, at 12s per dozen The young plants are in good order for packing for the country

A list of the sorts, with a description of the colours, may be had on application.

CLODDIGES & SONS, HACKNEY, have now ready for delivery a limited number of superb Plants 2 feet high very bushy of RHODODENDRON ROBUSTUM a new species from the Himalayan Mountains perfectly hardy and of magnificent foliage Price 5s each A remittance will be expected with orders from new correspondents

FOR SALE, about 27 cwt of BEET ROOT SEED, recently landed per Spy from Caphalonia — Samples and further particulars to be had of ARTHUR PEVAS COLE and HARRIS Brokers 40 Lower Thames street

THE NEWEST AND VERY BEST FUCHSIAS, VERBENAS, PETUNIAS, &c

DELIVERED IN PERFECT ORDER PER POST FREE, TO ANY PART OF THE UNITED KINGDOM

YOUELL AND CO are now sending out per post, free, their

NEW AND SUPERB WHITE FUCHSIA "SANSPAREIL" 10s 6d per plant

Or with 11 other new and beautiful varieties for 21s

YOUELL AND CO beg to call the attention of cultivators of FUCHSIAS to the above Seedling which they will guarantee to surpass by any light variety yet raised and will give general satisfaction For particulars see their Advertisement of last week

Their 5 other fine Seedlings are now ready for sending out with Sanspareil and when the set is taken, will be charged 12 11s 6d

SELECT SEEDLING VERBENAS (raised 1845)

Exquisite Grandissima 10s 6d Celeste Bell Aurora Bell Auburn Bride and description of the above see their Advertisement of last Sat They are now ready for sending out, post free, otherwise it is the set

12 fine varieties	6s per dozen
12 fine ditto varieties	10s "
PANSIES fine varieties	10s "
Extra fine very superb first rate show flowers consisting of the best varieties in cultivation	18s "
PETUNIAS	9s "
CINERARIAS	12s to 18s "

ERICAS fine and free flowering sorts by name, 9s, 12s and 18s per dozen

CHRYSANTHEMUMS the best and newest sorts by name per post free 9s and 18s per dozen including 4 new species just imported from Chusan

30 packets of NEW and CHOICE FLOWER SEEDS per post free for 5s

Great Yarmouth Nursery May 30

DICKSONS NEW WHITE FUCHSIA, "ACANTHA Strong, plants of the above (which has been pronounced by all who have seen it to be decidedly the finest White variety ever raised) are now ready to send out Price per plant 1s the usual discount allowed to the Trade A very extensive and choice collection of Dahlias Geraniums Calceolarias Verbenas and Greenhouse and Hothouse plants &c &c Newton and Upton Nurseries Chester May 30

FUCHSIAS, VERBENAS DAHLIAS CHRYSANTHEMUMS CINERARIAS AND PANSIES

Per post to any part of the United Kingdom

S. WALTERS, Florist, Hilperton, Trowbridge, Wilts can supply the above in strong plants and best varieties Per doz —

Fuchsias in 12 varieties	4 0
Verbenas do	3 0
Dahlias do	4 0
Chrysanthemums do	4 0
Petunias do	4 0
Pansies do	4 0
Cineraria Bladud splendid each	0 6

At 1st of its excellence it has gained the first prize April 1 and the first prize May 1 at the Bath Horticultural Show Can be obtained at 6 Pearl shall street or at the above address

F. C. BALL successor to Mr JOHN YOUNG begs to announce that he is prepared to execute orders immediately in strong plants from any of the undermentioned Early orders are solicited to secure fine Plants

NEW SCARLET PELARGONIUM "HONEYMOON" very dwarf spreading habit and well adapted for bedding. See Dr Lindley's opinion see *Gardeners Chronicle* 1844 p 595 "Your Seedling scarlet is of a very rich and intense colour The trusses are very large and compact the one sent containing from 20 to 30 buds and flowers Plants 1s 6d

RHODODENDRON "CAMPANULATUM PICTUM" See *Gardeners Chronicle* 1845 p 195 "Your hybrid form Campanulatum is a large and handsome flower white ground having the margin of the segments tinged with delicate blue and the interior of the upper division of the corolla strongly spotted with maroon The blooms sent indicate a very ornamental variety" Strong plants 2½ each

PELARGONIUM "MARIA" very fine large rosy purple See *Gardener Chronicle* 1845, p 532— "Your Seedling is an improvement on many of the same rosy purple colour and is a bright and pretty variety Fine plant 1s

LOBELIA FULGENS MULTIFLORA See *Gardeners' Chron.* 1844 p 592—"Your Seedling Lobelia is a very handsome variety The flp is large and broad of a rich and dazzling scarlet" some of the spikes of flower measuring from 12 to 18 inches in height Plants 1s 6d each 15s per doz

Taxodium sempervirens 6 to 9 inches	10s 6d.
Lycopus pinnatifida	5 0
Alum coelatis	2 0
Veronica spectosa	2 0
Stachys inodora, recommended for bedding, at, per dozen	9 0
Andrococca ciliatifolia	3 0
Fuchsia serratifolia	3 6
Calceolaria floribunda, for bedding	3 6
Roses, two species, Chusan, each	3 6
Do one do Amoy	3 6

With a few plants to compensate for carriage An allowance to the Trade.—Taunton Nurseries, May 30.

MESSRS J AND H. BROWN inform the Nobility and Gentry they are now sending the following desirable plants to any part of the United Kingdom

Dahlias, all the newest and best sorts in cultivation	5s per 100	or 1	0 per doz.
Fuchsias 50 of the most approved show sorts		3	0
ditto, 25 ditto ditto		1	6
Verbenas and Petunias the newest and best sorts		4	0 per doz
Calceolarias and Cinerarias	6s and	9	0 "
Heliotropiums Pinks and Pansies		4	0 "
Dahlias upright and training varieties		6	0 "
Salvia Patens Fulgens Variegata and 4 others		6	0 "
Pentstemons 6 sorts		6	0 "
Potentillas 6 sorts		6	0 "
Phloxes 18 sorts		6	0 "
Antirrhinums 6 sorts		6	0 "
Gnothera Lamarckiana and 4 others		6	0 "
Catananche bicolor		4	0 "
Gazania 4 sorts		8	0 "
Oxalis floribunda		8	0 "
Campanula Cattli and Dwarf varieties		6	0 "
Alstroemerias 6 sorts		1	6 each
Iberis semperviren		8	0 per doz
Scarlet flowering Stachys moderna		9	0 "
Gaillardia coccinea and others		6	0 "
Scutellaria splendens and Puthalis macrophylla		8	0 "
Anagallis Brewerii Grandiflora and Bicolor		6	0 "
Bouvardia splendens Flava Angustifolia, and Strigosa		8	0 "
Double blue Tree Violet		2	0 each.
Linum flavum		6	0 "
Chrysanthemums choice sorts		6	0 "
Scarlet and other Geraniums		4	0 "
Variegated		4	0 "
Duke of York new strong grower		2	6 each.
Perpetual Queen fine new scarlet		6	
General Tom Thumb	1s each or	9	0 per doz.
50 superior specie of Herbaceous and Rock Plants		20	0
25 ditto ditto ditto		10	6
Tea scented Roses (in pots) one of a sort including Lusus Sauvage D Mont Belle Allamand Bride of Abydos Devoniensis &c		12	0 per doz.
Cloth of Gold Noisette Rose		1	6 each
12 superior varieties of Climbing Roses		8	0 per doz.

HARDY CLIMBERS

Cobaea Maurandyas Tophospermums, Calampoeis and Rhodochiton		1	0 "
Clematis azurea grandiflora		2	0 each.
Do Bicolor Sieboldii and Double Purple		1	6 "
New Scarlet Trumpet Honeysuckle		2	0 "
New Yellow Honeysuckle		2	0 "
Double Red Pomegranate and Solanum crispum		1	6 "
Wistaria sinensis and Passiflora of sorts		1	6 "
Jasmines of sorts Aristolochia Virginian Creeper Variegated Ivy Buddlea globosa, and New Blue		1	0 per doz

Greenhouse and Stove Plants in great variety

Fuchsias Petunias Verbenas and many other plants are sent by post pre paid Foreign commissions for Seeds and Plants of all kind carefully executed

Albion Nursery Stoke Newington London May 30th

CURTISS BUDDING KNIFE—"This is the neatest Budding Knife we have seen the ivory handle is shaped like the blade of a curved Penknife sharp and turned up at the point and is excellently extremely well contrived for the purpose it is intended *Opinion of Professor Lindley* in *the Gardeners' Chronicle* July 20 1843

GEORGE PLUM Surgical Instrument Maker and Cutler No 37 Strand London, and at No 3 Dolphin street Bristol, begs to call the attention of the public to the above desirable article Sent free to any part of the kingdom on receipt of 38 penny postage stamps or a post office order for 1s 2d

G P cautions Floriculturists and the Public in general against numerous imitations of the above article he being the only appointed Manufacturer

COOPER'S PATENT PRESERVED FRUITS—have been proved to keep in a sound and perfect state for family use for five years An assortment of fruits that are usually preserved Raspberries and Currants, Cherries Greengages Gooseberries Damsons &c are put in stone ware bottles of different sizes fixed with glass a machine cork-screw to draw the cork with the whole particulars of the patent process and testimonials, are packed in a hamper and will be delivered at any part of London for TEN SHILLINGS by an order addressed to the Patentee at the Manufactory, 7 the upper part of St. John street, Clerkenwell, London These Fruits are presumed to be of a superior quality to any ever before offered for public notice, one trial will prove their excellence The Plants, &c, contained in these packages have been considered a desirable and acceptable present for country friends as they contain much modern information for the preservation of fruits



The Patent Apparatus for preserving of Fruits is now on Sale at the Manufactory as above

GENUINE HARE RABBITS—THE LARGEST AND FINEST BREED IN THE KINGDOM

This large, beautiful and scarce variety (the colour of the hare) has great length and depth of carcase, great width and substance of loin, long erect ears, and weighs, when at maturity from 16 to 18 lbs As hardy and prolific as the common or wild rabbit from one to two months old, 12s per pair, three to four months 18s Free to London

Apply to Mr JOHN BRITT, Market-place, Great Yarmouth.

DUTY OFF GLASS

HOTHOUSES, CONSERVATORIES, &c., made and fixed Complete in all parts of the Kingdom at a considerable reduction One two and three light Cucumber and Melon Boxes, and Lights of all sizes kept ready for immediate use, packed and sent to all parts of the Kingdom, warranted best material Two light Boxes and Lights complete, from 1l 8s. Garden lights made and glazed from 1s per foot, at JAS WATTS's Sash Manufactory, Claremont-place, Old Kent-road. Reference may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

ROYAL BOTANIC SOCIETY REGENT'S-PARK EXHIBITION, MAY 20th, 1846.

AWARDS OF THE JUDGES.

The First Gold Medal.—To Mr. Fraser, Nurseryman, Lea-bridge-road, for 30 Stove and Greenhouse Plants; to Messrs. Rollisson and Sons, Nurserymen, Tooting, for 15 Exotic Orchids.

The Second Gold Medal.—To Mr. Barnes, gr to G. W. Norman, Esq., Bromley, for 30 Stove and Greenhouse plants; to Mr. Hunt, gr to Miss Traill, Bromley, for 20 do., also for 10 Exotic Orchids.

N.B. Mr. Rae, gr to J. J. Blandy, Esq., Reading, would have been entitled to the Second Gold Medal, for Orchids, but his collection was disqualified on account of its containing more than the specified number of plants.

The Third Gold Medal.—To Messrs. Lucombe, Pince, & Co., Nurserymen, Exeter, for 20 Stove and Greenhouse plants; to Mr. May, gr to E. Goodhart, Esq., Beckenham, for 15 Heaths; to Mr. Plant, gr to J. H. Schroder, Esq., Stratford, for 15 Exotic Orchids.

The First Silver-Gilt Medal.—To Mr. Green, gr to Sir E. Antrobus, Bart., Cheam, for 10 Stove and Greenhouse plants, also for 6 tall Cacti, and another for 6 Exotic Orchids; to Mr. Barnes, for 15 Heaths, to Mr. Don, gr to F. G. Cox, Esq., Heathwell, for 10 Exotic Orchids; to Mr. Cock, jun., Chiswick, for 12 Pelargoniums (in 8-inch pots); to Mr. Dobson, gr to Mr. Beck, Slate-works, Isleworth, for the same; to Mr. Parker, gr to J. H. Oughton, Esq., Roehampton, for the same (in 11 inch pots); to Messrs. Lane & Son, Nurserymen, Berkhampstead, for 12 Roses in pots.

First Silver Medal.—To Messrs Fairbairn, Nurserymen, Clapham, for 12 Heaths; to Mr. Fraser, for 8 Azaleas.

Second Silver Medal.—To Mr. Pamplin, Nurseryman, Walthamstow, for 20 Stove and Greenhouse plants, to Mr. Ayres, gr to J. Cook, Esq., Blackheath, for 10 Stove and Greenhouse plants, to Mr. Clarke, gr to W. Block, Esq., Muswell-hill, for 8 Stove and Greenhouse plants; to Mr. Hunt, for 15 Heaths to Mr. Green, for 6 Heaths, to Mr. Gaines, Nurseryman, Battersea, for 6 Calceolarias also for 12 Pelargoniums (in 32 inch pots), to Mr. Catleugh, Nurseryman, Chelsea, for the same (in 8-inch pots); to Mr Staines, Middlesex-place, Kew-road, for do., to Mr Coysh, gr to R. Hudson, Esq., Clapham, for 8 do.; to Messrs. Paul and Son, Nurserymen, Cheshunt, for 12 Roses in pots, to Mr. Slowe, gr to W. R. Baker, Esq., Bayfordbury-park, for 8 do

Second Silver Medal.—To Mr May, for 10 Stove and Greenhouse plants; to Mr. Kaye, gr to B. D. Colvine, Esq., Norwood-house for 6 do.; to Mr. Clarke, for Pimelea spectabilis; to Messrs. Lucombe, Pince, & Co., for Erythrochiton brasiliensis (new plant in bloom), to Mr Robertson, gr to Mrs. Lawrence, Kelvin-park, for Pavetta bonbonica (new plant not in bloom); to Mr. Malyon, gr to T. Brandram, Esq., Blackheath, for 6 Heaths; to Mr. Roser, gr to J. N. Helling, Esq., Streatham, for do. to Mr. Barnes for 4 Azaleas; to Mr. Smith, gr to J. Anderson Esq., Regent's-park, for 30 British Ferns; to Mr Keith, Botanic Gardens, Chelsea, for 25 British plants (exogenous), also for 25 (endogenous); to Mr Garrod, gr to R. B. Farman, Esq Hampstead for 6 Calceolarias; to Mr. Kendall, Nurseryman, Stoke Newington, for 6 Fuchsias, to Mr. Robinson, gr to J Simpson, Esq., Chelsea, for do., to Mr. Dobson, for 12 Roses in pots; to Mr. Kaye, for 8 do., to Mr Catleugh, for 20 Stove and Greenhouse Plants, to Mr Gaines, for 12 Pelargoniums in 8-inch pots, to Mr. Waterer, Nurseryman, Knaphill, Bowsell, for 50 seedling vars. of hardy Azaleas (cut blooms), to Mr. Ayres, for 15 Heaths; to Messrs Rollisson and Sons, for 12 do.; to the Hon. and Rev. R. Wilson, Ashwell-thorpe, for a Stand of 12 Tulips.

The Third Silver Medal.—To Mr Kyle, gr to R. Barclay, Esq., Leyton, for 10 Stove and Greenhouse Plants, to Mr. Malyon, for 6 do., to Mr Green, for Ixora coccinea; also for 4 Azaleas; to Messrs. Rollisson, for Theophrasta Jussieua, to Messrs Lucombe, Pince, and Co., for Sarracena Drummondii, to Mr. Smith, for 12 rare Alpines, to Mr. Fletcher, gr to J. F. Young, Esq., Kennington-lane, for 30 Ferns; to Mr. Keith, for neat and correct Labelling, to Mr. Ansell, Hertford Nurseries, for 25 British plants (exogenous); to Mr. Williamson, Royal Bot. Gardens, Kew, for the same (endogenous); to Mr. Cannell, nurseryman, Brixton-hill, for 12 Heaths; to Mr. Taylor, gr to J. Costar, Esq., Streatham, for 6 do., to Mr Barnes, for a seedling Azalea, Conqueror, to Mr. Pamplin, nurseryman, Hornsey road, for a seedling Erica, ventricosa magnalba, to Mr. Wren, gr to J. Huskisson Esq., Holloway, for 6 Calceolarias, to Mr Gaines, for 6 Fuchsias; to Mr. Pawley, White Hart, Bromley, for the same; to Messrs. Smith and Co., nurserymen, Battersea, for 12 Pelargoniums; to R. Hornby, Esq., Pine-apple-place, for 8 do.; to Mr. Beck, Isleworth, for a seedling Pelargonium, Patrician, also for Competitor, and another for Hebe's Lip; to Mr. Miller, nurseryman, Ramsgate, for do., Mount Etna, to Mr. Kinghorn, gr to the Earl of Kilmory, for a seedling Calceolaria, Masterpiece, also for Emperor, and another for Oscar; to Messrs. Lucombe, Pince, and Co for a seedling Fuchsia, Corallina, to Messrs Norman, Florists, Woolwich, for a Stand of 12 Tulips, to Mr. Parsons, Nurseryman, Hertford, for 12 Roses in pots; to Mr. Turner, Florist, Chalvey, for a Stand of 24 Pansies; to Mr. Kaye, for 4 Cinerarias

The Bronze Medal.—To Mr. Slowe, for 10 Stove and Greenhouse Plants, to Mr. Taylor, for the same, to Mr. Chalmers, gr to A Janson, Esq., Walthamstow, for 6 do, to Mr. Vernon, gr to the Earl of Cornwallis, Linton-park, for Cattleya labiata; to Messrs. Lucombe, Pince, and Co., for Gomphocarpus nova sp., to Mr Wood, Nurseryman, Norwood, for 12 rare Alpines; to J. Alnutt, Esq., Clapham Common, for 4 Azaleas; to Mr. Louis, gr to P Hurd, Esq., Kentish-town, for 6 Calceolarias; to Mr. Gaines, for 4 Cinerarias, also for a seedling Fuchsia, Lord Hill; to Mr. Pawley, for a seedling Azalea, Gledstanesii formosa, to Mr. Smith, Nurseryman, Bornsey, for a Stand of 12 Verbenas; to Mr. Bragg, Florist, Slough, for 24 Pansies.

The Certificate of Merit. To Mr Barnes, for Aphelexis humilis; to Messrs. Fairbairn, for Erica ventricosa coc. minor; to Mr Pamplin, for Epacris grandiflora; to Mr. Busby, gr to S. Crawley, Esq., Stockwood-park, for Azalea in variegata; to Messrs. Lucombe, Pince, and Co., for Eriostemon buxifolius; to Mr. Gaines, for Thunbergia chrysops, also for Calceolaria Marquis of Bute, and for seedling do., Lord Hardinge, Lady Smith, and Aurea maculata, to Mr. Green, for Azalea, Bonnie red, to Messrs, Henderson, Nurseryman, Pine-apple-place, for Hydrangea japonica, to Mr Hoyle, Guernsey, for seedling Pelargoniums, Queen of Tyre, Lord Stanley, and Florist's Flag, to Mr. Beck, for do., Compactum; to Mr. Miller, for do., Vulgius; to Mr. Robinson, for a seedling Fuchsia Predominant; to Mr. Thomson, gr to Lady Gambier, Ivor, Uxbridge, for a Stand of 24 Pansies, and for a seedling Fuchsia, Saturlat

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. Neighbour & Son, that they have prepared, for the season an extensive supply of their various improved BEE-HIVES; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings of the Hives, will be forwarded on receipt of a postage stamp. The Depôt and Honey Warehouse, 127, High Holborn, Bloomsbury.

BEES, (9th Edition) just published.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists, and all interested in Gardening pursuits, are invited to examine G and J. DEANE'S extensive Stock of GARDENING AND PRUNING IMPLEMENTS, best London made Garden Engines and Syringes, Coalbrookdale Garden Seats and Chairs.

Averuncators	Garden Scrapers	Pruning Bills
Axes	Grape Gatherers and Scissors	,, Knives, various
Bagging Hooks	Gravel Rakes and Sieves	,, Saws
Bills	Greenhouse Doors and Frames	,, Scissors
Borders, various patterns	Hammers	,, Shears
Botanical Boxes	Hand-glass Frames	Rakes in great variety
Cases of Pruning Instruments	Hay Knives	Reaping Hooks
Chaff Engines	Hoes of every pattern	Scythes
Chaff Knives	Horticultural Hammers and Hatchets	Scythe Stones
Daisy Rakes	Hotbed Handles	Shears, various
Dibbles	Labels, various patterns, in zinc, porcelain, &c.	Sickles
Dock Spuds	Ladies' Sets of Tools	Sickle Saws
Draining Tools	Lines and Reels	Spades and Shovels
Edging Irons and Shears	Marking Ink	Spuds
Flower Scissors	Mattocks	Switch Hooks
,, Stands in Wire and Iron	Monographs	Thistle Hooks
Fumigators	Metallic Wire	Transplanting Tools
Galvanic Borders and Plant Protectors	Milton Hatchets	Trowels
Garden Chairs and Seats	Mole Traps	Turfing Irons
,, Loops	Mowing Machines	Wall Nails
,, Rollers	Pick Axes	Watering Pots
	Potato Forks	Weed Extractors and Hooks
		Wheel Barrows
		Youths' Sets of Tools

G. and J. DEANE are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with the Illustrated List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. DEANE'S Horticultural Tool Warehouse, opening to the Monument, 46, King William-st., London-bridge.

TO THE NOBILITY, GENTRY, NURSERYMEN, IRONMONGERS, AND OTHERS.

LINGHAM BROTHERS, 170, Little Hampton-street, Birmingham, sole Manufacturers of the IMPROVED MENOGRAPH, or Labels for Garden Borders, Flower Pots, &c. Engravings of the same, with prices attached, sent per Post to all parts of the Kingdom, on application as above.

Sole Agents in London, G. and J. DEANE, Horticultural Implement Warehouse, 46, King William st., London Bridge.

ORNAMENTAL WIREWORK FOR THE GARDEN.

G. B THOMPSON AND CO. beg respectfully to announce that they continue to prepare at their Manufactory, 390, Oxford-street, London, all kinds of Fancy Ornamental Wirework suited for the Garden, Greenhouse, or Conservatory, consisting of Flower Trainers, Stands and Borders, Garden Arches, Seats, and Vases, Improved Garden and Hothouse Engines Syringes, Fumigating Bellows, and other Floricultural Implements.

Also, G. B Thompson's Improved Waterpot, which possesses considerable advantages over all others, the smaller sizes being suitable for Ladies' use. They have now on sale a novel folding portable Wooden Garden Chair, at 3s. 6d. each, or 36s. per doz., which quantity is packed in a small space.

BRITISH AND FOREIGN SHEET AND HORTICULTURAL GLASS.

PHILLIPS AND WELCH have to announce to the Nobility and Gentry, that they have just concluded arrangements with J. Welch, jun., Phillips and Co., for the purchase of the business lately carried on by them, at 12, Panton-street, and beg to call attention to their extremely low prices for Horticultural Glass of every description

PRICES OF HORTICULTURAL GLASS:

Not above 40 in. long in width from 5 in. to 18 in.

No. 13 British or Foreign sheet
13 oz. to the foot .. .. 4d. per foot.
,, 16 16 ,, ... 5d. ,,
,, 21 21 ,, ... 7d. ,,
,, 26 26 ,, ... 11d. ,,
,, 32 32 ,, ... 1s. 2d. ,,

SMALL SQUARES.

Packed in 100 feet Boxes, not particular to thickness.

Under 5 in by 3 in. .. .. 14d per foot.
5 by 3 and under 6 by 4 ,, ... 2d ,,
6 by 4 ,, 9 ,, 7 ,, ... 3d. ,,

FOR GLAZING.

Black Cement, as used at Chatsworth. 24s. per cwt.
Best Linseed Oil Putty .. .. .. 10s. ,,
White Lead, Window Lead, Solder, &c. &c.

Horticultural Glazing Executed in any part of the United Kingdom.

The selection of Patent Plate, Sheet, and flatted Crown Glass for Pictures, &c., particularly attended to.—12, Panton-street, Haymarket.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Hothouses, Garden and other purposes.—R. C. having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:—

per gross.	per gross.	per gross.
6 in. by 4 .. 6s.	8 by 5 .. 13s.	9 by 7 .. 18s.
7 in. by 4½ .. 7s.	8 by 6 .. 14s.	10 by 8 .. 26s.

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, and GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists, apply to R. Cogan, Glass, Lead, and Colour Works, 48, Leicester-square, London.

IMPORTANT TO HORTICULTURISTS
THE ARTICLE GLASS.

MESSRS. DAINES AND BRADDOCK solicit the inspection of Glass Dealers, Horticulturists, and Builders, to an entirely new description of BRITISH SHEET GLASS, which, upon trial, will be found unequalled in strength, utility, and price, by any now in the market, for Sashes, and particularly Horticultural purposes: and by patronising this article the evil results attending the use of Foreign and other Glass of ordinary composition will be entirely avoided, as in manufacturing the above Metal great care and skill has been used to divest it of the slightest tendency to concentrate the rays of the sun, a fault in many cases ruinous to plants.

6, Farringdon-street, May 30.

N.B.—The best assortment of Coloured Glass in London.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at F. ELPHICK'S, 28, Castle-street East, Oxford-street. For ready Money only.

GLASS.—BRITISH AND FOREIGN PLATE, CROWN, AND SHEET GLASS WAREHOUSE, 49, Broad-street, Bloomsbury. (Established 1798.)

The Proprietor begs to inform his Friends and the Horticultural Public that he has on hand a large Stock of British and Foreign Sheet and Crown Glass of a very superior quality, and such as he can confidently recommend from its equality of surface, complaints having been repeatedly made, since the duty has been taken off, of the inequality of the surface of Glass which has been used for Hothouse purposes. It is now a well-known fact that irregularities or heights and dents on the surface of Glass are found to act as a lens, concentrating the rays of the sun, and thereby injuring the more delicate plants.

Superior Sheet Glass, weighing 16 oz. to the square foot, from ..... 5d. to 6d. per foot
Ditto, ditto, 21 oz. to the square foot 7 to 9 ,,
Thick Crown Glass, from ..... 2 to 6 ,,
Violet-coloured Crown..... 7 to 9 ,,
} According to size.

The Proprietor has also on hand an inferior quality of Sheet Glass, varying from 13 oz. to 16 oz. to the foot, from 3½d. to 4d., to use which for Greenhouses or Conservatories would be mistaken economy, experience having proved to us the positive injury produced by its use for Horticultural purposes, being suitable only for windows and skylights in inferior buildings.

The most economical Glass to be used with safety to the plants is Crown, in sizes from 6 by 4 to 8 by 6, both to the first expense and in repairing; some people forget that large panes of glass break as well as small ones, and the larger the piece the greater the chance of its breaking.

Glazing done in any part of the country by contract, or at so much per foot.

ALEXANDER MARSHALL, 49, Broad-st., Bloomsbury, London

GLASS FOR CONSERVATORIES.

APSLEY PELLATT AND CO., Falcon Glass Works, Holland-street, Blackfriars, are prepared to supply (in quantities not less than 100 square feet), SHEET AND CROWN GLASS OF BEST QUALITY, at the following *Net Cash Prices*,—

Any size under 40 ins. long.	Per square foot.
13 oz. weight per foot	4d.
16 oz. ,, ,, ...	5
21 oz. ,, ,, ...	7
26 oz. ,, ,, ...	11

SMALL Squares from 5 ins. by 3 ins. up to 10 ins. by 8 ins., from 1½d. to 3d. per square foot.

N.B.—The 16 oz. is full strength for Greenhouses.

EDWARDS & PELL, FOREIGN GLASS IMPORTERS, 15, Southampton-street, Strand, have received a large supply of Striking Glasses of an improved form, varying from 7 inches diameter by 6 inches in height to 2½ inches diameter by 2 inches in height, in clear white glass, and very strong

EDWARDS & PELL continue to supply very superior Glass for Conservatories, &c., on very low terms. Their Glass is very stout, clear, and free from blisters.

GLASS MILK PANS for Dairies.

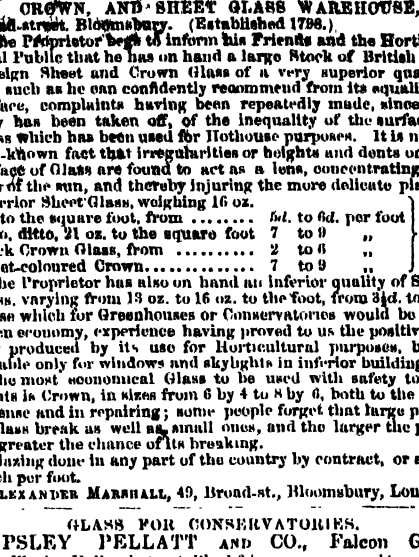
FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

WASP CATCHERS.

UNDERWOOD, Cutler to Her Majesty, 56, Haymarket, begs to inform Amateurs, Gardeners, Nurserymen, and others, that he has just completed a number of WASP CATCHERS, from 6 to 12 inches in square and oval shapes. It is well known that every Wasp caught in this month is the destruction of a whole nest, therefore an early application of this useful article is recommended. A large assortment of improved Budding Knives, Pruners, &c., always ready.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—150, Fleet-street, London.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

HORTICULTURAL SOCIETY OF LONDON.—EXHIBITIONS AT THE GARDEN.—The next Meeting will take place on Saturday the 13th of June; subjects for Exhibition must be at this office on Friday the 12th, or at the Garden before HALF PAST EIGHT o'clock, A.M., on the day of Exhibition.

The gates will be open to Visitors at One, P.M. Tickets are issued to Fellows at this office, price 5s. each; or at the Garden, in the afternoon of the days of Exhibition, at 7s. 6d. each; but then only to Orders from Fellows of the Society.

N.B. No Tickets will be issued in Regent-street on the day of Exhibition.—21, Regent-street.

ROYAL BOTANIC SOCIETY REGENT'S-PARK. The Second EXHIBITION this season of PLANTS and FLOWERS in the Gardens of this Society, will take place on WEDNESDAY next, the 3rd of JUNE. In the course of the day the three Military Bands will join and perform the following Overtures—"Yelva," by Reisiger; "Freyschütz," by Weber; "Don Giovanni," by Mozart.

Subscribers to the Society are admitted free. Visitors are admitted by Tickets, to be obtained at the Gardens only by orders from Subscribers; price, until the day, 5s. each, or on the day of Exhibition, 7s. 6d.

Promenades will continue to be held every Wednesday in June and July, except June 3rd and July 1st, the day fixed for the last Exhibition. Fellows of the Society have the privilege of admitting Two Visitors each to the Promenades.

Gates to open at 2 o'clock. Carriages to fall into the line in the road from Park-square, over the bridge facing York-gate, to set down either at the Front Gate or at the New North Entrance communicating with the Conservatory.

THREE SPLENDID NEW SEEDLING PETUNIAS, distinct varieties, colour and shape very good, have been inspected and approved of by Dr. Lindley (see *Gardeners' Chronicle*, July 5, 1845), and many good judges in the trade:—

P. ATTRACTION, Convolvulus-shaped, beautiful pink, with pencilled centre, 3s. 6d. each.

P. ENCHANTRESS, crimson pencilling upon a peach ground, fine, and very pretty, 3s. 6d. each.

P. ALLIWAL, a splendid large, well-formed rich crimson variety, 3s. 6d. each.

New Seedling GERANIUM, SIR HARRY SMITH, brilliant scarlet, with rich black eye—this bold and attractive flower merits a place in every good collection—7s. 6d each.

Best mixed Geraniums for bedding out, 6s. and 9s. per dozen.

Applications, including post-office orders, will be immediately executed.—Direct to MICHL. BARWER, Nurseryman, London-road, Cambridge.

N.B Choice Cineraria and Petunia Seed, saved from the best sorts, 2s. 6d. per packet.

R. B. BIRCHAM, Hedenham Rosery, Bungay, Suffolk, has now ready to send out the Best Varieties of PERPETUAL and BOURBON ROSES, in pots, fit for transplanting into borders, to form beds of Perpetual Roses.

12 good varieties . . . . . 18s.
12 most superior . . . . . 30s.
New and scarce varieties from 3s 6d. to 5s. each.

A descriptive Catalogue sent, upon application. One or more Plants will be added *gratis*, to compensate for long carriage. Carriage paid to London, per Norfolk Railway.—May 30.

The Gardeners' Chronicle.

SATURDAY, MAY 30, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS

MONDAY,	June 1	Entomological	8 P.M.
TUESDAY,	— 2	Horticultural	3 P.M.
		Linnean	8 P.M.
WEDNESDAY,	— 3	Royal Botanic Gardens	2 P.M.
		Society of Arts	3 P.M.
FRIDAY,	— 5	Botanical	8 P.M.
SATURDAY,	— 13	Horticultural Gardens	1 P.M.

THE Vice-Secretary of the Horticultural Society will be much obliged to gentlemen having communications for the next Number of the JOURNAL OF THE SOCIETY, if they will forward them without delay to him at 21, Regent-street, London.

AN alarm has arisen among some of our correspondents as to the state of various kinds of plants in which they think that symptoms of UNUSUAL DISEASE are appearing; and they are apprehensive lest such general affections in the vegetable world should be forerunners of like plagues in the animal. The best way of dealing with these cases seems to be to take them separately.

A gentleman living near Sevenoaks sends specimens of a Lilac whose young shoots are dying off irregularly. "I first noticed it," he says, "yesterday, and forty-eight hours seem to complete their destruction; the gangrene seems to begin just above the bud. My gardener had seen it the day before, and has called my attention to the common Laurels, many of which in various aspects and situations are also affected; in these the disease manifests itself *first* in the *leaf*. The Portugal Laurel also is partially affected in the same manner, and I detect the same disease in the shoots of the Yew. Neither wind nor frost, nor any accidental or local cause exists to account for it." The specimens here alluded to consisted of Lilacs and common Laurels. Their young leaves and shoots were dying back, after becoming spotted, much in the manner of the Potatoes, and here and there the lowest part of the shoots next the old wood was black and brittle, exactly as in the Potato haulm next the old tuber. No fungi were visible externally. The old wood of the Lilacs next the dying shoots was brown and decayed, and the evil looked as if it would spread, backwards or downwards. These are, no doubt, unusual symptoms, and in the Lilac not such as would be referred to the action of frost in usual years. We suspect, however, that the appearances were really so produced, and that the anomalous symptoms are caused by the very insufficient manner in which the wood of most plants was ripened last autumn. In many places the common Laurel was half bleached, instead of acquiring its rich green colour; and wherever the yellow shoots have pushed, there seems a great tendency to perish under the least impediment to free growth, such as would be caused by unobserved frost in the early morning, or even by a dry wind. We have not, however, succeeded in finding Lilacs or Yews in the state described by our correspondent, and conclude that, so far as they are concerned, the affection is local. Roses are much injured. In all such instances the dying shoots should be removed along with 3 or 4 inches of sound wood below the disease.

Another correspondent, near Clonmel, finds his Peach-leaves shrivelling up and going off, on trees planted with all possible care in November, 1844. We entertain little doubt that the cause is the same in this case. The season of growth in Ireland last year rendered it impossible for plants like the Peach to ripen their wood perfectly in such a climate. The yellowness of the Laurels, the want of blossom-buds on the Indian Rhododendrons near Dublin, were unequivocal symptons of the badness of the season. In this case the diseased appearance will, probably, disappear as the warm season advances; and if we have plenty of sunshine now, healthy leaves may be looked for hereafter, unless the wood should be so unripe as to become gummy and cankered. Our Clonmel friend will do well to lay in no more wood than he wants, and to keep the new shoots nailed close to the wall as fast as they grow. He should also have cut out in the winter-pruning all the soft spongy shoots of last year's growth.

To the same cause (that of badly-ripened wood of last year) seems referable a disease that has appeared among Coniferous plants. Mr. AYRES, of Brooklands, says that, at Blackheath, the whole of the foliage is falling off the Spruces and Larches; and though a few new branches are breaking out, their numbers are so few, that the trees must be removed. "At this place (Brooklands) a number of the most healthy young trees will in a few days be complete skeletons, and I noticed the same thing happening to large trees of 20 or 30 years' growth on the estate of Colonel LONG, at Bromley-hill, in this county. Mr. WILSON, the land-steward of W. PIGOTT, Esq., of Dullingham-house, Newmarket, informed me the disease has seized the Spruces in that neighbourhood." A similar complaint comes from a writer near Wrexham, with whom Larches, from 4 to 12 years old, are dying off this season. He has some hundreds affected. The disease seems to prevail mostly among trees of the age above mentioned. In a plantation, about 30 years old, not one appears to be affected. The leaders and most of the upper branches are quite bare of leaves; and the lower ones seem scorched, and only just alive. These trees have *hitherto grown very rapidly*. He has three or four Silver Firs dying in the same manner; but he does not see any other species of tree so attacked.

We do not recognize in these symptoms anything incompatible with a watery condition of last year's wood; arising, not so much from excess of water in the autumn, as from want of sunlight and heat to carry it out of the system. Under such circumstances it may be easily conceived that the resinous secretions necessary to the health of Coniferous trees were inadequately deposited, and that now, when growth recommences, the young leaves cannot find in their neighbourhood their food (or organizable matter) in such a state that they can assimilate it. The result of that must necessarily be that the foliage will drop off, and the probability is that in such cases the wood will die back, or prove permanently diseased.

We have offered these remarks because, while we feel it our duty to point out dangers that really exist, we have no desire to see persons needlessly alarmed, as we believe those to be who dread, in such symptoms as have been described, the advent of disasters of which the Potato murrain is but the forerunner. We cannot say that we perceive at present any ground for uneasiness. We doubt indeed whether the cases which have been brought under our notice would have excited attention if it had not been for the alarm that exists respecting the mysterious destruction that has overtaken the Potato.

While, however, we thus desire to guard our readers against undue apprehensions of evils not likely to arise, we must not conceal the fact that a disease apparently identical with that of the Potato has broken out among the Yams in Jamaica. We know not to what extent this has gone, but we have in our possession specimens for which we are indebted to Mr. BECKFORD, of Upper Portland-place, which place the fact beyond a doubt. It is important, moreover, to remark that the disease has assumed that virulent putrid form which existed so largely in Ireland. We cannot then but dread lest the food of the West India Islands may be destroyed like our own, and lest the sufferings which have been experienced by the poor people at home should be about to be transferred (?) to our colonies. Such a calamity would be the more severely felt there in consequence of the advance of the Potato disease, which is evidently increasing in other countries whatever the event may prove with us, for in Lisbon, which last year was almost uninfected, the young Potatoes are *already* attacked to the extent of one-sixth, as is proved by the samples now on sale in London.*

WE do trust that the movement that has now been made at Cambridge, to which we last week alluded, will be productive of some solid advantage to the general cause of public education.

We now find that at an adjourned Meeting for the purpose of considering the subject of the NEW BOTANIC GARDEN, Dr. CLARK was called to the Chair; and the following Resolution proposed by the Master of Christ's, and seconded by Dr. PAGET, was passed unanimously:—"That the proposal for submitting a Grace to the Senate for the appointment of a Syndicate, according to the Resolution passed at the last Meeting, be deferred; and that in the mean time a Deputation, consisting of the Chairman, the Master of Christ's College, Dr. F. Thackeray, Dr. Paget, Professor Henslow, Mr. Romilly, Mr Power, Mr Hopkins, Mr. Williamson, Mr. Smith (Caius), Mr. W. Stokes, Mr. Babington, Mr. Sykes, and Mr. G. Stokes, be requested to wait upon the Vice-Chancellor, for the purpose of ascertaining whether he would be willing to propose a Grace to the Senate for appointing a Syndicate to consider in what manner Funds may be raised, which will secure to the University a surplus annual income, sufficient to admit of the execution, from time to time, of Works of general improvement connected with the usefulness and splendour of the University; including primarily the formation of the New Botanic Garden, as an object of immediate exigency."

Let us hope that the Vice-Chancellor will readily comply with this moderate and, indeed, necessary proposition. His acquaintance with Cambridge studies must tell him that it is hardly reasonable, at the present day, to refuse all aid to science, or, we should rather say, all aid to students who would prosecute science, in the greatest of our English Universities. We will not do him the injustice to suppose that he personally wishes to render perpetual the system of offering hundreds of thousands of pounds per annum in premiums for the study of classics and mathematics, as is really the case so long as all masterships, bursarships, scholarships, fellowships, and other *ships*, if there be others, (to say nothing of preferments,) are filled from the ranks of these two pursuits. He, we are sure, regrets, as much as ourselves, that, in such a University as Cambridge, the only reward assigned for the promotion of Botany should be the miserable stipend of 177*l.* 6*s.* 10½*d.*, which has been successively paid to four individuals in about a century and a half.

For ourselves, we entertain no doubt of the result; the stream of Cambridge opinion has begun to flow in the true direction, and nothing can prevent its accumulating force overthrowing all the barriers which supineness or prejudice (and there are no others) can oppose.

SELECT PLANTS FOR BEDDING OUT, &c. IN FLOWER-GARDENS.

(*Continued from page* 316.)

16. *Campanula Barleri?*—This, probably, is the finest of our dwarf or creeping species of bell flowers. It is a half-shrubby evergreen perennial, requiring a dry frame or cool greenhouse, with protection from frost in winter, and, in common with several other allied species, it is rather succulent in its structure, abounding with a peculiar secretion of milk-like fluid or sap, from which it may be inferred that a partially dry situation, and preservation from long continued or stagnant moisture, is essential to a vigorous and successful growth.

Its neat dark-green leaves and salver-shaped blossoms, of a lively blue colour (each nearly 1½ inch in diameter), distinguish it as an attractive and elegant object. It is admirably suited for a small group or parterre, or for partially-elevated mounds of artificial rockwork on flower-borders. It is also highly picturesque when grown as portable specimens in large pots or vases, in which, with good management, a single plant will extend from 12 to 18 inches in diameter; and it is seen to great advantage upon grotto-work, as well as in ornamental slate boxes placed on the parallel curbs of drawing-room entrances, or in sheltered balconies.

When adopted for parterres the ground should be well drained. The soil adapted for its growth in pots, &c., is equal portions of exhausted friable sandy loam or garden mould, and perfectly dry leaf-mould † (or

* There is also in the market what are named Bermuda Potatoes, all of which come, we believe, from Chertsey.

highly-fermented manure), well incorporated with small brick refuse or potsherds equal to one-fifth of the whole amount.

C. Barleri? being characterised by an extreme tendency to form attenuated growth and premature flower buds when excited early, a uniform and vigorous growth should be encouraged by shortening the extremities when required, and, by a careful attention to the removal of all flower-buds until the first or second week in June, by which time the plants will have accumulated a vigour of growth equal to a long-continued bloom.

17. *Oxalis spectabilis.*—This is a neat, dwarf, compact, half-hardy bulbous plant, growing from 2 inches to 4 inches in height, and producing a profusion of rich, purplish crimson flowers, nearly 1 inch in diameter, during June and July. It is well fitted for a small parterre, treating it as follows:—Take out the ordinary soil to the depth of 2 feet, and replace it with 6 inches of coarse brick-bats (or similar material), over which add 6 inches of coarse, dry turf siftings, or dry Moss, and fill up with equal portions of friable heath-mould and sandy loam. In this the stores should be planted in May, according to the weather. After the season of bloom is over, and a maturity of growth manifested by the progressive decay of leaves, &c., the bulbs should be taken up, replaced in store-pots, each containing ten or more bulbs, and preserved in a dry frame, facing south or west, until November, when they should be replanted into smaller store pots (four or six bulbs each), in equal portions of friable leaf-mould, heath-soil, and sandy yellow loam; after which they should be plunged in ashes, or old dry sifted tan, in a pit or frame, facing south or east; protecting them from severe frost, and watering only as the bulbs progressively vegetate. In this position they remain until required for the parterre, in April or May.

18. *Oxalis [illegible]prina.*—This is a very interesting half-hardy perennial, requiring a frame or cool greenhouse, with protection from frost in winter, producing flower-scapes from 9 inches to 12 inches in length, with terminal clusters of brilliant yellow flowers, each nearly 1 inch in diameter, during May, June, and July. It is suitable for a parterre, requiring a similar treatment as described for O. spectabilis. It was a favourite plant with me nearly 20 years ago, being a highly ornamental greenhouse plant in May and June; and where grown in large stores (six or eight bulbs in a pot), it makes a fine appearance. However gay the flowers with which it may be surrounded, it will still appear "bright in the midst of brightness." When required solely for a parterre, the bulbs should be taken up as described for the last-named species, and preserved dry until November or December, and replanted in the parterre about 6 inches deep. For protection during intense frost, the surface should be covered with perfectly dry sifted tan, or leaf-mould, to 12 inches in depth, which may be removed by the first week in March; and in case of protracted or unexpected cold, after the plants appear above the surface, they may be protected by a few hoops extended over the bed, and shielded with mats.

19. *Papaver bracteatum.*—Those who wish to produce a gorgeous feature in the flower garden will find this plant perfectly adapted to their purpose. It is perennial in its duration, blooming perfectly but once from plants of the previous season's growth, and for which purpose it should be sown in May or June, and transplanted in summer or autumn to its intended position. In habit it assumes the form of a large crown of leaves sitting upon the ground, from which the flower stems arise, attaining from 3 to 5 feet in height, having on their summits immensely large, deep scarlet, cup-shaped blossoms, expanding by sunlight from 9 to 14 inches in diameter. The succession of bloom is limited, but the effect (compared with any other plant) is magnificent. I remember seeing a large flower bed occupied by this plant solely, about 15 years ago, in the then richly adorned flower garden at Bretton Hall, Yorkshire. The impression of that gorgeous pyramid, as it then appeared, is not forgotten. Where such an object is desired, it should be placed towards the background. P. bracteatum thrives in any garden soil. The strongest plants should be placed in the centre of the bed, adding a quantity of rich leaf-mould to each, which will heighten the effect by insuring a pyramidal outline, or progressive elevation of growth from the margin to the centre.

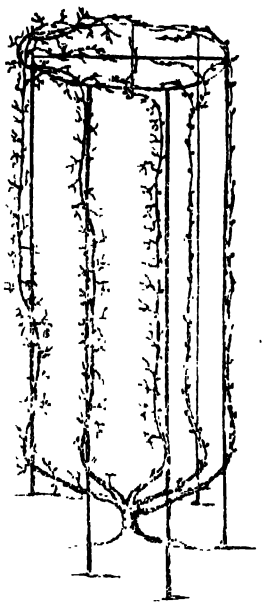
20. *Campanula garganica.*—This is the next species in point of merit to C. Barleri, being more compact in its growth, and more profuse in its bloom, but smaller in its individual blossoms, which are of a dark purplish blue. Though less remarkable than the last named species (C Barleri) it will, in many instances, be considered quite as beautiful. Its growth is equally adapted for culture in pots, vases &c., or for producing a general effect in small beds.

21. *Oxalis Pistica.*—Plants which attract almost everybody's attention, must possess, at least, very remarkable, if not beautiful features; and this is one. It is a half-hardy perennial bulbous plant, of similar hardihood with the previously described species, and requiring a similar treatment. Its habit is exceedingly neat and compact, forming in its earlier stages of growth a densely close herbage of small glaucous or sea-green leaves sitting close upon the soil, but which, as it approaches to maturity in April and May, rises from 2 to 3 inches in height, and is succeeded by numerous rich, transparent, buff-coloured flowers, nearly 1 inch in diameter, having a clear green centre, the remaining surface being delicately marked with brown lines radiating to the margin; and which, on examination, assume a rich purple tracery or veining, on the reverse or under side. The remarkable size and profusion of its flowers, contrasted with the diminutive leaves beneath them, invest this plant with a degree of interest possessed by few others, and when seen fully expanded by sunlight, produce an impression of novelty and beauty combined, which, to a cultivated taste, "defies forgetting."—*Wm. Wood, Pine apple-place.*

FANCY TRAINING.

(*Continued from p. 284.*)

No. 9.—This design, with five stakes, has a good appearance; if done with four stakes instead of five, it



does not look near so well. Diameter of hoop, 2 feet 6 inches; height, 7 feet.

No. 10.—Single stem trained up a stout stake, and brought down in three stems (with stakes), each about 30 inches from the ascending stem.



THE AMATEUR GARDENER.

THE GREEN FLY.—If slugs and snails are the terror of gardeners in reference to their culinary crops and other productions near the surface of the ground, the numerous tribes of the aphis are equally obnoxious to the well-being of his trees and shrubs. They also thrive with provoking fecundity in frames and greenhouses. The present season is, in this part of the country (the South of Bedfordshire), distinguished by the ravages of these minute creatures, who do injury in various ways. They do not eat up the plant on which they dwell, but they constitute a sad incubus on its powers of life, both by their own pressure and by the gummy excrement they so plentifully discharge. Gardens are so generally infested by these insects, and the damage they do is so well known, that any contribution to the modes of counteracting their injurious influence must be acceptable.

It is well known that tobacco-smoke, when properly applied, effectually clears the plants in a frame or greenhouse from the aphis, but the same agent, when used in open air, is almost useless; for although a puff of smoke will dislodge the enemy, it does not kill him; he is only intoxicated for a time, and will speedily return to his predatory attacks. Having myself a choice collection of Roses, scattered rather plentifully over about an acre of garden-ground, and all much disfigured with green fly, I turned with interest to the *Chronicle* of May 23rd, and read in the Answers to Correspondents the following advice:—"Aphides are killed by a weak solution of smelling-salts in water, or by gas-water diluted with six times its bulk of water." As the extent of the evil in my garden made it important for some remedy to be applied *instanter*, I resolved to act on this recommendation. I could not use the smelling-salts, because no proportions are stated, and I therefore commenced operations with the gas-water, of which I have a constant supply from a neighbouring gas-house. Having diluted it as directed I plentifully syringed some climbing Roses trained against the house; but to my vexation the insects were unmoved either by the smell or the taste of the dose. What followed I relate as a warning. If the aphis was unaffected by the gas-water, other things were not. The stone-colour paint of the windows was turned almost black, and the green of the verandah was horribly metamorphosed. This experiment, therefore, entailed on me much trouble, besides failing in its object. This circumstance illustrates the necessity of directions being more minute, for I cannot doubt the writer of the above had found gas-water effectual, although from some ignorance of the manipulation, I did not.*

Despairing of clearing my trees by any solutions or decoctions, I resolved to have recourse to the labour of the hands, and recklessly to break the bones of those I could not poison. I went over the bushes, in conjunction with others equally zealous with myself, and drew my fingers up the shoots infested, thus slaying thousands in a minute. In the same way I pressed to death all I found on the Rose-buds. The operation is very disagreeable, but it is more effectual than any other I know. As the juices of the insects thus destroyed form a sort of gum on the branches, they must be well syringed with water as you proceed. By this mode I have got the enemy under, although he is far from being quite destroyed. I have since thought of another method, which may be preferable, though it will require two persons to execute it. As the aphis begins to move when the branch is disturbed, I think the shoot which is covered with them should be held over a basin of water, and be then gently brushed, so that the insects may fall into the basin. These modes of procedure may appear very irksome to some, but it is to be understood that a well-regulated garden is only made so by tiresome processes. But *labor vincit omnia*, and an enthusiastic amateur will rather labour all night than allow his plans and hopes to be frustrated. An effectual mode of getting rid of the aphis in an easy way is still a desideratum.—*H. B.*

* The reason why gas-water and smelling-salts do not always act depends upon their varying composition. Of course gas-water will injure paint whereveg it comes in contact with it, because it immediately forms a brown sulphuret with the lead, of which paint consists in part.—ED.

Home Correspondence.

Potato Disease.—I beg to forward a sample of diseased Ash-leaved Kidney Potatoes produced in a two-light pit, 8 feet in length, and 5 feet in width. The soil was composed of three-fourths common garden soil, and one-fourth half-decayed leaves and dung placed 18 inches from the glass. The plants during their growth looked remarkably well, with not the least appearance of disease either on the leaves or stem; when sufficiently ripe they were taken up as required, and all were good except what grew in that portion of the pit that was shaded by the front wall, and consequently a little moister, for roots had been dug up, growing in the same situation some time previous to the taking up of the sample I now send, but no sign of disease was discernible upon them; the last lot taken up was nearly half diseased. I regret I did not weigh each lot. The seed from whence the crop was produced was grown last summer on a dry south border; it was taken up in the last week in July and spread at the foot of a wall, where it remained until the middle of September, when it was put into a crate and kept there until wanted for planting. From the same seed I send some of the haulm of a succession crop grown on a bed similar to those made for cold hole Cucumbers, and planted on the 18th of February. I endeavoured to persuade myself that the young shoots at the base of the leaves have sustained an injury from some other cause, and the wet getting to it had produced decay, which spread over the stem; but on looking further, I soon found patches or portions of the stems where the water could not effect a lodgment; the part of the bed most affected is 5 feet from the bottom of a low hedge 3 feet high, the hedge being on the south side. My fears are just beginning to be realised, and what I have all along anticipated I conclude is come.—*James Silver, gardener to the Rev. H. Pole, Waltham-place, near Maidenhead, Berks.* [No doubt. Some of your sample have the disease in its very worst form, the decay going to the heart].

Slugs, &c.—As I see many besides myself have suffered and are suffering by the ravages of slugs, snails, and worms, "*et id genus omne;*" it may be as well if I add that my second crops have been saved by scattering over the seed beds, liberally, sprigs and leaves of the Elder. I ought not, however, to refer my success to this; but I have had the seed beds so treated, and the plant, in every case, is saved, whereas, most of the earlier sowings have been carried off: and for years, in sowing Turnips, this practice has been observed by me with uniform success.—*P.S.*——The following mixture will kill slugs:—Gas water, 1 gallon; water, 6 gallons; lime, as much as it will take up. This beats plain lime-water or gas water.—*Knife.*

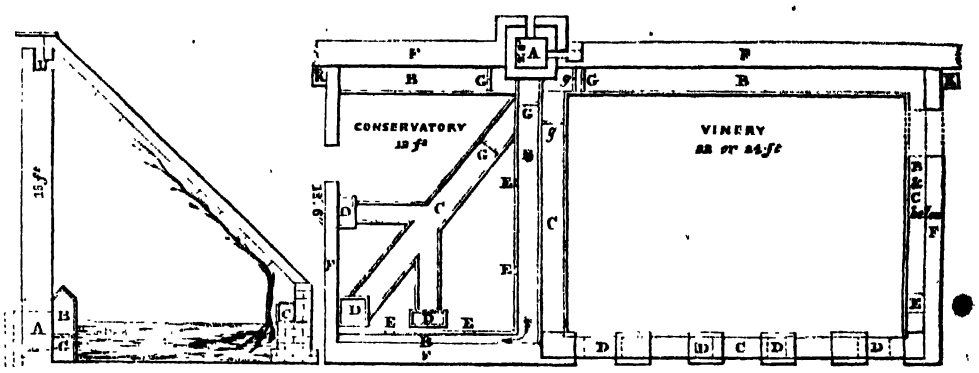
Wireworm.—The best remedy for wireworm is Rape-cake broken into pieces the size of a hazel nut, and sown with the crops. Rape dust will not do. The worms eat into the pieces of Rape-cake and it kills them. Cleanliness from weeds and frequent turning up of the soil prevent their increase; but as they are five years in the worm state they try the patience of both gardener and farmer. The above remedy, however, may be relied on.—*C. C.*

The Fruit Crops.—I have at least 30 standard Apple-trees, besides 8 or 10 espaliers in my garden, good young trees, hitherto famous for the crops they yearly produced. The blossom, though far short of what it used to be, is at the present time nowhere to be traced, part having dropped with the spur, and part having withered up by blight, I do not at all exaggerate the evil when I say that of all those trees I do not expect to get one single piece of fruit. Apricots I have none, the blossom never appeared at all, and the strangest thing of all is that I have a profusion of small fruit, including Cherries. I never saw a promise of a better crop; and of these, the leaves, which in the Apple-trees are half eaten by the caterpillars, remain untouched, and seem quite unblemished. If in other parts of the country the fruit trees promise no better, the prospect for the autumn and winter supplies is sad indeed, and in the cider countries will be most ruinous to the small farmers. I live in the south of England, with every advantage of climate and situation; but I believe from what I can gather, that the swarms of insects with which we are infested have made less ravages in the northern districts.—*X. Y., Romsey.*

Disease in Cucumbers.—Noticing in page 344, some account of a disease in Cucumbers and having myself been pestered with an evil of a similar kind, I send the following account of its ravages, and the attempts I have unceasingly been making to arrest its progress. Having been a practical gardener for some years, I need hardly say that all ordinary methods to obviate the evil have been resorted to. The disease first made its appearance in a pit heated by hot water flowing in iron pipes. The pits are about 5½ feet deep, and in the first week of January were filled with manure from the farmyard, composed of ¾ cow, ¼ horse, and about ¼ pig manure. With this material my pits were filled. When the heat had sufficiently subsided, I planted my Cucumbers and Melons out on hills in the usual way. The plants grew freely for some time without any perceptible disease beyond looking rather yellow, which I attributed to the dull season, and thought they would soon recover; but they daily got worse. By the middle of March, when they had set several fruit, the leaves became spotted, which increased; the mid-ribs of the leaves being nearly or quite severed in two wherever the disease touched; next the leaf-stalks, and then the Vine itself, together with the fruit, suffered. I have counted on a shoot a foot in length, 8 or 10 small specks, looking as if some burning acid had been dropped on the parts in small quantities. These kept burning or eating their way further. I also tried a second pit filled with the same fermenting material, procured plants from a neighbour, and planted them in a different sort of mould, paying the greatest attention to them, and these are also sharing the disease. Finding it hopeless to expect good fruit from my first pit, I pulled the plants out, and washed the pits with lime, removing the manure to the depth of about 3 ft., which space I this time filled with good horse-dung. When the heat had again become suitable, I planted young plants on hills all in new mould different from the other. These also soon began to show signs of the same disease, and 9-10ths of all the plants that I have raised in my pits have gone the same way, mostly after having been potted off. Moreover, a quantity of hardy ridge Cucumbers standing in the same pits are, I fear, all going the same way, and for this month past I have daily been throwing strong though diseased plants away, the evil being of so burning and penetrating a nature, that many of the vines have little holes more than half the way through them. From observations I am led to believe that the disease is caused by some destructive gas or salt arising from the fermenting material, and settling on different parts of the plant. Is this likely? I should have stated that the Melons only suffer in a small degree, compared with the Cucumbers. Cockscombs, Capsicums, Tomatoes, and such like things do not appear to have suffered while standing in the same pits. I am now trying Cucumbers out of doors, on slight hot-beds under hand-glasses, both in the shape of seed and plants, which I hope will be attended with better success.—*C. C.* [All this reads very much like over-watering.]

Beech cut in Summer.—Having been informed that Beech cut in summer was never affected by insects, which is such a detriment to that timber, and wishing to prove the truth of the statement, I had a tree cut down in June, 1831, and had it placed as a beam in a cottage, in which position it could be easily examined. It is now (May, 1846) as sound and free from insects as when put up.—*A. B.*

Polmaise Heating.—I have observed with much interest the discussion on the merits of the Polmaise plan of heating Vineries, and I think there is every reason to believe that though experience may produce useful modifications and improvements of it, the principles on which it is founded—the natural circulation within the house of a warm atmosphere, moistened by a self-acting apparatus, and continually maintained in a state of purity by the admission of fresh air from without, to be thrown into the house in a heated state by being passed through the air-chamber of the stove, and passing off naturally into the atmosphere from the top of the house after having performed its required function, and expended its power, is a principle that looks very like a sound one. In visiting the Polmaise Vinery I was struck with the agreeable sensation experienced in the house, the air feeling light and pure, and the temperature mild and pleasant, though the thermometer, as I observed with surprise, stood at 75°, and I could not but conclude that an atmosphere and a temperature thus salubrious and pleasant to the animal economy, was probably equally so to vegetable life. It may not be amiss to subjoin to your consideration a modification of the Polmaise plan proposed by Mr. Carmichael, the late intelligent gardener there (who has now left that place and profession and taken to farming on scientific principles), in a plan he gave me for heating a small Vinery and plant-house I proposed (making, of which the annexed is a sketch, which I hope may be understood. I believe he still retains the Polmaise plan of the wet blanket, as it has been called (but which is in fact a long web of coarse flannel, or what is called in Scotland "plaiding," not very thick or close in the texture), along the back of the house over the warm air flue, but continues the latter round the end of the house, in order to throw the warm air more forward. I don't know why it might not have been carried along the front also. I should have mentioned that the squares K at the end of the house are, I think, gratings for cold air from without carried to the stove by a drain under the warm-air flue B. The reason Mr. Carmichael gave for carrying the cold-air flue from within round the house was, if I mistake not, that the direct drain in the original Polmaise plan he thought caused too much bottom heat by the passage of the still warm air from within the house.—*J. S. H., Perthshire.*



A, Stove, 2½ ft. square.
B, Warm-air flue of brick or deal.
C, Cold-air flue, 1 ft. square.
D, Gratings admitting cold air.
E, Outlets for warm air.
F, The walls.
G, Warm-air valves.
g, Small cold-air valves.
H, Ventilation for the natural exit of the warm air regulated by-valves.

Packing Plants for Transmission to Foreign Countries.—The following is an account of my success in transmitting plants to New Zealand. The case in which they were packed was only 2½ feet in length by 1½ in breadth, and 1 foot in depth at the side; the span roof giving it a depth of 2 feet in the centre, all inside measurement. The glass was well guarded by frame-work of strong wire. The top was attached to the body of the case at one side by a pair of hinges, the other side having a lock and key. In the spring of the year I planted in this little space upwards of 100 plants, such as Roses, Pelargoniums, Fuchsias, some culinary herbs, &c. &c., planting in rather light soil, with plenty of drainage; of course the plants were small, most of them being cuttings of the previous autumn. They remained here with the lid open till the month of June, when I embarked. The case was allowed to stand on the quarter-deck during the passage, which was five months, during which time I took advantage of mild weather to give the plants air by lifting the lid, more or less, according to the state of the weather, and to water as occasion might require; likewise to pinch the top of those plants that were overgrowing their weaker companions. Out of the above number I managed to take upwards of 70 alive to the journey's end. When our

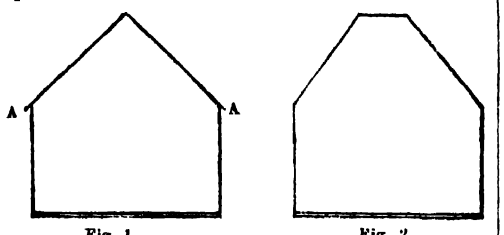


Fig. 1. Fig. 2.

ship reached Portsmouth, two more cases of plants were added to her quarter-deck. These cases were larger than the one just mentioned; one was filled principally with Camellias, Roses, and a few Pelargoniums, all in small pots plunged in mould. The contents of the other were principally Roses and Pelargoniums, planted out, and much stronger plants than mine were. We had not been long at sea when the latter case was committed to my care; I never took the top off, it being fastened down with screws, but there was a slide in the end of the case which I occasionally took out in order to give a little water and to pick out decaying matter, but I never took it out for the express purpose of admitting air. The other case was (as far as practicable) made air-tight, by having the laps of the glass and joints of the case puttied, and it was not opened during the passage. From this it will be seen that the three cases received different treatment, and although deaths occurred in all the three, especially amongst the soft-wooded things, such as Pelargoniums, which damped off in spite of every precaution, I am of opinion that the best method to be pursued in long journeys is to make the cases as air-tight as possible, and not to allow them to be opened during the voyage, especially if they are not under the care of somebody who understands the nature of the plants they contain. Some nurserymen attach a piece of tarpauling to the top of the case, so that it may be rolled down or up at pleasure, for the purpose of shading the plants in hot latitudes, but this I consider to be an evil instead of a benefit, as the cover is liable to be left on at times, until, perhaps, the plants become sickly by being in the dark. No fear need be entertained from a tropical sun, as the cases are on the quarter deck, and this part of the ship is always protected from the powerful rays of the sun by the awning. In my opinion, the principal things to be observed in plant carriage to foreign parts are, 1st, to have the plants well established in the case previous to shutting them close down, and then to make them as close as possible; 2nd, to guard effectually against the breakage of glass, by placing strong wire-work or small rods over the roof; this ought to be particularly attended to, as the glass is very liable to get broken on board ship, and unless a person having interest in the affair is there, it is likely to remain broken, all hands being busy at the time, when glass is the most likely to get broken, and when the salt water will soon make sad work amongst the plants. I have known a whole caseful of valuable plants destroyed for want of this precaution. The annexed figures represent vertical sections of plant cases. Fig. 1 represents the case in general use, but Fig. 2 is, in my opinion, preferable for two reasons, 1st, it gives the plants more head room, and 2nd, it gives a greater pitch to the glass, which has the advantage of throwing off the salt water quicker, and is not so liable to get broken at an angle of 65° or 70°, as at 45° or 50°. I used Fig. 2 case on my homeward passage, and they are generally used at the Sydney Botanic Gardens, and were highly spoken of by Mr. Robertson, the late curator of that establishment. There should be no projections, as at A, Fig. 1, as the ship's ropes, &c., are very liable to get entangled in time of gales, when, very likely, the roof would get damaged. Besides the case which I had on my outward passage, I had a large strong glass bottle, filled with small Ferns, and a root of Ginger, in moist Moss (it hung in the quarter deck), kindly presented to me by a friend, for the purpose of proving whether or not some of those handsome little Ferns so plentiful in New Zealand could be brought to England in a similar manner. The bottle was closely corked, and only opened once during the five months' passage, and that only for a minute or two, while I took out a slug which made its appearance inside. Most of the Ferns and Ginger lived, and grew when planted out, thus proving that it is very probable some of those pretty little Ferns might be brought home in, as far as practicable, air-tight vessels.—*Alexander Burnett.*

Foreign Correspondence.

CERCLE GENERAL D'HORTICULTURE.

PARIS, *May* 25, 1846.—The second Exhibition of this Society for the present year opened on the 21st of this month, at the Orangerie of the Louvre, and continued four days. There was no lack of plants, and as a whole it was a decided improvement upon by-gone seasons. Reform is considered a hard word here, and especially offensive to the *amour propre* of the old school of gardeners; to say nothing of Horticultural Societies. Credit is therefore due to the officers of the Cercle in taking the initiative step; the first move is half the battle, and the Royal Horticultural Society of Paris cannot remain behind. These exhibitions have hitherto been free to the public, and any one acquainted with Paris will be at no loss to calculate the crowd of idlers who daily thronged the room, to the manifest injury of the plants. The Cercle has now made the admission fee ten sous (five pence). Alarmists of the old school cried out "ruin;" nevertheless there has been no lack of visitors. The decisions of the jurymen not now open to those animadversions which formerly

characterised them. In other respects these Societies have much to do before they can produce anything like first-rate specimen plants. Of this exhibition the French daily papers do not speak in very glowing terms, and *Galignani* has the following observations upon it:—"The Exhibition is far from what we would expect to see in a city like Paris, where the sale of plants is so great in every shape and form. There are several pots of flowers that seem to be placed merely to fill up vacant spaces, and ought not to have been admitted. The vegetables consisted of a few large Cauliflowers, four overgrown Lecks, some Cos Lettuce, a Pumpkin of a peculiar sort, and the fruit of two good Melons for the season; not a Strawberry, Cherry, or a Plum. The Society, if they wish future exhibitions of importance, must considerably improve and augment the different varieties, and exclude a deal of rubbish to which at present they allow a place." Of fine specimen plants I saw but few, and even some of the best of these, especially the Ericas, had just arrived from England. Pelargoniums were as usual very numerous; the intention seemed to be to present a blaze of bloom, no matter how many of the same kind; this the exposants certainly accomplished. "Plenty and much" was the motto. As to individual excellence or fine-grown specimens, none were to be seen. There was but one collection of Roses; it contained some of the finest varieties, but no pains had been taken to form handsome plants. The Azaleas were numerous, and the collection of M. Lenichez very good. Calceolarias were numerous; one lot, however, attracted universal attention; it was that of M. Boudien, who had evidently turned to good account the knowledge he had acquired at a London nursery in preparing show plants. Nothing could exceed the beauty and fantastic colours of those he exhibited, which, by the way, were all English varieties.—M. Guerin shone in Chinese Pæonies, among which were four handsome seedlings.—Messrs. Cels had a numerous collection of hot and greenhouse plants, among which were some fine, although not large specimens, especially Erica depressa, gemmifera, and Cavendishii; Azalea variegata; Pernettya angustifolia; Zamia horrida and spiralis, Dion edule. Of Orchids there was but one collection, and that not so much blown as could have been wished; in it was Cattleya Pinelii, Schomburgkia multiflora, Gongora bufonis major, Stanhopea atropurpurea and quadricornis, Oncidium phymatochilum, and Govenia Gardneri. The Neriums of M. Mabere were, as usual, very pretty. I think a good collection, if well-grown, could not fail to meet with admirers at English shows. The prizes, which were upon a liberal scale, were thus awarded:—

Gold Medal, given by the Comte de Paris, for Hothouse Plants, to MM. Cels; given by the Duchesse de Nemours for new and rare Plants, to MM. Cels; given by the Lady Patronesses, for Ericas, to M. Paillet; given by the Lady Patronesses, for Orchids, to M. Morel; for Pelargoniums, to M. Chauviere.

Large Silver Medal, given by the Princesse Adelaide, for Azaleas, to M. Lénichez; given by the Luxemburg, for Calceolarias, to M. Boudieu.

Second Silver Medal, for ditto, to M. Thibaut.

Silver Medal, for Pelargoniums, to M. Thibaut; for Ericas, to M. Deshayes; for Hothouse Plants, to M. Souchet, fils; for rare Plants, to M. Souchet, fils; for Forced Roses, to M. René; for Seedling Plants (Seedling Paonies of 1846, No. 1, fine large blush; 2, fine large bright rosy purple; 3, light rosy violet), to M. Modeste Guerin; for Greenhouse Plants, to M. Jacquin Ainé; for Neriums, to M. Mabère; for Bulbous Plants (Gladiolus), to M. Souchet, of Fontainebleau; for Cinerarias, to M. Chauvière.

In the collection of MM. Cels were several Echinocacti, three or four species of Leucopogon, two species of Begonias from New Holland, Hydrangea altissima, a species of Gesnera from Jamaica, and of Franciscea from Buenos Ayres, 12 species of Oxylobium, species of Styphelia, species of Laurel from California, &c. &c.—In that of M. Paillet were Erica Beaumontia, Blanfordiana, Cavendishii, cupressa, depressa, depressa rubra, elegans, Hartnelli, jasminiflora, mundula, mirabilis, odorata rosea, retorta major, tricolor, thunbergiana, ventricosa minor, v. superba and carnea, vestita coccinea and vasiflora.—Among the Orchids of M. Morel were Brassia maculata major and brachiata, Myanthus cernuus, Cattleya Mossiæ, Cyrtochilum Bictoniense, Oncidium flexuosum, leucochilum, pulvinatum, and unicorne, Huntleya violacea, and Stanhopea oculata, besides those before mentioned.—In M. Chauviere's collection of Pelargoniums were Hebe, Unit, Sir John Broughton, Symmetry, Prince Albert, Anais, Coronation, Nosegay, Lifeguardsman, Priory Queen, Werner, Oberon, Jubilee, Egbert, Enchantress, Jean d'Arc, Murillo, Queen Victoria, Madame Chevreau, besides many French varieties.—Among the Azaleas of M. Lénichez were A olata rubra flore pleno, coccinea grandiflora, bifiora, phœnicea, Prince Albert, rosea grandiflora, variegata, Iliacina triumphans, together with several showy open-ground varieties, and two splendid specimens of Kalmia latifolia.—Among the Calceolarias of M. Boudieu were Queen of Beauties, Magicienne, Queen Victoria, Adonis, Queen of Scots, Prince Albert, Priory Queen, Lady Ann Chatteris, Staffordshire Rival, Fancy, Lady Hill, Mrs. Rutherford, and Target.—Among the Paeonies of M. Modeste Guerin were Reine des Français, alba mutabilis, umbellata, odorata, grandiflora carnea pleno, and ligulata.—In the collection of Roses by M. René, were Comte de Paris, Chromatella, Madame Fries Morel, Stephanie, La Reine, Aimée Vibert, Mrs. Elliot, Fulgorie, Clémentine Soringe, Aubernon, Clementine Duval, Princesse Helene, Duc d'Alençon, Comice de Seine et Marne, Souvenir de Malmaison, Mrs. Bosanquet, Clara Sylvain, and 60 or 70 other varieties.

Societies

CALEDONIAN HORTICULTURAL SOCIETY.

May 15.—At this, the Spring Meeting, the specimens were not so numerous as on former occasions, but they were decidedly better grown. We shall mention the successful competitors, and the names of their plants. For shrubby greenhouse plants, the award, in the Nurserymen's department, was made to Messrs. Dickson and Co, who produced Statice macrophylla, Epacris grandiflora, Cytisus racemosus hybridus, and Kennedya glabrata, all well-grown. In the practical Gardeners' department, a first prize was voted to Mr. Young, gr to T. Oliver, Esq., for Chorozema varium, Kennedya monophylla, Ehchrysum elegans, and Diosma uniflora; and a second, to Mr Cruickshank, gr. to Professor Dunbar, for Hovea Celsi, Kennedya glabrata, Pultenea stricta, and Pultenea glabrata. For Rhododendrons two premiums were given; the first to Mr. Thomson, gr. to W. E. H. Vere, Esq., for R. splendidum, and the next to Mr. Sleigh, gr. to A. Rutherfurd, Esq., for R. caucasicum album. For Fuchsias two awards were also made; the one to Mr. Reid, gr. to J. Syme, Esq., for Lady Sale and Harris's Queen Victoria, and the other to Mr. Young, for Queen of Beauty and Colossus. Cape Heaths were admirable. Two premiums were awarded; the first to Mr. Reid, for vestita alba, coccinea, ventricosa tricolor, and suaveolens; and the next to Mr. Young, for E. Beaumontia, perspicua nana, vestita var., and nigricans. Few stove plants were produced; a premium was voted to Mr. Crocket, gr. to Col. Ferguson, for Justicia carnea, Franciscea Hopeana, and Æschynanthus grandiflorus, all in fine flower. Chinese Azaleas were splendid. A first premium was assigned to Mr. Cruickshank, for A. phœnicea spectabilis, and phœnicea rosea, and a second to Mr. Reid, for A. splendens and Hibbertii Beautifully trained plants of Tropæolum tricolorum attracted much attention, and premiums were voted to Mr. Foulis, gr. to G. M. Henderson, Esq., and to Mr. Sleigh. The Cinerarias made a brilliant appearance; awards were made to Mr. Young, for Triumph, azurea grandiflora, Rival King, and Enchantress, and to Mr. Grieve, for Mair's bicolor, Imperial blue, Macnabiana, and Rival King. For admirable specimens of Cactus Jenkinsoni, speciosus, speciosissimus, and Alustinii, sent from King's meadows, near Peebles, a premium was voted to Mr. Cossar, gardener to Anne Lady Hay. There was a deficiency in the production of tropical Orchids; an award was made to Mr. Thomson, gr. to Dr. Neill, for Trichopilia tortilis and Epidendrum aromaticum.—An Extra Medal was voted to Mrs. Haig, for a rich collection of exotics sent for exhibition, including Cattleya Mossiæ superba, Gloxinia albida, and trays filled with Cacti and Pelargoniums.—Another Medal was voted to Messrs. Dickson and Co., for a collection of plants, including Tropæolum azureum, Bouvardia flava, Siphocampylus coccineus and cordatus, and Fuchsia serratifolia.—Honorary awards, as marks of approbation, were also made as follows:—To Messrs. J. Dickson and Sons, for fine Calceolarias, a specimen of Lcianthus nigrescens, and a very large Erica florida (4½ feet high, and 10 feet in circumference.) To Messrs. Carstairs and Kelly, for Pimelea spectabilis, Oxalis Steerii, and several seedling Calceolarias. To Messrs. P. Lawson and Son, for Pentstemon coeruleus, a new species raised from seed received from the Rocky Mountains, and seedling plants of Salisburia adiantifolia. To Mr. Blair, gr. to the Earl of Roslyn, for cut specimens of 28 varieties of damask and white Rhododendrons, together with the rare R anthopogon of Nepaul. To Mr. Gibson, gr. to J. M. Hog, Esq., for seedling Cinerarias. To Mr. Macnaughton, gr. to J. Wauchope, Esq., for greenhouse plants, and a basket of the Albert Early Pea; and to Mr. Young, gr. to Mrs. H. N. Ferguson, for a basket of Keen's Seedling Strawberry. The thanks of the meeting were voted to W. Hunt, Esq., of Pitteuchieff, for seedling Calceolarias. To W. Cushine, Esq, Malta Green, for Azalea phœnicea alba; and to W. Aitchison, Esq., for a basket of American Newtown Pippins, in excellent preservation.

Country Shows.

Amateur Tulip Society, May 19.—This, the third annual exhibition, took place at the Horns Tavern, Kennington, on which occasion about 20 stands of Tulips were exhibited, 12 stands being placed for competition. The award of the judges was as follows: 1st prize, to the Hon. and Rev. R. Wilson, for Optimus, Surpass Salvator Rosa, Aglaia, Cerise Belle forme, Polyphemus, Incomparable de Lisle, David, Rose Charlotte, Junius Brutus; 2, to S. Sanders, Esq., for Darius, Gen. Bonneval, Aglaia, Princess Royal, Polyphemus, New Byblomen, Triumph Royal, Junius Brutus, Duc de Boufflers; 3, to C. Williams, Esq, for Sidney, Triumphe Royal, Belle Actrice, New Byblomen, Prince Albert, Cerise Belle forme, Violet Blondeau, Rose Brilliant, Abercrombie; 4, to J. Bushell, Esq., for Lord Hawke, Aglaia, Platoff, Triumph Royale, Polyphemus, Rubens, Optimus, Triumphe de Lisle, Claudiana. An extra prize for the best Tricolor was awarded to Mr. Venables, for Smith's Duke of Wellington; and a prize for the best Seedling was obtained by Mr. Crook, for a Rose broken in 1845. We understand that Mr. Groom has given notice that at the next annual exhibition he should present a bulb of his fine Byblomen Victoria Regina, to the owner of the best pan of flowers; Mr. Goldham and Mr. J. F. Holmes, in a similar spirit, offered Pandora and Lalla Rookh to the owners of the 2d and 3d pans respectively; these prizes to be in addition to the Society's usual awards.

Cheltenham Horticultural Society, April 27.—At this, the first of the five exhibitions to be held this season, the following prizes were awarded:—*Auriculas* (5 varieties): 1, Mr. Pipe; 2, Mr. Hodges, for Page's Champion, Hughes's Pillar of Beauty, Popellwell's Conqueror, Miller's Conspicua, and Hodge's Black Prince. —*Polyanthuses* (4 varieties): 1, Mr. Hodges, for Buck's George the Fourth, Williamson's Mango, Stead's Telegraph, and Nicholson's King.—*Hyacinths* (6 varieties): 1, Mr. Hodges, for David Malcolm, Heroine, Mehemet Ali, Prince of Waterloo, Grand Vidette, and Queen Adelaide.—*Stove and Greenhouse Plants*: 1, Mr. Hodges, for Acacia pulchella, Eutaxia myrtifolia, Pimelea decussata rosea, Tropæolum tricolorum grandiflorum, Rhododendron fulgidum, Correa speciosa, C. s. major, Cytisus racemosus, Erica carinata, E. vestita fulgida, E. v. coccinea; 2, Mr. Arnott, for Euphorbia fulgens, Chorozema elegans, Achimenes picta, Rhododendron arboreum rubrum, Boronia pinnata, Genista canariensis, Cineraria Arnott's Superb Purple, Erica vernix coccinea, Polygala oppositifolia, Kalmia alba.—*Six Plants*: 1, Mr. Hodges, for Acacia pulchella, Hovea Celsi, Eutaxia myrtifolia, Erica vestita rosea, E. v. pallida, E. v. carnea; 2, Mr. Arnott, for Columnea Schiedeana, Pimelea lanata, Boronia serrulata, Leschenaultia Baxteri, Erica Wilmorei, and Leschenaultia formosa.

Handsworth and Lozells Floral and Horticultural Society.—This was the first exhibition for the season. The attendance was respectable, and considering the backwardness of the spring, the show was an excellent one. The following prizes were awarded: AMATEURS' CLASS.—*Orchids*: 1, Cattleya intermedia, A. Kenrick, Esq., who also sent Burlingtonia venusta and Oncidium luridum. *Stove Plants*: 1, Euphorbia splendens, A. Kenrick, Esq. *Greenhouse Plants*: 1, Pimelea spectabilis, A. Kenrick, Esq.; 2, Epacris grandiflora, W. Edwards, Esq.; 3, Chorozema varium nanum, W. Edwards, Esq. *Ericas*: 1, E. scariosa, W. H. Gem, Esq.; 2, E. gracilis, Mr. W. Denham. *Camellias*: 1, A. Kenrick, Esq., for double white. *Pelargoniums*: 1, Coronation, W. H. Gem, Esq. *Roses in Pots*: 1, Prince's Nelson, A. Kenrick, Esq.; 2, Yellow Noisette, W. H. Gem, Esq. *Cacti*: 1, Epiphyllum Jenkinsoni, J. Turner, Esq. *Azaleas*: 1, Indica alba, Mr. W. Denham. *Cinerarias*: 1, Zuriel, W. Edwards, Esq.; 2, Grandis, A. Kenrick, Esq. *Hardy Shrubs*: 1, Hybrid Rhododendron, A. Kenrick, Esq. *Hardy Climbers*: 1, Clematis azurea grandiflora, Mr. Sherriff. *Auriculas*: Premier prize, Mary Ann, Mr. W. Brown. Green-edged: 1, Oliver's Lovely Ann, Mr. A. Paul; 2, Colonel Taylor, Mr. W. Brown; 3, Page's Champion, Mr. A. Paul. Grey-edged: 1, Fletcher's Mary Ann, Mr. A. Paul; 2, Ne Plus Ultra, Mr. W. Brown; 3, Conqueror of Europe, Mr. A. Paul. White-edged: 1, Taylor's Glory, Mr. A. Paul; 2, Wood's Delight, Mr. W. Brown; 3, Lord Chancellor, Mr. W. Brown. Selfs: 1, Othello, Mr. W. Brown; 2, Seedling, Mr. W. Brown; 3, Metropolitan, Mr. W. Brown. Alpines: 1, Seedling, Mr. W. Brown; 2, Seedling, Mr. A. Paul. *Polyanthuses*: Premier prize, George the Fourth, J. Turner, Esq. Dark-ground: 1, George the Fourth, Mr. W. Brown. NURSERYMEN.—*Stove Plants*: 1, Amaryllis Johnsoni, Mr. H. Pope. *Greenhouse Plants*: 1, Chorozema varium, Mr. J. Cruickshank; 2, Epacris autumnalis, Messrs. Pope and Sons. *Ericas*: 1, E. Willmorei, Mr. J. Cruickshank; 2, E. florida campanulata, Messrs. Pope and Sons. *Azaleas*: 1, Azalea rosea, Mr. J. Coudrey; A. coccinea, Mr. J. Coudrey; 3, A. indica alba, Mr. J. Cruickshank. *Roses in Pots*: 1, Archduke Charles, Mr. E. Phillips. *Herbaceous Plants*: 1, Anemone montana, Messrs. Pope and Sons; 2, Myosotis helvetica, Mr. J. Moore; 3, Gentiana verna, Mr. J. Moore. *Hyacinths*: 1, Madame Talleyrand, Messrs. Pope and Sons. *Apples*: 1, Nonpareil Russet, Mr. J. Moore; 2, Nelson, Messrs. Pope and Sons. *Auriculas*: Premier prize, Oliver's Lovely Ann. Grey-edged: 1, Mary Ann, Mr. H. Pope; 2, Ringleader, Mr. J. Fletcher; 3, Ne plus Ultra, Mr. J. Coudrey. Green-edged: 1, Oliver's Lovely Ann, Mr. S. Bunn; 2, Badajos, Mr. J. Coudrey; 3, Barlow's King, Mr. J. Fletcher. White-edged: 1, Taylor's Incomparable, Mr. H. Pope; 2, Lord Brougham, Mr. S. Bunn; Selfs: 1, Metropolitan, Mr. S. Bunn; 2, Black Self, Mr. J. Coudrey. Alpines: 1, Seedling, Mr. J. Fletcher. *Polyanthuses*: Premier prize, George the Fourth, Mr. H. Pope. Dark-ground: 1, George the Fourth; 2, Alexander; 3, Park's Lord Nelson, Mr. H. Pope.

Ipswich Flower Show.—At this, the annual exhibition of *Auriculas* and *Polyanthuses*, the following prizes were awarded: 1, to Mr. Kerredge, for Kerredge's Laura and Suffolk Hero; 2, to Mr. Woolard, for Hodge's Britannia and Woolard's Superb; 3, to Mr. Shreeve, for Waterhouse's Conqueror of Europe and Oliver's Lovely Ann. White Edge: Mr. Barker, for Wild's Bright Phœbus and Townsend's Lady Duncan; Self: Mr. Kerredge, for Lady Sale; Seedling: Mr. Woolard, for Sir Robert Sale. *Polyanthuses*: Mr. Wood, for Suffolk Farmer; Seedling: Mr. Wood, for Prince Albert.

Mansfield Floricultural Society, April 21.—This was the first meeting for the season. *Auriculas*: Premier

prize for the best of any colour, Blue Bonnet, Mr. Green; 1, Mr. Battersby, for Fletcher's Mary Ann, Leigh's Colonel Taylor, Lee's Bright Venus, Barker's Nonsuch; 2, Mr. Green, for Booth's Freedom, Kenyon's Ringleader, Taylor's Favourite, Clegg's Blue Bonnet; 3, Mr. Oldham, for Leigh's Colonel Taylor, Fletcher's Mary Ann, Taylor's Favourite, Metropolitan; 4, Mr. Bowman, for Stretches' Alexander, Kenyon's Ringleader, Taylor's Glory and Squire Mundy. Green Edges: Oliver's Lovely Ann, Mr. Oldham; Stretches' Alexander, Mr. Bowman; Buckley's Jolly Tar, Mr. Battersby; Booth's Freedom, Mr. Green; Warris Union, Mr. Battersby; Lady Ann Wilbraham, Mr. Green. Grey Edges: Fletcher's Mary Ann, Mr. Battersby; Thompson's Revenge, Mr. Green; Conqueror of Europe, Mr. Oldham; Thompson's Revenge, Mr. Bowman; Fletcher's Mary Ann, Mr. Oldham; Thompson's Bang-up, Mr. Battersby. White Edges: Taylor's Glory, Mr. Bowman; do., Mr. Oldham; Kenyon's Lord Chancellor, Mr. Green; Countess of Wilton, Mr. Battersby; Taylor's Favorite, Mr. Bowman; do., Mr. Oldham. Selfs: Barker's Nonsuch, Mr. Battersby; Clegg's Blue Bonnet, Mr. Oldham; Squire Mundy, Mr. Bowman; Barker's Nonsuch, Mr. Green; Squire Mundy, Mr. Battersby. Alpines: Kettleby's True Blue, Mr. Battersby; Queen of Alps, Mr. Bowman; do., Mr. Oldham. *Polyanthuses*: Dark grounds: Lord Rancliffe, Mr. Bowman; Lord John Russell, Mr. Battersby; Pearson's Alexander, Mr. Green; Lord Rancliffe, Mr. Green. Red grounds: Buck's George Fourth, Mr. Green; Bullock's Lancer, Mr. Battersby; Buck's George Fourth, Mr. Battersby; Seedlings, Mr. Walker.

Middleton, near Manchester, Amateur Floricultural Society, April 27.—This, the 30th annual meeting, was more numerously attended than on any former occasion. Mr. J. Holland, florist, gave a large Cheshire cheese, weighing ½ a cwt., for the best pan of *Auriculas*, one in each class, which was won by Colonel Lee, of Bagslate, with the following varieties: Booth's Freedom, Sykes' Complete, Taylor's Favourite, Netherwood's Othello, and Clegg's Lord John Russell. Other prizes were awarded as follows: Green Edges: 1, Leigh's Colonel Taylor, Mr. J. Ashworth; 2, Booth's Freedom, Mr. R. Lancashire; 3, Yates Morris's Green Hero, Mr. D. Jackson; 4, Litton's Imperator, Mr. S Brierley; 5, Seedling, Mr. J. Heap; 6, Howard's Nelson, Mr. R. Lancashire; 7, Beeston's Fair Flora, Mr. C. Haslam; 8, Politt's Highland Laddie, Mr. R. Lancashire. Grey Edges: 1, Fletcher's Mary Ann, Mr. John Buckley; 2, Sykes' Complete, Charles Bull, Esq.: 3, Kenyon's Ringleader, Mr. J. Heap; 4, Grimes' Privateer, Mr. R. Lancashire; 5, Fletcher's Ne-Plus-Ultra, Mr. J. Ashworth; 6, Waterhouse's Conqueror of Europe, Mr. Fallows; 7, Ashworth's Newton Hero, Mr. J. Heap; 8, Rider's Waterloo, Mr. J. Heap. White Edges: 1, Lee's Bright Venus, Mr. J. Ashworth; 2, Taylor's Favourite, Mr. J. Heap; 3, Seedling, Mr. J. Heap; 4, Ashworth's Regular, Mr. D. Jackson; 5, Pott's Regulator, Mr. Wm. Kent, 6, Seedling, Mr. John Buckley; 7, Countess of Wilton, Mr. J. Cheetham; 8, Seedling, Mr. J. Buckley. Selfs: 1, Clegg's Blue Bonnet, Mr. W. Kent; 2, Netherwood's Othello, Mr. R. Lancashire; 3, Scholes' Ned Lud, Mr. R. Lancashire; 4, Redman's Metropolitan, Mr. J. Ashworth; 5, Whittaker's True Blue, Mr. R. Lancashire; 6, Kaye's Jupiter, Mr. J. Cheetham; 7, Berry's Lord Lee, Mr. C. Lee; 8, Grimes' Flora's Flag, Mr. James Heap. Alpines: 1, Two Seedlings, Charles Bull, Esq.; 2, Champion of the Alps, Mr. H. Hilton; 3, Sarah, H. Hilton. *Polyanthuses*: 1, Clegg's Lord John Russell, Mr. J. Cheetham; 2, Collier's Princess Royal, Mr. J. Cheetham; 3, Pearson's Alexander, Mr. J. Cheetham; 4, Maud's Beauty of England, C. Bull, Esq.; 5, Cox's Prince Regent, Mr. J. Cheetham; 6, Hall's Premier Peel, Mr. C. Lee, 7, Nicholson's Bang Europe, Mr. J. Ashworth; Hufton's Lord Rancliffe, Mr. J. Cheetham; 9, Nicholson's King, Mr. J. Heap; 10, Fletcher's Defiance, Mr. J. Cheetham.

Morningside Practical Gardeners' Society, April 14.—This was the first meeting for this season. Several prizes were awarded; but we have only been furnished with a list of awards without the names of the objects for which they were given.

Reviews.

Rural Chemistry: an Elementary Introduction to the Science, in its relation to Agriculture. By Edward Solly, F.R.S. Second Edition.

This work has proved to be one of the best suited to practical men of all the treatises of a similar kind which the desire for Agricultural improvement has brought forth. We are therefore glad to announce a new edition, very much improved and enlarged. The first edition contained 169 pages and 461 paragraphs; this has 255 pages and 692 paragraphs; it is therefore, full of new matter, as well as being much improved in what remains of the first edition.

Professor Solly having been incessantly engaged in experimental researches into the chemistry of Vegetation for the last five years, has necessarily acquired much additional experience, which has enabled him to correct or modify the views of chemists in various points; and in this work the public has the condensed result. We therefore recommend it to all scientific gardeners and farmers, as a book which is indispensable to those who would have a correct knowledge of the *present state* of the chemistry of vegetation.

New Garden Plants.

30. FAGOPYRUM CYMOSUM. Loose-flowered Buckwheat. *Hardy Perennial.* (Buckwheats.*) Chinese Tartary. This plant was sent to the Horticultural Society by Captain Munro. It is certainly the species strangely called Polygonum cymosum by Treviranus, for it has no cymes. It would have been better to have taken Lehmann's name of acutatum, but we are unwilling to disturb the existing terminology. It is a hardy perennial of the easiest culture, growing freely in any common garden soil, and increased either by seeds or dividing the roots. It flowers the first season from seed, and is well worth cultivating as an annual, for it blooms freely from July to September, and grows from 1 to 1½ foot in height, forming a rather spreading bush. Like other Buckwheats it is a favourite resort of bees. It is so much like the Fagopyrum triangulare of Nepal, that it may be easily mistaken for it. But that species has a regularly forked inflorescence, the arms of which are longer and more slender, and never in threes, as far as we can perceive. The fruit too of P. triangulare is said to be blunt edged instead of sharp edged.—*Bot. Reg.*

31. MUSSÆNDA MACROPHYLLA. The large-leaved Mussænda. *Stove Shrub.* (Cinchonads.*) Nepal. Dr. Wallich found this noble species on the mountains of Chundragiri and Nagarjoon in Nepal, in blossom during the rainy season, in fruit during the winter. In cultivation it is found to be a stove shrub, which requires to be potted in loam and rough sandy peat in equal proportions, and, it being a plant of free growth, plenty of pot room. During summer, water should be given to its roots in abundance, and it should be syringed over-head once or twice a day. Few plants enjoy a damp warm atmosphere more than this. Like other plants it requires a season of rest, and therefore must be kept rather dry during winter, for if allowed to continue growing it will ultimately become feeble. It is multiplied by cuttings of young wood, treated in the usual way.—*Botanical Register.*

Miscellaneous.

The late Mr. Barker's Orchids.—It is reported that this fine collection has passed into the possession of Mr. Blandy, of Reading, at the price of about 900*l.*

Results obtained in the Jardin des Plantes from seeds prepared by Mr. Bickes.—Many landowners and farmers in the neighbourhood of Cassel, in Belgium, and Franckfort-on-the-Maine, according to Mr. Bickes's prospectus, appear to have obtained extraordinary results from seeds prepared by him, even when sown on sandy, bad soils of the worst description in those countries. In order to afford Mr. Bickes an opportunity of submitting his experiments to the test of public inspection, some borders were employed in the Jardin des Plantes, in which the prepared seeds were sown by Mr. Bickes himself, in April, 1845; and adjoining, in the same kind of soil, similar portions of ground were sown with seeds which had undergone no preparation. The seeds were sown in garden soil, and also in an artificial sandy soil. They consisted chiefly of the Cereals—Maize, Wheat, Rye, Oats; and some Clover, Lucerne, Turnip, Beet, Flax, Hemp, Haricot; in short all kinds which, under the procedure, are stated to yield four times the produce derived from sowings made in the usual way. The result of the experiment was, that all the plants came up and grew as in ordinary cases; no difference having been observed between those from prepared seeds and those from seeds not prepared. The Haricots, having been sown in the beginning of April, were partly decomposed in the ground, perished by the wet and cold, and consequently no result was obtained from them. The other plants exhibited their ordinary degree of development; they flowered, and ripened their seeds at the usual periods, without realising any of the advantages announced in Bickes's prospectus.—*M. Pepin, in Revue Horticole.*

Calendar of Operations.

(*For the ensuing Week.*)

Stopping Vines.—Although much stress is continually laid on the stopping of Vines during the growing season, yet this important process has its limits, the passing of which will lead to weakness in the constitution of the Vine. Two reasons seem to exist in favour of the process; the one, concentration of the powers of the Vine for a period in the immediate neighbourhood of the fruit, thereby increasing its size; and the other the prevention of the secondary shoots of the Vine from overlapping and smothering the principal leaves. After these points are duly accomplished, Vines, especially young ones, may be allowed to ramble freely, more especially in the period between the first and last swelling, or during what is termed the stoning process. It is by no means uncommon to see young Vines nearly destroyed by overbearing, especially the Muscats. These "show" in an extraordinary way, on strong young canes in newly made borders; but if the fruit be allowed to remain, and close stopping be resorted to, the constitution of the Muscat will be completely broken up. Let such, however, be allowed to make as much wood as they please, and I will venture to predict a very different result

CONSERVATORIES, STOVE, &c.

Conservatory.—Climbing or trained plants now require attention in regard to thinning, training, stopping, &c. If the sun shines very brightly, a slight shading would be of benefit for a few hours, on very hot days. The inmates of such structures, however, are sometimes very various in character and habit, and the foregoing advice would be more applicable perhaps to the various New Holland plants, Oranges, Camellias, &c.—*Stove and Orchids.*—Thorough cleanliness, free ventilation, plenty of atmospheric moisture, and occasionally a slight shading in very bright sunshine, are the prime requisites in these structures. No means should be neglected to encourage a free growth at this period in the Orchidaceous tribes, in order to get their pseudo-bulbs firm, well-fed, and well ripened betimes. *Mixed Greenhouse.*—In all mild weather the fires to this structure may be nearly, or entirely dispensed with. If the weather is genial and accompanied with bright sunshine, heat sufficient for the night may be secured by shutting up early; not, however, soon enough to scorch. A general rule can scarcely be laid down in such cases to guide the inexperienced. On a sunny afternoon one half of the air may be reduced at three o'clock, and the whole taken away at four o'clock. Continue the various points of cultivation as before recommended, remembering that now is the period for rapid growth, and all the encouragements accessory thereto.

KITCHEN GARDEN FORCING.

Pines.—Those who are for rapid growth, which is the very soul of Pine-growing, must take occasionally a lesson from the Hamiltonian system; and, although we cannot, without the permanency of the tank system, grow and fruit two or three suckers on a plant, in about half the time that some of our best cultivators do by the old system, yet we may at least call in to our aid some of the agencies by which these rapid and economical movements are effected. Amongst the foremost of these stand atmospheric moisture, which with Mr. H. is the *primum mobile*; secondly, the careful preservation of the old roots, together with the acquisition of new ones, when accomplished without any sacrifice of the old ones, or of healthy green leaves. Recently shifted Pines should receive little or no water for the first fortnight after shifting—depending rather on frequent, though slight syringings. *Vineries.*—Those ripe or ripening, must of course have no syringings, if a good bloom is desired. If, however, any one is unfortunately plagued with the red spider, the bloom ought to be sacrificed for the sake of the health of the Vine. I persist at all times in the use of sulphur on the pipes, as described in an early Calendar, together with the constant use of abundance of water; and in eight houses under my care not a single spider can be found. *Late Grapes.*—Keep a quiet and soft atmosphere—neither hurrying nor starving them; and, if possible, dispense with fire heat. Pay attention to the commencement of this day's Calendar, as to stopping, &c. &c. *Figs.*—Stop constantly, as before observed, and give abundance of water. No person will succeed with Figs, if he suffers them to get quite dry. *Peach houses* as before. In all the above forcing structures, let air—if ever so little—be given every morning, at the period by 7 o'clock at the latest, more especially back air to the Vineries.

KITCHEN GARDEN AND ORCHARD.

Let a sowing of Endive be made directly; throw in a sprinkling of early Dutch Turnip on a cool border, neither digging nor using manure. It is a mistaken notion to persist in digging ground for these in kitchen gardens, so full of old manures; the Turnip being naturally too gross there, under any circumstances. I always choose the poorest and hardest ground I can find, and merely hoe the seed in; by these means I can always procure good Turnips. Nothing can exceed well burnt ashes of any vegetable refuse for the Turnip. Let full crops of Kidney Beans be planted forthwith, and a row of Knight's Marrow Peas, or the British Queen. The row should be prepared after the way of a Celery drill, and the manure completely saturated with moisture. Strawberries in blossom must be well watered; I cover my rows with the old pit linings, chiefly half rotten leaves, and water over this. Remove some of the watery wood from the Currant bushes, and thin the Raspberry suckers.

FLORISTS' FLOWERS.

Tulip-roots should be immediately taken out of the ground when the foliage assumes a yellow, withered appearance. In this season in particular, from the damaged state of many collections, this should be carefully attended to. Should the bulbs be in a decayed state, the exterior coverings or skins should be removed, which will, I am sorry to say, bring many from a flowering state to mere offsets. They may, after being divested of all diseased parts, be put away in a cool and airy situation. *Ranunculus.*—Will shortly be in bloom; these, to keep in perfection for some time, should have a light awning over them, when an occasional watering between the rows will be of service. *Pinks.*—The buds may be now thinned out, and those intended for exhibition they should be reduced to, at most, two. The laterals may also be removed. Watering once a-week with some liquid manure or guano, will now be requisite. *Carnations and Picotees* are, generally speaking, suffering this season, and, on the average, are not looking so well as usual; attend to the cleanliness of the plants, and keep down the aphis or green fly, giving water and attending to the general routine culture when required. *Pansies* should also be shaded from excessive sunlight; they have been badly attacked by the legion of slugs which have everywhere abounded this season: hand-picking appears to be the only effectual remedy. *Dahlias* ought to be planted out without delay, and those which are sufficiently forward should be staked

FLOWER-GARDEN AND SHRUBBERIES.

In planting out Verbenas, and other mass flowers, the ball of earth should be well prepared at all solid

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

The beds should be well worked, and of a uniform state of moisture, and the ball of the plants thoroughly soaked with moisture a few hours previously. If dry weather prevail for a week or two after planting, let the newly planted beds be sprinkled two or three times a day, merely blackening the surface, and in order to prevent the soil from becoming dry, rather than to impart any moisture to it. Some of the gross kinds of Pelargoniums may be planted in undug beds; their solidity will check over luxuriance. The Frogmore Scarlets, however, will require a little cultivation. The richest mass of scarlet Pelargoniums I ever saw in my life, was at Mr. Steel's, a Richmond nurseryman, about 30 years ago. They were plunged overhead in a mound of cinder ashes, and had rooted through and over the pots. Perhaps the cinders absorbed a greater amount of heat on account of their colour.

COTTAGERS' GARDENS.

A little Cape Broccoli, Knight's Protecting, Walcheren, and Cauliflowers may be sown; a small quantity of each will be sufficient. If the Onion, Carrot, or Parsnip beds are poor, the cottager who can afford it would do well to sow a sprinkling of good guano over them, choosing the first shower for that purpose, sowing it whilst the rain is falling. Potatoes should be well stirred with the hoe, and all weeds from the more forward crops totally eradicated. Strawberries should be well watered; also newly planted Apples, Pears, or other fruits. The Gooseberry bushes should be watched for the caterpillar; shaking them off on a cloth is the best plan where the quantity of bushes is limited. A little Lettuce or other salad may be sown on a shady and moist border.

FORESTING.

Some foresters prefer the early part of the summer for pruning side shoots, or rival leaders, in young and thriving plantations. Preparation should be made as early as convenient for future plantations. Draining is the most important process

State of the Weather near London, for the week ending May 23, 1846, as observed at the Horticultural Garden, Chiswick

May	Moon's Age.	Barometer Max	Barometer Min	Thermometer Max	Thermometer Min.	Thermometer Mean.	Wind.	Rain
Frid. 22	26	30.204	30.120	71	46	58.5	S.	
Sat 23	27	30.212	30.201	71	47	59.0	W.	
Sun. 24	28	30.203	30.202	75	45	60.0	W.	
Mon. 25	●	30.207	30.161	75	53	64.0	W.	
Tues. 26	1	30.138	30.071	73	49	58.0	N.W.	
Wed. 27	2	30.158	30.096	71	42	56.5	W.	
Thurs. 28	3	30.265	30.135	67	41	54.0	E.	
Average		30.191	30.144	71.7	46.7	58.9		in.

May 24—Very fine throughout, clear
25—Cloudy and fine
26—Slight fog, overcast and fine
26—Very fine; cloudy, clear and fine at night
26—Very fine throughout, partially clouded and cold at night
27—Cloudless and very fine, partially overcast
28—Clear, fine, with white clouds and very clear intervals.
Mean temperature of the week 2 deg above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending June 6 1846

May	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain	Prevailing Winds						
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun 31	68 8	46 9	57 8	7	0.38 in.	—	5	2	—	3	5	4	1
June													
Mon. 1	70 1	47 1	58.6	10	0.97	3	2	—	5	5	1	3	—
Tues. 2	69.0	47.7	58.3	7	0.53	—	3	—	2	3	6	5	3
Wed. 3	70 4	46 5	58.5	7	0.81	—	—	1	1	4	7	5	4
Thur. 4	70 1	46 7	58 4	9	0 76	1	2	—	2	3	5	4	3
Fri 5	69 0	46.6	58 2	11	0.64	2	2	1	—	3	4	5	3
Sat 6	68 9	47 5	58 0	11	0 53	1	3	1	1	3	4	2	4

The highest temperature during the above period occurred on the 3d, 1834—therm. 88° ; and the lowest on the 3d, 1837—therm. 35°.

Notices to Correspondents.

POST-OFFICE ORDERS—In order to obviate the inconveniences which are now constantly being experienced by parties who wish to remit small sums to the office of the GARDENERS' CHRONICLE, we have to request that all Post-office orders may in future be made payable to Mr. JAMES MATTHEWS, at the Post-office, 180, Strand, London

The Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3d. each copy. An index has been added to this present edition. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5s.

ANTS *M Y*- Boiling water offers the best means of driving ants out of flower beds. Find their nest and pour it there. Turpentine will drive them away, but we fear it would render the ground permanently unfit for plants to grow in.

BOOKS *Narcissus*—Loudon's "Encyclopædia of Gardening," Johnson's "Gardeners' Dictionary," Lindley's "Theory of Horticulture," G. Lindley's "Orchard and Kitchen Garden," Neill's "Fruit, Flower, and Kitchen Garden," and Loudon's "Self Instructor." With these he will be set up.— *W R*— The "Vegetable Kingdom" and "School Botany" together will give you a full insight into systematic Botany.

CLIMBERS—*T W L R*—Plant to cover your arch Clematis aurea and montana on each side, and a Russian Pyracantha in the middle. The Clematises will grow rapidly and bloom freely; while in a few years the Pyracantha will form a beautiful evergreen covering, and be very ornamental during autumn and winter with its numerous clusters of red berries ¶

DRYING PLANTS—*C R*—In drying plants for a Herbarium, care must be taken not to press them so much as to crush them. Succulents, and kinds that drop their leaves, such as Heaths, should be dipped in hot water before they are pressed. Each specimen should be placed between a sheet of brown paper, and between each filled sheet several empty ones should be placed; for the first day or two the pressure should be only just sufficient to prevent the leaves and flowers from shrivelling. When the papers are damp the plants should be shifted to dry ones, increasing the pressure after every shift till the specimens are perfectly dry. ‡

HEATING—*Alpha*—Defer altering your house till the crop of Grapes is gathered. Then adopt Polmaise. You will hear much more about it before that time. —*A B*—Why not place pans of water on your pipes, and deluge your floor with water? But under no circumstances can you get a manageable moist atmosphere without open tanks of heated water, the evaporation from which you can check at pleasure. No doubt water in a limestone tank hardens. All gardeners use iron pumps without inconvenience; yours must be affected by some unsuspected cause. Your thermometers are not properly placed; they should be in the middle of the house in the shade; if placed at the door they do not indicate the real heat of the house, in consequence of the continual indraughts of cold air.

INSECTS—*J B H*—They are the true wireworms. Cannot you sow soda ash? I know of nothing else that will banish them. *R.*—*J C*—I am obliged by your specimens. It is a well known millipede called Polydesmus complanatus, whose history was given in the *Gard. Chron.*, vol. 1, p. 196. It is exceedingly abundant in most gardens, and often injures crops of Peas and Beans, when they do not vegetate freely. I fear no certain mode for eradicating this pest has been discovered. *R.*—*J C C*—It is the Coccus Rosæ which infests your Roses and the young are now hatching. *R.*—*R M W*—This Tortrix caterpillar, as well as Aphides and many other insects, is injuring the young leaves of the black Currants in many places. I hope you will rear the moth and send it to me. The beetle is a Choleva and will not hurt vegetation. *R.*—*J R W*—The weevils are the Otiorhynchus picipes. You will find their history and the best means of destroying them in the *Gard. Chron.*, vol. 1, p. 292. *R.*—*G J*—Thanks for the curious larva infested by a parasite called Proctotrupes Viator, which was the subject of an Essay in this Journal at p. 36 of the present year. *R.*—*Dot's* beetle is one of the Gravediggers called Necrophorus anglicus, *vide* Curtis's "Brit. Ent." fol. and pl. 71. *R.*—*R W*—The greater beetle is Malachius æneus, and was feeding on the pollen; the smaller one is Chrysomela Polygoni. Neither of them will do any harm. *R.*—*J R*—The strength of smelling-salts varies; some samples are little better than a *caput mortuum*. Some plants will bear more than others. All plants will bear more when old than when young. *Therefore* exact quantities cannot be given, and are mere quackery, pretending to instruct, but tending to mislead. You should ascertain by experiment what strength your plants will bear, and use that. The stronger the better if the foliage is not burnt. —*Sub* One or two applications of the ammoniacal liquor of the gas works, diluted with 10 or 12 times its measure of water, is a certain remedy for green fly. Apply it to your standard Roses with a syringe, unless you prefer the carbonate of ammonia. ‡

MORPHOLOGY—*T H*—The specimens you have favoured us with are not uncommon. The Cytisus is, indeed, a curious case: its habit was fully described in our columns for 1842, p. 397. No known theory touches sports of this sort.

NAMES OF PLANTS—*A T*—We never heard of such a Bousingaultia as Casiliodes. What does the name mean? The common species, B. baselloides, is a green-flowered sweet-scented climber.—*Inquirer*—Carex cæspitosa It increases both by root and seeds. Your land must be very foul and in bad condition. Does it not want draining? All you can do is to fork it up.—*Jno. Moore*—Oncidium sanguineum, Catasetum luminatum, and something else so shrivelled as not to be recognised. Why *will* you persevere in the bad practice of putting flowers in cotton wool? —*C E F* Young leaves of Acacia Sophera, or melanoxylon, or some such species. You have sent no flowers.—*Woodwicus*—Convallaria bifolia, Lithospermum purpuro-cæruleum. A herbaceous plant is one which has a perennial root and annual stems, not being bulbous. Pancratium illyricum is a bulbous plant. —*Degraphis*- Orobus niger —*Tei, Cilhercr*—Alchemilla (Aphanes) arvensis We do not know where or at what price the Cypripedium may be obtained. ‡— *C C*—Liquid manure from the farm-yard, diluted a little with water, will benefit your Vine border. In regard to Cucumbers you had better consult "Moore on the Cucumber," a little book in which you will obtain the information you seek. Much has also been said on the subject in the columns of the *Chronicle*, especially in our Calendar of Operations. ‡

NEGLECTED GARDEN—*A Z* The first thing is to drain it thoroughly. As your occupancy is so short you may as well do this by means of bushes. Also prune your shrubs without mercy, so as to let in light and air; and keep the ground well hoed. In addition, give the soil a good dressing of lime rubbish, from old buildings. These things will go far to remedy the evil.

NEW ZEALAND.—Figs may be raised from seed. All seeds are best sent to the colonies in coarse canvas bags suspended in a cabin. We print a communication upon plants in another column. Cuttings will *not* travel.

PANSIES—*W G B* You will find the following 36 varieties excellent show flowers:—Brown's Curlon, Arethusa, Maid of the Mill; Buxton's Ne plus Ultra; Cook's Mulberry superb, Black Boss, Prince of Wales, and Prince Albert; Bragg's Goliah, King's Exquisite, Sulphurea elegans, Purple perfection, and Hero of Bucks; Hunt's Wellington, Hamlet, and Tom Pinch; Turnor's Dido and Caractacus; Major's Bridegroom, Duke of York, and Bridal Ring; Thomson's Pizarro, Excellent, Cygnus, Exemplar, Eclipse, Regulator superb, Mulberry Perfection, Constellation, Euclid, Sappho, Ne plus Ultra, Jehu superb, Azurea grandiflora, Duchess of Rutland, Lady Middleton, and Major's Purity."—*P A T*—Plant those varieties near each other which you think will cross well, and let the bees do the rest; but if you wish to fertilise your plants, the proper time is as soon as the anthers are covered with pollen. You will find all the requisite information as to their cultivation by referring to the back volumes of the *Gard. Chron.*

ROYAL BOTANIC SOCIETY—*L P*—The meaning of our reporter was that the weather, bad as it was, allowed above 1000 persons to visit the Exhibition. What the number really was, we cannot say, for the Royal Botanic Society does not think it good policy to publish any return of the visitors. As far as we could ourselves judge, from the inspection of the company, we should estimate the number at between 1000 and 1500.

WIREWORM—*L G, John Hamilton, Mediensis*—The term "soda ash" is usually applied to the burnt mixture of sulphuret of sodium, caustic soda, and carbonate of soda, &c., obtained in the first stage of making carb. soda from salt, viz., by heating sulphate of soda, coal dust, and chalk, its composition, of course, varies, and it always contains compounds of lime as well as those of soda. Some people call kelp soda ash, but this is not orthodox *E*- Since so many persons are interested in this matter, perhaps our Andover friend will say where he gets his soda ash, and at what price.

MISC.—*Sarcinosalo*—We entertain no fear as to injury to Orchids of any kind from being planted among stones, if the latter are not allowed to become too cold. Soft limestone is best. As to insects, plants will not be more free from their attacks in such a situation than elsewhere nor less so. Geanera Suttoni is salmon-coloured, and so are several other Brazilian species. The July meeting in the Garden of the Horticultural Society is on the 11th.—*W H C*—Yes: it is better to remove all the single flowered specimens from your Brompton Stocks.—*W S*—We do not regard anything as introduced, which is not dispersed through the country. A plant reared in a garden, and kept there exclusively might as well have remained abroad, and although literally introduced is not introduced to any useful purpose —*Kymon*—If Lilies of the Valley are healthy they do not suffer much by a few of their leaves being pulled off. They are, however, in some degree injured every time a leaf is removed. There is no objection to removing the plants if very thick; but it must be done in the autumn when the leaves are dead.—*Caoutchouc*—There is no reason why you should not cut down your India-rubber tree. Do so when it is at rest, a few weeks before it is beginning to grow; but this precaution is not material.—*Reader*—Any person, whether a Fellow of the Horticultural Society or not, can exhibit at their rooms in Regent-street. The next meeting is on Tuesday, the 2d of June. When herbaceous Calceolarias have done flowering, remove all the old flower-stalks and dead leaves from the stems, and top-dress them with a mixture of light loam and silver sand, so as to cover the principal shoots. Remove them to a shady place, where by the end of September they will have formed roots, and may be potted off separately. By repotting them as they require it, good flowering plants will be formed by next spring. ‡

SEEDLING FLOWERS.

CALCEOLARIAS—*J W*—Great improvements have been made, and are still in progress, in the Calceolaria, and the seedlings of the present season, in form and colour, greatly surpass those we had previously seen. Your flowers generally have the common fault of being too flat in front; the best example of form among the seedlings sent is 12; and the colours in many are weak and undecided, as 9, 13, 14, 15; the best are 1, 2, 3, 10, and 11.*—*J W*—Your specimens are rather small, but extremely pretty, and varied in their colour and markings, as 1, 2, 4, 6, and 7; the others are not sufficiently clear.*—*J B*—1, 2, 3, 4, 5, are your best varieties; they are flowers of a good size, very singular and varied in the marking, and tolerably good in their form; 6, 11, 12, are bad shapes; 7, run ground; 10 is pretty, and a good example of form; 9, a good bright self; 8 is dull and flat.*—*A Subscriber*—A pretty seedling, but rather small and not uncommon.*—*W H H*—Nos. 1, 5, and the bright yellow variety with dark brown spots, are three large and fine varieties, well formed and varied in their colour and marking; the others partake of the same character, but they are much smaller flowers.*

CINERARIAS—*J W*—No. 1 is good in colour, but too small; 2 is a pretty, round and brilliant flower.*—*R R R*—A good flower in colour and substance, but not surpassing others in cultivation.*—*J T T*—Colour is the only good quality in your seedlings; they are very deficient in substance, and the petals are too narrow.*—*R G*—Nos. 3 and 4 are your best seedlings, the latter being very rich and fine, and the former rather uncommon in colour. We have better sorts than 1, 2, and 5 in the same way.*

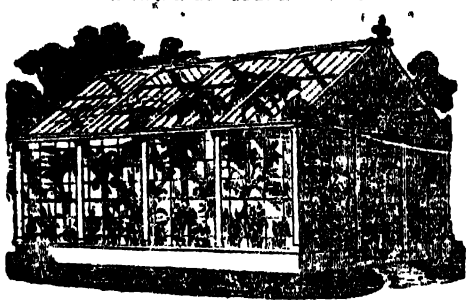
FUCHSIAS—*A S*—Both your seedlings are showy varieties; the Seafield Rival is very brilliant in colour, with a large stout corolla, and deep green foliage, which adds to the brilliancy of its appearance; it is a large, stout, and handsome variety. Lady Jane is a flower of singular proportions, the corolla being large and twice the length of the tube; it is a good variety and worth growing, the smallness of the foliage must make this showy also; but we prefer the Seafield Rival on account of its vivid colours.*—*R R R*- Your seedling is very large and stout, but there is a degree of coarseness in the sepals which disfigures it, nor do they expand sufficiently; the form of the flower altogether is not graceful.*—*S B*—Your seedling wants the strong and vivid colours of its parent exoniensis; it appears to be a remarkably free bloomer, but it is inferior to many in size and colour.*

PANSIES—*H C A R*—43 and 53 are deficient in general form, and are mere border flowers. 36 and 39 are better; but are quite second-rate in size and substance.*—*A Constant Reader*—Your seedling is a large handsome flower, of good form and great substance, and rather novel in its colour: the upper petals deep purple, the lip having a border of deep rich brown; there appears to be a crumple or fold in the side petals, which disfigure it; is this common to all the blooms? A perfect specimen will make a fine flower in a stand.*—*C R*—No. 1, a fine rich purple self, a flower of good substance, flat, and well adapted for showing, is the best you have sent; the remainder are inferior to similar varieties in cultivation.*—*Z Y*—Your seedling is an extremely pretty flower, deep blue eye, white ground, with a uniform margin of bright blue surrounding all the petals; it is a very novel and desirable variety. Oblige us with the name you intend to give it.*—*W B O*- No. 15 is a good dark self, the lip appears rather small in proportion to the other petals.*—*R G*- No. 1 is a fine yellow; but not equal to Sulphurea elegans in substance, to which flower it bears too strong a resemblance. No. 2, a flower of good substance, large with white ground, purple belting and top petals, eye fine, and colour bright; a good show flower, wanting a little flatness; the bloom sent is not a perfect one.*—*J L, A Subscriber*—No. 1 is the best flower among your seedlings, it possesses greater substance, the edges of the petals are smoother, and the lip is larger and of a better form, and the flower altogether has a better outline; this will make a bold show flower, it gives the others a second-rate appearance; they all want roundness, have a notch in the lip, and are rough on the edges of the petals, with the exception of No. 5, which stands next in order to No. 1; in this the lip wants breadth, and the eye mixes too much with the marginal colour.*—*Z Z*- No. 1 a large well-formed flower, singular though not pleasing in colour, and rather deficient in substance; 2, perfect in form, with the edges so even that they have the appearance of being stamped; eye striated, flat, and fine in colour and substance; 3, large, round, and flat, of great substance, top petals with broad belting of rich mulberry, centre of a deep bright blue, with the eye visible; fine flower for a stand; 11, form, substance, texture, and colour, fine; the portion of the eye on the lip being striated does not appear to correspond with the blotches on the side petals; colour yellow and velvety mulberry; 13, a first rate flower, fine form, and substance flat, with fine eye, bright yellow ground, united to top petals, and perfect belting of the deepest velvety brown, not distinguishable from black; edges smooth; a very attractive flower; 16, rich velvety bronzy purple, small yellow centre, the eye mixing a little too much with the belting, fine form and substance; 61, fine form, colour, and substance, mulberry-purple top petals, with a perfect belting of deep blue round the lower petals; the eye of this flower is singularly large, giving great richness to the appearance of the flower."

PELARGONIUMS—*N P*—The colour of your seedling is good; but the flower is small; larger and better flowers, similar in colour, are already in cultivation.*—*R G*- Your seedling forms a handsome truss, but the flowers are not well formed, and it is very common in colour.*—*J B S*- No. 1 is rather small, and as the petals had fallen, we cannot decide upon the appearance of the flower when perfect. The petals, however, are broad and well-shaped; of a beautiful bright vermilion, forming one of the nearest approaches to scarlet we have seen in the Pelargonium. The flower is uniform in colour, with a feathery brown spot in the upper petals; 2 is a second-rate flower of its class; 3 a very bright and well-formed orange flower, with intense spot surrounded with scarlet, a brilliant and pretty variety; 4, very common.*—*A Devonian*—There are two qualities in which your seedlings are very deficient, they want form and substance, 1, 2, 3 and 5 are instances of this; the lower petals are too long, and the upper ones very thin on the edge. Colour is the best point about them, but as form and substance are essential to a good flower, it is useless to criticise them individually.*—*R—64. This flower, though too small for showing, is exquisite in colour, and the tinge of blue in the centre, which dulls most flowers, seems to impart brilliancy to this. 51 is also a brilliant and high-coloured variety; the predominant colour being a bright vermilion; a deficiency of form is apparent when the flower is fully expanded, the lower petals being too long. The same fault in the form is visible in 50, which is also a flower clear and brilliant in colour. The same may be said of 63 and 56; they all possess great delicacy of texture and beauty of colour, but they want the roundness, breadth of petal, and occasionally the substance of the best flowers of the present day. 58 presents an improvement in form, the lower petals being short; the upper ones are a little too high and thin on the edge. 65, narrow top petals, edged with pink, with pink under petals, a clean and pretty flower, but a repetition of an old variety. 68, pink with white centre, and 76 are pretty, but devoid of form when expanded.*

TULIPS—*J B*—The bloom of your Bizarre had been kept rather too long, the ends of the petals having decayed. The character of the flame is very fine, and it appears to form a good cup The principal objection to the flower is that the bottom of the cup is not sufficiently pure and free from stain.*

SMITH AND CO.



ESTABLISHED NINE YEARS.

HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, AND GENERAL GARDEN FURNITURE MANUFACTURERS;
GLEDE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA, LONDON.
FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

TURNIP SOWING.—POTTER'S GUANO.

POTTER'S GUANO was used by Dr. Daubeny last season against 11 other Artificial Manures for TURNIPS. It beat them all,—260 lbs. producing 6000 lbs. more Bulbs per acre than the same weight of Peruvian Guano, at 25 per cent. less cost; 18,000 lbs. more than 10 cwt. Bone Shavings, at one quarter the cost; and 7000 lbs. more than 12 cwt. Superphosphate, also at one quarter the cost. For particulars, see p. 331 of last No. of "Royal Agricultural Journal," and p. 224 of *Gard. Chronicle* of this year. To be had, genuine, direct from the Factory, 28, CLAPHAM-ROAD-PLACE, LONDON, or of any of Mr. Potter's accredited Agents.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
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And by their Agents,
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL;
COTSWORTH, POWELL, AND PRYOR, LONDON.
To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.
The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London

TURNIP SOWING.

THE URATE OF THE LONDON MANURE COMPANY, Four Guineas per Ton. The experience of the last five years has fully established the above as one of the best of all the light manures for the production of Turnips, for which crop it is particularly adapted, seldom failing in the driest season to secure a good plant, and to produce a great weight per acre. Availing themselves of the many improvements in the science of artificial manures, the Company so manufacture the Urate, that the food requisite for a rotation of crops is fully maintained, therefore parties using the Urate for Turnips will find their succeeding crops of Barley and seeds materially improved. Full particulars, with testimonials, forwarded on application. No. 40, New Bridge-street, Blackfriars. EDWARD PURSER, Secretary.

THE PATENT CORNWALL WHITE MANURE is an efficient preventative to the ravages of the Wireworm, and a strong fertiliser, consequently most advantageous in its application to Turnips. The following analysis was laid before the "Royal Agricultural Society," by W. Shaw, Esq.

Silicate of Lime	Silica ..	28.0
	Lime ..	17.0
Carbonate of Soda ..	Carbonic Acid	8.5
	Lime ..	10.8
Caustic Lime	.. ..	28.2
Magnesia and Alkaline Salts	..	3.8
Oxide of Iron	.. ..	2.7
Phosphates	.. ..	1.0
		100.0

Price 42*s.* per ton, in bulk.—THOMAS JOHN CROGGON, 8, Lawrence Pountney-hill, Cannon-street, London.

The Agricultural Gazette.

SATURDAY, MAY 30, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, June 3—Highland and Agricultural Society.
THURSDAY, — 4—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, — 10—Agricultural Society of England.
THURSDAY, — 11—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.

N. Lincoln—Galston—Cadder, near Glasgow—Wells (Ireland.)

FARMERS' CLUBS.

June 1—Moreton Hampstead — St. Columb — Usk — Newark — Markethill
— 2—Abergavenny
— 3—Braintree and Stocking
— 4—Richmondshire — Binfield and Waltham—Hewick
— 5—Wrexham — Hadleigh — Wakefield — Clayton — Lichfield
— 6—Northampton — Swansea—Melrose—Durham—Cardiff—Colnmpton — Winchcomb — Probus - Dartford.
June 8—Bakewell—Selby—Bamb'ster—Yoxford — Cirencester —W. Market — Wenlock — Great Oakley—W. Hereford
— 9—St. Peter's—Wootton Basset — Rochford Hundred — Framlingham — Jedburgh — Watford—Wingerworth
— 10—Harleston
— 11—Grove Ferry
— 12—Wadebridge—Halesworth—Chelmsford—St. Germains—Tavistock—Northallerton

WE were wrong in saying at p. 289 that the METROPOLITAN SEWAGE MANURE COMPANY'S BILL had passed its second reading. The mistake was copied from a daily paper. On Thursday, April 30, Colonel T. WOOD'S motion that the bill be read a second time was postponed for a fortnight, to afford Government time to make the necessary inquiries. On Thursday, May 14, the motion was renewed; but after considerable discussion and opposition, founded on a report by gentlemen to whom the subject had been referred by the office of the Woods and Forests, it was again postponed, in order that the report, characterised by Colonel WOOD as the most wordy and trumpery document he had ever read, might be laid before the members. The motion will have been again made, and probably determined before this is published; we hope that the ability, perseverance, and truthfulness with which the Company's claims have been advocated will be rewarded with success.

"DR. LIEBIG'S GREAT DISCOVERY OF DISSOLVING BONES IN SULPHURIC ACID FOR THE PURPOSES OF MANURE has been so clearly established, as well by the experiments of the Duke of RICHMOND as of other farmers, and so fully investigated by Mr. HANNAM that nothing seems now to be wanted but some plan for bringing it within the ordinary routine of farming."

We quote the above from a Paper by Mr. PUSEY, in the current Number of the "Journal of the Royal Agricultural Society." We have already given some extracts from it in our columns, and refer to it again at this particular period—the beginning of the Turnip-sowing season—to call attention to the fact which Mr. Pusey states, and to the inference deduced therefrom.

It is a fact that the experimental investigations, which have now been given to the world, have perfectly confirmed the first experiments on this subject They have completely established the truth of the theory that bones acquire an increased influence upon vegetation by being dissolved in sulphuric acid. We shall not attempt to point out of what material benefit to agriculture this discovery is likely to be, nor shall we now exhibit in any detail the rationale of the practice. This has already been fully done by Mr. PUSEY, Mr. HANNAM, and others in the last volume of the Royal Agricultural Society's Journal. The subject, too, has been discussed in our own pages on several occasions, and there is no necessity to revert to theoretical considerations now perfectly well known. The fact, however, that these have been tested and proved to be sound is what must now be published; for if the practical farmer be convinced that an increased fertilising influence is obtained by dissolving the bone, he will act upon it at once and without hesitation. For it certainly is not harder to believe that bones subdivided minutely by chemical means may be improved thereby, than it was formerly to believe that when crushed by mechanical means they were more profitable to use than in a rough or unbroken state; and in the latter case farmers have found out that a smaller quantity in the state of fine dust effectually serves the purpose of the larger quantities formerly used in the rough. And no man now applies rough bones by the waggon load per acre. Let farmers, then, believe that the chemical separation and solution of the constituents of the bone *does* in practice promote its action as a manure, and they will in a like manner subscribe to the doctrine that a further great saving in the quantity of bones applied to the Turnip crop may again be made.

It is our present object then to insist upon it, that the theory of dissolved bones has been already thoroughly proved, and that the practice founded upon it ought therefore to come into immediate operation. The man who is impervious to argument cannot withstand the truths exhibited by example, and the experimental evidence in support of the practice has now clearly established the advantages of the discovery. This is the important fact stated by Mr. PUSEY, and which we can best serve the interest of agriculture by promulgating. And it is not merely on his authority that we would have this great fact taken; the pages of our own Journal, of the records of the Royal Agricultural Society, and of every other agricultural periodical, afford countless proofs of its reality.

And to these we refer with pleasure, not merely because they confirm and establish the truth of a theory which we have on several occasions set forth to our readers, and which puts the farmer in possession of an improved and beneficial practice, but because it justifies our confidence in the labours of those parties who originally undertook the investigation of the question, and who have fought the uphill fight of improved practice versus "vested" opinions.

Experience has now fully justified the opinions expressed by Mr. PUSEY when the question was first mooted—opinions which, however much they were then sneered at, now prove him to have been as correct an expounder of the science, as he has always been considered of the practice of agriculture. On the publication of the first experiments by the Duke of RICHMOND, Mr. GEDDES, Dr. MONSON, and Mr. M'WILLIAM, in the "Journal of the Royal Agricultural Society," and by Mr. HANNAM, in his Prize Report on "Special Effects of Manures" to the Highland Agricultural Society of Scotland," Mr. PUSEY expressed his opinion that they afforded "good hope" that the discovery would enable us to realise the most important saving ever yet held out in the use of manure.

For this opinion, treason as it was to the existing order of affairs, Mr. PUSEY could not hope to escape the ridicule and the indignation of the prejudiced and the interested. The theory of Liebig was declared to be "far-fetched and unworthy of credit," and the experiments "evidently unfair"; and thus divested alike of theoretical and practical evidence, his suggestion was freely offered to be "taken for what it was worth—

'A pin, a nut, a cherry-stone.'"

Mr. PUSEY, however, afterwards laid before the Council of the Royal Agricultural Society some extracts from Mr. HANNAM'S unpublished Essay on the "Theory of the Action of Bones on the Turnip Crop," having reference to what he termed the "great discovery of the economical employment of dissolved bones;" and stated that it contained, in his opinion, "not only a detailed account of the best experiment ever made in agriculture, but some points of so much importance, that he felt anxious that not a moment should be lost in communicating the facts to the members." And this is the mode in which his cause was then spoken of:—"The day of Chartist regeneration, of Johanna Southcote, of flying machines, of South Sea schemes, nay of Cæsarian Cow Cabbage, is gone, and the lion of 1845 is 'bones dissolved in acid.' Every season has its lions. The world of politics, of religion, of science, of speculation, and even of poor agriculture, has now and then bubbles cast upon its surface—so varied, so resplendent with glittering embellishments, that the eager hand grasps the bubble, and it bursts and dissipates in nothing but '*thin air.*'" And then came the application of the figurative imagery of the oracle—the practical morale of the prophecy—"Will any one be found who will risk a crop upon the evidence?"

In less than twelvemonths from the issuing of this oracular denunciation, we find the theory which was to "dissolve and dissipate into thin air" recognised as a thing clearly established—supported by the evidence of scores of crops risked in its trial, and recorded in every agricultural periodical in the kingdom.

This result, we say, is agreeable to us, and to every lover of true progress, not merely because of its practical usefulness, but also because it thoroughly justifies those who have laboured, through such difficulties, in the search of what has now proved a scientific and practical truth.

WE congratulate the importers of PERUVIAN GUANO upon the very judicious step they have just taken. We find that the price of this indispensable article has been reduced to 9*l.* per ton for 30 tons, or 10*l.* 10*s.* for smaller quantities, in London; and to 8*l.* 10*s.* for 30 tons, or 10*l.* for smaller quantities in Liverpool.

The immediate effect of this wise measure will be to drive the bad Guano out of the market, and to diminish the chance of the Peruvian being adulterated.

We may also congratulate our agricultural friends upon their being thus enabled to procure the most valuable of all fertilisers at a price which does away with the motive, such as it was, of placing themselves in the hands of Guano sharks.

VARIETIES OF SWEDISH AND COMMON TURNIP.

"I AM a dealer in Turnip seeds, and am frequently put to considerable inconvenience by the various names by which my customers are pleased to designate the sorts which they require; it is this inconvenience, and the view of obviating the same for the benefit of myself and others similarly situated, that has prompted me to trouble you with the annexed list of names, trusting that you, or some one of your numerous correspondents, will furnish a descriptive list, with definite names (other names being considered as synonymous), of the different varieties; which may be a means of preventing error to a great extent, both to the seedsman and sower.—*West Briton.*"

[A list of names accompanied this communication, which, with certain additions, we here lay before our readers in a classified arrangement, for which we are indebted to Messrs. Drummond and Sons, of the Agricultural Museum, Stirling. They say, "We have merely gone over the list, endeavoured to classify the names according to their colours, and then put together those that we consider the same sort, although under a variety of names.

"You are, no doubt, aware, that in Scotland we cultivate very few varieties of Turnip, but these we take care to grow pure, and improve on the variety if we can. We also, however, are troubled with new names, but unless the varieties they designate have a distinct character, we never introduce them. A great many of

hes named are merely that of the party who grow the seed; thus we have seen 'Green-top Yellow' go under half-a-dozen different names, such as 'Scott's Yellow,' 'Gordon's Yellow,' 'Roy's Yellow,' &c. No seedsman should vex people with a new name to any variety of seed whatever, unless it has really a distinct character from other well-known sorts.

"The Fettercairn Swede (Green-top) is not well known here yet. It is objected to as yielding a light crop compared to Skirving's; it is, however, a beautiful shape, very compact, and has a small top. Our Irish friends are getting fond of it; they say it does not grow in the spring like some of the other sorts."]

VARIETIES OF THE TURNIP.

Swedes.		Green round	
Purple-top		Red round	
,, Skirving's		Blue Poll	
Laing's		Blue-cap	
Matson's, unknown in Scotland. [Well known in south of England, as having a well-shaped root of moderate size, crowned with a small top.]		Pomeranian	
		Tankard, with red top	
		,, with green top	
		,, all white	
Green-top		*Yellow.*	
Aberdeen, — unknown; must be the common Swede		Norfolk	
Pale's Kentish Green-crown	unknown	Dale's Hybrid	
Oxford ,, ,,		Hybrid Yellow	
Short-top red-neck		Hybrid Green-crown	
Ashcroft		Purple-crown	
Emperor		Purple-top Scotch	
Tankard,—supposed to be the Yellow Tankard, or Pudding Swede		Green-top Scotch	
		Imperial Purple-crown	
White.		True Purple-top Scotch Bullock	
Norfolk		True Green-top ,, ,,	
Green		Green-crown Scotch	
Red		Purple-top Scotch	
Blue		Green-top ,,	
Globe		Large Aberdeen	
Green Globe		Purple-top ,,	
Round		Scotch ,,	
		Oxheart	
		Tankard	
		Imperial Border	

White Stubble is the same as the White Stone or Garden Stone; it is often sown broadcast upon the stubble after Barley, especially in Ireland.

White.	
Norfolk, all white	A soft spongy Turnip, and not so solid or handsome in shape as the Globe.
Norfolk, with red top	These are one and the same variety, and are of the same character as above, but have a coloured top—strictly, a purple, or bluish purple-top. Poll and cap have all the same meaning.
,, blue	
,, blue cap	
,, blue poll	
Norfolk, round	This also we understood to be the Norfolk Turnip; green and red expressing the colour of the top by which the variety is known.
,, green round	
,, red round	
Globe	A well known Turnip, and the best of all the whites. The Pomeranian is an improved variety of the White Globe, very fine shape, and grows more uniform in size than the other. The Green Globe is superior to either. Not quite so large, but very solid and juicy.
Green Globe	
Pomeranian Globe	
Tankard, all white	Need no description; as their name indicates they are long shaped, grow mostly all out of the ground, and answer best for thin soil. They come soon to maturity, and answer well for early feeding. They do not stand frost.
,, red top	
,, green top	
Character Unknown.	
Cornish Holdfast	Decanter. We see this often advertised. What is it? It gets a great character in print.
Purple crown yellow hybrid	
Early cream	
Yellow.	
Dale's hybrid	All the same Turnip. Proper name Dale's hybrid, well known. Is well described by Lawson. It has degenerated very much of late years.
Hybrid yellow	
Hybrid green crown	
Purple crown	These may all be considered one variety. The proper name being Purple top Yellow Bullock. The Imperial Border was introduced as an improved variety, but the improvement was not easily discovered.
Purple-top Scotch	
Imperial purple crown	
True purple-top Scotch Bullock	
Purple-top Scotch	
Purple-top Aberdeen	
Imperial Border	
Green-top Scotch	These are one and the same. The proper name is Green-top Yellow Aberdeen Bullock.
True green-top Scotch Bullock.	
Green crown Scotch	
Green-top Scotch	
Large Aberdeen	
Scotch do.	
Oxheart	So called from its peculiar shape. Is a soft Turnip compared to the green-top yellow. It is doubtful if there is a genuine Oxheart to be got now. It was scarcely worth keeping distinct.

The following, selected from the list, are chiefly for garden purposes, and like the field sorts might be cut down into a very few names.

Yellow Stone	White Dutch	Early Ball
White Stone	Yellow Dutch	Snowball
Six-weeks Yellow	Yellow Malta	Altringham, &c.
Six-weeks White		

ON THE APPLICABILITY OF WIND POWER.

I observed lately, but have not the Paper at hand to refer to, that one of your Correspondents asked for information as to the cost and construction of a windmill for the purpose of threshing corn, quaintly observing that "he does not like steam." As there is one man in the world still willing to take up what all the others have laid down, and singular enough to dislike what is generally approved and adopted, it were a pity that the information he seeks should not be afforded.

About 30 years ago, every considerable farm on both sides of the Tweed, from Berwick to Melrose, was distinguished by the high tower and sails of a threshing machine worked by wind. Those have all, long ago, disappeared, and been replaced by steam engines, even where coals are brought from a distance of many miles, except in a few instances where the towers, to save the expence of removing them, have been converted into dovecots. But still, in passing through the country, one sees here and there the unappropriated materials of the wind apparatus laying useless in the stack-yards. If, then, your correspondent would apply to any millwright in Berwick, Coldstream, Dunse, or Kelso, I doubt not that he would obtain the machinery he requires on very moderate terms, and from materials "little worse than new." If he wishes for more particular reference, I may name Mr. Samuel Biddle, of Tweedmouth, who has been employed in altering many threshing machines from wind to steam power.

Of all powers for working machinery, except where a sufficient supply of water can be had, steam is the best and cheapest; it can be created, controlled, and regulated at will; but wind, besides the great expence of the needful erections, is the most expensive and wasteful, because it is the most unsteady and capricious. It may blow during the night and cease in the day, or if a promising breeze brings in the morning, and induces the farmer to collect all the hands needful to take in a stack, manage the threshing and dressing of corn, and remove the straw, it may, as often is the case in fine weather, decline as the sun advances, and after a short time of wasteful and inefficient operation, the work is abandoned, and the parties employed sent listlessly to find other occupation. When windmills were in fashion, how many were the complaints with farmers that their stacks stood uncovered after harvest, because the wind would not blow to give them straw for the purpose. That their autumn Wheat was not yet sown, because they had not been able to thresh the seed. Or that their rent was not forthcoming, because the threshing machine had not gone round for the last six weeks. If these remarks, which I make in a friendly spirit, should be of use to your correspondent in helping him to a decision regarding his threshing machine, I shall be glad of it.—*John Grey, Dilston, May* 14.

ON THE MANURES PROPER FOR THE HOP.

In the *Agricultural Gazette* of the 9th inst., there is inserted a letter from Mr. Lawes, relative to "Manures for Hops;" and as Mr. Lawes states that he has had no experience in the cultivation of the Hop, you will probably be disposed to insert the remarks of those who are more practically acquainted with the subject. In Mr. Lawes' observations I generally concur, though I think he is disposed to attach too little importance to the inorganic constituents of manures, while some theoretical chemists seem to regard them as exclusively necessary. To Liebig, I (in common with hundreds of agriculturists who would wish to keep pace with the discoveries of the times, and would avail themselves of the scientific resources which have recently been developed for the advancement of our art), feel most deeply indebted; still, while I gratefully make this acknowledgment, there are some points upon which we must, with our present information, dissent from the views of this distinguished authority. One of the most important of these controverted points is, that plants derive their organic principles entirely from the atmosphere.

The analysis of the Hop made by Mr. Nesbit, in the pamphlet alluded to, was from plants grown upon my land. And as this is the first analysis of the Hop that has yet been made public, I consider the Hop-growers are under great obligations to Mr. Nesbit for placing it before them. Shortly after this analysis was made, Mr. Nesbit gave a gratuitous public lecture, at Farnham, on Agricultural Chemistry, at which I presided; and there, at its conclusion, I took occasion to observe that I dissented from his views, so far as related to the supply of inorganic manures alone to the soil, and I asserted, as the result of my own observations, that the application of nitrogenous manures did either directly or indirectly exercise a most material influence upon the crop. Since that period I have had a short conversation with Mr. Nesbit, and I believe that his opinions in this respect are considerably modified.

I am now making some experiments upon my Hops agreeably to Mr Nesbit's suggestions, though I have not adhered to the precise quantities and ingredients which he recommends in his pamphlet. My chief object has been to ascertain what the effect of a liberal application of potash would be, and I have therefore applied it in various combinations, upon different parts of my plantations. I have put on the carbonate of potash, or pearlash, as containing in one article the largest per centage of potash, at the rate of 1 cwt. per acre, mixed with 5 bushels of ashes, in addition to other kinds of manure. But here let me caution any of your readers who may be disposed to try the pearlash, to spread it upon the land with ashes only, and by no means to mix it with guano (as my bailiff did with a mixture for one acre, before I was aware of the effect), or the ammonia of the guano will be dissipated, as if it had been mixed with quicklime.

Although it is generally admitted that plants derive by far the greatest part of their carbon directly from the atmosphere through the medium of their leaves, it is by no means so certain that they obtain their other organic constituents from that source; on the contrary, there seems to be sound reasons for inferring that they are in great measure obtained from the soil, through the agency of the spongioles of the roots. And if this be the case, we at once see the propriety of applying manures highly charged with nitrogen to the soil. I do not mean to assert that there is not a vast store of ammonia accumulating from time to time in the atmosphere and precipitated to the earth with rain, and more especially after a long period of drought in the summer months; and, if I recollect aright, Liebig brings forward this fact as a proof that the atmosphere is the all-sufficient source whence plants derive their organic materials; but, to my mind, this circumstance ought rather to be adduced as a reason for supplying the soil by artificial means with ammonia, as it is evident that the ammonia in the atmosphere produces little if any beneficial effect upon the plant, until it is precipitated with the rain, and afterwards taken up in combination with various other organic and inorganic substances by the spongioles.

My own tolerably extensive experience corroborates the suggestions of Mr. Lawes, as to the kinds of manures that are most useful for Hops, and as a general rule it is found that those sorts which abound most largely in nitrogen invariably tend to produce the most luxuriant bine; but this result is not all—nor even chiefly what the Hop-grower requires; for, as with Wheat, there may be an over-forcing with manure, which produces straw without corn, so with Hops, there may be bine without fruit, arising from a similar injudicious application. And it is here that I think the "inorganic" chemists may be of great service to us; for, if on an analysis of the soil a due proportion of the requisite constituents of the Hop should be found deficient, they will thus teach us what the inorganic ingredients are which should be added.

When manures consisting principally of animal matter, such as rags, sprats, sheep's-trotters, guano, &c. &c., are put on Hop-grounds in very large quantities, the foliage of the Hop is always of a dark-green colour, like a field of rank Wheat, evidently showing that nitrogen is the chief agent in the process of this development; and the result of such an over-dose, should the season be wet, is the certain destruction of the crop. For all practical purposes, therefore, a judicious medium is the best.

Last year I tried, by way of experiment, on twelve different acres in various parts of my plantations, what is termed "the inorganic manure," the ingredients of which the sellers do not divulge. The season was certainly an unfavourable one for making experiments, on account of the aphis blight which attacked many of our Hop-grounds; still, in every instance the bine was less luxuriant, and the leaves evinced less vigour, as indicated by their yellow colour, than on the adjoining hills, which were dressed either with dung, rags, trotters, or guano. Neither in the crop did I perceive any apparent benefit, and if I might judge by analogy from my Turnip-crop, in which I placed the "inorganic manure" alongside of the best Ichaboe guano, and where the result was as two to one in favour of the latter, I should consider that for Hops there is no comparison between a manure containing a large proportion of organic matter, and one destitute of it.

In selecting manures for Hops, if the grower were restricted to one kind, he would unhesitatingly give the preference to a mixture of good dung; but as it would be almost impossible, even if desirable, in very extensive plantations to obtain sufficient quantities of this article, I think the best plan to be pursued (at any rate until our chemical and physiological knowledge be more fully and accurately developed), is to vary the descriptions of manure as much as possible, so as to ensure in one year a compensation for what may have been omitted in the preceding. My own system is to dress every third year with a plentiful coat of good dung, and the intervening years with artificial manures, taking care never to use the same kinds in immediate succession. The haulm or bine too should never be wasted, as is usually the case; for it is as valuable as straw, and like straw or hay, it ought to be stacked away after the picking season, and used in the farm-yard as bedding for cattle, by which means it will be returned to the soil after being converted into the most valuable manure that can be procured for Hops.

The thorough cultivation of the soil is as necessary for the successful growing of Hops as a liberal supply of manure, and though the ground ought always to be moved so frequently that weeds cannot have time to grow, yet, from midsummer to michaelmas especially, the soil should be constantly kept like a well finished field prepared for a Turnip season.

The cost of manure and cultivation as stated above, with many other concomitant expenses, necessarily involve an immense outlay in the cultivation of Hops, which is too frequently disregarded by many in their estimate of the value of this crop, and consequently much land is often planted which never pays the expenses. And whilst speaking of expenses in cultivation, I take this opportunity of remarking that I think your readers are often misled by some of your more enthusiastic correspondents, who when writing of certain districts favourable for the carrying out of agricultural improvements do not enumerate their special advantages, which omission tends to create dissatisfaction between the farmer and his labourer on the one hand, and his landlord on the other. I allude particularly to the expenses of drainage and subsoiling, which are far more costly processes in difficult localities than one would be led to infer from the general tenour of your

correspondent's communications. No one can be a more strenuous advocate for drainage and subsoiling than myself; yet I think that no farmer or landlord should commence these essential operations without first counting the cost with accuracy. On some future occasion I shall have great pleasure in communicating to you the particulars of my experiments on these subjects.—*J. Manwaring Paine, Farnham, May* 16. [We feel exceedingly obliged to Mr. Paine for this very valuable communication; and also for his promise of further information on the subjects referred to in it.]

Home Correspondence.

The Allotment System.—If you will permit, I would venture to say a few words on a subject, which, to the labouring class (to which I belong) is of some importance. I have often heard of the kindness of landlords in granting to the cottager a piece of allotment ground; at first sight it does, indeed, look well, and I do not question but it is meant well. But when we come to look at it closely, like everything else, it has a wrong side. Now, let us first look at the rent charged for these allotment pieces: in many instances 1*s.* per perch, and yet it is said that this is a great blessing. Why do not they confer blessings like these on the farmers of 400 or 500 acres? why honour one class so exclusively? I have ever been dependent on the farmers for work and wages, and I do indeed wish to see them prospering, but this shilling a perch (8*l.* an acre) is an imposition. If land is worth that (and I have no doubt but, with proper cultivation, its present value might be doubled), why is it so much underrented? The landlords are certainly standing in their own light when they dispose of their property at 400 or 600 per cent. below its real value. If the cottager who holds 1 acre can pay 8*l.* a year for it, why cannot the farmer who holds 500 acres pay 4000*l.*? and yet who would say that he should do so? what landlord would ever dream of asking so much? But some will say that this is an extreme case that I am taking; but it is often to be found. But granting that allotments are let at the same rent that large farms are, let us see if they are the great blessing which some would make us believe them to be. Some have said how cheering it is to the poor man to have a piece of ground on which to employ himself at night after the labours of the day are over! Is digging his own ground no toil? As well may one say, how refreshing it would be to the man who has travelled 30 miles a day, to have other three or four to go. Yet many have drawn such a fair picture of the enjoyment which the cottager derives from this, that it is no wonder that some well-meaning persons have thought they were indeed the benefactors of the poor in granting them a piece of ground, even at 8*l.* an acre. But I speak from experience when I say, that if a man works 10 or 11 hours a day, he is not able (giving himself justice) to work other four or five hours, although it be for himself. Ever since I was able, I have been employed in cultivating the ground with the sweat of my brow, and I am certain that, if I had had the labour to perform night and morning which I see many others perform, I would have been ill-fitted for giving a fair day's work for a fair day's wage. I know I could not, and I know not one in ten is able to do it. And I refer the matter to any one's arbitration who has himself had to toil with his two hands for his daily bread; those who have never put their hands to the plough are not fit to be judges, for many of them can look on the labourer toiling with no more concern than they would on the steam-engine in motion. They think not that he is soon overcome and unable to earn a comfortable living. But if a man were able to pass so much time in bodily toil, is it right that he should be obliged to do so? Is no time to be allowed him for the cultivation of his mind, which should always be progressing both in old and young? and which is the only thing which raises man above the brute creation. Few schools are planted to give the poor an opportunity of improving in their early years, and matters are to be so arranged that they are unable to redeem their time when they come to find out their own wants. Are these things for the profit of the farmer? Is it more for his interest that his labourers should be so uninformed? I presume none will say so; but if there are any such, who maintain that their servants should not be as well educated as themselves, and who think that they themselves must always stand out as lights shining in the midst of darkness, this shows their own want of sound knowledge; or, if not, of worthy motives.—*G. S. A Dorset Labourer*. [We can only say that labourers are not forced to take these allotments—nevertheless, they are gladly accepted; that we quite agree in what has here been so ably said of the importance of education to the labourer as well as to the farmer; and that 1*s.* a perch is, under ordinary circumstances, a scandalous high rent for land.]

Oats Injured by Pickling, &c.—In answer to your question, 1st, there is no manner of accounting for the difference in the present appearance of the Oat crop, except the pickling, as the further advanced is distinctly seen to keep in a straight line along the ridge where the unpickled was sown; 2d, it was all pickled late in the evening and sown the next morning, with the exception of 1 qr. 2 bushels, which lay in the pickle four days. With regard to further particulars, I may inform you that that in the pickle four days is the healthiest of the whole pickled. [This is a singular fact.] They are sown in a small plot of 3 acres, after Turnips; soil, good loam, but damp and undrained: the difference can be discerned at a distance of 300 yards; kind, Potato and Hopetoun. The next field I shall mention is one of 17½ acres, lain two years in Grass, pastured both years, thorough-drained last winter, and sown partly with Sandy and partly with common Oats. I have rolled the whole of this field, and the pickled is overtaking the unpickled, especially in the Sandy, but the difference in the common can still be discerned at a distance of 800 yards. The next is a piece of ground of 7 acres, reclaimed from wood and bog two years ago, and drained, though not thoroughly. It was sown with Sandy, all pickled, and looked badly for a considerable time, but since rolling has improved. The next is a field of 10 acres, of old wood, trenched out last winter, sown with sandy, only about 4 acres pickled; the difference very decided. I have also rolled this field as the soil is light. The last field is one of 15½ acres, two years in Grass, pastured one, undrained, and liable to flood; soil, rich alluvial deposit, but soured through want of draining; sown partly with Sandy and partly with Potato and Hopetoun, mixed. All pickled. The Potato and Hopetoun look worst. I have not rolled this field, but have harrowed part of it in accordance with your advice. The reason I did not follow it further was, I thought the weather looked too dry; and it was as well I did not, as we have had six days of burning sun and hard east wind. I find that my steward had only used 1⅛ gallons of water to 1 lb. of vitriol. The reason of so much of my land being undrained is want of level; and last autumn, when I proposed bringing it up from a distance of a mile, our neighbouring proprietor, Lord Glasgow, or rather his factor, interfered, on the ground of my taking the water past one of his mills, although the cut would be all on my father's land. There are two small *burns* (Anglice, ditches), which are feeders to his dam. I then proposed carrying these over my cut, by solid masonary and iron pipes, so as not to lose him a drop of the water he has at present, for these feeders are supplied from the high ground, whereas it was the low that I wanted to drain, but he still refused. Would you be kind enough to give me your opinion on this question? It is rather hard that all my low fields are to be turned into a dam for his mills. All the practical men I have talked to, and who know the ground well, are against him, even all his own tenants.—*R. B. D.* [You speak of *lying in* the pickle. Now, we never let the grain *lie* in the pickle. The solution of the vitriol is sprinkled over the Oats—they are turned rapidly and repeatedly, so as to wet every grain—they dry spontaneously in an hour, and are sown immediately. As regards the question of drainage, so far as the brook is now supplied with water, which, by your proposed cut, would be removed from Lord Glasgow's mill, his lordship would, we imagine, have a just claim on you for damages. But, obviously, all your land below the level of this mill may be drained as you propose without harm to any one; and doubtless all of it may be so drained if, as you state, the brook gets *all* its water from a distance.]

To Preserve Turnips from Hares and other Vermin.—Sow every 30th, 40th, or 50th drill (the bribe must be proportionate to the numbers of the enemy) throughout the field with Swedes; so long as a single bulb of these remains, neither hare, rabbit, pheasant, rook, nor woodpigeon, will touch either a white or yellow Turnip. I have tried this plan for the last two years with the most complete success. Do you happen to know anything of Liebig's patent manure? Two of my neighbours tried it last year on Turnips. I saw one of their fields frequently in the end of the season, when you could not tell the difference betwixt the produce of the patent manure, and that of the farm-yard dung. The same result was obtained by the other gentleman. The cost, and quantity applied, was the same as of guano. What the effect upon this year's crop of sets may be, of course, remains to be seen. Can you, or any of your correspondents inform me the best and most economical of the following substances for feeding calves, and other young stock, viz.:—

Oatmeal .....at	2*d.* per lb.	Peameal .....at	1½*d.* per lb.
Linseed meal ..	2*d.* ,,	Barleymeal	1½*d.* ,,
Oilcake.....	1*d.* ,,	Indian corn meal	1½*d.* ,,

Are the feeding equivalents of these proportionate to their several (money) values?—*J. L., Eskdale, N.B., May* 16. [We should prefer the first to begin with; then a mixture of the first and second; and lastly, we would take to oilcake alone, when the calves are weaned, or to a mixture of Linseed and Peameal. We imagine the feeding equivalent of Peameal to be higher than that of Oats, but the latter is more suitable food for calves.]

Inorganic Constituents of Wheat Crop.—Would any of your chemical correspondents kindly give an opinion as to the suitableness of the following manure for an acre of Wheat? Are the ingredients in due proportion, and what would be the probable expense? Silica, 189 lbs.; potash, 14 lbs.; soda, 15½ lbs.; lime, 19½ lbs.; magnesia, 6 lbs.; oxide of iron, 5 lbs.; alumina, 7 lbs.; sulphuric acid, 5 lbs.; phosphoric acid, 23 lbs.; chlorine, 3½ lbs.—*T. Randell, Bradley, Fakenham*. [In reference to Mr. Randell's enquiries:—1st, As to proportions, analyses have differed, and I do not know why his should not answer as well as the others. But his quantities will never do for an acre; because not one-fourth of the manure will come in contact with the roots of the plants, to be absorbed by them. 2d, The cost separately, as specified, would be very heavy. The cheapest way would be to use bone-dust, 1 cwt. (which should contain more than 23 per cent. phosphoric acid) with ½ cwt. of sulphuric acid, to render it soluble; or else 1½ cwt. of Lawes' superphosphate of lime, which would contain more phosphoric and sulphuric acids, as well as lime, than his formula expresses. For the soda he may use ¼ cwt. of salt, which will contain also much more chlorine than he specifies: and the potash and magnesia may be supplied in the cheapest carbonates, *i. e.*, common potash, and the common magnesia of the druggists. Or the magnesia may be supplied still cheaper in the "bittern," mother liquor of the salt works, reckoning a gallon for 1¼ lbs. magnesia; price not above 6*d.* per gallon. 3d. The silica is not required in one case out of ten; and where needed, it would be useless, unless rendered soluble, by fusion with alkali, in much larger proportion than his formula. The alumina and oxide of iron are also generally more than sufficient in the soil. But in any case he should use at least four times more of the ingredients required than the crop carries off, until the land is so far supplied that the roots can always find it. After that, of course, it may be enough to restore just what the crop has carried away. 4th. If he does not like the trouble of making this mixture, he may have it ready done, and much more uniformly (though in different proportions) in Liebig's patent corn manure, prepared by Muspratt and Co., Liverpool. He can calculate the expense either way, for himself. But, I ought to add, that silicate of potash seems to me likely to increase straw rather than grain: and that we are far from Liebig's opinion of the needlessness of organic manures in our climate.—*J. P.*]

The Daly's Wonder Potato (see p. 253).—The Messrs. Chambers, of Edinburgh, have again been kind enough to place in our hands a letter concerning this Potato, addressed by Mr. Dinwoodie, of the Town Head, Kirkmichael, to Sir Adam Ferguson. The account Mr. D. gives of this variety is as follows:—"The Daly's Wonder Potato, which you (Sir A. Ferguson) sent me about 10 years ago I have cultivated every year since. I have had a most abundant produce from it, but for some years I considered it watery and not so well flavoured as other kinds that I had been in the habit of cultivating, and for that reason I did not plant so many as the always superior crop they produced would have induced me to do. Three years ago I found that they had improved very much in quality, and thinking that by planting a few more Potatoes they would pay me better than Turnips, I planted 8¼ acres, 4 of which were the Daly's Wonder, and the remainder other kinds. I had a very good crop of all the sorts, but as I did not keep an accurate account of the weight of each that year, I cannot state the comparative difference, but imagine that the Dalys would be 18 tons per acre, and the other sorts about 14 tons per do. In the year 1844, I again planted 8¼ acres, 5 of which were the Daly's Wonder, and the remaining 3¼ what are here called Old Blues, Irish Johns, Buffs, and Highland Early. I had a most abundant crop. The land was dry, and of good quality, averagely manured. I had of Daly's Wonder 20 tons per acre. The other sorts again averaged 14 tons per acre. Last year (1845) I planted the same number of acres upon land of the same quality, and proportioned nearly in the same way, and gave it an extra dressing of manure, 38 yards of good dung mixed with 2 cwt. of guano per acre, but all would not do, the crop became affected with the murrain, which was, however, about two weeks later in making its appearance on the leaves and stems of the Daly's Wonder than on the other sorts. When I took them up at raising time, I intended to have sent all (except the Dalys), direct to the Potato mill, but this I could not get accomplished for a few weeks as the mill was quite filled with Potatoes going fast to decay. Those I had intended for the mill I laid down on the land in narrow pits with a number of air-holes in each, but at the end of three weeks when I opened them they were nearly all rotten, so that all the money I received for about 4 acres of Potatoes was only 13*l.* (none of the Daly's Wonder were among them). At raising time, the Dalys were slightly affected; I have had a quantity of them in the house during the winter, and also in pits; and a few in drills I allowed to remain in the ground until the spring, all of which have kept exceedingly well—indeed I do not think the disease increased after the tubers were taken out of the ground. There was no difference between the Potatoes that remained in the drills all winter and those taken up at the usual time. The Daly's Wonder is now generally known in Dumfriesshire and Galloway as the surest variety to grow, and the most productive. It is my impression that the one half of all the Potatoes planted this year are of that variety. As I never heard of any having been imported to this country except those you gave the tenants on the estate of Kirkmichael, I am of opinion that it is the produce of them that has spread over these two counties, and I have no hesitation in saying that you have thus been the means of conferring on the country a great blessing."

The Profits of keeping well-bred Cattle.—I have just read a paper in the *Gazette* of the 2d May, by "Falcon," on the great agricultural meeting at Newcastle, in which he seems sadly annoyed that dukes and lords are carrying off all the prizes for well-fed stock. I wish to make a few remarks for his benefit. I live in a part of the country proverbial for being cautious (Aberdeenshire), and I may with safety say, I think there are few counties that have made such attempts to improve stock as it has of late, and that not by any of the dukes or lords, but by good practical rent-paying farmers, for the clear view of making money (they have, no doubt, been greatly assisted by a few proprietors, who attend to farming themselves, and can afford to give high prices for stock to commence with in the south). I entirely agree with "Falcon," that pampered animals should be excluded from competing as breed-

ing stock, and what the animals are fed on should be clearly certified, that the judges may have an opportunity of seeing what animals have been paying best for the food they have used; but certainly no animal can expect to receive a prize that is not above fair condition, as the great aptitude for taking on fat is certainly a very material point, and judges seeing a lean animal cannot, of course, be expected to know the reason unless told the circumstances of feeding, &c., and must declare it inferior to a fat one (whose fat may also hide many faults). But the fact is, too many are in "Falcon's" way of thinking, and will not give any credit to the animal or mode of treatment, but take it for granted that these fat animals cannot pay for what they have got. They are just like the farmers here, who, when they saw furrow-draining begun, laughed, and said, "Ah, it will never pay to put a drain into each furrow; he will soon tire of that job; it can never repay that expense." These very laughers are following fast, now that they see the good of it. But to the stock: farmers can, if they will, compete with lords, if they will only lay their minds to it; as, for instance, a tenant farmer from this county got the prize at the Berwick Show in 1841 of 100*l.*, open to all England, and his animal was bought by two famed English breeders, Sir Charles Tempest and Mr. Whitaker, at a very high price, and sold again at Mr. Whitaker's sale, I believe, for 350*l.* Now, to show the aptitude to fatten that stock had, a neighbouring farmer who bought two sisters of this said bull trained them to the plough, and worked them four hours a day, to keep them in good breeding condition (this saved the expense of getting a man to travel them, as a duke might have done), but these two cows are in good condition, and have calves regularly, and indeed one of them might be sent to Newcastle, if the farmer could afford to let her lie idle, to get into fair showing condition. Indeed, farmers carry off most of the prizes here. But our farmers are seeing it is their interest to keep good stock, and keep them well. The same farmer who used to sell his three-year-old stock, at 8*l.* to 10*l.*, has this year sold his two-year-olds, one lot at 17*l.* each, and another at 15*l.* each (they were sold to farmers who look to making money by grazing them), and this by merely paying from 40*l.* to 60*l.* for real good bulls (he had the prize for the best bull at our four county meetings last year), and then feeding his stock from the time they are calved, and not, as formerly, letting them exist till two years old, and then feeding them the third year. Instead of, as formerly, selling 15 to 16 three-year-olds at 10*l.* each—160*l.*, he now sells as many two-year-olds at 16*l.* each—256*l.*; thus giving the keep to fewer beasts, but making more money.—*An Aberdeenshire Farmer.*

The Breeding of Farm Horses is very commonly attended with loss instead of gain, in consequence principally of a total disregard to the laws of nature. "Like begets like" is an axiom which cannot be disputed, and it is vain therefore to expect that an old worn-out and diseased mare can produce a healthy and valuable progeny. If a farmer intends breeding he should select the most valuable mares he has for the purpose, and if they are not good enough should procure such as are, or otherwise abandon the attempt. A brood mare should not be less than four years old, nor so old as to be unable to preserve her flesh and condition. She should also be free from disease of the eyes (unless accidental), as well as from spasms, curbs, ringbones, and other maladies, the predisposition to which is hereditary. April is a very good month to begin putting mares to the horse, particularly for the first time, as the same mare, if kept for breeding, is likely to get later every year, as mares go in foal on the average eleven months, and their disposition to receive the horse may not be manifested till some weeks after foaling. We may therefore consider the months of April, May, and June, as suitable for the purpose. The mare should be kept in good health and condition, and rather full of flesh than otherwise; but not fat. She may be kept at work till near the time of foaling, taking care, however, that she is not put to any severe exertion requiring sudden strains. The lightest work should be selected for her: but it is better that she should be moderately used than kept in a state of idleness. It will be well to give her a bran mash daily for a week previous to foaling. A large loose box, well littered, will be a suitable place for the mare to foal in, and a field with ditches or inequalities should by all means be avoided. A small level pasture where there are no other horses, will be a convenient place for the mare and foal where she cannot be disturbed or injured. She should here continue for about six weeks, when she may resume her work, and may at any time be put to the horse again. The mare should be fed tolerably well during the period of her suckling, and if she proves again in foal the colt should be weaned somewhat earlier than otherwise—about four months after going to the horse will be a very good time. The colt may be allowed to follow its dam whilst at work, and should be handled as much as possible to get it quiet and docile. This is a point of much importance, as in case of any illness or accident happening to the colt, the cure will materially depend on the docility of the little animal, and its quiet submission to treatment. In the practice of breeding horses, as well as other animals, nature should be aided but not forced, assisted but not outraged.—*W. O. S.*

Dairy Management.—Will any of your correspondents take the trouble to inform me, why in a fine rich pasture, with good cows, I cannot obtain thick cream? Though every attention is paid to the dairy utensils, and the milk stands more than 24 hours, it always rises thin and poor. Can this be caused by the dairy being too damp, or the wetness of the season?—*H.*

Unfermented Bread.—Have you yourself tested or seen the results by others testing, the formula for making unfermented bread, with which you favoured your readers in a recent Number of the *Chronicle*? If so, have your expectations been fully answered? I have tried it several times, and have uniformly failed to rival my village baker. My bread, in fact, looks quite a different thing; more like a soda-cake divested of its sweetness and confectionery ingredients. It has a pale yellow or straw-coloured hue, instead of the whiteness which one likes to see in bread; it has, moreover, a peculiar and very perceptible odour, which I hardly know how to describe, but which I fancy is referable to the hydrochloric acid, and that acid is also traceable in the taste. The proportions in the formula seem to me to require alteration. The flour and the water ought to be in larger quantity, perhaps one-fourth more; but even so, I doubt if anything, which could be mistaken for ordinary "yeast-made" bread, or relished equally as it, will be produced. In the directions accompanying the formula, it is not explicitly laid down whether the dough should stand awhile, or be, as soon as it is formed, put into the oven? I have tried both ways, and prefer the former: which is intended? Your experience on the whole subject will be interesting and valuable to myself and others of your readers.—*R. I.*

[Perhaps some other reader will kindly state his experience. We have had none.]

Thin-planting Turnips.—I read with much pleasure the communication in the *Agricultural Gazette* on the value of thin-planting in Turnip culture, by Mr. Prior. I am certain it is a point to which the farmers in some parts of England need to have their attention directed. I last year went over a field of Turnips with a farmer, and on observing they were small, his answer was "yes, they are so, but there are plenty of them," and seemed satisfied that he had as good a crop as if there had been fewer of a large size. Now, I believe that the value of a crop of large Turnips as compared with one of smaller size, is not sufficiently appreciated. It depends (if I am not mistaken) on this theorem in mathematics; viz. "That the contents of spheres are as the cubes of their diameters." Thus, for example: supposing Turnips to be a sphere (and some sorts are nearly such) the contents of one of 4 inches diameter will be to one of 6 inches diameter as 64 to 216, or 8 to 27: that is, eight Turnips of 6 inches are equal in solid contents to 27 of 4 inches. And by the same rule, nine Turnips of 9 inches diameter will be equal to 30 of 6 inches. It is true that few Turnips are exact spheres; but the reasoning, with a greater or less degree of accuracy, will apply to all. I hope the remarks which have been made on the subject may attract the attention of some of your readers, and that some fair experiments will be made in the ensuing season, which may lead to a satisfactory conclusion as to the exact distance at which Turnips should be left, in order to produce the greatest weight of food.—*W. E. H.*

Societies.

FLAX IMPROVEMENT SOCIETY.

Monthly Meeting.—*Belfast, April* 29.—The Secretary reported the occupation of the Society's agriculturists throughout Ireland, in superintending the preparation of the soil for Flax, and the sowing of the crop. Extracts were read from their correspondence, from which it appeared that they had been busily engaged in districts of the following counties:—Derry, Donegal, Down, Tyrone, Longford, Westmeath, King's and Queen's Counties, Carlow, Kilkenny, Cork, Waterford, Tipperary, Kerry, Clare, Limerick, Galway, Mayo, and Roscommon. Their instructions were everywhere received with great attention by the farmers; and in the new districts their location had excited great interest among all classes, and those who had not made preparations, in time to avail themselves of the Society's assistance this season, were most anxious to make arrangements for the following year. The Society having strongly urged the necessity of procuring fresh and genuine seed, of the choicest kinds, as the first step towards success, the majority of those who were commencing Flax culture in the new districts had taken care to do so. Many had, however, preferred buying inferior seed, because the cost was less. The result of the produce of each description of seed will, it is expected, at once convince the farmers of the folly of purchasing an inferior article, and show them that without buying good seed they cannot expect a good crop, even although every care should be bestowed in the management. In the North Ulster district the seed saved last season, on the Courtrai method, for sowing this year, had proved of the finest quality; and it is confidently expected that if the crops grown from it prove good, the practice recommended by the Society of saving seed in Ireland, for sowing from Riga seed, will be extensively adopted. A communication was laid before the meeting, from Mr. M'Adam, of the Soho Foundry, suggesting the adaptation of the "hot blast," as a mode of drying Flax in the straw in wet seasons, and also for drying Flax bolls. "This system," it was observed, "has been applied with great success to the drying of woollens, and other woven goods, and has even been used for silks of the finest quality, without injuring either the colour or finish." The committee did not think it advisable at present to go to the expense of trying the experiment, but would keep the matter in view, for consideration at a future period.

May 23.—The sowing of Flax, this year, in Ireland, has been much smaller than was anticipated. This is owing to several causes. The very high price of sowing seed, in the beginning of the season, induced the farmers to lay off their ground for other crops, while, at a later period, when Flax-seed came down in price, the very high rates realised for Oats caused that crop to be substituted, to a great extent, for Flax. Adding to this, the distrust of Riga seed, occasioned by the frauds practised in that description, last year, and the impossibility of obtaining a sufficient supply of Dutch, from the very small import of that kind, and the state to which the heavy clay Flax lands were reduced after the constant rains, precluding the possibility of sowing Flax on that range of soils—it will be easily seen, that the Society, in its efforts to increase the growth of this crop, had to contend this year against unforeseen difficulties, over which it could exercise no control. The appearance of the young crop is everywhere reported as superior to what it has been for several years, at this period of its growth; and if the pulling season prove favourable, we may anticipate a larger yield of fibre per acre than any year since 1843.—As prices must be in favour of the farmer, at the harvesting of the crop, the new districts, throughout Ireland, will enter on its cultivation under favourable circumstances, and a very large breadth may be anticipated next year.

Farmers' Clubs.

Harleston, *May* 6: *The breaking up of old Pasture Land, its advantages and the best process.*—Resolved: That it is highly desirable to break up a large portion of the heavy land pastures in this district, thus adding to the sources of labour, and increasing the produce of the soil. That thin paring and burning the flag is the best process of converting such lands into tillage, spreading at least two-thirds of the ashes on the new soil, and carrying the remainder, if desirable, on to the old tilled lands. The club not only considers that the first should be a root-crop, for which the ashes will be an excellent preparation, but recommends that the succeeding crop or crops should be roots also. Aware of the prejudice which most landlords entertain against the breaking up of old pasture land, it is believed that making it compulsory to crop new lands with roots for the first two or three years (for the growth of which they are so well calculated) will tend to diminish their objections, and be at the same time advantageous to the tenants; as the manure from the extra root crops will be more beneficial to the old lands than the manure from the extra straw crops would have been, and the whole farm will be thus improved instead of impoverished. Draining and claying in the interim will prepare the land for the corn crops at the expiration of the limit, and by breaking up annually a portion only of the pasture intended to be converted, the whole will come regularly into course with the old ploughed lands. It is believed that permission thus given to break up inferior pasture land will encourage good farming amongst the tenantry, by increasing the fattening of cattle and reducing the stock of cows, which, it is well known, as they are generally kept, impoverish land as much as cattle and sheep improve it.—*R. B. Harvey, Secretary.*

Reviews.

On the Cultivation of Flax; the Fattening of Cattle with Native Produce; Box Feeding; and Summer Grazing. By John Warnes, Esq. Printed by Clowes and Sons, Stamford-street, London.

People are apt to suppose that a plant formerly in extensive cultivation, but which has since dropped out of the crop rotations of most farmers, can never again, to any extent, resume its place—that the verdict of its cultivators having been the result of quiet experience over long periods and extensive districts, cannot but have been just. We believe, however, that the case of the Flax crop, whose cultivation had declined much till within late years, is in many respects peculiar to itself. It is a plant the returns of which depend more than do those of any other crop which the farmer cultivates upon the skill which is brought to bear upon it. In the present state of the market for its produce, it may yield either enormous profits or it may barely balance its account, according to the ability exhibited by its cultivator in preparing it for sale. Our climate and our soils are perfectly suited to the cultivation of this plant; there is no difficulty here; the difficulty which has hitherto been in the way of its extended cultivation is (not to speak of the obstructions placed by cautious landlords), the want of that dexterity to which we have alluded. And this want—thanks to the energy and industry of Mr. Warnes, and others connected with the cause, is being rapidly supplied.

But is it not singular, it may be asked, that this gentleman should devote his whole time and energies to force into notice *the cultivation of a plant*; one too, on which an unfavourable verdict has already been given, both by tenants and landlords? He disregards this verdict because it has come from an ill-informed jury, and because it is opposed both to his own experience, and to the results of calculation from well established data. He believes that without injury, nay, in the long run, with benefit to the landlord, great profits will accrue to the farmer, and great scope will be given for employment to the labourer, by the extended cultivation of flax. And both of these are objects so desirable that they well deserve any amount of labour that may be necessary for their attainment. No one,

therefore, can accuse Mr. Warnes, of having devoted his energies to an unworthy cause: there was, and is a great deal to do: there was first, general attention to obtain, which is no easy matter amongst a class whose inertia must be in proportion to the unvarying nature of the routine to which they are in general wedded: there was then the general opinion as to the profits of the scheme to reverse, and in this we may safely say he and others who have laboured with him have generally succeeded; and, lastly, there were the fears of the landlord to remove. The advocates of any comparatively limited object are apt to over-estimate its importance, and though evidences of this are traceable in Mr. Warnes's work: as, for instance, if he speaks of the cultivation of Flax, his "theme, though simple, is vast, comprehending nothing less than the complete deliverance from that accumulated mass of pauperism which preys upon the vitals of the nation"; or if he refers to his first attempt at its growth, it was "an insignificant commencement; but destined, like many similar dispensations of Providence, to produce benefits to which no assignable limits can be placed." Yet the importance of the subject may well excuse these outbursts of enthusiasm. Its advocates have done much towards the attainment of the three objects we have referred to. They have pointed out how the proper cultivation and management of this crop with the consumption of its seed as cattle food on the land, renders it very far from a scourging crop, and thus they have overcome the landlord's prejudice; they have pointed out the profits attainable, *and that have been attained*, from the Flax crop, when its produce has been properly prepared and "handled" for the market, and thus excite the attention of the farmers; they show how the increase of the linen manufacture, which would follow an increased growth of Flax, would be the means of vastly increased employment for our labouring poor, and thus they enlist the sympathies of the patriotic and benevolent.

A Series of Letters on the Improved Mode of Cultivation and Management of Flax, &c. &c. By James H. Dickson. R. Groombridge & Sons, Paternoster-row, London.

THIS is another work on Flax culture—very practical—very full of matter—and, what is of much importance, very *cheap*. It contains, along with much hitherto unpublished matter, all the letters on this subject which Mr. Dickson has published in our own columns, and in those of many provincial papers. We strongly advise those who wish to make themselves acquainted with Flax culture to obtain and read this little book. Besides many views of great national and general interest on the subject which it contains, its author has entered into full detail on the history of the plant, from the selection of the seed through all the stages of its cultivation down to the harvesting of it, and the preparation of its produce for the manufacturer and the seedsman, and thence through all the stages of its manufacture till it makes its appearance as linen goods in our shops. On all these subjects he speaks in great detail, and, what is of the greatest importance, from lengthened experience. Mr. Dickson has himself grown, bought and sold, and manufactured the article whose history and management he teaches; and on all the details of its cultivation and manufacture his instructions may, therefore, be depended upon.

As an illustration of the nature of the volume, and the object of its writer, we shall make two extracts—the one from the appendix, and the other from the preface. In the former Mr. Dickson makes a last appeal to his readers.

"Perhaps the greatest difficulty," he says, "in the endeavour to induce farmers to grow Flax, is to disabuse their minds of the idea, so mischievously prevalent, that this plant is necessarily an exhauster of the soil. That it may be so, if carelessly cultivated, cannot be disputed; but that it must be so, however cultivated, I utterly deny; and I do so on two grounds:—1st, on the ground of my own experience, having grown as good Oats after Flax as after Wheat or any other crop; and, 2d, on the ground of the known composition of the plant. I say 'known,' as Dr. Kane, in his masterly paper on this subject, has given us, in full detail, all the information that could be wished for. The main point upon which we rest our assertion, that Flax is not necessarily an exhauster of the soil, as far as its composition is instructive on this point, is this:—Exhaustion of the soil, as the word implies, is the removal out of it of those elements of vegetable food which it contains, and in the abundance of which its fertility consists. Now, plants derive all their mineral portions from the soil—all those portions, in fact, of which, when they are burnt, their ashes consist—and upon the quantity and quality of these their power of exhausting the soil depends. Taking the whole Flax plant, when harvested, Dr. Kane found it to contain 5 per cent. of ashes; which, comparing it with other plants, is a large proportion: but the whole of the plant need not be carried off the farm. The fact is, nothing but the Flax should be carried off the farm; the seed should be consumed upon it; the steeping-water should be used as liquid manure—and none better can be applied; the bone, or stalk on which the fibre grew, when separated from the Flax by the operation of breaking and scutching, should be burnt (as it will not rot for years as manure), and carried to the dung-heap. The fibre is the only thing carried to market; and the point to be ascertained, by one who cultivates Flax as he ought, in order to make up his mind as to the exhaustion of his farm consequent on its cultivation, is the mineral matter carried off in the fibre; and this, on Dr. Kane's authority, and for the satisfaction of all who wish to cultivate the crop, we proclaim to be most insignificant in quantity; in fact, you may take a bundle of Flax fibre, and burn it, and it will leave no ashes. Any further remarks would but weaken the influence of this fact. I appeal to my intelligent agricultural readers, if what I have said does not partly meet any objections, on this score, he can bring forward. What becomes, after this, of the antiquated and (can I help saying it?) most ignorant fear of landowners, as exhibited in the clauses of many leases, lest this crop be cultivated, and their land be ruined! I do hope that, in future leases, no hindrance will be put in the way of a proper cultivation of the crop. I am sure that a landowner can do few greater favours than permit an intelligent tenant to grow this crop; which, being proved non-injurious to the land, is consequently most for his own benefit, and that of his country."

And in the preface to his book he asks—

"What has been my object in spending so much time and labour in advocating the cultivation of Flax by British farmers? This question will doubtless occur to many of my readers. Certainly, the profit of publication has not been my motive—it will be nothing; for it being my earnest desire that this pamphlet should have a wide circulation—in fact, that every farmer should possess a copy—it has been published at a price barely sufficient to pay its expenses. I need not conceal my connection with the Flax trade. I have been engaged in it during the last 15 years, both as a merchant and manufacturer; but while I frankly own the benefit which would accrue to myself, by the more extended cultivation of this plant, yet I can confidently assert that the main spring of my labours has been a thorough knowledge of the profits derivable from the growth of Flax, and a wish to see these profits enjoyed by my countrymen, instead of, as at present, by foreigners. English farmers do not know how profitable the Continental growers find their Flax-crop to be; and not only does ignorance on this subject prevail, but gross misrepresentations are abroad; and as it is my earnest wish to see both of them finally removed, the following pages have been compiled by me as a contribution to the cause. I have endeavoured, in them, to show that the real interests of the farmer and landowner would be served by the extended cultivation of this plant. The one will find it to yield him greater returns than any of the grain crops he now grows, and the other will benefit by the higher cultivation which such a crop requires. I know from experience that, at the existing prices of farm produce, agriculture is at present in most hands a losing profession; and this at a time when those connected with it require the greatest encouragement to persevere in the expensive, though ultimately profitable course of improvement on which many have now entered. I shall be happy if my endeavours to excite an extended cultivation of the Flax plant should prove successful; for from it alone can profits proceed which will induce that perseverance to which I allude."

In conclusion, and as illustrating the truth of these remarks, we make one further extract; it is the last sentence in the book.

"Landowners, agricultural societies, and farmers' clubs, who now contribute one pound and upwards, will be entitled to 20 copies and upwards, according to the sum subscribed, at one shilling each, to distribute to their tenants and members."

This rivals Mr. Knight, for the volume is octavo, and contains 248 pages.

Miscellaneous.

Potato Disease in America.—J. E. Teschemacher, Esq., of Boston, Massachusets, informs us, in the *Morning Chronicle*, that Levi Bartlett, of Wame, New Hampshire, suffered much by the Potato rot in 1844. In 1845 he manured as usual; cut out all the sound pieces he could pick from his Potatoes and planted them. Having read Mr. Teschemacher's articles on the causes and remedy for this disease, he made a mixture of equal parts of lime, salt, and ashes; at the first hoeing, when the plants were a few inches high, he put a large ladle full of this mixture to each hill, and incorporated it thoroughly with the soil, which is light and stony, from a granite disintegration. He has not had, until the present time (March, 1846) twenty rotten Potatoes in the whole crop. Most of his neighbours have lost the greater part of their Potatoes. He attributes his escape to the mixture above applied. Matthew Green, of Roxbury, in 1845, bought a quantity of damaged glauber salts, was advised to try them. His account is as follows:—"My Potatoes the last year (1845) were planted the 24th of April, upon ground (a little more than an acre) naturally wet and springy, which I had thoroughly drained the year previous—a good soil, but very full of small stones. The manure was taken from the barn-yard long and unrotted, and dropped by the fork in the furrows; the sets were taken from good Potatoes cut in halves, and, after being rolled in ground plaster, were dropped upon the manure, two in each hill, and the hills were made 3 ft. apart each way. A sharp frost on the night of 24th of May cut all the tops down. On the 9th of June, at the first hoeing, I applied a very large tablespoon-full of glauber salts and air-slaked lime, mixed in equal parts, to each plant; and this was immediately covered up with the hoe. The season will be long remembered as a very dry one, and I obtained only 98 bushels from the piece; but although the quantity was small, the quality was remarkably good, as you may satisfy yourself from the sample I send you. They were kept shaded from the sun as much as possible while being dug, and have been kept in a bin, in my vegetable cellar, out of the way of frost. The rot has been prevalent in my neighbourhood, and of the crop in the next field a large proportion has been lost."

Calendar of Operations.

MAY.

THE great work of this season is the Turnip sowing. The Swedish Turnip should all be sown before the middle of June, and the common Turnip before July. The land from which Rye and Vetches are being cut, will now be clearing fast. The plough, followed by the harrow and roller, should be kept at work whenever sufficient land is cleared for it. Every bit of land that is ploughed under the blazing sun of June must be harrowed and rolled the same day, or there will soon be plenty of work for the clod-crusher.

Turf to be broken up this season will now have been pared and burnt; the best way to reduce it, and at the same time keep the ashes near the surface, is, first, to plough very shallow, say 3 inches deep, then harrow, roll, and harrow, till that is well broken; then cross-plough 6 inches deep, which will bring up other three inches, and at the same time still keep the ashes only 3 inches from the surface. This should be broken up and brought to a tilth, and the land may then be ridged up and sown to Swedish Turnips; the ashes will insure a crop. The advantage of ridging land for Turnips over sowing the seed broadcast or in rows on *the flat*, consists in the ability which it gives us to horse-hoe the land between the rows at the earliest stage of the young plants' growth. The earth on being moved runs no chance of burying the plant. It runs into the furrow *from* the plant; and on weedy ground this is a great advantage. *Italian Rye Grass* will now be fit to mow for hay. It should be cut just before it blossoms. *Beans and Peas* should be kept clean, and the ground between them stirred by a repeated use of the horse-hoe. *Sheep shearing* will have commenced in most places.

Notices to Correspondents.

RURAL CHEMISTRY, by Edward Solly.—The Second Edition revised and enlarged, is now ready, price 4*s.* 6*d.*

BONES ON POOR PASTURES—*T. D.*—Apply 20 bushels per acre. You may apply them now, although they will be too late to have much influence on this year's crop. You might apply only 12 bushels, and probably with equal, and certainly more immediate effect, if you were first to dissolve six of them in half their weight of sulphuric acid, and then dry them up with coal-ashes.

BURTHENS ON LAND—*Arvensis* complains that in our last Number we noticed the Committee of the House of Lords appointed to inquire into the "Burdens on Real Property," and then proceeded to name Lord Monteagle's report in the same paragraph, as if that noble Lord's essay was the report of the Committee in question; and that we made some extracts of a statistical nature, with a concluding remark which indicates the bias we take on the bearing of this question. He thinks that, in candour, our readers should have been informed that the report we noticed was the opinions of an individual member of that Committee, in which no other Peer joined with him, or, at all events, we should have given the authentic official report itself as well as Lord Monteagle's, and left our readers to draw their own conclusions, when both these documents were laid before them.—We were not aware that we had laid ourselves open to this animadversion; on the contrary, we were careful to mention that the facts were drawn from Lord Monteagle's report, "of which a few copies are in *private* hands." If we have unintentionally misled any reader, we trust that the publication of the remarks by "Arvensis" will put him right. But this is, we submit, of little real importance; all that the public can be interested about is, whether the facts are true; they were proved before the Lords' Committee, as we are sure "Arvensis" will admit; and we think them of great importance to the consideration of the question. We are of opinion that their publication is the more necessary, because the Lords' report *omits them*. We have not drawn, and we do not intend to draw, any conclusion whatever from them; that is the affair of our readers. Surely "Arvensis" cannot be in earnest in asking us to print both the reports in question, amounting to between 60 and 70 folio pages. If it were in our power, we would do so with pleasure; but the thing is clearly impossible. "Arvensis" says, that the publication of unquestionable facts indicates some bias that we take. We are not aware that we have shown any bias except for the truth, and that in our eyes is paramount to all considerations. No good cause can suffer from it. We are quite sure that a *suppressio veri* is the last thing to which "Arvensis" would desire that recourse should be had. Had we published Lord Monteagle's conclusions, instead of the facts elicited before the Committee, that would indeed have been shewing a bias. In conclusion, we will state at once, although that is really beyond our province, that we do think that all interests, the landed included, are burthened with peculiar imposts, which should be better adjusted; and if our rules would permit us, we should be ready to go into the argument. But it does not follow that we regard everything as a burthen which is called so.

CHAFF—*Inquirer*—¼ cwt. of hay chaff daily, with 2 bushels of Oats weekly, and straw *ad lib.*, is plenty of food for a cart-horse. Meadow Grass is three times the weight of the hay made from it.

COST OF A MILCH COW IN WINTER AND SUMMER—*Inquirer*—A farm of, say 360 acres, of Grass land, may keep stock equivalent to 100 cows per annum. Its expences, including wages, rent, horse-corn, and interest on capital, will be about 1000*l.* 10*l.* per annum per cow is equal to rather less than 2*s.* a week. The absolute cost will be greater in winter than in summer; just as hay is costlier food than Grass.

DAMP GUANO—*North Country Subscriber*—To mix lime with it is to drive off the ammonia which it contains. You must dry it either by mixing calcined gypsum (Paris plaister) with it; or by mixing dry turf ashes. Either of these will absorb much water, and neither will drive off the ammonia.

FEEDING LARGE DOGS IN TOWN—*Anon*—"I would advise horses' flesh or bullock's liver, well boiled, to be given once a-day, from 1 lb. to 1½ lbs., according to the size of the animal. Potatoes or odd pieces of bread soaked in the liquor that the meat has been previously boiled in may be given for breakfast; the dog must have a constant supply of good water; he ought not to be fed more than twice a-day.—*Walthamstow.*"

LIQUID MANURE—*Alpha*—You may apply it in wet weather *more* usefully than in dry, provided always the land be not too wet for the water cart.—*H. I.*—One cow in a month will void about 1000 lbs. weight of urine, containing about ½ of a cwt. of solid matter, or guano, which is worth between 5*s.* and 6*s.*

MANURE FOR GRASS LAND—*Clerical Subscriber*—Early spring is the best time to manure Grass land with half soluble fertilisers such as guano; but as you cannot now apply the guano till after the hay harvest, you should either do it when the weather is wet and likely to continue so, or you should first fix in the guano those volatile parts which, should the weather prove dry, would probably be lost. In *either* case apply 4 cwt. per acre of African, or 3 cwt. of Peruvian guano, spread broadcast by hand; and in the *latter*, first water this quantity of guano with about ½ of a cwt. of common sulphuric acid, mix it well up, let it lie for a day or two, then mix it with an equal weight of *dry* turf ashes, and sow broadcast.

"NEW CHARGE AGAINST THE ROOKS, &c."—*E M L* says the charge made in a late paragraph by *T W L* is not a new one. "The food of the rook consists less frequently of animal matter than that of the other crows we have just described; *carrion* may be occasionally eaten, and we have trapped them with the *bait of an egg*, or a piece of bacon fat, but this forms the exception, and it may be stated as made up of grains, fruit, roots, worms, slugs, insects, and their larva." *Naturalist's Library: Ornithology*, vol. 10, part 2, by Sir W. Jardine, pp. 241-2.

PULLING CORN.—*A B C*—Can you refer us to the paragraph on this subject? We do not remember it; and cannot find it. If you wish to save your straw, mow your corn instead of reaping, or reap high and mow the stubbles, or reap and pare the land and harrow the stubble out and carry it home for litter. The last plan will answer on light soils, if you have dry weather after harvest.

RATS—*U U*—"A rat catcher turns a lot of rats into a farmery formerly free of them, and then asks for the job of catching them. How is he to be rewarded?"

TANK—*Craven Grazier*—Ten cows will yield 1000 gallons of urine per month, and if you intend making a monthly clearance of the tank, it should be, if cylindrical, 6 feet in diameter, and 6 feet deep, or, if quadrangular, 6 by 5 and 6 feet deep, or 7 by 5, and 5 feet deep, or 8 by 5, and 4 feet deep, &c.—see p. 124 (1844): brick-built, paved, covered, and well cemented. Perhaps, however, the best, and certainly the cheapest way, is simply to sink a cask in the ground, and empty its contents every two or three days over the nearest heap of dung or vegetable rubbish of any kind.

TO DRAIN STEEP LAND—*A Craven Grazier*—You may depend upon it that none of your arable land slopes from 25° to 60°. A horse could not climb the one ascent, and you could not climb the other. Our opinion is that first of all you should look to the subsoil, and if that consists of alternating beds of clay and porous material, you should set out the drains at all events to cross them, and, if possible, also to come straight down an ordinary descent. When the hill is so steep as that the water would wear ruts in the drain, it should run aslant the descent, with a fall of not more than 1 in 10.

TO DRAIN STIFF LANDS—*A Country Subscriber* asks for information on the best system of draining stiff clay lands (see page 328). "I would beg leave to suggest that he should put in his drains 3 ft. deep, at 4 or 4½ yards apart, and instead of 1½-in. pipes use 2-in. or 2½-in. pipes, which will enable him to carry the drains the whole length of the field—350 yards. From *practical* experience I am satisfied that this mode would turn out ultimately to be by much the cheapest and most effectual for the drainage of all stiff clay lands of the description mentioned by "A Country Subscriber." Notwithstanding the dogmatical opinions of most of those theorists with whom the agricultural world is now so much infested, it is advisable to put stubble, straw, or turf over the pipes, and when the clay is fitted in over this, it should be made as wet as possible, like puddle, so as when it becomes dry, it will crack and allow the water to get through it into the pipes. No drains on stiff clay land should be more than 15 ft. apart.—*A Kentish Farmer, Blackheath.*" [To this we would add; if the drains are to be continuous for 350 yards, the smaller sized tile will do for the upper half of their length, as well as the larger for the lower half.]

TO POUND FLINTS—*A B C*—A stiff soil may contain 8 to 10 per cent. of alumina; a light sandy soil will contain 90 per cent. of silex. You may double the stiffness of your soil by adding 100 cubic yards of clay per acre, but you will not make it twice as light by adding 800 cubic yards of sand, for in each case you must double the quantity of that element in the soil, to which its peculiar texture is owing. It will thus appear to you to be an endless business, attempting to loosen your soil by applying flints; the only way in which it can be done is by drainage, thorough cultivation, and burning. Flints are rendered brittle by first heating them in a kiln, and then reduced by pounding.

TO REMOVE THE TASTE OF TURNIPS IN BUTTER—*Anon*—"Do not feed your cows with Turnips until they have been previously milked, by which means the animal has 12 hours to get rid of the flavour of the vegetable. Good hay must also be given in sufficient quantity. I need not add great cleanliness not only in the cowhouse, but in the dairy. No stale pieces of Turnip should on any account be allowed to remain in the manger, which should be cleaned out before feeding. If your correspondent does not feed largely, perhaps peeling the Turnips might answer the purpose, for it is principally in the skin that the strong smell resides. I question much if saltpetre answers any purpose in freeing the cream of the strong taste imparted by Turnips.—*Buckinghamshire.*"

VALUE OF COW AND CALF, &c.—*Inquirer*—In winter 1844-5 we had many in-calf heifers; they did not pay us 1*s.* 6*d.* a-piece per week. During the past winter we *fed* many heifers, and sold them fat in April; they paid us 6*s.* and 7*s.* a-piece per week. That is one statement; and another directly the reverse may doubtless be made by others who *fed* in 1844-5, and kept *store beasts* in 1845-6. It all depends on the markets, which during the former spring were very low for dairy stock, while during the present spring they have been very high.

*** Communications reaching town after Wednesday, cannot be answered the same week

Markets.

SMITHFIELD, MONDAY, May 25.—Per Stone of 8 lbs.

Best Scots, Herefords, &c.	3*s* 10	to 4*s* 0	Best Long-woolsd.	—	to	—	
Best Short Horns	3 8	4 8	Ditto (thorn)	3 10	4 2		
Second quality Beasts	3 6	3 4	Ewes and second quality	—	—		
Calves	4 0	5 0	Ditto (thorn)	3 6	3 10		
Best Downs & Half-breds	—	—	Lambs	5 0	6 0		
Ditto (thorn)	4 2	4 4	Pigs	3 4	3 8		

Beasts, 2939, Sheep and Lambs, 23,700; Calves, 105; Pigs, 310.

We have a very large supply of Beasts to-day and although the demand is tolerably good the prices are lower. 4*s* must be considered the top current price, as only here and there a very choice Beast made a little over.—Sheep were rather more plentiful, and the demand small; we have a comparatively a slow trade, and late rates barely supported.—We have a great deal of plain Lamb, which is unselling, and the best are rather lower. Veal trade is heavy.—Very little is doing in Pork.

FRIDAY, May 29.

Although the supply is not very large to-day there are very few Beasts wanted. Trade is exceedingly heavy. 4*s* is quite the top price for the best Scots &c., and 3*s* 6*d* the best Short-horns.—We have a good supply of Sheep and Lambs, and trade for both is heavy. Best Downs, &c., make 4*s* 4*d*. Long-woo 4*s*: Lambs, 5*s* to 6*d*.—Calf trade is dull; it is difficult to make 5*s* of the choicest; average qualities range from 4*s* to 4*s* 8*d*.—Pork trade is bad.

Beasts, 812; Sheep and Lambs, 9429; Calves, 3 6; Pigs, 289

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, May 28.

Prime Mead. Hay	70*s*	to 74*s*	New Hay	—*s*	to —*s*	NewClr.	—*s* to —
Inf. New & Newen	55	65	Clover	90	to 110	Straw	20 25

Trade very bad.

JOHN COOPER, Salesman.

CUMBERLAND MARKET, May 28.

Prime Mead. Hay	80*s* to 85*s*		Old Clover	110*s* to 115*s*			
Inferior	65	75	Inferior do	95	100	Straw	35*s* to 36*s*
New Hay	60	—	New Clover	—	—		

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, May 29.

Fine Old Hay	80*s* to 85*s*		Old Clover	110*s* to 115*s*			
Inferior Hay	60	70	Infr. „	90	95	Straw	28*s* to 33*s*
New do.	—	—	New Clover	—	—		

POTATOES.—SOUTHWARK, WATERSIDE, May 25.

There was no fresh arrivals to this market during the past week; notwithstanding, there was but little demand except for the very best samples; all inferior parcels were a complete drag. Owing to the high prices, the warm weather, and the abundant supply of vegetables to the various metropolitan markets, the consumption of Potatoes has considerably diminished. The prices ranged as follows:—York Reds, 140*s* to 180*s* per ton; ditto Regents, 120*s* to 160*s* per ton; Perth Reds, 115*s* to 120*s* per ton.

COVENT GARDEN, MAY 30.—The supply of Vegetables has been well kept up, and all kinds of Fruit in season is plentiful. Some good Fine-apples may be obtained, and Hothouse Grapes, of excellent quality, are abundant. A considerable quantity of Peaches and Nectarines have been offered. Ripe Cherries and Strawberries are plentiful, more especially the latter, and for which there is no great demand. Green Gooseberries and Apricots are abundant. Apples and Pears are nearly over for a season. Oranges are abundant, and Nuts of all kinds are sufficient for the demand. Fine-looking English Melons have made their appearance in considerable quantity. Of Vegetables, Asparagus is plentiful and excellent in quality. Cabbages, Greens, &c., are good and sufficient for the demand. Carrots and Turnips are cheaper, and the same may be said of Peas. Celery is good in quality. Potatoes of the very best quality still fetch 8*l.* a ton, and in one or two cases 10*l.* and 12*l.* a ton; but inferior samples may be obtained at much lower prices. Frame Potatoes are pretty plentiful. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Euphorbias, Heaths, Hyacinths, Tulips, Auriculas, Tropæolums, Jasmines, Lily of the Valley, Pentas carnea, Stephanotis floribunda, Burchellia capensis, Camellias, Azaleas, Acacias, Cyclamens, Daphnes, Orange flowers, Rhododendrons, Cinerarias, Gardenias, Moss and other Roses.

FRUITS.

Pine Apple, per lb., 6*s* to 10*s*		Lemons, per dozen, 1*s* to 2*s*	
Grapes, Hothouse, per lb., 3*s* to 8*s*		— per 100, 6*s* to 14*s*	
— Spanish, per lb., 9*d* to 1*s*		Gooseberries green, per hf.-sv., 3*s* to 5*s*	
Apples, Dess., per bush. 7*s* to 20*s*		Strawberries, per lb., 3*d* to 1*s*	
— Kitchen, 7*s* to 15*s*		Almonds, per peck, 6*s*	
Melons, each, 4*s* to 10*s*		Sweet Almonds, per lb., 2*s* to 3*s*	
Peaches, per doz., 1*s* to 24*s*		Filberts, English, p. 100 lbs., 50*s* to 60*s*	
Nectarines, per d. z., 10*s* to 24*s*		Nuts, Cob, per 100 lbs., 80*s* to 90*s*	
Cherries, per lb., 2*s*		— Barcelona, 90*s*	
Oranges, per dozen, 1*s* to 2*s* 6*d*		— Brazil, 12*s* to 16*s*	
— per 100, 4*s* to 18*s*		— Spanish, 14*s*	
— Seville, per 100, 5*s* to 15*s*		Walnuts per bushel, 12*s* to 16*s*	
— per dozen, 2*s* to 2*s* 6*d*		Chesnuts, per peck, 3*s* to 7*s*	

VEGETABLES.

Cabbages, per doz., 6*d* to 1*s* 3*d*		Carrots, per bunch, 6*d* to 1*s* 3*d*	
Cauliflowers, per doz., 2*s* to 3*s*		Onions, per hf.-sv, 3*s* to 4*s*	
Greens, per doz. bunches, 1*s* to 1*s* 6*d*		— Spanish, per doz., 1*s* 6*d* to 3*s*	
Artichokes, per doz., 2*s* to 4*s*		Shallots, per lb., 10*d* to 1*s*	
French Beans, per 100, 2*s* to 4*s*		Garlic, per lb., 6*d* to 8*d*	
Peas, per sieve, 3*s* to 5*s*		Lettuce, per score, Cab., 4*d* to 1*s*	
Sorrel, per hf.-sieve, 9*d* to 1*s*		— — Cos, 4*d* to 1*s* 3*d*	
Potatoes, per ton, 70*s* to 180*s*		Radishes, per 12 bunds, 4*d* to 1*s*	
— cwt., 4*s* to 9*s*		Mushrooms, per pottle, 1*s* 6*d* to 2*s*	
— bushel, 2*s* to 4*s* 6*d*		Small Salads, per flannel, 2*d* to 4*d*	
— Kidney, per bushel, 4*s* to 4*s*		Fennel, per bunch, 2*d* to 3*d*	
— Frame, per lb., 8*d* to 1*s* 6*d*		Savory, per bunch, 4*d* to 6*d*	
Turnips, per bunch, 4*d* to 1*s* 3*d*		Thyme, per bunch, 4*d*	
Red Beet, per doz., 6*d* to 1*s* 6*d*		Watercress, p. 12 sm. bun 6*d* to 9*d*	
Horse Radish, per bundle, 2*s* to 2*s*		Parsley, per bunch, 1*d* to 3*d*	
Rhubarb, per bundle, 3*d* to 1*s*		— Roots, per bundle, 1*s*	
Asparagus, per bundle, 1*s* to 6*s*		Tarragon, per bunch, 6*d*	
Cucumbers, each, 6*d* to 1*s* 6*d*		Mint, green, per bunch, 6*d* to 8*d*	
Spinach, per sieve, 3*d* to 1*s*		Marjoram, per bunch, 4*d*	
Leeks, per doz bunches, 1*s* to 1*s* 6*d*		Chervil, per punnet, 2*d* to 3*d*	
Celery, per bundle, 6*d* to 1*s* 6*d*			

HOPS, FRIDAY, May 29.

The fly and lice continue to increase throughout the Hop plantations, and the market in consequence keeps advancing.

PATTESHALL & SMITH, Hop-Factors.

MARK-LANE, MONDAY, May 25.

The supply of English Wheat from the near counties was moderate this morning; best qualities were taken at our last week's quotations, but much of the secondary could not be disposed of excepting at a reduction of 1*s.* per qr. Foreign, either free, bonded, or f.o.b., was extremely difficult to sell.—The show of spring Corn has been trifling: Barley, Beans, and Peas, sold slowly at late prices.—We observe no alteration in the value of Oats.—The millers generally agreed to reduce the top price of Flour 4*s.* per sack.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White	55	62	Red	50 60
—— Norfolk, Lincolnshire, and Yorkshire		50	54	White	50 55
Barley, Malting and distilling 28*s* to 30*s*	Chevalier	30	33	Grind.	23 27
Oats, Lincolnshire and Yorkshire	Polands	24	28	Feed	21 24
—— Northumberland and Scotch	Feed	24	25	Potato	27 30
—— Irish	Feed	21	25	Potato	25 28
Malt, pale, ship		54	60		
—— Hertford and Essex		50	55		
Rye		34	36		
Beans, Masagan, old and new	28 to 40	Tick	32	40	Harrow 31 40
—— Pigeon, Heligoland	34 to 38	Winds	—	—	Longpod — —
Peas, White	36 to 40	Maple	32	32	Grey 28 31

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.		Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	2230 Sks	— Brls.	1164	780	2170	440	—	434	289
Irish	— „	— „	—	—	50	6939	—	—	—
Foreign	225 „	13819 „	10646	—	—	6885	—	2550	—

FRIDAY, May 29.

The majority of 47 in the House of Lords, in favour of the second reading of the Corn Bill, shows a ministerial surplus of 12 votes without the proxies, and can, therefore, scarcely leave a doubt of its passing the committee (fixed for the 11th June), and finally becoming law; nevertheless, the result was without any effect upon the trade here to-day, which continues as dull as possible, and the value of each article remains nominally the same as on Monday.—The New York market of the 14th inst. was flat; Western Canal Flour quoted from 20*s.* to 20*s.* 9*d.* per barrel, f.o.b. freight 3*s.*; Wheat 5*s.* per 60 lbs. and freight 9*d.* per bushel. In Montreal, on the 13th inst., Flour was held from 27*s.* to 29*s.* per barrel, but no business doing; Wheat 5*s.* 9*d.* to 6*s.* 2*d.* per 60 lbs.; freights for Flour were 4*s.* 7½*d.* per barrel, and Wheat 8*s.* to 8*s.* 6*d.* per qr.

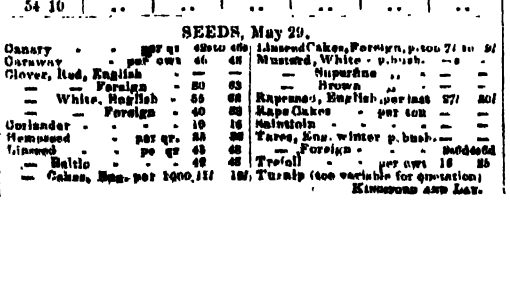
ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	6890	1980	4680	8780 Sks
Irish	—	—	2250	—
Foreign	5570	—	2580	—

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas
Apr. 18 per Quarter.	55*s* 0*d*	30*s* 1*d*	25*s* 9*d*	35*s* 5*d*	36*s* 0*d*	36*s* 8*d*
— 25	55 6	30 1	25 4	35 7	36 10	36 10
May 2	56 8	29 8	25 7	33 5	34 11	36 10
— 9	56 8	29 7	25 9	33 5	35 8	36 7
— 16	57 0	29 4	26 1	33 5	35 11	36 11
— 23	55 5	28 10	23 8	34 6	36 0	34 6
6 weeks' Aggreg. Aver.	56 2	29 3	25 6	33 9	35 4	34 4
Duties on Foreign Grain	16 0	9 0	5 0	9 6	7 6	8 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, May 23.



SEEDS, May 29.

Canary	per qr	42*s* to 46*s*	Linseed Cakes, Foreign, p. ton	7*l.*	to	8*l.*
Carraway	per cwt	46	48	Mustard, White	p. bush.	—*s*	—
Clover, Red, English	—	—	— Superfine	„	—	—
— — Foreign	80	83	— Brown	„	—	—
— White, English	55	68	Rapeseed, English, per last	27*l.*		30*l.*
— — Foreign	40	52	Rape Cakes	per ton	—	—
Coriander	—	10	16	Saintoin	„	—	—
Hempseed	per qr.	35	36	Tares, Kng. winter	p. bush.	—	—
Linseed	per qr	43	46	— Foreign	—	Shelled	
— Baltic	—	42	45	Trefoil	per cwt	16	25
— Cakes, Eng.	per 1000 *lb*	12*l.*		Turnip (see variable for quotation)			

KINGSFORD AND LAY.

Sales by Auction.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition at the Auction Mart, Bartholomew-lane, on Thursday, June 4, 1846, and following day, at 12 o'clock, a very rich collection of DAHLIAS, comprising all the new varieties of the season. Also, a splendid assortment of GERANIUMS and other plants in bloom; the newest varieties of Fuchsias, Verbenas, Petunias, Heartsease, and a variety of other plants for the borders.—May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneer's, American Nursery, Leytonstone.

TERRESTRIAL ORCHIDS, BULBS, &c., JUST ARRIVED FROM THE CAPE, AND AN IMPORTATION FROM MEXICO.

MESSRS. J. C. AND S. STEVENS, will sell by Auction, at their Great Room, 38, King-street, Covent-garden, on Saturday, 6th June, at 12 o'clock, a collection of rare ORCHIDS, BULBS, &c., from Africa, containing some new Species, and many very rare, such as Orchis Victoria, violaceum, barbatum, Disa grandiflora, &c.; beautiful varieties of Brachystelmas, Watsonias, Ixias, Brunsvigias, &c.; also an Importation from Mexico, comprising many favourite varieties, in fine order.—On view the day prior and morning of Sale, and Catalogues had of the Auctioneers.

GENTEEL FAMILY RESIDENCE and FARMS TO LET—In all about 178 acres, of which about a fourth is pasture, delightfully situate, 35 miles from London, in the neighbourhood of High Wycombe and Great Marlow. The residence is in the Swiss style, and contains dining and drawing-rooms, library, seven bed-rooms, housekeeper's room, butler's pantry, and proportionate offices; coach-house, 3-stall stable, loose boxes, and good gardens. The farms offer great attraction for an amateur Agriculturist, with every rural amusement.—For further particulars apply to Messrs. HEWITT DAVIS and FRANCIS VIGERS, Land Agents and Auctioneers, 3, Frederick's Place, Old Jewry, London.

TO LET ON LEASE.—Seven miles north of London, A COMMODIOUS DWELLING HOUSE, with large Conservatory, extensive Graperies, Forcing Pits, large well stocked Gardens and Ornamental Pleasure Grounds. The house stands retired from the Turnpike road, with Lodge Entrance, and long Carriage Drive, and consists of Parlour, Dining-room, Library, and large Drawing-room opening into the Conservatory; eight Bedrooms and three Dressing-rooms, two Stables, Laundry, and extensive and commodious Out-buildings, Gardener's Cottage, &c. &c. Will be let with or separate from a Park of upwards of 50 acres of rich meadow land. Further meadow land if required. Several Coaches to and from London pass the Lodge daily. For particulars and cards to view, apply to Messrs LAHEE & SON, 65, New Bond-street; or, Mr. FLETCHER, 119, Piccadilly.

WANTED to RENT, within ten miles of London, a GARDEN, or SMALL NURSERY, with House, Shop, and other conveniences.—Address A. B., 15, Compton-street, Brunswick-square, London.

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton, Draining Engineer to Her Majesty, at Osborne, Isle of Wight. The inventor of a Patent Tile and Pipe Machine (applicable to making bricks); also a new Machine for taking roots and stones out of clay, both which are to be seen at the Royal Polytechnic Institution, Regent-street, offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P S.—Land drawn at a fixed sum per acre, including every expense.

CHEAP AND EFFECTIVE FENCE AGAINST HARES AND RABBITS.—Iron wire netting of various patterns, and of superior workmanship, supplied in either large or small quantities, on very reasonable terms. A coarser description of net will be found useful as a substitute for Pea-sticks, ornamental Arches, and other garden purposes. None sent out without receiving at least *two* coats of a newly-discovered and very durable anti-corrosive paint. Prices from 7*d.* to 1*s.* per linear yard. Apply to Mr. RAYNHAM, 21, Brownlow-street, Holborn, (where specimens may be seen), or to Mr. SAMUEL TAYLOR, Stokeferry, Norfolk.

TRANSPARENT COVER for SHADING GREEN-HOUSES, for Flower-beds and for Frames, done with a composition which preserves the fabric, is waterproof, and will last 4 years. It effectually preserves plants from frost as well as other purposes; 2 yards wide, 1*s.* per yard, or 4*d.* per square yard. ROBERT RICHARDSON, 21, Tunbridge-place, New-road, London.

NEW GARDEN NET 1½*d.* per yard; 1 inch mesh, ditto; mended Fishing Nets, 3*d.* per yard, Worsted Garden Nets, 1 inch mesh, 2½*d.* per yard. Fine Net to exclude wasps and flies, and give plenty of sun and air to the Fruit, 7½*d.* per yard, much approved. All kinds of Nets made to order.—ROBERT RICHARDSON, 21, Tunbridge-place, New-road, London.

TENTS FOR LAWNS MADE ON THE PRINCIPLE OF AN UMBRELLA. Put up or taken down in a few minutes, quite 6 feet high in the lowest part, and forming a very ornamental Tent. It requires no side lines, which are an objection in tents in general. Price 5*l.* each, 30 feet round.—ROBERT RICHARDSON, 21, Tunbridge-place, New-road. Temporary Rooms erected, Balconies enclosed, &c. &c., on very reasonable terms.

SHEEP NETS, FISHING NETS, RICK CLOTHS, &c.—Strong Net for folding Sheep, for temporary fences, and other purposes, nearly 4 feet high, 4½*d.* per yard; Drag, Sieve, Flue, Brammel, Casting, and other Nets, at very moderate prices. Rick Cloths dressed with a pliable composition of tar and boiled oil, 1*s.* per square yard, made up, including all lines attached to the cloth, for 30 tons of Hay, 30 feet by 30 feet, price 5*l.* An early order is asked for, as they are sold at a mere nominal profit.—ROBERT RICHARDSON, Net and Tent maker, 21, Tunbridge-place, New-road, London.

TO ARTISTS, &c.

CALIGRAPHIC BLACK-LEAD PENCILS.—These Pencils are perfectly free from grit, and for richness of tone, depth of colour, delicacy of tint, and evenness of texture, are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use. They will also recommend themselves to all who use the Black-lead Pencil as an instrument of professional importance or recreation, by their being little more than half the price of other Pencils.

H, HH, HHH, HB, B, BB, F, FF, W*.. 4*s.* per dozen.
BBB, EHB .. .. 8*s.* „
BBBB .. .. 12*s.* „

W*—This Pencil is particularly recommended for writing and counting-house use.

May be had of all Artists' Colourmen, Stationers, Booksellers, &c.; and at the Manufacturers', E. WOLFF & SON, 23, Church-street, Spitalfields, London.

A single Pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SHAWER, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Foster's, Plymouth; Mr. Henderson's Pine-apple-place; and in the Horticultural Society's Gardens.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen; and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

THE LONDON MANURE COMPANY beg to offer Genuine PERUVIAN GUANO, delivered direct from the Importers' bonded warehouses:—

Nitrate of Soda,	Fine Bone Sawdust,
Sulphate of Ammonia,	Sulphuric Acid,
Superphosphate of Lime,	Sulphate of Soda,
Gypsum,	Petre Salt,

And every article of Artificial Manure in the most genuine state.—No. 40, New Bridge-street, Blackfriars.

EDWARD PURSER, Secretary.

TURNIP SEASON.

GUANO, Peruvian, (imported by GIBBS & CO.,) and African, from Ichaboe and Saldanha Bay; Superphosphate of Lime (see "Royal Ag. Soc. Journal," Vol. vi., Part 2); Bone Dust, Sulphuric Acid, and Clarke's desiccated Compost; all suitable for the Turnip Crop. Also Nitrates of Soda and Potash, and all other Manures of known value, on sale by MARK FOTHERGILL, 40, Upper Thames-street, London.

Agent also for DINGLE'S HAND DIBBLE, suitable for every description of seed.

CHEAP AND DURABLE ROOFING,
AND THE BEST RESISTER OF FROST FOR GARDEN PURPOSES.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

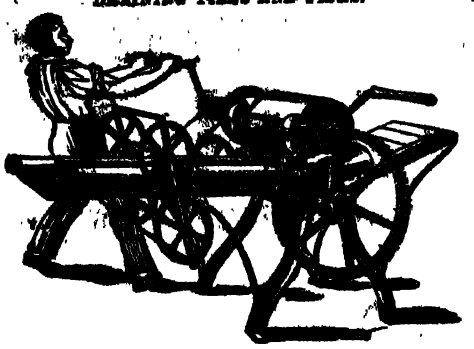
F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, Manufacturers and only Patentees of THE PATENT ASPHALTED FELT FOR ROOFING, and which for many years has been in extensive use for Roofing Houses, Verandahs, all kinds of Farm Buildings, Sheds, and for COVERING GARDEN FRAMES, TO PROTECT PLANTS AGAINST THE EFFECTS OF THE FROST, beg to call the attention of Gardeners and others to their superior article, *which has been exhibited at the Great Agricultural Shows of England, Scotland, and Ireland, and obtained the Prize for being the best and cheapest article for roofing, &c.*, and is also patronized by Her Majesty's Board of Ordnance, Commissioners of Woods and Forests, the Hon. the East India Company and the Botanical Gardens, Regent's-park. It is extensively used in the gardens of several noblemen and gentlemen in the neighbourhood of London, and in different parts of the country, to whom reference is made. This Felt is composed of the strongest and most durable materials, and is saturated with the BEST OF ASPHALTE OR BITUMEN (THE SAME AS SELECTED AND USED BY SIR ISAMBERT BRUNEL FOR THE THAMES TUNNEL, BEING FOUND THE MOST ELASTIC AND EFFECTIVE RESISTER OF WET). NO OTHER FELT HAS THIS ASPHALTE BUT F. M'NEILL & CO.'s, and which renders it impervious to rain, snow, and frost, and a non-conductor of heat and sound. Its advantages are Lightness, Warmth, Durability, and Economy.—Price ONLY ONE PENNY PER SQUARE FOOT.

*** Samples, with Directions for its Use, and Testimonials of seven years' experience (which contain much useful information), from Noblemen, Gentlemen, Gardeners, Architects, and Builders, SENT FREE to any part of the Town or Country, and orders by Post executed.

The new Vice-Chancellor's Courts, the Offices attached, and Passages leading to Westminster-hall, Dr. Reid's Offices, and other Buildings at the New Houses of Parliament, are roofed with F. M'NEILL and Co.'s Felt, and is known by its having the appearance of laid roots.

☞ The Public is respectfully cautioned against misrepresentation, as the only Works in Great Britain where the above Patent Roofing is made is F. M'NEILL & Co.'s Manufactories, Lamb's-buildings, Bunhill-row, London.

DRAINING TILES AND PIPES.



AINSLIE'S PATENT IMPROVEMENTS.—FOR MAKING and DRYING Draining Tiles of the 1st CLASS. Gentlemen having works in operation, or who are about to erect them, will find the above worthy their attention.

The PROCESS combines EFFECT with ECONOMY, as Tiles can be made ready for BURNING at all seasons; generally from ten to thirty hours, according to the nature of the clay. To be seen at Alperton, Acton, Middlesex; Mr. Howe, Engineer, 119, Great Guildford-st., Southwark; the Polytechnic Institution, Regent-street, London. Particulars may be had from JOHN AINSLIE, Alperton, Acton, Middlesex.

ORNAMENTAL TILES for Floors, Walls, &c., of Greenhouses, Conservatories, Garden Terraces; Encaustic, Venetian, &c., in EVERY VARIETY. May be seen at Messrs. PARKER and WYATT'S, Surrey-street, Blackfriars, London. Agents to Messrs. MINTON & CO., the Patentees, of Stoke-upon-Trent. Also Patentees of the PORCELAIN BUTTONS, cheaper and more durable than Mother-o'-Pearl, &c.

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This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ " "	8,000	2½ " "	3,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, Vol. V.

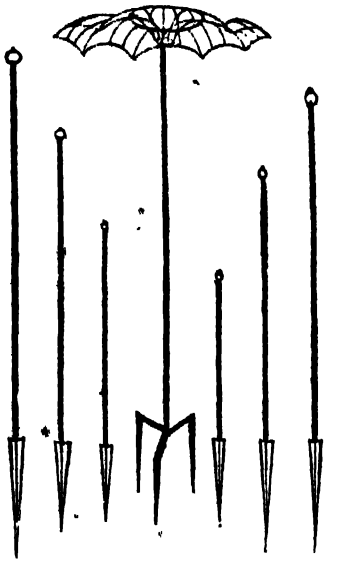
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KEATING'S COUGH LOZENGES are free from every deleterious ingredient; they may, therefore, be taken at all times, by the most delicate female and by the youngest child; while the Public Speaker and the Professional Singer will find them invaluable in allaying the hoarseness and irritation incidental to vocal exertion, and consequently a powerful auxiliary in the production of melodious enunciation.

Prepared and sold in Boxes, 1*s.* 1½*d.*, and Tins, 2*s.* 9*d.*, 4*s.* 6*d.*, and 10*s.* 6*d.* each, by THOMAS KEATING, Chemist, &c., No. 79, St. Paul's Churchyard, London.

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	Table.	Dessert.	Carvers.
3¾-inch handsome Balance-handle.	18*s.* doz.	14*s.* doz.	6*s.* 6*d.* pr
4-inch Balance-handle, largest and best made	30*s.* "	10*s.* "	7*s.* 6*d.* "
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Forks half the price of the above.

C. WATSON'S handsomely ILLUSTRATED CATALOGUE and PRICE CURRENT is just published, and families who regard economy and elegance should possess themselves of this useful Book, which may be had *gratis*, and post free, from the above address. Sole inventor of the celebrated Albata Plate, which is so rapidly superseding silver.

THE POPULAR REMEDY.

PARR'S LIFE PILLS.—The extraordinary success of this medicine is the wonder of the age; it has been tried by hundreds of thousands as an aperient, and has in every instance done good; it has never in the slightest degree impaired the most delicate constitution. Tens of thousands have testified that perseverance in the use of PARR'S LIFE PILLS will completely cure any disease, and are living witnesses of the benefit received from this invaluable medicine.—Testimonials are received daily, and it would be impossible, in a newspaper, to publish one-half received; and the following are selected as people well known in their respective neighbourhoods, and whose testimony is unquestionable. Further sheets of Testimonials and the "Life and Times of Old Parr" may be had gratis of all Agents.

The following important testimony to the efficacy of PARR'S LIFE PILLS has just been received by the Proprietors:—"To Messrs. T. Roberts and Co., London. Atcliffe, Dec. 7, 1844. Sirs,—You will please to send me six dozen more PARR'S LIFE PILLS; I am just out. They are taking well, and, I can assure you, they are doing an immensity of good; every one who has tried them in affections of the Liver and Stomach derives a great deal of benefit. Yours, &c., WILLIAM GILCHRIEST, Apothecary and Surgeon."

"Long Benton, near Newcastle, August 11, 1845. Sirs,—I beg to thank, and inform you of the wonderful effect of your PARR'S LIFE PILLS. I was long subject to Shortness of Breath, with Cough, &c., but after taking your Pills a short time, I am not only cured but feel quite young again, and, although an old man of 60, I feel so much better that I think I shall live to be 90 at least. If you think this will be of service you are quite welcome to print it. Yours, with much respect, PETER MURPHY."

Beware of spurious imitations of the above medicine. None are genuine unless the words "PARR'S LIFE PILLS" are in WHITE LETTERS ON A RED GROUND, engraved on the Government Stamp, pasted round each box; also the fac-simile of the Signature of the Proprietors, "T. ROBERTS and CO.," Crane-court, on the directions.

Sold in boxes, at 1*s.* 1½*d.*, 2*s.* 9*d.*, and family packets at 11*s.*, by all respectable druggists and patent medicine retailers throughout the kingdom.

☞ Full directions are given with each box.

On and after the First of June,

THE DAILY NEWS,

LONDON MORNING NEWSPAPER,

AT

TWOPENCE HALFPENNY!

THE Newspaper is the intellectual life of the Nineteenth Century—the great agent of modern civilisation. Not to speak of the moral and political safeguards which it affords, it places all, whatever their varieties of fortune and position, on a level as to information. By its means only the small capitalist is enabled to contend successfully against his wealthy rival for a knowledge of those changes which affect supply and demand—and therefore prices. Without the daily Newspaper, a man and his family might be located as well in the back settlements of Canada as within ten miles of the great centre of European Civilisation. These facts are felt—the gain is understood—and the number and character of the Newspaper press of any country are an admitted test of the enterprise and intelligence of the people. It is remarkable, then, that more than a century since, there were *eighteen* papers published in London, daily or three times a week—while now there are only *fifteen!* though the population of to-day bears a ratio to that of the period in question of more than 3 to 1; and, by means of the post and other facilities, the whole kingdom has been brought within the easy range, and under the direct influence, of the London press. *In the single City of New York, more daily papers are published than in all England, Scotland, and Ireland, put together. The circulation of papers in Paris exceeds that of London twenty-fold. How is this? Of a fact so startling, where lies the explanation, what is the cause?*—PRICE!

That the public know the advantage of having a Daily Paper is manifest, from the thousands and tens of thousands who pay twopence for an hour's reading, and threepence for a paper the day after publication What, then, are the causes which maintain the high price? First, the amount of capital required to be invested in a Newspaper speculation—with whose extent and proper application the man of business and the capitalist are for the most part unacquainted. Next, the various talent, knowledge, and experience which must combine to produce the result. The number and greatness of the requirements have, in truth, occasioned something very like a monopoly—and monopoly always commands its own price. Thus, whilst energy, enterprise, capital, and competition have been doing good service in all other things, including literature in various branches, nothing has been attempted in the direction indicated, for the political, social, and intellectual wants of three great nations; and a Daily Paper still remains a costly luxury, in which only the wealthy can indulge. IN PARIS WITHIN THE LAST FIVE YEARS A REDUCTION OF ONE-HALF OF THEIR OLD PRICE HAS BEEN MADE IN THE MOST DISTINGUISHED JOURNALS, WITH THE RESULT OF INCREASED EFFICIENCY, POWER, AND INTEREST. ANY SUCH ATTEMPT IN LONDON DOES NOT SEEM TO HAVE BEEN THOUGHT OF.

The experiment is now about to be tried of establishing a London Daily Newspaper, on the highest scale of completeness in all its departments, which shall look for support, not to comparatively few readers at a high price, but to many at a low price.

Its success depends upon the Public. In the first instance, however, it was necessary to prove that the projectors are capable of competing with the high priced—that in energy and ability they are able to perform all that is required, and of this the Public have now had sufficient experience. THE DAILY NEWS appeared in January last, and no one has hinted a suspicion that it is inferior to its contemporaries in any respect. The time has now come when the proprietors are prepared to develope their plans; whatever has hitherto attracted public favour to their enterprise, will be continued and extended, and, working in the spirit of the age, they will publish,

On the First of June,

THE DAILY NEWS

At Twopence Halfpenny.

The Paper will be of the same size as all other journals were within seven years; it will be larger than many of the high-priced daily journals are now; and, in every particular of interest, it will contain as much information as the most successful amongst its contemporaries. But it will be expansive; and double sheets will be given whenever an important Debate, a pressure of News, or Advertisements, seems to require it.

THE DAILY NEWS, therefore, will contain everything that is to be found in other journals; and all accounts of Markets—all trade information—will be so arranged that the merchant and man of business shall find what he wants always, as nearly as possible, in the same place, and in the fewest possible words. The modern newspaper has not been devised and planned as judgment might have originally directed, but has grown up under circumstances which it could not control; and the establishment of a new paper affords the opportunity for a revision, which shall effect a saving of the reader's time, and present the information which he seeks in a more systematic form.

The Daily News will be published in Time for the Morning Mails.

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Let him who would support us in this seasonable attempt, subscribe *at once*. Where even the reduced price is beyond his means, let him *at once* join with a friend or neighbour in subscription. If, again, these friends can arrange with others in the country to receive the paper, by post, on the day of publication, at half price, the cost to each, of the New Daily Paper, will be little more than one *halfpenny*.

Every News Agent, will, we hope, supply the paper at Twopence-halfpenny, *where payment is made in advance*; the same proportionate allowance as with other papers—something more than twenty-four per cent—being allowed by the proprietors to the trade. When credit is given, it is a matter of private arrangement, with which the proprietors have nothing to do. As, however, in an undertaking so bold and so novel it is advisable to guard against possible inconvenience, the proprietors of THE DAILY NEWS will undertake to get all persons supplied who shall forward a post-office order payable to JOSEPH SMITH, DAILY NEWS OFFICE, Whitefriars, London.

For THREE MONTHS . . . 16*s.* 4*d.*

Let all who are interested in the success of this undertaking—and who is not?—be active, and success is certain.

Printed by WILLIAM BRADBURY, of No. 6, York place, Stoke Newington, and FREDERICK MANSEL REVES, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their Office in Lombard-street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. Charles-Street, in the parish of St. Paul's, Covent-Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, May 25, 1846.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 23—1846.] SATURDAY, JUNE 6. [PRICE 6*d*.

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GARDENERS' BENEVOLENT INSTITUTION.

At a General Meeting of the Subscribers of this Institution, held on Wednesday, 3d June, at the London Coffee House Ludgate Hill, for the purpose of Electing FOUR PENSIONERS, the following was the result of the Ballot

John Adamson	..	4th application, aged	69,	128 Votes.
Barney Yardly	..	4th	69,	149 "
John Garnall	..	4th	70,	181 "
Christopher Gibbons	..	4th	60,	117 "
James Everest	..	3rd	68,	274 "
William May	..	3rd	77,	260 "
William Havers	..	2nd	73,	259 "
Edward Marshall	..	2nd	65,	5 "
Ann Pratt	..	2nd	63,	300 "
Henry Riches	..	2nd	71,	381 "
Francis Chamberlain	..	1st	67,	19 "
John Moore	..	1st	78,	67 "
Sarah Spiers	..	1st	67,	61 "

The Meeting then declared that HENRY RICHES, ANN PRATT, JAMES EVERETT, and WILLIAM MAY, were duly Elected Pensioners of this Charity. EDWARD CURTIS Sec.

June 6, 1846 97 Parliament street

HENRY RICHES begs to return his most grateful and heartfelt thanks to all those Members of the GARDENERS' BENEVOLENT INSTITUTION who have so kindly assisted in procuring his Election as a Pensioner upon the Funds of their most excellent Charity The infirmities under which he has laboured for some years past and which have rendered him totally incapable of doing anything towards his maintenance render the Pension awarded to him through their exertions doubly valuable, and will to his latest hour call forth his deepest gratitude and earnest prayers for the prosperity of their Institution.

30 Nightingale-lane, Paddington, June, 1846

CHRYSANTHEMUMS.

CHANDLER AND SONS, NURSERYMEN, Vauxhall, are now sending out strong healthy plants of CHRYSANTHEMUMS, of fine and good sorts at 12*s* per dozen The young plants are in good order for packing for the country

A list of the sorts, with a description of the colours, may be had on application

TO IMPORTERS OF DUTCH FLOWER ROOTS

H. D. KRUSEMAN, JUN., FLORIST, at Haarlem, in Holland, begs to inform the Nursery and Seedsmen in general, that to his regret his annual parcel of Catalogues to the trade which was sent to his correspondents in the City to be forwarded *franco* to the different addresses was opened by the Custom-house Officers and the contents being considered as liable to the regulations of the Post office, was sent there and have no doubt since been sent round with the charge of postage Although no blame can attach to Mr KRUSEMAN Jun, he still very much regrets the circumstance and will be happy to reimburse the postage to those parties who may have paid it, in any order with which they may please to favour him

Haarlem, May 29

C. LODDIGES & SONS, HACKNEY, have now ready for delivery a limited number of superb Plants, 2 feet high, very bushy, of RHODODENDRON ROBUSTUM—a new species from the Himalayan Mountains, perfectly hardy and of magnificent foliage Price 5*l* 5*s* each A remittance will be expected with orders from new correspondents

CURTIS'S BUDDING KNIFE.—"This is the neatest Budding knife we have seen, the ivory handle is shaped like the blade of a curved Penknife, sharp and turned upat the point, and is evidently extremely well contrived for the purpose it is intended"—*Opinion of Professor Lindley in the Gardeners' Chronicle, July 20, 1843*

GEORGE PLUM, Surgical Instrument Maker and Cutler, No 369, Strand, London, and at No 3 Dolphin street, Bristol, begs to call the attention of the public to the above desirable article Also to any part of the kingdom, on receipt of 38 penny postage stamps, or a post-office order for 3*s* 2*d*.

G. P cautions Floriculturists and the Public in general against numerous imitations of the above article, he being the only appointed Manufacturer

CHEAP BORDER FLOWERS.—For SALE, 60 dozen of the following Plants, in numerous varieties, at 2*s*, 3*s*. per dozen —*viz*. Verbena, Heliotropium, Lobelia, Pentstemon, Calceolaria, Mimulus, Calsia, Anagallis, Salvia, and Chinchera. The basket and package will be included when two dozen or upwards are taken.—Apply to JOHN HAYES, Nurseryman, West-street, Farnham, Surrey.

Unknown correspondents will please to enclose a Post-office order, or postage stamps, to the amount of their order.

NEW AND SUPERB PANSY, "MASTER THOMAS."

YOUELL & CO in offering the above Pansy, beg to refer to the report of it in last week's *Gardeners' Chronicle*, page 360, under the signature of "Z. Z" as follows —"61, fine form colour, and substance, mulberry-purple top petals, with a perfect belting of deep blue round the lower petals, the eye of this flower is singularly large, giving great richness to the appearance of the flower" The stock being very limited, orders will be executed in strict rotation, price 7*s* 6*d* per plant post free, or with 11 other first-rate varieties, for 18*s*. per post, free.

Y. & Co are now sending out, per post, free, their superb collection of CHRYSANTHEMUMS at 9*s* and 12*s* per dozen Catalogues of their extensive collection of Fuchsias, Verbenas, Petunias, Cinerarias, Pansies Camellias, Ericas &c &c, may be had on application —Great Yarmouth Nursery June 6

THREE SPLENDID NEW SEEDLING PETUNIAS, distinct varieties, colour and shape very good, have been inspected and approved of by Dr Lindley (*see Gardeners' Chronicle*, July 5, 1845), and many good judges in the trade —

P. ATTRACTION, Convolvulus-shaped, beautiful pink, with pencilled centre, 3*s* 6*d* each.

P. ENCHANTRESS, crimson pencilling upon a peach ground, fine, and very pretty, 3*s* 6*d* each

P. ALIWAL, a splendid, large, well formed, rich crimson variety, 3*s* 6*d* each

Now Seedling GERANIUM, SIR HARRY SMITH, brilliant scarlet, with rich black eye—this bold and attractive flower merits a place in every good collection—7*s* 6*d* each

Best mixed Geraniums for bedding out, 6*s* and 9*s*. per dozen.

Applications including post-office orders will be immediately executed —Direct to MICHL BARWIS, Nurseryman, London road Cambridge

N B Choice Cineraria and Petunia Seed, saved from the best sorts, 2*s* 6*d* per packet

MR C. BALL, successor to Mr. JOHN YOUNG, begs to announce that he is prepared to execute orders immediately, in strong plants for any of the under mentioned Early orders are solicited to secure fine Plants

NEW SCARLET PELARGONIUM "HONEYMOON," very dwarf spreading habit, and well adapted for bedding For Dr Lindley's opinion, see *Gardeners' Chronicle* 1845, p 508 "Your Seedling Scarlet is of a very rich and intense colour * * * The trusses are very large and compact the one sent containing from 70 to 80 buds and flowers" Plants 3*s* 6*d*

RHODODENDRON "CAMPANULATUM PICTUM." See *Gardeners' Chronicle*, 1845, p 808 "Your hybrid from Campanulatum is a large and handsome flower, white ground, having the margin of the segments tinged with delicate lilac and the interior of the upper division of the corolla strongly spotted with maroon The blooms sent indicate a very ornamental variety" Strong plants 21*s* each

PELARGONIUM "MARIA," very fine, large, rosy-purple See *Gardeners' Chronicle* 1845 p 532—"Your Seedling is an improvement on many of the same rosy purple colour, and is a bright and pretty variety" Fine plants 5*s*

LOBELIA FULGENS MULTIFLORA See *Gardeners' Chron.*, 1844 p 592—"Your Seedling Lobelia is a very handsome variety The lip is large and broad, of a rich and dazzling scarlet' some of the spikes of flower measuring from 12 to 18 inches in height Plants 1*s* 6*d* each, 15*s* per doz

Taxodium sempervirens, 6 to 9 inches	1*us*	6*d*
Lyperia punctifida	5	0
Alona coelestis	2	0
Veronica speciosa	2	0
Stachys lanata, recommended for bedding, at, per dozen	9	0
Andrococa cerastifolia	2	0
Fuchsia serratifolia	3	6
Calceolaria floribunda, for bedding ..	2	6
Roses, two species, Chusan each	3	6
Do one do Amoy	3	6

With a few plants to compensate for carriage An allowance to the Trade Taunton Nurseries June 6

CUPHEA CORDATA

MESSRS VEITCH AND SON beg to offer the above beautiful Greenhouse Plant, which is figured in Curtis's "Botanical Magazine" for January last, Tab 4208, where Sir W J Hooker gives it the following description "A truly beautiful plant, from the rich scarlet of its two large petals and calyces Would that all the species of this extensive genus were as distinctly marked as the present one It is a native of hills and woods in Peru about Huasahuasi, Chaolla, Acomayo, and Huanuco, and from that country seeds were sent to Mr. Veitch, of Exeter, by his collector, Mr W Lobb, in 1842 from which plants were raised that bloomed in August, 1845"

Messrs V & SON would further add, that it is a profuse bloomer, with crimson panicles of from 6 to 8 inches long at the termination of every shoot, it doubtless will prove a delightful plant for turning into the open garden during the summer months

Strong plants will be delivered on and after Monday the 15th inst, at 2*ls* per plant with one over on every three taken by the trade

N B Messrs V & SON require a Post office order from unknown correspondents previous to executing orders.

Exeter, June 6

HENRY GROOM, CLAPHAM RISE, near LONDON (By APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY) begs to say his Catalogue of GERANIUMS, AURICULAS, LILIUM LANCIFOLIUM, and NEW PLANTS is ready, and will be forwarded by post on application.

H. G. has a fine stock of CARNATIONS and PICOTEES. His Anemones are now in flower, and may be viewed every day from 9 o'clock until 6, Sundays excepted Admittance Gratis.

*** Foreign orders executed.

DICKSON'S NEW WHITE FUCHSIA, "ACANTHA"—Strong plants of the above (which has been pronounced by all who have seen it to be decidedly the finest White variety ever raised) are now ready to send out. Price per plant, 15*s*., the usual discount allowed to the Trade. A very extensive and choice collection of Dahlias, Geraniums, Calceolarias, Verbenas, and Greenhouse and Hothouse plants &c. &c.—Newton and Upton Nurseries, Chester, May 30,

FUCHSIA "MACRANTHA"

MESSRS. VEITCH AND SON have much pleasure in offering the public the above magnificent FUCHSIA, introduced by themselves from Peru through their collector, Mr. W Lobb, and at present solely in their possession It is perfectly distinct from any other introduced species, having flowers of a cylindrical form from 4 to 6 inches in length, of a beautiful delicate rosy red colour, produced in profuse clusters. It is of a dwarf habit and a most abundant bloomer It was exhibited at the Horticultural Society's Meeting in Regent-street, on the 7th of April last, and was awarded the Large Silver Medal It is figured in Curtis's and Paxton's Magazines for this month, where full descriptions appear.

Messrs V and Son can with confidence recommend this Fuchsia, both as a beautiful and highly ornamental plant, as well as a medium for distinct and successful hybridisation.

The mode and terms on which they disposed of Fuchsia Serratifolia having given such general satisfaction, they offer the above on similar terms, viz 21*s* per plant, with one over on every three taken by the trade

Strong established plants will be delivered on and after Monday, the 10th inst Orders executed strictly in the rotation received

N B —Parties wishing to see a drawing of the above Fuchsia prior to ordering it, can immediately be furnished with one by forwarding 12 Postage stamps

Messrs V. and Son require Post-office orders from unknown correspondents previous to executing orders

Exeter June 4

GLASS.—BRITISH AND FOREIGN PLATE, CROWN, AND SHEET GLASS WAREHOUSE, 49, Broad-street Bloomsbury (Established 1798)

The Proprietor begs to inform his Friends and the Horticultural Public that he has on hand a large Stock of British and Foreign Sheet and Crown Glass of a very superior quality, and such as he can confidently recommend from its quality of surface complaints having been repeatedly made, since the duty has been taken off, of the inequality of the surface of Glass which has been used for Hothouse purposes It is now a well-known fact that irregularities or lights and dents on the surface of Glass are found to act as a lens, concentrating the rays of the sun, and thereby injuring the more delicate plants. Superior Sheet Glass weighing 16 oz

to the square foot, from	5*d*. to 6*d*.	per foot
Ditto ditto, 21 oz to the square foot	7 to 9	"
Thick Crown Glass, from	5 to 6	"
Violet-coloured Crown	7 to 9	"

According to size.

The Proprietor has also on hand an inferior quality of Sheet Glass, varying from 13 oz to 16 oz to the foot, from 3½*d* to 4*d*, to use which for Greenhouses or Conservatories would be mistaken economy, experience having proved to us the positive injury produced by its use for Horticultural purposes, being suitable only for windows and skylights in inferior buildings.

The most economical Glass to be used with safety to the plants is Crown, in sizes from 6 by 4 to 8 by 6, both to the first expense and in repairing, some people forget that large panes of glass break as well as small ones, and the larger the piece the greater the chance of its breaking

Glazing done in any part of the country by contract, or at so much per foot

ALEXANDER MARSHALL 49 Broad st, Bloomsbury, London

PROPAGATING GLASSES, White, 1*s*. per lb., or from 2*s* 6*d* to 24*s* per dozen CUCUMBER GLASSES, from 6*d* to 4*s* each GRAPE SHADES, with holes, 1*s*. 9*d* to 3*s* 6*d* each FISH BOWLS from 1*s* 6*d* each —ASPLEY PELLATT & Co, Falcon Glass Works, Holland street Blackfriars.

FOREIGN SHEET GLASS, of good quality, for Horticultural and general purposes. To be had at PIPPICK'S, 26, Castle-street East, Oxford-street. For Ready Money only.

BRITISH AND FOREIGN SHEET AND HORTICULTURAL GLASS

PHILLIPS AND WELCH have to announce to the Nobility and Gentry that they have just concluded arrangements with J. WELCH, jun, PHILLIPS and Co, for the purchase of the business lately carried on by them, at 12, Panton-street, and beg to call attention to their extremely low prices for Horticultural Glass of every description

PRICES OF HORTICULTURAL GLASS

Not above 40 in. long by widths from 5 in to 18 in

No. 15	British & Foreign sheet		
	18 oz. to the foot	4*d*.	per foot.
" 16	16 "	5*d*	"
" 21	21 "	7*d*.	"
" 26	26 "	11*d*.	"
" 32	32 "	1*s* 3*d*.	"

SMALL SQUARES

Packed in 100 feet Boxes, not particular to thickness

Under 5 in by 3 in .. .	1¾*d*	per foot.
5 by 5 and under 6 by 4 "	2*d*	"
6 by 4 " 9 7 "	3*d*.	"

FOR GLAZING

Black Cement, as used at Chatsworth.	24*s*	per cwt.
Best Linseed Oil Putty	18*s*.	"
White Lead, Window Lead, Solder, &c. &c.		

Horticultural Glazing Executed in any part of the United Kingdom

The selection of Patent Plate Sheet, and flatted Crown Glass for Pictures, &c, particularly attended to.—12, Panton-street, Haymarket

FOREIGN AND BRITISH SHEET AND CROWN GLASS for Hothouses, Garden and other purposes —R COGAN having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists

per gross.		per gross.		per gross.	
6 in. by 4 ..	9*s*.	8 by 5 ..	14*s*.	9 by 7	18*s*
7 in by 4½ ..	9*s*.	8 by 6 ..	14*s*	10 by 8 .	24*s*.

R.C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, & GRAPE GLASSES, of every description, cheaper than at any other house —For New Lists, apply to R. COGAN, Glass, Lead, and Colour Works, 98, Leicester-square, London.

BRITISH AND FOREIGN SHEET GLASS, for Horticultural purposes, &c., may be had at Messrs. Prosser's, 313, Oxford-street, London, at the following reduced prices:—A case containing about 200 feet of 21 oz., at 4½d. per foot, or 4th quality, 3d. per foot; ditto, 16 oz., coarse, 3½d. per foot; ditto ditto, 4th quality, 6d. per foot. Or cut to any size not exceeding 40 inches long by 10 inches wide, at 1d. per foot extra.

Also Microscopical Glass, Frosted Shades, Plate and Crown Window Glass.

A discount to the Trade.

GLASS FOR CONSERVATORIES.

APSLEY PELLATT AND CO., Falcon Glass Works, Holland-street, Blackfriars, are prepared to supply (in quantities not less than 100 square feet), SHEET AND CROWN GLASS OF BEST QUALITY, at the following *Net Cash Prices*:—

Any size under 40 ins. long.	Per square foot.
13 oz. weight per foot	4d.
16 oz. ,, ,, ...	5
21 oz. ,, ,, ...	7
26 oz. ,, ,, ...	11

SMALL Squares up to 10 ins. by 8 ins., from 1½d. to 3d. per square foot.

N.B.—The 16 oz. is full strength for Greenhouses.

FOREIGN SHEET GLASS, GLASS TILES, &c.

C. JARVIS begs to inform his Patrons and the Public, that he has succeeded in making a large purchase of the above articles of the STOUTEST KIND from a new Manufacturer abroad, at a very low rate, who from circumstances was compelled to make a sacrifice, and which he has just imported. In consequence of having effected so great a bargain, he can offer the same at a less price (for ready money only) than he has hitherto received from extensive purchasers for the thinnest quality, at his old-established WINDOW GLASS WAREHOUSE, 38, Great Castle-street, a few doors from Regent-street.

Any other description of Window Glass equally low in price.

IMPORTANT TO HORTICULTURISTS.
THE ARTICLE GLASS.

MESSRS. DAINES AND BRADDOCK solicit the inspection of Glass Dealers, Horticulturists, and Builders, to an entirely new description of BRITISH SHEET GLASS, which, upon trial, will be found unequalled in strength, utility, and price, by any now in the market, for Sashes and particularly Horticultural purposes; and by patronising this article the evil results attending the use of foreign and other Glass of ordinary composition will be entirely avoided, as in manufacturing the above Metal great care and skill has been used to divest it of the slightest tendency to concentrate the rays of the sun, a fault in many cases ruinous to plants.

6, Farringdon-street, June 6.

N.B.—The best assortment of Coloured Glass in London.

GLASS DAIRY PANS.

EDWARDS & PELL, FOREIGN AGENTS AND IMPORTERS OF GLASS, AND GLASS MILK PANS, have received a large supply of PANS from 18 to 23 inches in diameter. They are made of great strength, and are very cool and cleanly. Cold water cleans them quite as well as hot, and without trouble.

EDWARDS & PELL have also a large stock of Propagating Glasses of the most approved form.

The very best Glass for Horticultural and other purposes, very strong and free from specks.

15, Southampton-street, Strand.

SEEDS.—CORNER OF HALF-MOON-STREET, PICCADILLY.
THOMAS GIBBS AND CO.,
(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G. NEIGHBOUR & SON, that they have prepared, for the season, an extensive supply of their various improved BEE-HIVES; their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive," "The Ladies' Observatory Hive," &c., from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a postage stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

NUTT ON BEES, (9th Edition) just published.

COOPER'S PATENT PRESERVED FRUITS—have been proved to keep in a sound and perfect state for family use for five years. An assortment of fruits that are usually preserved: Raspberries and Currants, Cherries, Greengages, Gooseberries, Damsons, &c., are put in stone ware bottles, of different sizes, lined with glass, a machine cork-screw to draw the corks, with the whole particulars of the patent process, and testimonials, are packed in a hamper, and will be delivered at any part of London, for TEN SHILLINGS, by an order addressed to the Patentee, at the Manufactory, 7, the upper part of St. John-street, Clerkenwell, London. These Fruits are presumed to be of a superior quality to any ever before offered for public notice; one trial will prove their excellence. The Fruits, &c., contained in these packages have been considered a desirable and acceptable present for country friends, as they contain much modern information for the preservation of fruits.



The Patent Apparatus for preserving of Fruits is now on Sale at the Manufactory as above.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

WASP CATCHERS.

HENRY POLE, Cutler to Her Majesty, 56, Haymarket, begs to inform Amateurs, Gardeners, Nurserymen, and others, that he has just completed a number of WASP CATCHERS, from 6 to 12 inches in square and oval shapes. It is well known that every Wasp caught in this month is the destruction of a whole nest, therefore an early application of this useful article is recommended. A large assortment of improved Budding Knives, Pruners, &c., always ready.

TO THE NOBILITY, GENTRY, NURSERYMEN, GARDENERS AND OTHERS.

LINGHAM & SUTTERS, 190, Little Hampton-street, Birmingham, sole Manufacturers of the LINGHAM'S MENOGRAPH, or Labels for Garden Borders, Flower Pots, &c. Engravings of the same, with prices attached, sent per Post to all parts of the Kingdom, on application as above.

Sole Agents in London, G. and J. DEANE, Horticultural Implement Warehouse, 46, King William-st., London Bridge.

CUCUMBER AND MELON BOXES AND LIGHTS.—One Hundred only, two and three light Boxes and Lights of all sizes ready for immediate use. Warranted best materials, packed and sent to all parts of the kingdom; two-light Boxes and Lights from 1*l.* 6*s.* Garden Lights of every description. Conservatories, Green and Hothouses made and fixed in all parts of the kingdom. Reference given to the Nobility, Gentry, and the Trade, in most of the counties in England.

JAMES WATTS, Hothouse Builder, Claremont-place, Old Kent road, London.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists, and all interested in Gardening pursuits, are invited to examine G. and J. DEANE'S extensive Stock of GARDENING AND PRUNING IMPLEMENTS, best London made Garden Engines and Syringes, Coalbrookdale Garden Seats and Chairs.

Aeruncators	Garden Scrapers	Pruning Bills
Axes	Grape Gatherers and Scissors	,, Knives, various
Bagging Hooks	Gravel Rakes and Sieves	,, Saws
Bills	Greenhouse Doors and Frames	,, Scissors
Borders, various patterns	Hammers	,, Shears
Botanical Boxes	Hand-glass Frames	Rakes in great variety
Cases of Pruning Instruments	Hay Knives	Reaping Hooks
Chaff Engines	Hoes of every pattern	Scythes
Chaff Knives	Horticultural Hammers and Hatchets	Scythe Stones
Daisy Rakes	Hotbed Handles	Shears, various
Dibbles	Labels, various patterns, in zinc, porcelain, &c.	Sickles
Dock Spuds	Ladies' Sets of Tools	Sickle Saws
Draining Tools	Lines and Reels	Spades and Shovels
Edging Irons and Shears	Marking Ink	Spuds
Flower Scissors	Mattocks	Switch Hooks
,, Stands in Wire and Iron	Monographs	Thistle Hooks
Fumigators	Metallic Wire	Transplanting Tools
Galvanic Borders and Plant Protectors	Milton Hatchets	Trowels
Garden Chairs and Seats	Mole Traps	Turfing Irons
,, Loops	Mowing Machines	Wall Nails
,, Rollers	Pick Axes	Watering Pots
	Potato Forks	Weed Extractors and Hooks
		Wheel Barrows
		Youths' Sets of Tools

G. and J. DEANE are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with the Illustrated List of Horticultural Tools can be sent, post paid, to any part of the United Kingdom.—DEANE'S Horticultural Tool Warehouse, opening to the Monument, 46, King William-st., London bridge.

VINAIGRE DE BORDEAUX.

PURITY, STRENGTH, and an agreeable FRUITY FLAVOUR, distinguish the first quality of FRENCH WHITE WINE VINEGAR, and render it preferable to all other for domestic use.

It may be procured at a moderate price of the Chemists, Grocers, and Wine Merchants, whose names may be learnt by applying to the Importers, W. and S. KENT and SONS, Upton-upon-Severn.—June 6.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and R. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and price, at 155, Fleet-street.

TURNIP SEASON.

GUANO, Peruvian, (imported by GIBBS & CO.,) and African, from Ichaboe and Baldemha Bay; Superphosphate of Lime (see "Royal Ag. Soc. Journal," Vol. vi., Part 2); Bone Dust, Sulphuric Acid, and Clarke's desiccated Compost; all suitable for the Turnip Crop. Also Nitrates of Soda and Potash, and all other Manures of known value, on sale by MARK FOTHERGILL, 40, Upper Thames-street, London.

Agent also for DENGLE'S HAND DIBBLE, suitable for every description of seed.

THE LONDON MANURE COMPANY beg to offer Genuine PERUVIAN GUANO, delivered direct from the Importers' bonded warehouses:—

Nitrate of Soda,	Fine Bone Sawdust,
Sulphate of Ammonia,	Sulphuric Acid,
Superphosphate of Lime,	Sulphate of Soda,
Gypsum,	Petre Salt,

And every article of Artificial Manure in the most genuine state.—No. 40, New Bridge-street, Blackfriars.

EDWARD PURSER, Secretary.

TURNIP SOWING.

THE URATE OF THE LONDON MANURE COMPANY, Four Guineas per Ton. The experience of the last five years has fully established the above as one of the best of all the light manures for the production of Turnips, for which crop it is particularly adapted, seldom failing in the driest season to secure a good plant, and to produce a great weight per acre. Availing themselves of the many improvements in the science of artificial manures, the Company so manufacture the Urate, that the food requisite for a rotation of crops is fully maintained, therefore parties using the Urate for Turnips will find their succeeding crops of Barley and seeds materially improved. Full particulars, with testimonials, forwarded on application. No. 40, New Bridge-street, Blackfriars. EDWARD PURSER, Secretary.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
WM. JOSEPH MYERS AND CO., LIVERPOOL;
And by their Agents,
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL;
COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

TURNIP SOWING.—POTTER'S GUANO.

POTTER'S GUANO was used by Dr. Daubeny last season against 11 other Artificial Manures for TURNIPS. It beat them all,—260 lbs. producing 6000 lbs. more Bulbs per acre than the same weight of Peruvian Guano, at 25 per cent. less cost; 18,000 lbs. more than 10 cwt. Bone Shavings, at one quarter the cost; and 7000 lbs. more than 12 cwt. Superphosphate, also at one quarter the cost. For particulars, see p. 831 of last No. of "Royal Agricultural Journal," and p. 224 of *Gard. Chronicle* of this year. To be had, genuine, direct from the Factory, 28, CLAPHAM-ROAD-PLACE, LONDON, or of any of Mr. Potter's accredited Agents.

THE PATENT CORNWALL WHITE MANURE is an efficient preventative to the ravages of the Wire-worm, and a strong fertiliser, consequently most advantageous in its application to Turnips. The following analysis was laid before the "Royal Agricultural Society," by W. Shaw, Esq

Silicate of Lime	Silica ..	28.0
	Lime	17.0
Carbonate of Soda ..	Carbonic Acid	8.5
	Lime	10.8
Caustic Lime		28.2
Magnesia and Alkaline Salts		3.8
Oxide of Iron		2.7
Phosphates		1.0
		100.0

Price 42*s.* per ton, in bulk.—THOMAS JOHN CROGGON, 8, Lawrence Pountney-hill, Cannon-street, London.

GUANO FOR SALE.—At No. 2, St. Dunstan's-hill, Tower-street, on Monday, 8th June, at two o'clock, 50 Tons of Fine ICHABOE GUANO, in lots of 5 tons each.—Apply to Messrs. KIRKMANN, BROWN, and Co., Brokers.

SHANKS'S IMPROVED GRASS-CUTTING AND ROLLING MACHINE.—The complete success which has attended the introduction of this Improved Machine for Mowing Grass, and its fine adaptation for Cutting the Grass of Lawns, has been fully proved by the numerous instances where it has been tried, and now in common use, particularly at Rossie Priory, Camperdown, and Kimblethmont, Forfarshire; Broadalbane, Perthshire; Clumber, and at many other Noblemen and Gentlemen's seats in England, as well as abroad. The Machines are made to cut breadths of 42, 30, or 20 inches, as required, the latter being adapted to hand-power. The Machine works with perfect ease, producing a beautiful smooth surface, and attended with great saving in abridging labour.

Orders may be addressed to Messrs. ALEXANDER SHANKS, jun., & SON, Machine Makers, Arbroath, N. B., by whom further particulars will be given.

AN IMPROVED SELF-ACTING HYDRAULIC ENGINE.—An Engine to supply 100 gallons of water per hour, at a distance of 100 yards, 20*l.*; 300 yards, 30*l.*; 500 yards, 50*l.* This Machine can be made to supply from 1 gallon to 20 per minute, at an increasing expense, according to circumstances and locality. Reference can be given to a gentleman for whom a 20*l.* Engine has been fixed.—Applications to J. LEGG, 9, St. Philip's-street, Bath-road, Cheltenham, will be immediately attended to.

BED FEATHERS.—

	Per lb.		Per lb.
Mixed	1*s* 0*d*	Best For. Grey Goose	2*s* 0*d*
Grey Goose ..	1 4	Best Irish White Goose	2 6
Foreign Ditto	1 8	Best Dantzic	3 0

Warranted sweet and free from dust.

A List of every description of Bedding, containing Weights, Sizes, and Prices, sent free by post on application to HEAL and SON, Feather Dressers and Bedding Manufacturers, 196, Tottenham-court-road, opposite the Chapel.

HORTICULTURAL SOCIETY OF LONDON.—EXHIBITIONS AT THE GARDEN.—The next Meeting will take place on Saturday the 13th of June; subjects for Exhibition must be at this office on Friday the 12th, or at the Garden before HALF-PAST EIGHT o'clock, A.M., on the day of Exhibition.

The gates will be open to Visitors at One, P.M. Tickets are issued to Fellows at this office, price 5s. each; or at the Garden, in the afternoon of the days of Exhibition, at 7s. 6d. each; but then only to Orders from Fellows of the Society.

N.B. No Tickets will be issued in Regent-street on the day of Exhibition.—21, Regent-street.

DRIED PLANTS FROM CHINA.—A few sets of the VALUABLE DRIED PLANTS collected in China by Mr. FORTUNE, may still be procured by applying to R. HEWARD, Esq., Young-street, Kensington, London. Among them are many new and rare species scarcely known to Europeans.

The Gardeners' Chronicle.

SATURDAY, JUNE 6, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS

WEDNESDAY	June 10	Microscopical Society of Arts	8 P.M.
THURSDAY,	— 11		
SATURDAY,	— 13	Horticultural Gardens	1 P.M.
TUESDAY,	— 16	Linnean	8 P.M.

COUNTRY SHOWS.

TUESDAY,	June 16	Stamford Hill Horticultural.
WEDNESDAY,	— 17	Scottish Fancy Society.
THURSDAY,	— 18	Gravesend and Milton Hort. Society.

ELSEWHERE will be found various receipts for the DESTRUCTION OF THE APHIDES which are swarming in our gardens. The efficacy of each receipt is vouched for by its advocate, and, we doubt not, in all cases truly. Tobacco-water, tobacco-dust, soap-suds, and gas-water, all have their admirers. We patronise smelling-salts.

We doubt not, however, that complaints may and will come of the inutility of all these applications. People fancy that it is enough to throw or trundle the fluid over the infested bushes, once for all, and the thing is done. They forget that no application whatever can reach the insects that lurk in the folds of the leaves; that others will be missed even on the surface; and that these creatures multiply at a rate somewhat greater than even the population of London. Thousands and tens of thousands may be destroyed to-night, and to-morrow others fall into the ranks and recruit the legions.

One or two applications of any sort can be productive of little relief. They must be frequently repeated, and skilfully—by sharp and quick expulsions in small quantity from a fine-rosed syringe. If that is done, we guarantee the riddance of the pest by means of carbonate of ammonia, for we have removed it ourselves within the week.

As to the proportion of carbonate of ammonia (smelling-salts) which it is expedient to use, that depends upon its quality. If bought fresh of the *wholesale* chemists, half an ounce to a quart of water is enough; but it is often much weaker.

It has the great merit of being *clean*, and *effectual*, besides which, it improves the health of the foliage very much. All the other washes, although they be as powerful, are dirty, and therefore objectionable in flower gardens.

IN the document which has emanated from a Committee of the House of Lords, under the name of a "Report from the Select Committee on the Burthens affecting Real Property," is the following paragraph; which, since it stands in the very front of the paper, was, we presume, regarded as one of importance:—

"The Committee have thought it expedient to divide the subject of their inquiry into two heads, viz.,—Restrictions upon cultivation and positive charges, both being imposed for the general advantage, and not for the special benefit of that class on which they exclusively or mainly fall. Under the first head it appears to the Committee that they should include the prohibition to grow Tobacco."

We trust that the noble lords who have adopted this report will not be offended at our inquiring most respectfully what is meant by a "restriction upon cultivation not imposed for the special benefit of the class restricted;" or rather what restriction upon cultivation ever was imposed for the special benefit of the class restricted. Plain people are greatly troubled by their incapacity to interpret such mysterious sentences. We can understand that a law to prohibit Tobacco-smoking or *felo de se* would be a restriction for a man's own benefit; but we do not exactly see the analogy between such laws and the prohibition of Tobacco-growing.

We are the more embarrassed how to interpret the paragraph in question, because Tobacco is never again touched upon in the Report. We presume, however, that the meaning of the committee must be taken to be this: "that the prohibition to grow Tobacco is a burthen upon land, because the Tobacco-crop is profitable; and that it would be an advantage to a cultivator in this country if he were allowed to enter the field against the United States, the Levant, Brazil, Cuba, and Manilla." In support of this view an argument might be constructed thus: Tobacco is grown in France and Holland, therefore it may be grown in Great Britain and Ireland; Tobacco is enormously dear, therefore it must be profitable to grow it; whatever can be grown profitably ought to be permitted, or the interests of the cultivator are affected; therefore as the growth of Tobacco is prohibited the land is burthened by the law.

Such seems to us to be the meaning of the Lords' report, and as this at least is the interpretation which other uninformed persons, as well as ourselves, will be apt to put upon it, we will take leave to point out some well ascertained facts connected with the cultivation of Tobacco, in order that no false expectations may be excited respecting its advantages.

That Tobacco *may* be grown in this country we all know. It is commonly seen in gardens, and its cultivation as a garden plant is never interfered with. So also are many other things grown in gardens; we believe indeed that any plant may be reduced beneath the dominion of the Horticulturist. But that is not the question. What it is necessary to determine is not whether a plant can be grown, but whether it can be grown *profitably*. If Tobacco is not in the last predicament we do not see how a prohibition to grow it can any more be regarded as an injury to a man than prohibiting him from growing Rice or any other hot country crop.

Tobacco is found to require the very best description of soil, in the very finest tilth. It must have a great abundance of manure, and a fine warm summer; besides which, [illegible] in a country like England it must originally be raised by artificial heat. In Flanders, where a good deal of it is grown, it is said to require an abundance of labour, manure, and money. Besides which, even on the Continent, where the summers are so much warmer and uniform than our own, it is regarded as a most precarious crop.

The cost of manure alone for a Flemish acre, is stated by Van Aelbroeck to amount to 29*l*. The average crop is found to consist of 2800 lbs of leaves of the best quality; 750 lbs. of an inferior description; and 250 lbs. of those near the surface, which, being injured and mixed with sand, are of little worth. The commercial value of this produce cannot be fixed with certainty; but since the best English Tobacco, cured with all possible care, is of very inferior quality to any Virginian, we can arrive at a tolerable estimate. Foreign Tobacco of decidedly bad quality is not worth importing, in consequence of our enormous duty; what comes into the market ranges between 3*d* and 6*d* a lb. If we take the best English as being equal to the worst foreign, which it certainly is not, and diminish the value of the samples in the same proportion as Van Aelbroeck reduces those of Flanders, the account will stand thus:—

2100 lbs of leaves (best) at 3*d*,		
750 " (seconds at 2*d*	£5 10 0	
250 " (refuse) at ½*d*		
Deduct cost of manure	" 29 0 0	
	£6 10 0	

Thus it appears that after deducting the cost of the manure alone, 6*l* 10*s*. an acre remain, out of which to pay rent, taxes, tithes, labour, cost of drying houses, fire, which in this country would be indispensable to complete the process, and the enormous risk attendant upon this kind of crop. We leave it to those who are skilled in such computations to determine how much profit would remain for the grower in a climate much worse suited for Tobacco cultivation than Flanders itself.

But it may be said, there is the duty of 3*s* 3*d* a pound, which is forgotten in this calculation. We, however, do not think it necessary to include the duty, for we cannot suppose that any Government would be found so unwise as to give a bonus for the application of land to the very worst description of garden farming. If the growth of Tobacco is to be permitted, the excise on the article must be taken off.

Tobacco is not, in reality, a possible northern crop, except where labour is almost valueless. The intelligent Flemish writer, from whom we have borrowed the foregoing details, states that there is no making out what the expense for labour really is, because the work is done by women and children, and the crop is confined to little farmers who employ their numerous families in such work for want of anything better. ROZIER tells us that even in France it could in his time be made to answer only by the Government fixing the price at twice the real value of the article.

If, notwithstanding these remarks, the prohibition of Tobacco cultivation should continue to be regarded as a peculiar burthen upon land, we will earnestly beg its advocates to consider what is said of it by those who are witnesses to its results.

"It is a crop that speedily exhausts all but the very best land"—"its culture is productive of infinite wretchedness; those employed in it are in a state of continued exertion, beyond the powers of Nature to support, and little food of any kind is raised by them, so that the men and animals on these farms are badly fed, and the earth is rapidly impoverished."—*(Jefferson's Notes on Virginia.)*

WE understand that Messrs. HARTLEY and Co., the eminent glass makers, of Sunderland, have undertaken to erect immediately, in the GARDEN of the HORTICULTURAL SOCIETY, a CONSERVATORY, which shall serve as a model from which all others of the same proportions may be constructed at the same relative price. It is intended that other Conservatories, upon the same plan, shall be put up in any part of the United Kingdom, at the same rate in proportion to the area that is covered, so that everyone may calculate beforehand exactly what his greenhouse will cost by measuring up the area of the floor.

This is a happy idea, and is sure to be popular. It is expected that the house will be ready before the meeting of the Society at the Garden in July.

THE FRENCH INSTITUTE has just announced that the subject of the GREAT PRIZE IN PHYSICAL SCIENCE for the ensuing year will be "An examination of the reproductive bodies or spores of Zoosporous Algals, and of the bodies enclosed in the Antheridia of Cryptogamic plants, such as Charads, Mosses, Liverworts, and Seaweeds." This is a most curious and interesting subject, and well worth the attention of English botanists. A full account of the [illegible] Prize will be found in the *Comptes Rendus*, and the nature of the organs to be examined is explained in the *Vegetable Kingdom* under the heads of Thallogens and Acrogens.

VENTILATION.

WE are all so much interested upon this subject, as gardeners, that we gladly give the following extracts from evidence just taken before a Committee of the House of Lords, when Mr. GOLDSWORTHY GURNEY was called in, and examined:—

If ventilation is attempted to be carried on without a quantity of force—a force sufficient to overcome the friction of air passages, and also to overcome that arising from what is commonly called "throttling" or "wire-drawing,"—the air will pass at random, partially through the most easy and direct courses, from its point of ingress to its egress, leaving some parts of the house unventilated, and producing excess and disagreeable currents in others. This want of power within also suffers ventilation to be influenced by slight disturbing forces without—external interferences, such, for instance, as change of wind or change of pressure of the atmosphere. If the barometer rises or falls a few degrees there is a change in the weight of the atmosphere without, which will break the balance and interfere with the ventilating process going on within. Ventilation cannot be uniform unless there is a sufficient power to overbalance these forces, to command and make it independent, practically, by strangulation or "wire drawing," as it is technically called; therefore, a certain amount of power is required, a power greater than can possibly be produced by the upcast shaft system of ventilation. The power which can be produced by the upcast shaft system can never be greater than that produced by the difference in weight between the column of heated air in the chimney and an equal height of column without, which it will be found amounts to very little. If the shaft be 100 feet high, and the whole column of air in it at 60° shall be heated to 500° Fahrenheit, the difference in pressure will be only 6 lbs. per foot; this pressure will not be sufficient to overcome the ordinary friction of air moving through admissible ventilating passages, to say nothing of that inseparable from the condition which is absolutely essential to good ventilation—the wire-drawing.

5 You consider wire-drawing an important element in good ventilation?—I think it is impossible to carry it out without. I do not see how it is possible that a general or equal diffusion of air can be commanded without there is some minus or plus pressure operating on every opening in every part, and to precisely the same amount. If there is not wire-drawing, there is so free a passage for air through any course it chooses to take, that instead of your commanding it (if I may so speak) it commands itself, and all control of its movement is destroyed.

7. Will you explain to the Committee more in detail what you mean by wire-drawing?—Wire-drawing is the obstruction produced by the reduction of the area of openings, so that air, water, or other liquids shall pass with a given amount of difficulty; passing or meeting with difficulty through one opening it will naturally run through another, if there happens to be another within its range; but if without wire-drawing it can pass very freely through the first opening it meets with, it will not pass through a second. Suppose a pond is fed by a stream of water diverging through two channels; let each channel be enlarged so that all the water

may run freely through either, the pond will be fed by that stream which is most direct; if you throttle or interrupt the passage of this stream, then a portion of the water will run through the second, and thus by regulated obstructions or "wire-drawing" you get an equal portion through each. If you go on from two up to 200, by proportionate regulation you will command an equal portion through the 200. The same effect takes place in air; and unless there is a wire-drawing regulation in the ingress or egress ports or openings, the air will run at random, the shortest way, through any one that happens to be sufficiently large; but if the holes are properly wire-drawn, then a portion will be compelled to pass through every one. Wire-drawing, in practice, should be out of the apartment.

15. You object also to the system of ventilating from the floors or sides of the room instead of from the upper portion of the apartments?—Yes; there is a practical objection to this direction which will be seen by looking at the subject carefully. A number of experiments have been made to explain a very paradoxical one; that of being unable, under certain circumstances, to blow off a disc of paper from the end of a tube, or a metallic disc placed over the safety valve on the top of a steam-engine boiler; it cannot be blown away, in consequence of the first impetus producing counter currents, the sum of which counter currents were found always, in force, equal to the *vis inertiæ* or the momentum of the primary one. These pressed on the back of the disc to a certain point, where the balance is fixed when it moves no further. If a current of steam will produce these counter currents, it will easily be conceived that currents of air will produce the same. These retrograde currents produced from air entering at a low heat into a room are practically very objectionable; they produce an increased rate of evaporation upon the skin, which produces a sensation of cold. Although the temperature of the air in motion itself may be warm,—say 70° or 80°,—it will produce a temperature very considerably lower on evaporating surfaces. The skin of the human body is essentially an evaporating surface, and suffers much from this law. The feeling of cold in the parts of a room where retrograde or direct currents act is not due to the actual temperature of the currents, but to the increased rate of evaporation produced by them. Evaporation produced by retrograde currents rapidly absorbs heat. A person cannot get out of the influence of the direct or retrograde currents if they enter near the floor or at a low level; but if the openings are made in the ceiling or at a high level then they are mixed with the atmosphere of the room above, and cease or become destroyed before they can possibly reach any one standing on the floor.

19. The warm air let in higher up in the room will not come down; it will not reach the person sitting below?—*It must be made to do so.* You must have such a power of ventilation as to compel it. If your command of ventilation is so slight as to be governed by those interferences, it will always be subject to derangement from slight disturbing forces,—a change of wind, or from a change in the weight of the atmosphere.

98. By what machinery would you get the warm air into it?—The machinery is the draught; the draught is always moving air through the room. Supposing the air to be warmed above, then the machinery below would draw it into the room below.

107. Cold will not pass readily through glass. The air in contact with the glass within would certainly be in contact with a cold surface in winter, and be diminished in temperature, but it would be to so small an extent that it would not of itself affect the temperature of the room. No contact with glass would affect it.

We recommend these practical matters to both the advocates and opponents of the Polmaise way of heating.

THE AMATEUR GARDENER.

THE RANUNCULUS.—If the directions of former papers have been followed in reference to this beautiful flower, the amateur will be on the tip-toe of expectation, in daily hope of discerning the first spots and edgings of the petals, which, when fully expanded, are to reward him for all his labour. Most pleasant is it thus to watch a bed whose soft green is so soon to be variegated with so many beauteous forms and hues. The curious eye will find much to admire, even in this incipient state, in a Ranunculus bed. The colour of the leaves present many different shades, and their shapes are equally various. Then come, one after the other, the expanding flower-buds, from a deep maroon to the purest white, imperceptibly gaining a more distinct character of beauty, like stars appearing on the azure ground of a summer's evening. The extreme loveliness of the flowers is set off by the humble character of the foliage, which thus confers on them

> "——— a double charm,
> Like pearls upon an Ethiop's arm."

While this excessively hot weather is highly favourable to the development of all flowers, it has its inconveniences and dangers with those classes which are impatient of drought, and naturally shun the full orb of day. In a former paper I stated that I had grown Ranunculuses well in various soils and situations, but that some degree of shade was necessary to success. I have, however, succeeded this year in bringing them to the eve of full bloom in a very hot and arid locality. This has been effected by constant attention to the state of the soil, which should, on the one hand, never be saturated, and yet, on the other, must always be moist. If the surface of the bed is smooth and hard, turning water off it like the back of a duck, you may be sure something is wrong; for although the prosperity of the roots demands that the soil should closely embrace them, it should yet have the porosity to air and water on which the welfare of all vegetation depends. Stir the surface therefore with a blunt stick, and prevent it from caking together, so that the water may quickly run through. A little weak liquid manure will be advantageous, just as the flowers are coming into bloom; but it must be carefully applied, so as not to touch the foliage; or, if it does, fresh water must be directly sprinkled over the leaves.

As the flowers show their colours, they had better be shaded from hot suns, but cautiously at first, as it is from solar light and heat that their beauty is derived. The object of giving shade is to prevent the colours fading, and therefore a little thought will regulate the process. When the flowers are expanded, then the covering may be kept on until the beauty is past. A bed exposed to the sun and rain, while in bloom, will very soon lose its beauty, but attention to shading will preserve the flowers for a long time. The best covering is an awning of calico, placed sufficiently high to allow a good inspection of the bed; the calico may be strained on a wooden frame, and the frame supported on four stakes; but taste will dictate the best mode. All coverings should be made to harmonise with the general arrangements and appearance of the garden, for the prettiest place may be disfigured by awkward contrivances to protect or preserve a few favourite plants. I remember seeing a fine collection of Dahlias so oddly travestied by various contrivances to entrap earwigs and preserve the bloom, that I felt I had rather be destitute of the flower altogether than submit to such a motley display.

Some Ranunculuses will require to be supported with stakes, especially the older kinds. The new seedlings are of a more robust habit, and have the desirable property of supporting themselves. Use little sticks, and do not allow them to be seen above the flowers. An attention to these regulations will give the bed every advantage, and for a month to come you will have an exhibition worthy the contemplation of your friends. While the plants are in bloom observe the various kinds, that you may discover whether they answer to their names, and fix on the sorts you think most worthy your attention another year. But take care you do not become a flower-worshipper, which there is some danger of. *Ne quid nimis* is a very proper motto for the gardener, and the observance of it will keep him from the temptation of neglecting other duties in the pursuit of what may easily become, and often has become, a passion.

The foliage quickly fades when the flowers decay, then comes the critical time with the Ranunculus grower. The wet season of July has often ruined the hopes of the amateur for another year. The tubers very soon sprout again if left in the ground, and when they do so, they seldom bloom well the next season. I would advise, as the result of some experience, never to allow the rain to come on the bed after the flowering time, which may be prevented by the continued use of the awning in wet weather. Take up the roots as soon as the leaves are yellow, and let them be gradually dried. But the subject of preserving this root must not be summarily dismissed, and I close my notice of the Ranunculus for the present by wishing all my readers as much pleasure from their beds as I have often found in mine.—*H. B.*

Home Correspondence.

Fruit Crops in Devonshire.—The fruit trees in my locality have suffered in many cases very seriously, and the crops of fruit are but partial. This I attribute to various causes, but chiefly to the lack of solar heat and light last autumn, the young wood being insufficiently ripened. The mild winter also caused many trees and plants to continue in a state of excitement, and the blossom buds in general were weak and immature; a quantity of them expanded six weeks earlier than usual, and a large portion never did or ever will expand. At the same time the wood-buds were generally weak, and the changeable cold winds and rains, with hail storms and morning frosts, which we experienced throughout April and the 21st of May, caused much blistering, curling, and cankering of both foliage and young shoots. All this has also been taken advantage of by swarms of insects, chiefly of the aphis family; many of the Apple orchards are much cut up, scorched, or seared, as if burnt, both with caterpillar and green fly. I never saw this troublesome pest so numerous; trees, hedgerows, Grass, and all kinds of vegetation, are attacked with it. The Apple blossoms never expanded freely, but continued to bloom these six or seven weeks; and in many trees I observe within these last few days, since the favourable change in the weather has taken place, it has expanded stronger and in greater abundance than at any previous period, Pears are the best crop in general, though they have been in bloom ever since the second week in January, and in some cases several settings of fruit have occurred on the same trees, but the most remarkable thing is that many of the Pears against the walls are in full bloom now on their newly made shoots and buds, while the same trees are producing Pears as large as Walnuts. Peaches and Nectarines have been greatly punished, but within these last ten days very much recovered by constant washings and picking, which have been an every-day business with us; the trees are astonishingly improving, with a pretty good crop of fruit. The young shoots of evergreens, indeed almost every tree and shrub, were greatly scared and crippled in this locality by the sudden change of atmosphere and cold cutting winds during the second week in this month; they had the appearance of having been burnt, but they are now fast recovering; thousands of the young shoots died quite back as soon as they were a few inches in length, but they are now making a new growth.—*James Barnes, Bicton Gardens, near Sidmouth, Devon.*

Starch a Remedy for Scale Insects.—*T. G.* sends a bit of bark cut from the branch of a Brown Beurré Pear, to show how efficacious a remedy for the muscle scale is a little thin starch applied to the tree by the garden engine; but it will also be observed from the accompanying twig that all the scale insects do not come out at the same time, and therefore it is desirable to repeat the operation every day or two for a week at least. [Nothing can be more satisfactory.]

New Dye.—It is not generally known that the bodies of those pests of the Rose-tree, the green fly, will yield a fine yellow dye, and as they are very numerous this spring they might be turned to a profitable account.—*J. G. A.*

Disease in Cucumbers.—Perceiving (p. 357) that another of your correspondents had been pestered with a disease similar to that of which I complained in a late Number, has led me again to make further enquiries, for I have been particularly careful in this department, being informed when I first came to this place that no Cucumbers of good quality had been grown here for many years. As I had generally been very successful in other places where I have lived, I laughed at the idea of not growing Cucumbers on a spot where every convenience is at hand, but to my disappointment the first plants I raised, and also all down to the present time, have been diseased; it is true that I have cut some good fruit, but they soon became like the specimen I forwarded. Now I can say for my own part that the disease is not caused by over-watering or by the want of heat; every possible attention has been paid to them in every respect. I have grown ridge Cucumbers in the same way as French Beans are grown, and have gathered pecks of Cucumbers in my last situation, but here the ridge Cucumbers look like some poor ragged beggar in a cold frosty morning. Grow them in what part of the garden you may, and give them what soil you please, your kindness is bestowed in vain; but if diseased plants are taken about 300 yards from the garden they will do well: this I have seen in a farm garden this year. My Melons were attacked with the same disease last year, although not so badly as the Cucumbers. If any of your correspondents can give me information how to eradicate this disease, I shall be greatly obliged.—*J. B.* [Can any Cucumber-grower throw light on this case?]

Green Fly.—To destroy this pest, pour a quart of boiling water on an ounce of Tobacco, let it stand till cold, then strain; dip the heads of your standard Roses branch by branch into a large basin filled with this infusion, shaking them gently in it; the greater part of the insects will fall into the basin, and the rest will surely die. Another plan, and even a more effectual one, is to dip the plants, as before, into a basin of strong soap-suds. Whichever solution be used, the dipping must be performed where possible: but it will not be possible if the Roses be trained on a wall; in that case syringing with one or other of these infusions must be had recourse to; it will succeed only in those parts of the plant where the liquid falls; of course many leaves will remain untouched. I may add that the syringing with soapsuds is excellent for Geraniums and Cinerarias when infested with insects.—*M. Clark, Cambridge.*—— Common Scotch snuff shaken from a muslin bag, or common tin pepper box, on the leaves and buds of the Roses, causes the insects to drop off very quickly, and as the sharp particles adhere to their legs and wings, they are incapable of moving again; I have also found sulphur in powder, with some black pepper ground and mixed with it, and applied in the same way as the Scotch snuff, will destroy a great many.—*Georgiana.*——*Polypodium* also recommends the use of Scotch snuff, which he has found to be efficacious.

Seedling Pelargoniums.—Again we are on the eve of the June Show at Chiswick, and again I recommend all those dealers who have advertised new varieties at guineas a-piece to let purchasers see them either in the collection of new and first-rate sorts, or in sufficient-sized specimens. Let the raisers also exhibit as two years old those for which they were awarded certificates of merit last year. I, for one, will not purchase unless I can see them, or (if I am unable to attend the Horticultural Society's *fête*) see a satisfactory report of them. For the sake of reference, I add below the names of the seedlings of 1845, which obtained the certificate of merit, with a notice of such as have re-appeared this season, and the judges' award upon them. But I hope, as June is the month when this favourite flower is at its greatest perfection, those which have obtained two-year-old prizes will be exhibited again for comparison, though they cannot for competition. Seedlings of 1845 which received prizes last year:—Foster's Paragon, Satellite, Painted Lady, and Aspasia; Hoyle's Mount Etna, and Isabella, both shown again this year, the former obtaining a prize; Beck's Hebe's Lip, Patrician, Competitor (all shown again this year, and obtaining prizes both at Chiswick and Regent's-park); Caliph, Rosetta, and Prairie Bird, not yet seen this season; Vine's Gulnare, Catleugh's Gertrude, and Salamé. How few of the thousands annually raised are really novelties let the above list tell, but who can say how many would have been sold as such, had not

the excellent rules now enforced at the Exhibitions given purchasers a rule to be guided by.—*Veritas.*

Fraudulent Seedsmen.—It is not my intention to expose the party as "Lusor" seems to recommend; but, after giving 3*s.* 6*d.* for a packet of seeds, to find a patch of weeds only coming up instead of a crop of a new and gigantic species of —— is provoking enough. Had there been a variety of weeds, I might have thought otherwise than I do; but finding the surface in a few days covered with one sort only, I can only conclude the seeds sent me were the seeds of that weed instead of the seeds advertised and ordered and pre-paid for.—*A Victimised Amateur.* [We are much inclined now to publish the name of this culprit; and, if fresh complaints of him reach us this year, we will do so.]

The Potato crop in Devon.—Last year, through the month of June, it was observed that the Potato crops in my locality had never previously been seen in a more healthy, vigorous, and evenly state of growth. The tubers too of the early kinds, in the month of July, were not only numerous, but large; any quantity could be purchased at four-pence per score pounds. But this spring they have been selling as high as twenty-pence per score pounds. It is now the last week in May, and the early crops of Potatoes are equal in strength and evenness with what they were a month later last year, and the tubers are equally fine and numerous, more particularly all the autumn planted varieties; those which were protected, through bad weather, with dry dust, fern, and other refuse, have actually now about finished their growth—the foliage is cupping up as if ripening; other crops also appear in most luxuriant health, when viewed at a distance; but I am sorry to state that the detestable enemy has again made its appearance, in its too generally known forms of rustiness, black spotted inkey blotchings on the foliage, cankery, gangrenous sore looking spots on the stems or stalks and ribs of the folinge. Whether the cold rains which we have had—the remarkably cold north winds we have experienced for the most part of the first twenty days of this month—have in any way accelerated the disease or not I cannot say, but I am sorry to again observe its appearance even on some of the young tubers. We cut and pick off all the diseased stalks and leaves as we discover them, and burn them, although by this means I do not expect wholly to stay or prevent its ravages, but the trouble is little, and it puts out of sight an eye sore. I never had crops so prosperous in appearance, when viewed at a distance; and this has led many to suppose that all was right. It would, however, be strange indeed were not some of us to produce good crops and clear from disease, this season; for no doubt can be entertained that many have been careful in the preservation, selection, and planting of this year's crop, and the after-management will, no doubt, be performed with more than usual care, and this useful vegetable may yet possibly be an average crop. I am happy to say too that at present we have here some pieces of Potatoes in which no disease has been observed; still I am doubtful as to the future.—*J. Barnes, Bicton Gardens, near Sidmouth, Devon.*

Bees.—I do not know what this industrious insect may be doing in England's more genial clime, but in this locality things are at a stand still with them; I imagine they must have adopted the prevailing fashion of making a strike—for fine weather. We are now drawing towards the end of May, and my three hives have added nothing to their store; indeed, on the contrary, they are still diminishing in weight. In October, the three hives were doubled, and in November No. 3 had another family added, thus it was trebled. No. 2, in consequence of a capsize which broke away a great proportion of its comb, has been fed since February, therefore I have not included it in the subjoined table; it is, however, thriving as far as brood goes. You will observe that since the breeding season commenced (beginning of March, since which they have been working more or less) the consumption has been very great, no less than 17½ lbs for No. 1, and 22 lbs. for No. 3; but it is very unusual for the spring to be so late as it is this season: we have acres of Furze delighting the eye with its golden blossoms, but the wet weather precludes our purveyors from taking advantage of the sweets. Both Nos. 1 and 3 are very populous, the hives (straw) appearing quite full, and not more than about two dozen bees having died from each, at least not in the hive. Drones made their appearance in Nos. 1 and 3 on 2d May; No. 2 has no drones yet, it has a second swarm of last year (on 26th June) and therefore, according to Huber, there will be no drones till towards the middle of June; the queen will not be 11 months old till 26th May, and supposing she commenced her laying of drone eggs on that very day, as they require 24 days to arrive at their full development, it would be 19th June before the first drones would issue from their cells, consequently the swarms must be late; this forms a strong argument against keeping second swarms for stocks, as, if Huber is right, such stocks cannot give early swarms. I observe Wighton in his book treats Huber's theory with contempt, but has any one had a swarm from a second swarm of the previous year so early as to disprove Huber's statement? Wighton states that a brood of drones sometimes issues from a stock in the autumn, after the killing of the drones of the spring begins; but I much doubt his conclusions, for this reason, that last year, my No. 1 commenced killing the drones in August, but desisted before the completion of the work of destruction, and during the interval the drones were to be seen entering and leaving the hive quite unmolested; this continued till the second week in September, when the masters (as they are called in this part of the country) were all destroyed. I think Mr. Wighton has been deceived into the belief that the latter killing was of a second brood, from a deficiency of healthfulness. The circumstances I have stated I account for thus:—During August I had a cap on the top of the hive, and consequently the bees had room enough; but before the drones were all killed I removed the cap; then, the room being rather confined, there may have been a probability of swarming. In fact, they began to lay out, and in apprehension that they would swarm, I, in haste, cut a half flour-barrel in two, and fitting one part with loose bars, placed it under the hive. The killing of the drones recommenced, and finished. Does the experience of any of your correspondents enable them to make an approximation to the time of swarming from the date of the appearance of the drones? The following Table shows the monthly decrease, commencing with September, and continuing until the present time:—

Month.	General State of Weather.	Hive No. 1, decreased.	Hive No. 2, decreased.
Sept.	Wet	3 lbs. ..	5 lbs.
Oct.	Mild and dry ..	1 ,, ..	2 ,,
Nov.	Mild	1½ ,, ..	Nil
Dec.	,, ..	3 ,, ..	3 ,,
Jan.	,, ..	2 ,, ..	2 ,,
Feb.	Cold and frosty ..	Nil ..	1 ,,
March ..	Do. do. ..	2 ,, ..	4 }
April	Wet and cold ..	2 ,, ..	2 } Breeding.
May, till 22d	Wet	2½ ,, ..	3 }

—*Edgar Slade, North Extreme of Wigtonshire, May 22.*

Experiments in Autumn-planting Potatoes.—I send you the results of my experiments in planting Potatoes last autumn. The soil is dry and calcareous, and all the tubers were planted six inches deep in November. The first portion of seed had been grown on poor dry land, which had not been manured for the crop, and was quite free from the rot. All the sets have come up, and are growing vigorously. The second portion of seed was produced on land naturally dry and poor, manured with abundance of fresh stable-dung, and overshadowed with luxuriant garden Beans growing at intervals of a yard. The crop was greatly injured by the rot, and although the healthiest looking tubers were selected, not a third of them have vegetated. The third portion of seed was grown in the rich soil of a garden. The produce was tainted, and the consequence was the same as in the second trial. I must notice that although the results have been so successful in the two last cases, abundance of Potatoes are coming up where the seed was grown, verifying the notion that tainted Potatoes should be left in the ground when the soil is dry, as long as possible, and used as soon as they are dug up. As to the remaining trials the sets have vegetated or not, according to their soundness. One half was planted with the surface level, and the other with ridges of soil over the sets. The latter plan has in every case succeeded the best, the shoots being more luxuriant. Whether the manure was incorporated with the whole of the soil, or placed above or below the Potatoes, I can perceive no difference in the result. During March and April I frequently examined the tubers, and found numbers of wireworms preying on the cut sets; but where the seed was sound they do not appear to have destroyed a single plant.—*Sigma, Banbury.* [We print this communication; but we would again represent to our correspondents that the present health of a crop is *no guarantee whatever* for its future condition].

Societies.

HORTICULTURAL SOCIETY.

June 2d.—R. W. Barchard, Esq., in the chair. Mr. W. Healy, 130, Fleet-street, was elected a Fellow. Among subjects of exhibition produced on this occasion was a charming collection of hardy hybrid Azaleas from the grounds of the Earl of Carnarvon at Highclere. Some were the result of a cross between A. pontica and the red flowered A. rubescens, of the United States, and showed in a remarkable degree the value of such crosses, for in the mules the yellow flowers of A. pontica partook of the rich crimson tints of A. rubescens in a greater or less degree of intensity, and a beautiful display of various coloured flowers has been the result. This has also been the case in another group of hybrids obtained from A. sinensis, which had the glaucous foliage and inflorescence of that species modified by the various tints of crimson, those colours blending nicely together, and producing a striking effect. Another charming hybrid is well deserving of notice; to the habit of Rhododendron azaleoides or fragrans it added the colour of the broad leaved Kalmia. It had been obtained between the Azalea rubescens and the Highclere Rhododendron. Other mules also came from the same gardens in the shape of our hardy European purple Rhododendrons, greatly improved in foliage by the use of the crimson Indian kind. These purple varieties were not only beautifully spotted, but one in particular displayed a peculiar play of colour, the purple half transparent flowers being beautifully shaded with violet. A Banksian Medal was awarded. Other hybrids in the form of Cacti, were sent from Oulton Park, Cheshire, by Mr. Errington, gr. to Sir P. G. Egerton, Bart., M.P. These seedlings belonged to the pendulous section of the tribe; the old Cereus flagelliformis, being one of the parents. One, a delicate pink variety, was a flower of considerable size and beauty; the other, a brilliant orange-coloured flower, was so much bruised by travelling, that a correct idea of it could hardly be formed. Another Cactus, named formosissimus, came from the nursery of Mr. Smith, of Dalston, who also sent two Fuchsias, one named Eximia, and the other Beauty of Dalston—the latter in the way of Conspicua, but larger. Messrs. Veitch and Son, of Exeter, sent a novelty in the form of Didymocarpus eriantus (the long-haired Didymocarp), a Gloxinia-looking plant, with snow-white flowers, streaked in the throat with yellow, and along with it Dendrobium hymenophyllum, only interesting in point of novelty, the dull yellow flowers being anything but beautiful. A certificate was awarded for the former. From Messrs. Chandler and Sons, of Vauxhall, were 12 Pelargoniums of sorts very suitable for bouquets; a bluish purple Cineraria, named Bijou; and two pigmy Yams, which had been received from Chili under the supposition that they were Tropæolums, the tubers being somewhat similar. Mr. Groom, of Clapham Rise, sent a small bouquet composed of different varieties of Anemone hortensis, a smaller but better-coloured variety than A. coronaria. From Mr. Golledge, of Stratford, was a collection of Calceolarias, including a seedling named Forget-me-Not. Mr. Widnall, nurseryman, Cambridge, sent a noble specimen of the recently introduced Fuchsia serratifolia. This plant was about 6 feet in height, and had, apparently, been covered with blossom, but was much spoiled by travelling. It proves to be a fine species, the long, shining, rosy pink, green-tipped calyx, contrasting finely with the orange-scarlet corolla. A Banksian Medal was awarded it.—From Mr. Cuthill, of Camberwell, were Lcianthus longifolius, a West Indian plant, nearly related to Lisianthus; and a fine-looking sample of perfectly sound new Ash-leaved Kidney Potatoes.—A sample of Potatoes, from Norway, of last year's growth, was likewise shown by Messrs. Keeling and Hunt, of Monument-yard. It is well known that the crops in that country suffered from the prevailing disease of last year; but if there had been any doubt about the matter it would have been dispelled by an examination of the sample produced, for these were evidently affected, although in a slight degree.—Of Fruit, Mr. Fish, gr. to Col. Sowerby, sent two Melons and excellent specimens of Royal George Peaches, for which latter a certificate was awarded. The Melon was sent to exhibit the singular circumstance of a fruit swelling upon a twig coming from the fruit stalk, near its junction with the ripe fruit, and which would, no doubt, have reached maturity if the ripe one had been cut away.—From the garden of the Society was Achimenes patens, a most beautiful new species, sent by Mr. Hartweg from Mexico since his departure for California. It proves to be one of the loveliest of the genus. The colour of the flowers somewhat resembles that of A. grandiflora; but it is much deeper and brighter, and the flowers themselves are smaller; it may be expected to become still better, for the specimens now in flower have been raised from bulbs sent home only a few weeks ago by post to this country. Along with it was another novelty in the form of Campanula nobilis, lately sent from China by Mr. Fortune. It is a hardy species, producing large lilac bells, which were said to have within these few days become paler; it will form a good addition to our shrubbery borders. From the same collection were, moreover, Heliophila trifida, an annual with light blue cruciform flowers with white centres, which open in the morning, close about noon, and drop off soon after. This short duration of the flowers is the more a matter of regret, as they are produced in tolerable abundance, and in the morning when they are all open the plant has rather a striking effect. Associated with these were the handsome scarlet-flowered Pitcairnia punicea, the well known Cypripedium barbatum, a Gloxinia, two species of Oncidium, the rose-coloured variety of Epidendrum macrochilum, and a noble mass of Phalænopsis amabilis, which has been obtained from Manilla, through the perseverance of Mr. Fortune, this—the queen of all the Orchids—being most difficult to procure, a circumstance which will always make it a scarce species.

ROYAL BOTANIC SOCIETY.

June 3.—This, the Second Exhibition for the season, took place in their Garden, Inner Circle, Regent's-park. The day was very propitious. We learn from the *Court Circular* that His Royal Highness Prince Albert, with the Prince of Wales and Princess Royal, honoured the Society with a visit. The plants were in beautiful order, and altogether the exhibition was an improvement on the last meeting. As many of the plants were, however, present on that occasion, we shall not repeat the description of those again brought forward; but shall confine our remarks to the leading features of the exhibition, and to such as have not been previously shown. In collections of 30 Stove and Greenhouse plants there were two exhibitors, Messrs. Fraser, of the Lea-bridge-road Nursery, and Mr. Barnes, gr. to G. W. Norman, Esq., of Bromley. The first prize was awarded to the Messrs. Frasers' group, which contained some matchless plants in point of cultivation. We remarked Aphelexis speciosa 2½ feet in height, and about 2 feet in diameter, quite a mass of flowers; a fine plant of Vinca alba; Chorozema Henchmanni, superbly grown; and Pimelea decussata, forming a depressed bush, 3 feet in width, and 2½ feet high; together with a large Coleonema pulchrum; and the red flowered Clerodendron splendens, blooming freely in a pot. At the back of the stage was a huge bush of Epacris grandiflora, and, supporting it, a large purple Azalea; a finely bloomed Boronia serrulata, 3 feet in width and 2½ feet in height;

a very handsome Dillwynia floribunda, and the somewhat scarce Pavetta caffra, with numerous clusters of white blossoms. Associated with these were Crowea saligna, in luxuriant health; a splendid Ixora coccinea; a large Polygala oppositifolia, in fine bloom; together with several Heaths, and other plants.—In Mr. Barnes's group, were some admirable specimens of skilful cultivation. At the back stood a large Crowea saligna, and, supporting it, a very fine plant of Clerodendron squamatum; a good Allamanda cathartica; and an Ixora coccinea. Along with these were also the blue Leschenaultia biloba; a large Polygala oppositifolia; Rondeletia speciosa, in good condition; and several Heaths. In front was the same noble specimen of Phænocoma prolifera, formerly exhibited; and several other finely-grown plants, which have been previously described.

In COLLECTIONS of 20 SPECIES there were three exhibitors—Mr. Ayres, gr. to J. Cook, Esq.; Mr. Hunt, gr. to Miss Traill; and Mr. Pamplin, of Walthamstow: the two former receiving first prizes, their collections being equal in point of merit. Mr. Ayres sent, among others, Allamanda cathartica in splendid condition, both as regards health and bloom; and a large Gloriosa superba, perhaps the finest plant of the kind ever exhibited. Associated with these were the comparatively new Cyrtoceras reflexum, a large Pimelea decussata, a lovely Azalea variegata, and a fine Polygala, together with several Heaths, and other plants of less moment. At the back of the stage, in Mr. Hunt's group, stood a noble Ixora coccinea, with upwards of 14 large scarlet heads of bloom; and, supporting it on one side, a large Pimelea decussata, and on the other, the same Pimelea spectabilis formerly described, but with its blossoms more fully developed. In front were several fine Heaths, some Azaleas, an Oncidium, and an Allamanda cathartica producing three flowers. Besides these, the collection contained several other plants exhibiting excellent management. In Mr. Pamplin's group, to which a third prize was awarded, we remarked the well-known Metrosideros floribunda, with scarlet brush-like blossoms; a good Pimelea spectabilis, together with several Heaths and other plants.—Groups of 10 species were shown by Mr. Green, gr. to Sir E. Antrobus, Bart.; Mr. May, gr. to E. Goodheart, Esq; and by Mr. Bruce, gr. to B. Miller, Esq, of Tooting. Mr. Green sent a magnificent Aphelexis humilis, about 3 feet in height, and nearly as much in diameter, the branches depending over the pot. This plant, perhaps the finest of its kind ever exhibited, was a mass of blossoms, which were displayed to much advantage, the flowers remaining open throughout the day. Along with it was a beautiful Pimelea Hendersoni, 2 feet in height, and the same in width, finely bloomed; and a small Ixora coccinea, producing nine heads of blossom.—Mr. May sent a fine specimen of cultivation in the form of Crowea saligna, measuring nearly 4 feet in height, and as much in diameter, hardly, however, enough advanced in bloom; and along with it Erica splendens; a low spreading Azalea lateritia, in fine condition; a large Ixora coccinea, and a good plant of the showy Clerodendron squamatum.—In Mr. Bruce's group we remarked a good plant of the blue Leschenaultia, a small but very neat Pimelea rosea, and a pretty Æschynanthus parasiticus, trained over a wire trellis, the bright orange flowers regularly disposed among the deep green leaves, producing an agreeable contrast. Along with it was a good plant of the pale flowered Aphelexis sesamoides, a fine Stephanotis floribunda, and a pretty Gompholobium polymorphum.—Collections of 6 plants were numerous; the best came from Mr. Clarke, gr. to W. Block, Esq.; Mr. Malyon, gr. to T. Brandram, Esq.; and Mr. Taylor, gr. to J. Costar, Esq., of Streatham.—In Mr. Clarke's group was observed a good Polygala cordata, 3 feet in height, and 2½ feet in width; a pretty Ixora coccinea, and a nice plant of the interesting little red and white blossomed Phymatanthus tricolor.—In the second group were Ixora coccinea, Vinca rosea alba, and a good Clerodendron fallax. Mr. Taylor sent the blue Leschenaultia biloba, and a fine Erica Bergiana, quite a mass of small round deep purple blossoms. Several other groups of 6 plants were also produced, to which extra prizes were awarded. In these we remarked a good Stephanotis floribunda among the plants from Mr. Kyle, gr. to R. Barclay, Esq.; a thriving Veronica speciosa, showing bloom freely, in the group from Mr. Kaye, gr. to B. D. Colvine, Esq., and along with it a famous Mahernia incisa, with the branches hanging gracefully over the pot, forming a ball about 3 feet in diameter; it was hardly, however, sufficiently in bloom. Mr. Stanly, gr. to H. Berens, Esq., sent the silvery Aphelexis argentea, with slender variegated stems encompassing a wire trellis.

The display of exotic ORCHIDS was a decided improvement on the last exhibition. In groups of 15, the competitors were Mr. Mylam, gr. to S. Rucker, Esq., of Wandsworth, Mr. Plant, gr. to J. H. Schroder, Esq., and Messrs. Rollisson, of Tooting. Mr. Mylam sent Stanhopea maculosa, with 4 open richly spotted blossoms, the larger variety of Oncidium ampliatum; Odontoglossum grande, with large brown and yellow flowers; a splendid Cyrtochilum stellatum, with 20 spikes of pale yellow blossoms; the beautiful Aerides affine; a famous Oncidium crispum, with 3 strong spikes of glossy deep brown blossoms; and a perfectly new and exceedingly handsome Angulos, with 6 open large orange blossoms, spotted with brown. This is perhaps the finest species of the genus yet introduced. From the same collection was also the white flowered Angulos uniflora; the showy Cattleya Mossiæ, and a splendid Oncidium leucochilum.—In Mr. Plant's group were Saccolabium guttatum, a charming species, with 5 drooping racemes of purple blossoms; the white flowered Calanthe veratrifolia, with 10 flower spikes; the rare Phalænopsis amabilis, with large white grotesquely cut flowers; together with a good Cattleya intermedia, and the curious rather than beautiful Vanda cristata.—Messrs. Rollissons sent the beautiful Oncidium Lanceanum, whose violet lip contrasts well with the brown spotted petals; a variety of Lycaste gigantea, of no great beauty; a large Aerides odoratum; Oncidium luridum guttatum, with a long pendent spike of dull brown spotted blossoms, and the brown flowered Oncidium crispum.—Groups of 10 plants were produced by Mr. Rae, gr. to J. J. Blandy, Esq., of Reading; by Mr. Don, gr. to F. G. Cox, Esq., of Stockwell, and by Mr. Hunt.—Among Mr. Rae's plants we remarked Cattleya Mossiæ, with three large purple flowers; a good Brassia maculata, Odontoglossum hastatum, and the comparatively rare Angulos uniflora.—Mr. Don showed the violet-flowered Huntleya violacea, the pretty little white and yellow-blossomed Burlingtonia venusta, a handsome specimen of Peristeria Humboldti, with three drooping spikes of brown spotted blossoms, and Dendrobium sanguinolentum.—Mr. Hunt produced Epidendrum macrochilum, and five Oncidiums.—Six species were produced by Mr. Bruce and by Mr. Barnes; the former sending good specimens of Cattleya Mossiæ, Broughtonia sanguinea, and Aerides odoratum; and the latter the hardy Cypripedium spectabile, not quite in bloom; three Oncidiums and Calanthe veratrifolia. As a single specimen we observed Coryanthes macrantha, with three large rich brown spotted blossoms.

Of SHOWY PLANTS two fine groups of Clerodendrons were produced; the best was from the garden of J. Cook, Esq., and certainly did Mr. Ayres much credit, for seldom have we seen better specimens; the other was from Mr. Barnes, of Bromley. The heat of the day, however, caused some of the plants to flag, detracting somewhat from the effect which they would otherwise have produced. Collections of tall Cacti were shown by Mr. Clarke, gr. to W. Block, Esq.; Mr. Green, and Mr. Catleugh, of Chelsea. Among Mr. Clarke's plants, which were all in excellent condition, we noticed in particular a splendid Epiphyllum Ackermanni, a mass of flowers, each measuring at least 6 inches across; Cereus Scottii, a trailing variety, with bright red blossoms; and a large C. speciosissimus, producing upwards of 15 open flowers.—Mr. Green sent the larger variety of Epiphyllum speciosum, whose flowers are a decided improvement on speciosum, both in point of size and colour; and along with it E. Jenkinsoni, mexicanum, and others.—In Mr. Catleugh's group were Epiphyllum splendidum and Ackermanni in good condition. The season for Azaleas was past; Mr. Green, however, sent a collection, which was far from being in fine condition.—A beautiful group of Seedling Rhododendrons was produced by Mr. Waterer, of Knaphill, near Bagshot, and excited much interest.

Collections of HEATHS were numerous, and there was no lack of well grown plants; but we have still to complain of want of novelty among this tribe. With one exception, hereafter to be noticed, there was nothing new. Mr. Hunt, as usual, produced a famous group of 15 plants; so did Mr. Barnes; and in Mr. W. P. Ayres' collection were some fine specimens of cultivation. Mr. Hunt sent, among others, a famously grown Massoni (one of the most difficult to cultivate of the genus) about 2½ feet in height, and 3 feet in diameter, and the drooping green-blossomed Halicacaba. In Mr. Barnes's group were E. metulæflora bicolor, a somewhat straggling growing, but rather handsome species, with long flesh-coloured tubes passing into white at the ends; densa, covered with small white flowers; and the curious red and green-flowered Plukenetiana.—Mr. Ayres sent a small plant of splendens in good condition, and a fine gemmifera. Groups of 12 species were shown by Messrs. Fairbairn, Fraser, and Rollisson. Among these, of species not previously mentioned, was the pretty little Thyme-leaved Heath (E. Thymifolia), loaded with small purple blossoms. Various groups of 6 plants were produced, the best of which came from Mr. May and from Mr. Bruce, of Tooting, both sending fine plants.

The ROSES in pots commanded much attention; but they were hardly so fine as we have seen them. There is no greater task than the production of a fine collection of this beautiful flower. Groups of 12 varieties were shown by Messrs. Lane and Paul, and by Mr. Dobson, foreman to Mr. Beck, of Isleworth. The flowers in the first group were—Fabvier, Yellow, Le Page, Souvenir de la Malmaison, Proserpine, Armosa, Reine Victoria, Adam, Theresita, Elise Sauvage, Niphetos, and Emilie Courtier. Messrs. Paul sent Belle Allemande, Taglioni, Caroline, Don Carlos, Harrison's Yellow, Miss Glegg (Noisette), Mrs. Bosanquet, Bouquet de Flore, Aubernon, Bougère, La Victorieuse, and Goubalt. Mr. Dobson's plants were Madame Desprez, Nouvelle Heloise, Hamon, Fulgens, Augustin Mayel, Archduke Charles, Emilie Courtier, Ne plus Ultra, Triomphe du Luxembourg, Enfant d'Ajaccio, La Reine, and Goubalt. In addition to these other groups of 12 were also exhibited by Mr. Francis, of Hertford, and by Mrs. Stedman, of Isleworth; the former group contained William Jesse, Comte de Paris, Charles Duval, Pactolus, Blairii (No. 2), Marjolin, La Reine, China, Rivers, Melanie Walder, Bouquet de Flore, and Princess de Lamballe. Mrs. Stedman sent Aimée Vibert, Crimson Madame Desprez, Niphetos, Prudence Rosser, Comte de Paris, Perfection, Lady Alice Peel, Beauty of Billiard, Countess of Albemarle, Lord John Russell, Souvenir de la Malmaison, and Fulgens.

CUT ROSES in boxes were also produced by Mr. Francis, Mr. Betteridge, and by A. Rowland, Esq., of Lewisham.

AS SINGLE SPECIMENS of superior cultivation, a large number of plants were placed on the tables. A first prize was awarded to Mr. Hunt for his splendid Gompholobium polymorphum, formerly described, and which was again produced in first-rate condition, and another first prize to Mr. Parker, gr. to J. H. Oughton, Esq., for the Pelargonium named Priory Queen; this was a magnificent specimen of good cultivation, measuring at least 5 feet in diameter, in fine health, and literally a mass of blossom, regularly dispersed all over the plant. A Bronze Medal was awarded to Mr. Bruce for a splendid Aphelexis humilis, and a similar award was also made to Mr. Don for a good Aerides crispum. Mr. Green sent the pretty pink-flowered Tremandra Hugelii, Mr. Don, Caladium bicolor, Mrs. Stedman, of Isleworth, Brugmansia Waymanni, Mr. Catleugh the curious green flowered Billardiera mutabilis, Mr. Jackson, of Kingston, Dracophyllum secundum, and Mr. Paine, gr. to Miss Wigan, Cereus Scottii trained in the form of a crown.

As *new* plants in bloom were exhibited the white flowered Dracophyllum gracile! by Mr. May, of Woodford, and Cuphea platycentra, producing deep orange tubular blossoms, by Mr. Smith, gr. to J. Anderson, Esq., of Regent's-park; Mr. Malyon sent Veronica salicifolia, Mr. Taylor, gr. to J. Costar, Esq., Xanthosia rotundiflora, Mr. Barnes, Hindsia violacea, and Mr. Ivery, of Peckham, two Delphiniums and a Salvia named capensis floribunda. Of new and rare plants not in bloom were exhibited Mussœnda macrophylla, from Mr. W. P. Ayres, Physurus pictus and the Ceylon Anætochilus setaceus from Messrs. Rollisson, and from Mr. Francis, of Hertford, Ilex latifolia, Taxodium sempervivens, and Quercus glabra.

Among the FLORISTS' FLOWERS, the Pelargoniums attracted, as usual, the greatest share of attention. They were arranged on each side of a long tent; generally finely grown and in abundant bloom. The Amateurs' Class, for 12 first-rate varieties in 8-inch pots, was well supported by Mr. Cock and Mr. Stains; the former, taking the first prize, exhibited Orion, Emma, Mustee, Erectum, Sunset, Rosy Circle, Duke of Cornwall, Katinka, Rosetta, Isabella, Shield of Achilles, and Duchess of Leinster; and, among the flowers of the latter, we noticed Sunbeam, Duke of Wellington, Titus, and Erectum, in very fine condition. In this Class for Nurserymen, the 1st prize was voted to Mr. Dobson, foreman to Mr. Beck, for Arabella, Aurora, Bellona, Mark Antony, Desdemona, Resplendent, Zenobia, Othello, Favourite, Sunset, Isabella, and Hebe's Lip; these were all seedlings raised by Mr. Beck, rich in colour and fine in texture.—Mr. Gaines' collection was placed second; they were grown very dwarf. The plants were in fine health and bloom. The third prize was awarded to Mr. Catleugh, and an extra prize to Messrs. Smith, of Battersea, for Pelargoniums in 12 distinct varieties grown in 11-inch pots. The amateurs' prize was taken by Mr. Parker, gr. to J. H. Oughton, Esq.; these plants were produced in fine condition of growth, and with profusion of finely developed bloom. The flowers were Jubilee, Sultana, Duke of Cornwall, Louise, Hebe, Enchantress, Alice Gray, Janus, Erectum, Symmetry, Luna, and Roulette. The Nurserymen's prize in this class was awarded to Mr. Gaines. For Pelargoniums in eight varieties, grown in 8-inch pots, the prizes were awarded, first, to Mr. Coysli, gr. to R. Hudson, Esq., Clapham; second, to Mr. Moseley, Pine-apple-place; third, to Mr. Robinson, gr. to J. Simpson, Esq. A Bronze Medal was awarded to Mr. Gaines, for Queen Victoria and Anais, two pretty fancy Geraniums; and a certificate to Mr. Wheeler, for his specimens of Queen Victoria. We have before noticed that the collections of Calceolarias do not keep pace with the improvement in the flower; they were shown in varieties of six. Mr. Wright, gr. to the Hon. Mr. Rushout, received the first prize; the second was awarded to Mr. Paine, gr. to Miss Wigan, Highbury; third, to Mr. Garrod, gr. to H. B. Freeman, Esq., of Hampstead, and bronze medals to Mr. Stanly, gr. to H. Berens, Esq., and to Mr. Lewis, gr. to T. Hurd, Esq., and the first and second prizes to Nurserymen were respectively awarded to Mr. Gaines and to the Messrs. Henderson, Pine-apple-place.—In Cinerarias, for collections of 4 varieties, the first prize was awarded to Messrs. Henderson, second to Mr. Kaye, gr. to B. D. Colvine, Esq., and Certificates to Mr. Malyon and to Mr. Catleugh.—Of stands of Ranunculus, 6 were exhibited, and Certificates awarded to Messrs. Tyso and Son, Mr. Costar and Mr. Mitchell; the stand from Mr. Tyso contained 24 blooms, all seedlings of the present year, and among them were flowers of exquisite colour, beauty, and form; they were named Honoria, Antagonist, Fascinator, Brunel, Uranie, Cotta, Bertha, Pascal, Lydia, Poliander, Acadia, Sarepa, Amara, Oxendon, Festus, Clara Pleasor, Pavie Medusa, Amelia, Sobraon, Melanthor, and Don Jorge.—Stands of Pinks were exhibited, and a first prize awarded to Mr. Norman, of Woolwich.—Several stands of Pansies were placed on the table; the first prize was awarded to Mr. Turney, of Chalvey; second to Mr. Bragg, of Slough; third to Mr. Cutler, of Slough, and an extra prize to Mr. Parsons, gr. to A. George, Esq., Enfield.—Mr. Smith, of Hornsey, received a first prize for

a collection of 12 Verbenas. Seedlings were not so numerous as at the former meeting. In Pelargoniums, a first prize was awarded to a seedling of 1845 named Melpomene; and for seedlings of 1846, Certificates were given to Mr. Beck for Pasha and Cruenta; to Mr. Hoyle for Precision, and to Mr. Gaines for Model. In Calceolarias, Certificates were granted to Mr. Stanly for Fair-Maid of Perth; to Mr. Standish for Acme; and to Mr. Gaines for Robusta. For Seedling Fuchsias, a first prize was awarded to Mr. Halley for a seedling named Empress, having a white tube, and a rosy crimson corolla. We may also mention here that several collections of Fuchsias were produced; but these did not at all meet our expectations, for the plants were far from being well grown, although the sorts were good. The best group was from Mr. Kendall, of Stoke Newington. A second collection was shown by Mr. Robinson, of Chelsea; and Messrs. Lane, Catleugh, and Gaines also showed in this class.

Among MISCELLANEOUS OBJECTS, of an interesting but not showy kind, were collections of Ferns, several groups of British plants; two collections of Alpines, in pots; two boxes of Iris blooms, and two Melons.

In conclusion, we cannot but allude to some of the awards. A seedling Heath, a break from splendens, sent from the nursery of Messrs. Rollisson, of Tooting, possessing large and well formed flowers, shaded with salmon (a colour so scarce in this tribe) was only rewarded by an extra prize, while a 1st prize was given to a seedling, shown by Mr. Pamplin, of Walthamstow, not at all different from others already in cultivation. The former was decidedly a step in the right direction towards obtaining something new, which is so much wanted in this class of plants. Again, a small and comparatively insignificant Erica depressa, shown as a single specimen, obtained a second prize, while a very fine E. Massoni, from the same grower (Mr. Fairbairn) passed apparently unrewarded. And stranger still a first prize for *new* plants was given for a Dracophyllum gracile, which years ago could be bought for eighteenpence.

Reviews.

Among the many new books with which our table is covered, some, from their having no relation to the purposes of this Journal, are necessarily passed by; and others are of too slight a texture to demand more than an incidental notice. The following are among the more important.

Johnson's Spelling Book (Ridgway), is an adaptation of the common spelling book to the special purpose of teaching the rural population useful truths, while they are passing through the first process of instruction. As compared with Fenning's barbarous spelling book, that now before us is immeasurably superior; and it is not saying too much to add, that while it is equal to the last edition of Mavor, it is advantageously distinguished even from that by the usefulness of the subjects from which the lessons are taken. To teach children their duty as servants, or masters, the nature of the implements and other familiar objects that surround them, general fundamental truths in natural history, good moral maxims applicabl to the state of life to which country children especially are called; these, and similar subjects are what Mr. Johnson substitutes for idle stories about Miss Rose being a good child, and how Charles went out to walk, and all such remnants of the days that are gone. We need not say that we think his plan a great improvement, and that it is upon the whole well suited to the instruction of the rural population.

Flowers and their Associations (Knight), is an agreeable gossiping book, which will probably find favour with general readers in the country. It is instructive and entertaining, although not very correct in some of its details, which is a pity. We are surprised for example at seeing no reference to the modern discoveries respecting the "Lily of the Field," and still more so at finding it asserted in a book of the 19th century that Betony produces intoxication. We would recommend the authoress to avail herself of the experience of some botanist when a second edition of her little book is called for.

Dodonæa is a collection, in two thin volumes, of French treatises by Professor Morren, of Liège, on various questions in Vegetable Physiology. They are very clever, little known in England, and well worth studying.

Voigt's Hortus Suburbanus Calcuttensis is a posthumous work, prepared by the author under the eye of the late lamented Mr. Griffith, and intended for botanical students in Hindostan. It gives the names, scientific and vernacular, of all the plants found in the Botanic Gardens of Calcutta and Serampore, together with their medicinal or economical uses. The work is no doubt important to the Indian student; but it would have been much more so had the characters of the genera and species been added. It forms an 8vo volume of about 800 pages.

Mantell's Thoughts on Animalcules is a small quarto, with 12 plates of magnified representations of microscopical objects. It relates to one of the most beautiful and interesting of all the branches of Natural History, and will furnish a rich store of entertainment and instruction to persons with leisure to study the wonderful phenomena of animalcular life.

Garden Memoranda.

Messrs. Henderson's Nursery, Pine-apple-place.—The show house at this establishment now presents a gay and lively appearance with the different varieties of Azaleas, Rhododendrons, Heaths, Calceolarias, Hydrangeas, and other flowering plants; and the same may be said of another span-roofed house a little to the right of this erection. The latter house is filled with greenhouse plants of medium size; among these we recognised an old friend in the shape of Adenandra amœna, a neat habited plant, with flowers of a much richer colour than those of A. uniflora, which is a more common species; small plants of this old but comparatively scarce plant flower very freely, a circumstance which should not be overlooked by the amateur who has only accommodation for a few plants, which should be as select as possible. Associated with it was a double flowered Nasturtium (Tropœolum minus), producing orange scarlet flowers. Of the two small double varieties this is the brightest coloured one, and would doubtless make a capital plant for bedding out in the flower garden, where it will form a very interesting object, especially on rockwork or on a dry sunny bank, where we have seen it in great perfection. In the same house was also the scarce Grevillea punicea, the best of the genus, with deep crimson heads of bloom, and near it a collection of Calceolarias, promising soon to produce a fine display of blossom. In the stove, the principal objects commanding attention were Thunbergia chrysops, a good plant, covered with blossom buds, the curious rather than beautiful crimson-flowered Hæmanthus multiflorus, and the gaudy Zephyranthes carinata, the latter producing one lilac flower, tinged with pink, measuring about 2½ inches in diameter. This pretty Mexican bulb has been reported to be hardy, or nearly so; but we are not sure that this has been directly proved. The large plant of Combretum purpureum trained along the roof promises very soon to be a mass of bright red blossoms. This, and the sweet smelling Stephanotis floribunda, though well-known plants, cannot be too much recommended, for they are undoubtedly two of the very best stove climbers we possess, the large clusters of white blossoms of the latter forming a striking contrast with the bright red of the former; and even when divested of floral beauty, the deep green glossy foliage presents an ever pleasing appearance. Covering the surface of a pot was the interesting little blue Lycopod (Lycopodium cæsium) introduced by the Horticultural Society from China, through Mr. Fortune; and of other plants remarkable for the singularity as well as beauty of their foliage, may be mentioned Begonia digitata, said to be sensitive, and Jacaranda Clausseniana, whose gracefully-drooping Fern-like leaves render it an object of much interest. In



[IXORA CHINENSIS.]

the Heath-house, several of that beautiful tribe were in bloom. Of comparatively new sorts, we remarked longiflora floribunda, a variety with long buff tubes streaked with brown; vestita variabilis, of French-white colour, tinged with pink; and vestita alba superba, also with French-white blossoms. Of older varieties in fine condition, we noticed lactiflora, covered with little oval white flowers; ventricosa pregnans, just opening into beauty; vestita coccinea, with numerous heads of blossoms of a most brilliant red; and pinifolia, with long pink recurved flowers of considerable beauty. Along with these were also vasiflora, a variety something in the way of Beaumontia, and perhaps the finest of its class; the deep orange-flowered grandiflora, a distinct sort; and favoides elegans, with every little branchlet ornamented with dense whorls of lilac blossoms. A neat-looking greenhouse has been recently built in the upper part of the nursery beyond the Heath-house. It is a span-roofed erection, the front side being about 12 feet in depth, and the other about half that depth, the latter resting on a back wall about 6 or 7 feet in height. The whole length of the house is about 60 feet, and it is nearly 20 feet in width. The upright sashes in front are 2 feet 5 inches in height, and they are made to open and shut all at once by means of a crank. These, as well as the roof-sashes, are glazed with British sheet-glass, in panes from 2 feet to 2½ feet in length. In this house we observed a small Pultenea retusa, a plant not often seen in collections, producing an abundant crop of golden yellow flowers; Armeria cephalotes, with numerous large heads of pink flowers, elevated on long footstalks, which, if it were possible to shorten, would render this fine Thrift a worthy associate with its brethren of a dwarfer habit; along with it were the pretty little white blossomed Epacris pulchella, the latest flowering species of the genus; and a noble specimen of Hydrangea japonica, with upwards of 20 heads of bloom. This species, of which the accompanying sketch is a representation, although becoming better known than it has been, is far from being so generally cultivated as it deserves. This may be owing to an impression having got abroad that it is not so pretty as the common Hydrangea; but it proves to be much handsomer, on account of the agreeable contrast between its lavender-blue central flowers and the pure white sterile flowers of the ray. We imagine that this noble-looking object only requires to be better known to occupy a prominent position on our exhibition tables as well as in conservatories. In the same house were Sisyrinchium cyaneum, with sky-blue flowers; and Azalea variegata, a large plant; refulgens, a large rosy-red variety; Apollo, and a large deep double purple variety. Among Cinerarias in pits we particularly remarked Attractor, a purplish-lilac sort with white centre, and Formosa, a round purple, as being distinct and good varieties. The plants in the Orchid-house looked extremely healthy, but few were in bloom. Of the latter may be mentioned the rare Barkoria spectabilis, ornamenting a block with its beautiful lilac blossoms; Brassia guttata, and several Oncidiums. Before closing, however, we must not forget to mention a pretty little plant of the silver-veined Physurus pictus, and two climbers—Clerodendron splendens and C. s. bicolor, planted out in the bed, and trained along the roof, which have been very finely in bloom. These appear to succeed best where, besides a tolerably high top heat, they can also have a pretty brisk bottom heat, thus approaching as near as possible the conditions under which they thrive best in their wild state.

Miscellaneous.

Mr. Thackeray's Tulip Sale.—At the sale of the late Mr. John Thackeray's Tulips on the 27th of May, near Nottingham, some few of the varieties realised a good price, though on the whole they were disposed of at a low rate, many lots of really fine show flowers averaging not more than 2*s.* 6*d.* per bulb. This may be attributed to the very bad state of trade in Nottingham, and partly from many of the petals having fallen—in fact the bloom was nearly over. The sorts described in the *Chronicle* last year were most in demand, and fully sustained the character there given. Britannia, Maid of Orleans, Princess Royal, and Countess of Harrington, all new Byblomens, were in fine condition. La Van Dicken, Rose Imperial, Grand Rose, Desire, and Lady Wilmot slightly stained, but otherwise superb, were in much request; and the same may be said of Shakespeare and Polyphemus, which were both in excellent character; the Leonotus Posthumus was sadly out of condition, and the same may be said of the Earl of Nottingham, though one on a side bed was superb. The Queen Charlottes were in every instance completely over, one only retaining its petals, and those so much suffused with colour, that its true character could not be ascertained. Of Feathered Bizarres the majority were past, with the exception of a few Sidney Smiths and Royal Sovereigns, but these appeared of fine strains.

Rapacity of the Hedgehog.—A gentlemen, on whose veracity we place every confidence, informs us that on Thursday last, whilst passing Gatcombe-park, he heard the shrill and continued cry of a rabbit. His dog stopped at the moment, and looked wistfully at something in the hedge whence the cry seemed to proceed. Being encouraged, the dog, to the surprise of several spectators, brought out a large hedgehog, which had seized the unfortunate rabbit, and was making her supper from him while still alive. Both of the ears were eaten, and the brute was in the act of knawing a hole in his body just behind the ribs, when disturbed by the dog. Our informant took home both hedgehog and rabbit. Hedgehogs are known to be very destructive to game and poultry, by carrying away the eggs and devouring them, when upon the point of being hatched; we were, however, until this, ignorant of the fact, that they could manage to destroy live rabbits.—*Hants Independent.*

Extraordinary Mushroom.—On Saturday last, James Stubb, of Buglawton, near Congleton, was somewhat surprised that one of the flags just within the threshold of his door had been so far displaced by some invisible agency, that it had become almost impossible to open or shut the door. To discover the hidden cause of this strange effect, the flag was removed, and underneath it was found a fine Mushroom, measuring nearly half a yard in circumference. The flag which was thus pushed from its place by the upstart fungus, was 2 feet long by 18 inches wide, and 2 inches thick!—*Macclesfield Courier.*

Calendar of Operations.

(*For the ensuing Week.*)

Soaking Seeds to Hasten Germination.—Amidst the great pressure of business through the spring months, seed sowing is very apt to get in arrears. When such is the case, a fortnight may in general be recovered by having recourse to the steeping process; I consider it, moreover, a safe plan during the prevalence of drought. There is sometimes moisture in the ground sufficient to induce the first stage of germination, yet by the time that is accomplished, and before the tender radicle has extended itself beyond the reach of such vicissitudes, the drought has overtaken it, and total desiccation is the result. Now, in these cases, if the seed is on the

eve of germination, previous to its insertion in the soil, and if the soil is fresh dug, the young plant will in general establish itself in safety. My plan, and I have practised it for some years, is to steep it in water of about 80° for about six hours or more, according to the character of the seed, and to place the vessel where it will maintain that temperature; then to strain the water clear away, and to remove the vessel to a more moderate temperature, say 65°, until the first signs of sprouting, when the seed bed should be instantly prepared; the vessel, however, after pouring the water off, should be covered with a cloth, to prevent the surface seeds from drying up; it is also necessary to turn the seeds once or twice.

CONSERVATORIES, STOVE, &c.

Conservatory.—Continue to clear away exhausted flowers, in order to give place to fine specimens of Fuchsias, Pelargoniums, Calceolarias, Roses, or other gay and popular flowers. If a canvas screen is used—and every one should use it in my opinion—some of the Orchids may be removed to this house for the sake of prolonging their beauty. Take all possible precaution to avoid insects, remembering that prevention is better than cure in this as in most cases. *Stove and Orchids.*—Stanhopeas will now be blooming; the baskets should be well examined, or fine buds will be lost through contact with the sides. Let the house have a thorough circulation of sweet air early in the morning, and if the atmosphere is warm give air most abundantly. If the fire is put out betimes, the air may be somewhat reduced by 11 o'clock, pour water about, and the canvas screen may be thrown over the roof if sunny. *Stove Plants in general.*—Continue to shift young and growing stock, and to remove early-grown plants for autumn or winter flowering to the cool shelves of the greenhouse, in order to harden their wood and prepare them for early excitability. This is a principle not sufficiently understood or acted on. Much of the success in obtaining winter flowers lies here. *Mixed Greenhouse.*—Some of the above directions apply equally here. See that Fuchsias have abundant watering. All fires should now be entirely dispensed with, and a canvas screen kept at hand to ward off intense sunshine. *Cold Pits.*—Let a stock of young things be got forward in small pots forthwith. Achimenes, for late flowering, may be brought on gently here; it is astonishing what an amount of dryness, for a great length of time, these roots will endure if well ripened. I have some now in the course of potting, for late flowering, which have lain in the corner of a shed for seven months, and are perfectly fresh and solid; they have remained undisturbed in their pots.

KITCHEN GARDEN FORCING.

Pines.—Spare no pains with young stock just commencing vigorous growth. If the pots are not well filled with roots depend chiefly upon a great amount of moisture in the air of the pit. If the pots are well filled give free and frequent root waterings with clear liquid manure. Keep down useless suckers, gills, &c. *Vineries.*—Those ripening must have abundance of air every day and a circulation all night, with a dryish atmosphere. In succession crops encourage the growth of laterals in some degree, whilst the berries are stoning; they will assist in increasing the volume and power of the root for ensuing crops. Where borders are shallow and well drained a coating of half rotten manure, 6 ins. in depth, may be applied forthwith, provided the weather continue hot and dry. When the mould has been spread for a couple of days, a thorough soaking of water may be given; not, however, all at once, rather two mornings in succession.

KITCHEN GARDEN AND ORCHARD.

The Cape, although a small Broccoli, is one of the most useful in a Kitchen Garden, where constant succession is required. This is a good time to make a very full sowing, to supply the table through October and November. Cauliflowers sown now will head in November, and may then be housed in cellars, sheds, or outhouses, and continue in use until past Christmas. It is a good plan to sow some Cape in drills, prepared after the manner of a Celery trench. The seed should be dropped in patches above a foot apart, to be afterwards thinned to about three in a patch. Sow a little more of Knight's Protecting, and a sprinkling of some very late spring Broccoli; it may serve to prolong the succession next April and May. A few Ice plants should now be planted out in a warm border to garnish the autumn desserts. Every attention should be paid to Celery plants; they must have abundance of water in every stage. Those pricked out from the seed bed should have well prepared beds, the surface of which, for 2 inches deep, should consist of well rotted manure, soaked with water, and rolled or pressed level previous to pricking out the plants. If the weather prove sunny they should be shaded with boughs. *Orcharding.*—A thorough picking of grubs or insects from the fruit trees in general should now take place. Vines on walls or buildings must be attended to, as to disbudding, stopping, &c.; Apricots well examined for the grub, and the Peaches judiciously thinned on the walls, both of wood and fruit.

FLORISTS' FLOWERS.

Carnations must now be strictly attended to, bearing in mind the directions previously given. A top-dressing of rich compost will be found highly advantageous; take care that the ligatures are not too tight on the stems, otherwise they are apt to become distorted. *Pinks* will be blooming; they must also receive a due share of attention; tie some waxed thread round the buds to prevent them bursting. In selecting seedlings do not keep those which have serrated petals—a rose or smooth leaf is absolutely necessary. *Ranunculuses*, this warm weather, are making rapid advances; occasionally water between the rows with soft water—a slight awning will be of immense advantage to them. *Dahlias*, if not already done, ought immediately to be planted out; at the same time their supports should be put down, so that the roots may not be injured, which would probably be the case if delayed to a later period. Water and mulch the surface of the soil round the stems. *Pansies* may be struck under hand-glasses on a shady border; let the cuttings be as thin as possible. *Auriculas* and *Polyanthuses* should be carefully tended; the latter is extremely apt to suffer from the attacks of red spider; during dry weather shade is absolutely necessary for their successful cultivation.

FLOWER-GARDEN AND SHRUBBERIES.

The weather here has been excessively dry for many days; we have an unclouded sky, and the most fervent glare of sunshine imaginable. I am afraid this is very general. Much care will now be necessary in watering the flowers recently planted out in masses. For my part I still adhere to early morning watering, as I am persuaded that in a period like this, the dispersion of ground heat is rather a benefit, the night being perfectly mild and growing. All mass flowers on highly relieved beds should, when planted out, by all means have a hollow basin or concave surface reserved around the stem, or rather on the upper side for a fortnight after planting; this will serve to retain the water, and cause it to percolate the soil in contact with the roots. If this is not done, the water on raised surfaces runs off, and in this act produces a glazed or puddled surface, under which no plant will thrive until the crust is broken. Hardy American shrubs, as Azaleas, Rhododendrons, &c., on high dress lawns, should at this period have thorough waterings in very dry weather.

COTTAGERS' GARDENS.

Keep an eye on the other portions of the Calendar occasionally; many hints may be derived which will save in some degree the tedium of repetition. Seed-beds of Swede Turnips, if in a forward state, should be topped with the scythe slightly. This will harden the plant, if gross. As soon as spare ground presents itself, let winter Greens of some kind be got in. The ground between Peas, or Broad Beans, is frequently most eligible for filling in this way. Where a cow is kept, Mangold Wurzel may still be sown—sprouting the seeds according to directions given above.

FORESTING.

During this hot weather some of the young seeds in the nursing department may require watering. If any young stuff is suffering, a slight screen of boughs would be of much service.

State of the Weather near London, for the week ending June 4, 1846, as observed at the Horticultural Garden, Chiswick.

May	Moon's Age	Barometer. Max	Barometer. Min	Thermometer. Max	Thermometer. Min	Thermometer. Mean.	Wind.	Rain.
Frid. 29	4	30.330	30.3.5	78	29	54 0	S.	
Sat. 30	5	30.300	30 154	70	44	61.5	S W	
Sun. 31	6	30 178	30 150	81	46	63 5	E.	
June								
Mon. 1	7	30 167	30 143	79	46	62 5	E.	
Tues. 2	)	30 210	30.180	12	43	62 5	E.	
Wed. 3	9	30 218	30.177	85	45	6 0	E	
Thurs. 4	10	30.178	30 165	81	49	65 0	E	
Average		30 227	30.163	80 3	44.5	62.4		.00

May 29—Clear and fine through us
30—Cloudl-ss; hot and dry, clear and fine
31—Clear, h t and sultry, clear and very fine
June 1—Slight h-z and fine, cloudless and dry; clear
2—Slight haze, cloudless; hot and dry; clear
3—Slight haz-, very hot and dry—clear and fine
4—Hot and dry throughout; clear and fine; par tially overcast at night.
Mean temperature of the week 2½ deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the same days of the Week ending June 13, 1846.

June	Aver. Highest Temp	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 7	67 1	47 1	57.1	7	0.83 in	3	4	—	4	2	3	2	2
Mon. 8	70 2	47 2	58 7	6	0 10	3	4	1	4	3	4	3	1
Tues 9	71 0	48 4	60.1	8	0.60	1	3	1	1	2	6	2	2
Wed 10	72 0	49 0	60 9	6	0 31	1	4	1	1	2	5	4	2
Thur 11	73 6	50 5	6 5	7	0.47	—	6	1	1	3	4	5	—
Fri 12	73.1	49 5	61.4	8	0.60	—	5	2	1	5	5	1	1
Sat. 13	74.4	50 7	62 5	7	0 56	1	3	—	1	2	5	4	2

The highest temperature during the above period occurred on the 12th and 14th, 1862—therm. 91° and the lowest on the 9th, 1838—therm. 35°.

Notices to Correspondents.

The *Fourth* Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each copy. An index has been added. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

BEES—*C C P*—There is so much difference of opinion that we are afraid to give our own. We will endeavour to procure a better one before next week.

BLIGHT—*J W L*—You ask what blight *is*. It is a sun-stroke, or a frost-bite, a plague of insects or of fungi, a paralysis of the roots, or a gust of bad air, it is wetness, it is dryness, it is heat, it is cold, it is plethora, it is starvation; in short, it is anything that destroys or disfigures foliage. Can a definition be more perfect? We should expunge the word from the language as a substantive term, and only use it in its adjective sense. That vegetation is suffering greatly from various causes is too certain, but we have nothing material to add to what has already been stated. All the ill effects that are experienced just now are aggravated by the hot south-east wind; which, however, will repay us in our Wheat fields, and may be the salvation of the Potato crop, if it is to be saved.——*Gauvaud*—The fact of the strong shoots of last year being most injured, will satisfy you that we were right in ascribing it to the unripeness of the wood. Strong shoots are always the most unripe. The inventor of "Hydrangea's" hydraulic machine is J. Legg, 9, St. Philip's-street, Bath-road, Cheltenham.

BOOKS—*J R*—Curtis's "Flora Londinensis" is one of the best works on species of plants that has ever been published. Of its price we know nothing; inquire of booksellers.——*Emilia*—We do not see why you should not understand the "Vegetable Kingdom" if you first master the details of "School Botany." A trial, with a little perseverance, will carry any one with half your understanding triumphantly through.

CURATE—*R B*—Your case is a very bad one. Authenticate your statement with your name and address; guarantee to us your appearance as evidence in a court of law, if required, and we will make public the name of this offender, who has been spared too long.

CYCLAMEN PERSICUM—*M W X*—If the Cyclamen persicum had been turned out into raised beds before the leaves were exhausted, a new action of root will take place, and the bulb will be better fed. It will, however, undergo a partial rest, and the old leaves will for the most part decay. In the early part of September, young leaves will begin to show, and close on their heels abundance of blossoms. The plant should be immediately potted, and placed on a shady greenhouse shelf, or in a cool and damp frame for a month, when it may be introduced to a warm shelf in the greenhouse. This plant should be well attended to with water, more especially when first planted out and when re-potted. *R. E.*

ESCULENTS—*S H P Shelton*—Your Victoria Rhubarb was magnificent—we are not surprised at your having distanced all competitors. As for your Jerusalem Kail it is no doubt a capital vegetable, and we shall bring it into notice very soon.

HYDRANGEAS—*Florum Amator* may turn their flowers blue by watering the plants with a weak solution of alum.

INSECTS—*Quero*—No. 1 is a Podura, which probably injures your plants, or it may feed on some Botrytis. No. 2 is the common Scolopendra vulgaris, which does no harm.—*R.*——*L C*—It seems to be the Aranea diadema, a spider which sometimes appears in large numbers in gardens. It will rather benefit your Rose tree than otherwise by catching the Aphides.—*R*——*M*—Please to write to Mr. Curtis, stating everything relating to the economy of the insect destroying the Mangold Wurzel, as he is very desirous of becoming acquainted with the economy of your curious larva.

MANURE—*D*—Deal with Potter's liquid as with all other fluid manures. Do not seek to know how strong it may be used; but rather determine how to dilute it enough. All such applications should be made frequently, each dose being very weak. If you can dilute it with warm water and apply it immediately it will act all the better.

MORPHOLOGY—*Morpheus*—In your Digitalis all the parts are much increased in number; and some of the stamens have become petaloid. But the great disturbance is in the pistil, which has converted its carpels into leaves, and lengthened its axis, over which has been produced a confused crowd of anomalous organs.

MOWING MACHINES—*J P W*—We never recommend tradesmen or give prices. It is the business of advertisers to announce what they have to sell. What is called Budding's machine we cannot recommend; we hear of another kind, but are unacquainted with it. Nothing will beat a scythe skilfully used

NAMES OF PLANTS—*A E*—Which of the half dozen different things of which you have sent fragments is what you call Hair-grass; none of them are so called in general. The principal part of the fragments seem to belong to Festuca bromoides—a worthless annual, which is injurious to land by taking the place of better species.——*C S*—Lasthenia californica, Iris graminea? Gilia achilleifolia.——*Swainsonia*—Colonial and local names of plants cannot often be identified with those of science. Your Convolvulus is perhaps Ipomœa purpurea; we cannot guess at the Elephant creeper.——*C K*—5, Platanthera chlorantha, 6 and 3, Orchis morio; 4, 2, 1, Orchis maculata. No Orchid is poisonous; their roots are very nutritious.

PEACH-TREES—*J Eanis*—The swelled blistered Peach leaves you sent do not indicate any constitutional disease in the tree. Such affection of the leaves is very common in seasons like the present when the leaves are brought out by mild weather early in spring, and frosty nights afterwards destroy their tender vessels. The most healthy and vigorous trees are fully more liable to it than those of weaker and slower growth. Pick them off because they are unsightly. They produce no bad consequences; their places will soon be supplied with a superabundance of healthy foliage as soon as the nights get warm.

MISC—*G*—Oh yes! We have seen the paragraph, and a silly one it is. The complaint and the mode of stating it are alike wrong-headed.——*A Reader*—You may cut your Box-now: but you must not transplant it till the month of October or November. You had better prepare them for transplanting by cutting them now.——*An Old Gardener* will be certain to find the progress of Sir James Graham's bill, and all other public bills given in our Parliamentary reports. If nothing has been said of it then nothing has been done. Now that the Corn-bill is out of the Commons, other things may be expected to move on.——*R P*—If you send a Fellow's order and a post-office order for the price of the tickets, the latter will be sent you by post.——*Lucretia*—Do not use asphalte for the floor of your pit; its smell goes off too slowly, and is not only offensive to ourselves, but injurious to plants. Far better use a slate floor, or if you object to the expense employ concrete made with fresh lime, clean gravel, and hot water. What is the "blight" in your pit?——*L C*—It is very difficult to *make* Pomegranates blossom. If kept for years trained to a south wall, and not overloaded with wood, they will flower without making, when they are old enough. You may accelerate the event by root-pruning or root-cramping, or by ringing a branch.——*R W Burleigh*—Your Grass under the Cedar-trees is dying from dryness. You had better water it with weak guano-water, as soon as rainy weather sets in.——*A Market Gardener*—The Messrs. Wilmot's Garden, Isleworth, and other great market gardens. Mrs. Lawrence's; Sion House; The Duke of Devonshire's, Mr. Rucker's, at Wandsworth, and the Nurseries of Messrs. Henderson, Chandler, Glendinning, Lee, &c.——*Thomas Brown*—There is no season like November for transplanting Laurels, if they are held firmly in their places by a triangle-stay.——*A B*—The red oxide or peroxide of iron will do no harm in the soil, but it disfigures plants when poured over them, and injures them by stopping up their pores.

SEEDLING FLOWERS.

CACTUS—*W A*—If your seedling possesses the free blooming habit of speciosa, it will prove a desirable variety, the flower being handsome, high coloured, and expanding freely.*——*D B*—The worth of your seedlings depends upon a free habit of blooming. They are bright in colour but possess no great superiority in size, and they appear not to expand sufficiently; 4 is the best.*——*Y Y*—Your seedling Cactus is a large, stout, and handsome flower, well formed and of a brilliant scarlet.*

CALCEOLARIAS—*R C*—1, 3, and 11 are the best specimens of form in your collection, and they are also prettily spotted. The other seedlings generally are too flat in front, and with the outline not sufficiently even, as in 1, 2, 7, 10.*——*S S*—No. 1 is your best flower; 2 and 3 are very common varieties*——*A G*—You cannot have seen the improvements which have taken place in the Calceolarias of late years. Your seedlings are very deficient in size, form, colour, and marking——*S G J*—None of your seedlings are worth cultivation, they are some years behind the present fine race of flowers*

FUCHSIAS—*A M*—There are several flowers in cultivation having white tubes and coloured corollas; your specimen is equal to any of them as regards those qualities; but from the corolla being short, there is but a small portion seen between the sepals, which do not expand sufficiently.——*R P*—Your seedlings resemble too much flowers already in cultivation; 4 we consider the best; they are good flowers, but wanting in novelty.*

PETUNIAS—*R P*—No 2 is decidedly your best seedling, the veining being strong and decided; 1 and 3 are of no use.*

SCARLET GERANIUM—*A G*—Your seedling is a very brilliant scarlet, but the flowers individually are small, and it does not appear to possess any superiority over the varieties generally cultivated.*

VERBENAS—*W M*—Your seedling with deep rosy centre, and pencillings of the same colour running up the centre of each division of the corolla, is a large and attractive variety.*——*S G J*—The Farringdon Rival is desirable in colour, but unless the flowers will come larger it will be of little use.*

CLARK'S METALLIC HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.
Proprietor, Mr. THOMAS CLARK.
Superintendent of the Works, Mr. JOHN JONES.

IN returning his grateful thanks to the Nobility, Gentry, and Public at large, for their liberal patronage of the above Establishment during a period of nearly 30 years, Mr. CLARK begs to state that the repeal of the duty on Glass enables him to offer his METALLIC HOT and GREENHOUSES at a greatly reduced price. These Houses are glazed with British Sheet Glass, in panes of from 24 to 30 inches in length, and of such thickness as to preclude all danger of accidental breakage, whilst that which arises from the action of frost (frequently amounting to 25 per cent. per annum), is effectually prevented by the peculiar mode of glazing adopted. As a sample of his Metallic Hothouses, in which all the most recent improvements are happily combined, Mr. CLARK refers with pride and satisfaction to the magnificent range erected by him in the new Royal Gardens at Frogmore, which is admitted by all competent judges to be the most complete and perfect of its kind in the world.

The Agricultural Gazette.

SATURDAY, JUNE 6, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, June 10—Agricultural Society of England.
Thursday, — 11—Agricultural Imp. Soc. of Ireland.
Wednesday, — 17—Agricultural Society of England.
Thursday, — 18—Agricultural Imp. Soc. of Ireland

LOCAL SOCIETIES.—Caddor, near Glasgow—Wel's (Ireland.)

FARMERS' CLUBS.

June 8—Bakewell—Selby—Exeter—Yunford—Clrence ster—W. Market—Wenlock—Gre t Oakley—W. Hereford
— 9—St. Peter's—Weston Bia set—Rochford Hundred—Framlingham—Jedburgh
June 9—Watfo d—Wingerworth
— 10 Harleston
— 11 Grove Ferry
— 12—Wadeb idge—Halesworth—Chelmsford—St. Germain:—Tavistock—Northallerton
— 15 Botley

THE RAILWAY GAUGE question, now exciting so much public attention, has a bearing on AGRICULTURAL INTERESTS more important than is apparent at first sight. The influence of that increased facility which railways offer for the exchange of local mineral produce—the transfer of the coals from the north into the south, the fuller's-earth of Surrey into the cloth districts of Yorkshire, and the flints of Kent into the Potteries of Stafford and Worcester—cannot yet be said to be felt. The transit of agricultural produce is beginning to produce its effects. Even this last week it has been related how the Eastern Counties Railway, throughout its course in Essex, is generating a trade for supplying the metropolis with pure milk. Since the opening of the Bristol and Exeter Railway, numerous shops have been established in London for supplying Devonshire cream, poultry, &c. You may now, in fact, have clotted cream with your coffee at breakfast every morning as fresh in London as the inhabitant of Exeter himself. The effect of this on prices has been very great, particularly in the neighbourhood of the Great Western Railway. The half-pay officer at Plymouth and Exeter is beginning to grumble that the economical charges hitherto peculiar to those spots are vanishing. A poulterer in Exeter last year told us how grievous a thing it was that he had a long contract with the principal inn at Exeter to supply it all the year round with fowls at a guinea a dozen, now that he could send them by railway to London, and in the season realise five and six shillings a couple! Again, the market-gardeners about New Cross and Deptford find even a better market for their produce among the Brighton visitors in the winter and autumn than they do in Covent Garden itself, and transport their vegetables accordingly to Brighton. The South Down sheep, when the coast line is completed, will be passengers up and down the railway twice in the course of the year, for pasturage on the Downs and in Romney Marsh.

But we need not accumulate further instances to prove that already railway transit is beginning to produce great and beneficial effects upon agriculture.

Where, however, lies the connexion between the amount of these effects and the gauge, or the WIDTH OF THE RAILS? How can it matter to the farmer whether they be 4 feet 8½ inches or 7 feet apart? Moreover, is a UNIFORMITY OF SYSTEM OF RAILWAYS at all important to the agricultural interest? We shall endeavour to answer these questions. First, as regards cheapness and facility of locomotion; secondly, as respects uninterrupted freedom and universality of locomotion.

The gauges, or width of the rails, as now covering the country like net-work, are laid, about 1900 miles of narrow, and about 270 miles of broad gauge. It may be fairly assumed that there must be good reasons for such a disproportion between the quantities of the two. Commercially, no doubt the narrow gauge has been far the most profitable to the shareholders; and it has been so because it has been preferred by those who have to use it. It was patent to all railway makers to adopt whichever gauge they pleased. Not only have the majority adopted the narrower gauge, but it has been found most profitable that all deviations from it, except that of the Great Western, should be and they have been altered to it.

The narrow gauge arose and spread for passenger railways because it was already in use for the conveyance of minerals. For years the 4 feet 8½ inches gauge had been adopted and found most suitable for the carriage of minerals. This fact is quite incontestible,—admitted by Mr. BRUNEL, the inventor of the broad gauge, who has himself adopted the narrow gauge in mineral districts. The carriage of all agricultural manures is but the carriage of minerals; and thus we may say at once that the superior suitability of the narrow gauge for the carriage of minerals to be used in agricultural operations is at once established. Small carriages, as most proper for the transit of coal and iron, may be said reasonably to be most suitable for lime, sand, or compost.

It must be clear that if a certain carriage and rails are best for the transit of manures to the land, the same carriage must of necessity be the one to be used for the transit of the produce of that land. It would be impossible to have two, even if the manure carriage did not happen to be the very best conceivable. A farmer never has his waggons and carts of two widths, and would not do so when he takes to using railways. But the narrow gauge carriages may be assumed to be quite efficient for the transit of produce. The only doubt of their perfect suitability arises from their being rather *too large* than too small. The broad gauge trucks for ordinary every day purposes are practically found to be much larger than convenient. The agriculturist requires, as has been well observed by Mr. SIDNEY, "not huge carriages and trucks, but handy little waggons, which may without inordinate trouble or expense, be run into small road stations and sidings, to which a farmer may send his couple of fat oxen or his score of sheep, or his load of corn, in conjunction with one or two more neighbours. Hitherto, of all classes, the agriculturist has least enjoyed the advantages of railway transit; he never can enjoy them where expensive rates and heavy unwieldy trucks prevail, and that is the reason why the Great Western Railway, although running through rich corn growing and cattle feeding countries, has created, as yet, so little local traffic. The whole machinery is on too vast, costly and magnificent a scale. Were it not for the break of gauge (its consequences being shifting from one carriage to another), the cheap little Belgian 3 feet 9 inches gauge would supply the wants of Somersetshire and Dorsetshire, infinitely better than the broad gauge." The smaller carriage of the narrow gauge is admitted by every one to be much more handy for manipulation. It requires less than half the power to move and turn it about. Mr. W. BASS, of Pickford's house, who has "no share in either the broad gauge or the narrow in any way," says that "the broad gauge trucks are most inconvenient for carriers' purposes generally." "A great cumbersome broad gauge truck requiring eight men to move it. A narrow gauge truck a couple of men would have moved with great ease."

We may look forward to the time when, as agriculture becomes more developed, the great farmers will have their own single line of railway to join the high roads. As far back as 1676, it is stated, in the life of Lord NORTH, that "the manner of the carriage of coal is by laying rails of timber from the colliery to the river, exactly straight and parallel, and bulky carts are made with four rollers fitting those rails, whereby the carriage is so easy that one horse will draw down four or five chaldrons of coals, and is an immense benefit to the coal merchant," and it will not be long before the great farmer will use rails like coal-owners. It is essential that the construction of these little feeding lines should be as economical as possible. The cost will absolutely in most cases determine the existence of them. In all its details, roadway as well as carriages, the width of the gauge increases the cost in proportion. Another point, too, involved in cost is the facility of laying the rails. In hilly districts, at best, the farmer's narrow gauge rails would curve along the valleys, with difficulty and at great cost. The increased cost and difficulty of wider rails would prevent the making of the railway altogether. So that equally for convenient use as for economy of structure, it will be the interest of the agriculturist to have narrow lines and small and cheap waggons, rather than very large ones.

If cheap construction, and a cheap "plant" be necessary to enable the agriculturist to avail himself of the advantages of the railway system, it is absolutely indispensable to him that the system be UNIFORM. It would be quite impracticable that the farmer should keep carriages suitable for passing on two widths of rails. The shifting of his produce from one carriage to another, where the BREAK of GAUGE occurred, and its concomitant cost, difficulty and damage, would prevent the transit altogether. The Gloucestershire farmer would never send his waggon of Turnips to Wolverhampton, if the whole must be shifted in the journey. Shifting would effectually prevent the exchange of the coals of the Midland counties for the chalk or flint of Kent and Surrey. It is essential that the trucks pass from the starting to the end of the journey without disturbance. But there must be uniform gauge to permit them to do so. It is no idle dream to foresee that such exchanges are coming about—exchanges even between the extremities of our island. Already the railways compete with the canals for the conveyance of heavy goods, and coals are transported at a penny per ton per mile. Break of gauge would put a dead stop to this exchange, in which no one is perhaps so much interested as the agriculturist. The advance of the science, the productiveness of the soil, the well-being of the farmer, and the comfort of the labourer, depend on the most perfect exchange. But freedom of exchange can only be had by a perfect NATIONAL UNIFORMITY OF RAILWAYS, and no class is more deeply interested in securing that UNIFORMITY than the agriculturist.

ON THE DRILL HUSBANDRY OF TURNIPS.

IN the early part of 1842 I became a candidate for the Royal Agricultural Society's prize for the best report of experiments on the drill husbandry of Turnips, but like other expectants of carrying off a prize I was disappointed. However, on reading the successful report I was happy to find that the writer's notions and mine corresponded on many of the most important points connected with the cultivation of that most valuable bulb. Unfortunately for my report it is too lengthy, from minutiæ of detail, and hampered, as some would call it, by too many perplexing, and in several cases anomalous experiments; but I have always considered it of great consequence for a farmer to know how many bushels of grain had been grown in each field, and if such knowledge is useful it surely would do no harm if curiosity led him a little farther, and raised a desire to know how many tons per acre of bulbs he managed to raise, and also know what quantity of manure per acre had been used in order to obtain such crops.

The want of any statement as to weight of crops produced by Mr. B. Almack in his prize report, is, in my humble opinion, a very great one, and to most experimentalists must detract much from its value. It is he who can grow the greatest weight of roots at the least expense, taking soil and situation into account, that should be held up as an example; and, although Mr. A. gets very nicely over the results produced by his mode of managing by saying, "I cannot say how many tons of Turnips per acre I have grown, simply because I never weighed any nor had any weighed;" and however convenient and advantageous it may be for an individual who gives his experience on any particular subject to the public to avoid figures, yet I must consider they are essential to make the communication of real value to those interested in the subject of inquiry. And therefore I think Mr. Almack's prize report a very imperfect and unsatisfactory document without his results being given, viz., the various weights of roots produced per acre, with the different manures used, and various widths in the rows which he adopted; and I believe most people will bear me out in this opinion.

My figures, I know, are too numerous, and lay me open to animadversion on all hands; but they are the real results of my efforts in Turnip growing for the years named, on land excessively foul, with every species of annual weed, and the soil, although dry, of a poor ungenial kind for Turnips. This in some degree may account for the heavy expenses in clearing, and the return of weights per acre being so inefficient and so unsatisfactory to strangers in proportion to the expense incurred in producing the returns.—*W. Fernie, Manchester, May 28.*

[We have taken the liberty of somewhat altering the arrangement of the matter in the valuable paper with which Mr. Fernie has kindly favoured us, and po-tponed the publication of the general remarks with which it commences, in order to lay before our readers the practical part of the essay in time for them to benefit by it.]

The soil on which the following experiments were made is situated in Gloucestershire, on the higher edge of the upper oolite geological formation, which appears in various widths through a long sinuous tract in several counties in England, from Dorsetshire to Yorkshire.

The general elevation of this farm is somewhere about 650 feet above the level of the sea, and thus the climate is rather cold and late, and not adapted to produce crops of any kind of first-rate quality. Where the surface runs nearly level, the rock is generally found at from 6 inches to 3 feet under the surface, and wherever an elevation of 20 or 30 feet appears above the general range, that part is always found to be a bed of dull red or brownish clay, mixed with nodules of oolitic stone; and when these are absent, the clay is sometimes yellow, tough, unmanageable stuff, and, if in large quantities, would not be kept under cultivation, being the least productive and most expensive land to cultivate on the farm. With the exception of 25 acres of

this sort, the rest of the arable land is gravelly, or what is termed in this district, sweet, light, brashy land, gradually varying to that of a deeper brash, differing from the gravelly in this, that it looks darker and more loamy, exhibits an abundance of stone from the size of a pigeon's egg to that of a man's fist, while few of these are seen in the light gravels. It is very difficult to plough this land 5 inches deep on an average; indeed it is scarcely ever done in the district. The general depths of ploughing cotswold lands are from 3½ to 4½ inches, and at no period of the year do the plough-irons wear bright, the finer portion of the soil clinging with singular adhesiveness to the furrow-board, often an inch or two thick; and it adheres even to the share, coulter, and side plate, in a way which astonishes practical men who cultivate silicious soils. It will be readily seen from the peculiar property of the soil, that the furrow never leaves the plough in a neat glazed, sharp-edged form, and when ploughing fallows or Barley lands a second or third time, the operation of the plough is more like pushing the furrow aside than turning it over, and the plough requires constant cleaning. Hence the impossibility of ploughing in manure properly on such land, unless the vegetable fibre is completely destroyed and reduced to an earthy state. These faults are caused by the absence of silex in the various soils of the upper oolite, its composition being entirely calcareous. The land just described has been valued lately at from 18s. to 30s. per acre.

2. As the course of cultivation pursued may be considered to influence the growth of the Turnip crop, I shall briefly state the rotation followed on this farm:—

1st year. 38 acres. Green crop (viz. 32 acres Swedes, 2 acres Mangold, and 4 acres Potatoes), with the whole of the farm manure applied. One half of the Swedes removed, and the other half eaten by sheep on the ground.
2d year. 38 acres. Barley with seeds.
3d ,, 38 acres. Clover and Rye-grass made into hay.
4th ,, 38 acres. Wheat.
5th ,, 38 acres. Vetches, and common Turnips, in the following proportion:—25 acres Vetches (one-third mown and carried to horses, &c., and two-thirds eaten off with sheep), and 13 acres common Turnips, treated with pulverised manures; likewise all the Vetch land cleared previous to the last week in July, sowed with common or early Stone Turnip, and treated with pulverised manures.
6th year. 38 acres. Oats or Barley.

From this mode of cultivation the land comes round again for the Swede crop, &c., clean, and not likely to create much hindrance in clearing it of weeds in spring, as it is of great importance that the land for Swedes, and the other green crops named, should be early ready. I shall only farther add my opinion, that, if another 38 acres of arable land were added to this arrangement, it would be an immense improvement, as it would enable the cultivator to pasture one year with sheep after the hay crop, and the land would get firmer and much better adapted for Wheat; it would be got earlier in a fit state for ploughing up, which is a great drawback in taking Wheat the first year. The climate being late, we must plough early, and when this is done in time, we plough down our finest and most valuable feed for sheep; and farther, if it were to lie two years in seeds, the land would be better able to continue the rotation for any length of time.

3. I must now describe the preparation of the land; and this must be considered under three heads—first, the preparation after Sainfoin; second, corn-stubble lands; and third, the Vetch land.

First. The Sainfoin plant, in most cases, becomes weak or wears out in five to seven years; the land on the surface gets overrun with Couch, and a variety of other perennial and annual weeds, and plainly shows the necessity for its being once more brought under the plough. In breaking it up, the breast-plough is universally used, and the operation of paring commences early in the spring. As soon as the drying March winds blow, it is moved about with drags and harrows very frequently, and the quicker the pace of the horses at his work the better, care being taken to lift the implement occasionally with a piece of rope or hooked stick, in order to prevent the sods or turves being dragged into heaps. This operation is repeated in different directions, until the turves are torn in small pieces, and dry enough for burning. The breast-ploughers having finished the paring, are now ready with stout wooden rakes, having heads about 18 inches in length, furnished with 6 or 7 iron teeth 3½ to 4 inches long. The men collect all the broken turves and loose vegetable matter into conical heaps 5 or 6 yards from each other. Dry straw, or stubble, is brought to the field, and the labourers, or frequently some members of their families, put a little straw into each heap, and set fire to them. If properly dry, the turves burn rapidly, and it is of great consequence to attend promptly to shake up the bottoms of the heaps, and throw the outsides into the hot ashes, in order to get every part burnt up. As soon as the ashes are cool, I take up two cart-loads per acre equally over the field, or rather in greater proportion where the land is best. This is put to one side of the ground, carefully riddled through a half or three quarter inch iron wire riddle and covered over with a few bunches of litter to keep it dry for drilling with the seed. The remainder of the ashes are then spread regularly over the field. When this is done, the ploughs should as early as possible in April, lightly rib, or as it is termed in some places, rafter, the field; in 10 or 12 days the ribs may be dragged or harrowed down and rolled, if necessary, according as the land is hard and tough, or friable. If Couch, or the roots of other weeds shake up, they are picked and burnt. The land is next regularly ploughed the end of April or 1st of May, from 4 to 4½ inches deep. After lying another 10 or 12 days, it is again dragged, rolled, and harrowed, and weeds, if any, again picked off and burned. With some people it would now be ready for sowing, but I prefer ploughing again, in order to bring the land gradually to that mild, fine, friable state, which is so essential to secure a plant of Turnips. Before this last ploughing it is highly necessary that the land should lie another 10 or 12 days after the harrowing, &c., because at this period of the season, vegetation proceeds rapidly, and before the ploughing is given, the seeds of Charlock, Chickweed, and many other annuals as well as perennials, spring up in innumerable quantities, therefore this second ploughing is of the greatest importance, as it destroys every weed which has appeared above ground, and myriads in embryo, just escaping from the bursting seed.

2dly. We shall now very shortly describe our process of preparing land after corn crops. As soon as the labours of corn harvest and Wheat sowing are brought to a close, we commence ploughing the stubble land as deep as it will admit. On this farm we generally go about 5 inches deep, and it is desirable that this work should be over by the 1st of December, or sooner if it can be accomplished. When the land becomes dry enough in the spring, it is cross ploughed the same depth as before; and if this can be done in February or the 1st of March, so much the better, as the morning frosts greatly tend to ameliorate and pulverise the furrow. But it is a very egregious mistake to stir fallows on this kind of land in wet weather, for then it turns up in tough waxy slices, and when dry withering winds set in it becomes cloddy on the surface, and a solid cake below, and will require double labour to reduce it. Most likely it will not work mild again for the season; all subsequent ploughings continually bringing up hard lumps, on which a roller makes little impression. If the land is for Turnips or Swedes, with farm manure by the ridge, or Scotch system, I drag, roll, and harrow in the end of March or 1st of April, in order to reduce and thoroughly clean the land, all weeds being carefully picked up and burned. The land is again ploughed about the 1st of May, well harrowed, and rolled again if necessary. It is then allowed to lie a week or ten days before the process of ridging and manuring commences. My plan is a little different with the land which is to have pulverised manures. In this case I prefer sowing on the flat, for reasons which will be presently given; I therefore give the last ploughing immediately before sowing. I may further state, if the land is very foul and Couchy, as by far the greater part of the poorer wolds and cotswolds are, I do not think two spring ploughings enough to cleanse them thoroughly; the ground gets so hard below during the cleaning process, that ridging cannot be done satisfactorily, and, even if for sowing on the flat, it ought to be run over by some powerful cultivator, or get a third ploughing.

Third—With regard to the Vetch land preparing, I generally plough first, because if the Vetches have been a heavy crop there will be a good deal of stubble left, which will prevent a scarifier working, and it frequently causes the plough to make very indifferent work by collecting about the coulter and breast of it. In order to make a good finish, it is necessary to pick off all these bunches or heaps of stubble, as they prevent the dragging and harrowing being effectually performed. Should the land not prove mild and fine after the first ploughing and harrowing, I plough a second time, harrow and pick off all loose stubble and weeds, and then in most cases the ground is in a tolerable fit state for sowing. Nothing, however, has a more slovenly appearance in farming than to see an attempt made to drill a field covered with loose stubble or weeds; the drill is continually stopping to be cleaned, or the seed is drawn 20 or 30 yards at a time on the top of a bunch of stubble, and consequently it will turn out that the seed has not been deposited equally over much more than half the surface. The season for Turnip sowing being now near to its close, there is not time to let Vetch land lie many days between the ploughings, and unless the process of reducing and pulverising is aided with copious showers, the probability is, at that very dry and hot period of the year you will be disappointed in a braird, and therefore of a crop. Notwithstanding this uncertainty of a crop from the first cleared Vetch lands, it should in all flock districts be persevered in, as a crop of late sown Turnips is very useful for spring feed, especially for the ewes and lambs. Under every circumstance, and in all situations, I consider that the greater the attention which is paid to cleanse Turnip lands, and to reduce it to a mild smooth surface by gradual and careful cultivation, the greater will be the chance for a crop, particularly from the ungenial soils. It must be known to every agriculturist when the surface of the land is fine, that small seeds of every description vegetate much more rapidly, and also more regularly, than when rough and cloddy. It is perfectly consistent with reason, therefore, to infer that Turnip seed will flourish with greater certainty and rapidity where the soil has been properly prepared; and if this very important part of the agriculturist's duty is judiciously performed, and the land well manured, he need have little to fear for a Turnip crop, or for those of other kinds which follow in rotation.

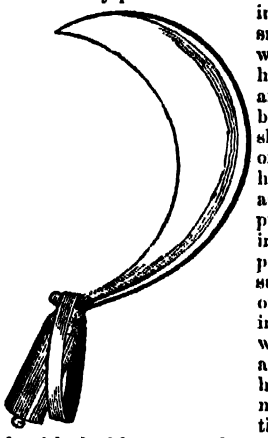
(To be continued.)

ON GORSE AS FOOD FOR CATTLE.

(Continued from p. 327.)

7.—*The age of the plant when fit to cut* will depend in a great measure on its being properly fenced and taken care of in the autumn and winter of the year in which it is sown. If due precautions are used to prevent the crop from being trampled down and eaten by sheep or cattle, it may be expected to afford a moderate cutting in about 18 months after sowing, provided the soil is favourable. The greatest produce, however, is usually obtained from the growth which springs after the second or third cutting, when the plants are firmly rooted in the ground and possess their greatest vigour. It rarely happens to be worth cutting oftener than once in two years, but it may be very easily arranged so as to have a separate piece fit for cutting every year in succession. Supposing a certain extent of ground to be sown this season, 1846, it will be ready for use in November 1847, and continue good until the spring of 1848, when there will be sufficient Grass to render other green food unnecessary. Next year, 1847, let another portion be sown to furnish a supply during the winter of 1848 and spring of 1849. The following season, that which was first cut in 1847 will be ready for cutting a second time, and so on in rotation until the plants become exhausted and require renewing.

8. *The mode and expense of cutting* is neither troublesome or costly,—certainly not more so than in the case of Clover when used for the purpose of soiling. In fact, I have repeatedly seen Furze treated in a similar manner, and mown with a strong, short scythe, not exceeding 2 feet or 2½ feet in length. This may answer very well for some descriptions of Furze which have grown rapidly, but it is not suited for general adoption, unless perhaps for the first cutting, or where great care has been taken to cut the woody stumps close to the ground so as to be out of reach of the scythe. The best method, in my opinion, is that which is commonly practised in the west of England, where, instead of the scythe, a small hook is used somewhat resembling a reaping hook, but much broader and more circular in the blade. The accompanying sketch will convey an idea of this tool, which in good hands is very effective, and admirably suited for its purpose. From the handle in a straight line to the point of the blade it measures 14 inches. The width of the blade is about 4 in. in the broadest part, from which it diminishes gradually towards the point and handle, where it terminates in a small projection. The handle itself is furnished with a sort of cradle, provincially termed a mop, made of strong thick leather, with an opening to admit the hand, but otherwise arranged so as to effectually cover and protect it. Attached to the projecting part of the blade is a small double strap of leather, called the bridle, extending nearly the length of the handle, for the purpose of giving the cutter a greater command over his hook, when it is necessary to be drawn towards him. The left hand and arm are protected by a cuff and arm-sleeve, both of strong leather. The former is shaped like a short glove having a division for the thumb, and two others, instead of four, for the fingers. It comes up a little above the wrist, and fits under the lower edge of the arm-sleeve; the latter extends a little higher than the elbow, and is fastened at the top by a small piece of leather and buckle. Thus equipped the labourer accustomed to this sort of work will very speedily hew down whatever quantity of Furze may be required. A hundred faggots are considered a good day's work, supposing the Furze to be strong and from 2½ to 3 ft. high. The usual price for cutting is about 5*d.* to 6*d.* per score. Each faggot weighs from 15 to 20 lbs.; and when bruised it takes 2 or 2½ faggots to make a bushel. The quantity of this description of green food which may be obtained from an acre will vary according to the thickness, height, and quality of the Furze; 2000 faggots may be reckoned an average crop, and will afford from 800 to 1000 bushels; but in many instances I believe the produce will exceed this, and were it to be sold would equal in value 15*l.* to 18*l.* per acre.—*M. E. H.*



ON MEASURE WORK.

I.—OCCASIONAL OPERATIONS.

1. *Drainage.*—A man deserving 2*s.* 6*d.* as a day's wages, can dig and put into a barrow from 16 to 18 cubic yards of earth daily. Such is the experience of railway contractors. His wages thus amount to rather less than 2*d.* per yard. Knowing this it is easy to calculate the expense of digging ditches. Thus a ditch 3 feet deep, 7 feet wide at top, and 1 foot wide at bottom, contains in a perch of length (16½ feet) 7⅞ cubic yards, and it may be dug for 1*s.* 3*d.* per perch. These are dimensions proper for an open ditch, but if it be desired to save the 7 feet of land thus occupied, then a ditch 3 feet deep and 4 feet wide at top, and at bottom, may be dug for the same money, and it will be large enough for the mason work of a conduit with a 1 foot channel, which, flagged both at bottom and top, would cost 4*d.* or 6*d.* per lineal yard, in addition, for mason work, besides the expense of the stones.

The ordinary drains being narrow and deep, a man cannot turn so many cubic yards of earth per day out of *them* as when he is in a more easy position, and the price per yard *here* must, therefore, be raised. The drainage of the farm from which I am writing cost,

…e years ago, 4*d.* per perch; the drains being 30 ins. …ep, 14 ins. wide at top, and 4 at bottom, contained …out 1¼ cubic yards per perch, and the cost of earth-…rk here thus amounted to 3*d.* per yard; but this was …y dear. On land in this neighbourhood (which is …deep loamy soil, lying on a clay subsoil), during the …st year, the drainage has been contracted for at 4½*d.* …r perch for the mains (3 ft. 6 ins. deep, and 6 ins. …ide at bottom, to hold a double row of drain tiles, and …6 at top); and 3½*d.* per perch for the parallel drains …0 ft. deep, 2 ins. wide at bottom to hold a pipe, and …4 ins. wide at top). Calculation shows that the exca-…ation here has cost, in one case, 2½*d.*, and in the other …*d.* per cubic yard; and these may be considered fair …ices, under such circumstances, where the pickaxe is …t used. For further information on prices Mr. …arkes' table, in a late Number of the "English …gricultural Society's Journal," may be consulted; his …tatements agree with my experience on the subject. I …ust add, that where the pickaxe is required the work …ust be done at day's wages, and the expense is, of …ourse, much beyond what I have named. The ex-…ense of setting the tiles and filling in the earth may be …bout ½*d.* per perch for small drains, and ¾*d.* per perch …or the mains. Only one further remark remains, and …hat is, that to all these expenses, where the works are …xtensive, there must be added the cost of superintend-…ance by an experienced man—an outlay than which …nothing can be more truly economical.

2. *Grubbing up Hedge-rows and Stumps of Trees.*—This subject requires but a single paragraph. It is impossible to name prices, the work being so various. The wood cut down and grubbed up being the property of the workmen, to grub up a hedge will cost from 6*d.* to 2*s.* 6*d.* a perch: and tree roots may in general be grubbed for 1*s.* a tree, large and small being taken together. No work requires closer superintendence than this. It is better policy to give such a price as the men may earn full wages at, and yet do their work well, than to find, in ploughing, that the work has been but half done. When there is a ditch alongside of the hedge, a drain should be dug in it, and a tile placed before levelling, and care should be taken in the operation to keep the rich vegetable mould of the hedge and ditch on the surface.

3. *Paring and Burning.*—This will cost, according to the toughness of the sward and the depth to be cut, from 8*s.* to 12*s.* per acre to pare; from 12*s.* to 14*s.* per acre to burn; and from 2*s.* to 3*s.* for spreading the ashes; and the whole cost will amount to from 20*s.* to 30*s.* per acre. The first item may be diminished by the employment of a paring plough; the second depends, for its expense to the men undertaking it, greatly on the weather, and this risk makes the cost excessive; it is well when the third item proves heavier than usual, both as evidencing the bulk of the ashes, and the size of the heaps. It is well to burn *slowly* in *large* heaps—the first, because black ashes are thereby obtained; and the second, as wet weather is thus less likely to quench the fires. I have had no experience of the expense of burning clay lands, and therefore I take the liberty of extracting the following statement of Mr Randall's, in a late volume of the English Agricultural Society's Journal:—"Three tons of raked slack, which costs at the pit 3*s.* per ton, will burn in the summer in heaps of about a cart-load each more than 100 yards per acre." "But there is another mode of procuring ashes: it is by burning large fires of 50 to 200 yards with coal, and carting and wheeling the ashes upon the land. I have done a good deal in this way, and the cost, not including horse labour, which of course varies with the distance to which the ashes have to be drawn, is as follows:—

100 yards per acre, labour to burning at 6*d.*	£2	10	0
2 tons of coal, at 9*s.*	0	18	0
Wheeling and spreading a distance of 50 yards from the heaps, and filling and spreading the remainder at 1½*d.*	0	12	6
	£4	0	6

4. *Quarry Work* is paid for by the cubic yard, 5*d.* to 6*d.* for common building stones, 4*d.* for the refuse smaller ones for roads, and 1*s.* for flag stones. I speak only of those rocks with which I am acquainted; of course the cost depends on the nature of the rock. The breaking of stones for drains or roads is done per yard measured before breaking, at various prices, dependent on the brittleness of the stone. The mountain limestone—Wenlock (Silurian) limestone and trap rock, with which I am best acquainted, cost in this neighbourhood, 5*d.*, 7*d.*, and 10*d.* respectively, to break, so as that there shall not be a stone in the heap which the boy shall not be able to put in his mouth—practically a very good test to go by.

5 and 6.—*Builders' and Carpenters' Work.*—Remarks on these have hardly any right to a place in an agricultural essay, but for completeness sake I may just mention the following as the prices at which our buildings have been erected. Building per perch, *i. e.* walling (stone and lime) 2 feet thick at bottom, and 1 foot 6 ins. at top (averaging therefore 1 foot 9 ins. throughout), 16½ feet long, and 1 foot high, costs 1*s.* 6*d.*, and requires about one measured yard of stones, and various quantities of lime, according to circumstances. Building, what is here-abouts called a "bacon" wall, which consists of alternate layers, each 1 foot high of dry stone, and stone and lime, will cost 10*d.* per perch. In measuring mason-work the space occupied by doors and windows is measured in; and in measuring a wall, the tape is taken round the coign, the trouble in the one case of fashioning the corner, and in the other of arching over the openings, being taken as equivalent to the extra amount thus measured in. In measuring circular work, as tank walls, the tape is taken once and a half round; and in measuring small arches and bridges, their actual surface is doubled in calculating the payment due, and the end walls are measured without deduction for the open arches. Paving may be laid at 1*d.* per foot; mortar floors from 6*d.* to 7*d.* per square yard; plinths for door-post will cost from 1*s.* to 2*s.* to fashion out, according to the nature of the stone.

The following are the prices paid for carpenters' work in the erection of our buildings:—Roofing—beams and couples being 5 feet apart, and rafters at 1 foot intervals—8*s.* 6*d.* per square, containing 100 square feet. Windows—mere quadrangular oaken frames to hold an iron window frame, about 3 feet 6 inches by 2 feet—3*s.* each. Doors, and divisions between stalls, and all similar work (Elm), 3½*d.* per square foot. Oak pillars planed and fashioned, 5 feet high, 1*s.* 3*d.* each. The tiler's bill was 3*s.* per square, containing 100 square feet, for laying the pan-tiles, and ½*d.* per square yard for white-washing.

7. *Road-making.*—This will cost, according to the width and depth of the road, and the distance and nature of the stone employed as road material, from 12*s.* to 25*s.* per perch. Thus,—

A road 4 yards wide, and laid 9 inches thick, will cost to move the earth, and fashion out the bed of it .. .. per lineal perch	£0	1	6
It will require about 8 cubic yards of stone, to be quarried	0	4	0
And to be broken	0	5	0
And hauled - say half a mile	0	3	0
And to be levelled and spread, &c. &c., say ..	0	1	6
Thus costing in all per perch	£1	0	0

—*M. S.*

Home Correspondence.

The application of Bones dissolved in Sulphuric Acid as a manure for Turnips being now so general, perhaps the following hint may be acceptable to your readers, as it is the opinion of several practical farmers who tried the experiment last year, and are about to repeat it. Take a large but shallow tub, about 18 inches deep (regulating the size according to the quantity required), spread the bones at the bottom of the tub, and add sufficient water barely to cover them, then pour in the acid, stirring the whole mass with a strong fork; an immediate fermentation takes place, and the bones will be sufficiently dissolved for use in 48 hours, or even less. The best way to prepare the compost for the drill, is to mix half the quantity of peat or wood ashes—according to quantity of bones used, passing it, if necessary, through a coarse sieve—and afterwards adding as much dry mould as the drill requires. This plan is, we think, better than dissolving the bones in a heap of dry mould (as recommended by Mr. Pusey) because, without great care, the acid, when poured on to the bones, is apt to escape into the mould, therefore we prefer adding the water first; a tub is better than an iron vessel, the sulphuric acid having a great affinity for metal will soon destroy it, but it has no effect upon wood. The proper proportion per acre is 4 bushels of bone dust, with 40 pints of sulphuric acid, which weigh about 70 lbs. if bought in small quantities; 3*d.* a pint is the price of the acid in the country.—*A Constant Subscriber, Aylsham, Norfolk.*

Sulphuric Acid and Bones.—In your Paper of the 30th ult., you have much to say about "dissolving bones in sulphuric acid," an expression not consistent with modern chemical phraseology, and leading many to erroneous conclusions. To make the matter clear, there are three elements employed: bone composed of phosphoric acid (1), and lime (2), and sulphuric acid (3). In bone No. 1 and 2 are combined, and when No. 3 is added it seizes on No. 2, setting No. 1 (that is phosphoric acid) at liberty. The compound of No. 2 and 3 is gypsum, or sulphate of lime, or substances of but little fertilizing power, so that whatever merit the practice may have must be credited to phosphoric acid; and the bones are not dissolved at all. That this liquid may be more prompt in effect than bone-powder cannot be doubted, but it might yet be a question whether ground bones will not in the long run be found best for the farmer where he can grind them himself, to insure their genuineness, and every farmer will do so when he knows as much of grinding as the writer. And there are other matters of fertilising quality in bone besides phosphate of lime, which will be preserved by using the bone in fine powder.—*Chemicus.* [The term "bones dissolved" may not be correct; the proper term is "bones rendered soluble." We imagine that the phosphoric acid is not "set at liberty"; it is made to give up a portion only of the lime it was in union with, and with the rest it forms a superphosphate; which is of greater fertilising influence than the common phosphate. 1st, because it contains more phosphorus; and 2nd, and chiefly, because of the accident, so to speak, of its solubility in water, which gives it access to the plant].

Seed Potatoes on Dartmoor and other Peaty Highlands.—The doubt and anxiety felt by farmers this season about their seed Potatoes will dispose many to set a proper value, in future, on seed which may be depended on. And it is not only deduced from theory, and from the rot last year, worst on the richest ground, but known from the experience of a hundred years that Potatoes grown on high and peaty lands, without dung, make the healthiest and most productive seed. The diseases of this valuable root have gone on increasing in tendency to decay, until last year made the alarm general, and much anxiety is felt for the present crop, rising from last year's seed. However this may turn out, it is not the less important to free our future seed from this putrid tendency. This is to be done by using preservative instead of putrefactive manures, antiseptic soils, and cool climates, to give hardiness. Soot, charcoals, and ashes are the most antiseptic of manures, peat the most antiseptic of soils, and it may be found dry enough in abundance on the cool high lands, as Dartmoor, &c., or if not dry enough, which is of importance, is easily drained on those steep elevations. It is, therefore, very desirable that farmers on the moorlands should cultivate Potatoes largely expressly for seed, without dung or any other animal manure, but with as much soot and ashes as they choose. The ground may be prepared with lime, or lime and salt, soot, &c., say 20 bushels per acre, with three times as much peat, charcoal, or ashes spread in the drills with the sets; and they may be top dressed when 5 or 6 inches high, with 1 cwt. each of sulphate and nitrate of soda, but not earthed up. As unripe seed has been found to produce the healthiest plants, it may not be too late to set for seed in June even in those highlands, and the plants will run the less risk from early frost. And as the produce of 1 acre will set from 10 to 20 acres, a large proportion of the lowlands might thus be supplied yearly with sound and hardy seed, allowing the whole of their own produce to go to market. I am sorry to add, that of two plots of Early Pink-eyes I have examined this morning, one was curled throughout, the other a full fourth, though neither at all blackened. Adjoining plots of Gilliflowers in fine order, and Yorkshire Snowballs equally vigorous, but the two latter have not reached the critical period of growth, as they are much later than the Pink-eyes. They are all in rich market garden ground.—Is there any more recent or complete account of the system of market gardening round London than that in Middleton's "Agricultural Survey" in 1813?—*J. P.*

Experimental Growth of Swedish Turnips (Eccles), drilled May 20, 1845, on ridges 27 inches apart, in portions of the same field of 1 statute acre each. The crop was sold and delivered in the neighbourhood, cleared of tops and tails, at an average price of 21*s.* per ton, from Nov. 19, 1845, to March 4, 1846. Seed drilled, 4 lbs. per acre. 2 cwt. of salt per acre was sown on the land previous to the manure, except where vitriol was used.

No. 1.

Farm-yard manure, 10 loads, at 6*s.*	£3	0	0
Bone-dust .. 2 bush., at 3*s.*	0	6	0
Vitriol .. .. 42 lbs., at 1*d.*	0	3	6
Soda-ash .. .. 20 bush., at 4*d.*	0	6	8
	£3	16	2

Tons	Cwt.	Produce.	
24	4	Swedes, cleared of tops and tails.	
1	10	" " " small	given to cattle when taken up.
7	0	Tops	
32	14		

In mixing, the bones were first saturated with as much water as they would absorb; then the vitriol was added, and remained three or four days; the soda-ash was then well mixed, and in a few days the compost was ready for the drill. This is a better method than No. 4, with a large quantity of water.

No. 2.—

Farm-yard manure, 15 loads, at 6*s.*	£4	10	0
Rape-dust 5 cwt., at 6*s.*	1	10	0
Soda ash 16 bush., at 4*d.*	0	5	4
	£6	5	4

Tons	Cwt.	Produce.	
22	10	Swedes, cleared of tops and tails.	
1	10	" " " small	given to cattle.
7	0	Tops	
31	0		

No. 3.—

Farm-yard manure, 15 loads, at 6*s.*	£4	10	0
Pigeon manure 28 bush., at 6*d.*	0	14	0
Soda ash 16 bush., at 4*d.*	0	5	4
	£5	9	4

Tons	Cwt.	Produce.	
21	6	Swedes, cleared of tops and tails.	
1	10	" " " small	given to cattle.
7	0	Tops	
29	16		

No. 4.

Farm-yard manure, 15 loads, at 6*s.*	£4	10	0
Bone-dust .. 2 bush., at 3*s.*	0	6	0
Vitriol .. .. 42 lbs., at 1*d.*	0	3	6
	£4	19	6

The bones were first saturated with 12 gallons of water, then mixed with the vitriol, stood three days; I then added 212 gallons of tank water, being the drainage from stables. The land was ridged over the farm-yard manure, the liquid mixture poured on the top, after which the seed was drilled.

Tons	Cwt.	Produce	
18	10	Swedes, cleared of tops and tails.	
2	0	" " small	given to cattle.
5	0	Tops	
25	10		

No. 5.—

Farm-yard manure, 15 loads, at 6*s.*	£4	10	0
Bone-dust .. 12 bush., at 3*s.*	1	16	0
Soda-Ash .. 16 bush., at 4*d.*	0	5	4
	£6	11	4

This management I have been accustomed to give for a long time.

Tons	Cwt.	Produce.	
18	14	Swedes, cleared of tops and tails.	
1	10	" " small	given to cattle.
6	0	Tops	
26	4		

No. 1 had five loads farm-yard manure less than the other lots, in consequence of a more recent fallow on that part having left the land in better condition, and it was judged this would equalise them. No. 1 appeared first above ground and kept the lead throughout; it was ready to hoe several days before any other, and the bulbs increased more in proportion to the tops. No. 4 was the next, but was beat by all, the first week in July. Nos. 2 and 5 were equal until the last three weeks in July, when the latter had the advantage. After July no notes were taken. The land is a stiff dry loam, 12 to 18 inches deep upon limestone rock. The farmyard manure was first put into drills, and covered by splitting the ridges; the other dry manuring was

then drilled over the manure, slightly covered, and the seed followed. Soon as weeds appeared, hoeing between the ridges was commenced with Kirkwood's Grubber 8 to 9 inches deep, which destroyed them, and subsoiled the land; the drills to receive the farm-yard manure were grubbed in the same way. I am so satisfied with No. 1 that I have adopted the same management for the bulk of my crop sown on the 14th inst., and now looking favourably.—*E. S., Notts.*

On Collecting the Water from the Tile-drainage of Fields, and conveying it to Reservoirs or old Wells, for the use of the Inhabitants of Villages.—In many villages in the country there is great want of water, and in others where it is abundant it is not always of good quality. I know of two villages not far from hence, which although situated in a healthy and pleasant part of the country, are said by medical men to be unhealthy; and this they attribute to the bad quality of the water. It has occurred to me that it would be a very practicable and easy matter, to supply most villages with an abundance of good water, by means of the tile drainage of about 10 acres of land in their immediate vicinity, and by some such plan as the following:—Suppose that, instead of the drainage of a field being allowed to run to waste, it was collected into a receiving drain or pipe, and conveyed to the village well, if there is one, or to one or more reservoirs prepared to receive it; these reservoirs should be circular ones, say 10 feet diameter, and 20 feet deep, furnished with two lift pumps attached to one suction pipe, one pump to be of the usual height and the other as much higher, as to enable any neighbouring farmer to fill his watering cart; but there is no reason why a farmer should not be supplied from the drainage of his own fields. I have mentioned 20 ft. as the depth of the reservoir, because if within that depth, a common lift pump will be the most simple and convenient method of raising the water. It might in some cases be desirable to have a long tank (15 ft. long, 3 ft. wide, and 6 ft. deep) placed betwixt the reservoir and the end of the receiving or main drain, for the purpose of intercepting any alluvial deposit brought down with the water after continued and heavy falls of rain. In the "Farmers' Almanack" for 1846, page 7, there are some calculations by Mr. Parkes, in which he takes the mean quantity of water filtered through the earth during the six summer months, at 91 tons per acre; therefore, if the drainage of 5 acres was collected in a reservoir, there will be 4000 imperial gallons per week available for the purpose of supplying the wants of the inhabitants. Now, supposing there are 100 families in a village, it will supply to each 40 gallons per week. The reservoir described above, will contain 10,000 gallons of water; and if all circumstances are taken into consideration, it will in all probability supply one month's consumption; another such reservoir would double the supply, if the village was a long one, the two reservoirs might be so placed as to afford the inhabitants greater facilities in procuring their daily supply of water. Before such a plan as I have here described was carried into effect, it would be necessary to analyze the water issuing from the drains, in order to ascertain its purity and fitness for domestic purposes. I think it may be presumed, that in many descriptions of soil, the rain-water which has percolated through the earth may be sufficiently pure for domestic purposes; this, however, is a question of too much importance upon which to offer any speculative opinions; the fitness or unfitness of the drainage-water of any particular locality, when taken from the fields for domestic purposes, can always be ascertained by chemical analysis. I believe the subject of supplying the inhabitants of villages with good water to be a matter of much greater importance than most persons are aware of, and that it deserves the serious attention of all who have it in their power to benefit the inhabitants of villages, by aiding them in procuring sufficient supplies of an element so essentially necessary to their health and comfort.—*Henry Liddell, Beverly-road, Hull.* P. S. If drainage-water should be found nearly free from mineral substances, would it not be worth the consideration of Railway Companies to ascertain how far such a plan of collecting it at the stations where their locomotive engines are supplied with water be practicable for this purpose?

Maize.—As all the world who know anything about the cultivation of Maize, or of the modes of preparing it for food, are giving to their neighbours or the public what information they possess, perhaps it may interest some to hear of a way in which it is used by the Canary Islanders, and which is not (I believe) similar to that of other people. They roast the grain as they would roast coffee; it is done on a flat earthern pan. It is then ground in a rude hand-mill—one, in fact, just similar to the old Scotch and Irish *quern*. They mix the meal thus made into a stiff paste with water, and make it into balls or cakes, and eat it without further cooking, and sometimes eat the meal dry. This food is much relished by the Islanders. They learned it from the Guanches, who were the original inhabitants of the Islands, whom the Spaniards expelled, and finally extirpated on their taking possession of these very beautiful islands in the 16th century. This food is still called by the name the poor Guanches gave it, "guffio." A Spanish islandor will, on setting off on a journey across the mountains, provide himself with a bag of this "guffio" for his sole provision, and thinks he can travel further with this for sustenance than with any other kind of food. If, as is said, the Indian Corn, when ground into meal, will not keep long, this process of roasting, which could be done on a large scale in a malt kiln, may prove a useful suggestion. Can you give us any information about the smaller kind of Maize, which Cobbett's son says he has successfully introduced into this country, and which he says is so much to be preferred, both for its yield and for its certainty of ripening, to that which his father cultivated? Can you tell us if it would be advisable to try it as a crop where land is wet and the climate mild but damp, as is our case in the west of Ireland? Can you vouch for its success as a farm crop in any district in England?—*F. H. L. C.* [It will *not* answer as a farm crop in this country. Can any one give the information asked for about Cobbett's variety of this corn?]

Farm.—I have a large quantity of Grass land circumstanced as follows. It is low clay land, encircled by higher land, which brings upon it occasional land shoots which fill the ditches and the slight hollows of the fields; a river also occasionally flows over it, and covers the fields entirely to the depth of 10 feet, and remains much longer than its subsidence within its banks, as it can only return by a narrow winding ditch three miles long, over which I have no control. In very dry summers, again, not a drop of water is to be met with, and the ground is as hard as a bed of granite. The consequence is, as you may suppose, that the land is very uncertain as to its crops of Grass; indeed, under my present management (and there are others who have land adjoining similarly situate, and who manage it in the same way, that is, do not manage it at all), the crop appears to be entirely dependant on the season. A dripping warm May produces a large crop, particularly in the slight hollows, but in a dry May, there is literally nothing excepting these. The land is situate three miles from my very small homestead, and the roads to it are all but impassable excepting in the height of summer, so that to attempt any heavy dressing would be impracticable if I had it. My predecessor grazed half (by taking cattle in), and mowed half. I have let for grazing and mowed half, but the uncertainty of making a decent return either by taking cattle in or by letting is so great, that I should be very glad if you could put me into a way of mowing every year (the after Grass grazed off) at little expense, and without injury to the land, and with the prospect of having fewer failures in quantity. My tenure is not good, and I should be loath to go to any great expense. The only plan that has occurred to me is to remove the stuff (and there is no slight accumulation from the land shoots) out of the ditches and ponds, and to turn over the tumps, and when well pulverised to cast it over the slight elevations, having previously scored the turf with a scarifier 4 inches deep that the dressing may have a chance of finding its way into the fissures before a flood carries it off again, putting it on soon after the crop of hay is off. The idea about here is that the taking crops of hay makes no difference to this land, for that it is dependent on the season, and nothing else: but this I can hardly believe to the full extent. They think also that it receives no benefit from the stuff out of the ditches. I have 15 miles to go for lime, and after having read Karkeek and Professor Johnson, I scarcely know whether there would be any advantage in mixing it with the earth tumps, and unless the advantage was great and immediate, it would not answer to me, as there is said to be much lime in all soils; and as the accumulation in the ditches proceeds from the washings from the higher grounds, bringing with it lime and other earthy particles, and that the slight hollows, owing I suppose to abundance of this, do produce good crops, one would suppose that the stuff from the ditches, if laid on the slight elevation without any addition of lime, would have the desired effect.—*R. S.* [The land must be annually manured if it is to be annually mown; and as you cannot use heavy dung, you must mix some guano, or other concentrated fertiliser, with the scourings of your ditches.]

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A MONTHLY COUNCIL was held at the Society's House in Hanover Square, on Wednesday last, the 3d of June: present, The Right Hon. Lord PORTMAN, President, in the Chair. Duke of Richmond; Earl of Ilchester; Earl of Egmont; Earl Spencer; Sir Matthew White Ridley, Bart.; Sir Charles W. Taylor, Bart.; Sir Charles M. Burrell, Bart. M.P.; Sir Charles Lemon, Bart. M.P.; Colonel Austen, M.P.; Thomas Raymond Barker, Esq.; John Bennett, Esq. M.P.; S. Bennett, Esq.; Colonel Blagrove; H. Blanchard, Esq.; Colonel Challoner; F. C. Cherry, Esq.; S. Druce, Esq.; H. Gibbs, Esq.; S. Grantham, Esq.; C. Hillyard, Esq.; W. Fisher Hobbs, Esq.; John Kinder, Esq.; E. A. Sanford, Esq.; W. Shaw, Esq.; R. A. Slaney, Esq.; Rev. J. R. Smythies, C. Stokes, Esq.; F. West, Esq.; and George Wilbraham, Esq.

The following new members were elected:—

Thorp, Ven. Archdeacon Charles, D.D., Ryton, Newcastle-on-Tyne
Jolly, John, Acomb Grange, York
Brandling, R. H., Gosforth Hall, Newcastle-on-Tyne
James, Herbert George, 44 Fish-street-hill, London
Barker, James, North Shields, Northumberland
Back, John Alfred, Hethersett Hall, Norwich
D'Augny, Octave Perin, Kippentroff, Grand Duchy of Luxemburgh
Brown, John Thomas, Norwich
Cresswell, W. G. Baker (11th Hussars), Cresswell, Morpeth
Garrard, Robert, Athelington Hall, Worlington, Woodbridge
Angus, G., Riding Mill Station, Newcastle & Carlisle Railway
Milne, E. W., Pit Farm, Cartmell, Milnthorpe
Hughes, George Hughes, Middleton Hall, Wooler
Honywood, W. P., Marks Hall, Kelvedon, Essex
Buston, Roger, Buston, Alnwick
Phillips, Thomas, Helmsley, York
Dand, Robert, Field House, Alnwick, Northumberland
Brown, John, Eldon-place, Newcastle-on-Tyne
Elliot, Rev. T. Elphinstone, Whalton Rectory, Morpeth
Bailey, William, Hazling, Belford, Northumberland
Atkinson, Ralph, South Gosforth, Newcastle-on-Tyne
Johnson, Edward, The Deanery, Chester-le-street, Durham
Hodgson, James, Elden-street, Newcastle-on-Tyne
Armstrong, Charles, Axwell-park, Gateshead, Durham
Robson, Rev. James, Ponteland, Newcastle-on-Tyne
Green, Thomas, Trench Hall, Gateshead
Armstrong, George, Heddon-on-the-Wall, Newcastle-on-Tyne
Gray, Edward, Leazes, Burnop-field, Gateshead
Humble, Joseph Wright, Jesmond, Newcastle-on-Tyne
Wright, James, Blyth, Morpeth, Northumberland
Fenwick, John, Newcastle-on-Tyne
Wilkinson, John Etridge, Dunston Lodge, Gateshead
Bent, John, Liverpool
Lopwith, Thomas, Allanheads, Hexham, Northumberland
Smyth, William, Little Houghton, Northampton
Lishman, W., Fenwick-Shield, Stamfordham, Northumb.
Smyth, Rev. Christopher, Little Houghton, Northampton
Davy, John Barton, Rose Ash, Southmolton, Devon
Ralph, Rowland Westby, Halifax, Yorks.
Whitworth, W., Earl's-Barton, Wellingborough, Northampton

The names of 50 candidates for election at the next meeting were then read.

FINANCES.—COLONEL AUSTEN, M.P., Chairman of the Finance Committee, presented the Report of the accounts for the month just ended; from which it appeared that on the 31st May last the funded property of the Society stood at 7000*l.* stock, with a current cash-balance of 1781*l.* in the hands of the bankers. This Report having been adopted, the recommendation it contained—"That no compositions for life be made applicable to the current expences of the Society," was specially moved by the Duke of Richmond, and confirmed by the Council.—Col. Austen then called the attention of the Council to the statement of the Auditors on the part of the Society, in reference to the necessity of taking decisive measures for the recovery of the large amount of arrears of subscription still remaining unpaid; when the Council ordered that the Finance Committee should be requested to hold a Special Meeting for a full inquiry into the case of such arrears, and to make a special report on the subject to the Council at their next monthly meeting in July.

POTATO DISEASE.—The President reported that 56 Essays had been received in competition for the Duke of Northumberland's Prizes, placed at the disposal of the Society.

COUNTRY MEETING.—The Council gave instructions on the selection of the land for the trial of implements, the supply of the pavilion dinner, and the preparation of the programme for the ensuing Country Meeting at Newcastle in July. They ordered thanks to be returned to the Natural History Society of Northumberland, for their liberality in throwing open their Museum day and night for the inspection of the Members of the Society; on the recommendation of the Finance Committee, appointed the Northumberland and Durham District Banking Company to be the local Bankers of the Society for the period of the Newcastle Meeting; and adopted, with emendations, the Report of the Judges' Mileage Committee. The Council then instructed the Secretary to communicate to the various authorities of the cities and chief towns situate within the districts recently decided upon for the holding of the Country Meeting for the ensuing four years, the decisions of the Council on that subject: and appointed the following general Northampton Committee for 1847, namely:—Lord Portman, Chairman; Earl Spencer, Vice-Chairman; Duke of Richmond, Colonel Challoner, Mr. Raymond Barker, Mr. Shaw, Mr. Shelley, Mr. Miles, M.P., Mr. S. Bennett, Mr. Fisher Hobbs, Lord Southampton, Mr. Hillyard, Mr. Druce, Mr. H. Gibbs, Mr. B. Gibbs, Mr. Pym, and Mr. H. B. Whitworth; appointing, at the same time, a Special Committee for selecting from the ample choice liberally submitted to the Council by the authorities of Northampton, the land for the trial of implements next year, consisting of Mr. Shelley, Mr. Miles, M.P., Mr. S. Bennett, and Mr. Brandreth Gibbs, with a request that they will make a Report of their inspection and recommendations to the Council at their Monthly Meeting on the 1st of July.

MISCELLANEOUS COMMUNICATIONS.—Mr. Hincks, of Hastings, on Pedigrees of Cattle; Mr. Wilson, on the preliminary Prize Sheet for the Country Meeting; Major Curteis, M.P., offering a Prize of 10*l.* for the best Essay on the means of preventing or destroying the Hop Fly; Messrs. Thompson and Wedlake and Mr. Blamire, on entries for Implements at Newcastle; Mr. Kerr, on plans of Drains; Mr. Smart, on trial of Implements, and Essay for construction of the Plough; the *Gateshead Observer*, on official papers connected with the Newcastle Meeting; Mr. Clarke, on localities near the coast, in England, favourable for the cultivation of Tussac Grass, and on personal connections in the Falkland Islands through whom it would be in his power to carry out any of the views of the Council respecting the collection of the Seed of that plant; Dr. Hooker, on the cultivation of Tussac Grass, and on the nature of the Weed occuring in Mr. Fullar's Wheat Land; Colonel Moody, C.E., on sources of information connected with the history of the cultivation of Tussac Grass; Mr. Ormsby Gore, M.P., on Tussac Grass seed received by him from the Governor of the Falklands; Mr. Crakanthorpe, on crushing Mangold Wurzel Seeds; Mr. Hills, on dissolving Bones; and Mr. Hazlewood, on the system of Agricultural Training adopted at Hoddesden. The Council then adjourned to their weekly meeting on Wednesday next, the 10th of June.

Farmers' Clubs.

NEWCASTLE: *Thin Sowing. The Mole Plough.*—*May* 2.—C. H. RAMSAY, Esq., the Chairman, stated that since the last meeting at which he was present, he had visited the farm of Mr. Davies, of Spring Park, near Croydon, in Surrey, the author of a pamphlet on "thin sowing," now making some noise in the agricul-

tural world; and, with permission of the Club, he would make a short report of what he had seen and heard. The soil was gravel with clay. There was nothing like it in this part of the country. It was neither what a northern farmer would call loam nor clay. In the south it was called Loudon clay. Mr. Davies's course of cropping was nearly as follows:—*First Year*: Beans, drilled at 28 inches. They were hoed by horse and hand till quite clean, and Turnips were drilled between the rows in June. The Turnips were generally good—seldom troubled with the fly or other insects. The Beans were reaped when ripe, and the Turnips consumed on the land by sheep. *Second*: Wheat, drilled at 12 inches apart. Hand-hoed in the spring. *Third*: After the Wheat was cut the land was ploughed, and sown with Tares and Rye for spring-feeding with sheep, and followed by Swedes or Mangold Wurzel. *Fourth*: Oats or Barley, drilled and hoed. *Fifth*: Red Clover, mown twice. 10 lbs. of Red Clover was sown to the acre. He never saw anything finer than the Clover. There were no misses. From one end to the other it was like a carpet. The cost of sowing Beans or Peas was 2*s*. 6*d*. per acre; and of sowing Wheat and other grain 4*s*. to 5*s*. per acre. The second course was sometimes Peas instead of Beans. If so, no Turnips were sown. The quantity of seed per acre was the following: Wheat, 3 pecks (expressions of surprise); Barley, 6 pecks; Oats, Beans, and Peas, each 7 pecks. This was less than one-half the seed generally sown in Durham and Northumberland. Mr. Davies's farm was well drained, at 32 feet apart, 4 feet deep, and laid with 1½-inch pipes. All the land was flat. Wages of the men, 2*s*. per day. The farm was very clean. The Beans were about 6 inches high at the date of his visit (March 31). Produce of Wheat, from 4 to 5 quarters per acre. Barley, good crops; also Oats. The Swedes were half eat on and half drawn off. Crop, 18 to 20 tons per acre. Land only of middling quality. All the growing crops looked well—particularly the Red Clover. Tares very forward. Some excellent Barley, sown in January. Not an acre of bare fallow. The hedges were well kept: the fold and stack yards neat. Rent, about 20*s*. per acre. The neighbouring hills were growing ling. He (Mr. R.) saw Wheat and Barley sheaves of the last crop, very excellent in quality. There was an abundance of plants on all the land. He attributed the goodly appearance of the farm to the drilling, hoeing, and eating-on by sheep. The quantity of manure used by Mr. Davies was, he believed, less than ordinary. The course gave seven crops in five years—which was partly attributable to clear land and a good climate. If this system could be generally or even partially adopted, much seed corn would be saved. The Southdown sheep on the farm were good; but he could not say so much for the cattle or horses. The waggons and carts looked clumsy in the eye of a north countryman. In this respect there was great need of improvement.—Mr. J. E. Wilkinson, of Dunston, now rose to bring before the members the subject of which he had given notice, viz., "*The Mole Plough*," an implement more especially adapted for the occupiers of poor, retentive lands, with a clay subsoil. Many farmers of this description would willingly adopt a system of drainage, but were afraid of the (to them) enormous and ruinous expense. It was on this account that he came forward to point out a more economical mode than cutting deep tile-drains—which, where it could be carried out, was undoubtedly the best. The mole-plough was a very primitive implement, exceedingly simple, and easily managed. It was in use on the Earl of Lonsdale's estates half-a-century ago. It consisted of a beam of wood, with a strong shackle at one end, a pair of ordinary plough-stilts at the other, and a strong iron coulter through the middle. At the lower extremity of the coulter, fixed transversely, there was a short piece of iron, 8 inches long, about 3 inches in diameter at one end, and tapering to a point at the other. This was called the mole, because it made a hole something like that animal's track underground. The plough was drawn by a moveable winch or windlass, worked by one or two horses. Across the winch was firmly fixed a 12-feet start, which wound a chain round a cylinder or shaft a foot in diameter, the horse or horses moving round and round, as in a thrashing-machine. The winch is fixed at one end of a field: the plough, attached by a chain, is placed at the other—the coulter and mole being buried in the earth, and the beam resting on the surface. When the horse or horses are set in motion, the chain is gradually rolled round the cylinder, and the plough is drawn towards the winch, making a drain in the soil as it travels along. In this way two men and a boy would drain 2 acres a day, 12 feet apart, and 22 inches deep, at a cost of from 10*s*. to 15*s*. per acre, including cutting and tiles for the main drains; which was much cheaper than any of the other modes, and, in a clay subsoil, was very efficacious. Mr. Bates, of Kirkleavington, a gentleman well-known in the agricultural world, had favoured him with a letter on the subject, in which he stated that he had drained 850 out of 1000 acres with the mole-plough. The soil was chiefly a sound clay or strong loam, free from sand and stone; and on such lands the mole-plough answered well—particularly on the Grass-land. Where Rushes grew up half the ridge, none were now to be seen. He drained from 14 to 22 inches deep, according as there was a fall to take off the water. If water backed upon the land after mole-ploughing, the drains fell in, and were useless. It was 20 years since Mr. Bates began to use the mole-plough, and the fields first done were as dry as any of those that had been done recently. The land was converted from a strong clay into a fine loamy soil to the depth of the drains (18 to 20 inches). The advantage had been very great, both on the tillage and Grass-land. He could keep his sheep sound in the wettest years—which he could not do before.—Such was Mr. Bates's report on the mole-plough. On the 6th of April, he (Mr. Wilkinson) visited Kirkleavington, and had much pleasure in going over the estate of Mr. Bates, and examining all the drains. It was a wet day, and they were all acting efficiently—the water running full from a 7-inch tile from the main drains. The tillage land did not show so much improvement as the Grass, but the mole-plough had enabled Mr. Bates to grow good Turnips in tolerable seasons.—He (Mr. W.) would be inclined to dispense with the windlass. He would take a plough constructed to turn a furrow 10 or 12 inches deep and 8 or 9 broad. This he would do in every furrow of his Grass-land; and as a man could water-furrow 20 acres of 10-feet ridges in a day, it might reasonably be inferred that the plough, with six horses, would do 20 acres of 12-feet ridges. This would cost 30*s*., or 1*s*. 6*d*. per acre. If the ridges were broader, the expense would necessarily be less. He would then follow with the mole-plough and the same team (consequently at the same expense), 10 inches deep, making together 20 or 22 inches. He would replace the furrow at 2*s*. 6*d*. per acre. 2*s*. 6*d*. more, for cutting mains and for tiles, would complete the cost of draining 20 acres of Grass-land in two days—the cost per acre being 8*s*, viz., first plough, 1*s*. 6*d*.; second plough, 1*s*. 6*d*.; replacing furrow, 2*s*. 6*d*.; cutting and tiles, 2*s*. 6*d*. It was hardly necessary to repeat, that the mole-plough was best adapted for Grass upon clay tolerably free from sand and stones; and as it could be applied at a twentieth of the cost of tile-drains, surely it might be adapted by many farmers in preference to no system of drainage at all. In the course of his address, Mr. Wilkinson ventured to suggest whether pipes might not be introduced into the land by an adaptation of the mole-plough—a suggestion which tickled the Club, although some of the members evidently thought the plan was practicable.—Mr. Colbeck stated that he had seen Grass-land in Yorkshire drained very cheaply and effectually by the mole-plough.—Mr. N. Burnett remarked that the mole-plough was an old invention, and had been used with advantage; but Mr. Bates, he understood, in his letter to Mr. Wilkinson, preferred thorough-draining—and why improve an invention that was becoming obsolete?—The Chairman replied, that rude and imperfect processes were in many cases preferable to those that were more refined and perfect. A simple and inexpensive mode of culture might be resorted to with advantage, where a more effectual but more costly plan could not be pursued with profit; and he certainly thought that on stiff soils, free from stones, the mole-plough might be a valuable implement for a poor farmer; but he thought the introduction of wheels would be an improvement. The Chairman amused the Club by describing an original mode of draining land adopted by a friend of his, whose landlord (a nobleman) would do nothing for his tenants (save accepting their rents); and when votes of thanks had been passed to Mr. Wilkinson and Mr. Ramsay, the meeting broke up.—*Gateshead Observer.*

Farm Memoranda.

Birchwood Park Farm.—This estate is in the parish of Leigh, about six miles beyond Ingestre, not far distant from Fradswell Heath; and before Lord Talbot commenced his improvements in 1841, corresponded very much in regard to sterility with the adjoining common. The soil is naturally a cold wet clay; but by adopting a complete system of drainage, and by the application of suitable manures, its capabilities have been so greatly improved, that last year 50 acres of Turnips of great size, and which turned out perfectly sound were grown upon it. The land is still too cold and moist to allow of sheep to be fed out of doors upon Turnips; and this circumstance induced Lord Talbot to adopt a system of stall feeding for sheep, which promises to be attended with most satisfactory results. The building which has been erected for the purpose at Birchwood Park is a parallelogram, 60 ft. long by 50 ft. wide. The sheds for the sheep occupy three sides, and the fourth is intended to be used as a store for Turnips. The sheds are 15 ft. in width. On each side are the stalls, which are 2 ft. wide, 3 ft. long, and are separated from each other by a wooden partition, 2½ ft. high. Each stall is supplied with a feeding trough or manger; a light chain, 9 ins. in length, is attached by a ring to a staple about the same length, which allows the chain to move up and down, and to the other end is affixed the strap which is buckled round the neck of the sheep. The stalls are not wide enough to allow the sheep to turn round in them. A tank or gutter, 2 ft. wide and 2 ft. deep, built of brick, grouted with barrow lime, runs down each side of the shed immediately behind the sheep; it is covered with a wooden grating; the spars, which are 2 ins. in width, being only three quarters of an inch apart, and therefore allow the sheep to stand upon them with their hind feet without being entangled. The use of this tank is to receive the droppings from the sheep. A passage down the middle of each shed, 3 ft. 6 ins. wide, paved with stone flags, has a very neat appearance. The sheds are entirely closed on the outer side to the roof; but on the inner side the wall is only breast high, the space to the roof being left open to admit air and light. The roof is formed of a framework of wood, covered with the patent asphalte felt, and has a light and suitable appearance. The building altogether is admirably adapted for [illegible] means of an expensive style. It is [illegible] 150 sheep. The sheep which are at the [illegible] upon sliced Turnips, are served with [illegible] three times a day; and a little saw-dust strewed behind them, and swept with the manure into the tanks, serves to keep the sheds perfectly clean. The tanks are emptied when occasion requires, the wooden grating, in lengths of only about 6 or 7 feet, being easily removed for the purpose. When this operation is in progress the sheep can be removed to the yard or area between the sheds, which is also intended to receive them when it is necessary they should occasionally feel the use of their legs and feet. This system of stall-feeding sheep, it is believed, will answer many valuable purposes; as in the case of Lord Talbot's Birchwood Park Farm, where these useful animals cannot be fed on Turnips out of doors, though the land grows the food in abundance, they can be fattened in these sheds. The economy of food will be great, as none will be wasted, and a smaller quantity will suffice for animals kept in a state of quietude. It is also expected that the sheep will fatten in a much shorter time. They will not be liable to foot-root, a disease so detrimental to sheep, and so common on wet farms. The manure collected in the tanks will be exceedingly valuable. When dropped in the fields its strength is wasted by evaporation; here it will retain its virtues, and form a highly concentrated and pungent manure, equal, in point of utility, it is thought, to the richest guano. Perhaps a point of greater importance than any to which we have adverted is that the mountain sheep, which are found so difficult to feed on account of their rambling propensities, will become quiet feeders, and thrive in an extraordinary manner. Welsh sheep can scarcely be induced to feed upon Turnips out of doors, but at Birchwood Park they may be seen in the stalls, and Cheviots likewise, enjoying their meal of Turnips, and submitting to discipline with as much gravity as our English Southdowns and Leicesters. It is quite surprising to observe how fully reconciled the sheep become to this new mode of life. Timid, as they proverbially are, they do not seem alarmed by the approach of strangers; and when the attendant uses his besom close at their heels they remain undisturbed. After feeding, they lie quietly down, and this state of repose has unquestionably a tendency to encourage their rapid fattening. We had the opportunity, a few days ago, of seeing this new system in operation at Birchwood Park, and have given the result of our observation, for the information of our agricultural friends; and we have no doubt that any of them, desiring more fully to inform themselves on a subject of so much importance, and to witness this novel and interesting sight, will be treated with the same civility and attention which were shown to us on the occasion of our visit.—*Surrey Standard.*

Miscellaneous.

Weeding Flax.—If care has been paid to cleaning the seed and the soil, few weeds will appear; but if there be any, they must be carefully pulled. It is done in Belgium by women and children, who, with coarse cloths round their knees, creep along on all-fours; this injures the young plant less than walking over it (which, if done, should be by persons whose shoes are not filled with nails); they should work, also, facing the wind, so that the plants, laid flat by the pressure, may be blown up again, or thus be assisted to regain their upright position. The tender plant, pressed one way, soon recovers; but, if twisted or flattened by careless weeders, it seldom rises again.—*5th Report, Flax Society.*

Horse and Ox Teams.—About 40 years since, oxen were regularly worked on road and field, but at present they are nearly altogether confined to the farm, and their employment there too is gradually decreasing; for, although the monotonous chant of the plough-boy may still be heard on hill and valley, it is quite as common to see the plough worked by the ploughman and a pair of horses, without a driver. This subject was discussed at the Probus Farmers' Club a short time since, and the resolution come to on that occasion will embody the present practice on the best-managed farms where working-oxen are kept: "That for the general purposes of husbandry, horses were preferable to oxen; but that a few pairs of working-oxen on a farm proved extremely useful during the busy seasons, and when no longer wanted should be fattened." The farming operations in Cornwall are very liable to be interrupted through the changeableness of our climate, both at seed time and harvest, so that unusual efforts are oftentimes necessary, and then the ox proves a valuable auxiliary to the horse. The following calculations were made by the Club, which caused them to arrive at the above resolutions: "In harrowing or rolling, a pair of horses will do 8 acres a day, whilst four oxen will scarcely perform more than 6 acres. In ploughing, a pair of horses will do an acre a day (customary acre *), whilst four oxen will scarcely accomplish more than ⅘ths of an acre. In carting on the farm only, and that on very hilly ones, four good oxen may be fairly considered equal to a pair of horses. A pair of horses will require

* One hundred acres statute are 84 A. 0 R. 4 P. customary. The want of general uniformity in "measures" in Cornwall is so great, that those used in the eastern parts of the county are not known in the western parts. Thus, in some places, corn is measured by the Winchester (8 gallons to the bushel). In the neighbourhood of Liskeard and Launceston the double Winchester (16 gallons) is used for a bushel; and throughout the whole of the western division the treble Winchester (24 gallons) is employed.

a man only to attend them, but four men will require the assistance of a boy during four months in the year." The prices for harness, gear, shoeing, and farriery, are based on the amount paid usually under the different heads. The ordinary keep for a pair of horses is charged at 6s. per week each for the summer months, and 7s per week for the winter months (see Mr. Doble's method of feeding, 81). The usual method of feeding working-oxen is straw and roots in the winter, and Grass in the summer, with an occasional allowance of corn during the busy seasons, either pasturing or soiling. The following are the total expenses incurred in working a pair of horses, valued at 40l at three years old, for nine years, and selling them with a loss at that period, also the expenses incurred in working three teams of oxen successively during the same time, and selling each team with a profit after three years' work :—

HORSES

	£	s	d
Cost prices of a pair of horses	40	0	0
Keep for 26 winter weeks, at 14s per week	109	16	0
Keep for 26 summer weeks, at 12s "	140	8	0
Interest 5 per cent on cost price	18	0	0
Wear and tear of horses	8	0	0
Gear for pair of horses	5	0	0
Wear and tear of gear	4	10	0
Wages of one man, at 1s 8d per day	284	0	0
Shoeing a pair of horses 18s per annum	8	2	2
Farriery for 9 years, at 15s per annum	6	15	0
Insurance of pair of horses for 9 years the average value 39l 16s 8d at 10s per cent, by the Royal Farmers' Insurance Company	7	10	0
	£654	1	0
Deduct sale of horses at 7l each, at the termination of 9 years	14	0	0
	640	1	0
Balance in favour of horses about 16l 6s 8d pr an	147	7	6
	£787	8	6

OXEN.

	£	s	d
Cost price of four oxen	8	0	0
Keep of four oxen for 9 years 18l 1s 8d each	548	0	0
Interest 5 per cent on cost price	16	4	0
Gear for four oxen	1	4	0
Wear and tear of gear, at 4s per annum	1	16	0
Wages of man, at 1s 8d per day	234	0	0
Wages of boy, four months in the year	31	1.	0
Insurance of 12 oxen for 9 years average value 41l 18s 4d including the improvement, at 30s per cent	5	12	6
	£859	8	6
Deduct profit on sale of three teams of oxen at 13l each £39 0 0			
Deduct first cost on one pair 8 0 0			
	72	0	0
	£787	8	6

—*Mr. Karbeck, in Eng. Agri Soc Journal*

Calendar of Operations.

JUNE

Bones and Sulphuric Acid —As this manure will doubtless be very extensively employed this season we give from Mr Hannam's paper in the English Agricultural Society's Journal the following details of the experience which has been recorded on the subject

Mr M Williams's Experiments

Date	Manures and Quantity	Application	Produce per acre	Cost per acre
			Ts cwt lbs	£ s d
1842.	Bones 20 bush Bones 4 bush Sul Acid 110 lbs Water .224 lbs	Drilled . . In 6400 lbs or 640 gall of water in furrow	12 4 3	3 3 0
	Bones ....20 bush Sul Acid 76 lbs Water . 126 lbs	. .	1 0 55	3 12 6

Mr Geddes Experiments

Date	Manures and Quantity	Application	Produce per acre	Cost per acre
			Ts cwt lbs	£ s d
1842	Manure 1 loads Bones 18 bush Bone dust 1 bush Acid 7½ lbs Water 2014 lbs	In 6000 lbs or 600 galls of water	1 1 21	1 1. 6
	Bones 12 bush	Dibbled	11 0 21	0 17 6
			11 0 21	1 18 0

Dr Monson's Experiments

Date 1842	Manures and Quantity per acre	Application	Produce per acre	Cost per Acre
			Ts cwt lbs	£ s d
8 acres manured with ..	Bones . 4 bush Sul Acid 90 lbs Water 384 lbs	with 50 times weight of water,	1 0 4	20s
13 acres with court manure		20 loads per acre	10 17 104	70

The Duke of Richmond's Experiments

Date	Manures and Quantity	Application	Produce per acre	Cost per acre
			Ts cwt lbs	£ s d
1843	Bones .10 bush Bones . . 4 bush Sul. Acid 83 lbs	. . . With 400 gallons of water Acid spread over Bones and sown	11 0 0	1 10 0
			12 4 0	0 11 6
	Bones . 8 bush Sul Acid 81 lbs		11 0 0	1 5 0

Mr Fleming's Experiments.

Date 1843	Manures and Quantity	Application	Produce per acre	Cost per acre
			Ts cwt lbs	£ s d
	Bone dust 10 cwt	.	14 17 28	11 0
	Pitty .. .10 cwt	Dissolved in Mur Acid	..18 11 84	9 0

Mr Fraser's Experiments

The only particulars given in the Report yet publish'd are the following

1843 Bone dust, with 12 loads of Manure, gave a loss of £ 1 9 11½ as compared with the produce obtained from 16 tons of Farm-manure

Do dissolved in Sul. Acid, with 12 loads of Manure, a gain of 0 18 0½

Mr Mew (Mr Hannam's) Experiments show the following Particulars —

Soil very thin limestone, and poor in condition

Date	Manures and Quantity	Application	Produce per acre	Cost per acre
			Ts cwt lb	£ s d
1843	Bone dust 16 bsh.	Drilled with seed	15 8 4	1 13 0
	Bone-dust 8 bsh Sul Acid 168 lbs Water . 604 lbs	Diluted with water equal to 80 times the weight of the acid and applied in the furrow ridges, ploughed up and then seed drilled	17 9 1	1 15 0
	Bone dust 8 bsh Mur Acid 168 lbs Water .. 604 lbs	Diluted and applied as above	17 7 1	1 19 6
	Bone-dust 8 bsh burnt to half original weight Sul Acid 84 lbs Water 202 lbs	Diluted and applied as above	13 7 6	1 6 0
	No Manure	.. .. ..	7 0 6	.. ..

The following simple directions for preparing the manure are extracted in the same essay, from a communication by Mr Lawes originally published in this Paper —

"Calcined bones are to be reduced by grinding to a very fine powder and placed in an iron pan with an equal weight of water (a cast-iron trough such as are sold for holding water for cattle will do) a man with a spade must mix the bone with the water until every portion is wet, while the man is stirring an assistant empties at once into the pan sulphuric acid 60 parts by weight to every 100 parts of bone, the acid is poured in at once, and not in a thin stream as commonly recommended the stirring is continued for about three minutes, and the material is then thrown out With four common farm labourers and two pans, I have mixed 2 tons in one day The larger the heap that is made the more perfect the decomposition as the heap remains intensely hot for a long time It is necessary to spread the superphosphate out to the air for a few days that it may become dry"

Notices to Correspondents.

Rural Chemistry, by Edward Solly The Second Edition revised and enlarged, is now ready price 4s 6d

Books —*Nuthwoods*—"Farming for Ladies" will best answer your purpose

Brewing *H P I* asks for information about brewing beer from Mangold Wurzel In Mrs Dalgairn's Cookery p 427 eighth edition will be found an excellent receipt for Mangold Wurzel Beer having been tried successfully with a very inferior root by *M D*

Diseases of Cattle— *Investa* —The best works we believe, are those by the Society for the Diffusion of Useful Knowledge

Farmers Clubs—*A Subscriber*—See No 50 1845 If you have not got it any so and we will reprint the rules

Fifeshire Swede— *A Subscriber* Messrs Drummond and Co Stirling N B See page 302

Gas lime as a Dressing *North coast* wished to make a firm waterproof ground to a small enclosed yard and also to a cowhouse and pigsties in order that all manure might be received into a tank hard by this ground or flooring being sloped in that direction For that purpose he heard that concrete was cheaper than paving or any other material and determined to lay it down Gravel was found on the premises and was used with ground lime in the usual way but it will not bind In fact it is so loose or dusty that he is afraid though cows might not pigs would soon tear it up Would not gas-tar poured over it unite it firmly together so as to withstand the attack of pigs and make a good solid foundation? How long should the tar be boiled? Any information which our correspondent, at page 807 could give would greatly oblige and can any one give information as to the Bastenne Asphalte?

Names of Plants *A Holderness Farmer*—The Grass-seeds are not Couch Grass nor are they Rye-Grass They probably belong to a worthless Grass called Festuca bromoides a mere weed

Nitrate of Soda—*J L*—It has generally been found a very useful manure for grass land Your grass would no doubt, grow the better for 1 cwt per acre, dissolved in water

Soda Ash—*S I*—It is not burnt sea-weed which would not do as well It is the soda of alkali works before the last stage of purification which it there undergoes It contains about 50 per cent of pure soda Whether it will or will not destroy wire-worm we cannot say We doubt it

Stock *A M*— You appear to have a very large stock on your land, but it is impossible to say, unless we knew the quality of the soil

Taste of Butter—I have found chloride of lime very effectual to remove from butter the taste of turnips or any other bad flavour A drachm of it to every expected pound of butter put into the water of the second washing after it is taken out of the churn and the butter well but rapidly kneaded in it You commend the phosphoric rat poison I have tried it mixing it strictly according to the instructions sent with it scenting it with Aniseed I laid it in my barn stables and lofts, but not one single ball was ever taken away I mentioned it to a neighbouring farmer who had tried it, and he said with the same result —*J P* [Did the rats remain?]

Wind Power *A Constant Reader* says Messrs Stace and Valence of Berwick, Lewes Sussex have a patent for a horizontal mill We hope no one will erect any machine of this kind till they have well considered Mr Grey's remarks of last week — *R M* wants to see some horizontal mill in operation

*** Communications reaching town after Wednesday, cannot be answered the same week

Markets.

POTATOES.—Southwark Waterside, June 1.

The supply to this market for the last few days as might have been very considerable, and the weather being hot and favourable for the growth of vegetables, has caused a great depression in the prices The high prices that were made for several previous weeks has so narrowed the consumption, that the demand is not sufficient for the present supply, and a great fall in the prices of the finest Nectarines been the consequence The prices ranged during the last week as follows —York Reds, 110s to 130s per ton; ditto Magnets 80s to 90s per ton Scotch Reds 80s to 100s per ton There was some stale and damaged cargoes that were nearly unsaleable There is considerable language in the trade this morning and the prices have a downward tendency

SMITHFIELD, Monday June 1.—Per Stone of 8 lbs

Best Scots, Herefords, &c	3s 10	to 4s 0	Best long wools	- -	—s	to —s
Best Shorthorns	3 8	3 10	Ditto (shorn)	3 2	4 0	
Second quality Beasts	3 10	3 4	Ewes and second quality	—	—	
Calves	4 0	5 0	Ditto (shorn)	3 4	3 8	
Best Downs & Half-breds	—	—	Lambs	- -	5 0	6 0
Ditto (shorn)	4 0	4 4	Pigs	3 4	4 0	

Beasts, 2644 Sheep and Lambs 24,920; Calves 114; Pigs, 260

Although we have a considerably smaller supply of Beasts, the demand being small, our trade is exceedingly heavy Some few of the choicest Scots have made 4s 2d, but these instances are very rare The supply of Sheep continues steady, being fully adequate to the demand; indeed the fat Sheep are very unselling in consequence of the hot weather, and we are sorry to notice the epidemic very generally amongst them Lamb trade is about the same as of late —There is rather a brisk trade among the Calves — Pigs are a very dull sale

Friday, June 5

The trade this day was very heavy, both for Beef and Mutton, especially the former, Lamb and Calves being only in demand, which were at a small advance on Monday's prices.

Beasts, 6911; Sheep and Lambs, 16,230; Calves 272; Pigs 280

61, West Smithfield

COVENT GARDEN, June 5.—Vegetables have been plentifully supplied, and all kinds of fruit in season is abundant. Good Pine-apples may be obtained at from 5s. to 6s per lb and Hothouse Grapes, of excellent quality, are abundant and tolerably cheap. Some Plums, and a considerable quantity of Peaches and Nectarines, have been offered Ripe Cherries and Strawberries are plentiful, more especially the latter. Green Gooseberries, of large size, are abundant Apples and Pears being nearly over for a season, what remain are sold at nominal prices Oranges are abundant, and Nuts of all kinds are sufficient for the demand On several of the stalls we observed fine-looking specimens of English Melons. Of Vegetables Asparagus is plentiful and excellent in quality Cabbages, Greens, &c., are good and sufficient for the demand Carrots and Turnips are cheaper, and the same may be said of Peas Early Massagan Beans begin to make their appearance in the market Celery is good in quality Potatoes of the best quality fetch 9l a ton, and in one or two cases 10l and 12l a ton, but inferior samples may be obtained at lower prices Frame Potatoes are pretty plentiful, some of the samples are, however, not quite free from the prevailing disease of last season Lettuces and other Salading are good and plentiful Cut Flowers chiefly consist of Heaths, Jasmines, Lily of the Valley, Camellias, Azaleas, Cyclamens, Daphnes Orange flowers, Rhododendrons, Cinerarias, Gardenias, Moss and other Roses.

FRUITS

Pine Apple, per lb, 5s to 6s	Lemons, per dozen, 1s to 2s
Grapes, Hothouse, per lb 3s to 6s	— per 100, 8s to 16s
— Spanish, per lb, 8d to 1s	Gooseberries green, per half-sv., 3s to 6s
Apples, Dess, per bush, 7s to 20s	Strawberries, per qt, 2d to 1s
— Kitchen, 7s to 15s	Almonds, per peck, 6d
Melons, each, 4s to 10s	Sweet Almonds, per lb, 2s to 3s
Peaches, per doz, 10s to 24s	Filberts English, p 100 lbs, 60s to 65s
Nectarines per doz, 10s to 24s	Nuts, Cob, per 100 lbs, 80s to 90s
Cherries per lb, 2 s	— Barcelona, 60s
Oranges, per dozen, 1s to 2s 6d	— Brazil, 12s to 16s
— per 100, 4s to 15s	— Spanish 14s
— Seville, per 100, 8s to 18s	Walnuts per bushel, 12s to 16s
— per dozen, 2s to 3s 6d	Chesnuts, per peck, 3s to 7s

VEGETABLES

Cabbages, per doz, 6d to 1s 8d	Carrots, per bunch, 6d to 1s 8d
Cauliflowers, per doz, 2s to 3s	Onions, per lb sv, 2s to 4s
Greens, per doz bunches, 1s to 1s 6d	— Spanish, per doz, 1s 6d to 2s
Artichokes, per doz, 2s to 4s	Shallots, per lb, 10d to 1s
French Beans, per 100, 2s to 3s	Garlic, per lb, 6d to 8d
Peas, per sieve, 4s to 6s	Lettuce, per score, Cab, 4d to 1s
Sorrel, per half sieve, 2d to 3s	— — Cos, 4d to 1s 6d
Potatoes per ton, 70s to 130s	Radishes per 12 bunch 4d to 1s
— cwt, 4s to 9s	Mushrooms, per pottle, 2s to 2s 6d
— bushel, 2s to 4s 6d	Small Salads, per punnet, 2d to 3d
— Kidney per bushel, 8s to 4s	Fennel, per bunch, 2d to 3d
— Frame, per lb, 6d to 1s 2d	Savory, per bunch, 4d to 6d
Turnips, per bunch, 4d to 1s 6d	Thyme, per bunch 4d
Red Beet, per doz, 6d to 1s 6d	Watercress, p 12 sm bun 4d to 6d
Horse Radish, per bundle, 2s to 3s	Parsley, per bunch 1d to 3d
Rhubarb, per bundle, 6d to 1s	— Roots, per bundle, 1s
Asparagus, per bundle, 1s to 4s	Tarragon per bunch, 6d
Cucumbers, each, 4d to 1s 6d	Mint, green per bunch, 6d to 8d
Spinach, per sieve, 2d to 1s	Marjoram, per bunch 4d
Leeks, per doz bunches, 1s to 1s 6d	Chervil per punnet 2d to 3d
Celery, per bunch, 6d to 1s 6d	

HAY.—Per Load of 36 Trusses

Smithfield, June 4.

Prime Mead Hay	75s to 80s	New Hay	—s to —s	New Oit	—s to —
Infr. New & Rowen	55 65	Clover	85 t 112	Straw	28 30

J new Cocrsa, Salesman

Cumberland Market June 4.

Prime Mead Hay	84s to 90s	Old Clover	108s to 116s		
Inferior .	60 75	Inferior do	95 100	Straw	28s to 30s
New Hay .	90 —	New Clover	— —		

Joshua Baker, Hay Salesman

Whitechapel June 5

Fine Old Hay -	75s to 80s	Old Clover	108s to 112s		
Inferior Hay	60 70	Infr. do	70 90	Straw	28s to 30s
New Hay	— —	New Clover	— —		

Info for articles scarcely saleable at any price

Mark Lane Monday, June 1

The supply of English Wheat from Essex Kent and Suffolk was moderate this morning which enabled factors to realise the same prices for it as on this day se'nnight The inquiry for free foreign was exceedingly limited, in bonded no sale we did not hear of any transactions Prices in the Baltic markets are unaltered in Belgium they are declining but in Holland there is some demand for the Rhine —Barley and Peas remain nominally the same as last week Beans are difficult of disposal, and the turn cheaper —Fine Oats are scarce and maintain our quotations, but light qualities rather lower

BRITISH, PER IMPERIAL QUARTER

	s	s		s	s
Wheat, Essex, Kent, and Suffolk	White	55 64	Red	54 60	
—— Norfolk, Lincolnshire, and Yorkshire		50 54	White	50 56	
Barley, Maltine, and distilling 36s to 38s	Chevalier	30 33	Grind	24 26	
Oats, Lincolnshire and Yorkshire	Polands	24 26	Feed	21 24	
—— Northumberland and Scotch		Feed	24 25	Potato	27 30
—— Irish		Feed	21 25	Peas	25 26
Malt pale ship			54 60		
—— Scotford and Essex			50 55		
Rye			34 36		
Beans, Mazagan, old and new	36 to 40	Tick	39 42	Harrow	31 42
—— Heligoland	34 to 35	Winds	— —	Lungpod	— —
Peas, White	36 to 40	Maple	39 39	Grey	33 31

Friday, June 5.

The arrivals of Corn of all kinds since Monday have been small, we observe no alteration in the value of Wheat either English or foreign Some of the Dutch letters speak of a return of the Potato disease in that country, but at present it fails to excite attention there was, however, some inquiry for low qualities of bonded Wheat for export, but we are not aware that it resulted in business —Barley, Beans and Peas are nominally unaltered —The show of Oats is small and extreme prices are consequently realised

Arrivals this week

	Wheat	Barley	Oats	Flour
English	1910	1870	1680	2540 Sks
Irish	—	—	60	—
Foreign	3180	—	470	—

Imperial Averages

	Wheat	Barley	Oats	Rye	Beans	Peas
Apr 26 per Quarter	38s 6d	30s 1d	23s 4d	33s 7d	34s 10d	33s 10d
May 2	38 5	29 6	23 7	32 8	34 11	33 10
— 9	38 3	29 7	23 9	33 8	34 8	34 7
— 16	37 0	29 4	24 1	33 8	35 11	34 11
— 23	36 5	28 10	23 8	33 6	36 0	34 6
— 30	35 4	28 4	23 9	33 4	35 10	34 9
6 weeks Aggreg. Aver	35 9	29 4	23 8	33 3	35 6	34 4
Duties on Foreign Grain	17 0	9 0	5 0	9 8	7 6	8 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday May 30

Prices	April 25	May 2	May 9	May 16	May 23	May 30
57s 0d	..	..	.	..	..	..
56 8	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 1	..	..	..	..	..	..
— 0	..	..	..	..	..	..
55 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 6	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 1	..	..	..	..	..	..
53 4	..	..	..	..	..	..

SEEDS, June 5.

Canary - - per qr	48s to 48s	Linseed Cakes, Foreign, p ton	7l to 9l
Caraway - - per cwt	46 48	Mustard, White - p bush.	—s —
Clover, Red, English - -	— —	— Superfine - -	— —
— — Foreign - -	80 82	— Brown - -	— —
— White, English - -	54 62	Rapeseed, English per last	27l 30l
— — Foreign - -	60 62	Rape Cakes - per 100	— —
Coriander - - - -	10 12	Rapeoil - - - -	— —
Mungseed - - - -	30 32	Tares, Spanish per bush.	— —
Linseed - - per qr	42 43	— Foreign - -	Reddened
— Baltic - - - -	40 42	Trefoil - - per cwt	18 22
— Cakes, Eng. per 1000	11l 12l	Turnip (too variable for quotation)	

Richardson and Lay

Sales by Auction.

TO GENTLEMEN, TRUSTEES, AND OTHERS

MESSRS PROTHEROE AND MORRIS will submit to public competition, at the Auction Mart, Bartholomew-lane, on Tuesday, June 9th, Thursday 11th, and Friday 12th, 1846, at 12 o'clock, about 2000 Dahlias, comprising all the new varieties of the season Also a splendid assortment of Geraniums and other Plants in bloom, the newest varieties of Fuchsias, Verbenas, Petunias, Heartsease, and a variety of other Plants for the Borders May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone

TO NOBLEMEN, GENTLEMEN, AND NURSERYMEN

A VALUABLE COLLECTION OF PALMS, ORCHIDS, &c., FROM MEXICO

MESSRS. J. C AND S STEVENS beg to announce they will sell by Auction, at their Great Rooms, 38, King street, Covent-Garden, on Tuesday the 16th June, at 12 o'clock, a very fine PARCEL OF PLANTS, collected in various parts of Mexico, and comprising many species of ORCHIDS Oncidiums, Odontoglossums, Lælias, Cattleyas, Aeroperas, Stanhopeas Catasetums, Cyrtopodiums, Peristerias, Mormodes, Sobralias, Epidendrums (including Vitellinum), Maxillarias, Cypripedium, Iraponanum of Tuerway, &c. &c The PALMS comprise Dion edule, some 6 feet in height, and the largest in Europe, and large specimens of Zamia furfuracea also Cyathea arborea Hemitelia horrida, Maratta elegans, various Tillandsias, &c &c —May be viewed the day prior and morning of Sale, and Catalogues had of the Auctioneers, 38, King-street, Covent Garden

TO BUILDERS AND TO THE NOBILITY AND GENTRY, ESPECIALLY MEMBERS OF YACHT CLUBS AND BOTANIC SOCIETIES, AND OTHERS

EAST COWES PARK, adjoining Osborne Park, the Marine Residence of Her Majesty, Isle of Wight — BUILDING GROUND to be LET on lease for 600 years, rent 2s 6d per foot frontage depth 324 feet, with right access to a Botanic Garden of 11 acres adjoining

The roads are 66 feet in width Several miles of iron railing with carriage-gates have been fixed, also the principal gates opposite the two entrances into Osborne Park

Liberal advances in money or materials if required The sea and land views scarcely to be equalled Capital drainage excellent water white brick and stock brick earth

Further particulars may be had of J H Wenham Esq, Solicitor 1 Caroline-street, Bedford-square of Messrs Bloxam and Ellison Solicitors, 1 Lincoln's Inn Fields and of Mr Banting East Cowes Park Estate Office East Cowes

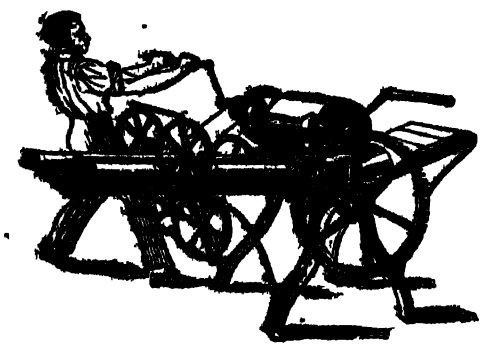
TO SEEDSMEN AND OTHERS

TO BE DISPOSED OF—An Excellent SEED BUSINESS in a large and populous town having two market days a week, and in one of the best agricultural counties in England Any one in want of such will find this an opportunity seldom to be met with as it is the only general Seed Shop in the town which has the advantage of land and water communication with London several times a day—For further particulars apply to Mr Chamberwood, Seedsman &c 11 Tavistock row Covent-garden

TO OWNERS AND OCCUPIERS OF ESTATES

WILLIAM BULLOCK WEBSTER, of Honnedown, near Southampton Draining Engineer to Her Majesty at Osborne Isle of Wight the inventor of a Patent Tile and Pipe Machine (applicable to making Bricks) also a new Machine for taking roots and stones out of clay both which are to be seen at the Royal Polytechnic Institution Regent-street — offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Draining of their Estates P S Land drained at a fixed sum per acre including every expense

DRAINING TILE MACHINES



AINSLIE'S PATENT IMPROVEMENT for Making and Drying Draining Tiles

The Process combines Perfect with Economy Gentlemen having works in operation, or who are about to erect them, will find the above worthy their attention

For particulars apply to Mr John Paton at the office for the sale of Ainslie's Patent Brick and Tile Machine, 194A Piccadilly, where they may be seen at work also at the Polytechnic Institution, and at the Works, Alperton, Middlesex

HYDRAULIC RAMS, to be had of Freeman Roe, Engineer and Fountain Maker, 70, Strand, London Rams adapted to all situations

No 1 Ram, Supply Pipe, 4 in.
No 2 Ram, Ditto 2 in
No 3 Ram, Ditto 1 in



Deep Well Engines and Pumps worked by Steam, Horse-power, or Manual-labour Fountain Basin in Iron, from W Rowley's pattern Jobs made to any device Buildings, Baths, &c. heated upon the most simple and economical plan. Steam Closets, Cooking Apparatus, &c

Sole Agent for Thomas's Patent Water Purifier

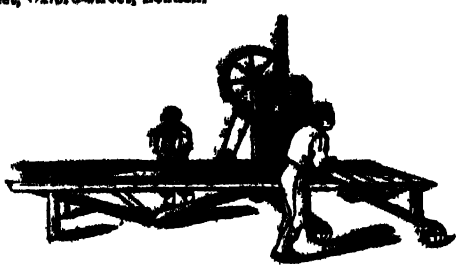
The AGRICULTURAL CHEMICAL ALMANAC, by Freeman Roe, price 2d, now ready

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RICK CLOTHS, with Poles, Pullies, and Lines complete "A farmer should be without a good Rick Cloth, for it is certainly one of the most useful things he can have on his premises."—Gardeners' Gazette Rick Cloths, both new and second hand, at a reasonable rate, at Benjamin Edmeston's, 2, Duke-street, Southwark Early application will insure prompt attention. A warehouse at 208, Piccadilly Marquees, Tents, Flags, Netting and Boating for Fruit Trees, Railway Truck Covers, &c.

ORNAMENTAL TILES for Floors, Walls, &c, of Greek, Roman, Gothic, Garden Terraces, Encaustic Venetian, &c., PATENT PARQUETRY May be seen at Messrs. PARKER and WYATT'S, Entrance-court, Blackfriars, London Agents to Messrs MINTON & CO., the Patentees, of Stoke upon-Trent Also Patentees of the PORCELAIN BUTTONS, cheaper and more durable than Mother-o'-Pearl, &c

HATCHER'S GENTLEMEN TILE MACHINE Manufactured and Sold only by CUTTAM and HALLEN Engineers, Agricultural Implement Makers, &c., 6, Wansley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles Any shaped Tile can be made by merely changing the die, which can be done in a few minutes It requires but few hands, viz, one man and three boys With this amount of labour, the product of a day of 10 hours is as follows, viz :—

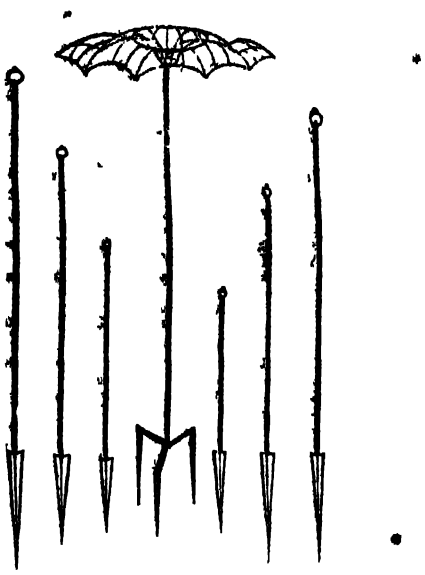
1 inch diameter of Tile,	11,000	1½ inches diam of Tile,	5,500
1¼ " "	9,000	2 " "	3,200

*** See Letter of Thomas Law Hodges, Esq, in the "Transactions of the Royal Agricultural Society of England," page 351, Part 2, Vol V

This Machine is moveable down the drying sheds on its wheels It is so simple in its construction as to require but little practice in its use There is no charge made for patent dues or license

Price 25l, with 4 Dies for Tiles of any shape or size
Pug Mill, with Iron Box, 16l 16s
A set of Three Draining Spades and Swan's-Neck 1l 1s

CUTTAM and HALLEN have on show at their Repository a great variety of every article for the Garden, viz, Rollers Water Engines Mowing Machines Chairs and Seats of Metal Superior Tools of all description Vases Pedestals, Flower Bordering and Stands Pot Trainers Rose and Tree Guards every description of Wire Work



CAST IRON FLOWER STAKES (see *engraving*)

4 ft	4 ft 6	5 ft	6 ft	7 ft	out of the ground
11s	12s	1 s 6d	22s	30s	per dozen

STRONG IRON HURDLES FOR SHEEP 3 feet out of the ground 4s 9d do with ¾ top bar 5s light cattle 3 feet 6 inches high 5s 6d strong do 6s ox do 4 feet high 7s 10d

STRONG IRON WIRE for strained wire fence, in bundles containing 150 yards each, at 10s 6d per bundle

HAND GLASS FRAMES HOTHOUSES CONSERVATORIES, &c made upon the most improved principles either of iron or wood and iron combined which can be fixed complete with hot water apparatus for heating in any part of the kingdom

IRON AND BRASS BEDSTEADS, STOVES FENDERS, &c, and every article in Ironmongery

Entrance to the Show Rooms and Manufactory 76 Oxford street

ASCOT RACES

GREAT WESTERN RAILWAY — EXTRA TRAINS will run from Paddington to Slough on Tuesday the 9th and Thursday the 11th of June

Special Trains will be provided for the conveyance of carriages and horses to Slough on the evenings of Monday and Wednesday and early on Tuesday and Thursday mornings, to ensure their being ready at Slough without interfering with the passenger traffic, and the Directors give notice that they cannot undertake to convey carriages and horses to Slough later than 8 o'clock on the mornings of Tuesday and Thursday

Carriages and horses will be booked at the Paddington Station in the order in which such applications may be made

In order to prevent as far as possible the inconvenience experienced during the crowded state of the booking-offices the Directors have determined to issue tickets at Paddington, for any or all of the race days upon any previous evening, the holders of which will be admitted to the platform, through the first carriage gates, and such tickets will not require stamping on the return journey from Slough

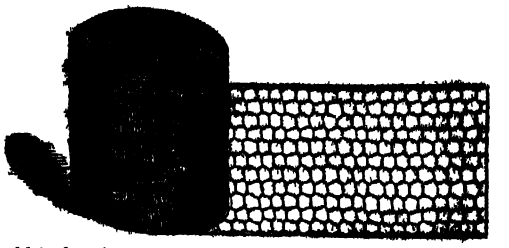
These Tickets can also be obtained on application at the Railway Office, No 449, West Strand and at Messrs Tattersall's, Grosvenor-place, Hyde-park-corner on Monday, and the subsequent days

The Third Class Trains at 6 30 and 10 30 A M, will start from the Merchandise Department

For further particulars see the hand-bills, which may be obtained at the Paddington and other stations on the line

By order of the Directors, C A Saunders, Sec.

WARD & YOUNG, Manufacturers of Iron and Wire Work, &c., 120, Hutcheson, Bridgeton, and 82, St Enoch-square, Glasgow, beg respectfully to call the attention of Landed Proprietors Horticulturists, &c., to their STRONG HARE AND RABBIT PROOF WIRE NETTING,



which, from its economy and durability, is peculiarly adapted for inclosing and rendering impervious to HARES and RABBITS Extensive Grounds, Young Plantations Gardens, Nurseries, &c. It can be attached to Hedges Rating, and other existing Fences, and removed, when required with the greatest facility

Prices, in Webs of any length—18 inches high, 9d per yard, 24 inches, 1s, and 30 inches, 1s 3d per yard, and delivered free at any of the principal ports of the three Kingdoms for One Halfpenny per yard

STRONG STRAINED WIRE FENCES, with Wrought-Iron Uprights for Horses, Cattle, and Sheep, at from 1s 4d to 1s 10d per lin yard, according to strength

STRONG STRAINED WIRE FENCES, for Horses, Cattle, and Sheep in Wood Posts (which are furnished by the Proprietors) from 7d to 10d per lin yard

STRONG STRAINED WIRE FENCES with Wrought-Iron Uprights for Red Roe and Fallow Deer at from 2s 6d to 3s 6d per yard according to height and strength

STRONG STRAINED WIRE FENCES Plain and Ornamental Hare and Rabbit proof for Inclosing Flower Gardens, &c at from 2s to 3s 6d per lin yard

PORTABLE DEER in the form of Hurdles, at from 3s 6d to 5s 6d per lin yard

Definite Estimates of Costs given upon receiving a Description of the Fences wanted the nature of the Lines and the extent required

PREMIUM WROUGHT IRON HURDLES for the permanent or temporary division of Grounds and Pasture Lands, at from 2s 6d to 3s 6d per yard according to the strength and number of Bars

These Hurdles are made with prongs to fix them into the ground and can be removed or fitted up with the greatest facility by any labourer

For the East and West Indies and America the Wire Fence is peculiarly suitable from being light and portable, and the facility with which it can be conveyed to and erected in any situation. Iron Hurdles for exportation are made portable and packed in bundles for shipment occupying on board no greater space than common iron bars and charged for freight the same.

LODGE GATES AND RAILINGS made of Wrought and Cast Iron, of various designs in the Gothic Elizabethan, and other styles of Architecture.

WROUGHT-IRON CARRIAGE GATES of light and beautiful patterns at from 3l 3s to 5l 5s

HANDSOME CAST IRON PILLARS for ditto from 20s to 70s per pair

PREMIUM WROUGHT-IRON FIELD GATES constructed upon the most approved principles, to combine strength with lightness They are perfectly secured from dropping by diagonal bars and from sweating by strong welded knees in the framework Price 30s 35s and 40s each complete with springs or bolts and mountings for wood or stone posts

HANDSOME CAST IRON PILLARS for ditto with bolts and nuts 45s per pair

STRONG AND HANDSOME WROUGHT IRON WICKETS, from 1l upwards

PREMIUM PORTABLE WROUGHT IRON SHEEP HAY-RACKS with and without Cover Wheel and Troughs, at from 3l 5s to 4l 4s

W & C Young manufacture every description of IRON and WIRE WORK required for this and foreign countries, and from the increased facilities afforded them by the Glasgow branch of their business lately established they feel assured that all commands from the West of Scotland and Ireland will be executed in a manner that will give every satisfaction to those who honour them with their patronage Drawings Catalogues and Testimonials sent free of expense to any Nobleman or Gentleman requiring them

Workmen sent to all parts of Scotland England and Ireland

MECHI'S DESKS, WORK-BOXES and TEA-CHESTS No 4 Leadenhall street London combine all that is perfect and cheap with the most approved patterns, invented by himself manufactured in his own premises where may be seen one of the richest specimens in the world of papier maché goods the largest ever brought to this country chessmen and chess boards packing cases tablets and in fact everything, for the wool table and dressing table displayed in a style of elegance not to be equalled by any in this kingdom Mechi is the first and original inventor of the cushioned tooth brushes in vulcanized India rubber that steel razor the cushioned hair brush and various improvements in portable desks and dressing cases combined

MERCANTILE LIFE. It has been remarked by intelligent foreigners that one of Baldness greatly prevail in this country and assigns that the unreserved application to mercantile pursuits contributes largely to this result Be this as it may nowhere is a protective and restorative preparation more needed and probably there is no European people to whom artificial appliances have been so eminently serviceable The numerous cases of recovery the hair after having fallen off or partial baldness are truly astonishing The testimonials of the efficacy of

OLDRIDGE'S BALM OF COLUMBIA

place its power and virtues beyond all doubt or cavil 3s 6d, 6s and 11s per bottle None genuine —Oldridge's Balm, 1 Wellington-street the second house from the Strand

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES —The Tooth-Brush has the important advantage of searching the roughly into the divisions of the teeth and cleaning them in the most effectual and extraordinary manner and is famous for the hairs not coming loose—1s An improved Clothes Brush that cleans in a third part of the usual time and incapable of injuring the finest nap Penetrating Hair-brushes with the durable unbleached Russian bristle which do not soften like common hair Flesh Brushes of improved graduated and powerful friction Velvet Brushes which act in the most surprising and successful manner The genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality and durability by means of direct importations, dispensing with all intermediate parties' profits and does not give bleaching, and securing the luxury of a genuine Smyrna Sponge Only at Metcalfe's Sole Establishment, 130 Oxford-street one door from Hollis-street

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THE LONDON ASSURANCE CORPORATION, established A.D. 1720.—The NEW PROSPECTUS of this Corporation, whereby *Life* Assurances may be effected under ten quintuplating tables, may be had by a written or personal application at their offices, 7, Royal Exchange, Cornhill, and 10, Regent-street; or of any of their agents in Great Britain and Ireland.

Fire Assurances on every description of property, and Marine Insurances at the current premiums of the day.

JOHN LAURENCE, Sec.

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CROWN LIFE ASSURANCE COMPANY, 38, New Bridge-street, Blackfriars, London.

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On a THIRD SEPTENNIAL INVESTIGATION into the affairs of this Company, to the 30th March, 1846, a BONUS, amounting on the average to 31 per cent. on the Premiums paid for the preceding seven years, was assigned to all policies of at least three years' standing, and effected for the whole duration of life.

To similar Policies the following BONUSES were declared at former Divisions, viz.:—

FIRST DIVISION, IN 1832.
On the average, upwards of 26 per cent. on the Premiums paid.

SECOND DIVISION, IN 1839.
On the average, 33 per cent. on the Premiums paid for the preceding Seven Years.

The advantages of this office, among others, are:—

1. A participation septennially in two-thirds of the Profits, which may be applied either in reduction of the Premium, or to augment the sum assured.
2. Premiums may be paid in a limited number of annual sums, instead of by annual payments for the whole of life; the Policy continuing to participate in profits after the payment of such Premiums has ceased.
3. The Assurance or Premium Fund is not subject to any charge for interest to Proprietors.
4. Permission to pass to Continental Ports between *Brest* and the *Elbe* inclusive.
5. Parties (including Officers of the Army, Navy, East India Company, and Merchant Service,) may be assured to reside in or proceed to all parts of the world, at premiums calculated on real data.
6. Claims to be paid within three months.
7. The Assured may dispose of their Policies to the Company.
8. No charge but for Policy Stamps.

The Prospectus, Tables of Rates, &c., to be had at the office in London, or of the Company's Agents.

T. G. CONYERS, Secretary.

ECONOMIC LIFE ASSURANCE SOCIETY, 6, NEW BRIDGE-STREET, BLACKFRIARS, LONDON.

Established 1823.

Empowered by Act of Parliament, 3, William IV.
The Right Hon. THOMAS FRANKLAND LEWIS, *Chairman.*
HENRY FREDERICK STEPHENSON, Esq., *Deputy Chairman.*

The following are among the advantages offered by this Society:—

Lower Rates of Premium than those of any other Office, which entitle the assured to participate in the profits, and considerably lower than those of any other Mutual Assurance Society.

No Proprietary participate in the profits, the whole being divisible among the Assured.

A Bonus is added, after the Payment of the Fifth Annual Premium to every Policy effected on the participating Scale, if a claim accrue thereon prior to the next division of profits.

The first Bonus, in 1834, averaged 16*l.* per cent on the Premiums paid.

The second ditto, in 1839, averaged 31*l.* per cent. since the first division.

The third ditto, in 1844, averaged 36*l.* per cent. since the second division.

Prospectuses and full particulars may be obtained on application to CAMPBELL JAMES DOWNER, Secretary.

ARGUS LIFE ASSURANCE COMPANY, 39, THROGMORTON-STREET, BANK.

EMPOWERED BY SPECIAL ACT OF PARLIAMENT.
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LOW RATES OF PREMIUM.

Persons Assuring in this Office have the benefit of the Lowest Rate of Premium which is compatible with the safety of the Assured, and which is, in effect, equivalent to an Annual Bonus; they have likewise the security of a large subscribed capital—an ASSURANCE FUND of nearly a quarter of a Million—and an Annual Income of upwards of 60,000*l.*, arising from the issue of between 5000 and 6000 Policies.

Annual Premium to Assure 100*l.*

Age.	For One Year.	For Seven Years.	Whole Term.
20	£0 17 3	£0 19 1	£1 11 10
30	1 1 3	1 2 7	2 0 7
40	1 5 0	1 6 9	2 14 10
50	1 14 1	1 19 10	4 0 11
60	3 2 1	3 7 0	6 0 10

One-half of the "Whole Term" Premium may remain on credit for seven years, or one-third of the Premium may remain for life as a debt upon the Policy at 5 per cent., or may be paid off at any time without notice.

In Assurances for Advances of Money, as security for debts, or as a provision for a family, where the least present outlay is desirable, the varied and comprehensive Tables of the Argus Office will be found to be particularly favourable to the assured.

Claims paid in one month after proofs have been furnished.

The Medical Officers attend daily, at a quarter before two o'clock, and Policies issued the same day.

EDWARD BATES, Resident Director.

A liberal Commission to Solicitors and Agents.

ALBION LIFE INSURANCE COMPANY, NEW BRIDGE-STREET, LONDON.

Instituted in 1805.—Empowered by Act of Parliament.

ADVANTAGES.

PRESENT SECURITY, arising from a large Capital, totally independent of the Premium Fund.

A BONUS amounting to Four-fifths, or 80 per Cent. of the ENTIRE PROFITS, arising from all Policies issued upon the Participating Scales of Premium, will be apportioned among the Policy-holders on the 29th September, 1849, and thenceforward at the end of every three years, either

By Payment in Cash;
By Augmentation of the Sum Insured; or,
By Reduction of the Future Annual Premium.

Low Premiums, without Profits, particularly for limited terms of years. Increasing, Decreasing, and other Rates of Premium. Claims paid in 30 days after proof of Death. Prospectuses, Proposals, &c., may be obtained at the Office. Parties resident in the country are not required to appear personally in London.

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HER MOST GRACIOUS MAJESTY THE QUEEN.

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JOHN FINLAISON, Esq. the Government Calculator.

ASSURANCES are granted upon the Lives of Persons in EVERY station of life, and for every part of the World upon particularly favourable terms.

Persons assured in this Office may change from one country to another without forfeiting their Policies.

A BONUS amounting to *thirty per cent.* on the actual value of the Policies was apportioned to the assured at the FIRST SEPTENNIAL MEETING held in the year 1844.

JOSEPH C. BRETTELL, Secretary.

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	Plain Fiddle.	Threaded Fiddle.	King's Pattern.	Albert Pattern.
Table Spoons per doz.	16*s.* 6*d.*	30*s.*	35*s.*	42*s.*
Dessert do. do.	12*s.* 6*d.*	25*s.*	28*s.*	32*s.*
Tea do. do.	8*s.* 6*d.*	13*s.* 6*d.*	13*s.* 6*d.*	17*s.* 6*d.*
Table Forks do.	16*s.* 6*d.*	30*s.*	35*s.*	42*s.*
Dessert do. do.	12*s.* 6*d.*	25*s.*	28*s.*	32*s.*

C. WATSON begs the Public will understand that this Metal is peculiarly his own, and that Silver is not more different from Gold than his Metal is from all others—on its intrinsic merits alone he wishes it to be tested, and from the daily increasing eulogiums he receives, he is convinced that nothing can prevent its becoming an article of universal wear.

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DRESS COATS, superfine cloth, made to measure, 30*s.* to 42*s.*; extra Saxony, 50*s.*; frock coats, silk facing, 35*s.* to 45*s*; extra Saxony, 50*s.* and 55*s*; fashionable trousers, 7*s.* to 12*s.* 6*d.*; doeskin, new patterns, 12*s.*, 16*s.*, and 21*s.*; waistcoats, of the newest patterns, 6*s.* 6*d.* to 10*s.* 6*d.*, rich satin and cloth, 7*s.* 6*d.* to 12*s.* 6*d.*; overcoats of the newest syle, in paletots, Alberts, and Codrington, of llama cloth and cashmerettes (waterproof), 21*s.* to 35*s.*; travelling wrappers 8*s.* 6*d.* to 18*s.* Boys' and youths' clothing of every description. Tunic and hussar suits, 21*s.* to 30*s*, office, garden, and shooting coats, 8*s.* 6*d.* to 18*s*; a suit of superfine black cloth, 3*l.* 3*s*; extra Saxony ditto, 3*l.* 10*s* to 4*l.*—FISHER & Co., Tailors, 91, King William-street, City, 10 doors from London-bridge.

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FOR NOTHING.—A PAMPHLET ON NERVOUSNESS, with Testimonials.—The Nervous are respectfully invited to send to the Rev. Dr. WILLIS MOSELY, 18, Bloomsbury-street, Bedford-square, for the small pamphlet just published, on his most successful Treatment of Nervous or Mind Complaints, by which he cures these diseases more certainly than other medical men cure bodily complaints, which pamphlet he will return, if one stamp is sent, free of charge.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 24—1846.] SATURDAY, JUNE 13. [PRICE 6*d*.

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ROYAL SOUTH LONDON FLORICULTURAL SOCIETY, under the Patronage of her most Gracious Majesty THE QUEEN. The THIRD EXHIBITION for the season will be held in the ROYAL SURREY ZOOLOGICAL GARDENS, on WEDNESDAY, JUNE 24th, 1846, open to all Exhibitors, when Prizes will be awarded for the following collections:—viz. Miscellaneous and Orchidaceous Plants, Cape Heaths, Pelargoniums, Roses, Ranunculuses, Pinks, Vegetables, &c. The following Exhibitions will also take place in the above Gardens—on Wednesday, July 22d, and on Wednesday, September 16th, 1846. List of Prizes, and the Rules of the Society, may be obtained from JOHN TAYLOR NEVILLE, Secretary.
Ebenezer House, Peckham.

MAIDSTONE GRAND HORTICULTURAL FETE. The 2d Exhibition of the Maidstone Horticultural Society will take place on Thursday, the 25th inst., in several spacious Marquees in a field near the Railway Terminus. By permission the Band of the Cavalry Depot will attend. Admission at 1 o'clock, 2*s*.; at half-past 3, 1*s*.
Maidstone, June 10. J. G SMITH, Hon. Sec

CHICHESTER HORTICULTURAL SOCIETY.—THE SUMMER EXHIBITION will be held, by permission of J. B FREELAND, Esq., in his grounds, at Northgate, on Thursday, June 18th. By the kind permission of Colonel Sir JAMES DENNIS, K.C.B., the fine band of the 3d regiment will attend. Open to the public from 2 o'clock till half-past five. Admission One Shilling.
Particulars of Premiums, &c. may be obtained of
H. SILVERLOCK, Jun., Secretary.

TO THE SUBSCRIBERS TO THE GARDENERS' BENEVOLENT INSTITUTION.
ANN PRATT, Widow of the late Henry Pratt, of Cheshunt, Herts, returns her grateful thanks to those friends who so kindly interested themselves in her behalf, or voted for her at the late Elections.—Cheshunt, June 13.

HENRY RICHES begs to return his most grateful and heartfelt thanks to all those Members of the GARDENERS' BENEVOLENT INSTITUTION who have so kindly assisted in procuring his Election as a Pensioner upon the Funds of their most excellent Charity. The infirmities under which he has laboured for some years past, and which have rendered him totally incapable of doing anything towards his maintenance, render the Pension awarded to him through their exertions doubly valuable, and will to his latest hour call forth his deepest gratitude and earnest prayers for the prosperity of their Institution.
30, Nightingale-lane, Paddington, June, 1846

CHRYSANTHEMUMS.
CHANDLER AND SONS, NURSERYMEN, Vauxhall, are now sending out strong healthy plants of CHRYSANTHEMUMS, of fine and good sorts, at 12*s* per dozen. The young plants are in good order for packing for the country.
A list of the sorts, with a description of the colours, may be had on application.

CATTELL'S SUPERIOR DWARF BARNES CABBAGE, at 8*d*. per Ounce or 8*s* per Pound.—The above is now proved to be the best EARLY CABBAGE known. It may be safely sown the middle of July, without fear of running to seed the following spring. It may also be sown any time this month for autumn and winter cutting, or, if left to stand through the winter, will Cabbage very early, not being subject to start to seed so much as other sorts. Its productiveness in fine heads after first cutting is not equalled by any other sorts.
One Ounce Packets will be forwarded by Post on receipt of an order containing Twelve Penny Stamps.—Address, JOHN ATTELL, Seed and Nurseryman, Westerham, Kent.—June 13.

MESSRS. ROGERS & SON beg respectfully to solicit the attention of the Nobility and Public to their splendid and extensive collection of FUCHSIAS, VERBENAS, PANSIES, ERICAS, PETUNIAS, CINERARIAS, ANTIRRHINUMS, and GERANIUMS, of which they have a fine stock of strong plants fit for bedding out at 6*s*. per dozen; also the newest and best varieties of each at the lowest prices.
UNRIVALLED and MAGNIFICENT SPECIMEN PLANTS are kept constantly for inspection at their Floricultural Establishment, No. 14½, High-street.
No charge made for packing, which is executed in the most careful manner, to all parts of the Kingdom.
Southampton, June 13.

ROYAL BOTANIC SOCIETY, REGENT'S-PARK.
EXHIBITION—JUNE 3rd

AWARDS OF THE JUDGES.

THE FIRST GOLD MEDAL.

To Mr Fraser, Nurseryman, Lea-bridge-road, Leyton, for 30 Stove and Greenhouse plants; to Mr. Mylam, gr. to S. Rucker, Esq., Wandsworth, for 15 Exotic Orchids.

THE SECOND GOLD MEDAL.

To Mr. Barnes, gr to G. W Norman, Esq., Bromley, for 30 Stove and Greenhouse plants; to Mr. Hunt, gr to Miss Trail, Bromley, for 20 do.; to Mr Ayres, gr to J Cook, Esq., Blackheath, for do., to Mr. Rae, gr. to J. J. Blandy, Esq., Reading, for 10 Exotic Orchids.

THE THIRD GOLD MEDAL.

To Mr. Hunt, for 15 Cape Heaths, to Mr Plant, gr. to J. H. Schroder, Esq., Stratford, for 15 Exotic Orchids.

THE FIRST SILVER GILT MEDAL.

To Mr. Green, gr to Sir E. Antrobus, Bart., Cheam, for 10 Stove and Greenhouse plants, to Mr. Barnes, for 15 Cape Heaths, to Mr. Don, gr. to F G Cox, Esq., Stockwell, for 10 Exotic Orchids; to Messrs. Rollisson and Son, Nurserymen, Tooting, for 15 do.; to Mr. Bruce, gr to B. Miller, Esq., Tooting, for 6 do., to Mr. Cock, Market-gardener, Chiswick, for 12 new Pelargoniums in 8-inch pots, to Mr. Dobson, gr. to Mr. Hock, Slate works, Isleworth, for do.; to Mr. Parker, gr. to J. H. Oughton, Esq., Roehampton-lane for 12 do in 11-inch pots; to Mr Gaines, Nurseryman, Battersea, for do., to Messrs Lane and Son, Nurserymen Berkhampstead, for 12 Roses in pots; to Mr. Clarke, gr. to W. Block, Esq., Muswell-hill, for 6 Tall Cacti.

THE FIRST SILVER MEDAL.

To Mr. Green, for 8 Azaleas; to Messrs Fairbairn, Nurseryman, Clapham, for 12 Cape Heaths, to Mr. Barnes, for 6 Exotic Orchids.

THE SECOND SILVER GILT MEDAL.

To Mr. Pamplin, Nurseryman, Walthamstow, for 20 Stove and Greenhouse plants, to Mr May, gr. to E. Goodhart, Esq., Beckenham, for 10 do., also for 6 Heaths; to Mr Clark, for 6 Stove and Greenhouse plants, to Mr Hunt, for 10 Exotic Orchids, also for Gompholobium polymorphum; to Mr. Green, for 6 Cacti, to Mr Ayres, for 15 Cape Heaths, to Mr. Fraser, for 12 do., to Mr. Wright, gr. to the Hon. Miss Rushout, Wanstead, for 6 Calceolarias, to Mr. Gaines, for 6 do., to Mr. Staines, Middlesex-place, New-road, for 12 new Pelargoniums in 8-inch pots, to Mr Gaines for do.; to Mr Coysh, gr. to R. Hudson, Esq., Clapham, for 8 do., to Messrs. Paul and Son, Nurserymen, Cheshunt, for 12 Roses in pots.

THE SECOND SILVER MEDAL

To Mr. Parker, for Pelargonium "Priory Queen;" to Mr. Bruce, for 10 Stove and Greenhouse plants, also for 6 Cape Heaths, to Mr. Malyon, gr to T Brandram, Esq, Blackheath, for 6 Stove and Greenhouse plants; to Mr May, Woodford, for Dracophyllum gracile, to Mr Ayres, for Mussaenda macrophylla, also for 4 Clerodendrons, to Messrs Rollisson, for 12 Cape Heaths, to Mr. Green, for 6 do., to Mr. Smith, gr. to J. Anderson, Esq, Regent's-park, for 30 British Ferns, to Mr Keith, Botanic Garden, Chelsea, for 25 British plants (exogenous), also for neat and correct labelling, to Mr. Paine, gr. to Miss Wigan, Islington, for 6 Calceolarias, to Messrs. Henderson, Nurserymen, Pine-apple-place, for 6 do., also for 4 Cinerarias, to Mr. Kendall, Nurseryman, Stoke Newington, for 6 Fuchsias, to Mr Catleugh, Nurseryman, Chelsea, for 12 new Pelargoniums in 8-inch pots, to R Moseley, Esq, Pine apple-place, for 8 do., to Mr Francis, Nurseryman, Hertford, for 100 cut Roses, to Mr Betteridge Abingdon, for 50 do; to Mr. Williamson, Royal Botanic Gardens, Kew, for 25 British plants (endogenous), to Mr. Waterer, Nurseryman, Knap-hill, for Seedling Rhododendrons, to Mr. Dobson, for 12 Roses in pots.

THE THIRD SILVER MEDAL

To Mr Taylor, gr. to J Costar, Esq, Streatham, for 6 Stove and Greenhouse plants, also for 30 British Ferns, to Mr Catleugh, for 6 Tall Cacti, to Mr Smith for Cuphea platycentra, to Mr. Wood, Nurseryman, Norwood, for 12 rare Alpine plants; to Mr Malyon, for 6 Cape Heaths, to Mr. Rose, gr. to J. N. Helling, Esq, Streatham, for 6 do in 8-inch pots, to Mr. Barnes, for 4 Clerodendrons, to Mr Pamplin, Nurseryman, Romsey-road, for a Seedling Heath, "Ventricosa globosa alba," to Mr. Kyle, gr. to R Barclay, Esq, Leyton, for 6 Papilionaceous plants, to Mr. Pamplin Walthamstow, for neat and correct labelling, to Mr Riddell, Blackheath, for 25 British plants (exogenous), to Mr Roth, for 25 do (endogenous), to A. Rowland, Esq, Lewisham, for 50 cut Roses, to Mr. Smith Nurseryman, Romsey-road, for a stand of 12 Verbenas, to Messrs Norman Florists, Woolwich, for 12 Pinks, to Mr. Turner, Florist Chalvey, for 24 Pansies, to Mr Alexander, Florist, Lea-bridge road, for 12 Bulbous Iris; to Mr. Garrod, gr. to R B Foreman, Esq Hampstead, for 6 Calceolarias; to Mr Kaye, gr. to B. D. Colvine, Esq, Norwood-hill, for 4 Cinerarias, to Mr Robinson, gr. to J Simpson, Esq, Chelsea, for 6 Fuchsias, also for 8 Pelargoniums to Messrs. Smith and Co., Nurserymen, Battersea, for 12 do, to Mr Cock, for Seedling Pelargonium "Melpomene," to Mr. Hally, Nurseryman, Blackheath, for a Seedling Fuchsia "Empress."

THE BRONZE MEDAL

To Mr Kyle, for 6 Stove and Greenhouse plants, to Mr. Kaye, for do., also for 6 Cape Heaths, to Mr. Stanley, gr to H. Berens, Esq, Sidcup, for do, to Mr. Spirgin, Wanstead, Essex, for do., to Mr. Vince, Clapham, for Erica depressa; to Mr. Bruce, for Aphelexis humilis, to Mr. Don, for Aerides crispum, to Mr. Ivery, Nurseryman, Peckham, for Delphinium Peckhamensis; to Mr Smith, for 12 rare Alpines; to Mr. Taylor, for 6 Cape Heaths; to Messrs. Rollisson, for a Seedling Heath "Swainsonii inflata," to Mr Stanley, for 6 Calceolarias to Mr. Lewis, gr. to T. Hurd, Esq., Kentish-town, for do.; to Mr. Catleugh, for 6 Fuchsias; to Messrs. Lane and Son, for do., to Mr. Hoyle, Guernsey, for a Seedling Pelargonium "Exquisite," to Mr. Bragg, Slough, for 24 Pansies, to Mr. Gaines, for 12 fancy Pelargoniums.

CERTIFICATES OF MERIT.

To Mr. Bray, gr. to Sir J. L. Goldsmid, Bart., Regent's-park, for Pelargonium "Queen Victoria;" to Mr. Green, for Ixora coccinea; to Mr. Paine, for Cereus Scottii; to Mr. Malyon, for 6 Fuchsias; also for 4 Cinerarias; to Mr. Catleugh, for do.; to Mr. Gaines, for 6 Fuchsias; also for Seedling Pelargonium "Lord Hardinge" (1845); also for do (1846) "Model," also for Seedling Calceolarias "Robusta" and "Exquisite;" to Mr. Hoyle, for Seedling Pelargoniums (1845) "Sunset" and "Heidos;" to Mr. Beck, for do (1846) "Pasha" and "Crœsus," to Mr. Hoyle, for do. (1846) "Precision," to Mr. Stanley, for a Seedling Calceolaria "Fair Maid of Kent," to Mr. Standish, Nurseryman, Bagshot, for do. "Acme," to Mr. Cutler, Florist, Slough, for 24 Pansies; to Mr. Parsons, gr. to A. George, Esq., Enfield, for do.; to Mr Costar, Benson, for 24 Ranunculuses; to Messrs. Tydo and Son, Nurserymen, Wallingford, for 24 Seedling do.; to Mr. Mitchell, Brighton, for do.; to Mr. Wheeler, gr. to M. P. Guimarens, Esq., Maidahill, for 6 Pelargoniums, "Queen Victoria."

EBECK informs the Public that the various Articles manufactured by him in Slate for Horticultural purposes, may be seen in use at Werton Cottage, Isleworth, upon application to the gardener (*Sundays excepted*).

ROSES.
MESSRS. H. LANE & SON'S ROSES are now in BLOOM, and will continue during the season. The Home Nurseries are within ten minutes' walk of the Berkhampstead Station on the London and Birmingham Railway.
Great Berkhampstead, Herts, June 13.

HERTFORD NURSERIES.—ROSES.
F. P. FRANCIS'S Extensive Collection of ROSES will be in full bloom on and after June the 15th. An early inspection is respectfully solicited.

ROSES IN BLOOM.—RUGBY NURSERY, WARWICKSHIRE.
J. COLE begs leave respectfully to invite the attention of the Nobility, Gentry, and Amateurs, to his superb collection of ROSES, which are now in full bloom, and will continue in flower during the Rose season.—June 13.
All Trains stop at Rugby Station.

ROSES IN BLOOM.
A. PAUL & SON, NURSERYMEN, &c., Cheshunt, Herts, having been requested by their patrons to give public notice of the time when their ROSES would be in perfection, they beg to announce the present time, and most respectfully invite inspection. Every novelty obtainable has been added, and there will be a succession of bloom till November.
The best way of reaching the Nurseries is by Eastern Counties Railway to Waltham-cross, thence two miles by Omnibus. There are 15 trains down, and the like number up, daily, and the whole distance is accomplished in an hour.

ROSES.
E. DENYER, NURSERYMAN, FLORIST, &c., Brixton, Surrey (within three miles of London), respectfully informs Noblemen, Gentlemen, and the Public, that his ROSES may be seen in BLOOM from the 15th inst., comprising all the newest sorts extant, and upwards of 600 varieties, forming one of the best collections in the country. Orders taken, and delivered in November next.
Admittance gratis, Sundays excepted.—June 13.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.
WM. WOOD & SON have the honour of announcing to their Friends and Lovers of ROSES, that their superb and extensive collection of this very popular flower is now coming into bloom, and will continue in perfection during the Rose season.
Maresfield is 12 miles distant from the Hayward's Heath Station of the London and Brighton Railway. The Lewes Coach, passing through Maresfield, leaves the Golden-cross, Charing-cross, every Tuesday, Thursday, and Saturday, at 10 o'clock, A.M. Admittance gratis daily (Sundays excepted).

ROSES.
T. RIVERS informs his Friends that his collection will be in full Bloom after the 14th inst. Those who love ROSES may spend an entire day among them, as the collection is far more extensive than ever, in one quarter alone, of two acres, are 80,000, 40,000 of which are Hybrid Perpetuals growing and blooming with the greatest luxuriance. Down trains per Eastern Counties Railway, calling at Harlow and Sawbridgeworth stations, each about one mile from the Nursery, leave Shoreditch at 8, half past 8, 9 A.M., and 2 P.M.
Sawbridgeworth, Herts, June 13.

NURSERIES KENSINGTON, AND AT READING, BERKSHIRE.
MESSRS FORREST & Co. beg respectfully to direct attention to their extensive collection of ROSES now in flower at the Reading Nurseries. This is a good time to see the distinctions, and consequently a proper season for selection for autumnal planting. They beg also to direct attention to their superior collection of FRUIT TREES of all kinds at both establishments, which are very fine and free from blight. As some of the tender kinds of Stone Fruit-trees will be scarce this season, R. F & Co recommend their numerous friends to forward their orders early.

CUPHEA CORDATA.
MESSRS. VEITCH AND SON beg to offer the above beautiful Greenhouse Plant, which is figured in Curtis's "Botanical Magazine" for January last, Tab. 4208, where Sir W. J. Hooker gives it the following description—*viz.* "A truly beautiful plant, from the rich scarlet of its two large petals and calyces. Would that all the species of this extensive genus were as distinctly marked as the present one! It is a native of hills and woods in Peru, about Huassahuassi, Chacilla, Acomayo, and Huanuco; and from that country seeds were sent to Mr. Veitch, of Exeter, by his collector, Mr W Lobb, in 1842, from which plants were raised that bloomed in August, 1845."
Messrs. V. & SON would further add, that it is a profuse bloomer, with crimson panicles of from 6 to 8 inches long at the termination of every shoot; it doubtless will prove a delightful plant for turning into the open garden during the summer months.
Strong plants will be delivered on and after Monday the 15th inst., at 21*s*. per plant, with one over on every three taken by the trade.
N B. Messrs. V. & SON require a Post-office order from unknown correspondents previous to executing orders.
Exeter, June 13.

NEW AND SUPERB PANSY, "MASTER THOMAS."

YOUELL & CO. in offering the above Pansy, beg to refer to the report of it in the *Gard. Chron.* of May 20, page 366, under the signature of "E. S." as follows:—"61. Fine form, colour, and substance, mulberry-purple top petals, with a perfect belting of deep blue round the lower petals; the eye of this flower is singularly large, giving great richness to the appearance of the flower." The stock being very limited, orders will be executed in strict rotation, price 7s. 6d. per plant, post free; or with 11 other first-rate varieties for 10s. per post, free.

Y. & Co are now sending out, per post, free, their superb collection of CHRYSANTHEMUMS at 6s. and 12s. per dozen. Catalogues of their extensive collection of Fuchsias, Verbenas, Petunias, Cinerarias, Pansies, Camellias, Ericas, &c. &c., may be had on application.—Great Yarmouth Nursery, June 13

F. C. BALL, successor to Mr. JOHN YOUNG, begs to announce that he is prepared to execute orders immediately, in strong plants, for any of the under-mentioned.

PELARGONIUM "MARIA," very fine, large, rosy-purple (see *Gardeners' Chronicle*, 1845, p. 582—"Your Seedling is an improvement on many of the same rosy-purple colour, and is a bright and pretty variety, and can be recommended." Fine Plants, 2s.

LOBELIA FULGENS MULTIFLORA. See *Gardeners' Chron.*, 1844, p. 502—"Your Seedling Lobelia is a very handsome variety. The lip is large and broad, of a rich and dazzling scarlet," some of the spikes of flower measuring from 12 to 14 inches in height, fine Seedling Plants of the above Lobelia at 12s. per doz.

LOBELIA ERINUS GRANDIFLORA, 9s per doz.

" Millerii,
" speciosa,
" rosea, } 6s per dozen, fine.

Bouvardia strigosa, 1s; B. splendens, 1s., fine; B. hottorphylla, 1s, fine.

Alstroemeria acutifolia	2s.	0d.
Tacsonia exoniensis, 6 to 9 inches	10	6
Lyperia pinnatifida, good	2	6
Alona cuneata	2	0
Veronica speciosa	2	6
Stachys inodora, recommended for bedding, at, per dozen	9	0
Androsace ceraatifolia	2	0
Fuchsia serratifolia	3	6
Calceolaria floribunda, for bedding	2	6
Roses, two species, Chusan, each	3	6
Do. one do Amoy	3	6

With a few plants to compensate for carriage. An allowance to the Trade.—Taunton Nurseries, June 13.

MESSRS. J. AND H. BROWN inform the Nobility and Gentry they are now sending the following desirable plants to any part of the United Kingdom.

	s.	d.	
Dahlias, all the newest and best sorts	9	0	per doz
Belladonna Lily, very fine bulbs	8	0	"
Fuchsias, 50 of the most approved show sorts	30	0	
Fuchsia serratifolia and Queen Victoria	2	6	each
Verbenas and Petunias, the newest and best sorts	4	0	per doz
Calceolarias and Cinerarias, 6s and	9	0	"
Helictropiums, Pinks, and Pansies	4	0	"
Lobelias, upright and trailing varieties	6	0	"
Salvia Patens, Fulgens, Variegata, and 4 others	6	0	"
Pentstemons, 6 sorts	6	0	"
Potentillas, 6 sorts	6	0	"
Phloxes, 18 sorts	6	0	"
Antirrhinums, 6 sorts	6	0	"
Œnothera Teraxifolia, and Mirabilis	6	0	"
Catananche bicolor	4	0	"
Gazania 4 sorts	8	0	"
Oxalis floribunda	8	0	"
Campanula, 6 tall and 6 dwarf varieties	6	0	"
Alstrœmerias, 6 sorts	1	6	each
Carnations of best sorts	9	0	per doz
Scarlet flowering Stachys inodora	9	0	"
Gaillardia coccinea, and 3 others	6	0	"
Scutellaria splendens, and Ruthalis microphylla	8	0	"
Anagallis Beweril, Grandiflora, and Bicolor	6	0	"
Bouvardia Splendens, Flava, Angustifolia, and Strigosa	8	0	"
Double blue Tree Violet	8	0	"
Linum flavum	6	0	"
Chrysanthemums, choice sorts	6	0	"
Scarlet and other Geraniums	4	0	"
Variegated do.	4	0	"
Duke of York, new strong grower	2	6	each.
Perpetual Queen, fine new scarlet	2	6	"
General Tom Thumb	1s each, or 9	0	per doz.
50 superior species of Herbaceous and Rock Plants	20	0	
25 ditto ditto ditto	10	6	

Tea-scented Roses (in pots), one of a sort, including Bliss Sauvage, De-Mont, Belle Allemand, Bride of Abydos, Devoniensis, &c 12 0 per doz.
Cloth of Gold, Noisette Rose 3 6 each.
12 superior varieties of Climbing Roses 8 0 per doz.

HARDY CLIMBERS

Tobsea, Macrandyas, Lophospermums, Calampeals, and Rhodochiton	6	0 "
Clematis azurea grandiflora	2	0 each.
Clematis montana	1	6 "
New Scarlet Trumpet Honeysuckle	2	0 "
New Yellow Honeysuckle	2	0 "
Double Red Pomegranate and Solanum crispum	1	6 "
Wistaria sinensis and Passiflora of sorts	1	6 "
Jasmines, of sorts, Aristolochia, Virginian Creeper, Variegated Ivy, Buddlea globosa, and New Blue	9	0 per doz

Greenhouse and Stove Plants in great variety.

Fuchsias, Petunias, Verbenas, and many other plants, are sent by post pre-paid. Foreign commissions for Seeds and Plants of all kinds carefully executed.

Albion Nursery, Stoke Newington, London, June 13.

TO IMPORTERS OF DUTCH FLOWER ROOTS.

H. D. KRUSEMAN, JUN., FLORIST, at Haarlem, in Holland, begs to inform the Nursery and Seedsmen in general that to his regret his annual parcel of Catalogues to the trade, which was sent to his correspondents in the City to be forwarded *franco* to the different addresses, was opened by the Custom-house Officers, and the contents being considered as liable to the regulations of the Post-office, was sent there, and have no doubt since been sent round with the charge of postage. Although no blame can attach to Mr. KRUSEMAN, Jun., he still very much regrets the circumstance, and will be happy to reimburse the postage to those parties who may have paid it, to any order with which they may please to favour him, and, on application, a fresh Catalogue will be forwarded, pre-paid, to any house wishing for the same.—Haarlem, June 13

DUTY OFF GLASS.

GREEN AND HOTHOUSES, CONSERVATORIES, &c., made and fixed Complete in all parts of the Kingdom, at a considerable reduction. One, two, and three-light Cucumber and Melon Frames, and Lights of all sizes, kept ready for use, packed and sent to all parts of the Kingdom; warranted best materials. Two-light Frames and Lights complete, from 11 5s. Garden Lights of every description, at JAMES WATTS'S Hothouse Builder, Claremont-place, Old Kent-road.

References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

FUCHSIA "MAGENTEA."

MESSRS. VEITCH AND SON have much pleasure in offering the public this above magnificent FUCHSIA, introduced by them some time from Peru through their collector, Mr. W. Lobb, and at present solely in their possession. It is perfectly distinct from any other introduced species, having flowers of a cylindrical form, from 4 to 6 inches in length, of a beautiful delicate rosy red colour, produced in profuse clusters. It is of a dwarf habit and a most abundant bloomer. It was exhibited at the Horticultural Society's Meeting in Regent-street, on the 7th of April last, and was awarded the Large Silver Medal. It is figured in Curtis's and Paxton's Magazines for this month, where full descriptions appear.

Messrs. V. and Son can with confidence recommend this Fuchsia, both as a beautiful and highly ornamental plant, as well as a medium for distinct and successful hybridisation.

The mode and terms on which they disposed of Fuchsia Serratifolia having given such general satisfaction, they offer the above on similar terms, viz. 21s per plant, with one over on every three taken by the trade.

Strong established plants will be delivered on and after Monday, the 15th inst. Orders executed strictly in the rotation received

N B.—Parties wishing to see a drawing of the above Fuchsia prior to ordering it, can immediately be furnished with one by forwarding 12 Postage stamps.

Messrs. V. and Son require Post-office orders from unknown correspondents previous to executing orders.

Exeter, June 13.

PINES.—FOR SALE, 60 Good Suckers of "RIPLEY QUEEN" PINE, at 1s. each.—Apply to Mr. TOMSON, Ealing, Middlesex.

H. GROOM, CLAPHAM RISE, near LONDON (By APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY), begs to say his Catalogue of GERANIUMS, AURICULAS, LILIUM LANCIFOLIUM, and NEW PLANTS is ready, and will be forwarded by post on application.

H. G has a fine stock of CARNATIONS and PICOTEES. His Anemones are now in flower, and may be viewed every day from 9 o'clock until 6, Sundays excepted. Admittance Gratis.

*** Foreign orders executed.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

BEE-HIVES.—All persons desirous of Cultivating that pleasing and profitable branch of rural economy—the Honey Bee—are respectfully informed by G NEIGHBOUR & SON, that they have prepared, for the season an extensive supply of their various improved BEE-HIVES, their collection consists of "Nutt's Collateral Hive," "The Single Box Hive," "The Improved Cottage Hive" "The Ladies' Observatory Hive," &c, from either of which the Honey may be taken at any time without injury to the Bees, and may be worked with safety, humanity, and profit, by the most timid and unaccustomed to Bee-manipulation. A descriptive paper, with drawings and prices, will be forwarded on receipt of a postage stamp. Apiarian Depôt and Honey Warehouse, 127, High Holborn, London.

NUTT ON BEES, (6th Edition) just published.

GLASS DAIRY PANS

EDWARDS & PELL, FOREIGN AGENTS AND IMPORTERS OF GLASS AND GLASS MILK PANS, have received a large supply of PANS from 18 to 23 inches in diameter They are made of great strength, and are very cool and cleanly Cold water cleans them quite as well as hot, and without trouble

EDWARDS & PELL have also a large stock of Propagating Glasses of the most approved form

The very best Glass for Horticultural and other purposes, very strong and free from specks.

15, Southampton-street, Strand

FOREIGN SHEET GLASS, GLASS TILES, &c.

C. JARVIS begs to inform his Patrons and the Public, that he has succeeded in making a large purchase of the above articles of the STOUTEST KIND from a new Manufacturer abroad, at a very low rate, who from circumstances was compelled to make a sacrifice, and which he has just imported. In consequence of having effected so great a bargain, he can offer the same at a less price (for ready money only) than he has hitherto received from extensive purchasers for the thinnest quality, at his old established WINDOW GLASS WAREHOUSE, 38, Great Castle street, a few doors from Regent-street.

Any other description of Window Glass equally low in price.

FOREIGN AND BRITISH SHEET AND CROWN GLASS for Hothouses, Garden and other purposes.—R. COGAN having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists

per gross		per gross.		per gross.	
6 in. by 4	6s.	8 by 5	13s	9 by 7	18s
7 in. by 4½	9s.	8 by 6	14s	10 by 8	26s

R. C will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BELL, CUCUMBER, & GRAPE GLASSES of every description, cheaper than at any other house.—For New Lists, apply to R COGAN, Glass, Lead, and Colour Works, 48, Leicester-square London

IMPORTANT TO HORTICULTURISTS.

THE ARTICLE GLASS.

MESSRS. DAINES AND BRADDOCK solicit the inspection of Glass Dealers, Horticulturists, and Builders, to an entirely new description of BRITISH SHEET GLASS, which, upon trial, will be found unequalled in strength, utility, and price, by any now in the market, for Sashes and particularly Horticultural purposes, and by patronising this article the evil results attending the use of foreign and other Glass of ordinary composition will be entirely avoided, as in manufacturing the above Metal great care and skill has been used to divest it of the slightest tendency to concentrate the rays of the sun, a fault in many cases ruinous to plants.

6, Farringdon-street, June 13.

N.B.—The best assortment of Coloured Glass in London.

BRITISH AND FOREIGN SHEET GLASS, for Horticultural purposes, &c., may be had at JAMES BROMLEY'S 315, Oxford-street, London, at the following reduced prices:—In crates containing about 200 feet of coarse 18 oz., at 4½d. per foot, or 4th quality, 5d. per foot, ditto, 16 oz., coarse, 5½d. per foot; ditto ditto, 4th quality, 6d per foot. Or cut to any size not exceeding 40 inches long by 10 inches wide, at ½d. per foot extra.

Also Microscopical Glass, French Shades, Plate and Crown Window Glass.

A discount to the Trade.

BRITISH AND FOREIGN SHEET AND HORTICULTURAL GLASS.

PHILLIPS AND WELCH have to announce to the Nobility and Gentry, that they have just concluded arrangements with J. WELCH, jun., TRELLIS and Co., for the purchase of the business lately carried on by them, at 12, Panton-street, and beg to call attention to their extremely low prices for Horticultural Glass of every description.

PRICES OF HORTICULTURAL GLASS;

Not above 60 in. long by widths from 5 in. to 18 in.

No. 13	British or Foreign sheet 13 oz. to the foot	4d.	per foot.
" 16	16 " "	5d.	"
" 21	21 " "	7d.	"
" 26	26 " "	11d	"
" 32	32 " "	1s. 2d.	"

SMALL SQUARES.

Packed in 100 feet Boxes, not particular to thickness.

Under 5 in by 3 in.	1½d	per foot.
5 by 3 and under 6 by 4	2d.	"
6 by 4 " 9 " 7	3d.	"

FOR GLAZING.

Black Cement, as used at Chatsworth. 24s per cwt.
Best Linseed Oil Putty 10s. "
White Lead, Window Lead, Solder, &c. &c.

Horticultural Glazing Executed in any part of the United Kingdom.

The selection of Patent Plate, Sheet, and flatted Crown Glass for Pictures, &c., particularly attended to.—12, Panton-street, Haymarket.

PROPAGATING GLASSES, White, 1s. per lb., or from 2s. 6d to 24s. per dozen. CUCUMBER GLASSES, from 6d. to 4s each. GRAPE SHADES, with holes, 1s 9d to 2s. 6d each. FISH BOWLS, from 1s. 6d. each.—APSLEY PELLATT & Co., Falcon Glass Works, Holland street, Blackfriars.

GLASS FOR CONSERVATORIES.

APSLEY PELLATT AND CO., Falcon Glass Works, Holland-street, Blackfriars, are prepared to supply (in quantities not less than 100 square feet), SHEET AND CROWN GLASS OF BEST QUALITY, at the following *Net Cash Prices*—

Any size under 40 ins. long.	Per square foot.
13 oz. weight per foot	4d.
16 oz. " "	5
21 oz " "	7
26 oz. " "	11

SMALL Squares up to 10 ins. by 8 ins., from 1½d. to 3d. per square foot.

N.B.—The 16 oz. is full strength for Greenhouses.

CURTIS'S BUDDING KNIFE.—"This is the neatest Budding Knife we have seen, the ivory handle is shaped like the blade of a curved Penknife, sharp and turned up at the point, and is evidently extremely well contrived for the purpose it is intended"—*Opinion of Professor Lindley in the Gardeners' Chronicle, July 29, 1843.*

GEORGE PLOM, Surgical Instrument Maker and Cutler, No. 262, Strand, London, and at No 8, Dolphin-street, Bristol, begs to call the attention of the public to the above desirable article. Sent free to any part of the kingdom, on receipt of 38 penny postage stamps, or a post-office order for 3s 2d

G. P. cautions Floriculturists and the Public in general against numerous imitations of the above article, he being the only appointed Manufacturer.

ORNAMENTAL WIREWORK FOR THE GARDEN.

G. B. THOMPSON AND CO. beg respectfully to announce that they continue to prepare at their Manufactory, 390, Oxford-street, London, all kinds of Fancy Ornamental Wirework suited for the Garden, Greenhouse, or Conservatory, consisting of Flower Trainers, Stands and Borders, Garden Arches, Seats, and Vases, Improved Garden and Hothouse Engines, Syringes, Fumigating Bellows, and other Floricultural Implements.

Also, G B THOMPSON'S Improved Waterpot, which possesses considerable advantages over all others, the smaller sizes being suitable for ladies' use. They have now on sale a novel folding portable Wooden Garden Chair, at 8s 6d each, or 36s. per doz, which quantity is packed in a small space.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

TO THE NOBILITY, GENTRY, NURSERYMEN, IRONMONGERS, AND OTHERS.

LINGHAM BROTHERS, 170, Little Hampton-street, Birmingham, sole Manufacturers of the IMPROVED MENOGRAPH, or Labels for Garden Borders, Flower Pots, &c. Engravings of the same, with prices attached, sent per Post to all parts of the Kingdom, on application as above.

Sole Agents in London, G. and J. DEANE, Horticultural Implement Warehouse, 46, King William-st., London Bridge.

HORTICULTURAL IMPROVEMENTS

J. READ begs to inform Ladies, Amateur and Practical Gardeners, that he has taken out a NEW PATENT for Improvements in his Garden Engines, Machines, and Syringes. The action of the Valves is such as to prevent the possibility of their getting out of repair, which J. R., from 31 years' practical experience can safely warrant The above are adapted for Forcing Houses, Conservatories, &c., surpassing anything of the kind ever offered the public, inasmuch as they can be worked with half the labour of any other Engines now in use Manufactured only by the PATENTEE, 85, Regent-circus, Piccadilly, where they may be seen and proved.

N.B.—None are genuine except stamped with the words READ'S PATENT.

STEPHENSON AND CO., 81, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

DRIED PLANTS FROM CHINA.—A few sets of the VALUABLE DRIED PLANTS collected in China by Mr. FORTUNE, may still be procured by applying to R. HOWARD, Esq., Young-street, Kensington, London. Among them are many new and rare species scarcely known to Europeans.

ROYAL BOTANIC SOCIETY.—The LAST EXHIBITION this season in the Gardens of this Society in the Regent's-park, will be held on WEDNESDAY, JULY 1st, and will include FRUIT. Tickets can be obtained at the Gardens by presenting an order from a Subscriber, price 5s., or on the day of the Exhibition 7s. 6d. each.

PROMENADES, to which Fellows have the privilege of admitting their friends, will continue to be held every Wednesday in June and July, except July 1st.

J. D. C. SOWERBY, Secretary.

The Gardeners' Chronicle.

SATURDAY, JUNE 13, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS

TUESDAY,	June 16—Linnean	. . . .	8 P.M.
WEDNESDAY,	— 17—Society of Arts	. . . .	8 P.M.
WEDNESDAY,	— 24—Royal South London	. . . .	1 P.M.

COUNTRY SHOWS.

TUESDAY,	June 16	Stamford Hill Horticultural.
WEDNESDAY,	— 17	Scottish Fancy Society.
THURSDAY,	— 18	Chichester Mechanical
THURSDAY,	— 25	Gravesend and Milton Hort. Society.
THURSDAY,	— 25	South Essex Hort. and Floricultural.

WE have received so many complaints from well meaning persons and others against our refusal to occupy our pages with WEATHER PREDICTIONS, which the first have a craving for and the latter live by, that we are glad to extract from the *Athenæum* the following paragraph, which must be our answer to such remonstrances:—

"In the 'Annuaire' for the present year, M. ARAGO takes occasion, once for all, to dispose of those weather-predictions which annually make the circuit of Europe falsely stamped with his authority. 'Engaged,' he says, 'both by taste and duty, in meteorological studies, I have frequently been led to consider whether it will ever be possible, by means of astronomical calculations, to determine, a year in advance, what, in any given place, will be the annual temperature, that of each month, the quantity of rain, or the prevailing winds. I have already presented the readers of the 'Annuaire' with the results of the inquiries of the natural philosophers and astronomers concerning the influence of the moon and comets on the changes of the weather. *These results demonstrate peremptorily that the lunar and cometary influences are scarcely sensible;* and therefore that weather-prophecy can never be a branch of astronomy properly so called. For, in fact, our satellite and the comets have been at all times considered in meteorology as the preponderating stars. Since those former publications, I have examined the subject in another point of view. I have been inquiring if the labour of men, and if events which must always escape our scrutiny, may not have the effect of accidentally and very sensibly modifying climate—as regards temperature in particular. Already I see that facts will yield me an affirmative answer. I should greatly have preferred to delay the announcement of that result until after the completion of my work; but let me candidly avow that I have sought to make an occasion *for protesting aloud against those predictions which are yearly laid in my name at home and abroad.* No word has ever issued from my mouth, either in the intimacy of private communication or in my courses delivered during thirty years—no line has ever been published with my assent—which could authorise the attribution to me of an opinion that it is possible, in the present state of our knowledge, *to foretel with certainty what the weather will be,* A YEAR, A MONTH, A WEEK—nay, I will say, A SINGLE DAY, in advance. I trust only that the annoyance which I have experienced at seeing a host of ridiculous predictions published in my name may have not have led me, by a sort of reaction, to give exaggerated importance to the causes of disturbance which I have enumerated. At present I feel entitled to deduce from the sum of my investigations this capital consequence: NEVER—*whatever may be the progress of the sciences—will the savant, who is conscientious and careful of his reputation,* SPECULATE ON A PREDICTION OF THE WEATHER.'"

This ought to be decisive as to the fate of the weather prophets, whose opinions may be best consigned to that limbo where man's lost wits are findable.

THE following statement has been received from a correspondent:—"The stems of our VINES are completely overgrown with roots, some of which are from nine inches to a foot in length. During hot dry weather the points of these rootlets shrivel; but on the return of dull weather, they begin to push again above the shrivelled points. As it will be requisite in a short time to withdraw moisture on account of the ripening of the Grapes, in what way ought we to proceed? Or do you consider it a sign of unhealthiness, as it is fixed it is, the borders being very bad? They are upwards of 5 ft. deep, and of a rather stiffish clay. The house is kept pretty moist by means of pans on the flues."

The Vine possesses a very strong vegetating power, which is manifested whenever sufficient heat and moisture are present. It is also well known that if one portion or shoot of a Vine-plant is introduced to an atmosphere congenial to its growth, the buds will push into foliage and shoots; whilst the rest of the plant, exposed to cold, will not be perceptibly affected, and will contribute nothing to the active vegetation of the branch introduced to heat and moisture. According to circumstances, therefore, vegetation may be active in one part, and at the same time comparatively dormant in another part of the same Vine-plant.

The circumstance of Vines under glass emitting roots at the joints along the shoots is not uncommon. We wish it were less so, for it is injurious to the future prosperity of the Vine, and tends to prevent the existing crop from acquiring perfection. We must endeavour to explain the cause, consequences, and remedy.

Moisture favours the formation of these roots. As our correspondent stated they shrivel in hot dry weather, but push again on the return of a dull or moist state of the atmosphere. But the principal cause of their appearance is not moisture. They arise from the shoots being in a highly favourable situation for growth, and the roots in the reverse. The leaves elaborate a quantity of sap proportionate to their size, and to the share which light has had in perfecting their development. Part of this elaborated sap is appropriated by the above-ground portion of the plant. But in ordinary cases, and more especially where a vigorous growth is promoted, there is always a surplus beyond what the stem and its dependencies above ground require, and the proper destination of this is the roots, in order that their increase may correspond with that of the plant above them. But roots in a border 5 ft. deep, and of a clayey nature, will be in a temperature little above 40° early in spring. At about 40° water has its greatest density. Under such circumstances any movement in the fluids of the roots must be extremely sluggish; and were those roots as open to observation as the stem is, there is no doubt they would be found as dormant as a shoot left outside in the cold, compared with another introduced to the heat of a forcing house. When the roots of Vines are healthy, in proper soil sufficiently warm, their growth proceeds in due proportion to that of the top, but if they are badly conditioned, they can neither act their part nor appropriate their share of the returning juices; consequently an accumulation of the latter takes place in the stems, and, favoured by the moist warm atmosphere of the Vinery, bursts through the bark in the form of spongioles, continuing to lengthen till they are checked by drought.

An extraordinary production of these aerial roots was observed to take place whilst an experiment was being made with a Black Hamburgh Vine, in the garden of the Horticultural Society. It had grown vigorously in an open border, along with other varieties, forming part of the collection of Vines; growing at full freedom, no rootlets broke out from the shoots. A 3-light frame was placed over this plant, and made as air-tight as possible; the sashes were never opened, except to supply water to the roots; a thermometer inside the frame was generally raised every day above 140° by sun heat. An Orchid placed in a shaded part of the frame was killed in two days, yet the Vine continued to grow. It burst its winter buds rapidly into shoots, and almost as soon as the buds on these young shoots were formed, they also pushed, weaker of course, and again still weaker growths proceeded from these secondary shoots. Meanwhile a vast number of roots issued from the shoots trained horizontally near the glass, and these roots soon reached the surface of the ground, which became matted by them, for it was moist, and for a little way sufficiently warm, by reason of the sun-heated air in the frame. But with regard to the old roots in the earth, the case was very different. The heated air of the frame could but slightly affect the soil at the depth where they were situated, whilst those extending beyond the limits of the frame were of course entirely beyond its influence.

It may be safely concluded when Vines are seen throwing out roots in the air, that the roots in the soil are in bad condition, provided only a due degree of heat and moisture has been maintained in the house. But in the Vine, which will bear great vicissitudes of temperature, a disparity may take place in two ways, so as to produce the effect in question: either the temperature of the border may be much too low, whilst that of the Vinery is not too high; or the border may be rendered comfortable enough in every respect for the roots, whilst the conditions of heat and moisture in which the shoots are placed, like those in the experiment above detailed, may be much too high.

The consequences which result from a profusion of branch-roots on the Vine are these; they act as spongioles, and absorb moisture and gases from the air in the house, and they tend to increase the breadth of the foliage and swelling of the berries; even the thickness of the wood is considerably increased by them, for it is not uncommon to see a Vine branch smaller at the base than higher up; in short they are sources for the supply of nourishment. But they are *sources which dry up when they are most wanted.* They ought not, therefore, to be at all encouraged. They assist in forming a widely expanded foliage during moist weather; and when dry weather demands a greater supply, to compensate for increased evaporation from broad foliage, the stem-borne rootlets contribute nothing, they themselves being dried up. To their precarious supply may be partly attributed the shanking and shrivelling of fruit. They should be checked in time by allowing the air in the house to become occasionally dry instead of feeding them constantly with water from evaporating pans. But above all things, their appearance should be prevented by maintaining a due proportion between the temperature of the air and earth in which the Vines are plunged. We know that some learned Vine-growers will scratch their heads and wonder what a due proportion signifies; but if they will study they will learn, and if they will not study we will tell them one of these days.—‖.

DOUBLE BROMPTON, QUEEN, AND TEN-WEEK STOCKS.

FEW hardy plants are more valuable than the different varieties of Brompton, Queen, and Ten-week Stocks, when double, and clear in colour, either as objects for decorating the flower-garden or the sitting-room, both as regards their fragrance and long duration, and at the same time there are few plants upon which there is so much uncertainty. Very few persons care for the single Stock, while in the double state it is the admiration of everybody. I shall, therefore, endeavour to point out the surest means of obtaining double flowers, and at the same time show how they should be treated, so as to have plants in bloom from April to November, and even in very mild winters all the year round. In commencing, first procure, if possible, seeds of a good kind (that is, from some place where more double than single ones are produced from the seed) for in so doing you may save yourself much disappointment.

They are exceedingly easy of cultivation, merely requiring to be sown in a rich loamy soil, not very retentive, and at different seasons, so as to produce a succession. Those which should be put in at the present season, namely, the Brompton and Queen Stocks, should be sown at two different times, one about the end of June, and again in the end of July, in a border or bed not very rich or confined, merely screened from the mid-day sun. If such a situation is, however, not convenient, sow in the open ground and put a few twiggy branches over the beds, placing the branches flat on the ground, which will be quite shade enough, removing them again as soon as the young plants begin to show their first rough leaves, otherwise they become drawn, and consequently never flower well.

In sowing the Brompton and Queen Stocks always sow rather thinly, and on ground which is somewhat firm, for if sown on very loose fresh dug ground, and if the soil is rich, which it should be, the plants grow too rapidly, become soft, and are very liable to be destroyed in winter if the latter should prove severe. When large enough, which will be by the beginning or middle of August, transplant them into a moderately rich soil, and water freely after planting if the weather is dry, but if possible defer planting until showery weather. In making a selection for transplanting, first reject all the very strong-growing plants, because they are almost sure to be single ones, and also those with a single tap root, preferring only the smaller stunted plants with horizontal fibry roots, as those in most cases produce double flowers.

In planting at this season, much of the success depends upon the kind of winter which follows, and it is a very good plan to plant one portion on very poor soil, to stand if the winter should prove very severe, and another on rich soil (these should be the produce of the latter sowing), to produce fine flowers, in case the following winter should prove very mild. These plants [illegible] flower from the end of April to the middle of July [illegible] should be supplied with manure [illegible] particularly [illegible] or even longer, and [illegible] water once or twice in April and May, [illegible] planted in rather poor soil.

The next sowing should be of Ten-week Stocks, for potting and keeping in cold pits or frames during winter to be afterwards turned out into the open borders, about the end of April; the seeds of these are best sown on a good rich border, about the beginning of September in the same manner as those of the preceding, and selection should be made in the same manner, rejecting the very strongest and tap-rooted plants as much as possible. When the plants are sufficiently large, pot them in 5-inch pots (48s), putting three or four plants into each pot round the side, and in very rich compost; they must be shaded for a few days, and afterwards

placed in a somewhat sheltered situation, so that they may remain out of doors as long as possible before they are placed in the pit for winter; otherwise, if placed in the pit or frame too early they get drawn, or lose their bottom leaves and become unsightly. In spring, as soon as they begin to grow, allow plenty of air and remove the lights entirely on very fine days, watering frequently with manure water, or what is better, placing a portion of rotten dung on the surface of the pots. When the plants begin to show for bloom, the single ones can at once be pulled out, leaving only those that are double; these plants will flower in April and May.

In sowing in spring for a succession to flower from the middle of July until September, sow the various kinds of Ten-weeks in the open border, in very rich soil, about the middle of March, and thin out the strongest plants at first, and afterwards all the single ones as they show bloom (unless you want them for seed), and by the end of July you may have nothing but a bed of double Stocks; by transplanting some of the smaller plants about the end of May into very rich soil you may have a later succession of bloom; and, finally, if some purple and white Queen Stocks are sown at the same time and treated in a similar way, they will commence flowering in August, and remain in beauty until they are destroyed by winter weather. If the winter should not prove severe, however, these plants will keep on blooming until those sown in July take their place, thus producing a constant succession all the year round.

In many cases the most beautiful of all the kinds of Stocks, the Bromptons, get killed by the severity of the winter; but this may be avoided by taking up the plants before winter and potting them, or by planting them in a spare Melon pit or cold frame, and afterwards replanting them into the open ground in spring, but they never flower so well or grow so large as when they survive the winter in the open border.

In saving the seed much depends; for Stocks as well as all highly domesticated plants annually reproduced from seed, are very subject to degenerate, and it requires a constant vigilance to preserve or improve the race. I shall now endeavour to point out what is the best means of obtaining double flowers with good colours. In selecting the plants from which to save seed, choose always those with brightest and clearest colour, broadest petals, densest flower-spikes, most numerous side branches, and dwarfest habit; and avoid all those plants with few lateral branches, robust habit, thinly-set flower-spike, and broken colours. Much also depends on the season; for if the summer should prove a very dry and warm one, the seeds will be much better as regards the production of double flowers; while, on the contrary, if the summer should prove to be cold and wet, nearly all the plants will be single, and this accounts why the German-saved seed is always superior to that saved in England.

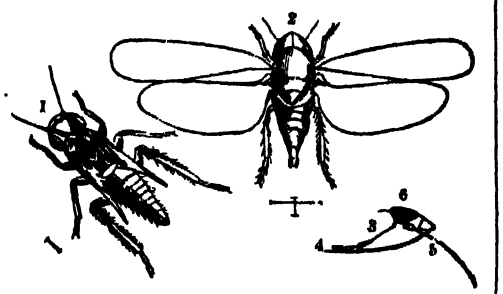
It should also be observed that the seed of each colour and kind of Stock should be saved at as great a distance from the other as possible; otherwise bad colours are the effect. The bottom flowers on the spike only should be allowed to produce seed, which is easily done by pinching the top ones off; and finally, the best seed is obtained where large quantities are grown, and where the plants are allowed to remain where sown, and treated as above stated. There are some who suppose because a plant with single flowers be surrounded by double ones, it must produce seed from which nearly all the produce will be double; but I need hardly say that such is not the case; for the quantity of double flowers has no effect upon the single, but merely indicates that the breed is a good one.—*G. G.*

ENTOMOLOGY.

EUPTERYX SOLANI (*the Potato Frog-fly.*)—This little creature is nearly allied to Tettigonia flavescens of Fabricius, which is occasionally found in September, but the former species is rendered deserving our attention, from its having been detected upon the Potatoes soon after the murrain manifested itself last year, as stated by a correspondent who transmitted specimens with the following observations:—"This insect appeared about the 23d of August: it resided underneath the leaves, but I could not perceive that it had done any injury to them, and they were not upon the stalks. It continued on the Potatoes until they were taken up on the 22d of September. They bred on the leaves, I presume, as there were both young and old on the plants, from four to twelve on a leaf. When we attempted to take them they would dodge or shuffle away to the other side of the leaf."

The genuine Froth-flies, we know, live in their larva and pupa states, in a liquor which is secreted to protect their tender bodies from the action of heat and cold, and they would, undoubtedly, weaken a tree or plant if they were to attack it in any considerable numbers. The Potato Frog-fly does not create any frothy secretion, but it is to be hoped that Potato growers will watch the economy of this species, and publish their observations. When and where the eggs are laid we know not, but the larvæ are little shy green animals, similar to the perfect insect, but destitute of wings: as the larvæ grow they change their skins, which are left sticking to the leaves, and in due course a pair of lobes become visible on each side of the back, and it is then considered to be in the pupa state. During all these periods of growth the animal subsists by piercing the cuticle of the plant with its rostrum, and imbibing the sap, at the same time causing a wound which interferes with the healthy circulation in the leaf or stem, and, robbing it of the full supply of nutriment.

This pupa is narrow, about 1 line long (fig. 1 greatly magnified), of a green colour, probably sometimes inclining more or less to a yellow tint, and the abdomen tapers considerably. The head is broad with two long antennæ, like fine black bristles (5); 2 large eyes (6); the face (3) is greatly elongated and attenuated to the extremity where the rostrum is attached, and passes along the breast between the hinder coxæ; it is flexible, composed of three joints, with the mandibles and maxillæ like bristles, distinctly visible at the apex (4); the sheaths inclosing the wings look like the pinions of a bird, and it has six legs, the hinder pair being the longest. Eventually the skin of this pupa bursts upon the back, and out crawls the perfect Eupteryx Solani, which is a winged insect, and it can leap, I expect, as well as fly short distances. It is likewise of an agreeable green colour, but becomes of a yellowish green when dead; the head is broader and shorter than it was in the pupa, and of a crescent shape above, with a brown prominent eye on each side (6); the face, however, which is nearly horizontal, is very long and somewhat ovate, producing a rostrum, as in the pupa, also two antennæ, which are shorter, composed of two small subglobose joints, inserted in cavities before the eyes, each furnished with a bristle; the thorax is transverse and smooth; the scutellum is subtrigonate, acuminated at the apex; the abdomen is attenuated, conical in the female, with a long and stout ovipositor, formed of sheaths enclosing the oviduct wings when at rest, lying over the body in a convex form; the elytra or superior wings are twice as long as the body, narrow and elliptical, the nervures scarcely visible; inferior wings nearly as long as the elytra, broader, excessively delicate and iridescent; legs six, very slender, anterior short, hinder very long; thighs short and slender; shanks, anterior armed with spines on the inside only, and not to the apex; hinder long, with a double series of spiny bristles on the outside; feet moderately long and triarticulate; claws and pulvilli minute; fig. 2, the cross lines showing the natural divisions.



An Hemipterous insect, closely allied to Phytocoris campestris of Linnæus,* is accused, in the United States, of injuring the Potato crops in a similar way. It is most abundant in June and July, although it has been found as early as the third week in April, and as late as the middle of October. Dr. Harris says it is the P. lineolaris of Palisot de Beauvois, and the Capsus oblineatus of Say. "During the summer of 1838,† and particularly in the early part of the season, which, it will be recollected, was very dry, our gardens and fields swarmed with immense numbers of little bugs, that attacked almost all kinds of herbaceous plants. My attention was first drawn to them in consequence of the injury sustained by a few Dahlias, Marigolds, Asters, and Balsams with which I had stocked a little border around my house. In the garden of my friends, the Messrs. Hovey, at Cambridgeport, I observed, about the same time, that these insects were committing sad havoc, and was informed that various means had been tried to destroy or expel them without effect. On visiting my Potato patch shortly afterwards, I found the insects there also in great numbers on the vines; and from information worthy of credit, am inclined to believe that these insects contributed quite as much as the dry weather of that season, to diminish the produce of the Potato-fields in this vicinity. They principally attacked the buds, terminal shoots, and most succulent growing parts of these and other herbaceous plants, puncturing them with their beaks, drawing off the sap, and from the effects visible, apparently poisoning the parts attacked. These shortly after withered, turned black, and in a few days dried up or curled, and remained permanently stunted in their growth. Early in the morning the bugs would be found buried among the little expanding leaves of the growing extremities of the plants, at which time it was not very difficult to catch them; but after they become warmed a little by the sun, they became exceedingly active, and on the approach of the fingers would loose their hold, and either drop suddenly or fly away. Sometimes, too, when on the stem of a plant, they would dodge round to the other side, and thus elude our grasp."—*Ruricola.*

* Curtis's Guide Gen., 1100,7.
† Harris's Treatise on Insects, p. 162.

Home Correspondence.

The Season in the South of Ireland.—This is the worst year I can recollect for a series of 20 seasons that has occurred in the south of Ireland. I may say that orchards are quite barren; after having very fine bloom, no fruit has remained, all having melted away. None of the superior kinds of Pears have anything on them, and the only ones that bear at all are the Sugar Pear, the Supreme, and (that never-failing and good Pear) the "Bishop's Thumb." Plum-trees are very bad and fruit scarce. Gooseberries are a fair crop, but not plentiful. Cherries very middling. In fact, the only things that look well are Strawberries, and unless well watered now, they will not swell. Parsnips, Carrots, Broccoli, &c. are all thin and plants poor—a bad look out for winter vegetables. We shall soon be digging new Potatoes here plentifully.—*J. B. Warren, Warren's Green, County Cork, Ireland.*

Luminosity of the Poppy.—In walking round my garden, in company with three friends, near nine in the evening, our attention was attracted by the dazzling appearance of a large red Poppy. On watching it attentively, we perceived it to emit vivid streaks of light, which appeared to play over the large gaudy flowers, so much so as to quite affect the eye-sight after looking upon it a short time. Have any of your readers observed the same, and can you account for so curious a phenomenon.—*W. D. G., Gosberton.* [We can find no such appearance.]

Rhododendron Arboreum.—There is no flower in the conservatory during the dull months of January and February, that can in any way vie, in elegance of habit, or brilliancy of colour, with the Rhododendron arboreum, and yet in how few instances do we meet with it in perfection; in how many do we find complaints made of the difficulty there is in inducing it to bloom at all; in fact, I have known many persons to have this plant in their care for years, and never to succeed with it; so that eventually one of the richest ornaments of our conservatories is discarded as worthless. I have a very handsome bush about 6 ft. in height in the conservatory here, which during the months of January and February last was truly splendid; it had 46 fine large heads of bloom fully expanded at one time, besides many more, both before and after, all of the richest bright crimson. This plant is now again set for bloom, and I expect will have about 65 or 70 heads; a smaller plant about 3 ft. in height is also beautifully set with blossom buds, and will flower any time during the next winter, according to its treatment. My attention was first drawn to this plant by seeing the very large specimens at Mr. Knight's in the King's-road, and I thought if smaller plants of the species could be made to flower as well, how very desirable they would be. I have been generally successful in my treatment, which mainly consists in a careful attention to the supply of water. During January and the four succeeding months they require a very plentiful supply; the four following, viz., June, July, August, and September, only half the quantity; and during October, November, and December, I give scarcely any, gradually drying the ball completely, even to punishing the plant. Perhaps these hints may have some effect in making the R. arboreum more universally cultivated and better blomed.—*J. L. Snow, Swinton Park, Bedale.*

The Nuthatch.—Mr. Wighton states that the nuthatch (the Sitta europæa), is not known in the west of England. This is so far from being the case, that it is common in many parts of Devonshire, if not throughout the county; and I have this year observed many pairs in this immediate neighbourhood, about a dozen miles west of Exeter. There is now a nest about a hundred yards from me, composed, as Mr. W. remarks, of the inner bark of the Fir. It is in a stone wall, and the entrance to it being too shallow to admit the hand, it was necessary to remove a stone in order to examine it; but the stone having been loosely replaced, it was found a few days afterwards most artistically plastered up, and the hole so reduced as only just to admit a passage for the bird. My experience disproves Mr. W.'s assertion that the nuthatch does not pilfer nuts from the bushes, as I have often remarked it selecting the finest nuts from bunches of Filberts; but as the studies of horticulture and natural history are often united, its interesting habits more than repay to the naturalist what is lost to the gardener.—*Subscriber.*——Mr. Wightou, of Norwich, tells us that the nuthatch, "on account of its habits and diet, is a welcome visitor to our gardens." By this I should expect that Mr. W. was well acquainted with the habits and diet of this little bird; but when he informs us that "it is a question whether it cracks nuts for the sake of the kernels, or for the insects or grubs which they may contain," another question is raised, which is—How far the nuthatch may be a useful or a welcome visitor in gardens? for if the bird cracks nuts, or indeed any other seeds, for the sake of their kernels, I should not wish them to visit my garden. But, be this as it may, I beg to tell Mr. W. that the nuthatch (Sitta europæa) never cracks nuts at all; and, further, as Nature always provides tools and strength sufficient to perform the work she has ordained to be effected, and as both strength and tools are wanting in this bird, no such work could ever be performed by it. If Mr. W. has not studied the relative strength of materials, it would be well for him to try how much more mechanical power it would take to crack a nut than it would to break the bill, or even the head of this little bird. Mr. W. says that the nuthatch "belongs to the family of woodpeckers, or creepers." If he knows anything of ornithology, he must know that the birds which constitute the family called woodpecker have two toes before and two behind; and, if to the creepers, it must have three toes before and one behind. But Mr. W. states that his bird (the nuthatch) "has only two toes before and one behind;" this appears the more strange, as I know well that the nuthatch has three toes before and one behind. It is very probable, too, that Mr. W. has not carefully examined the nest, which he certainly

ought to have done before he mentioned that it was made "of the fine smooth bark of the Scotch Fir." I am aware that Mr. W. is not the first to have written on this subject, and much in the same strain. The objects themselves, however, should be examined; the actions of animals observed, the causes of these actions traced out; one fact learned from personal observation is worth more than ten thousand book assertions, and one research based on personal observation is more valuable, in training the mind to the love of truth and to the admiration of the beautiful contrivances of Providence, in adapting means for the accomplishment of ends, than the mere study of books, which, when taken in a true light, can only be considered as gaining knowledge at second-hand.—*Anon, Mytholmroyd.*

Pigs and Asparagus.—Cobbett, in his "English Gardener" says, "Pigs, who are excellent judges of the relative qualities of vegetables, will leave Cabbages for Lettuces, and Lettuces for Spinach." Might he not have added, "and all three for Asparagus!" Last Monday morning an old sow paid me a visit in my garden, which is well stocked with most kinds of vegetables: Lettuces, Cabbages, Peas, Beans, Spinach, &c. The only thing she attacked was the Asparagus, almost every head of which she demolished upon two beds, which singularly enough, were 50 yards apart, with a Grass bank a yard high between them. Most of the above-named vegetables were in the immediate neighbourhood of the first Asparagus bed. Have any of your correspondents had the same painful experience of the partiality of pigs for Asparagus?—*St. Guthlac.*

Lepidium Draba.—There being only three known stations for this in Great Britain, I think it right to mention that I discovered the plant growing in great profusion, a few days since, among the rubbish near the first bridge over the Croydon Railway, going from the Dartmouth Arms to New Cross. The station is close to a house in the occupation of a Mr. Cutbush, and may be readily approached by a foot-path from the road over Forest Hill, which leads to the said house; or, by keeping along the remaining portions of the Old Croydon Canal, from the Dartmouth Arms, till you reach the above house of Mr. Cutbush. I was in the neighbourhood of the spot several times in the summer of 1841, but never met with L. Draba; I believe, therefore, that it had not then appeared in that place; this makes me think that it owes its existence there to the rubbish thrown out of the line, in consequence of the great slides of earth 3 or 4 years since. It has been usual for botanists to avail themselves of the "Phytologist," to announce any discovery of this kind; I shall not omit to do so in the present instance, but as the "Phytologist" will not appear again till July the plant may be too far gone to be of use to those who might wish to collect it. I shall have plenty of specimens for those who may want them.—*W. Holt, Surgeon, Bromley, Kent.*

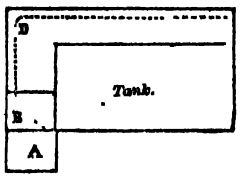
Cements.—In your Number for April 25, to have a good cement, it is directed "to fill a bottle with isinglass chips, and to pour in as much gin as the bottle will hold. I have complied with these directions, with the exception of using whisky instead of gin, but not the least perceptible solution took place, and two pieces of paper moistened with the liquid had no adherence when dried. Neither gin nor whisky is required for the solution of isinglass. A chemical work just now before me says, "100 grains of good isinglass were found by Mr. Hatchett to contain rather more than 98 of matter soluble in water."—*G. J.* [Isinglass and gin formed the powerful cement formerly used when ladies amused themselves with paper fillagree work, instead of Berlin wool, but we don't know how it was prepared.]

American Aloe.—The great American Aloe (Agave Americana, W.) being a native of tropical America, is in this country generally treated as a tender exotic, and Loudon, in the "Encyclopædia of Plants," states it to be a bark or moist stove plant. Even in some parts of the sunny clime of Italy it is stated to be incapable of enduring the winter. Yet, strange as it may seem, it is not the less a fact, that a plant of this Aloe has, with a very little protection, withstood the frosts of two successive winters in the garden here, without suffering the slightest injury. Early in March, 1844, the individual plant referred to, which was then in the greenhouse, was found to be in a bad state of health, and in a fair way for damping off, the centre being almost wholly decayed, in consequence of its having stood for sometime during the winter under the drip of one of the greenhouse shelves. It was then turned out of the pot as useless, and planted on the top of an artificial rockwork, merely as an ornament and without the least expectation of its survivance. It, however, soon recovered and commenced to grow, and before the end of the season assumed a very healthy appearance, which it has continued to maintain, and although a small plant when first put out, has since then produced a considerable number of new leaves, and also of suckers. At present it is the very picture of health, and has, since first planted out, stood the two winters of 1844-5 and 1845-6, with only the little protection afforded by a Spruce branch. Perhaps this plant may yet be found capable of standing our winters in this country without protection; if so it will be a valuable addition to our hardy plants, and form an interesting object for the adornment of lawns and shrubberies.—*Seafield Lodge, Dundee.*

Weather Rules.—At Abergele, 1845, Sept. 21st, 22d, 23d, and 24th, the wind N.E.; the two first very wet, the two next fair and very cold; no wind. On the 11th wind from E.S.E.—*J. B. H.*

Botanical Curiosity.—Upon Merrow Downs, just beside the Guildford race-course, stands a Yew tree, out of whose solid stem, at 15 feet from the ground, grows a large wild Sorbus. The vigour of the parasite threatens to overwhelm the mother-tree; and at this season its full sheaf of whitish-green extinguishes the sombre Yew. I should tell you that the trunk of the latter is quite sound, and about 20 feet in girth at a yard from the soil; and where the foster plant emerges from its parent, the stem of it is 4 feet round. Supposing that so large a parasite, and that in the case of a tree so different in nature as the Sorbus from the Yew, is an unusual occurrence, I have ventured to send the foregoing.—*M. F. T., Guildford.* [This is a very curious case, though certainly not of parasitism. No doubt the Yew must have been originally hollow, although the cavity is now concealed by the trunk of the Beam Tree or Sorbus.]

Polmaise Heating.—Three or four years back, in answer to a query respecting the admission of cold air by a pipe into a small hothouse, you replied, "Can you not warm the air before you admit it." The house being placed most inconveniently in the angle of a building, I was obliged to sink the boiler house nearly 5 feet below the surface of the ground, and carry the flue in the direction of the dotted line. Instead of filling the hole up with rubbish, I determined to make an air-chamber (B) over the flue, 3 feet square, and about 5 feet in depth. A zinc pipe carries the air from the outside to the bottom of the chamber. The top of the chamber is covered with thin Yorkshire flag, and an aperture 2½ inches in diameter admits the hot air. I can now, with confidence, speak most highly of the results. We have always a stream of pure fresh hot-air in the house. During the early part of the year, we have never let down a light for weeks, and everything has grown with the greatest luxuriance; nor have we ever had the slightest damp, or smell. If at any time we want a moist heat, a can of water poured down the hole produces a nice moist air. I do not, of course, give this plan as one to be followed, but merely as illustrative of the value of the Polmaise system, which I am convinced is the true one.—*Clericus.*



A Fireplace and Boiler.
B. Hot air Chamber
D Dotted line, direction of flue

Disease in Conifers.—I fully coincide with your remarks respecting the cause of disease in Conifers, from the facts which have come under my own observation. Since the second week in July last many plants and trees have been much affected, especially in the latter end of summer and autumn, with disease similar to that in Potatoes, and no family of plants suffered more than Conifers. The Scotch Firs (Pinus sylvestris) and Larch (Larix europæa) suffered very much indeed with mildew and swarms of green fly, so much so that the foliage of the Larches was quite seared and fell off very early last autumn; and the Scotch Firs looked all this spring very brown, even as if scorched, more particularly on west aspects. They have been smothered all winter with swarms of a very small light pea-green aphis, which attacked them immediately after they had been infected with mildew, there being no weather this last winter to destroy these pests. The following are the kinds that have suffered the most at Bicton:—

Pinus sylvestris uncinata	Pinus insignis **
,, ,, rigensis	,, Tenoote
,, ,, Mughus	,, leiophylla **
,, halepensis	,, Strobus **
,, inops	,, Lambertiana
,, pungens	,, excelsa
,, resinosa	,, palustris
,, nana	,, species from Armenia
,, rigida	,, laricio (a variety of)
,, Sabiniana	,, apuleensis

Those marked thus * * have suffered most, though I am happy to say the whole now are doing well, and making most excellent strong young wood. Some of the varieties of Abies have suffered very much indeed, more particularly by the ravages of green fly, which pest seems now to have entirely left them, and the trees are all now doing much better than I had expected. Three or four of the varieties having lost the whole of their foliage, and having the appearance of being dead, are now making pretty wood all over the plant, so that to all appearance now we shall not lose a plant. The following kinds of Abies have suffered to the greatest extent:—

Abies orientalis **	Abies Clanbrasiliana **
,, alba	,, cærulea **
,, khutrow	,, Smithiana
,, Menziesii	,, pygmæa **
,, canadensis **	,, and a variety from New
,, dumosa **	Holland.

Picea Pindrow is the only variety that has suffered out of 13 varieties.—*James Barnes, Bicton Gardens, Devon.*

Drainage of Pots.—Almost everybody who writes on growing plants in pots recommends good drainage; but how this is to be effected, and of what sized materials the drainage is to be composed, is seldom mentioned. Now, as the health of the plant in a great measure depends on the free circulation of water through the soil, it is essential that the strictest attention be observed in the formation of drainage. The materials for this purpose should be perfectly dry and free from dust, whether these be crocks, charcoal, or sandstone; they should be broken into different sizes, each size being placed separately by itself; thus, if I were using 8-inch pots, I should first clean the pot well inside if required, then place a piece of crock at the bottom, nearly as large as will cover it, but concave, so as to allow the water free egress; on this I would place a layer of broken crocks, or other material, about the size of Beans, and on this again a slight layer about the size of Peas. And when I used pots of a larger size, I would use larger pieces, always keeping the coarsest at the bottom and the smallest at the top, and, with very few exceptions, the plants will be benefited by placing a thin layer of turfy loam or peat over the drainage, as this keeps the smaller particles of earth from being carried down among the drainage. Although there is no fear of the drainage being impaired, if properly constructed, yet, to make doubly sure, let each pot be crocked as regularly as possible, one having no more drainage than another, so that in the next shift each may get the same proportion of soil as well as drainage. Pieces of sandstone mixed with the soil are very useful in drainage for hard-wooded plants, as are also pieces of charcoal and bone-dust for soft-wooded ones; in either case the roots will be found closely adhering to these lumps. There are many gardeners who say, "I have no time to attend to such a routine of breaking and layering;" but crocks do not spoil by being broken and sorted in the coldest day in winter, nor yet if done in wet weather, when nothing can be done out of doors. The different sizes may be placed in large pots, and put somewhere out of the way, where they will be dry until the crocks are wanted for use, which is generally in spring and summer seasons, when work is pressing; thus time is saved by having crocks previously prepared, and plants are benefited by judiciously arranged drainage, which is sure to be effectual.—*W. Moody.*

Wire-worm and Mustard-seed.—In a recent Number a correspondent desired to know the most efficient means of getting rid of wire-worms, and stated that he read somewhere that the sowing of Mustard-seed effected the object completely. The article to which he alludes is, probably, to be found in "Loudon's Gardeners' Magazine." The quotation is as follows:—"I have demonstrated to my own satisfaction that the wire-worm may be prevented by sowing the ground previously with white Mustard-seed. On a field of 50 acres of fallow, half an acre was sown with white Mustard-seed. The field was much subject to wireworm, and when it was laid down with Wheat after fallow, it suffered much, excepting the half acre that had been under white Mustard. In another field of 45 acres, 3 acres were laid down with white Mustard-seed, with the same beneficial result as regarded the wire-worm, while at the same time the crop of Wheat was better in that portion. Encouraged by this success, I next year sowed a whole field of 42 acres, which had never repaid me for 19 years, owing to the ravages of the wire-worm, and not one of which could be found the following year. My crop was superior to any I had grown for 21 years." The above article was written by Mr. Tailand, Little Houghton, Northamptonshire, and was inserted in the *Country Times*, Sept. 1831, from which it was copied into "Loudon's Gardeners' Magazine." I add another quotation regarding wire-worm:—"At the last meeting of the Entomological Society, Mr. Spence described a plan successfully adopted in the west of England for the destruction of wire-worms, which had greatly infested the Turnip fields. He employed boys for picking them up, at the rate of 1½*d.* per 100; in the course of a few days they obtained upwards of 11,000, the expense of clearing 1 acre being 1*l.* 2*s.* 6*d.*" See *Mark Lane Express* for Jan. 8, 1838, page 7.—*G. J.*

Vitality in Shrubs.—The following is a curious instance of the power of shrubs to preserve vitality though to all appearance dead. In September 1844 a Wistaria was moved and laid in by the heels from that month till about the middle of November, when it was planted in a north-east aspect and not in very good soil. It endured the whole of that severe winter unprotected. In May, 1845, on seeing no signs of life in it, I examined the root, and found it had been buried to a very great depth. I moved it close to the surface, still it remained all the summer and autumn to all appearance dead, so much so that people inquired why it was allowed to remain. In February of the present year it began to show signs of life, and is now coming into leaf. A friend had a white Jasmine, which grew near a cesspool; the cesspool was offensive to it, and it appeared dead for two years, when the cesspool being removed it showed signs of life, and is now flourishing.—*A. M. D., May 25.*

Hedgehog v. *Rabbits.*—It is desirable to come to the rescue of calumniated and persecuted animals. Many gardeners ignorantly and erroneously destroy the little insectivorous birds, which are amongst their best friends. In last Number appeared an absurd story about a hedgehog killing a rabbit in a hedge. Your correspondent adds "that hedgehogs are known to be very destructive to game and poultry by carrying away and devouring their eggs;" and he has now discovered that "they manage to destroy live rabbits!" Why did he not add the equally authenticated fact, that they suck the cows! I advise him to watch by moonlight, and try to surprise a goatsucker and a hedgehog *tête-a-tête* at the udder of his best Alderney. The solution of his marvel is very easy. A weazel had, according to custom, sprung upon a rabbit, which, as rabbits always do upon such occasions, cried out. The weazel, as weazels usually do, got out of the way before the dog reached the scene of action, and an unfortunate harmless hedgehog, who was lying rolled up in the long Grass and taking a quiet nap, was (after much

barking and scratching) routed out by the dog, and was unjustly destroyed, as generally happens to hedgehogs. Without hesitation, I deny the correctness of the fact asserted; and I add, that if the hedgehog had unintentionally killed the rabbit in the hedge, your correspondent, according to his own account, had no means of ascertaining the fact.—*W. Herbert, June* 8. [The statement was copied from a country paper, in the hope that it would elicit a reply from such a correspondent as our learned friend.]

Potato Disease in Ireland.—I am sorry to say that your opinion as to the probable effects of last year's disease on the present crop of Potatoes is but too likely to be realised. Alarming accounts are now reaching us from various quarters. At Ballycrenane, near Castlemartyr, a friend of mine planted last February about three quarters of an acre of Turnip ground with perfectly sound, whole seed; the crop was all he could wish (the drills being nearly covered by the stalks) up to Sunday the 1st inst., when suddenly they appeared as if blasted, and, on examination, it was found that they are destroyed by the disease which caused such ravages last season. The stalks and young Potatoes are now before me; the tops of the former are quite withered and spotted in different parts, and the rot is perceptible in the young produce; still, strange to say, the seed is as sound as the day it was planted. The crop is so completely destroyed, that he will have to plough them up. A gentleman from Clonakilty informed me this day that he is aware of more than a dozen instances, on his own farm and among his tenantry, in which the disease has made its appearance on the stalks of the early planted crop. The accounts from Cloyne, Kinsale, and Kerry are equally unpleasant; in fact, such is the present appearance of things, that many of our farming neighbours say they will not be surprised to hear of the total extinction of the crop this season. This is melancholy, inasmuch as many of the small farmers, encouraged by the promising appearance of the early crop, were induced to plant much more largely than they had intended after the loss they sustained last season.—*H. H., Cork.*

Potato Disease in Portugal.—It may be interesting to know that my Potato crop which was a few days ago most flourishing, suddenly became black and withered; the same has occurred to many others, both in the neighbourhood and at some miles distant.—*An Original Subscriber, at Oporto, May* 20.

The Potato Crop.—You have very properly cautioned some of your more sanguine correspondents against forming too premature a judgment respecting the prospects of the coming Potato crop. The disease did not commence last year till the first six months were well over; one ought not, therefore, to be too hopeful should six weeks or more pass by without many indications of the malady. The specimen I inclose for you this morning, of the base of a Potato stem exhibiting precisely the appearance of the decayed tubers of last year, though the foliage and upper portion of the stem are at present healthy, is no very pleasant indication of what may too probably be expected. The tubers are not above half grown, but the base of the stem is in such a state that the plant could not have retained its verdure for another week. In some parts the whole of the tissue between the cuticle and the spiral vessels was decayed, in others spotted with the peculiar brown patches which, in the present instance, are highly impregnated with the mycelium of some fungus. The cuticle itself was powdery with a minute fusisporium, probably identical with that which has been so common on the diseased tubers. I ought to tell you that the Potatoes from which the diseased specimen originated did not exhibit last year the slightest trace of disease. I am surprised to see in the papers accounts of healthy crops raised from diseased tubers. I can only say, that my own experience is quite against such a notion. The difference in my garden between two contiguous patches raised from sound and diseased tubers of the same heap of Potatoes, is at once apparent to the most casual observer; those from the latter having a pallid unhealthy aspect, while the others are most luxuriant.—*M. J. Berkeley.*

Potato Disease.—I am sorry to say that your fears are likely to be fully realised in regard to this calamity. Three sorts of early Potatoes were planted in my father's garden—Ash-leaved Kidneys, White Quarries, and a very early and desirable sort called here Red Bottoms. They all came up, and made as good progress as could be desired. Of the third sort I was anxious to propagate as many as possible, being under the impression that they escaped the disease of last season; in fact, the stalks were withered before the crop was attacked in this part of the country. A small quantity remained in the pit, where they had been placed for the winter, and sent out vigorous shoots, which I had carefully separated from the parent tubers, and as carefully planted in a good, airy situation in the garden. The parent tubers were planted on the same day in drills in the same border. I observed that the transplanted shoots made very little progress, and ascribed it to the dryness of the weather before the 17th of last month; from that day to the 20th we had refreshing rain, and it was then that on examining the plants I found some of them showing symptoms of disease. There were brown spots on the leaves of some; in some, the leaves were rotting across the middle, and in some the stalks were turning black. My attention being thus drawn, I examined the other sorts, and found the same spots, and on the same situations as the three sorts, which were then far advanced, but less on the Quarries than on the other two kinds. Since then I have examined the drills daily, and found the disease making progress; in the case of the transplanted shoots, the six drills of them almost entirely withered away, and Peas have been planted in the ground they occupied. Since the day before yesterday I see the progress of the disease in Red Bottoms and Quarries, and very much fear that, instead of having a fine crop of Potatoes (as we had every reason to expect), the stalks will be withered before the end of the month.—*John P. Lawless Pyne, Rector and Vicar of Inch, Diocese of Cloyne, June* 1.

Societies.

LINNEAN SOCIETY.

ANNIVERSARY MEETING, *May* 25.—The BISHOP OF NORWICH, President, in the chair. The Secretary, J. J. Bennett, Esq., read the Report, when it appeared, that during the last year 11 fellows had been elected, three had retired, one had been ejected, and 13 had died. The following is a list of the deceased members:—J. H. Abraham; H. Singer Chinnock; Baron Field, late Chief Justice of New South Wales, and afterwards of Gibraltar; the Rev. Thomas Gisborne; Robert Graham, M.D., Professor of Botany, Edinburgh; Joseph Jauson, Esq., who left a bequest of 100*l.* to the Society; Gally Knight, M.P.; Thomas Knowton, son of the gardener of Sherard; R. Latham; Dr. Lush, and Peter Nouaille. Of associates had died Mr. J. Main, and Mr. G. Lamonello. The following officers were re-elected. President, Edward, Lord Bishop of Norwich, D.D.; Treasurer, Edward Forster, Esq.; Secretary, John Joseph Bennett, Esq.; Under Secretary, Richard Taylor, Esq. The following five members of the Council were recommended to be removed:—Francis Boott, M.D., Bracy Clark, Esq., Professor Forbes, Rev. Wm. Hincks, Wm. Spence, Esq. The following five were elected into the Council in the room of the above:—Sir Henry de la Beche, Hugh Falconer, M.D., J. D. Hooker, M.D., W. W. Saunders, Esq., Wm. Yarrell, Esq.

June 2.—EDWARD FORSTER, Esq., in the chair. Mr. Masters exhibited specimens of Beroe cucumaria, and Cydipp pomiformis, which had been taken alive at Herne Bay.—Mr. W. Holt, of Bromley, exhibited specimens of Lepidium Draba, of Linnæus, which he had found growing in great abundance near the first bridge over the Croydon Railway, between the Dartmouth Arms and New Cross. This plant has hitherto been a very rare plant in England, and is, probably, after all, an introduced species.—Mr. Adam White, of the British Museum, read a paper entitled "A few Notes towards the Statistical Fauna of New Zealand, as far as regards the Annulosa."

BOTANICAL SOCIETY OF EDINBURGH.

May 14.—This, the monthly meeting, was held in the Royal Botanic Garden. Professor BALFOUR in the chair. The following gentlemen were elected Fellows:—J. Duncan, M.D., F.R.C.S.E., &c.; Rev. Dr. Fleming, F.R.S.E., M.W.S.; R. H. Gunning, Esq.; and W. S. Dougall, Esq. The following communications were read:—1. Biographical Sketch of the late Professor Graham, by Dr. Ransford. Robert Graham was the third son of the late Dr. Graham, of Stirling, (afterwards Moir of Leckie), and of Mrs. Anne Stewart, daughter of the late Charles Stewart, Esq., of Appin. His early education was obtained at Stirling. He was apprenticed in 1804 to the late Mr. Andrew Wood, F.R.C.S., Edinburgh, and became a licentiate of the College of Surgeons in 1808, and graduated at the University during the same year. Dr. Graham then studied for 12 months in London, at St. Bartholomew's Hospital, and afterwards commenced practice in Glasgow. In 1812 he was appointed physician to the Infirmary of that city and lecturer on Clinical Medicine, and published an essay on the continued fever which at the time was epidemic in Glasgow. Dr. Graham succeeded Dr. Brown as a lecturer on Botany; and in the following year, having been appointed by the Government Professor of Botany in the University of Glasgow, he succeeded, in conjunction with some other gentlemen, in getting a Botanical Garden established, and took the principal share in its formation. Dr. Graham married the youngest daughter of David Carrick Buchanan, Esq., of Drumpellier and Mount Vernon. On the decease of Dr. Rutherford, he was appointed by the Crown Regius Professor of Botany, and Keeper of the King's Garden, and by the patrons to the Professorship of Medicine and Botany in the University of Edinburgh. Soon after his appointment, and principally through his exertions, the present Botanical Garden was formed; and with the able assistance of Mr. William M'Nab, all the trees, shrubs, and plants, were removed from the garden at Leith Walk to their present situation. He also prevailed upon the Government to increase the annua. allowance to the institution (which is still insufficient, and only half the sum which is given to a more private one in Dublin), and expended considerable sums from his own resources to maintain its efficiency. Dr. Graham's character as a clinical physician and private practitioner, was distinguished by unbending integrity and honour. He succeeded in greatly interesting the students in botanical science, by giving many prizes, and making botanical excursions. Dr. Ransford then noticed his plan of conducting the course, gave some anecdotes of his journeys, and alluded to his annual descriptions of new plants flowering in Edinburgh; the great interest he displayed in the welfare of the Botanical Society, of which he was an original member, and thrice President; the history of the formation of the society, and his contributions to its Transactions; his papers read to the Royal Society on the Gamboge plant; and his researches into the nomenclature and botanical sources of the articles of the Materia Medica. He was most attentive to the interests of the University, and supported all the measures of reform in medical education carried into effect between the years 1822 and 1826. In 1840 Dr. Graham was elected President of the Royal College of Physicians; he was a member of most of the scientific societies in this city, and President of many of them. From over-taxing his strength during one of his botanical excursions in 1843, he dated the commencement of his last illness. His case was an obscure one. The Town Council, at his request, appointed Dr. Joseph Hooker to be his assistant. Although in a very weak state, he introduced him to the class on the morning of the 5th of May, 1845. This was the last occasion on which he visited the gardens. Dr. Ransford then gave anecdotes of his generosity, and resignation during his illness. He was removed to Coldoch, in Perthshire, on the 24th of July, and expired on the 7th of August. The disease was ascertained to be a malignant tumour resting on the dorsal vertebræ, and pressing upon the thoracic duct, vessels, and nerves. He was buried on the 13th in the private burying-ground of Leckie, belonging to his brother Charles A. Moir, Esq. Dr. Graham's whole life was distinguished by uprightness of conduct, cheerfulness of disposition, combined with real kindheartedness. He was very energetic and industrious, most conscientious in the discharge of every duty, and beloved by all who were acquainted with him.

2. Notice of the vegetation in the neighbourhood of Lisbon, in a letter to Dr. Neill, from W. C. Trevelyan, Esq. In this letter, which is dated 11th March, Mr. Trevelyan writes—"It was a delightful change of climate we made in six days' sail from Britain, landing on a quay here, with a border in which Bananas were flourishing, with lofty bushes of Heliotrope covered with blossoms, and Geraniums in full flower; an avenue of young Phytolacca dioica, and other symptoms of a warm climate. The first crop of Peas we find is over. Beans are now in perfection, Strawberries in fruit, sweet Roses in blossom. The wild plants are coming forward rapidly, the limestone hills are covered with the beautiful Iris sysirhynchium and sambucina, though the latter is not so abundant; Ophrys vespifera or lutea, arachnites, and Orchis morio; several Antirrhinums, Cistuses, the delicate Ulex australis, several Rutas, Cerinthe aspera, or a variety with purple blossoms striped with white (that I got in Italy and Greece was tinged with yellow); several species of Calendula, Bellis annua, sylvestris, and perennis, the last the least common; the beautiful Narcissus bulbocodium, Ornithogalum umbellatum, Vinca major, in great profusion and beauty; Cynoglossa, Lupinus, Illecebrum paronychia, Arum arisarum, and maculatum (or one which comes very near it), Aristolochia longa, Asphodelus ramosus and fistulosus, Oxalis tuberosus and corniculatus; Genista triacanthos, Anemone ranunculoides, and many other plants, are now in perfection, as is the delicate annual Fern Gymnogramma leptophylla. In the hedges, Rubus fruticosus, Smilax nigra, and aspera, are abundant, the two latter in fruit. Ficaria ranunculoides is very large; Urtica membranacea and urens, both abundant. I have not observed any other species of this genus. One of the most showy plants in the gardens at present is Antholyza æthiopica, which grows in large beds in damp shady situations; Calla æthiopica is also in great abundance, and very fine. Palms, Bamboos, Draceena Draco, and other tropical plants, also flourish in the open air."

In a subsequent letter to Dr. Neill, Mr. Trevelyan gives a full list of the plants in flower on 28th March. In this letter, Mr. Trevelyan writes—"The Cynomorium coccineum, formerly known in medicine under the name of Fungus melitensis, is a very common plant (?), very showy, and in great abundance on the roots of the shrubby Cistus. (Does not the author here mean the Cytinus?) I hear that a company has been formed in Spain for the cultivation of the Sugar-cane. Many things might be cultivated, were it not for the indolence and uncnterprising nature of the people. No railroad has been commenced or determined on, and scarcely any improvements are going on in the country."

Dr. Balfour read a letter which he had received from Dr. Cleghorn, a Fellow of the Society, dated Teerthully, 27th March, in which he states that since the end of October he had made a tour through the north-western division of Mysore, and collected a great number of interesting plants, especially in the western Ghats. Colcured drawings of most of them had been executed by a native (Mahratta) draughtsman who accompanied him. Specimens of many of the plants he purposes to send to the Herbarium of the University of Edinburgh, under the charge of the Botanical Society.

Dr. Balfour also read a letter from Dr. H. Giraud, also an active member of the Society, dated Bombay, 26th February. In this letter Dr. Giraud gave an account of the Horticultural Society's Garden at Bombay, of which he is Secretary, and alluded generally to the nature of the vegetation in the neighbourhood. He also noticed the mode of instruction adopted in the Medical College at Bombay, in which he lectures on Chemistry, Materia Medica, and Botany.—*From the Edinburgh Evening Post of 27th May*, 1846.

Country Shows.

Bolton Floral and Horticultural Society.—This was the second meeting for the season. The Calceolarias attracted universal attention. Of Tulips there was a goodly muster of choice sorts, but the unusual heat ope-

rating upon them speedily spoiled their symmetry. The following prizes were awarded :—TULIPS : *Feathered Bizarres* : 1st, Magnum Bonum, Mr. Morris ; 2d, Firebrand, Mr. Wilkinson; 3d, Trafalgar, Mr. Openshaw ; 4th, Surpasse Catafalque, Mr. D. Rawsthorn ; 5th, Goud Beurs, Mr. Morris. *Flamed Bizarres* : 1st, Incomparable Bizarre, Mr. Hardman ; 2d, Albion, Mr. Walsh ; 3d, Lustre de Beauty, Mr. Hardman ; 4th, Black Prince, Mr. Turner ; 5th, George IV., Mr. Walsh ; 6th, Crown Prince, Mr. Morris ; 7th, Catafalque, Mr. Walsh. *Feathered Byblomens* : 1st, Bienfait, Mr. J. Barlow ; 2d, Premier Noble, Mr. Walsh ; 3d, Baguet, Mr. Morris ; 4th, La Belle Nerine, Mr. Morris ; 5th, Roi de Siam, Mr. Walsh ; 6th, Violet Wallers, Mr. Openshaw ; 7th, Queen Charlotte, Mr. Southern. *Feathered Roses* : 1st, Lady Crewe, Mr. J. Turner ; 2d, Duc de Bronte, Mr. Walsh ; 3d, Rose Celina, Mr. D. Rawsthorn ; 4th, Cinderella, Mr. Morris ; 4th, Doolittle, Mr. Walsh ; 6th Hero of the Nile, Mr. H. Pickering, 7th, Perfection, Mr. Hardman. *Flamed Roses* : 1st, Rose Unique, Mr. Wilkinson ; 2d, Vesta, Mr. Walsh ; 3d, Lord Hill, Mr. Openshaw ; 4th, Matilda, Mr. Hardman ; 5th, Vulcan, Mr. Walsh ; 6th, Roi de Cerises, Mr. Wilkinson ; 7th, Seedling, Mr. Openshaw. *Maiden Prizes* : The best Feathered Bizarre, Trafalgar, and the best Flamed Bizarre, Black Prince, Mr. Turner ; the best Feathered Byblomen, Bienfait, Mr. Wilkinson ; the best Flamed Byblomen, Baguet, Mr. Turner ; the best Flamed Rose, Roi de Cerises, Mr. Turner.—*Stove Plants* : 1st, Calanthe veratrifolia, Mr. D. Rawsthorn ; 2d, Dracæna spicata, Mr. R. Mosley ; 3d, Thunbergia chrysops, Mr. D. Rawsthorn ; 4th, Cactus Jenkinsoni, Mr. J. Openshaw ; 5th Sinningia violacea, Mr. D. Rawsthorn.—*Greenhouse Plants* : 1st, Tropæolum tricolorum, Mr. D. Rawsthorn ; 2d, Pimelea decussata, 3d, Fuchsia Vesta, Mr. Openshaw ; 5th, Agapanthus umbellatus, Mr. S. Dyson ; 6th, Polygala cordifolia, B. Dobson, Esq.—*Heaths* : 1st, Ventricosa superba, Mr. Openshaw ; 2d, V. coccinea, Mr. Walsh ; 3d, tricolor, Mr. D. Rawsthorn ; 4th, westphalingia, Mr. Openshaw ; 5th, Linnæoides superba, Mr. Rawsthorn ; 6th, suaveolens, Mr. Walsh. *Pelargoniums* : 1st, Thurtell's Pluto, Mr. Walsh ; 2d, Duke of Cornwall, Mr. Openshaw ; 3d, Mabel, Mr. Walsh, who also sent Nymph, Hybla, Queen of Sheba, and Lelia.—*Calceolarias* : 1st, Lady Constable, Mr. Lever ; 2d, Standishii ; 3d, Exemplar ; 4th, Professor Wilson ; 5th, Marshal Soult, Mr. Walsh ; 6th, Kinghornii, Mr. Lever ; 7th, Louis Philippe, Mr. Walsh.—*Herbaceous Plants* : 1st, Campanula grandis, Mr. J. Walsh ; 2d, Lilium eximium, Mr. R. Mosley ; 3d, Calceolaria Lady Constable, Mr. J. Openshaw ; 4th, do. Standishii, Mr. T. Lever.—*Hardy Shrubs* : 1st, Clematis azurea grandiflora, Mr. Lever ; 2d, Rosa Devoniensis, Mr. Walsh.—*Honorary Prize* : Cactus Jenkinsoni, B. Dobson, Esq.

Leeds Open Tulip Show.—This long looked-for event took place on Whitsun-Monday, at the Bazaar. There were a large quantity of flowers, and, considering the unpropitious season, they were of much finer quality than any that had previously been exhibited. The 1st prize was gained by Mr. W. Hepton, Brighouse, with a pan containing the following seven flowers : Charles X., Polyphemus, Incomparable, Roi de Siam, Duchess of Newcastle, Unique, and a Seedling breeder ; 2d, to Mr. J. Bramma, for Emperor Charles, Polyphemus, Bienfait, Beurene, Agalia (feathered), Agalia (flamed). and Mine d'Or (Self). The best flower of any class was shown by Mr. John Gibbens, of Derby—a most perfectly feathered Triomphe Royale.

New Garden Plants.

32. MULGEDIUM MACROHIZON. Large-rooted Mulgede. *Hardy Perennial.* (Composites.*) Nepal.

This, although its flowers are but those of Succory, is nevertheless a charming perennial, with numerous trailing stems two feet long, and scarcely rising more than a few inches high. For decorating rockwork, it is unsurpassed among autumnal perennials. It grows willingly in a soil composed of sand, peat, and loam, and is hardy enough to stand the winter in the open border : but its large fleshy roots render it impatient of moisture, and it is frequently destroyed in winter by damp. It should not only be planted in a very dry situation, but protected either by a hand-glass or dry leaves. It is easily increased by seeds sown in pots and placed in a cold frame. It flowers in September and October, and remains for a long while in perfection, trailing over stones or rocks, and covering them with a carpet of lively blue.—*Botanical Register.*

33. LANKESTERIA PARVIFLORA. Small-flowered Lankesteria. *Stove shrub.* (Acanthads.*) Sierra Leone.

This genus was named after Dr. Edwin Lankester, F.R.S., a gentleman whose knowledge of botanical science requires no eulogy ; it is sufficient to state that he is the author of the botanical articles in the latter volumes of the "Penny Cyclopædia," of various botanical contributions to periodical publications, and is now engaged in translating into English Schleiden's learned "Introduction to Botany." Two species are known : the present, a native of the west coast of Africa, whence it was brought by Mr. Whitfield ; and another, with more shaggy branches, sharper pointed leaves, and larger flowers, whose tube is three times as long as the calyx. Our drawing was made in the nursery of Mr. Glendining, of Turnham-green, from whom we have received the following memorandum concerning the habits of the plant :—"The present subject does not, perhaps, equal in beauty some of the plants from Western Africa, already published ; but, nevertheless, it is a pretty and useful winter-flowering species, with bright yellow flowers, contrasting well with that valuable old plant Eranthemum pulchellum, with blue flowers. On this account it is more especially desirable ; because in the beginning of winter, at which period it flowered in my stove, we have little really to adorn such places. Its cultivation is rather peculiar. I have found it succeed best when treated in the following manner : Shift it in March, but not into too large a pot, using sandy peat with a small portion of loam ; place it in a moist temperature in bottom-heat, so as it may grow away freely ; 75° will be sufficient for it. Towards summer it should be hardened by degrees to endure the temperature of a greenhouse, and in autumn it should be placed in a rather cool stove, where it will continue flowering for some months. The plant is, as yet, scarce in this country ; it is not, however, difficult to propagate, as it will strike readily by cuttings, in heat, under a hand-glass."—*Botanical Register.*

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

Garden Memoranda.

Mr. Wood's Nursery, Norwood.—Those who are lovers of hardy variegated plants would be gratified by paying a visit to this place ; for here there is a very interesting collection. Among others, we observed the common Laurel, having the foliage fringed with white ; Lemon Thyme, with the leaves bound with narrow white edgings ; the common English Elm (Ulmus campestris) finely variegated ; the Cock's-foot Grass (Dactylis glomerata) with the foliage striped with minute white streaks ; Acorus graminus ; two species of variegated Irises ; a Honeysuckle, not very strikingly marked ; Betula alba ; the common wild Pear (Pyrus communis), with leaves slightly margined with white ; a Turkey Oak, having the yellowish-white markings very distinctly delineated ; a variegated Strawberry (Fragaria elatior) ; Euonymus japonicus, whose glossy green leaves are very prettily blotched in the centres with yellow ; and a Veronica, with foliage slightly margined with white. In the same collection was also a Spanish Chesnut (Castanea vesca), strikingly variegated ; the Common Broom (Cytisus scoparius) ; Ivy (Hedera helix), finely marked with white ; the Stone Bramble (Rubus saxatilis) ; Arabis variegata, fringed with yellow ; Ligustrum vulgare having yellow and green leaves ; Tussilago farfara, edged with yellow ; Œnothera Fraseri ; the common Wormwood (Artemisia Absinthium) ; a variety of Rhododendron ponticum, with leaves broadly margined with bright yellow ; Juniperus Sabini ; Symphoria glomerata ; the common Germander Speedwell, Veronica chamædrys, edged with white ; Rosa centifolia ; Phlox suaveolens, having yellow edged leaves ; Melissa officinalis ; Euphorbia pilosa, an interesting plant, finely variegated ; Vinca minor ; and the common English Yew (Taxus baccata), having the tops of the young branches of a pale bright yellow. Associated with these were Hemerocallis lutea, together with a Mint (Mentha rotundifolia), a very interesting plant, appearing, when viewed at a distance, as if the leaves were half enveloped in wool. Funkia lanceolata, with its white edged leaves, is also worthy of notice ; so is Nepeta Glechoma, or Ground Ivy. Along with these were two Jasmines, one with leaves striped with yellow, the other with foliage overlaid with silvery markings ; a plant of the common Rue, a Solanum, Yucca filamentosa, the white Lily (Lilium candidum), and Althæa frutex ; Acer campestre was a striking object, so was Syringa vulgaris, with pale yellow-edged leaves, and the common Spiræa ulmaria, which so strongly scents our meadows, beautifully variegated with yellow. In the same bed were Cratægus oxyacantha (or Whitethorn), slightly variegated with white ; Digraphis arundinacea : Crown Imperial, with its leaves margined with white ; the common Laurestinus ; and finally, a very finely-variegated Battersea Cabbage. Most of the plants enumerated above are planted out ; but Mr. Wood has a number of the same kinds in pots, and these form, altogether, a tolerably large and interesting group, to which additions are still being made. Many of these variegated plants would answer well for, and would produce a pleasing effect judiciously arranged on rockwork, more especially the above named Rubus saxatilis, whose long trailing branches would be quite at home scrambling among stones. It is worthy of remark, that most of the plants preserve their variegated character well, even although growing luxuriantly, which is the more remarkable when we consider that variegation is generally supposed to be caused by derangement of some of the organs essential to healthy function. Before closing these remarks, we would allude to the select collection of native Alpines which is here gathered together, for although these children of the hill-side are not generally showy plants, yet on close inspection many of them are found to be very beautiful, and we should like to see more general attention paid to their cultivation. Among those in bloom we remarked Epilobium alpinum, Geranium Richardi, Campanula pulla, with little drooping violet bells, Silene alpestris, and various others. The best of them were, however, out of bloom.

Miscellaneous.

Food of Plants.—That the inorganic substances contained in vegetables evidently come from the soil, was proved by Lassaigne. He grew seeds in flowers of sulphur moistened with distilled water ; the plant produced contained neither more nor less saline and earthy matter than was originally present in the seed. The water absorbed by the roots becomes charged during its stay in the ground with the various soluble substances they meet with there, and which generally contribute to its fertility. According to Boussingault, water charged with small quantities of the soluble substances diffused through the soil, constitutes the ascending sap. Perhaps, he continues, the organic matters dissolved in the fluid, undergoes important changes whilst traversing the spongioles of the roots, or else immediately after it has entered the plants. It increases in density during its ascent, and after being worked out in the green parts of the tree, takes a route the reverse of that which it followed at first, and the modified sap is then termed the descending sap. After the fruit of trees has ripened, a new process of vegetation commences. Their leaves remain in activity until the commencement of winter. All the carbonic acid which the plants now absorb is employed in the production of nutritive matter for the following year ; the wood does not ripen and its growth is therefore very limited in the next year. From the accumulated starch, sugar and gum are produced in the succeeding spring, while from these the unnitrogenised constituents of the leaves and young sprouts are in their turn formed. Annuals form and collect their future nourishment in their seeds as albumen, starch, and gum, which are used by the germs in the formation of their leaves and first radicle fibres. (Liebig.)—*A. J. Bernays on the Application of Chemistry.*

Burnettized Linen.—Some coarse canvas which had been Burnettized, so as to be guarded from injury by damp, had been prepared as a shading of a hot-house ; but in consequence of the heating apparatus in the house being insufficient, the shading was used as a covering in winter as well as a shading in summer. Other shadings, which had not been Burnettized, were used at the same time for the same purpose. In 12 months the Burnettized canvas became so rotten as scarcely to bear its own weight when drawn up. As to durability no difference in this case could be perceived between canvas which had been Burnettized and that which had not.—*Journal of the Horticultural Society.*

Edible Bird-nests of China.—Of the great mass of edible bird-nests which are consumed in China, and now also in Europe, the Philippine Isles furnish a considerable portion. Our attention, however, may be more particularly directed to the eatable sea-weeds which are found on the coasts of the Philippines, of the Bashus, of the Japan islands, of the Malaccas, &c., and which serve for food to the inhabitants as well as for exportation. In the markets of Macao and Canton we have seen large boxes of such dried Tangles which had been imported from Japan. The species of Alga which constitutes this branch of commerce is the Sphærococcus cartilagineus, var. setaceus (Agardh), which, abounding as it does in the Indian Ocean, is the common food of the Salangane (Hirundo esculenta L.), and serves for the construction of its valuable nest. The Swallow devours the fresh Tangle, and after allowing it to macerate for some time in its stomach, ejects the mass converted to a pulp or jelly, with which it moulds its nest. The nests, which in the course of time become soiled with dirt and feathers, are brought in their rough state to China, when they are cleaned with particular instruments in large warehouses appropriated to the purpose, and then sold. These far-famed Indian bird-nests are therefore to be considered as little else than the softened substance of the Sphærococcus cartilagineus, and their dietetic qualities are only those of a rich jelly. In cooking them they are seasoned with a variety of fine spices, and deservedly hold the first rank among the delicacies of a Chinese table. The Japanese had the sagacity to perceive that those precious bird-nests were only composed of sea-weeds, and they now prepare the substructure of them by artificial process. The Tangles, which are found in great quantities on their coasts, are gathered, and, after being dried and pounded, are boiled down to a thick jelly, which is drawn or poured out into long threads like Maccaroni, and then sent into commerce under the name of Gin-shan. The Dutch call this preparation Ager-ager, and consume largely of it. The Chinese use the bird-nests, both natural and imitative, in the form of sauces to their meats ; but the Europeans resident in China prefer them in the shape of jelly, for which the Gin-shan is admirably adapted. A single boiling is sufficient to reduce it to a uniform gelatinous mass, to which wine or the juice of any fruit may be added, to give it an agreeable flavour ; or the dry Gin-shan may be broken into small pieces and thrown into broth as it is brought warm to the table. In a minute's time it swells, and appears like transparent vermicelli. In this state it forms a not unpleasant sort of food, which, though highly nutritive, is easily digested. How great and general the consumption of these edible Tangles must be in Japan appears from the circumstance that in all the geographical or statistical works relating to that empire, wherever they are found, they are mentioned as one of the remarkable products of the country. We have been induced to enlarge on this matter the more particularly as much notice has latterly been excited by the Carrageen Moss, which is nothing but the dried Sphærococcus crispus, found in vast abundance on the western and northern coasts of the British Isles. In its qualities it would seem to be perfectly analogous to the Sphærococcus cartilagineus setaceus, yielding like it a rich and nutritive jelly.—*Meyen, Reise um die Erde*, p. 276—8.

Calendar of Operations.

(*For the ensuing Week.*)

Shading.—Our climate is proverbial for cloudy skies and a humid atmosphere: we have in the north, however, passed through a fortnight of the most intense sunshine that has occurred for many years—in fact, never, according to my recollection, since the year 1815. I make no doubt that this will have taught many a useful lesson, in regard to the benefits (in a variety of ways) to be derived from a canvas shade. Where Pines, Vines, Cucumbers, Melons, &c., are situated under the most congenial circumstances, and possess a very powerful action of root, there will, of course, not be so much need for shading; but such cases, I am afraid, too frequently form the exception. The very frequent repetition of watering requisite during such weather has a tendency to carry off the soluble and nutritious matters from pot plants; also to disarrange the mechanical structure of the compost. Careful shading will in some degree obviate this, as superseding the necessity of such copious and very frequent supplies of water.

CONSERVATORIES, STOVE, &c.

Now is the time to encourage a rapid and sturdy growth in Correas, Epacrises, Pimeleas, Chorozemas, Leschenaultias, Polygalas, Ericas, &c. &c. A constant stopping of gross shoots will be necessary, in order to equalise the sap and encourage the lower parts of the plant. Let liberal shifts be given betimes in the season, in order that the pots may be tolerably filled with roots before the approach of winter; thereby guarding against stagnation in the soil. As a general compost for most of these tribes, I would recommend three parts of a fibrous Heath soil in a lumpy state, and abounding in sharp grit, to one part of a free turfy loam; a good sprinkling of charcoal from the size of a Pea to that of a broad Bean, with a portion of pounded crocks of similar size, should be added to the mass. I need hardly urge the necessity of thorough drainage: let it, however, be thorough. Crocks carefully placed to provide various outlets for the water—these protected in return by a smaller size of pounded crocks and charcoal; and, finally, the rough of the compost to place the ball on, will be found, although apparently troublesome at first, to be by far the least trouble in the end This mode of arranging the parts of a compost, as also the drainage, will be found most essential, if not absolutely necessary, where liquid manure is constantly used. *Stove and Orchids.*—Let every endeavour be made to effect thorough freedom from insects amongst stove plants in general. In shifting them, be sure to practise complete drainage, without which all the rest of the labour will prove abortive. *Orchids.*—Where a great amount of heat is indulged in, to promote rapid growth, some of the Guatemala kinds—the Lælias, and those from cool or mountainous districts—should be separated, if possible, from the main stock. A Vinery where a trifling amount of heat is kept up would do. Abundance of moisture in the atmosphere must, however, be provided, and snails and other vermin carefully guarded against. *Mixed Greenhouse.*—See to the directions concerning shifts, under the head Conservatory in this Calendar. Azaleas should be coaxed into wood without delay. Cinerarias done blooming may be cut down, dipped in Tobacco-water, to clear the aphides, and turned out into a raised bed in the kitchen garden or reserve ground; they will breed abundance of suckers by the end of August, and may then be increased. Chrysanthemums should be got in forthwith.

KITCHEN GARDEN FORCING.

Pines.—In shifting let every attention be paid to the most complete drainage; no after-management will compensate for the omission of this. Take care to thin the growing stock in due time, giving abundance of room to those approaching the fruiting period. Swelling fruit will now enjoy liberal waterings of clear liquid manure once a week, with fine syringings between, more especially between their stems. *Vines.*—Follow up former directions. An error occurred under this head in last Calendar. For "when the mould has been spread, &c.," read "when the manure has been spread, &c." *Peaches.*—Give liberal waterings to those in their last swelling; continue to pinch luxuriant shoots, and to use the syringe most liberally. *Figs.*—Give abundance of water or liquid manure, if in pots or tubs. *Melons.*—Set shy sorts, and sprinkle frequently, to keep off red spider.

FLOWER-GARDEN AND SHRUBBERIES.

Early bulbs now ripening, if turning yellow, should be taken up, or the greater portion of the leaves trimmed away, and their spaces occupied with some of the reserve stock Verbenas, Petunias, and such things, should be pegged down where it is requisite to cover the surface of the beds. Fine specimens of Fuchsias may be planted out on lawns; also large Pelargoniums, chiefly of the scarlet kinds, and should be well staked. Ten-week Stocks may yet be sown for a display in September and October, and a little late Mignonette; as also a few of the best Annuals for autumn work.

FLORISTS' FLOWERS.

In all suitable situations, Ranunculuses are blooming remarkably fine this year. They must be shaded from the intense sun, to prolong their season; but where seed is desired, and cross fecundation has been resorted to, they will be better exposed. Should any of the foliage wither, the roots should immediately be taken up, for it is seldom that the collection is ready together; and should rain come, they would certainly start into growth again, to their serious detriment. *Tulip roots* may also be taken up and stored away in a dry airy place. Do not remove the loose skins till thoroughly dry. Tie the buds of pinks with waxed thread, to prevent the pods splitting. As seedlings bloom, pull up those that are single, or with serrated petals. Should there chance to be any with thick, good formed rose-leaved petals, these should be retained to obtain seed from. *Pansies* may be successfully propagated by thin slips or cuttings, under a bell-glass. Gather seed as it ripens. Water occasionally during the dry weather,—the moisture will induce the visits of snails, &c., which must be well looked after. *Auriculas and Polyanthuses* will want well attending to as to weeding, watering, &c. &c. Tie the stems of Carnations and Picotees as required.

KITCHEN GARDEN AND ORCHARD.

A good sowing of autumn Peas should be made directly. Full crops can scarcely be expected after this time. The Knight's Marrow, or Cormack's British Queen, should be topped the moment they reach the top of the sticks—in fact, treated like the Scarlet-runners. *Orchard.*—Give the wood of the Peaches a thorough thinning; don't reserve a shoot more than is wanted for the next year. This, and keeping down all insects, is the way to obtain success. Disbud Figs, retaining no more wood than is required for the next season. Be sure to select the shortest-jointed wood.

COTTAGERS' GARDENS.

A sprinkling of the York, Vanack, or Nonpareil Cabbages, should now be sown for good autumn Coleworts; these will come in when the Cabbage plot is all cut, and by stopping the gap will enable the cottager to encourage plants of good sprouts on the Cabbage plot for the ensuing winter. A pinch of Endive may be sown, and other salads on a northern aspect. Runners should be well staked, and those already done and reaching the top of the sticks should be pinched off. A good row of Prussian Peas may be sown; this will be the last the cottager in general will find room for. If, however, he has good sticks, I would recommend the British Queen, or Knight's instead. Well-saturated manure should be dug in for this sowing, and the drill thoroughly soaked with water previous to sowing.

FORESTING.

Little can be said here at present. See that new plantations and hedges are not choked with weeds.

State of the Weather near London, for the week ending June 11, 1846, as observed at the Horticultural Garden, Chiswick.

June		Moon's Age.	Barometer Max	Barometer Min.	Thermometer. Max	Thermometer Min	Thermometer Mean.	Wind.	Rain.
Frid.	5	11	30.143	30.115	64	49	64.5	E.	
Sat	6	12	30.091	30.055	80	53	71.0	S.E.	
Sun.	7	13	30.078	29.891	80	62	73.0	S.W.	
Mon.	8	14	29.871	29.809	79	50	64.5	S.W.	
Tues.	9	15	29.895	29.774	77	51	64.0	S.W.	
Wed.	10	16	29.995	29.918	77	55	66.0	S.W.	
Thurs.	11	17	30.105	30.149	81	54	67.0	W.	
Average			30.014	29.981	69.4	59.5	67.4		.09

June 5 Hot and very dry air; clear at night
6 Dry and sultry; partially overcast
7—Sultry; excessively hot and dry; partially overcast at night
8—Heavy rain in London early A.M.; fine, cloudy
9—Fine; cloudy and fine, clear
10—Overcast throughout, nigh ly clouded at night
11—Light clouds; exceedingly fine throughout, clear at night.
Mean temperature of the week 0 deg above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending June 20, 1846

June	Aver. Highest Temp.	Aver. Lowest Temp	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain	Prevailing Winds						
Sun. 14	74.4	51.2	62.8	7	0.20 in.	W.	S.	S.W.	W.	S.W.	S.W.	W.
Mon. 15	74.8	51.0	62.7	8	0.50	1	3	1	3	5	5	1
Tues. 16	73.5	50.4	61.4	5	0.17	1	3	1	4	3	2	4
Wed. 17	74.0	51.5	62.0	13	0.90	1	4	1	—	5	4	3
Thur 18	73.1	51.7	62.4	11	0.25	1	2	2	1	3	4	5
Fri. 19	70.6	50.4	60.5	11	0.37	2	1	1	1	—	10	5
Sat. 20	72.2	51.1	61.7	9	0.21	1	2	—	1	4	5	1

The highest temperature during the above period occurred on the 20th, 1834—therm. 89°, and the lowest on the 13th, 1841—therm. 36°.

Notices to Correspondents.

POST-OFFICE ORDERS—In order to obviate the inconveniences which are now constantly being experienced by parties who wish to remit small sums to the office of the GARDENERS' CHRONICLE, we have to request that all Post office orders may in future be made payable to Mr. JAMES MATTHEWS, at the Post-office, 180, Strand, London

HIVES—*E S*—The smell from your boxes would not affect your bees; they seem to have been injured by too severe fumigation and want of sufficient air during their confinement. Though the plan of stupifying bees in order to make artificial swarms may succeed, still it is best to let the bees have their natural way; then there is no risk of injuring the stocks, nor of taking away too many bees of one age, which might not be furnished with materials to commence new colonies Of course there is a chance of losing the swarms, especially when neighbours have empty hives standing about, but even that may be better than disturbing the old stocks. *W.*

BOOKS—*W S*—Bevan on the Honey Bee.‡——*Henry*—Smith's Geological Map ——*S*—Repton and Loudon's "Self Instructor" are the two most useful. Add Loudon's "Cottage and Villa Architecture."

DISEASES—*H*—We are well acquainted with the disease in your Oak, for such must the tendency of the branches to drop off by a clean articulation be considered. But we are quite ignorant of the cause. It seems to be connected with some interruption to growth when the young branches are first forming, although it does not manifest itself till long afterwards It is clear that it is caused by a want of power in the branches to form wood, but what deprives them of that power is the mystery. We have only seen it in heavy land.

GRAPES—*A B*—We shall be most happy to advise you if you will forward a *full* and *sufficient* account of your case. What you now say conveys no useful information.

GRASSES—*Anon*—The Hard and Meadow Fescues, the Meadow Poa, and Crested Dog's-tail will answer your purpose best. In your light land you should add White Clover and Yellow Medick The fine appearance of good lawns arises from good soil, a damp air, and fine Grasses, but you cannot make a very good lawn in burning land; guano will assist you in doing so. Heavy soil is the better for being disturbed at the surface in dry weather, but light soil is injured. The object is to keep it cool rather than wet. Watering with ditch or pond water heated by the sun is advantageous, provided the ground is *soaked* in an evening, otherwise it does little good. Syringing the leaves in the evening with water in which a little carbonate of ammonia has been dissolved is a great help, if you do not mind the expense.

HEATING—*Anxious Inquirer*—For bottom-heat use wooden or iron tanks; for air heat an iron pipe. You may easily stop the communications in the way you name.

INSECTS—*S W*—It is the caterpillar of Tortrix viridana which defoliates the Oak trees, accompanied by another larva producing a moth called Hybernia brumata. *R.*——*T R*—Your beautiful fly is called Chrysis ignita. *R.*

MANURES—*Ann*—The relative value of the samples seems to be about as 75 No. 1 to 66 No. 2; you can now make your own calculations; but the analyses do not show the absolute quantities of nitrogen and phosphoric acid, on which every thing depends.

NAMES OF PLANTS—*W A*—Erodium cicutarium.——*Maldonado*—Crinum scabrum, Bifrenaria vitellina.——*Geranium*—Pelargonium littorale.——*J R*—Erigeron philadelphicus. The marks on your Stephanotus are lenticular glands and are natural to it.——*Z*—We make it a rule not to name Cryptogamic plants, which have no relation to horticulture.——*Aliquis*—The fungus that has attacked your Gooseberry is a species of Æcidium ——*F L C*—Scilla verna.

SEEDLING STRAWBERRY—*J H*—Your seedling is very distinct, on account of its regularly conical form and deep blood red colour; but it is not *high* flavoured. We cannot judge of its earliness, for when we received it London Strawberries were hawking about the streets.

SUCCULENTS—*N B*—We will try to get a good set of instructions for you.

MISC—*C M Chapman*—What you call diamond dust appears to us to be fine particles of quartz. Like all such substances, its utility depends upon its fineness.——*G S Wintle*—We cannot presume to explain your case without some better explanation of it. We imagine the maggots in the Pears to have proceeded from eggs, and the eggs to have been deposited by some insect.——*A*—Could you send us a few more Pear-leaves, closely inclosed, for inspection?——*D B*—Irish Ivy, Pyracantha, and Common Laurel, are good and cheap evergreens for covering an unsightly wall; but of these Irish Ivy is the best. They will succeed in any good garden soil. Plant early in autumn. ‡ —— *Kitty* Let your Ficus go on growing: you can easily strike the cuttings hereafter.——*Narcissus*—We never heard of retail brokers for the sale of seeds. The seedsmen are the only brokers.—— *J P*—Your statement that you have found the phosphoric rat poison a failure surprises us. We can only say that with us it answers perfectly. We do not say that it kills rats, for we do not know anything of that; but it certainly drives them away.——*T J*—The only plants in your list that are both hardy and worth growing are 3, 9, 24, 31, 36, 49, 51, 64, 77 ? ——*C P*—All the precautions to be taken in making a wooden box for large plants consist in having it made of 1¼ inch plank, wider at top than bottom; and with one of its sides made to take out when the roots require examination.—*Sedalmandus*—It is better to be stewed than burnt alive. On no account stuff your attics under the slates with straw; interpose a false ceiling of rough boards, or lath and plaster, between the ceilings and the slates.——*X*—No doubt your Rose tree overflowered itself last year; cut off the present bud-blooms to give it strength for next year. —— *K C*—We never heard that hedgehogs had any power of resisting poisons. *F, Berks*—Much obliged, but there are difficulties in the way.

SEEDLING FLOWERS.

CACTUS *D R*—Your seedlings are very superior to speciosa; the best coloured varieties are 2, 5, 7; of their mode of expanding it is impossible to judge, as they would not open after their arrival, from the peculiar way in which they were packed.——*W J*—The smaller specimen sent is fine in colour, the blue tint adds greatly to its effect; the larger seedling is fine in colour also; much depends upon their mode of opening, which we cannot judge of.

CALCEOLARIAS—*T B, Dublin*—The great drawback to your seedlings is their want of size; those we are in the habit of seeing generally range from 1 inch to 1½ inches in diameter; the spotting is varied and pretty, but the size will not do in the present day.*——*J D H* Your best flower is No. 3, the others are very common varieties.——*S S H*—Your specimens having been pressed quite flat, the projecting roundness in front, which is a great beauty in the form of this flower, cannot be judged of. The variety in the colour and marking is very pretty, as in 702, 4, 19, 27, 28, 30, 32, and 33. In a flower, such as 718, there is an appearance of the colour being discharged, which is a fault, the remainder are inferior to those noticed.*——*E J L*—Your specimens are pretty, but they are too small for the present time.*—— *M H N*—There is too great a similarity among your seedlings, and those only should be kept that are very peculiar in the marking, as the yellow varieties with brown spots are become very common. M 16, yellow and cherry, is pretty in colour and good in form. A, K, and AK and DK, are very pretty in the spotting. Several of the flowers had lost their footstalks, so that we cannot tell to which the Nos. belong Great improvement has taken place this season, particularly in form. The roundness in front, and the absence of the looping at the bottom of the flower have been fully accomplished.*

CINERARIA—*E J L*—Your specimen is too small, and the petals too narrow and thin.*

FUCHSIAS—*J T P*—Your seedling possesses no new feature, it is pretty and not uncommon.*——*Caledonia*—Your seedling is a very pretty specimen, the corolla being of a good colour and well seen; the objection to it is the pink colour of the tube and sepals; there are too many of this class in cultivation.*——*S*—The sepals of your seedling are rather coarse, and they have also a faded appearance; it wants opposition in the colour, and is not equal to many varieties of its class.*

PANSIES—*E H* Your specimens are too small. If No. 2 could be enlarged it would make a desirable flower; the colour is clear and bright.*——*Romulus* The colour of your seedling is peculiar, but it wants the size and substance of the flowers now cultivated.*

PELARGONIUMS—*P H W*—Your seedling is very inferior to the flowers now produced, it wants substance and colour, the top petals are also too veiny.——*A Young Amateur*—Although your seedlings are not equal to the flowers at present grown, they possess qualities which should encourage you to proceed. 2, 3, 4, and 7 are the best; they are of a fine texture, clear and good in colour, and with well rounded bottom petals; 2 is superior to the others in substance and colour, and will not lose its shape; the edges to the petals want smoothness.*

POTATO DISEASE—*Sir C J*—We have not published the report upon this subject made to the Institute, because we do not see that any new light whatever has been thrown upon the subject. In fact the conclusion of the report is that there is nothing ascertained as to the cause.

RANUNCULUSES—*S W Hilperton*—Among your seedlings are flowers of first-rate quality, fine in form, and generally with the crown well filled with petals; many of the spotted and edged varieties are very delicate and beautiful in colour and marking. As they are without numbers we cannot more particularly refer to them.*

VERBENAS—*J T P*—Your specimen was so dried up that we could make nothing of it.*

. As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

ERRATUM—In the article on "Autumn-planting Potatoes," p. 373, col. *b*, line 51 from top, for "successful" read "unsuccessful."

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.
TENDERS FOR CONTRACT.

THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND is desirous of receiving TENDERS from Innkeepers or others to contract for the supply of a COLD DINNER for 1200 persons, with a pint of Port, Sherry, or Bucellas, to each person, in the Great Pavilion of the Society at Newcastle-on-Tyne, on Thursday, the 16th of July next, on the occasion of its ensuing Annual Country Meeting for the Northern District.

Printed Forms of Tender may be obtained on personal or written application to the Secretary, at the Office of the Society, No. 12, Hanover-square, London, and must be returned to him at that address, properly filled up, on or before Tuesday, the 23d inst: the Society not binding itself to take the lowest Tender. By Order of the Council,

JAMES HUDSON, Secretary.

London, June 8th, 1846.

ORNAMENTAL TILES for Floors, Walls, &c, of Greenhouses, Conservatories, Garden Terraces; Encaustic, Venetian, &c., in EVERY VARIETY. May be seen at Messrs. PARKER and WYATT'S, Surrey-street, Blackfriars, London. Agents to Messrs. MINTON & CO., the Patentees, of Stoke-upon-Trent. Also Patentees of the PORCELAIN BUTTONS, cheaper and more durable than Mother-o'-Pearl, &c.

The Agricultural Gazette.

SATURDAY, JUNE 13, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, June 17—Agricultural Society of England.
Thursday, — 18—Agricultural Imp. Soc. of Ireland.
Wednesday, — 24—Agricultural Society of England.
Thursday, — 25—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.—Wells (Ireland)—Belfast Flax Society.

FARMERS' CLUBS.

June 18—Botley
— 24—Newton
June 25—Overy St. Mary
— 26 Rhins of Galloway

Let us return to the subject of BREAKING UP GRASS LANDS.

It is with the landowner that the decision with regard to them must rest, and therefore we must endeavour in the first place to ascertain what interest he has in their permanence. We by no means wish to place him in the invidious position of one whose interests are opposed to those of the rest of the community; on the contrary we believe that his decision in this matter, if founded on an intelligent and long-sighted review of all the circumstances connected with it, will be one for the general advantage; and that, in fact, if it be not advisable for landowners to break up their pastures, neither in the long run will any other class connected with agriculture benefit from it.

Permission to break up a pasture-field is always considered a favour done to the farmer, and it is generally accorded either as the only method of quieting complaints of an over highly pitched rent, or in consideration of an increased annual payment. Now, what the landlord desires, and what of course can alone render it his interest to grant this permission on any extensive scale, is that this increase of rent be permanent. This can be attained only by a similar permanence in those circumstances on which rent depends, viz., the fertility of the land, and the excellence of its cultivation; and to these points we must therefore first address ourselves:—"How can the fertility of what is called 'new land' be maintained?"

It must be acknowledged that this has been the great difficulty with most landlords. Pasture-lands are not so liable to maltreatment as those which are under the plough. They can but be robbed of their natural produce of Grass; and that will dwindle away as the land deteriorates without the entire impoverishment which in arable culture is produced by cross-cropping. And the history of many a badly-managed Grass-farm is but a record of this gradual deterioration, until, the rent being ultimately loudly complained of, the land has been broken up, only to undergo that more rapid impoverishment to which it is rendered liable by the more efficient means of exhaustion which arable culture supplies. We have known many pasture-fields maltreated thus: permission has been obtained for their conversion; they have been made to bear repeated crops of Wheat; and when they could yield no more, they have been laid down for "rest," as it is called, and, after the lapse of years, broken up again, simply to undergo a repetition of this mismanagement. We have in our eye just now a large field not many miles from where we write, which was broken up many years ago and sown to Teazles, of which it yielded a crop more than equal in value to the fee simple of the land; the consequence was that the soil having, under the favourable circumstances of that year, been taxed to the utmost of its powers, yielded nothing in the next year; nor has the scanty herbage with which it became naturally covered since been equal to the keep of more than a sheep or two per acre per annum. But it has been "resting" all this while, and being now supposed to have recruited its powers, it has been again broken up during the past season, and is again covered by a most promising plant of Teazles; and, should the ensuing summer be dry, it will no doubt again yield a valuable but most scourging produce. We do not know if the former tenant threw up the occupation when he had pocketed the proceeds of his last Teazle crop, but it is as evident that it was his interest to do so as it is manifest that his treatment of the land was most injurious to its proprietor. Instances might be multiplied to show the risk which under common circumstances (for it is in our pasture districts that the least ability to manage arable land exists), landlords suffer by granting permission to convert Grass land. The first essential, then, to be obtained before such permission be granted is *sufficient intelligence in the tenant:* such intelligence as will enable him to see his own interest in the adoption of an alternate system of husbandry. And with such intelligence, provided the other necessary conditions be fulfilled, we believe there is no risk whatever of endangering the annual value of an estate by leaving its cultivation entirely to the will of its cultivators; binding them, however, it may be, by such few and simple regulations as they will themselves heartily admit. Let one of these stipulations be, that each year half of the land, whether it be "new" or "old," shall be made to produce crops of food to be consumed on the farm; and another, that no straw be sold off the land. And if a hearty and intelligent acquiescence in these be accorded by a practical man, of ordinary energy and sufficient capital, and acquainted with approved methods of husbandry, we would not fear to let him the land to cultivate it as he pleased. Under *these* circumstances, no landlord need fear injuring his estate by converting its pastures. On the farm from which we write, nearly 200 acres have been broken up during the past seven years, and we venture to assert that the land has been getting richer and richer every year, and that positively we do not know what to do with the straw which it yields, and that the consumption of root crops and straw produce an amount of manure which it is absolutely *feared* to apply, for the land is thereby so puffed out and enriched that, excepting in dry summers, the grain crops are all laid and injured; and were it not for the liberality of the landlord, who gives permission to sell a portion of the green crops, spending some of the returns in oilcake or artificial manures, and thus maintaining an equal amount of fertilising ability in the farm manure at the same time that its bulk, and therefore its injurious influence on the texture of the soil, are diminished; were it not for this, we really should not see a way out of this growing and annually increasing *damage*, for each greater crop of straw increases the stock of manure, increases that by which an increase in the bulk of the grain crop would be again produced. And with the wet season of last year, at the same time that a diminution was suffered of one quarter per acre of Wheat in the usual average yield of the land, the enormous quantity of straw to which the decrease is attributable, has produced by its consumption, and that of the root crops, a quantity of *made* manure equal to upwards of 40 cubic yards for every acre to which, under the rotation, manure comes to be applied; it has thus laid the grounds out of which we have no doubt a similar experience will arise when that land shall again come to yield a grain crop in a dripping season.* The landlord need be under no fear of his land being impoverished by being broken up, except where the tenant has inclination or permission to "run it out."

And it is satisfactory to find that the researches of scientific men corroborate the experience of the agriculturist on this point. Dr. DAUBENY, in his memoir on the rotation of crops, lately read before the Royal Society, and published in their "Transactions," points out the enormous supplies which every soil contains of those substances on which fertility depends; supplies existing to be sure for the most part in a sort of dormant condition—for but a small portion is at any one time available as the food of plants; and that small portion may be removed by cross cropping, and sterility may thus be produced; but it is only temporary, for rest and exposure during rest to the influence of atmospheric solvents, will prepare from the almost unlimited storehouse at command, a fresh stock of food for ensuing crops. All this is borne out by experience, and the truth of a theory is thus established on which we might raise a conclusive argument for the permanence (under conditions of proper cultivation) of that fertility which a newly broken-up pasture field always possesses, and on which, of course, its value to rent depends.

It is proper to refer here to a fact connected with this subject, from which, however, experience shows that nothing need be feared. Mr. DARWIN has shown that the rest in which land lies when in pasture is favourable to the activity of worms, to whose agency he has proved that we must in great measure attribute the fine texture of our surface soils, and it has been urged that in breaking up Grass lands we break up and destroy those efficient arrangements which are in progress for the deepening and refining of our soils. But to show that nothing of this kind need be feared, it only needs that we refer to the experience of gardeners on this point, who find no injury, but, on the contrary, great benefit, and increased fertility, from a repeated trenching and overturning of the soil to its full depth.

Let us just repeat the point which we have been endeavouring to illustrate: *an intelligent tenant* having been obtained, provided the other necessary conditions be fulfilled, no landlord need fear granting him permission to break up such pasture lands as he may deem it advisable to convert. The "other necessary conditions" we have yet to consider.

THE STATISTICS OF BRITISH AGRICULTURE have yet to be ascertained. No one ventures to deny the important uses which a body of information of this sort would serve. The politician laments his ignorance of the real extent of the resources of agriculture; how far they have been developed, and under what circumstances. The landowner is similarly in the dark as to the true position of the interest in which he has so large a stake. The minister admits the value of the information such facts convey; yet, strange to say, we are still without them. Legislation, however, goes on. Measures affecting agriculture are discussed with the greatest confidence. *Old* figures and estimates, which though they have never been disputed, have never been confirmed, pass current; and where there is a dearth of these ancient facts, it is still easy to imagine or concoct "modern instances" more suitable to the circumstances of the case in hand. As an illustration of the "*flexibility*" of the statistical facts (!) which we are now in possession of, we may mention that the annual value of the agricultural produce of this kingdom was estimated by two opposite authorities a few weeks ago at 220,500,000*l.* and 600,000,000*l.* respectively. This circumstance, illustrative of the manner in which figures can be made to bear out the most opposite conclusions, strikingly shows us the necessity which exists for more precise knowledge on a subject of so much consequence as the real position and capabilities of agriculture. Nor is this an individual opinion founded on isolated grounds. It is an evil acknowledged by our most eminent statistical authorities. "It is much to be regretted," says Mr. PORTER, "that in this country, rich as we are in the possession of facts connected with many branches of social economy, we are almost uninformed with regard to the statistics of agriculture. The knowledge we have upon that most important subject—the quantity of land in cultivation within the kingdom, is entirely due to the industry of an individual *whose estimates have never either been confirmed or questioned* What proportion of the cultivated land is applied to the production of any one article of food, it has never been attempted to ascertain. We know every rood of ground that is employed in the cultivation of Hops, because of the direct financial interest which the Government has in ascertaining the fact; but it does not appear to be sufficiently understood how the national interest can be concerned in any kind of knowledge that does not yield money to the exchequer." Still more culpable does our neglect of this subject appear, when we consider that, with one exception, ours is the only country in Europe where the Government is not acquainted with the true position of each branch of this important interest, as exhibited by correct periodical returns of the results of the labour and capital employed. Young even as America is she obtains at decennial periods the fullest information on the points we neglect, and to them her statesmen look with no slight interest* as the indices of the real progress which has been made in the interval, and as an exemplar of the results of the system of legislation which has been worked upon.

It cannot, therefore, be less important that in England, where every branch of physical industry is in that stage of progress when jealousy is rife and no one can be elevated at the expense of another,

* Perhaps, in such a case, the best method for gradually bringing down the exuberant fertility of the land, without injuring it by imperfect cultivation, would be to adopt a rotation similar to that of Mr. Dimmery, described by Mr. Morton in the "English Agri. Soc. Journal;" where Wheat is followed by green crop fed off, and that by Potatoes, or other green crop, sold; this would give two fallow crops in three years, but it would also involve the sale of two crops off the land in the same time.

* In proof of this we refer our readers to some extracts which we shall shortly publish, from the replies of Col H. S. Randall, of Cortland, U.S., to a circular of the Secretary of the Treasury of the United States, asking for statistical information on Agricultural subjects. These answers are extracted from the Secretary's Report to Congress, and "were elicited," says the *Cortland Democrat* "for the purpose of gaining the necessary information on which to base the financial policy of the Government" We are indebted to the courtesy of Colonel RANDALL for this interesting document; and we beg to express our obligations to him for furnishing us with so instructive an example.

and no one neglected without injury to all, that our statesmen should be able to ascertain what is the real condition of its agriculture, what has been its progress, and at what times, and under what circumstances, these variations have taken place. The tabular results of such an enquiry would materially facilitate beneficial legislation by affording direct evidence as to the nature, condition, and requirements of the interests affected; and if the returns were taken periodically they would point out clearly the operation of previous systems of legislation under the peculiar circumstances of the times. As a chart of the coast is of use to the navigator, so must such a record materially strengthen the capacity of any Government for useful legislation, for the history of the past is no mean prophecy of the future.

By extending the enquiry to other branches of productive industry its usefulness would be augmented. Something, however, has been done for these. The investigations of the Board of Trade, established in 1832, was directed to matters relative to manufacturing industry and commercial intercourse. But for agriculture no effort has been made; its claims, therefore, require special and prompt consideration

Our remarks on this subject have been elicited by a conversation which was originated by Mr. STAFFORD O BRIEN a few nights previous to the adjournment of "the House" for the Whitsuntide holidays. This conversation, although desultory, was not uninteresting nor unimportant; it drew from Sir GEORGE CLERK the information that the Ministry have made attempts to collect the statistics of Agriculture, and *have failed.*

This statement we take to be a virtual admission of the good policy of obtaining the information required; and, although the admission is accompanied with a saving clause, which may appear to promise nothing to those who are anxious to see that practised which is avowedly politic, we confess that we look upon it with different eyes.

The obstacles which have opposed the collection of that information, the absence of which has been a reproach to British statesmanship, and a blot upon the literature of our political economy, can only require to be known to be overcome. Having the command of every means to execute its designs that human wisdom can devise or require, it is not probable that ordinary obstacles will be permitted to prevent our Legislature from carrying them out, especially when they embrace results of importance to all.

And least of all is *cost* an element that should weigh against a matter so desirable as a knowledge of the progress of industry, of the results of past legislation, and of the present condition of the greatest productive interest of the nation.

If the *general* utility of a body of agricultural statistics claim the consideration of the public at large, their value to agriculture itself gives them an additional title to the attention of all who are concerned in the cultivation of the soil; for it is evident that, whatever may be the general advantage derived from a knowledge of these statistics, agriculture (along with other interests) must receive its proportionate share of the public good; but it will, at the same time, also receive a benefit directly and exclusively its own—the advantages which a system of statistics must confer upon the *science* and the *practice* of cultivation.

To this view of the question we shall advert again.

A LIMIT TO HIGH CULTIVATION.

IN the course of last year I pursued my experiments as to the effects of artificial manures upon root crops, but the results were so unsatisfactory that I was unwilling to encumber your pages with their unprofitable details; but there is one error so prevalent in the present day among those who, without any practical knowledge upon the subject, speculate upon the improvement of agriculture, that any evidence tending to remove it may be of some service. The error to which I allude is that of supposing that the application of capital to land is an infallible recipe for augmenting its value to an indefinite extent, and that a generous liberality to the soil is sure to be repaid by a proportionate increase of produce. Mr. Pusey has shown that doubling the quantity of farm yard manure does not double the value of the crop, and that the return for 26 loads of it is very little more than that for 13. My experiments prove the same general fact with respect to artificial manures. I must begin by stating that in one case I found that 20 bushels of bones produced nearly half a ton per acre more of Swedes than 4 cwt. of guano in another part of the same field. The issue of the experiment was this—

	tons	cwt.	lbs.
20 bush. of bones produced per acre ..	29	2	96
4 cwt. of guano	31	12	16
20 bush. of bones and 4 cwt. of guano ..	30	16	80
8 cwt. of guano	31	12	16

Thus, it would seem, the addition of the guano increased the produce of the bones nearly in the same proportion as the addition of the bones diminished the produce of the guano, and yet in the other instance the bones were superior to the guano. It cannot be inferred from this that the plants were injured by excess of manure, in consequence of the two being united, for the crop was a large one; we can only infer that the soil had reached its maximum of fertility. But it is still more remarkable that doubling the dose of guano produced no effect whatever, not even the difference of a single pound in the produce. Now, the only other great expenditure, by which it is expected that fertility can be materially increased, is that which is incurred by draining, and doubtless in all stiff soils it is most efficient for that purpose; but there are other soils which derive no benefit from it at all—the sands, and the gravels, and the chalk, occupying a very large proportion of the whole country, being naturally porous, are drained by nature, and want no assistance from art. There is, therefore, a limit to their powers of productiveness which it is impossible to pass; and those who have attained that limit may expend the wealth of Golconda upon their land without adding a single ounce to the food of the country; or, rather like the dog in the fable, they may lose the good they have by grasping at too much; for no farmer needs to be told that a crop may grow too rank and stand too thick upon the ground for profit. Hence it follows that the best cultivators of the soil are those who will suffer most severely from the threatened reduction in the price of corn; they cannot obtain more from it, and it will pay them less; and to them the cry of "Improve your agriculture," is a senseless and ignorant reproach. Nevertheless, it is quite true that much of this land, apparently in the best condition, has not attained its maximum of fertility; but the question how to bring it up to that mark is a problem too difficult of solution to be imposed upon the ordinary farmer, who cannot be expected to venture upon greater risks than those to which he is already too much exposed from the elements and insects. For his encouragement, therefore, it may not be amiss to show, by a series of experiments on Mangold Wurzel, that in some cases where a soil may be supposed to have reached very nearly to its highest point of fruitfulness, it may still have latent powers of production capable of further development. They were tried in a field which had been well manured in the preceding year, and the soil must have been tolerably rich, which, without any additional manure, could bear a crop weighing 18 tons 7 cwt. 16lbs. The following table exhibits the increase extorted from it by different manures:—

	tns.	cwt	lbs.
1¼ cwt. phosphate of potash and 20 bushels of ashes	0	5	20
4 cwt. essence of guano and 20 bushels of ashes ..	1	14	32
20 bushels of sugar scum and 10 bushels of ashes	3	3	64
20 bushels of bones and 10 of ashes	3	12	96
4 cwt. of guano and 20 bushels of ashes	6	12	96

The two first of these do not cover the expense; and yet the second ought to contain all the same elements of nutrition that exist in the fifth, which was amply remunerative. On the other hand, the actual increase shows that the plants were not injured by the concentration of the manure, and the difference between them cannot be explained in that way.—*L. Vernon Harcourt.*

ON FARM LEASES AND TENANTS' RIGHTS.

A VERY great benefit to agriculture would doubtless be gained could one form of lease, one set of covenants, one principle for valuing the tenants' rights at leaving, be established all over England; then not only would a tenant in one county be able to treat with confidence for land in another, and make some sure calculation of the capital that would be required, but much of the present uncertainty in the administration of landlord and tenants' law, and in defining of the customs of counties, would be done away. How this is to be wholly attained it is difficult to suggest, but probably assistance may be given by laying down certain principles to be borne in mind in drawing up farm leases, and with this view the following thoughts on the subject are made public. The questions of "lease or no lease" and of "term long or short," I think, may be met by looking to the general practice in letting of ground for building, or for other great improvements. Would not landowners be thought crazy—did they expect parties to build valuable premises on their land, without first guaranteeing a long possession, with power to realise, and is it not equally unlikely that large investments will be made by tenants to improve their farms, without their having assured to them a property in their farms, with the certainty of return that assignable leases and long terms alone give? All improvements should be understood to be (what they really are) investments of capital for gain; and, I am convinced, that when landlords shall better understand right principles to encourage their farm tenants to make great outlays, they will see the necessity for granting long and assignable leases, and then a class of improvers may arise, who, like the rough clearers of wastes in America, would take poor undrained or wasted farms on speculation to improve and underlet, and be pioneers for others, who, not having the experience or the capital, are deterred by the present unfavourable aspect of neglected but improvable land.

The covenants usually adopted in farm leases are frequently complicated, ill understood by the tenant, and such as an agent finds great difficulty in watching and in enforcing; and, besides, are often positive obstacles to any change from old practices. Whilst care has to be taken that the property of the landowner shall not be depreciated by a vicious or neglectful tenant, equal care should be given to make the covenants clear and simple, their infringement easily detected, and to admit full latitude to the changes which improved practice from time to time calls for. The general covenants I have adopted for arable land are as follows:—

1. *The term* 21 years, but determined by bankruptcy, insolvency, nonpayment of rent, or breach of covenant.

2. *Payment of Rent.*—Tenants to pay the rent quarterly and discharge all taxes, tithe, rates, and impositions (but the land and property tax to be allowed out of the rent).

3. *Repairs.*—Tenant to do all repairs, landlord to find timber cut out ready for carpenter's use. Tenant to cart and pay for cutting out the timber.

4. *Cropping.*—The arable land to be so cropped that as near as can be never more than 3-5ths at once shall be cropped with corn, and that the remaining 2-5ths shall be fallow or under Turnips, Green Tares, mixed Grasses, or Clover, or roots for cattle feeding; and that two cereal crops of corn shall never be grown in two successive years on the same ground.

5. *Exchange for Manure.*—That for all hay, straw, roots, or fodder, green or dry, taken off the farm, double the quantity of animal excrement shall be returned, and the tenant at Michaelmas of each year shall furnish an account of all that has been taken away, and of all the manure brought back in return during the past year.

6. *General Covenants.*—The tenant shall maintain the land in a clean and husbandmanlike condition, preserve the timber and hedges from waste or injury, keep clear all ditches, watercourses, and drains, repair and keep in good repair all buildings, erections, gates, stiles, fences, and roads, and generally protect and uphold all rights and privileges attached to the farm.

7. At quitting the farm he shall leave all the hay, Oats, and straw of the last year's growth, save what may be consumed on the premises, for the incoming tenant to take by valuation at a feeding price.

8. The game (hares and rabbits excepted) to belong to the landlord.

9. The landlord, to insure, to find timber for repairs of buildings, to give quiet enjoyment, to pay the tenant at quitting (less all arrear of rent, all rates, tithe, taxes, and other charges on the farm, up to Michaelmas-day) the appraisement which shall be due to him, according to the one paid at entering, the same to be ascertained by the time of quitting by two appraisers or their umpire, who shall be nominated a month prior to the time of quitting, and in case either party shall neglect to appoint an appraiser (or an umpire in case of difference between the appraisers), then the valuation shall be made by the single appraiser or the umpire nominated by one party.

10 The tenant to be allowed gratis the use of the barn and stackyard, for the purpose of threshing out his corn and getting it to market, for six months after the expiration of his tenancy.

These are the covenants for arable land which experience leads me to consider advisable to form the basis of every lease. On a future occasion should you think your readers interested in having the opinion of an individual, I will furnish you with mine upon tenants' rights. Without going the length of many professional gentlemen (who would charge an incoming tenant with matters over which he can exercise no control and little scrutiny, and who would leave him, as I think, far too dependant upon the integrity of his predecessor, to say nothing of the capital they would lock up), I readily admit the justice and the policy of the incoming tenant paying for all that has been done at the cost of the outgoing tenant to carry on the cultivation of the land, without remuneration; that is to say, for all matters which a leaving occupier gives up for the benefit of his successor, and not hitherto having drawn an adequate return, and also to provide so as to prevent any break or interruption in the due cultivation and rotation of cropping; but at the same time my wish is to save the needless locking up of capital, and as much as possible, to shut out the opportunities for fraud that too frequently are found opened by existing customs and practices.—*Hewitt Davis, Spring Park, near Croydon.*

ON THE DRILL HUSBANDRY OF TURNIPS.

(*Continued from p. 373.*)

4. *Manures.*—Kinds used in the experiments and management of them. 1st, Farm-yard Manure: This is carried out every three or four weeks from the yards, and put into large heaps in the fields coming in for Swedes, and the labour is generally done in wet or frosty weather. The manure is thrown up five or six feet in height, but these heaps in process of fermentation sink considerably. In February I turn them over, and if any good mould or earth can be thrown over the top it will be useful in imbibing exhalations and in keeping in the moisture. The heaps are again turned, about three weeks before being put on the land.

It is necessary that the vegetable matter in manures applied to thin dry soils in southern climates should be considerably advanced in decomposition, because if this is not the case it keeps the land lying loose and hollow, allows the drought to penetrate easily to the bottom of the furrow, and thereby causes partial, if not a complete loss of crop. That portion of yard manure made in April and May is generally dry, and often gets mouldy in the heap, therefore as soon as a quantity is put together I saturate it with liquid manure; it is then turned, and if not completely wet I apply more of the liquid; the heap is turned twice more, allowing 10 or 12 days to intervene, and from such process I get a

manure tolerably well decomposed, and in time for applying to our last sowing.

The pulverised manures used in my experiments are as follows:

1. Bones.
2. Rape-cake.
3. Rich mould mixed with blood, &c., viz.—90 cart-loads of best mould mixed with 12 hogsheads of blood and some night-soil; this mixture was frequently turned in March and April, during which it got exceedingly hot, throwing off very offensive effluvia; turning was continued until the heap was dry enough for riddling, and fit to go through the drill.
4. Wood ashes.
5. Turf ashes.
6. Malt dust.
7. Kiln dust (from malt kilns).
8. A mixture of bones with turf ashes.
9. A mixture of Rape-cake with turf-ashes.
10. A mixture of bones, turf-ashes, malt-dust, and kiln-dust.

With this latter mixture the greater portion of Turnips grown by me with pulverised manures have been treated as I found it to answer best, and the proportions and quantity per acre in which it was used nearly as follows: viz., 12 bushels bones, 24 to 30 of turf-ashes, and 6 or 8 of kiln or malt-dust; if these are put together and well mixed a month or two before sowing, so much the better. I procure ashes by paring off ant-hillocks on the poor pastures, and burning these with all weeds, turves, &c., which can be found about the farm, considerable quantities of ashes are obtained yearly. This useful article may be obtained on a great many farms with a little attention in the dry season of the year, by paring off the turf at the sides of walls, hedges, farm-roads, &c.; such a process would gradually and effectually get rid of Thistles and many other weeds which are allowed to flourish and come to seed in such situations, to all appearance purely for the purpose of producing twice as many every succeeding year, or for the special purpose of a few pheasants nestling therein.

This section may with propriety be concluded by a few remarks on the usual methods of applying farm-yard manure. From several careful attempts made under my own direction, and from the almost universal practise among farmers in midland and southern counties, I never yet saw farm-yard manure in a moderately forward state of decomposition much more than half covered with mould when attempted to be ploughed in broadcast; that is, by the common process of ploughing, however well the manure may be spread. Generally it will be found that one-third of it is on the surface, and by the application of a light harrow to cover the seed, whether sown broadcast or by drill, one-third more of the manure is brought up, and although the land is most frequently rolled for the finishing stroke, still what was intended for food to the Turnip is left on the surface to evaporate and wither in the sunbeams; it is rapidly deprived of the greater and best part of its nutritive qualities, and ere many weeks pass, the lumps or pieces of manure become like bits of cork. No part of agricultural management deserves greater reprobation than this mode of applying manure; it is only carting it out to dry and to be lost, instead of being applied to aid the growth of the Turnip. Farmers as a body read far too little, and are behind every other class in this country for information connected with their own profession, particularly a just knowledge of those valuable and correct chemical and physiological phenomena of plants, and of the operations and effects of manures in assisting in their growth, which can only be clearly understood by reading Liebig and other recent works on Agricultural chemistry. If the laying on of manure in the way above noticed can be justified at all, it must only be if put on late in the autumn, and ploughed in with the winter furrow. Much less is exposed on the surface with this ploughing, as the furrow turns better over than the May or June ploughings. That portion exposed during the winter suffers little from evaporation, and the juices contained are washed into the ground by the repeated rains, and the whole gets thoroughly mixed with the mould by the spring operations. However, I have never seen any advantage resulting from this mode, and it is not very generally practised for this reason, few farmers have much manure ready for going on the land at this season, unless they are buyers from towns. In this case it may be desirable to manure part of the next year's Turnip-land at this period, more for the purpose of forwarding some portion of that work, which is very heavy and difficult to get performed in due time, rather than on account of any advantage which is likely to accrue from doing so at that season.

As my own experience gives the preference decidedly to the use of farm manure in the ridge or Scotch system for every variety of Turnip, when the land will admit of being sufficiently pulverised to allow of that process being carried into effect, and if certain heavy tough soils cannot be brought to such a state of tilth, I am of opinion such lands ought to be under other crops than Turnips. By the ridge system, when properly performed, every particle of manure is covered, before there is time for evaporation, with a fine mould from two to four inches thick; it is laid directly under the seed, and ready to receive the rootlet as soon as it pushes downward in search of food. On examining the manure for two or three months after being put in the ridge, it appears moist, although the earth all around looks dry and dusty; thus it seems to act something like a sponge in holding moisture, which mixing with the nutritive particles and exhalations of the manure, afford an abundant and constant supply of food for the numerous mouths which the plant sends forth in search of aliment. Hence the importance of having every particle of manure covered, and that each plant if possible should have an equal portion exactly under it.

5.—Modes of Sowing and Implements used.—I shall now describe my method of sowing Swedes where farm manure is used, which is always done on the ridge system, and I may here state that the very same plan is adopted with all other varieties of Turnip with that manure. The land having been prepared as already described, a double moulded plough with two horses is started soon after five in the morning, and gets seven or eight ridges put up about 26 to 28 inches in width (this may be done narrower or wider according to fancy or the supposed capabilities of the land); but the best rule in this case to be guided by is such width as will just suit the cart-wheels, viz., when the cart with manure is brought on the ridges, the horse having his feet properly in one hollow, each wheel should fit exactly into the next adjoining hollows. When this is correctly observed the ridges are not crushed down and put out of shape by the wheels in carting on the manure. Three carts with a thiller horse to each, and two trace horses, two boys to drive, four men to load, and one to empty the carts, commence at six putting out the manure from the heaps in the field, and lay down in the middle row a sufficient quantity to serve nine ridges. Soon after 7 o'clock seven or eight women with three-pronged forks, such as are used for digging Potatoes, proceed to spread the manure as regularly as possible by beating about the large lumps, and shaking it up, and placing an equal quantity in each hollow between the ridges, and when well done each opening should appear as if a flat rope of manure lay stretched in it from one end to the other. If the manure is very much decomposed or earthy, it is necessary to have a man or two with shovels taking up the bottoms of the heaps, and applying it to the thinnest places. The spreaders should be placed in pairs at equal distances along the length of the ridge, in order to have the manure equally divided among the nine ridges; with all this caution, constant and careful watching is necessary from the farmer, that this important process is equally and perfectly performed, and to accomplish this an extra hand or two should not be withheld. As soon as nine rows are spread, another double moulded plough with two horses begins to cover the manure by splitting the first made ridges upon it; this process completely overlays the manure with fine mould from 2 to 4 inches deep, and encloses it in a moist steaming state before the rays of the sun have had any influence over it, indeed, three hours seldom elapse from the time the manure leaves the heap until it is covered up; thus we proceed, each party, if possible, treading on the heels of those who precede them for 9½ to 10 hours a day, the work-people and horses resting two hours, from 11 o'clock to 1, and on an average putting out 75 good cart loads of manure, and finishing about three acres per day. If we attempt to make the ploughs do more, the work is badly done, the land is so stony and hard below that the men cannot keep their ploughs steady; even at this pace they find the ridging work very trying and heavy, having to hold the plough so firmly in hand, and with so much care, to prevent the stones from knocking them about; many times in a day they have to stop and draw back several yards to mend a fault caused by some ill-bred stone, or some obstinate set-fast root.

After the splitting process, and so soon as the ridges are sufficiently dry, sowing commences; in fine weather this may be begun by 2 or 3 in the afternoon, but the surface must be quite dry, or it makes very slow imperfect work, the rollers of the drill getting clogged up every little while; and as there is no silex in this soil, it is the more troublesome, therefore I never force sowing, but wait until the soil is dry enough not to stick to the first roller of the drill, the hinder roller, even in this dry state, will require some attention in clearing, as the moist mould which the seed coulter throws up adheres to it. I prefer a machine to sow one furrow at a time, as the seed is then deposited on the middle of the ridge, and consequently right over the manure; the rows of plants are also produced equidistant from each other; this is of considerable importance where the horse hoe is set to work, for I have frequently seen this implement drawing the plants up in going between the ridges one way, and too far from them in returning between other two, the consequence of a two rowed drill being carelessly set, or of the ridges not being made uniform in width, which it is impossible to do on thin, unequal, stony land.

I have tried several kinds of one row drills, but latterly have found one made by Leiths, White, and Co., of Worksop, Nottinghamshire, answer pretty well, but, like all other ridge drills which have come under my notice, is deficient in two points, viz., a lever seed coultor, to be guided in its depth by the hinder roller, and the cup apparatus for lifting out the seed being the most sure and perfect mode of supplying it. This drill sows pulverised manure when required very well, it requires a man, boy, and horse to work it, and will sow much quicker than the ploughs ridge up, as the horse may go considerably faster without doing the work imperfectly; I sow from 2 to 2½ lbs. of seed per acre, and have always found it abundantly thick, and, unless a shower interrupts, we drill up to the covering plough every evening before it gets dark; next day, if the ridges feel very soft and loose under-foot, or if the hinder roller of the drill has lifted the mould in a troublesome way when sowing, I run a light one-horse roller over, to press them moderately down; this brings a still finer surface, which is most effective in keeping the drought out, and genial for the young plants pushing their heads through. By proceeding thus, it will be seen that the sowing of a field is generally finished in a few hours after the dung-carts leave it.

Home Correspondence.

Liquid Manure Tanks.—When clay is plentiful, a liquid manure tank may be made readily and cheaply, without mortar or mason. Make two centres and two wedges, similar to the drawing; the backs of the centres should be of 3-inch scantling, and the bows of inch boards; when these are placed together, back to back, with inch wedges between them, they will describe a circle, say of 6 feet. Dig a hole as for sinking a well, say 9 feet deep and 8½ feet in diameter; cover the bottom with clay, well puddled, 9 inches thick; lay the floor of your tank with bricks, flat; describe on this area a circle of 6 feet 9 inches diameter; on this place the centre, raising it 4½ inches from the floor; set a circle of bricks on end round it; put clay round the outside of the bricks; tread and puddle it well; drive here and there a pebble into the openings on the outer margin of the bricks, to make the arch firm; trim your work by rapping those bricks into place, that, by the treading of the clay, have been driven out of upright; knock out the wedges; raise your centre, by loose bricks, 9 inches, and proceed with another circle of



bricks as before. When you have arrived at the required height, remove the centres, and your tank is made. If you wish to cover it, place a floor of rough boards on the loose bricks which supported the centre; make a dome of earth, and on this an arched covering, with an opening for the pump, which should be large enough to admit a man and bucket, to clean out the tank when requisite. The arched covering should be with mortar, and may require a mason. Several of these tanks may be made to communicate; and for this purpose, in one of your circles of bricks, near the bottom, three bricks should be placed horizontally on each other; two of the perpendicular bricks on which the three rest can be taken out, and a communication 9 inches by 6 formed with the adjoining tank, taking care to puddle well the short drain between the two. I have a plan for a concrete tank, which I intend to form in a property where clay is not found. I will, if you wish, furnish you with it when I have proved it. I need not send you a calculation of the number of bricks and cubical contents of the above tank; any parish schoolboy ought to be able to compute these.—*G.*

Feeding Horses.—In a late Number of your Paper, a correspondent inquires respecting the relative value of Oats and Beans, for the purpose of feeding horses. In reply to those queries I beg to offer a few observations, which, I confess, are more of a theoretical than a practical nature; but I trust they may induce actual experiment to be made to test the correctness of the theory. In Boussingault's work on "Rural Economy," he gives a table of the relative value in nutriment of various articles as food for animals; ranking them according to the relative quantity of nitrogen which, on analysation, they have been found to contain—nitrogen being one of the most important constituents of muscle; and muscle, not fat, being an undoubted essential in the capacity for the patient and effective endurance of fatigue. In the table in question, 100 lbs. of good meadow hay are taken as the guiding standard of calculation; and it then sets forth what quantity of other descriptions of food it will require to yield the same quantum of nutriment, or, in other words, the same supply of nitrogen. I find it there stated that 68 lbs. of Oats, or 23 lbs. of Beans, are equal, in point of strength, to 100 lbs. of hay; therefore, the relative value, in capability of producing muscle, is, according to theory, very nearly as 3 to 1 in favour of Beans over Oats, or as 23 are to 68. In point of economy, therefore Beans are far superior, as the difference in price per lb. between the two is only trifling. In many parts of the country I understand that 20 lbs. of hay and 1½ pecks of Oats per day, or 140 lbs. of the former and 10½ pecks or 105 lbs. of the latter per week, are considered a good and ample allowance of food for a farming horse, equal to 294 lbs. per week, or 42 lbs. per day of hay alone. Now, supposing that a horse were given 9 lbs per day, or 63 lbs. per week of Bean meal, this allowance would be equal, in point of strength of food, to 274 lbs. hay, leaving the equivalent of 20 lbs. of hay to be supplied by other means. Admitting that Beans are really a very strong food, their nutriment is in too condensed a shape, and would require dilution or expansion in bulk, by adding some other food less nutritious, and greater in capacity. This desideratum may be obtained by using chopped straw, which contains only about one-fourth as much nutriment as hay, and therefore 80 lbs. of straw may be made use of, in order to supply the deficient equivalent of the 20 lbs. of hay. But again, 80 lbs. of chopped straw would not be of sufficient bulk to distend the stomach of the animal in an adequate degree, nor afford a sufficient supply of carbon necessary to keep up the quickened respiration during the hours of work. I should therefore recommend that the quantity of chopped straw be increased to 20 lbs. per day, or 140 lbs. per week; and in order to correct the binding nature of the Beans, should also recommend the addition of ¼ lb. per day of crushed Linseed. According

to theory this mode of treatment would yield more nutriment than that generally adopted. But it may be asked, what is the relative cost? This I make as follows, per week:—

1st—140 lbs. of hay, at 70*s.* per ton	4*s.* 6½*d.*
10½ pecks or 2 bshl. 2½ pks. of Oats, at 22*s.* per qr.	7*s.* 2½*d.*
	11*s.* 7*d.*
2nd—294 lbs. of hay, at 70*s.* per ton.....	9*s.* 2½*d.*
3rd— 63 lbs. of Beans, or 1 bshl., at 42*s.* per quarter.	5*s.* 3*d.*
140 lbs. of straw, at 30*s.* per ton.....	1*s.* 10½*d.*
3½ lbs. Linseed, at 1½*d.* per lb.	0*s.* 4½*d.*
Cost of chopping straw, grinding Beans, and crushing Linseed, say	1*s.* 0*d.*
	8*s.* 6*d.*

Should the preceding remarks be deemed likely to throw any light upon the subject in question, or be considered beneficial to agriculture in general, they are much at your service.—*Henry Briggs, Overton, near Wakefield.*

Agricultural Statistics.—The remarks brought forward on Mr. Stafford O'Brien's motion about agricultural statistics, do not seem to make it evident that what Government and the country require on this head are to be obtained by a country schoolmaster. Every one knows who is acquainted with agricultural pursuits that in a wealthy kingdom like this, our statistics ought to be obtained from a less objectionable source, by men skilled in order, and men of education and experience in statistics generally, who could gather such information as would place it beyond a mere supposition, as would be the case with men of that class, where their very occupation makes them subservient to the interests of a few private individuals. What we want is a full and comprehensive account of what England does produce; how it is produced, and what it is capable of producing if all her energies can have full scope. Do you not think a society could be formed on this point that might be made available to all the landed interest in the kingdom. I would undertake one whole county if Government would grant me certain privileges for inspecting various documents in public offices, and a fair remuneration. Where is the man that would further this?—*Colonus, Grove-end House, St. John's Wood.*

The Potato Crop.—I beg to forward an account of what I have observed in regard to the Potato crop in Devon within this last week. I have visited many Potato fields, most of which have a very luxuriant and thriving appearance when seen at a distance, but on examination I find the whole to be diseased; I could not discover one not affected less or more. I fully believe that the whole I have examined will be roasted or scorched up with the direful calamity within a month of this time. Many considered their crops to be doing remarkably well, and, indeed, expressed themselves satisfied that their crops were quite clear from disease until I pointed out its effects. Mr. Bridle, of Otterton, called my attention to a fine piece of early Potatoes, which he had planted pretty early in February last, in a sheltered dry situation; they had remarkably strong stalks, from 2 to 3 feet in height, and many of them at the base as thick as the middle finger, with foliage as large as good Spinach leaves. Mr. Bridle on Monday last calculated that he should be able to take up 50 bags of good tubers from this piece in the last week in this month, and I do not doubt but that quantity would have been produced by the end of the month had they kept clear from disease, which attacked them on Thursday the 4th inst., and the whole have now dropped down dead, many of the stalks looking as if charred. I enclose a stalk, that you may have ocular demonstration of these facts. The effluvium is uncommonly disagreeable in this hot sunny weather. The fact is, on my examining them I could distinctly observe that they never had been free from disease; it originated in the old tubers, which produced strong cankerous watery shoots. Your remarks, which appeared early in spring, in respect to the Potato crop being doomed, is now too truly verified. The disease is clearly to be observed in the many fields I have examined. It proceeds from the old tubers, the shoots having a sort of watery swelling or bulging near the tuber, which bursts, some of them to that extent that they at once canker off; they then shoot again and again until exhausted, still making fresh roots, which are also affected with the disease; at the same time, on pulling up a strong stalk, the lowermost, or first burst part, and all the roots adhering to the stalk near it, are found to be dead and shrivelled up, while luxuriant roots above still for awhile support the stalks—to all appearance at a distance in perfect health; then it makes its appearance in various forms above ground, and the strongest looking plants die, and are dried up in a few hours, while the very next or adjoining plant on either side escapes, and remains healthy looking, and luxuriant for perhaps a few hours or days after its neighbour is dried up and withered. Some are infected first on the stems at the base, near the surface of the ground; others a few inches higher, and some near the summit, while others are affected in five or six places at the same time. Where those gangrene sore-looking blotchings are is where the dropsical swellings before described have burst underground; when those places burst above ground, the stalks at once drop down dead: others are affected only for a time at first in the axils of the leaves, which on these bursting fall off, while others again are first attacked only in the small ribs or veins of the leaves, which burst and at once cause a small blotch, which runs like wild-fire into large brown, or black, inky-looking spots. I observed in the dull sunless weather we have had previous to the last 14 days, that the gangrene bursted blotchings were mostly brown; but since we have had clear sunny fervid weather, they at once turn as black as if charred. The disease is also to be discovered readily enough in the young tubers, if not before being cooked it may afterwards; the feel of an infected tuber will readily convince any one, although the disease may not be visible to the naked eye until the skin is peeled off; the first appearance is its peculiar white colour, almost as white as a curd, and quite as soft. In others more infected may be observed the commencement of little sore looking watery blotchings full of water, as soon as the skin is removed; while in others, this may be found burst, and the disease clearly to be seen with the naked eye, passing all through the tuber in various directions; when thus infected, they soon become putrid. Whatever may have been the origin or first cause of this destructive disease, it is clear that it now proceeds from the tuber—that its first appearance is, if either in tuber, stalk, or foliage, in the shape of little watery spots, pimples, or bulgings, swelling into a dropsical contortion until it bursts, at which time the disease runs through the crop like wild-fire, carrying rapid destruction before it. It is now almost a certainty that the whole of the crops which have been planted at the usual season, and that too without any previous preparation of the seed-tuber will be again destroyed, whatever certainty there may be with prepared seed and early planting. Autumn planting, &c., will now soon prove itself; at present I have myself fine pieces of Potatoes that have not at this moment any appearance of disease; under certain preparations at the same time others have it in every form. I would recommend all cultivators to encourage crops of Carrots, Parsnips, Jerusalem Artichokes; to sow plenty of Turnips—more particularly Swede Turnips, which is one of the very best of all roots for horses, cows, bullocks, sheep, or pigs; they can now be sown in seed-beds, and transplanted in the same way as Cabbages, and should the Potato-crops fail, good varieties of Cabbage should also be selected, and sown in abundance, and it is not too late for sowing dwarf curled Savoys—a most excellent vegetable to stand a severe winter, and of known good qualities for furnishing abundance of wholesome food both for culinary purposes and for cattle. It is very good boiled or steamed for feeding pigs, &c. The Potato disease being thus early discovered there is ample time to crop the land with articles that may be turned to good account in winter. It is not too late to sow Carrots; I have grown excellent crops sown after Midsummer. Carrots will continue to grow when sown late until Dec.—*Jas. Barnes, Bicton Gardens, Sidmouth, Devon.*

ERRATUM.—In the article "On Experimental Growth of Swedish Turnips," by E. S., Notts, at p. 379, col. *c*, for "*Sodd-ash*" read "*Sod*-ash," which is procured by burning the clearing out of hedges, ditches, &c.

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A WEEKLY COUNCIL was held at the Society's House, Hanover-square, on Wednesday last, the 10th of June; present, the right hon. Lord PORTMAN, president, in the chair; Earl of Lovelace, Sir M. W. Ridley, Bart.; Sir Trayton E. Drake, Bart.; Sir Robert Price, Bart., M.P.; Thos. Raymond Barker, Esq.; W. R. Browne, Esq.; H. Gibbs, Esq.; W. Fisher Hobbs, Esq.; W. H. Hyett, Esq.; John Kinder, Esq.; W. Miles, Esq., M.P.; E. A. Sandford, Esq.; Professor Sewell; R. A. Slaney, Esq.; W. R. C. Stansfield, Esq., M.P.; G. Wilbraham, Esq.; R. Archbold, Esq., M. P.; J. Baines, Esq.; Dr. Calvert, W. A. Commerell, Esq.; C. Cure, Esq.; T. Dunne, Esq.; J. B. Clegg, Esq.; J. Greene, Esq.; A. Ogilvie, Esq; E. Parkyns, Esq.; and T. Turner, Esq. The following new members were elected.

Wood, Basil Thomas, Aldbro Lodge, Boroughbridge, Yorks.
Walker, John, Prestwick House, Newcastle-upon-Tyne.
Hughes, Edward, Hill House, Ashford, Kent.
Hetherington, Joseph Walker, Newcastle-on-Tyne.
Hodgkinson, Rev. G. C., Principal of the R. A. College, Cirencester.
Langford, Frederick, Udimore, Rye, Sussex.
Jobling, John, Seaton Lodge, Seaton Sluice, North Shields.
West, Desaguliers, Hartfield Lodge, Tonbridge Wells, Kent.
Borrer, Nathaniel, Parkyns, Burstperpoint, Brighton.
Robson, Daniel, Shipcote, Gateshead, Durham
Jobling, John, Seaton House, Blyth, Northumberland.
Sowerby, John, Shipcote House, Gateshead.
Jobling, Mark L., Percy-street, Newcastle-on-Tyne.
Umbers, William, jun., Wappenbury, Leamington, Warwick
Askew, Sir Henry, Fallingburn House, Coldstream, N. B.
Hutton, William, Shotley Bridge, Durham.
Burnett, Nicholas, Black Headley, Northumberland.
Head, Charles, Hexham, Northumberland.
Davison, Ralph, Chapel House, Newcastle-on-Tyne.
Hepworth, Joshua, Rogerthorp, Pontefract, Yorkshire.
Collingwood, Edward, Tissington Hall, Newcastle-on-Tyne
Liddell, Hon. H. T., M.P., Ravensworth Castle, Durham.
Wilding, Charles, Powis Castle, Welshpool, Montgomery.
Salusbury, Rev. Thelwall, J. T., Offley, Hitchin, Herts.
Powell, John Folliott, Welwyn, Herts.
Clark, John D., Christon Bank, Embleton, Alnwick.
Barns, Thomas, Whitburn, Sunderland.
Riddle, Thomas, Felton Park, Northumberland.
Ettrick, Anthony, High Barns, Sunderland.
Charlton, W. H., Brandsby Hall, York.
Smith, Anwick, Langley Grove, Durham.
Cholmeley, Waldo, Torr Royal, Tavistock, Devon.
Gilpin, George, Sedbury Park, Richmond, Yorkshire.
Wharton, Rev. William Fitz-William, Barningham Rectory, Greta Bridge.
Roper, Roper S. D. R., Sedbury, Richmond, Yorkshire.
Kell, William, Gateshead, Durham.
Wharton, Rev. J. C., Gilling Vicarage, Richmond, Yorkshire.
Fenwick, John Manners, Gallow-hill House, Morpeth.
Smith, William, Haughton Castle, Hexham.
Johnson, George, Willington, Newcastle-on-Tyne.
Spittal, Alexander, President of the Isle-of-Man Agricultural Society, Douglas.
Wallis, Robert, South Shields, Durham.
Dickson, John Peel Walls, Ayton, Berwickshire.
Shaftoe, Rev. A., Whitworth, Durham.
Robinson, John Horton, South Shields, Durham.
Limerick, Earl of, Ditcham, Petersfield, Hants.
Hickman, Henry, Newnham, Daventry, Northampton.
Grantham, George, Barcombe-place, Lewes, Sussex.
Allnutt, John J., Wallingford, Berkshire.
Webber, W., Moulton Paddocks, Newmarket.

The names of 28 candidates for election at the next meeting were then read. The following communications were received:—

1. From VISCOUNT NEWRY: Baskets made of iron wire, or rods, galvanically coated with zinc; for agricultural purposes generally.
2. From Mr. FISHER HOBBS: a statement of the advantages derived by Mr. Hudson, of Castleacre, in the employment of similar baskets or pans, made of sheet-iron. Mr. Hobbs, at the request of the President, signified his willingness to submit specimens of these baskets to the inspection of the members at their next weekly Council.
3. From Mr. BAKER, of Writtle: a communication, through Mr. Fisher Hobbs, on the Wheat Midge of last year, and the aphides so prevalent on the Pea crops at the present time.
4. From the Rev. JAMES ROBSON: a system of Farming Accounts, placed by him at the disposal of the special committee on that subject.
5. From Mr. TWEED: an Essay on Farming Accounts, presented by him to the same committee; and a statement of experiments in progress to prove the ready passage of water through the porous material of draining pipe-tiles.
6. From Mr. SHORT, of Martin: a present of seeds of the Cow-Parsnip for distribution; and a specimen of bones dissolved by sulphuric acid.
7. From Mr. BLAKE: a notice on the destruction of the wire-worm.
8. From Mr. SLANEY: an offer to place the sums of 10*l.* and 5*l.* at the disposal of the Society, as additions respectively to any prizes the Council may think proper to give for the ploughs best calculated to effect the cutting of drains and the turning over of the soil taken from them; with suggestions as to the conditions under which each prize should be offered for competition.
9. From Mr. B. CLARKE: a statement of the result of an experiment on retarding the germination of Turnip seed.
10. From Mr. RAYMOND BARKER: a notice from Col. Blagrave of the unsatisfactory result attending experiments made on his farm in reference to the steeping of seeds previously to sowing.
11. From the PRESIDENT: a report of the practical inquiries instituted by Mr. Browne, of Winterbourne, Stoke, on the advantages attending the employment of cut straw for litter.
12. From Mr. THOUME, Mr. LE BER, Mr. MOYLE, Mr. MURPHY, and Mr. GETHEN: Papers on the subject of the Potato Disease.

An interesting discussion, with statements of practical personal experience, on several of the more important topics connected with these communications, having taken place, the Council ordered their thanks to be returned to the respective parties from whom they had been received, for their attention in submitting them to their notice. The Council then adjourned to their weekly meeting on Wednesday next the 17th inst.

Reviews.

Industry of the Rhine. Series I. Agriculture. By T. C. Banfield. C. Knight & Co., Ludgate-street.

THIS very interesting volume, noticed at p. 303, contains a great deal of valuable information. The author has succeeded in giving even the details of farming in a manner likely to interest the general reader, at the same time that he is sufficiently particular in his descriptions to make them useful to agriculturists. We shall make two extracts, the one descriptive of the irrigated meadows of Liegen, and the other on some general distinctions between the agriculture of the lower Rhine and that of a similar district in England.

"Although the manure obtained from towns is of the greatest value in increasing the yield of meadows, yet it is important to make the fact known, that simple water, unaccompanied by the wash of floods, or by any extraneous matter, promotes the growth of Grass on meadows in a remarkable manner. The meadows of Siegen allow the peasants to give all their dung to the arable land, which, in its cold bleak situation on the sides of the hills, would, on other terms, not be worth cultivating. The whole agricultural plan of this district thus combines whatever can be of use to a half-manufacturing population, by demanding little labour and producing chiefly what assists the miner, or serves as fodder for beasts of burthen.

"The water-meadows are now systematically laid down in three different manners according to the slope the ground commands, and the abundance or scarcity of water. The engineers are usually the peasants of the neighbourhood, who by practice have acquired great skill. The surveying instruments may be seen in their houses in all the villages, and the precision with which their levels are taken and the flow of water promoted is not a little surprising. The three modes consist in terraced beds, and in broad and narrow beds with an elevated ridge in the middle. The following are the directions given by the Oberförster Vorläufer. The chief canal should be carried as high above the level of the meadow to be irrigated as possible. Where circumstances do not favour the laying down of the canal at a sufficient elevation, and the soil is too soft to allow of the construction of a high dam without great expence, the level of the meadow may be lowered sufficiently to answer the purpose. It must be kept in mind,

that by constant watering the level of the meadow is raised in time, for the soil swells in consequence of the accumulation of roots and the addition of particles of humus, as well as from the depth to which vegetation is promoted. When the surface reaches the level of the water-course from which it is irrigated, it becomes necessary to break up the meadow and to lower its surface. The mode adopted either to alter the level or to regulate the unequal surface of a meadow, is not to plough up the ground and crop it with corn or Potatoes, although one would expect to obtain rich returns, especially of Oats, from a lay of 16 or 20 years' standing. The sods on the surface are pared off with a peculiar kind of narrow spade 2 feet 2½ inches deep. Strips are previously cut in the surface with the axe, and the strips when rolled up are carried on a stick passed through the middle of the roll. One man usually marks the strips, two pare them from the surface, and a fourth rolls them up. These rolls are recommended in the place of square or oblong cuttings; amongst other advantages they insure a sufficient quantity of sod to cover the field when it is levelled. If the turf be cut off in small pieces, the quantity often proves somewhat deficient. The beginning is generally made with those parts of the meadow which being highest have the greatest quantity of ground to spare, and with those which are hollow and require filling up. The turf being removed the ground below is dug up and carried from the one to the other. Care is, however, taken by good meadowers not to carry away the soil that lies immediately under the turf paring. Of this a portion is reserved to form the bed on which the turf is to be relaid. The ground transferred from one place to another is taken from the subsoil, unless the good ground be very deep. When the level of the whole meadow has to be lowered, the stuff taken from the subsoil that becomes useless must be carted and thrown away.

"Where the surface, at a sufficient depth under the chief water-course, still offers a fall of 1-36th of the length of the meadow, and there is plenty of water, the meadow is laid down in what at Siegen is called the terrace mode of irrigation (Hangbau).

"If the slope is less, and there are marshy spots, the meadow is laid down with narrow ridges.

"Broad ridges are used where water is not abundant at all times, and the ground free from marshy spots, but commanding little fall. Where these peculiarities of site and command of water are observed, the yield of a water-meadow on an average is the same in all three systems of laying down. The first cut is made about Midsummer, and on good soils gives 3 tons of excellent hay to the morgen, or 4½ tons to the acre. The after-grass yields about half as much. On average soils the yield may be estimated for the neighbourhood of Siegen at 3 tons to 3½ tons per acre. With retentive subsoils the meadows yield below the average. It is customary in autumn to drive the cows on the meadows, their weight being supposed useful in treading down the surface, which has a constant tendency to swell and grow over the level of the irrigating canals. These meadows furnish in autumn pasturage, and in summer the cows are driven into the 'Hauberg.' In the morning and evening some green fodder is given them in the stables. In winter hay, straw, and chaff, mixed up and boiled with Potatoes, Carrots, or Beet-root, form the usual fodder.

"*Terraced Meadows.*—In the meadow that is destined to be laid down on the terrace plan, the water-course being carried over the highest part, the level of the distributing canal must be marked by a stake driven near the centre. Another stake driven at the lowest extremity of the field must mark the level of the draining conduit—the terraced meadow being supposed to have a breadth of 6 Prussian roods of 10 feet, and is divided into four beds each 1½ roods in breadth. The channels, laid parallel to the distributing channel, are supplied with water from the distributing canal by means of transversal cuttings. It may seem simpler to let the water at once run over the whole surface from the distributing canal; but experience has shown that the richest Grass springs nearest to the canals, although the reason why there should be a difference where there is water enough to flood the whole surface is not very apparent. By increasing the number of canals the fertilising principle is more equally distributed, and terraces of 6 roods in length by 1½ in breadth are found to be the most advantageous size for ensuring the best yield of Grass. If the level of the beds be found after a few years' watering to be raised too much, the canals can each be carried a foot or two higher up the slope, the old cuttings being closed and covered with the turf taken out of the new ones.

"The sluice cuttings in the dam of the upper water-course are 5 inches wide, and their bottom is sloped, being at the upper end 6 inches higher than the level of the chief water-course. The irrigating canals are 5 inches broad and 4 inches deep. The transversal cuttings are of the same dimensions.

"*Irrigation by Means of Narrow Ridges.*—In a meadow irrigated on the system of narrow ridges, the water-course, with the sluice cuttings through its dam, are the same as in the terraced meadows. The distributing canal is kept horizontal, and is 1½ feet broad and 5 inches deep. The meadow is measured and divided into equal portions, the best size for which is between 15 and 25 feet. Each bed or ridge is supposed to have a breadth of 20 feet, so that each slope has a breadth of 10 feet. The ridges are 60 feet in length. Stakes are driven at the openings of the transversal cuts, which are levelled, and the draining conduit must then be marked out and stakes fixed at the points. The fall does not exceed 1 foot in a length of 63 feet. With the aid of the last stakes parallel cuttings are made in a transversal direction from the draining conduit in the direction of the distributing channel, but stopping at some distance short of the latter. The bottom of these cuttings is sloped, being 5 inches higher than the level of the draining conduit. The cuttings divide the ridges and serve as drains. Between them the ground is raised in the middle so as to slope towards each draining canal, the upper part of the ridge being kept high enough to carry an irrigating canal which takes the water at the level of the distributing canal, and carries it with a slope of 5 inches to the draining canal. When this canal is full and overflows, the water runs into the lower cutting, and thence into the lower drain, in the bottom of which there is also a slope of 6 inches.

"At the lower end of every ridge the surface presents the appearance of a triangle.

"*Irrigation with Broad Ridges.*—In a meadow laid down near Keppel with broad ridges, the water in the brook that supplies the main canal is scanty in summer, and is applied to turning the wheels of some steel-works. The main canal is 4 feet broad, 1½ feet deep, and has a fall at bottom of ¼ inch in soft. The dam is 3 feet broad, and the sluiced cuttings through it are each 1 foot broad. The horizontal distributing canal is 2 feet broad and ½ foot deep. The ridge-cuttings that issue from it are 90 feet long; at the mouth they are 1½ feet, and 1 foot broad, with a depth of 5 inches. The width of each ridge is 60 feet, consequently each bed or slope is 30 feet broad.

"In order to diminish the size of the intervals between the cuttings transversal canals are carried across the beds. The drain-cuttings have a fall at the surface of only 3 inches, but at bottom of 5 inches, being 4 inches deep and 8 inches broad, and 6 inches deep and 1 foot broad. In this meadow the chief drain serves as a distributing canal for a meadow situated below and adjacent to it. In a meadow laid out by M. Vorländer in such a manner as to combine the terrace plan applied to the more elevated part with the narrow ridge system, the drain canals serve as distributing canals for the meadows situated below them. In a large meadow near Keppel, by a skilful adoption of the various modes of laying down the surface, the same water is carried over eight different plots of land in succession.

"The proper time for cleaning out the ditches and canals is late in the autumn, when the cattle are no longer driven to the meadows. A day is fixed by the overseer of the meadows by which all the canals have to be cleaned out under a certain penalty. Then it is that the principal watering for the year takes place. If there has been heavy rain and the irrigating brooks are muddy, the water is not let on to the meadows until it begins to get clear. Too great a sediment fills up the canals and leaves unequal deposits on the surface that mar the labours of the meadow-owner. In the autumn no fear is entertained of the meadows being overwatered. The great point sought to be accomplished is that the flow of the water shall everywhere be perceptible, and that none remains stagnant in any part. In the beginning of winter when the frost sets in the water is kept off the land. If the weather is open and rain falls, the water may be turned on again.

"Spring is the season that demands the farmer's care. In mild rainy weather the irrigation may be continued; but after floods, as in the autumn, the water must be allowed to settle. When the sun grows powerful the irrigation must cease altogether. In March and April a little moistening is allowable; but in these and the following months the water may only be spread during the night. In the middle of June occasional night watering does good, but none is let on for four weeks previous to the hay harvest."

In reference to the general character of the Farming on the Lower Rhine, Mr. Banfield has these remarks:—

"From Cleves to Cologne in a straight line is about 70 miles; from Aix-la-Chapelle to Hagen in Westphalia, the base of the triangle we have measured, is nearly 100 miles. Our triangle is therefore equivalent to one leaning with its base upon London and Bath, and having its apex either at the extremity of the Isle of Wight, or in a northern direction at Coventry. Yet how different an appearance do the two English districts here marked out present from the portion of Germany with which we would compare them! Good high roads and navigable rivers traverse the German as the English districts, and afford them the advantages of trade. The population is nearly equal in density, and in abundance of iron and cheapness for the general consumer there is no great disparity. To the most unpractised eye, however, it must be evident that in the English districts more wealth is acquired in the year than in the German. The crops are more abundant, the outlay of capital is repaid sooner, the prices of produce are all higher in England than on the Rhine. Let us go into the details of the comparison.

"It will hardly be disputed that the profit drawn from agriculture, as well as from other branches of industry, is the more conspicuous the fewer the hands are that divide it. Now since farming, properly so called, is carried on in England upon allotments varying from 100 to 1000 acres, whereas the common limits in this part of Germany are from 10 to 300 acres, the difference in the numbers sharing the profits in both countries is at least as 1 to 8 or perhaps 10. We have no doubt that the number of estates exceeding 1000 acres, managed by one farmer in central England, exceeds the number of those above 300 acres on the Rhine. In the districts more remote from the thoroughfares of trade, the proportion of the population employed in agriculture is overwhelming as compared with other occupations. Hence the low prices of produce in good years, and the difficulty the Germans find in accumulating capital. Where there is a superfluity of produce, if all produce the same, there can be no market. So it is in Germany. Every man grows his own bread. Who is to buy of those who produce more than they require for their own consumption? It is owing to this circumstance, and not because the cost of tillage is less, that prices are so low. To raise them it will be necessary to open new fields of labour in trade and manufactures, into which many of the present cultivators of the land must be induced to migrate, and thus to leave to a smaller number the division of the profits in agriculture. The gift to the peasants of the small lots they held, in the manner before described, had quite a contrary tendency, by keeping them on the land which they would by degrees have left. But at that time, and even still, the panacea prescribed in Germany for all widely spread discontent is to subdivide the land. Unless such a measure be accompanied by a multiplication of the consumers, that is to say, of the markets, it is not easy to see what agriculturists have to gain by such a step. In Prussia it is estimated that three persons are employed in agriculture for one engaged in trade or manufactures. This will explain why, with such low prices as we usually find quoted in Germany, there is never a superabundance of corn, while prices rise rapidly on the first symptom of a demand from England. It will also account for the modes of cultivation that prevail, under which only a moderate yield is extracted from the land. That with the soil and climate of the Lower Rhine a far greater return might be obtained, is shown by the example of Belgium and England. But why should it be raised if there is no one to buy it? The exportation of Wheat to France and Belgium assumes every year a more constant form. It will not be long before England appears as a regular customer at the Continental markets. It will then remain to be seen whether the more distant but more fertile districts of Poland will be able to furnish grain on better terms than the nearer plains of Germany, with their intelligent population. The irregularity of our demand has obliged countries that cannot produce without cost to leave us out of their calculations.

"The next weighty consideration that presses itself upon us is the fact that, in the trading and manufacturing districts, and on the Rhine generally, both the rent of land and its capital value are higher than that of similarly circumstanced land in England. We have endeavoured to explain this fact from the circumstance that there are crops that all times assert their full value in the market of the world, such as seeds, Flax, Tobacco, dairy produce, &c. On these the German farmer who works on a sufficiently large scale relies for his profit. It so happens that the demand for all these articles must increase when the price of corn falls, for more of them is consumed when bread is cheap than when it is dear. Thus the landlord holds the disease and its remedy in his own hands; if he wishes market crops, as they are here called, to rise in value, he must lower the price of grain. If corn became so cheap that it was not worth growing, he would find an immense demand for all other produce to indemnify him."

Miscellaneous.

Cost of Wheat Culture.—The cost of cultivating an acre of Wheat in two different districts, the one bordering on the north coast, where sea-sand is easily obtained, and the other on the south coast, is as follows:—

South coast district.	£	s.	d.
1 Ploughing "combing"	0	7	6
Harrowing, burning, and spreading ashes	0	10	6
100 bushels of lime	2	15	0
Carriage of ditto, 4 miles	0	12	0
Carriage of 25 loads of earth, and mixing with lime, and spreading	0	2	0
Second ploughing	0	7	0
Harrowing	0	1	0
Seeds, 18 gallons	0	15	8
Sowing, &c.	0	0	1
	£6	1	0

North coast district.	£	s.	d.
1 Ploughing	0	7	6
Harrowing, burning, and spreading ashes	0	10	6
Carriage of 10 loads of sand, 3 miles	0	17	6
Carriage of 50 loads of ditch-earth, &c.	0	10	6
10 loads of farm yard dung, at 2s. 6d. per load†	1	5	0
Mixing and spreading the sand, earth, and dung	0	5	0
Second ploughing	0	7	0
Harrowing and sowing	0	3	4
Seed	0	16	8
	£5	3	0

—*Mr. Karkeek, Eng. Ag. Soc. Journal.*

Calendar of Operations.

JUNE.

The operation of warping commences in June. We extract the following from a very valuable work, by a well known author, "The Farmer's Calendar," by Arthur Young: a work of which another edition is much wanted:—

"The water of the tides that come up the Trent, Ouze, Dun, and other rivers which empty themselves into the great estuary of the Humber, is muddy to an excess, insomuch that in sum-

* This is accomplished by ploughing the land in such a manner—from 2 to 2½ inches deep—that one-half of the turf is laid on the other half. At the end of five or six weeks this is well worked out, and the land is sometimes ploughed across, which is provincially termed "thwarting."

† The dung which is used in this district may be termed "straw dung." From the small proportion of Turnips grown, few cattle are fattened, and hence the greater part of the dung is of a very indifferent character.

mer, if a cylindrical glass, 12 or 15 inches long, be filled with it, it will presently deposit an inch, and sometimes more, of what is called warp. Where it comes from is a dispute; the Humber, at its mouth, is clear water; and no floods in the countries washed by the warp rivers bring it, but, on the contrary, do much mischief by spoiling the warp. In the very driest seasons and longest droughts, it is best and most plentiful. The improvement is perfectly simple, and consists in nothing more than letting in the tide at high-water to deposit the warp, and permitting it to run off again as the tide falls; this is the aim and effect. But to render it effectous, the water must be at command, to keep it out and let it in at pleasure; so that there must not only be a cut or canal made to join the river, but a sluice at the mouth, to open or shut, as wanted; and that the water may be of a proper depth on the land to be warped, and also prevented flowing over contiguous lands, whether cultivated or not, banks are raised around the fields to be warped, from three or four to six or seven feet high, according to circumstances. Thus, if the tract be large, the canal which takes the water, and which, as an irrigation, might be called the grand carrier, may be made several miles long; it has been tried as far as four, so as to warp the lands on each side the whole way, and lateral cuts made in any direction for the same purpose; observing, however, that the effect lessens as you recede from the river; that is, it demands longer time to deposit warp enough.

"But the effect is very different from that of irrigation; for it is not the water that works the effect, but the mud, so that in floods the business ceases, as also in winter: and it is not to manure the soil, but to create it. What the land is intended to be warped, is not of the smallest consequence; a bog, clay, sand, peat, or a barn floor; all one; as the warp raises it in one summer from six to sixteen inches thick; and in hollows or low places, two, three, or four feet, so as to leave the whole piece level. Thus a soil of any depth you please is formed, which consists of mud of a vast fertility, though containing not much besides sand; but a sand unique. Mr. Dalton, of Knaith, on Trent, sent some to an eminent chemist, whose report was, that it contains marl-clay, and a very minute portion of saline matter; a considerable one of calcareous earth: the residue is mica and sand; the latter in far the largest quantity: both in very fine particles. Here is no mention of any thing argillaceous; but from examining in the fields much warp, I am clear there must be clay in some, from its caking in small clods, and from its cleansing cloth of grease, almost like fuller's earth. A considerable warp farmer told me, that the stiffer warp was the best; but in general it has the appearance of sand, and all glitters with the micaceous particles. So much, in general, as to the effect; the culture, crops, &c. are circumstances that will best appear, with others, in the following notes, taken on the spot.

"Mr. Webster, of Banksides, has made so great an improvement by warping, that it merits particular attention. His farm of 212 acres, is all warped; and to shew the immense importance of the improvement, it would be necessary only to mention that he gave 11*l.* an acre for the land, and would not now take 70*l.* an acre; he thinks it worth 80*l.* and some even 100*l.*; not that it would sell so high at present; yet his whole expense of sluices, cuts, banks, &c., did not exceed 2500*l.* or 12*l.* per acre; from which, however, to continue the account, 1500*l.* may be deducted, as a neighbour below him offers 5*l.* an acre for the use of his sluice and main cut, to warp 300 acres, which will reduce Mr. Webster's expense to 1000*l.* or about 5*l.* an acre. Take it, however, at the highest, 12*l.* and add 11*l.* the purchase, together, 23*l.* an acre; if he can sell at 70*l.* it is 59*l.* per acre profit. This is prodigious and sufficient to prove that warping exceeds all other improvements. He began only four years ago. He has warped to various depths, 18 inches, two feet, two feet and a half, &c. He has some that, before warping, was moor-land, worth only 1*s.* 6*d.* per acre, now as good as the best. Some of it would let at 5*l.* for flax or potatoes; and the whole at 50*s.* He has twenty acres that he warped three feet deep, between the beginning of June and the end of September, and 18 acres, part of which is three feet and a half deep. He has applied it on stubbles in autumn, by way of manuring; for it should be noted, as a vast advantage in this species of improvement, that it is renewable at any time; were it possible to wear out by cropping, or ill-management, a few tides will at any time restore it. As to the crops he has had, they have been very great indeed; of Potatoes from 80 to 130 tubs of 26 gallons, selling the round sorts at 3*s.* to 3*s.* 6*d.* a tub; and kidneys at 5*s.* to 8*s.* Twenty acres warped in 1791, could not be ploughed for Oats in 1795, he therefore sowed the Oats on the fresh warp, and scuffled in the seed by men drawing a scuffler; eight to draw, and one to hold; the whole crop was very great: but on three acres of it measured separately, they amounted to 14 quarters 1 sack per acre. I little thought of finding exactly the husbandry of the Nile in England. I had before heard of Clover seed being sown in this manner on fresh warp, and succeeding greatly. He warped 12 acres of Wheat-stubble, and sowed Oats in April, which produced 12 quarters an acre. Then Wheat, 36 bushels an acre. His Wheat is never less than 30. Six acres of Beans produced 30 loads per acre, or 90 bushels: one acre, measured to decide a wager, yielded 99 bushels. Has had 144 pods from one bean on four stalks; and Tartarian Oats seven feet high. One piece warped in 1793, produced Oats in 1794, six quarters an acre: white Clover and Hay seeds were sown with them, mown twice the first year: the first cutting yielded three tons of Hay an acre; the second one ton, and after that an immense eddish. Warp, Mr. Webster observes, brings weeds never seen here before, particularly Mustard, Cresses, and wild Celery, with plenty of Docks and Thistles. Flax, 40 to 50 stone per acre. A sluice for warping, five feet high and seven wide, will do for 50 acres per annum; and if the land lie near the river, for 70. Costs from 400*l.* to 500*l.*

"Mr Nicolson, at Rawcliff, takes the levels first, builds a sluice; if a quarter of a mile or half a mile, 40 acres may be done the first year; the drier the season the better. The clough, or sluice, 400*l.* eight feet wide, and five or six feet high: a drain 14 feet at bottom, and as much more at top, 30*s.* to 40*s.* an acre, of 28 yards: banks four to eight feet high, and expense 7*s.* to 20*s.* an acre of 28 yards. Begin at Lady day, till Martinmas, but all depends on season, the depth will depend on circumstances. If a landlord warp, it should be deep at once; if a tenant, shallow, and repeat it: as good Corn will grow at six inches as six feet; at three inches great crops: the stiffer the warp the better. Some seasons sow corn the year after. Warp is cold, and if deep takes time; a dry year best: great seeds. Crops ought to be—Beans, 20 loads; Oats, 10 quarters. Wheat, 10 or 12 loads; never Barley. After six years, Potatoes and good Flax: he makes it worth 40*l.* to 50*l.* an acre.

"Mr. Wilson's idea of warping is very just; to exhaust the low lands in favour of the hills: then to warp six inches deep, to exhaust that to make the hills: then to warp again; and by thus doing, to keep the warp land in the highest order, and at the same time, work a great improvement to all the higher grounds.

"*Note, by a Commissioner employed in Warping.*—'Warp leaves one-eighth of an inch every tide, on an average; and these layers do not mix in an uniform mass, but remain in leaves distinct. If only one sluice, then only every other tide can be used, as the water must run perfectly off, that the surface may increase; and if the canal be not empty, the tide has not the effect. At Althorp, Mr Bower has warped to the depth of 18 inches in a summer. Ten quarters an acre of Oats, on raking in the seed on warp; the more salt in it the better, but one fallow in that case necessary, to lessen the effect, or it hurts vegetation.'

"A very great object in this husbandry of warping, is the application of it in other districts. They have much warp on all the coasts from Wisbeach to Boston, &c., and though a long succession of ages has formed a large tract of warp country, called there *silt*, yet no attempts that I have heard of have been made to warp artificially there. Any proprietor into whose hands this calendar may fall, or even any farmer, living near a muddy river, should consider well the position of his ground, and try the amount of the subsidence of the water in a cylindrical glass jar; for a treasure may be near him, without his knowing anything of the matter."

This is a subject on which we should be glad to hear from correspondents who may be disposed to give our readers any information of which they may be possessed.

Notices to Correspondents.

RURAL CHEMISTRY, by Edward Solly.—The Second Edition revised and enlarged, is now ready, price 4*s.* 6*d.*

BEANS—*A C K*—You will make most money of them by selling them, and if your farm wants manure, buy guano. If you *must* consume them on the farm, sell half, and with the proceeds buy Linseed. Linseed and Beans are the most feeding mixture you can use.

BOOKS—*J H B*—The publishers are Wm. Blackwood and Sons, Edinburgh. It is a very useful book in a drawing-room dress, which, of course, makes it costly. We do not know the price.

BONES AND SULPHURIC ACID—*Banks of the Dearn*—It will doubtless answer well with you. Apply at least half the weight of acid that you do of bones, and say 6 bushels of the latter per acre. Dry it up with turf ashes or coal ashes, and drill as Mr. Dudgeon recommends you to apply guano.

BONE DUST—*Sigma*—We would use acid along with the bones. Apply, if your land be very poor, 8 bushels of bones and half their weight of acid per acre, and consume the Turnip crop on the land; that will ensure a good grain crop next year.

GRASSES—*Δ*—It is quite time the Grass were mown. Some Grasses get strawey even before blossoming; Italian Rye-Grass should be mown before it is in blossom; others are better mown while in blossom, but all ought to be mown before they are in seed. Your Grasses are Anthoxanthum odoratum, Sweet-scented Vernal Grass; Dactylis glomerata, Cock's-foot; Cynosurus cristatus, Crested Dog's-tail Grass; and some Aira.

GRASS LANDS—*D J*—You would probably in the end find it to be your best plan to grow green and corn crop alternately on newly broken-up land. You may try a portion with successive corn crops of various kinds; but it must be looked on as a mere experiment. What you should do is to ascertain the mineral composition of every crop you intend growing, and apply in a sufficiently soluble form, say twice as much of the necessary substances per acre as you expect will be carried away. Add to this some nitrogenous manure—some salt of ammonia, for instance, and if, in addition to this, you should be able to keep the land well worked in the intervals between succeeding harvests and seed-times, you may probably succeed. However, devote but a small portion to such an experiment, and with the rest adopt a more ordinary cultivation. We shall have a word or two to say on the cultivation of small farms soon.

HAYMAKING—*G D*—An ordinary crop may be mown, made, and put into "wind" cocks for 10*s.* an acre. If carried to the rick instead, and built and thatched, add 1*s.* 6*d.* per acre.——*Averages*—We must refer you to an article in "Martin Doyle's Practical Husbandry;" we shall publish extracts next week. Shake the swathes abroad by 9 A.M. the first day; turn the Grass and turn it again by 4 P.M.; then rake it in rolls at a yard apart, and put it up in small cocks for the night. Next day shake out these cocks in beds 5 yards wide, with intervals of 3 or 4 yards; turn and turn again in the afternoon, and rake each bed into two rolls, dividing it down the middle, and put into larger cocks at night. These next morning must again be thrown into beds as before; turn and if necessary turn again, then rake each bed into a single roll, and it will probably be ready to carry that afternoon.

LAND ROBBED FOR MANY YEARS OF THE CHAFF OF ITS WHEAT—*Captain and Badger*—Is your land poor? and if so, are you sure this is the cause? We cannot conceive it. Apply an extra load of dung per acre—that will more than balance the "chaff" account. However if, as a matter of curiosity, you want to supply to the soil exactly what it has thus lost, apply per acre for every crop of Wheat it has borne, *i.e.* for every crop of chaff it has lost, a manure containing about ¼ oz. of potash; ¼ oz. of soda; ¼ lb. of lime; ½ an oz. of magnesia; 1-12th ozs. of alumina; ½ an oz. of sulphuric acid; 3 ozs. of phosphoric acid; ½ an oz. of chlorine, and about 3lbs. of silica. But this is mincing matters with a vengeance. Apply an extra load of manure or cwt. of guano—that is the best way to settle the matter.

LIQUID MANURE—*Lucius Inquirer*—If some such self-acting apparatus as Mr. Liddell recommended will not do, because of complexity or expense, you must have two openings in your yard, one into the tank and the other to waste, and direct the cattle-man to open or shut either according as it is flood time or dry. For tank see "Home Correspondence."

TO FEED A CARRIAGE HORSE—*Northwoods*—Give hay-chaff, and bruised Oats and Vetches, or other green food, mixed with ¼ bruised Beans, in summer; and hay-chaff, bruised Oats and Beans, with Carrots, in winter. A two-acre meadow of good Grass, well managed, may keep *one* cow without other food.

UNFERMENTED BREAD—I have just heard from a lady that she has been quite successful in making delicious and light bread from the receipt which is published in a small pamphlet on the subject of unfermented bread, by Messrs. Taylor and Walton, Upper Gower-street, London.—*Walter T. Bullock.*

*** Communications reaching town after Wednesday, cannot be answered the same week.

Markets.

SMITHFIELD, MONDAY, June 8.—Per Stone of 8 lbs.

Best Shorts, Herefords, &c.	5s	4	to	4s	6
Best Short Horns	4	4		4	8
Second quality Beasts	3	8		3	8
Calves	4	0		4	10
Best Downs & Half-breds	—			—	
Ditto (shorn)	4	0		4	4

Beasts, 3606; Sheep and Lambs, 26,210; Calves, 163; Pigs, 260.

We have again a very large supply of Beasts, and trade heavy 4*s* is quite the extreme price of the best Scots, and as 3*d* Short-horns. Several remain unsold.—Sheep are also plentiful, but there are buyers for the selling qualities, which, in some instances, make rather more money. The weather being hot, big Sheep are not readily disposed of.—Lamb is in demand, and makes rather more money.—Calves are a steady trade; the choicest qualities are in demand.—The hot weather materially affects the Pork trade; very little is wanted.

FRIDAY, June 12.

Trade is very heavy amongst the Beasts; it is with difficulty that the best Scots, &c., make 4*s*, and Short-horns 3*s* 9*d*; Second qualities are very unsaleable, and make lower prices.—We have a full supply of Sheep and Lambs; in the former late rates are barely supported; but the weather being suitable for Lamb, although there is a large quantity of it, the demand is proportionate, and late prices are fully supported.—A choice Calf maintains its price, but otherwise trade is bad.—Pork trade is very heavy.

Beasts, 7393; Sheep and Lambs, 31,490; Calves, 403; Pigs, 235.

41, West Smithfield.

HOPS, FRIDAY, June 5.

The accounts from great part of the plantations continue to come very unfavourable, and the market is brisk at better prices.

PATTESON & SMITH, Hop-Factors.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, June 11.

Prime Mead. Hay	70s	to	80s	New Hay	—s	to	—s
Inf. New & Rowen	65		60	Clover	80	to	110
Straw	50		54				

JOHN COOPER, Salesman.

CUMBERLAND MARKET, June 11.

Prime Mead. Hay	84s	to	90s	Old Clover	110s	to	117s
Inferior	60		70	Inferior do.	95		100
New Hay	55		68	New Clover	—		—
Straw	30s	to	36s				

JOSHUA BARNS, Hay Salesman.

COVENT GARDEN, JUNE 13.—Most kinds of Vegetables have been plentifully supplied, and all kinds of Fruit in season is abundant. Good English Pine-apples may be obtained at from 6*s.* to 8*s.* per lb.; a large quantity of West Indian Pines have been sold during the week, and at very high prices, varying from 3*s.* to 10*s.* each, and the very finest even brought as much as 15*s.* each. The importation has arrived in excellent condition. Hothouse Grapes, of excellent quality, are abundant and tolerably cheap. Some Plums, and a considerable quantity of Peaches and Nectarines, have been offered. Ripe Cherries and Strawberries are plentiful, more especially the latter; and there has also been in the market a large supply of French and Dutch Cherries, which have been received in excellent condition; they are selling at from 3*s.* to 4*s.* 6*d.* per dozen lbs. Green Gooseberries, of large size, are abundant. Apples and Pears being nearly over for a season, what remain are sold at nominal prices. Oranges, although not abundant, are plentiful; and Nuts of all kinds are sufficient for the demand. On several of the stalls we observed fine-looking specimens of English Melons. Of Vegetables, Asparagus is plentiful and excellent in quality. Cabbages, Greens, &c., are good and sufficient for the demand. Carrots and Turnips are cheaper, and the same may be said of Peas, whose quality is, however, somewhat affected by the dry weather. Early Mazagan Beans begin to make their appearance in the market. Celery is good in quality. Potatoes of the best quality fetch 9*l.* a ton, and in one or two cases 10*l.* and 12*l.* a ton; but inferior samples may be obtained at lower prices. A large quantity of Ash-leaved Kidneys are being supplied from Somersetshire, which, being moderate in price and in good condition, meet with a ready sale. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Heaths, Jasmines, Azaleas, Calceolarias, Pinks, Cyclamens, Orange flowers, Rhododendrons, Cinerarias, Gardenias, Moss and other Roses.

FRUITS.

Pine Apple, per lb.,	6s	to	8s
Grapes, Hothouse, per lb.,	2s	to	6s
Apples, Dess., per bush.,	7s	to	20s
— Kitchen,	7s	to	12s
Melons, each,	4s	to	8s
Peaches, per doz.,	10s	to	24s
Nectarines, per doz.,	10s	to	24s
Cherries, per lb.,	4s	to	6d
Oranges, per dozen,	1s	to	2s 6d
— per 100,	4s	to	18s
— Seville, per 100,	8s	to	16s
— per dozen,	2s	to	2s 6d
Lemons, per dozen,	1s	to	2s
— per 100,	4s	to	14s
Gooseberries green, per hf.-sv.,	2s	to	5s
Strawberries, per oz.,	2d	to	1s
Almonds, per peck,	6s		
Sweet Almonds, per lb.,	2s	to	3s
Filberts, English, p. 100 lbs.,	50s	to	60s
Nuts, Cob, per 100 lbs.,	80s	to	90s
— Barcelona,	80s		
— Brazil,	12s	to	16s
— Spanish,	14s		
Walnuts, per bushel,	12s	to	16s
Chesnuts, per peck,	3s	to	7s

VEGETABLES.

Cabbages, per doz.,	6d	to	1s 3d
Cauliflowers, per doz.,	2s	to	8s
Greens, per doz. bunches,	1s	to	1s 6d
Artichokes, per doz.,	3s	to	4s
French Beans, per 100,	2s	to	3s
Peas, per sieve,	2s	to	4s
Sorrel, per hf.-sieve,	2d	to	1s
Potatoes, per ton,	70s	to	180s
— cwt.,	4s	to	9s
— bushel,	3s	to	4s 6d
— Kidney, per bushel,	4s	to	4s
— Frame, per lb.,	6d	to	1od
Turnips, per bunch,	4d	to	1s 3d
Red Beet, per doz.,	6d	to	1s 6d
Horse Radish, per bundle,	2s	to	2s
Rhubarb, per bundle,	3d	to	1s
Asparagus, per bundle,	1s	to	4s
Cucumbers, each,	4d	to	1s 6d
Spinach, per sieve,	3d	to	1s
Leeks, per doz. bunches,	1s	to	1s 6d
Celery, per bundle,	2s	to	3s
Carrots, per bunch,	6d	to	1s 3d
Onions, per hf.-sv.,	2s	to	4s
— Spanish, per doz.,	1s	6d	to 2s
Shallots, per lb.,	10d	to	1s
Garlic, per lb.,	6d	to	8d
Lettuce, per score, Cab.,	4d	to	1s
— Coe,	4d	to	1s 6d
Radishes, per 12 bunds,	4d	to	1s
Mushrooms, per pottle,	2s	to	4s
Small Salads, per punnet,	2d	to	3d
Fennel, per bunch,	2s	to	3d
Savory, per bunch,	4d	to	6d
Thyme, per bunch,	1d		
Watercress, p. 12 sm. bun.	6d	to	8d
Parsley, per bunch,	1d	to	3d
— Roots, per bundle,	1s		
Tarragon, per bunch,	6d		
Mint, green, per bunch,	6d	to	9d
Marjoram, per bunch,	6d		
Chervil, per punnet,	3d	to	6d

POTATOES.—SOUTHWARK, WATERSIDE, June 8.

The extraordinary heat of the weather during the past week has considerably effected the sales of Potatoes generally, and particularly the Scotch Reds, several cargoes of which are in such a damaged state that renders them unsaleable. The demand is very small, even for the best samples. The prices are ranging as follows:—York Reds, 120*s* to 130*s* per ton; ditto Regents, 30*s* to 80*s* per ton; Scotch Reds, 80*s* to 90*s* per ton. There are several lots of Dundee and Montrose Buffs and Blues in the market, but there is little or no demand for them at any price.

MARK-LANE, MONDAY, June 8.

The supply of English Wheat by land carriage samples being again barely equal to the demand, holders realised the prices of last week, and the whole was nearly cleared at the close of the Market. Free Foreign is still neglected, but the inquiry for low qualities of red bonded for Belgium continues, and several thousand quarters have been disposed of for export to that country; Polish Odessa at 41*s.* per quarter. The arrivals of spring corn are very moderate; Barley, Beans, and Peas, sell at our former quotations. The show of Oats is small, and where an abatement was last week submitted to, it has been recovered to-day.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White	55	62	Red	50	60
—— Norfolk, Lincolnshire, and Yorkshire		50	54	White	50	55
Barley, Malting and distilling	32s to 36s	Chevalier		30	32	Grind.	22	26
Oats, Lincolnshire and Yorkshire		Polanda		24	28	Feed	21	24
—— Northumberland and Scotch		Feed		24	25	Potato	27	30
—— Irish		Feed		21	23	Potato	25	28
Malt, pale, 84s				56	60			
—— Hertford and Essex				60	65			
Rye				34	36			
Beans, Mazagan, old and new	38 to 40	Tick		39	46	Harrow	31	42
—— Pigeon, Heligoland	34 to 38	Winds		—	—	Longpod	—	—
Peas, White	36 to 40	Maple		39	39	Grey	38	41

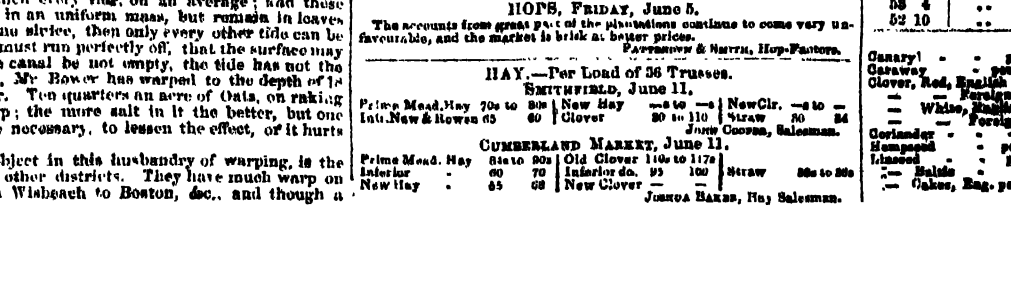
FRIDAY, June 12.

Since Monday the arrivals of all Corn have been unusually moderate; English Wheat being scarce commands the extreme prices of that day; in free foreign there is very little doing, but some quantity of Polish Odessa in bond has been purchased during the week for Belgium account at 40*s.* to 41*s.* 6*d.* per quarter, f.o.b. and 43*s.* 6*d.* afloat, including freight and insurance thither—the demand, however, remains unsatisfied. Barley, Beans, and Peas, are unaltered in value. The Market being bare of Oats, enables factors to realise an advance of 6*d.* to 1*s.* per quarter.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
May 2 per Quarter.	36*s* 8*d*	29*s* 6*d*	23*s* 7*d*	32*s* 8*d*	34*s* 11*d*	33*s* 10*d*
— 9	36 8	29 7	23 5	33 8	35 3	34 7
— 16	37 0	29 4	23 4	33 5	35 11	34 11
— 23	36 5	29 10	23 8	34 6	36 0	34 6
— 30	35 4	28 4	23 9	32 4	33 10	34 9
Jun. 6	33 10	27 8	23 4	33 10	33 10	34 10
6 weeks' Aggreg. Aver.	35 3	28 11	23 6	33 2	35 0	34 6
Duties on Foreign Grain	17 0	9 0	5 0	9 0	7 0	8 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, June 6.



SEEDS, June 12.

Canary	per qr	38s	to	40s	Linseed Cakes, Foreign, p. ton	£7	to	£8
Caraway	per cwt	45		52	Mustard, White	p. bush.	—s	—
Clover, Red, English		80		90	— Superdine		—	—
— Foreign		80		90	— Brown		—	—
— White, English		85		95	Rapeseed, English, per last		£21	£0
— Foreign		40		60	Rape Cakes	per ton	—	—
Coriander		10		12	Saintfoin		—	—
Hempseed	per qr.	35		38	Tares, Eng. winter	p. bush.	—	—
Linseed	per qr	45		48	— Foreign		Reddend	
— Baltic		40		42	Trefoil	per cwt	16	22
— Cakes, Eng. per 1000		£11		£12	Turnip (too variable for quotation)			

KINGSFORD AND LEE.

WINDING UP SALE FOR THE SEASON.

MESSRS. PROTHEROE AND MORRIS beg to announce that the last Sale for this season at the Auction Mart, Bartholomew-lane, will take place on Thursday, June 18th, 1846, at 12 o'clock, comprising a very fine collection of DAHLIAS, GERANIUMS, FUCHSIAS, VERBENAS, and a variety of other Plants for the borders. May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

EXOTIC PLANTS.

MOUVILLE'S HOT-HOUSES.—On the 15th of July next, the Magnificent COLLECTION OF PLANTS of MOUVILLE LES ROUEN will be sold by Auction. This unrivalled Collection includes upwards of 700 kinds of CACTI, of an enormous size, a great many of which are unique. The most rare and fine Orchids, some of them totally unknown; and also 1600 kinds of HOT AND GREENHOUSE PLANTS, the most rare and beautiful ever seen. All those plants, except the plants which have not yet blossomed, have been botanically defined with the greatest care. The Catalogue will be distributed in a few days; it is to be had in Paris, from COUSIN, Bookseller, 21, Rue Jacob; London: at the Office of "Paxton's Magazine"; Berlin: Mr. BEHR, Bookseller; Leipsic: Mr. L. MICHELSEN, Bookseller; Vienna, Mr. ARTARIA; Milan: DUMOLARD BROTHERS; Turin: Mr. BOCCA, Bookseller; Florence: Messrs. BUBBIERS and GILLI, Horticulturists.

TO NOBLEMEN, GENTLEMEN, AND NURSERYMEN.
A VALUABLE COLLECTION OF PALMS, ORCHIDS, &c., FROM MEXICO.

MESSRS. J. C. AND S STEVENS beg to announce they will sell by Auction, at their Great Room, 38, King-street, Covent-Garden, on Tuesday, the 16th June, at 12 o'clock, a very fine PARCEL OF PLANTS, collected in various parts of Mexico, and comprising many species of ORCHIDS—Oncidiums, Odontoglossums, Lælias, Cattleyas, Acroperas, Stanhopeas, Catasetums, Cyrtopodiums, Peristerias, Mormodes, Sobralias, Epidendrums (including Vitellinum), Maxillarias, Cypripedium, Irapeanum of Hartweg, &c. &c. The PALMS comprise Dion edule, some 6 feet in height, and the largest in Europe; and large specimens of Zamia furfuracea. Also Cyathea arborea, Hemitelia horrida, Marattia elegans, various Tillandsias, Tree Ferns, &c. &c.—May be viewed the day prior and morning of Sale, and Catalogues had of the Auctioneers, 38, King-street, Covent Garden.

FARMS IN SURREY.

TO LET, with possession at Michaelmas next, a very desirable upland FARM, in the neighbourhood of Epsom, consisting of about 450 acres of Arable, Grass, and Woodland, with an excellent Dwelling-house, and suitable Agricultural Premises.

A smaller FARM of about 150 acres, with a comfortable residence, and conveniently arranged Homestead.

A very useful occupation, comprising 150 acres, of which about one-third is Meadow, with extensive common rights, and an appropriate Dwelling-house and Outbuildings.

For further particulars, apply to Messrs. NEWTON and WOODROW, Norwich: or Mr. BUTCHER, Epsom.

GREENHOUSE TO BE SOLD FOR 20L.—A BARGAIN!

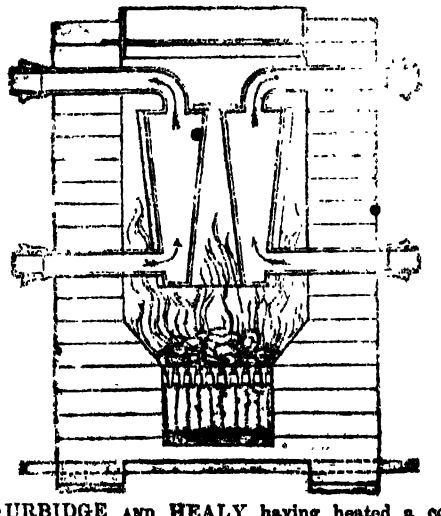
TO BE SOLD, a SECOND-HAND GREENHOUSE, 45 feet long, 14 feet wide, with Front Sashes and one Glass end. May be seen at Peterborough House, Parson's-green, Fulham.—Apply for particulars to Messrs. WEEKS and DAY, King's-road, Chelsea.

ALDERNEY COWS.—A very choice lot of ALDERNEY and GUERNSEY COWS, just calved and in calf, on SALE every day, on application to Mr. JAMES NORRIS, Osterley-park, and at Sion-hill, Brentford End.

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton, Draining Engineer to Her Majesty, at Osborne, Isle of Wight; the inventor of a Patent Tile and Pipe Machine (applicable to making Bricks); also a new Machine for taking roots and stones out of clay, both which are to be seen at the Royal Polytechnic Institution, Regent-street,—offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P.S.—Land drained at a fixed sum per acre, including every expense.

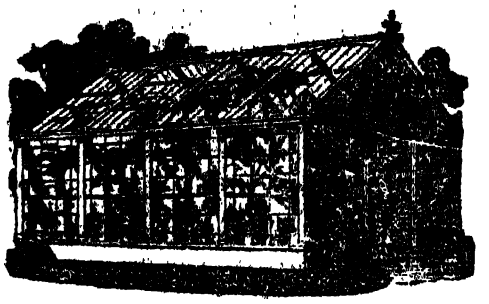
THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SHERWIN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth; Mr. Henderson's Pine-apple-place; and in the Horticultural Society's Gardens.

SMITH AND CO.



ESTABLISHED NINE YEARS.

HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, AND GENERAL GARDEN FURNITURE MANUFACTURERS;
GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA, LONDON.
FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER's superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises
BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
WM. JOSEPH MYERS AND CO., LIVERPOOL;
And by their Agents,
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL;
COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

LIQUID MANURE.
ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

THE LONDON MANURE COMPANY beg to offer Genuine PERUVIAN GUANO, delivered direct from the Importers' bonded warehouses:—

Nitrate of Soda,	Fine Bone Sawdust,
Sulphate of Ammonia,	Sulphuric Acid,
Superphosphate of Lime,	Sulphate of Soda,
Gypsum,	Petre Salt,

And every article of Artificial Manure in the most genuine state.—No. 40, New Bridge-street, Blackfriars.
EDWARD PURSER, Secretary.

TURNIP SOWING.

THE URATE OF THE LONDON MANURE COMPANY, Four Guineas per Ton. The experience of the last five years has fully established the above as one of the best of all the light manures for the production of Turnips, for which crop it is particularly adapted, seldom failing in the driest season to secure a good plant, and to produce a great weight per acre. Availing themselves of the many improvements in the science of artificial manures, the Company so manufacture the Urate, that the food requisite for a rotation of crops is fully maintained, therefore parties using the Urate for Turnips will find their succeeding crops of Barley and seeds materially improved. Full particulars, with testimonials, forwarded on application. No. 40, New Bridge-street, Blackfriars. EDWARD PURSER, Secretary.

TURNIP SEASON.

GUANO, Peruvian, (imported by GIBBS & CO.,) and African, from Ichaboe and Saldanha Bay; Superphosphate of Lime (see "Royal Ag. Soc. Journal," Vol. vi., Part 2); Bone Dust, Sulphuric Acid, and Clarke's desiccated Compost; all suitable for the Turnip Crop. Also Nitrates of Soda and Potash, and all other Manures of known value, on sale by MARK FOTHERGILL, 40, Upper Thames-street, London.

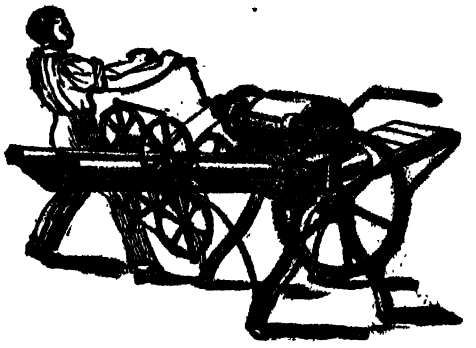
Agent also for DINGLE'S HAND DIBBLE, suitable for every description of seed.

SHANKS'S IMPROVED GRASS-CUTTING AND ROLLING MACHINE.—The complete success which has attended the introduction of this Improved Machine for Mowing Grass, and its fine adaptation for Cutting the Grass of Lawns, has been fully proved by the numerous instances where it has been tried, and now in common use, particularly at Rossie Priory, Camperdown, and Kinblethmont, Forfarshire; Broadalbane, Perthshire; Chumber, and at many other Noblemen and Gentlemen's seats in England, as well as abroad. The Machines are made to cut breadths of 42, 30, or 20 inches, as required, the latter being adapted to hand-power. The Machine works with perfect ease, producing a beautiful smooth surface, and attended with great saving in abridging labour.

Orders may be addressed to Messrs. ALEXANDER SHANKS, jun., & SON, Machine Makers, Arbroath, N. B., by whom further particulars will be given.

CHEAP AND EFFECTIVE FENCE AGAINST HARES AND RABBITS.—Iron wire netting of various patterns, and of superior workmanship, supplied in either large or small quantities, on very reasonable terms. A coarser description of net will be found useful as a substitute for Pea-sticks, ornamental Arches, and other garden purposes. None sent out without receiving at least *two* coats of a newly-discovered and very durable anti-corrosive paint. Prices from 7*d.* to 1*s.* per linear yard. Apply to Mr. RAYNHAM, 21, Brownlow-street, Holborn, (where specimens may be seen), or to Mr. SAMUEL TAYLOR, Stokeferry, Norfolk.

DRAINING TILE MACHINES.

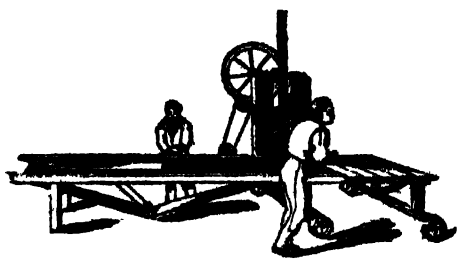


AINSLIE'S PATENT IMPROVEMENT for MAKING and DRYING Draining Tiles.

The PROCESS combines EFFECT with ECONOMY. Gentlemen having works in operation, or who are about to erect them, will find the above worthy their attention.

For particulars apply to Mr. JOHN PATON, at the office for the sale of AINSLIE'S Patent Brick and Tile Machine, 193A, Piccadilly, where they may be seen at work; also at the Polytechnic Institution, and at the Works, Alperton, Middlesex.

HATCHER'S BENNENDEN TILE MACHINE. Manufactured and Sold only by COTTAM and HALLEN, Engineers, Agricultural Implement Makers, &c., 2, Winsley-street, Oxford-street, London.



This is the most efficient Machine that has been invented for the purpose of making Drain Tiles. Any shaped Tile can be made by merely changing the die, which can be done in a few minutes. It requires but few hands, viz., one man and three boys. With this amount of labour, the product of a day of 10 hours is as follows, viz.:—

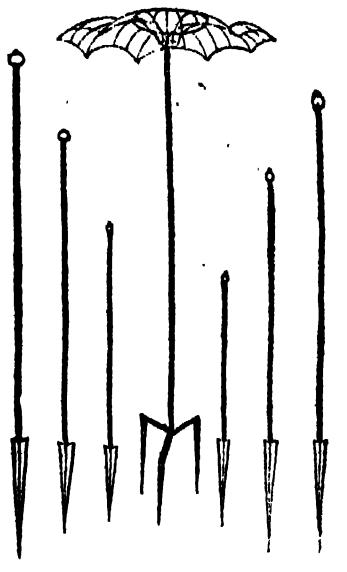
1 inch diameter of Tile,	11,000	1½ inches diam. of Tile,	5,800
1¼ " "	8,000	2½ " "	2,200

*** See Letter of Thomas Law Hodges, Esq., in the "Transactions of the Royal Agricultural Society of England," page 551, Part 2, Vol. V.

This Machine is moveable down the drying sheds on its wheels. It is so simple in its construction as to require but little practice in its use. There is no charge made for patent dues or license.

Price 25*l.*, with 4 Dies for Tiles of any shape or size.
Pug-Mill, with Iron Box, 10*l.* 10*s.*
Set of Three Draining Spades and Swan's-Neck, 1*l.* 1*s.*

COTTAM and HALLEN have on show at their Repository a great variety of every article for the Garden, viz., Rollers, Water Engines, Mowing Machines, Chairs, and Seats of Metal, Superior Tools of all descriptions, Vases, Pedestals, Flower Bordering and Stands, Pot Trainers, Rose and Tree Guards, every description of Wire Work.



CAST IRON FLOWER STAKES (see *engraving*).

4 ft.	4 ft. 6.	5 ft.	6 ft.	7 ft. out of the ground.
11*s.*	12*s.*	14*s.* 6*d.*	22*s.*	30*s.* per dozen.

STRONG IRON HURDLES FOR SHEEP, 3 feet out of the ground, 4*s.* 9*d.*; do., with ¾ top bar, 5*s.*; light cattle, 6 feet 6 inches high, 5*s.* 6*d.*; strong do., 6*s.*; ox do., 4 feet high, 7*s.* 10*d.*

STRONG IRON WIRE for strained wire fence, in bundles containing 156 yards each, at 10*s.* 6*d.* per bundle.

HAND GLASS FRAMES, HOTHOUSES, CONSERVATORIES, &c., made upon the most improved principles, either of iron or wood and iron combined, which can be fixed complete with hot water apparatus for heating in any part of the kingdom.

IRON AND BRASS BEDSTEADS, STOVES, FENDERS, &c., and every article in Ironmongery.

Entrance to the Show Rooms and Manufactory, 76, Oxford-street.

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AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 25—1846. | SATURDAY, JUNE 20. | [PRICE 6*d.*

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MAIDSTONE GRAND HORTICULTURAL FETE. The 2d Exhibition of the Maidstone Horticultural Society will take place on Thursday, the 25th inst., in several spacious Marquees in a field near the Railway Terminus. By permission the Band of the Cavalry Depot will attend. Admission at 1 o'clock, 2*s.*; at half-past 3, 1*s.*

Maidstone, June 10. J. G. SMITH, Hon. Sec.

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H. P. FRANCIS'S Extensive Collection of ROSES is now in full bloom. An early inspection is respectfully solicited. Sundays excepted. Cut specimens will be exhibited at W. Clarke's, Seedsman, Bishopsgate-street, throughout the season.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO., (By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

CUPHEA CORDATA.

MESSRS. VEITCH AND SON beg to offer the above beautiful Greenhouse Plant, which is figured in Curtis's "Botanical Magazine" for January last, Tab. 4208, where Sir W. J. Hooker gives it the following description:—viz. "A truly beautiful plant, from the rich scarlet of its two large petals and calyces. Would that all the species of this extensive genus were as distinctly marked as the present one! It is a native of hills and woods in Peru, about Huassahuasi, Chaclla, Acomayo, and Huanuco; and from that country seeds were sent to Mr. Veitch, of Exeter, by his collector, Mr. W. Lobb, in 1842, from which plants were raised that bloomed in August, 1845."

Messrs. V. & Son would further add, that it is a profuse bloomer, with crimson panicles of from 6 to 8 inches long at the termination of every shoot; it doubtless will prove a delightful plant for turning into the open garden during the summer months.

Strong plants will be delivered on and after Monday the 15th inst., at 21*s.* per plant, with one over on every three taken by the trade.

N.B. Messrs. V. & Son require a Post-office order from unknown correspondents previous to executing orders.

Exeter, June 20.

F. C. BALL, successor to Mr. JOHN YOUNG, begs to announce that he is prepared to execute orders immediately, in strong plants, for any of the under-mentioned.

PELARGONIUM "MARIA," very fine, large, rosy-purple. See *Gardeners' Chronicle*, 1845, p. 532: "Your Seedling is an improvement on many of the same rosy-purple colour, and is a bright and pretty variety, and can be recommended." Fine Plants, 5*s.*

LOBELIA FULGENS MULTIFLORA. See *Gardeners' Chron.*, 1844, p. 592—"Your Seedling Lobelia is a very handsome variety. The lip is large and broad, of a rich and dazzling scarlet," some of the spikes of flower measuring from 12 to 18 inches in height, fine Seedling Plants of the above Lobelia at 12*s.* per doz.

LOBELIA ERINUS GRANDIFLORA, 9*s.* per doz.

,, Millori, ,, serotina, ,, roseo, } 6*s.* per dozen, fine.

Bouvardia strigosa, 1*s.*; B. splendens, 1*s.*, fine; B. heterophylla, 1*s.*, fine.

Alstroemeria acutifolia	2*s.* 0*d.*
Taxodium sempervirens, 6 to 9 inches	10 6
Lyperia pinnatifida, good	2 6
Alona exlestis	2 0
Veronica speciosa	2 0
Stachys inodora, recommended for bedding, at, per dozen	9 0
Androsace cerastifolia	2 0
Fuchsia serratifolia	3 6
Calceolaria floribunda, for bedding	2 6
Roses, two species, Chusan, each	3 6
Do. one do. Amoy	3 6

With a few plants to compensate for carriage. An allowance to the Trade.—Taunton Nurseries, June 20.

FUCHSIA "MACRANTHA."

MESSRS. VEITCH AND SON have much pleasure in offering the public the above magnificent FUCHSIA, introduced by themselves from Peru through their collector, Mr. W. Lobb, and at present solely in their possession. It is perfectly distinct from any other introduced species, having flowers of a cylindrical form from 4 to 6 inches in length, of a beautiful delicate rosy red colour, produced in profuse clusters. It is of a dwarf habit and a most abundant bloomer. It was exhibited at the Horticultural Society's Meeting in Regent-street, on the 7th of April last, and was awarded the Large Silver Medal. It is figured in Curtis's and Paxton's Magazines for this month, where full descriptions appear.

Messrs. V. and Son can with confidence recommend this Fuchsia, both as a beautiful and highly ornamental plant, as well as a medium for distinct and successful hybridisation.

The mode and terms on which they disposed of Fuchsia Serratifolia having given such general satisfaction, they offer the above on similar terms, viz. 21*s.* per plant, with one over on every three taken by the trade.

Strong established plants will be delivered on and after Monday, the 15th inst. Orders executed strictly in the rotation received.

N.B.—Parties wishing to see a drawing of the above Fuchsia prior to ordering it, can immediately be furnished with one by forwarding 12 Postage stamps.

Messrs. V. and Son require Post-office orders from unknown correspondents previous to executing orders.

Exeter, June 20.

CATTELL'S SUPERIOR DWARF BARNES CABBAGE, at 8*d.* per Ounce, or 8*s.* per Pound.—The above is now proved to be the best EARLY CABBAGE known. It may be safely sown the middle of July, without fear of running to seed the following spring. It may also be sown any time this month for autumn and winter cutting; or, if left to stand through the winter, will Cabbage very early, not being subject to start to seed so much as other sorts. Its productiveness in fine heads after first cutting is not equalled by any other sorts

One Ounce Packets will be forwarded by Post on receipt of an order containing Twelve Penny Stamps.—Address, JOHN CATTELL, Seed and Nurseryman, Westerham, Kent.—June 20.

ROSES.

F. DENYER, NURSERYMAN, FLORIST, &c., Brixton, Surrey (within three miles of London), respectfully informs Noblemen, Gentlemen, and the Public, that his ROSES may be seen in BLOOM from the 15th inst., comprising all the newest sorts extant, and upwards of 600 varieties, forming one of the best collections in the country. Orders taken, and delivered in November next.

Admittance gratis, Sundays excepted.—June 20.

CHRYSANTHEMUMS.

CHANDLER AND SONS, NURSERYMEN, Vauxhall, are now sending out strong healthy plants of CHRYSANTHEMUMS, of fine and good sorts, at 12*s.* per dozen. The young plants are in good order for packing for the country.

A list of the sorts, with a description of the colours, may be had on application.

TO THE NOBILITY, GENTRY, NURSERYMEN, IRONMONGERS, AND OTHERS.

LINGHAM BROTHERS, 170, Little Hampton-street, Birmingham, sole Manufacturers of the IMPROVED MENOGRAPH, or Labels for Garden Borders, Flower Pots, &c. Engravings of the same, with prices attached, sent per Post to all parts of the Kingdom, on application as above.

Sole Agents in London, G. and J. CLARK, Horticultural Implement Warehouse, 46, King William-st., London Bridge.

FOREIGN AND BRITISH SHEET AND CROWN GLASS for Hothouses, Garden and other purposes.—R. COGAN having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:

per gross.		per gross.		per gross.
6 in. by 4 .. 6*s.*	8 by 5 .. 13*s.*	9 by 7 .. 18*s.*		
7 in. by 4½ .. 9*s*	8 by 6 .. 14*s.*	10 by 8 .. 24*s.*		

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, & GRAPE GLASSES, of every description, cheaper than at any other house.—For New Lists, apply to R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square, London.

IMPORTANT TO HORTICULTURISTS, THE ARTICLE GLASS.

MESSRS. DAINES AND BRADDOCK solicit the inspection of Glass Dealers, Horticulturists, and Builders, to an entirely new description of BRITISH SHEET GLASS, which, upon trial, will be found unequalled in strength, utility, and price, by any now in the market, for Sashes and particularly Horticultural purposes; and by patronising this article the evil results attending the use of foreign and other Glass of ordinary composition will be entirely avoided, as in manufacturing the above Metal great care and skill has been used to divest it of the slightest tendency to concentrate the rays of the sun, a fault in many cases ruinous to plants.

6, Farringdon-street, June 20.

N.B.—The best assortment of Coloured Glass in London.

BRITISH AND FOREIGN SHEET AND HORTICULTURAL GLASS.

PHILLIPS AND WELCH have to announce to the Nobility and Gentry, that they have just concluded arrangements with J. WELCH, jun., PHILLIPS and Co., for the purchase of the business lately carried on by them, at 12, Panton-street, and beg to call attention to their extremely low prices for Horticultural Glass of every description.

PRICES OF HORTICULTURAL GLASS:

Not above 40 in. long by widths from 5 in. to 18 in.

No. 13 British or Foreign sheet			
13 oz. to the foot	.. ..	4*d.*	per foot.
,, 16 16 ,, ,,	.. ..	5*d.*	,,
,, 21 21 ,, ,,	.. ..	7*d.*	,,
,, 26 26 ,, ,,	.. ..	11*d.*	,,
,, 32 32 ,, ,,	.. ..	1*s.* 2*d.*	,,

SMALL SQUARES.

Packed in 100 feet Boxes, not particular to thickness.

Under 5 in by 3 in.	.. ..	1½*d* per foot.
5 by 3 and under 6 by 4 ,,	.. ..	2*d.* ,,
6 by 4 ,, 9 ,, 7 ,,	.. ..	3*d.* ,,

FOR GLAZING.

Black Cement, as used at Chatsworth.		21*s.* per cwt.
Best Linseed Oil Putty	.. .. ..	1½ ,,

White Lead, Window Lead, Solder, &c. &c.

Horticultural Glazing Executed in any part of the United Kingdom.

The selection of Patent Plate, Sheet, and flatted Crown Glass for Pictures, &c., particularly attended to. 12, Panton-street, Haymarket.

GLASS FOR CONSERVATORIES.

APSLEY PELLATT AND CO., Falcon Glass Works, Holland-street, Blackfriars, are prepared to supply (in quantities not less than 100 square feet), SHEET AND CROWN GLASS OF BEST QUALITY, at the following *Net Cash Prices*:—

Any size under 40 ins. long.	Per square foot.
13 oz. weight per foot	4*d.*
16 oz. ,, ,, ...	5
21 oz. ,, ,, ...	7
26 oz. ,, ,, ...	11

SMALL Squares up to 10 ins. by 8 ins., from 1½*d.* to 3*d.* per square foot.

N.B.—The 16 oz. is full strength for Greenhouses.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, from 3½*d.* to 5½*d.* per foot. Glass Pantiles, 18*s.* 6*d.* per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, for ready money only, at F. ELDRICK'S, 28, Castle-street East, Oxford-street.

*** For Ready Money only.

HORTICULTURAL SOCIETY OF LONDON.

EXHIBITION AT THE GARDEN.

June 16th, 1846.

AWARD OF THE JUDGES.

THE LARGE GOLD MEDAL.

1 To Mr. J. Robertson, gr. to Mrs. Lawrence, F.H.S., for a collection of 40 Stove and Greenhouse plants
2 To Mr. Mylam, gr. to S. Rucker, Esq., jun., F.H.S., for 20 species of Exotic Orchids

THE GOLD KNIGHTIAN MEDAL.

1 To Mr. Fraser, of Lea-bridge-road, for a collection of 20 Stove and Greenhouse plants
2 To Mr. Rae, gr. to J. J. Blandy, Esq., F.H.S., for 20 species of Exotic Orchids
3 To Mr. Eyles, gr. to Sir George Larpent, Bart., F.H.S., for 12 species of the same
4 To Mr. Plant, gr. to J. H. Schroder, Esq., F.H.S., for 6 species of the same
5 To Mr. Hunt, gr. to Miss Traill, for 20 species of Cape Heaths
6 To Messrs. Fairbairn, of Clapham, for the same

THE GOLD BANKSIAN MEDAL.

1 To Mr. Ayres, gr. to James Cook, Esq., F.H.S., for a collection of 20 Stove and Greenhouse plants
2 To Mr. Barnes, gr. to G. W. Norman, Esq., of Bromley Common, Kent, for a collection of 12 Stove and Greenhouse plants
3 To Mr. Robertson, gr. to Mrs. Lawrence, F.H.S., for 20 species of Exotic Orchids
4 To Mr. Plant, gr. to J. H. Schröder, Esq., F.H.S., for 6 species of the same
5 To Mr. Robertson, gr. to Mrs. Lawrence, F.H.S., for 20 species of Cape Heaths
6 To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for 12 species of the same
7 To Mr. Dawson, of Brixton-hill, for the same
8 To Mr. Terry, gr. to Lady Puller, Youngsbury, Herts, for 12 varieties of Roses in pots
9 To Messrs. Lane and Son, of Great Berkhampstead, for 18 varieties of the same
10 To Mr. Cock, of Chiswick, for 12 new varieties of Pelargonium in 8-inch pots
11 To Mr. Dobson, gr. to Mr. Beck, F.H.S., for the same
12 To Mr. Cock, for 12 varieties of Pelargonium in 8-inch pots
13 To Mr. Dobson, for the same
14 To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for Tall Cacti in flower

THE SILVER GILT MEDAL.

1 To Mr. Hunt, gr. to Miss Traill, for a collection of 20 Stove and Greenhouse plants
2 To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for a collection of 12 Stove and Greenhouse plants
3 To Mr. Bruce, gr. to Boyd Miller, Esq., of Collier's Wood, Tooting, for a collection of 6 Stove and Greenhouse plants
4 To Mr. P. N. Don, gr. to F. G. Cox, Esq., F.H.S., for 12 species of Exotic Orchids
5 To Mr. Carson, gr. to W. F. G. Farmer, Esq., F.H.S., for 6 species of Exotic Orchids
6 To Mr. Ayres, gr. to J. Cook, Esq., F.H.S., for 20 species of Cape Heaths
7 To Messrs. Rollisson, of Tooting, for the same
8 To Messrs. Veitch and Son, of Exeter, for 12 varieties of the same
9 To Mr. May, gr. to E. Goodheart, Esq., of Langley Park, Beckenham, for the same
10 To Mr. Bruce, for 6 varieties of the same
11 To Mr. Dobson, gr. to Mr. Beck, of Isleworth, F.H.S., for 18 varieties of Roses in pots
12 To Messrs Paul, of Cheshunt, for the same
13 To Mr. Gaines, of Battersea, for 12 new varieties of Pelargonium in 8-inch pots
14 To Mr. Robinson, gr. to J. Simpson, Esq., of Thames Bank, for 12 varieties of Pelargonium
15 To Mr. Catleugh, for the same
16 To Mr. Falconer, gr. to A. Palmer, Esq., for Tall Cacti in flower
17 To Mr. Robertson, gr. to Mrs. Lawrence, F.H.S., for Tremandra verticillata
18 To Messrs. Veitch, for Mirbelia illicifolia
19 To Mr Mylam, gr. to S. Rucker, Esq., jun., F.H.S., for Acrides odoratum
20 To Mr. Ingram, of the Royal Gardens, Windsor, for a miscellaneous collection of Fruit
21 To Mr. Davis, of Oak-hill, East Barnet, for the same
22 To Mr. S. Barnes, gr to T. Whitmore, Esq., F.H.S., for Black Hamburgh Grapes
23 To Mr. Brewin, gr. to R. Gunter, Esq., F.H.S., for Muscat Grapes
24 To Mr. Davis, for Grapes
25 To Mr. Churcher, gr. to J. Gritton, Esq., of Little Park, Wickham, Hants, for Pine-apples
26 To Mr. Jackson, gr. to H. Beaufoy, Esq., of South Lambeth, for a Pine-apple

THE LARGE SILVER MEDAL.

1 To Mr. Epps, of Maidstone, F.H.S., for a collection of 12 Stove and Greenhouse plants
2 To Mr. Carson, gr. to W. F. G. Farmer, Esq., F.H.S., for 6 species of Stove and Greenhouse plants
3 To Messrs. Rollisson, of Tooting, for 20 species of Exotic Orchids
4 To Mr. Bruce, gr. to Boyd Miller, Esq., for 6 species of the same
5 To Mr. Slowe, gr. to W. R. Baker, Esq., F.H.S., for 12 varieties of Roses in pots
6 To Mr. Francis, of Hertford, for 18 varieties of the same
7 To Messrs. Lane and Son, for a collection of Roses in 50 varieties
8 To Mr. Bunney, gr. to J. H. Slater, Esq., F.H.S., for the same
9 To Mr. Barnes, for 12 varieties of Cape Heaths
10 To Mr. Frazer, for the same
11 To Mr. Jack, gr. to R. G. Loraine, Esq., for 6 varieties of the same
12 To Mr. Staines, of Middlesex-place, New-road, for 12 new varieties of Pelargonium, in 8-inch pots
13 To Mr Catleugh, for the same
14 To Mr. J. Coysh, gr. to R. Hudson, Esq., of Clapham Common, for 12 varieties of the same
15 To Mr. Gaines, for the same
16 To Mr. Cock, for 6 varieties of the same, in 12-inch pots
17 To Mr. Gaines, for the same
18 To Mr. Gaines, for 6 species of Calceolaria, in 8-inch pots
19 To Mr. T. S. Anzee, of 25, Vaughan-terrace, City-road, for a collection of Ranunculuses in 12 varieties
20 To Messrs. Tyso and Son, of Wallingford, for a collection of the same in 24 varieties
21 To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for 6 varieties of Greenhouse Azaleas
22 To Mr. Scott, gr. to G. Barclay, Esq., F.H.S., for a collection of Hybrid Alstromerias
23 To Messrs. Veitch and Son, of Exeter, for a new species of Balsam, from Java
24 To Mr. Waterer, of Knap-hill, Bagshot, F.H.S., for a collection of new hardy Evergreens, in pots
25 To Mr. Hunt, gr. to Miss Traill, for a specimen Cape Heath
26 To Mr. Epps, F.H.S., for the same
27 To Mr. Dods, gr. to Sir George Warrender, Bart., F.H.S., for a miscellaneous collection of Fruit
28 To Mr. G. Wortley, gr. to J. F. Maubert, Esq., F.H.S., for Grapes
29 To Mr. Dods, gr. to Sir [illegible]
30 To Mr. Chapman, gr. to [illegible] Lambeth, for the same
31 To Mr. Spencer, gr. to the Marquis of Lansdowne, for Pine Apples
32 To C. W. Packe, Esq., M.P., F.H.S., for a Providence Pine Apple
33 To Mr. Brewin, gr. to R. Gunter, Esq., F.H.S., for Pine Apples
34 To J. G. Fuller, Esq., for a Ripley Queen Pine Apple

THE SILVER KNIGHTIAN MEDAL.

1 To Mr. Pawley, of Bromley, for a collection of 6 Stove and Greenhouse plants
2 To Mr. Malyon, gr. to T. Brandram, Esq., of Lee Grove, Blackheath, for the same
3 To Mr. Catleugh, of Bank Place, Chelsea, for the same
4 To Mr. Malyon, for 6 varieties of Cape Heaths
5 To Mr. Pamplin, for the same
6 To Mr. Betteridge, of Milton Hill, Abingdon, for a collection of Moss Roses, in 12 varieties
7 To Messrs. Lane, for the same
8 To Mr. Milne, gr. to C. S. Chauncey, Esq., for a collection of Roses, in 50 varieties.
9 To Mr. Mitchell, of Piltdown Nursery, Sussex, for the same
10 To Mr. Staines, for 12 varieties of Pelargonium in 8-inch pots
11 To Mr. Slowe, for 6 varieties of Pelargonium in 12-inch pots
12 To Mr. Stanly, for 6 varieties of Pelargonium
13 To the same, for 6 varieties of Calceolaria, in 8-inch pots
14 To Mr. S. Hale, of Hillingdon, for 24 varieties of Pinks
15 To Mr. C. Turner, of Chalvey, near Windsor, for the same
16 To Mr. D. Aust, of Somerset-place, Hoxton, for a collection of Ranunculuses, in 12 varieties
17 To Messrs. Lane, for a collection of new hardy Evergreens, in pots
18 To Mr. Munnock, gr. to the Rev. C. Pritchard, of Clapham-common, for a specimen Fuchsia.
19 To Mr. Scott, gr. to C. Barclay, Esq., F.H.S., for a specimen Cape Heath
20 To Mr. Dawson, of Brixton-hill, for the same
21 To Mr. Jackson, of Kingston, for Erica Massoni
22 To Mr. Ayres, gr. to Jas. Cook, Esq., F.H.S., for Clerodendron paniculatum
23 To Mr. Robertson, gr. to Mrs. Lawrence, F.H.S., for Clerodendron fallax
24 To Mr. Cutler, of the Royal Nursery, Slough, for a collection of half-hardy Conifers
25 To Messrs. Veitch, for Chirita zeylanica
26 To the same for Æschynanthus pulcher
27 To Messrs. Rollisson, for the best-named collection of plants
28 To Mr. Robertson, gr. to Mrs. Lawrence, F.H.S., for the second-best named collection
29 To Mr. Hamp, gr. to Jas. Thorne, Esq., of Mawbey House, South Lambeth, for Grapes
30 To Mr. Davey, gr. to G. Smith, Esq., of Colney Hatch, for the same
31 To Mr. Mitchell, of Kemp-town, Brighton, for the same
32 To Mr. M'Ewen, gr. to Col. Wyndham, F.H.S., for Pine Apples
33 To Mr. J. M. Elliott, gr. to Sir Wm. Ingilby, of Ripley Castle, for a seedling Pine Apple
34 To Mr. Ingram, of the Royal Gardens, Windsor, for a Queen Pine Apple
35 To Mr. Spencer, gr. to the Marquis of Lansdowne, F.H.S., for Peaches and Nectarines
36 To Mr. Kemp, gr. to P. Grillion, Esq., of East Acton, for Peaches
37 To Mr. Davis, of Oak-hill, East Barnet, for Peaches
38 To Mr. Davey, gr. to Geo. Smith, Esq. for Melons
39 To Mr. Spencer, gr. to the Marquis of Lansdowne, for Strawberries
40 To Mr. G. Wortley, gr. to J. F. Maubert, Esq., F.H.S., for the same

THE SILVER BANKSIAN MEDAL.

1 To Mr. E. Jack, gr. to R. G. Loraine, Esq., of Wallington, for a collection of 6 Stove and Greenhouse plants
2 To Mr. Stanly, gr. to H. Berens, Esq., F.H.S., for the same
3 To Mr. Geo. Wiltshire, gr. to J. Reynell, Esq., of East Sheen, for 6 species of Achimenes
4 To Mr. Slowe, gr. to W. R. Baker, Esq., F.H.S., for a specimen Rose, in a pot
5 To Mr. Terry, for a collection of Moss Roses, in 12 varieties
6 To Messrs. Paul and Son, for the same
7 To Mr. Terry, for a collection of Roses, in 50 varieties
8 To Mr. T. Cole, of Bath, for the same
9 To Messrs. Paul and Son, for the same
10 To R. Mosely, Esq., of 8, Pine-apple Place, for 12 varieties of Pelargonium, in 8-inch pots
11 To Mr. R. Ellis, of Albert-terrace, New Road, Woolwich, for 24 varieties of Pinks
12 To Messrs. Norman, of Bull Fields, Woolwich, for the same
13 To Mr. J. L. Catmur, of Britannia-street, Hoxton, for a collection of Ranunculuses, in 12 varieties
14 To Mr. Francis, of Hertford, for a collection of hardy Evergreens, in pots
15 To Mr. Kendall, of Stoke Newington, for a specimen Fuchsia
16 To Mr. Gaines, for a collection of fancy Pelargoniums
17 To Messrs. Fairbairn, for Erica tricolor
18 To Mr. Pamplin, of Walthamstow, for Campylia (Pelargonium) holosericeum
19 To Mr. Jackson, of Kingston, for Pelargonium tricolor
20 To Mr. W. Wells, of Walthamstow, for Vinca rosea alba
21 To Messrs. Veitch, for Siphocampylus coccineus
22 To Mr. Green, gr. to Sir E. Antrobus, Bart., for Ixora coccinea
23 To Mr. G. Wiltshire, gr. to J. G. Reynell, Esq., for Gloxinia Cartoni
24 To Mr. Glendinning, of Turnham-green, F.H.S., for Cryptomeria japonica
25 To Mr. Mylam, gr. to S. Rucker, Esq., F.H.S, for a new Nepenthes
26 To Mr. Carson, for Cattleya granulosa
27 To Messrs. Tyso, of Wallingford, for a collection of Ranunculuses
28 To Mr. Stanly, gr. to H. Berens, Esq., F.H.S., for a specimen of Pelargonium elatum
29 To Mr. Parsons, gr. to A. George, Esq., of Enfield, for Grapes
30 To Mr. Dodemeade, gr. to W. Leaf, Esq., F.H.S., for Grapes
31 To Mr. Ingram, for Strawberries
32 To Mr. Davey, for the same
33 To Mr. Braid, gr. to H. Perkins, Esq., of Hanworth Park, for Figs
34 To Mr. Stanly, gr. to H. Berens, Esq., F.H.S., for Citrons
35 To Mr. Parker, gr. to F. H. Oughton, Esq., for Nectarines
36 To Mr Paxton, F.H.S., gr. to the Grace the Duke of Devonshire, for Peaches
37 To Mr. Parker, for a Melon
38 To Mr. Buck, of Blackheath, for British Queen Strawberries
39 To Mr. T. Cole, of Bath, for Cole's Early Prolific Strawberry

THE CERTIFICATE OF MERIT.

1 To Messrs. Cobbett, of Chobham, for a collection of Moss Roses, in 12 varieties
2 To Mr. James Baker, of Bull Fields, Woolwich, for 24 varieties of Pinks
3 To Mr Henbrey, of Croydon, for the same
4 To Mr. H. Ward, of Bull Fields, Woolwich, for the same
5 To Mr. Beck, for a seedling Pelargonium of 1846, "Centurion"
6 To the same for a seedling Pelargonium of 1846, "Ion"
7 To the same for a seedling Pelargonium of 1846, "Cassandra"
8 To [illegible], of Guernsey, for a seedling Pelargonium of 1846, "President"
9 To Mr. F. C. Ball, of Taunton, for Gladiolus Rex Rubrorum
10 To Mr. Robinson, gr. to James Simpson, Esq., for a specimen Fuchsia
11 To Mrs. Kendall, of Stoke Newington, for the same
12 To Mr. Glendinning, of Turnham Green, F.H.S., for Ruellia macrophylla
13 To Mr. Green, for Tropæolum polyphyllum
14 To Messrs. Veitch, for Calandrinia umbellata
15 To Mr. Jack, for Achimenes longiflora
16 To the same for Crinum amabile
17 To Mr. Barnes, for Cyrtopodium speciosum
18 To Mr. Hunt, gr. to Miss Traill, for the third best named collection of plants

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NURSERIES KENSINGTON, AND AT READING, BERKSHIRE.

MESSRS. FORREST & Co. beg respectfully to direct attention to their extensive collection of ROSES now in flower at the Reading Nurseries. This is a good time to see the distinctions, and consequently a proper season for selection for autumnal planting. They beg also to direct attention to their superior collection of FRUIT TREES of all kinds at both establishments, which are very fine and free from blight. As some of the tender kinds of Stone Fruit-trees will be scarce this season, R. F. & Co. recommend their numerous friends to forward their orders early.

R. F. & Co. have still some fine strong plants of Statice macrophylla to offer at reasonable prices.

BRITISH AND FOREIGN SHEET GLASS, for Horticultural purposes, &c., may be had at JAMES HOMERY'S 315, Oxford-street, London, at the following reduced prices:—In crates containing about 200 feet of coarse 18 oz., at 4½d. per foot, or 4th quality, 5d. per foot; ditto, 16 oz., coarse, 5½d. per foot; ditto ditto, 4th quality, 6d. per foot. Or cut to any size not exceeding 40 inches long by 10 inches wide, at 1d. per foot extra.

Also Microscopical Glass, French Shades, Plate and Crown Window Glass.

A discount to the Trade.

PROPAGATING GLASSES, White, 1s. per lb., or from 2s. 6d. to 24s. per dozen. CUCUMBER GLASSES, from 6d. to 4s. each. GRAPE SHADES, with holes, 1s. 9d. to 2s. 6d. each. FISH BOWLS, from 1s. 6d. each.—APSLEY PELLATT & Co., Falcon Glass Works, Holland-street, Blackfriars.

WEST KENT GARDEN POT, Invented by GEORGE FRY, Gardener, Lee Park, Blackheath, and manufactured by the Proprietor JOSEPH PASCALL, West Kent Potteries, Chislehurst, Kent, for the purpose of facilitating the operation of shifting and examining the roots of large plants, rendering the operation to be performed without subjecting the plants to the slightest injury. The following extracts are from the leading horticultural works of the present day, which from the limits of this prospectus are necessarily much abridged:—

"This little apparatus is simple and effectual, and will be of service to the growers of specimen plants for exhibition."—*Gardeners' Chronicle, February* 21, 1846.

"Mr. Fry exhibited a model of a very useful contrivance, by means of which he proposes to examine the soil of plants growing in large pots without inconvenience."—*Report of the Meeting of the Horticultural Society, Regent-street, Feb.* 17, 1846.

"Mr. Fry has invented a new Flower Pot which offers peculiar advantages in shifting. The ball of earth can be examined and either shifted into another pot, or returned exactly into its place whichever is required. Some of the principal specimen growers have certified in its favour."—*Gardeners' Gazette, February* 21, 1846.

"We think this Garden Pot will be found exceedingly useful to persons of every class who grow plants in pots. In the ordinary process of potting large plants, the least injury will often disfigure beautiful specimens, and this is almost unavoidable where the plants have to be turned upside down, and otherwise tossed about on a potting bench. It will be at once seen by the use of this pot and mode of potting that all risk of this kind is avoided."—*United Gardeners and Land-Stewards' Journal, March* 7, 1846.

"West Kent, famous as it is in the annals of horticultural competition, has hardly produced anything of more value to horticulture than the Improved Garden Pot."—*Mechanics' Mag., March* 7, 1846.

"This contrivance exhibited before the Horticultural Society on the 17th February, may be regarded as one of the best aids to cultivation which has been brought under the notice of practical men for a long time past. How frequently are valuable plants lost from the want of water, because from the surface soil being wet, the cultivator imagines they are all right in point of humidity, while, in reality, when they come to be turned out after they are dead, half the ball, sometimes the bottom and sometimes the side, is found to be as dry as dust; but when the West Kent Pot comes into use, we have nothing more to do than to place the ball on the shifting block to make every necessary examination. It will facilitate very materially the shifting of large specimens, as the plants will require no capsizing, and therefore not so likely to be broken; for my own part I will purchase no other kind of pot after Mr. Fry's are in the market."—*Mr. Ayres, in the Gardeners' Chronicle, March* 21, 1846.

"The contrivance cannot fail to be properly estimated by all interested."—*Florists' Journal & Gardeners' Record, April*, 1846.

"There can be little doubt that when these Pots are manufactured and brought into the market, they will become generally used by those who have plants of large size to manage. For the purpose of facilitating the operation of re-potting, and also of adjusting the supply of water to the wants of the plants, they will be of the greatest use to amateurs, and those who are not quite familiar with all the operations of plant culture. Whatever tends to do away with difficulties which stand in the way of success, deserves every encouragement that can be afforded to it."—*Horticultural Magazine, May*, 1846.

Licenses granted throughout the United Kingdom, for the manufacture of the West Kent Garden Pot on application to Messrs MADOX and WYATT, Solicitors, Clements-lane, Lombard-street, London.—REGISTERED FEBRUARY 6th, 1846.

BENTALL'S BOTANICAL DRYING PAPER.—This Paper is prepared expressly for the purpose of drying specimens of plants, and is considered by all Botanists who have used it to be far superior to everything previously employed. It is recommended by Sir W. J. Hooker, Dr. Lindley, Dr. Balfour, Mr. Babington, and other eminent botanists.

The following are the sizes in which it is sold:—

16 by 10 inches	..	..	..	15s. per Ream.
18 by 11 "	..	..	..	18s. "
20 by 12 "	..	..	..	21s. "
20 by 16 "	..	..	..	28s. "

Sold by the Manufacturers W. and T. BENTALL, Halstead, Essex; E. NEWMAN, 9, Devonshire-street, Bishopsgate, London; R. T. M'INTOSH, North 8s, Andrew-street, Edinburgh; G. DAVEY, Broad-street, Bristol; H. WHITMORE, Market-street, Manchester; J. W. KAYS, Plymouth.

NOTTINGHAM HORTICULTURAL SOCIETY.

Held at the Exchange Rooms.

"Gardening is the purest of human pleasures, and the greatest refreshment to the spirit of man."—LORD BACON.

Patrons—His Grace the DUKE OF DEVONSHIRE.
The Right Hon. the EARL OF SCARBOROUGH: The Right Hon. EARL HOWE.

Lady Patronesses—Her Grace the DUCHESS OF ST. ALBANS.
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This Society has been extended to fifty miles round Nottingham, and the remaining Exhibitions for the present season will be held as follows:

WEDNESDAY, June 24th,
WEDNESDAY, July 29th,
WEDNESDAY, Sept. 16th.

Schedules of Prizes can be had on application to
SAMUEL RICHARD PARR SHILTON, Hon. Sec.
Nottingham, June 19, 1846.

TO PLANTERS AND THE TRADE.

YOUELL AND CO., beg to inform the Trade, and planters of Ornamental Trees, that they are enabled to supply fine healthy one-year CEDRUS DEODARAS, well established in pots, upon reasonable terms. Also ARAUCARIA IMBRICATA, PINUS EXCELSA, ABIES MORINDA, &c., prices of which may be had on application.

For Particulars of their New Superb Seedling PANSY, "Master Thomas" see their Advertisement of last week; and for Fuchsias, Verbenas, Chrysanthemums, Petunias, &c. see their Advertisement of May 30.

Great Yarmouth Nursery, June 20, 1846.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD & SON have the honour of announcing to their Friends and Lovers of ROSES, that their superb and extensive collection of this very popular flower is now in fine bloom, and will continue in perfection during the Rose season

Maresfield is 12 miles distant from the Hayward's Heath Station of the London and Brighton Railway. The Lewes Coach, passing through Maresfield, leaves the Golden-cross, Charing-cross, every Tuesday, Thursday, and Saturday, at 10 o'clock, A.M. Admittance gratis daily (Sundays excepted)

The Gardeners' Chronicle.

SATURDAY, JUNE 20, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, June 24	Royal South London Society of Arts	1 P.M. 8 P.M.
SATURDAY, — 27	Royal Botanic	4 P.M.
WEDNESDAY, July 1	Royal Botanic Gardens	2 P.M.

COUNTRY SHOWS.

THURSDAY, June 25	South Essex Horticultural. Maidstone Horticultural. Thanet Floricultural and Horticultural.	
WEDNESDAY, July 1	Norwich and Norwich Horticultural.	

THE visit of IBRAHIM PACHA last Saturday to the GREAT EXHIBITION in the GARDEN of the HORTICULTURAL SOCIETY will, we trust, prove as beneficial to Egypt as it was interesting to himself. For the gratification of those who wish to know the effect produced upon the mind of the African Prince by so extraordinary a display of what he could never have previously seen, or imagined the existence of, we may state that his Highness was delighted by the spectacle. The Pelargoniums, large specimen plants, Cacti, and Heaths, appeared to be viewed with great admiration, for, upon being asked which of them he would be desirous of taking back to Egypt, he cast a rapid glance over the mass of flowers, paused for a moment, and, throwing up his arms, exclaimed, "All, all." The Pinks and Ranunculuses, with which he was familiar as natives of the East, were viewed with pleasure, as were the beds of Roses. In examining the fruit, Peaches and Nectarines, a few of the Pines, and the noble Strawberries most excited his admiration, but he had seen finer Cherries than any before him. How much the Pine-apples weighed, how many persons would come, how many tickets were sold, how much money was given away in prizes, and similar statistical inquiries, seemed most to engage his serious attention. He was evidently much gratified at his reception by Lord AUCKLAND on the part of the Society, and by the attention he received from the Noble Earl and Lord NORMANBY, who accompanied him during the whole of his stay; and he quitted the gay scene most unwillingly at half-past 2, on his way to Birmingham, expressing his great regret that the necessity of his arrangements left him no alternative. Had the PACHA known that between 13,000 and 14,000 visitors would have thronged to the Garden in the afternoon, of whom at least two-thirds would be charmingly dressed women, we suspect that his regret would have proved the master of his necessity.

With respect to the Exhibition itself, we may state that although the gay Azaleas of May were missed by everybody, yet that the general effect was as good as ever. The Pelargoniums were in their glory. Orchids were magnificent; who, for instance, ever beheld such a bank of these plants as was this time brought from Mr. ROCKER'S garden, among which was an Aerides odoratum, to have produced which alone would have made the reputation of any gardener. Then the fruit, which was so meagre in May, did honour to the skill of English gardeners, and so the PACHA seemed to think, although, from the remarks of a correspondent in another column, it appears that the Judges were of a different opinion. The Heaths were better than before, and a single plant of Erica ventricosa purpurea, from the garden of Sir GEORGE STAUNTON, was as fine a thing in its way as the Cyrtopod of the previous exhibition. Of such things as these we can only say that high gardening can go no further.

More novelties were present than before. The Royal Botanic Garden at Kew sent the charming Torenia asiatica, whose indigo stained flowers everybody stopped to admire, although by some oversight it had not been properly marked. Mr. VEITCH furnished a beautiful little long-spurred Balsam from Java, with the Æschynanthus pulcher, a good and new form of that fine genus.

Considering that the thermometer had stood near 82° for the previous fortnight, that it ranged as high as 86° in the shade and 97° in the sun, during the Exhibition, and that the plants can hardly be said to have felt it, so fresh and unflagging was their appearance, we should wish to ask how we are to measure the skill of the exhibitors who had successfully contended with such adverse circumstances?

There were no accidents among the ocean of carriages, but it took a long time to find the latter, so that either from that circumstance, or an unwillingness to leave the coolness of the garden for the heat of London, many visitors lingered till the evening had nearly closed in. The exact number of visitors was 13,421*, exclusive of supernumeraries.

THAT THE CRAVING FOR NOVELTY is insatiable we all know too well: or if we doubted it, the avidity with which the world (of gardening) runs after everything called new, would satisfy the most inveterate doubter. To be new indeed, or to seem so, appears to have with half the world the same meaning as to be good. "Well," Mr. Counter, "what have you that is *new?*" is the first question asked of a seedsman; no one thinks of saying, "What have you that is *good?*" It is novelty that is sought for, and not quality.

This is strikingly exemplified by the way in which the excellent varieties of vegetable seeds annually distributed by the Horticultural Society are often received. Vegetable seeds are demanded, and when they are given, surprise, or something worse, is expressed that they are only vegetables. It is in vain to say these varieties of Lettuce, Onion, Radish, Celery, Broccoli, are of the finest quality that art can produce. The answer is, "pooh! that is all very well, but *they are not new;* we admit the excellence of the quality, but they are only the old things." Imagine a man, whose dinner has been provided with the most perfectly cooked dishes, accompanied by the finest growths of wine, crying out, "This dinner is extremely bad, it consists of nothing but beef, mutton and venison; and as for the wine it is only sherry and claret." And yet such a man would be indignant if the cook gave him horseflesh and tincture of rhubarb, which he would deserve in return for his absurdity.

To meet these difficulties, and to seem to minister to so silly a habit, the cook invents all sorts of outlandish names; he calls broth *consommé*, white sauce *béchamel*, Parsley *verd de persil*, and a stew a *ragout*, a *godard*, or a *chambord;* while pea-soup and stuffing are elevated to the honours of *purée* and *farce*. Can anything be more ridiculous? and yet the seedsman is driven, by the absolute necessity of his position, to similar devices. And not dishonestly. He feels that the evil is not of his own creation; that the practice is forced upon him; and that if he does not adopt it his custom will desert him; and therefore he gets hold of some very good old variety, claps upon it a new name, duly advertises it, and lo! his desk is loaded with orders, and he becomes at once a man of enterprise and skill.

A kind of Cabbage, or rather Winter Green, is purchaseable under the name of "Jerusalem Kale." Nothing can be better. It is perfectly hardy, and forms a most delicious vegetable if sent to table dressed like Asparagus. It is doubtful if an esculent of more real excellence exists among us. It was described in the Transactions of the Horticultural Society nearly 30 years ago; its value was afterwards pointed out by the late Mr. WEDGWOOD, who blanched it like Sea-kale, and found it an admirable substitute for the latter, to which, indeed, it is in our mind superior; but nobody grows it now-a-days, because it is not called a novelty, puffed and made the subject of exaggeration. If we ask what it has to do with Jerusalem, we shall be puzzled to find the connection, the more especially since its claims are equal to a Prussian, Russian, Hungarian (Buda), and Manchester origin: for it has successively borne all those names. It is but another example of the advantage of substituting new and fine names for old familiar ones. Had anybody attempted to sell it as a very good kind of Collard or Colewort, he would not have found a customer; or if he had, it would have been at the price of Rapeseed; but a foreign origin was given it, with a fine sounding name, and a demand was created: new markets were successively obtained by other new names; but now ingenuity is exhausted, and it does not sell. Nobody grows Jerusalem Kale. Yet if it were properly advertised under the name of Hierosolymatanian Kale, and an ingenious fable were circulated about its having been found in a Pacha's garden on Lebanon, we engage to say that the demand would become enormous. The sale would be doubled if it bore the name of Ptolemaic Kale, and were shown to have been found in the folds of a mummy, so that its pedigree might be traced up to the pottage of the Pharaohs.

Shrewd Mr. COBBETT found the value of these devices, when he discovered that the specious name of Locust tree, and a flourishing account of its excellence, would produce him a crown, while the nurseryman could only realise sixpence for the same thing which he was simple-minded enough to sell under the old name of Acacia.

THE FRUIT AND ITS JUDGES AT THE CHISWICK EXHIBITION.

IT cannot but excite surprise that here in the month of June, after a mild winter, with latterly a period of Syrian sunshine, a collection of fruit can only be made equal to a third-rate award. In the time of Speechly, a bunch of Grapes was produced which weighed 19½ lbs.; another, grown in the garden of the Hon. Fulke Greville Howard, in 1821, weighed 15 lbs.; and must it be said of the productions exhibited by Mr. Dowding and Mr. Davis, bunches of Black Hamburgs, weighing 8 lbs., that "we never shall look upon their like again." (!) Surely energy will not become lulled in consequence of the facilities afforded by cheap glass and improvements in heating apparatus. The falling off in the exhibition of collections cannot be ascribed to the prizes offered by the Society, for they are increased rather than diminished. Nevertheless the number of collections has fallen to less than the number of medals placed at the disposal of the Judges. The cause of this requires to be investigated.

In the first place it must be admitted that the supply of fine fruit is not equal to the demand; hence market gardeners find it impossible to withstand the demands of their customers; and the numerous parties at this season of the year require all the early supply which noblemen and gentlemen's gardeners can generally furnish. If a gardener has been hard run for ripe fruit this week, he must feel diffident in proposing to apply a quantity next week for the purpose of obtaining for himself a medal at an exhibition. This is a state of things which the Society cannot directly ameliorate. Cheap glass will prove a boon in regard to the production, not only of a larger but also a better supply in the course of a few years. Better, because Vineries will be devoted solely to Vines, instead of being made the receptacles for French Beans and other things, as they now are. It should, however, be borne in mind, that when an increased supply is required, the consequence of such being afforded is, within certain limits, a still further demand, and this more especially when the article is produced in higher perfection.

In the meantime, it behoves the Horticultural Society to encourage the exhibition of *collections* of fruit. I am inclined to think so for the following reasons:—When it is found that the chances of gaining prizes are greater in the classes of Grapes, Pine-apples, Peaches, &c., than when exhibited collectively, the fruit will most assuredly be thrown into those classes. But, it may be said, when there it is still to be seen. It has, however, a less striking effect on the table; there being too much sameness in a range of dishes of Grapes. There is not that rich and pleasing variety of colours which a collection possesses, and here I must remark that, with the laudable view of producing this desirable end some exhibitors have suffered, for I have seen a dish of Cherries introduced with good effect in a collection containing first-rate fruit of other kinds, and sufficient to command a prize independently of the Cherries. Viewed separately the Cherries were nothing extraordinary, merely a respectable dish; but if they added to the good effect of

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* The manner in which this number is formed may interest some of our readers, and therefore we give it from the official returns:

Visitors with tickets	13,060
Fellows of the Society	304
Royal Personages, Foreign Ambassadors, &c.	57
	13,421
Passes for Exhibitors	214
Gunter's people	50
Bands	92
Total	13,777

the other things, they deserved not to be overlooked, far less ought their common character to be attributed to the whole collection. Besides the appearance of a collection of fruit, there is another important consideration, which renders it desirable that collections should be encouraged. There are usually plenty of exhibitors in the classes of Grapes, Pine-apples, &c. It is sometimes easy to excel in any one of these under favourable circumstances. One man is, perhaps, an enthusiast as regards the production of an object, which he makes his hobby; and when this is the case he is likely to be successful, and it is well to reward him, because he shows what may be achieved by skill and untiring attention to a particular object of his cultivation. But noblemen and gentlemen cannot afford that attention should be paid to one particular object only; they must have a gardener who can grow many kinds of fruit in perfection. Therefore the Society should encourage, as much as possible, the gardener who aims at producing a good collection, seeing that such gardeners give the most satisfaction to their employers.

The question is—what means can be adopted? The regulations as they now stand are quite unobjectionable; yet the exhibitions of collections are at almost the lowest ebb to which they possibly can arrive. This was not always the case; they once seemed in a fair way to attain the highest pitch.

The judges are to blame, and no one else.

The judges in those days were censured for being too liberal in their awards, but they had the table loaded with an immense quantity of very fine fruit; some, of course, was not so good, but the bad would doubtless have disappeared in a year or two.

The judges next became extremely critical and penurious, and now they see the result; which they might have foreseen a twelvemonth ago. Matters have become worse and worse this season; and even so patient a sufferer as Mr. Spencer is driven into class-showing.

Mr. Ingram's collection was almost the only one they had to consider in that way. It contained five beautiful, admirably-grown Queen Pines; some good Grapes, Muscat of Alexandrias, the best ripened of the sort that were exhibited; Plums, to force which (even to make a variety early in the season) is precarious, and demands much skill; Elton Cherries, not large, but good and well-ripened. Altogether, as many of the company remarked, Mr. Ingram's fruit was "fit for a Queen." It is true that a Melon, and some Figs, and White-heart Cherries, were not so fine; but his Peaches were good, and his Nectarines handsome, though hardly ripe. To this collection the Society's judges would not give the highest prize (the Gold Knightian), nor even the next (the Gold Banksian), but one *next to the very lowest in their gift!* namely a Silver Gilt Medal, to which the Pines alone would have been entitled, had they been exhibited separately. And then, again, there was a Pine from Frogmore, beautifully grown, and I should think a four-pounder. If we ask where the judges put it, the answer must be, to the *bottom* of their list.

This sort of incomprehensible, as well as unfair, decision, must of course drive off exhibitors, who expect justice, and if they get that, however unfavourable it may be to them, are contented. That the Society's judges mean well, I, who know them, fully admit, but that they are capable of executing their duty I must, with great respect for them, deny: and I will even add that it is quite indispensible that the Society should make some change among them when the next season comes.—*A Fruit-grower, but not an Exhibitor.*

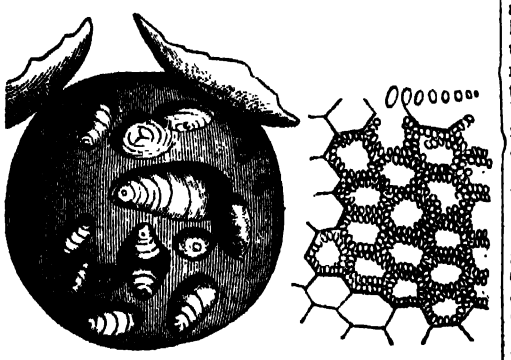
ON THE ORGANIC COMPOUNDS WHICH CONSTITUTE THE NUTRITIVE PORTIONS OF THE POTATO.

By the Rev. Prof. HENSLOW.

LAST November and December I had an opportunity of giving two or three lectures to some friends and neighbours on subjects bearing on the Potato question, which was then engrossing so much attention. Having retained my notes, I have thought it might be useful to send you the substance of those lectures, for such of your readers as may be as little acquainted with Chemistry or Physiology as myself; and I must run the risk of being censured or corrected by those who may detect in my statements any misapprehension I may be entertaining of those views which chemists and physiologists have of late been laying before us. It is not with any desire of converting agriculturists into chemists that such popular expositions as these can be considered useful. It is rather to incline them to receive with increasing confidence the suggestions which chemists of good repute may throw out to them concerning the methods that should be adopted for ascertaining how "sound principles" may be applied to the improvement of "approved practices." Notwithstanding much that has confessedly been done within the last few years, in convincing practical men that they will do wisely to attend to the suggestions which science can offer them, it is still too evident that much time is lost, and much money wasted in the methods frequently taken for arriving at conclusions which would be far more speedily and readily obtained under a good system of spirited and well-directed co-operation. It is not one or a dozen failures that should so dishearten the practical man as to cause him to fancy the principles which chemists have established are incorrect in theory. The detection of these principles has been the slow result of laborious investigation carried on for ages; and every principle has needed a multitude of experiments to substantiate its just claims to attention. Now it may sometimes be requisite that an hundred or more experiments should be undertaken before the correct methods of applying some one of these principles to practice can be satisfactorily detected. Whilst some are expecting too much of science, there is a vast number more, even among well-educated men, who are very inefficiently impressed with anything like a due "perception" of the manner in which science should be allowed to direct (if not to dictate) the course that should be pursued by unscientific experimenters.

In offering a Lecture upon certain topics which may be considered as bearing directly or indirectly upon questions connected with the recent failure of the Potato crop, I do not profess to have any fresh facts to add to the information which has already been made public. My object is to give a popular review of the nature of the most important organic compounds which are to be met with in the Potato; and to bring before you the conclusions at which some of the most eminent chemists, and other scientific men, have arrived concerning the office which these compounds fulfil in the general economy of vegetable and animal life. The more distinctly we are enabled to appreciate the value of these compounds in relation to the functions of animal nutrition, the more likely we shall be to form a correct judgment upon any of the plans that may be suggested either as palliatives to the loss that has been incurred, or as precautions against any recurrence of so great a calamity. Without dwelling on particulars, which have already been well discussed, respecting the methods of saving as much as possible of the tainted Potato, or of extracting and preparing the uninjured starch which it may contain, I shall proceed at once to a consideration of those two organic substances (starch and gluten) upon which the nutritive properties of this tuber chiefly depend. The other nutritive compounds which may also be detected in the Potato, bear a very small proportion to its whole weight; and their chemical composition is either identical, or so nearly identical, with one or other of those two, that we need not, in a mere popular review, do more than slightly allude to them. My remarks will not be confined to points which are exclusively chemical, but I shall notice some of the more prominent facts and speculations which botanists and physiologists have made known to us in reference to this subject. It is by obtaining some general notions of the bearing of various sciences upon any particular question, like the present, that we become better qualified for testing, as well as trusting, the advice of scientific men, when they propound their schemes for the consideration of parties who may be much better acquainted than themselves with practical details, and much better qualified than themselves for ascertaining whether their advice is worthy of being adopted; or, at least, whether it may not be so far modified as to become so.

In the first place I would speak somewhat botanically, and describe to you the circumstances under which starch is to be met with in many plants; and show you what are the general forms and appearances it assumes. Either starch or some compound, very nearly, or even absolutely identical with starch in chemical composition, occurs in all plants; and we may very safely conclude that such compounds must be essential to their existence, and to the development of their tissues. I must remind you that all plants are largely, and some entirely composed of "cellular tissue." This cellular tissue is formed of an assemblage of microscopically minute membranous bladders. When these bladders are detached from each other, they are generally more or less spherical. They are filled with fluid, and by mutual compression, their surfaces are flattened at the places where they touch each other, and thus they become many-sided in shape. If a section be made through a mass of cellular tissue, the cut surface will present a number of polygonal areas, which are more or less regular, in proportion as the bladders are more or less uniform in size. At fig. 1 (*a*)



b Fig. 1. *a*

we have the appearance presented by a very thin slice of Potato made with a sharp razor. This may readily be seen under lenses of a low power, such as are used in the very commonest description of microscopes. The little oval and oblong bodies which nearly choke up some of the interstices or cells, are grains of starch. Some of them float freely in the liquid contained in these cells; but in the example which I now show you, they appear to be crowded close to the walls of the cells, and leave only a small area free of them, in the middle of each. These grains of starch are so perfectly pellucid, as to resemble small rolled and rounded fragments of glass. By various methods we can separate the membranous bladders which contain the grains of starch from each other, and at (*b*) there is one of these bladders represented under a high power of the microscope. We can now perceive that the starch-grains are faintly striated or marked (apparently upon their surface), with curved lines, and that there is also a dark spot on them which is generally placed near one extremity. These appearances are connected with the peculiar conditions under which the grains have been formed. I do not pretend in a lecture like this to enter into much minute detail, but I will just remark that the internal structure and mode of formation of these grains has largely occupied the attention of philosophers; and I would especially notice to you the labours of Mons. Payen, which are recorded in the 10th vol. of the "Annales des Sciences" for 1838. Should any of you be inclined to learn more respecting the composition of starch-grains than the present sketch can furnish, you will find in M. Payen's Memoir very accurate representations of starch-grains taken from 45 different kinds of plants. Each grain is composed of a series of layers or coats, one over the other, and it is supposed that they have been formed by successive depositions of matter, the last being the innermost, and the substance of each having been absorbed through the little dark spot we noticed on their surface. If this opinion be correct the outermost coat must have been a kind of cell; otherwise the process must have taken place by successive depositions externally, after the manner of stalactitic deposits, which there appears to be good reasons for not believing to be the case. In order that you may obtain a better general notion of the manner in which grains of starch differ in form and size in various plants, I have selected four kinds for representation, at fig. 2, and they are sketched as

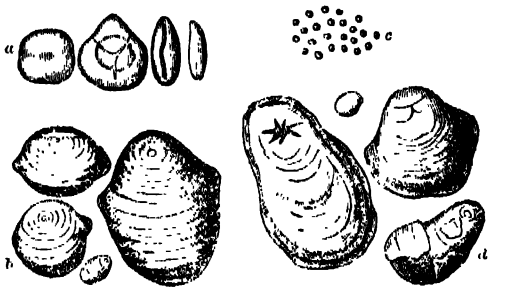


Fig. 2.

nearly as possible to their relative proportions. The largest (fig. 2 *d*) are from a variety of the Potato, and attain to seven one-thousandths of an inch in length. Those from the Chenopodium Quinoa (*c*), which M. Payen considers to be the smallest known, do not measure more than very nearly seven one-hundred-thousandths of an inch. In considering the relative bulks of the grains of these two starches we find them bearing about the same proportions to each other as the sun to the earth! The largest grains of the starch called Arrow-root (*b*) are somewhat less than those of the variety of the Potato alluded to, and the largest grains of Wheat-starch (*a*) are about two one-thousandths of an inch in length.

I shall now allude to some of the starches which are objects of commercial speculation, and point out to you the plants from which they are obtained.

Starch is only formed within the membranous bladders that compose the cellular tissue of plants; but as this tissue pervades the whole vegetable structure, the starch grains are sometimes aggregated in one part and sometimes in another part of plants, in sufficient abundance to make it worth while to collect it from those parts for economical purposes. It is very largely stored up in many seeds, for the use of the young plant when it begins to germinate. The starch commonly used by washerwomen is prepared from Wheat. Starches are also sold which are prepared from Rice and Maize, and both these starches are patented. I am not aware whether the patents refer to any peculiarity in the mode of preparing the starch from the two last-named descriptions of grain; but if they merely relate to the starches themselves, a very large proportion of the vegetable kingdom might be thus patented. I have been shown a starch which the microscope readily reveals to have been extracted from the tubers of Potatoes, and yet the vender professes to sell it as the produce of a particular seed. His false statements induce his customers to pay about 1500 per cent. more than this starch is really worth in the market, though probably it is just as good and wholesome as the genuine article it professes to represent. But Potato starch is largely employed for purposes of adulterating, and even for wholly replacing some of the starches of commerce, such as sago, arrow-root, tapioca, &c. The Horse Chestnut furnishes an excellent starch, and this in so great abundance, that I suspect it might very readily be procured as a cheap substitute for Wheat starch. I have understood that some washerwomen do make use of the Horse Chestnut; though I believe it is rather as a substitute for soda than for the sake of its starch, as it contains an abundance of an alkaline material possessing abstergent properties. According to a French chemist, Raspail, who has paid much attention to this subject, when the Horse Chestnut is reduced to a pulp it forms a paste that is well adapted for a certain process in weaving, enabling persons engaged in that art to work in drier and more airy situations than they would otherwise be able to do, when employing the ordinary kinds of paste. He also suggests the possibility of re-

moving the bitterness of this fruit, by washing the pulp in water that has been slightly acidulated with sulphuric acid. Although starch itself is perfectly tasteless and scentless, yet it is often difficult to rid it entirely of the flavour which may have been imparted to it by the juices of the plants from which it has been extracted. Some of the starch which has been extracted from decaying Potatoes has been declared to be so tainted that it has been impossible by merely washing it to deprive it entirely of all taste. A few drops of sulphuric acid added to the last washing would probably effect this; for Raspail has stated that the starch obtained from the root of the White Briony (Bryonia dioica), can never be thoroughly divested of its contamination with the poisonous juice of that plant, without having been thus treated. I presume that the methods adopted for preparing starch from Wheat would apply to all other seeds. They should be reduced to flour or meal, and this must be allowed to soak for some days in a large quantity of water. The gluten and other matters mixed with the starch, will ferment and become thoroughly decomposed; whilst the starch being comparatively indestructible, and wholly insoluble in water, may then be purified by successive washings.

(*To be continued.*)

THE AMATEUR GARDENER.

ON THE TREATMENT OF WINDOW PLANTS DURING THE SUMMER MONTHS.—Although in-door gardening loses much of its interest in summer, when Nature is so prodigal of her beauties in the open air, still the amateur will find great interest in adorning his windows with his choicest productions. Nothing can have a finer effect in a drawing-room or sitting-room than a flower bloomed well in a pot, and tastefully trained; and windows filled with healthy Pelargoniums, Fuchsias, &c., convey a sense of refreshing coolness to the apartment. To keep up a succession of flowering-plants requires some forethought, and many are discouraged by apparent difficulties. I hope, by a few plain rules, to assist those who garden on a small scale, and have no greenhouse, in the art of securing a succession of handsome flowers, so that the charm which a household Flora confers may be their own.

Presuming that you have a frame, and that your stock of plants was repotted, according to former directions, you will now be in the midst of your prosperity, and making a display of your riches. The bulbs are all laid to rest for the season; the early Roses, &c., which succeeded the bulbs will have done flowering, and should be replaced by Pelargoniums, Fuchsias, and other plants, which have been before recommended. Let every pot be kept in the frame until the bloom is ready to expand, that the full benefit of light and heat may be secured, and then remove it to the window. When there it should be moderately watered. It is astonishing to the inexperienced how small a quantity of water will keep a plant in good health. I have some Pelargoniums in 60-sized pots in a window fully exposed to the sun, and I find watering once a day quite sufficient, and even then I take care that none stands in the saucers. But to do this it is requisite that the pots should be kept as much as possible from the solar rays, which may be accomplished by opening the window, so that the thick lower frame of the sash shall intercept the light, and so keep the pots cool. If pots are placed outside the window, which is often done with good effect, they may advantageously be put into empty ones of a larger size, by which a current of air will be secured all round them, and a lower temperature maintained. Any little contrivances of this description will be useful, for frequent watering has many evils: among others the soil is rendered too compact, and the most valuable portions are quickly washed from it.

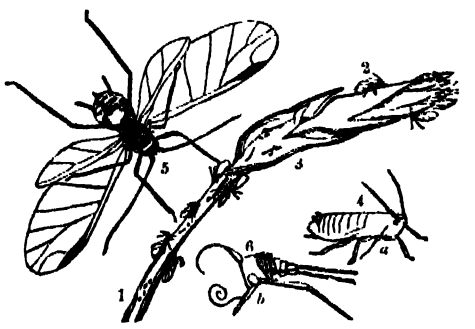
The most scrupulous cleanliness must be observed with window plants, or their health will soon suffer. All decaying leaves should be removed as they appear, and no flowers should be allowed to die upon the stalk. By removing flowers as soon as their beauty is impaired, neatness and beauty are consulted; but this is not all. By stopping the tendency to produce seed, more flowers will often be produced. Mignonette in pots soon becomes shabby if this rule is neglected; but by picking off every spike of flowers when it is elongated and bare, laterals will quickly reward your pains, and keep up an air of healthfulness. It is scarcely necessary to prescribe an abundance of fresh air, as it is presumed few persons would in the summer sit with closed windows, unless the dust of a high road were playing its pranks near them.

Having pots in your frame for a succession, remove your plants from the house as soon as the bloom is over. Some sorts may be cut down, and with care will flower again. Perhaps the warmth of the season may bring too many forward at once; in that case, pinch out the bloom of some of them, and you will have the benefit later in the year. Scarlet Pelargoniums are very valuable in this kind of window gardening. I find small pots do best, producing least foliage and most flower. Fuchsias also amply repay the grower for window culture. By a little forethought and daily attention, the window, even without a balcony, may be made very attractive until frosts appear again, and our now dormant bulbs again demand and repay our care.—*H.B.*

ENTOMOLOGY.

THE HOP-FLY, *Aphis Humuli*.—The bines which have annually sprung up, twining their graceful shoots for support round an Apple-tree at the end of my garden, have never been attacked by the "Fly" until this year, but for some days the terminal shoots have been swarming with them (fig. 1), and to-day (June 6th) I see there are myriads of knits on the under sides of the leaves. In most instances we generally find the first broods of Aphides are apterous, but the Hop-flies appear to be all winged from the commencement, and consequently they migrate at given periods and under certain states of the atmosphere; and, if I mistake not, these easterly winds, accompanied by hazy weather, have been so perfectly congenial to their habits this year, that there is every prospect of the Hops suffering severely from their attacks, unless some natural check be speedily given to their increase.

They are exceedingly active this hot weather, running up and down the bines and flying off when disturbed. I have been watching some of the females, which have thrust their beaks into the stalks and at the same time are bringing forth their young (fig. 2). These little creatures, called deposit or knits, are scattered over the shoots (fig. 3) and beneath the leaves: they are nearly of a size, of a semi-pellucid greenish-white colour, with moderate horns and six stoutish legs; there are two short tubercles on the rump, and short beak under the breast, fig. 4 *a*, being a magnified figure of the knit. As is usual with the Aphides, they are ushered into the world backward by the parent fly, which is named Aphis Humuli. It is of a very bright green colour, and shining; the head is rather broad and blackish, with two prominent black eyes, before which are placed two horns that are nearly as long as the body, and are often thrown backward; they are black, and taper like the finest hair; the two basal joints are stout, and the seta is divided into several joints: the thorax is almost globose, being much raised on the back, which is black and divided into a central and two lateral lobes by deep sutures; the scutel is also black; under the base of the anterior wings is an oval black spot: the abdomen is broader than the thorax, more or less orbicular and inflated; it is composed of several segments, and towards the apex are two slender tubes, nearly half the length of the abdomen: upon the lateral margin are three black spots on each side, with some brown spots and transverse streaks beyond the centre of the back: the rostrum or beak projects from the lower part of the face (fig. *b*), close to the junction with the collar of the thorax, and when inserted into the plant, is at right angles with the body: the wings are beautifully transparent and iridescent, they meet over the back in repose, like a roof, and extend greatly beyond the tail; the superior are twice as long as the whole animal, and as broad again as the body; the nervures are dark, the subcostal one terminates in a long smoky stigma, from which issues a curved nervure, forming a somewhat oval cell at the apex: there are three oblique transverse nervures, the one nearest the extremity not touching the subcostal nervure, and producing a branch which is forked at the apex; the inferior wings are very much smaller, with a subcostal nervure and two oblique ones: it has six long legs of an ochraceous tint, the hind pair is the longest; the thighs are clavate and black, except at the base; the shanks are very long and slender, black at their tips, and the feet are very short, black, biarticulate, with two minute claws at the apex (fig. 5); (fig. 6) the head, thorax, &c., in profile. This description of the female will, I doubt not, apply to the males also, which probably do not make their appearance till the autumn.

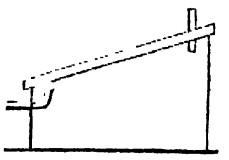


On a shoot infested by about 60 Aphides, I observed the swarthy larva of a Lady-bird running up and down the stalk, elevating his head and shaking his fore legs every few steps, as if he were fighting the air, and seeking something he had lost. The foolish Aphides walked over him, and when he met one he shrunk back, apparently ashamed to attack such a helpless victim; whatever might be the cause, it was not long before I observed him sucking another Aphis, and in 24 hours there were not more than 15 left on the twig, and only six of them alive. It is true that a few of them had flown to the window, but supposing they amounted to as many more, he would then have cleared the twig of the large Aphides in less than two days, showing what an invaluable little animal the Lady-bird is, even in its larva state. It is not, however, to the first importation of Aphides we have alone to look, for before our little alligator-like larva had murdered the inhabitants of the colony, they had amply provided for a succession, by a prodigious multiplication of the young Aphides, which fed so fast that I already see their dry and bleached skins sticking to the stalks and upper surface of the leaves of the Hop. The little Lady-bird larva has grown so rapidly that I find he likewise has moulted, and is now intensely black, with two orange spots near the base of the abdomen, and it was possibly to loosen his skin that he performed such curious antics yesterday. There are various other insects which destroy the Aphides, and I may observe, that on the under side of the Black Currant leaves, a very large number of the apterous Aphides are dead, changed to a tawny colour, and are filled with a woolly or pithy substance, similar to that which occupies the caterpillars that are infected by a Sphæria.

The authors of "An Introduction to Entomology"* think if the Aphides were destroyed on their first appearance by merely crushing the females upon the plant, the Hop growers might in a great measure secure themselves from the heavy losses they sustain. Next to the Barley crop, the produce of the Hop is to the brewer, as well as to the consumer, of our national beverage (malt liquor), of no trifling importance, and the amount of speculation which this minute insect influences, is scarcely conceivable. It is sufficient to state that it causes a difference in the revenue, which has approached in one year no less a sum than half a million sterling.†—*Ruricola.*

Home Correspondence.

Disease in Cucumbers—Sawdust as Soil for them.—I am of opinion that the disease complained of at p. 357 is caused by over watering and too low a temperature; and I also think that imperfect drainage has something to do with it, the bottoms of many pits being 2 and 3 feet below the ground level, and with no drains leading from them. Into these some will bundle a quantity of fermenting material, not thinking that all the water which the bed receives after the plants have been ridged out has no means of escape, and therefore must soak into the ground beneath, where no air can reach, and where it must become sour and stagnant, and of course will cause the interior of the pit to become unhealthy. The only remedy, now, is to have a small elbow pipe, an inch in diameter, inserted into the front wall of the pit, to admit fresh air, and one at the top of one of the lights, to give off the foul air. By this means may be obtained a constant current of fresh air, and the elbow in the pipe will prevent the cold draught from blowing directly on the plants before it has become warmed. I am going to insert two pipes of this kind into each of the Pineries; also into other houses, as I find a constant supply of fresh air, in moderation, to be beneficial for all plants. I was told when I entered my present situation, that the Cucumbers had been affected by the same sort of disease complained of, but I have not seen the least appearance of it. I have Cucumbers growing in a hot-water pit, and others in dung beds, and about 30 pots in one of the Pineries, all of which have borne abundance of fine fruit. I have sometimes cut a dozen brace in a day, and could have cut more. The plan I have always pursued has been to prevent the water which passes through the bed from soaking into the ground beneath, by raising the bottom about a foot above the surrounding level, and sloping it from the middle to either side, so as to assume the form of a segment of a circle; on the top I place faggots or brush wood, and commence making my bed,


End View.

laying, as I proceed, some faggots or brushwood all along the middle of the bed to within about 9 ins. of the top; I then lay as many wooden trunks across the bed as there are to be lights, so that, should the bed become at any time too hot, I have only to open the ends of the trunks, which soon moderates the heat; they also serve to conduct heat from the linings. The trunks are easily made by nailing four pieces of board together. After I have put on the other 9 inches of fermenting material I place my frame, and as soon as my bed has settled and the heat sufficiently subsided, I commence earthing it all over about 4 inches thick, leaving enough under each light for a hill, and placing under each hill a large turf 2 feet square, which prevents burning. The soil I use for all my Cucumbers is nothing more or less than decayed sawdust, in which they seem to luxuriate. Observing last winter a large heap of soil in the wood yard, which had for years been carried from the saw pit, I had some of it carted to the Melon ground; I then formed my hills entirely of it, and when it was warm turned my plants into it; in a few days the hills were one complete mass of roots; I then, by degrees, earthed my bed with the same, in which the plants made shoots as thick as the finger, and by judicious stopping and thinning bore abundantly. Many good gardeners who have seen them, have said that if they had not had ocular demonstration of the fact they could not have believed it possible for Cucumbers to flourish in rotten sawdust. You surely must give them an abundant supply of manure water, said they; but I can assure you that I never gave them anything but clear tepid water until they had borne a crop, and until I had cut them back and laid them for a second, which they are now bearing. My plants in the Pinery are in Seakale pots in the same material; their fruit and foliage have been, and still are, the admiration of everybody who has seen them; some of the leaves measured 22 inches across, and of a dark green colour, approaching to black. It may be as well to mention that as there is a great difficulty in this part of the county, in procuring peat, I have tried many plants in sawdust, such as Kennedyas, &c. &c., and they seem to like it. I planted a small plant in spring of Kennedya inophylla floribunda in a large pot, filled three parts with rotten

* Vol. i., p. 149.

† Entom. Mag., vol. i., p. 22, 426,000*l.* is the sum stated.

sawdust, one part loam, and some silver sand, and it has now covered thickly a trellis 12 feet in circumference.—*S. Whitmore, gr. to J. Bullock, Esq., Falkbourn-hall, Witham, Essex.* [The Cucumber-leaves are very fine. What is called sawdust is in the state of black vegetable mould, such as is found in the inside of old hollow trees.]

Hybrid Antirrhinums.—I believe that in England as well as here they are hybridizing Antirrhinums. For this purpose you ought to get the great yellow A. latifolium of southern Europe, and the more delicate siculum; these, and Asarina, mixed with some of our old sorts, might produce a good breed. They succeed better with Linaria triornithophora here than in England, in cultivation; I have seen no hybrids from it.—*W., Frankfort.*

The Nuthatch.—I was surprised to find that "Anon" so positively denies the well known fact of this bird's capability of cracking nuts. If he will turn to Mr. Yarrell's excellent work upon British birds, he will find at page 175, vol. 2, first edition, the following remark—"The names of nuthatch and nuthobber have been give to this bird from its habit of feeding on the kernels of nuts, which however thick or hard the shells may happen to be, are broken with equal ease and dexterity." He will also find that the Sitta europæa does belong to the Certhiadæ or family of creepers. Mr. Wighton, made a mistake in the number of toes, which "Anon" has correctly stated as three before and one behind. There is a nest of this interesting bird a few miles from this place, in the hollow of an old tree; the aperture is carefully plastered up, with the exception of a small orifice for the ingress and egress of the bird, and the mud with which this is effected so exactly resembles the bark of the tree, that the deception is not discovered without the closest examination. How beautiful are facts like this to those who contemplate, study, and love nature!—*C. R. Bree, Stowmarket* ——At p. 358 are some remarks upon the nuthatch (Sitta europæa) by an anonymous correspondent, which are so totally incorrect, that I cannot allow them to pass unnoticed. The writer states that this bird "never cracks nuts at all." Now, the real fact is, that nuts constitute the principal food of the nuthatch in the autumn and winter. A chink or crevice in the bark of a tree suitable for the purpose is selected, and to this place nuts are frequently carried from a considerable distance; having fixed the nut, the bird places itself above it, with the head downwards, and soon breaks it by repeated strokes of the beak. I have watched them scores of times, and have seen a quarter of a peck of shells scattered at the foot of a tree to which these birds carried the nuts. They will also crack the seed of the Yew in the same manner to get at the kernel. I may also remark, that they will never take a bad nut.—*Henry Doubleday, Epping.*——Many a bit of knowledge, and many a fact previously unknown to me, have I gleaned from the columns of the *Gardeners' Chronicle*, to the correspondents of which I am always very grateful for their information. I have, however, this morning been a little startled at a piece of information (relative to the nuthatch) by a correspondent signing himself "Anon," who boldly asserts that this bird "never cracks nuts at all!" He also speaks of mechanical power; of the strength of materials; and of the advantage of personal observation in the study of Nature as leading the mind to the love of truth, and to admiration of the beautiful contrivances by which Providence adapts means for the accomplishment of ends. "Anon" has, notwithstanding all this, been somehow or other led into the error he deprecates, and in this instance has adopted an opinion not founded on personal observation, for nuthatches do crack nuts; and if "Anon" should ever happen to visit the midland or southern counties of England (there are no nuthatches at Mytholmroyd), he may easily convince himself of the fact. On entering one of the fine old woods in almost any of these beautiful districts of England, he may, without much trouble, find the workshop of the nuthatch on the rough bark of an old tree; for, like many a clever mechanic, he is partial to the bench at which he has long worked; and the situation of which is sufficiently apparent by the abundance of nutshells scattered below. Here the observer will not have long to wait for the arrival of the nuthatch; in a few minutes he comes with a nut between his mandibles, and after having divested it of its outward covering, proceeds to fix it securely in a crevice, where he has before fixed many an one; and now for the little fellow's mode of cracking nuts. "Anon" may, perhaps, in his journey through this weary world, have occasionally noticed a blacksmith at work on a piece of hot iron; not by the pressure of the tongs, but by rapid and incessant hammering, is the shapeless mass reduced to form; exactly in the same way does the nuthatch proceed; his blows dealt with rapidity and precision are effectual, and do indeed exhibit a beautiful adaptation of means to the accomplishment of an end; the kernel affords to him a luxuriant meal he has richly earned, and one never missed by the lordly owner of the wood.—*Sutor.*

Curious Transformation in Potatoes.—Such a strange change has taken place in my Ash-leaved Potatoes, that I am anxious to know the cause, and whether the mishap is usual. I saved my own seed, having heretofore found it excellent, and was very particular in drying it in the sun, and buried it in a sea-kale pot in my garden. About the end of January I took out 100 Potatoes, and placed them in an old bin in my cellar, at a temperature of 46°, slightly covering them with old saw-dust, in order to have some more early than usual. In a sheltered part of my garden I drove in four posts, to which I nailed boards, and had a frame-work covered with prepared calico as a protection from frost at night. Within this, without any extra manure, on Feb. 26, I dibbled in a portion of the slightly sprung Potatoes, and the remainder on a south border. Now, the singularity of the matter is that nine-tenths of the whole (both in the frame and out) have quite changed their character. The stalk is longer, the leaf wrinkled and rough, and smaller, like that of the American; blossoms are appearing, and the root consists of fibres and runners, but not a single Potato, or the appearance of one, except the original set, very fresh; while the few which have retained their own character of leaf have excellent Potatoes at them. I completed the same border with the same seed unforced, of which about one-sixth appears changed; but the result is not known, as they were not planted till the middle of March. It is four years since I first obtained the seed, and have raised them most successfully each year in different parts of my garden. Does the seed degenerate? and does this arise from being confined to the narrow limits of a garden consisting of nearly half an acre of ground?—*Wansbeck.*

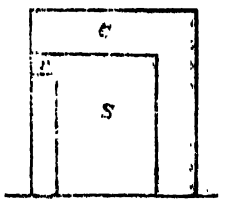
Euptery x Solani.—In last week's Number is a very accurate description of this insect. These insects have attracted my attention for several years past, on account of the ravages which they inflict upon our Hop bines, they being in some instances almost as destructive to the crop as the aphides. They usually make their first appearance about the first or second week in June, according to the forwardness of the season, after which, in some years, they increase most rapidly, so that in the course of three or four weeks, hundreds of them are to be found living upon a single plant. I have frequently counted 50 and upwards on a leaf. They pierce the cuticle of the most succulent parts of the plant, viz., the heads of the bines, and the stems of the leaves; and when they are numerous, their effects are soon visible in completely arresting the upward growth of the bines. I think the plant sustains more injury from the escape of the sap through the holes which they puncture, than from the loss of what they take for their own support. I have often observed large drops trickling from the incisions. They are in fact, a very serious pest to the Hop grower, and if any means could be devised for their destruction in their early stage of existence, it would be of great advantage to him. The plan here adopted for their extermination, when they become very numerous, is, by means of a large shallow tin pan (something like a dripping pan) filled with gas tar. This is carried by a man and a boy, from pole to pole, throughout the Hop ground, and each pole is struck smartly with a hammer, when the creatures fall into the tar and are smothered. It is an efficacious, though a troublesome and expensive remedy.—*J. Manwaring Paine, Farnham.*

Cements.—Perhaps isinglass and whisky ought to make as good a cement as isinglass and gin, which it seems, by your correspondent's complaint, they do not. Now, I have many years' experience of the strength of the cement made by the latter materials; the solution of the chips in gin may be hastened by placing the bottle near the fire; and the cement must be made liquid, when wanted for use, by putting the bottle containing it in hot water or near the fire. Another strong cement may be made with isinglass dissolved in water, and the white of egg added to it.—*Anon, June* 14.——If "G. J." will either put his bottle of isinglass and gin into a water bath, and heat it or set it for a while on the hob of the fire-place, the isinglass will very speedily dissolve, and when cold may easily be made liquid again by immersion in warm water, and will be found a very neat and clean cement for anything that does not require washing in warm water. I believe isinglass will not dissolve in pure spirit, and the only use of the gin in this case is that it liquifies at a lower heat than when dissolved in water alone, and from the more rapid evaporation of the spirit when used as a cement, it dries or sets quicker; it also tends to preserve the cement from putrefaction. —*G. M.*

Potatoes.—My crop for the present year is looking remarkably well, and the new ones in daily use, though rather small, from the dry weather, are quite sound, and free from any appearance of the disease of last year. As soon as the disease appeared in my crop last year (Red Kidney) I mowed off the haulm, and when they were taken up in October, though not above half their proper size, there was not above one in ten diseased. I stowed them away in a cool cellar, and covered them with straw. They kept remarkably well, and I planted about an acre of them. My soil is a dry loam, with sand and brick earth beneath.—*C. R. Bree, Stowmarket.*

Stock Seed.—I believe the superiority of the German seed may be attributed, in a great measure, to the manner of growing it. The best seed is saved from pot plants, and none is allowed to ripen but five petal flowers; and, as you will generally find blossoms of four and five petals on the same plant, the former are carefully picked off as they expand.—*Rock Colliery, Monmouth.*

Polmaise Heating.—In a former communication, I observed that I thought it likely there should be a greater loss or waste of heat in the Polmaise method by means of an air stove than in a hot water apparatus, from the circumstance of air being very inferior to water in the property of appropriating or absorbing heat, which would cause the gaseous products of combustion to pass off into the flue or chimney at a much higher temperature from a stove than from a boiler furnace which is kept surrounded with water. I had reference in this observation to the simple arrangements adopted at Polmaise, which, as I understand them, consist merely of an air stove placed in a small chamber, and may be represented by the annexed diagram, in which C is the hot chamber, and S the stove, and F a small portion of the flue included in the chamber. The stove and small piece of flue there comprise the entire heating surface from which any useful effect is obtained, and whatever portion of heat escapes beyond the point F of the flue, where it leaves the hot chamber, is lost or wasted. To compare this loss with what it would be in a hot water apparatus we must suppose S of the diagram to represent the furnace, and C the boiler filled with water surrounding the furnace and small piece of flue, F, as before, representing the point beyond which whatever heat escapes is lost or wasted. Under these circumstances, if a thermometer were applied at F, it would be found that the temperature of the escaping gases is much higher in the case of the stove than of the boiler furnace, consequently indicating greater loss or waste of heat. This result is nothing but what may be fairly presumed from the different relations to heat of air and water in the property of conducting heat, and in their capacities for heat, technically called their specific heats. The conducting property of air and water is to be carefully distinguished from their property of carrying heat, which is a property peculiar to fluids as distinguished from solids, and refers to the internal motion of their particles in circulating currents, produced by the tendency of each particle as it becomes heated to ascend and give place to the colder particles above, which therefore must move in an opposite direction and constitute the descending current. This property, though of the greatest importance in diffusing heat through fluid bodies, in a way that could never be effected by mere conduction from particle to particle, does not respect the actual reception or imparting of heat by their particles, but simply the motion produced in them consequent on their reception of heat: and as this depends on the mobility of the particles of the fluid, the carrying or distributive property of air may be assumed to be superior to that of water. The conducting property of air and water, on the other hand, respects the actual reception and imparting of heat by their particles from and to other bodies; and in this property air is very inferior to water. I am not aware what figures represent their relative conducting power, but that the difference must be very great may be inferred from the circumstance related by Dr. Thomson in his system of Chemistry, art. Heat, of Sir J. Banks, and other gentlemen, having remained without inconvenience for some time in a room heated to 260°, whereas no one could be plunged into water at 212°, for the shortest time without being scalded to death. The effect of this difference will be perceived in the state of the heating surface S. (of the diag.) considered as surrounded by water and air respectively. In the case of water, the passage of heat into it from the surface S will be prompt and active, the temperature of the latter will be kept down, and with it the temperature of the gases passing through its interior, so that on their escaping at the point F it will not greatly exceed that of the surrounding water. But when S is surrounded with air, the abstraction of heat from it is accomplished with difficulty, it accumulates faster than it is removed, perhaps to the extent of S becoming red hot; and the temperature of the gases passing through its interior, and escaping at F, must inevitably participate in this aggravated condition. These results, indeed, are due not only to the disparity in the conducting power of air and water, but also, in a greater degree, to the disparity in their capacity for heat, or of their specific heats. This property expresses a certain quantity of heat, which enters into substances, to raise their temperature any assigned number of degrees as indicated by the thermometer; every substance requiring a certain quantity peculiar to itself, and different from the quantity required by other bodies, to raise their temperature to the same degree on the thermometer. Water is superior to most substances in its capacity for heat, and stands nearly at the head of the table of specific heats of bodies. The specific heat of air is little more than one-fourth of that of water, taking equal quantities by weight of both, the specific heat of water being 1·000, and of air 0·2669. But if the comparison be made in bulk or volume, the disparity will appear much greater; for, as water is 800 times heavier than air, the specific heat of one cubic foot of water will be equal to the specific heat of 800×4=3200 cubic feet of air; or, in other words, a cubic foot of water will absorb as great a quantity of heat, in the process of having its temperature raised one degree, as 3200 cubic feet of air will; which heat is stored up in the water, to be given out again to other bodies at a lower temperature than itself. It is this property which constitutes water such an excellent receptacle or magazine for heat, as by common consent and practical adoption it is allowed to be. When we consider, then, how inferior air is in the property of conducting heat, and in its capacity for heat, it is difficult to resist the conclusion, that much useful heat must pass off by the flue unappropriated in the arrangement adopted at Polmaise, if correctly represented by the diagram. At the same time I admit that



the Polmaise principle of causing a rapid current of air to be incessantly sweeping over the heated surfaces (S), will partly compensate the defective conducting power of air, by assisting its carrying or distributive power, and bringing its particles with greater frequency to the source of heat. But other means also are required to place the Polmaise method on an equal footing with the hot water system in economising or utilising heat. To accomplish this appears to me the chief, if not only desideratum for perfecting this method of heating by means of air stoves. But it must involve some departure from the simplicity of arrangement adopted at Polmaise, on the ground that that arrangement does not present sufficient surface for the heat to be diffused over and for the air to act upon. Extending the heating surface, by including the flue of the stove in the arrangement for heating the current of air, offers, perhaps, the readiest and most available means for effecting the desired end. In my communication, already alluded to, I brought under notice a plan for this purpose, originally proposed by your correspondent "Lusor." Mr. Sherer's plan, described in the *Chronicle*, seems also to have the same object in view, by causing the current after leaving the stove to traverse the flue before entering the house. A plan the converse of this would be found very effective, by connecting a cold drain with the end of the flue furthest from the stove, and causing the current to traverse it before reaching the stove and obtaining its maximum temperature. And other combinations of a similar nature might be easily devised.—*J. H. H., B—k.*

Bees.—The following account will show that in this part of England (South Wilts) bees, after their "strike for fine weather," have commenced working "long hours."

Table of the Weights of several Hives, beginning with September. I give the Nos. as they stand in my own List.

Date.	Weather.	Weight in lbs. 2.	8.	5.	6.	Remarks.
Sept. 1. ..	.. ..	35	35	19½	27	Allow in each
Feb. 1. ..	.. ..	26½	27½	16	22½	case a stool,
March 1. ..	.. ..	25½	26	14½	21	4½ lbs., secured
,, 14. .	Favourable.....	25½	25½	14½	20½	to the bottom
April 1. ..	Unfavourable ..	23½	24½	13½	19½	of the hive for
,, 20. .	Ditto	22	23½	13½	18½	convenience in weighing.
May 1. ..	About half lost time	21½	22½	13½	19½	No. 5 occasionally served from Jan. to May 21. Honey-dew very prevalent from May 22.
,, 21. .	Mostly dry	22½	22	13½	18½	
June 1. ..	Extra fine.....	32	32½	19½	27½	
,, 10. .	Seven good, two bad days	43½	44½	25½	30½	
,, 11. .	A very fine day .	45	48	26½	32	

No. 6 swarmed on the 5th of June. No 2 swarmed, but returned to the parent hive on the 11th. This will account for the small increase when compared with No. 3. The increase for the last mentioned day is from the same morning, and not from the previous evening. No. 3, during the week ending June 6th, increased 15½ lbs., and, as can be seen in the annexed Table, 3½ lbs. on June 11th.

After an unusually bad spring the present season has become one of considerable promise. The inquiry is made at page 373, "Has any one had a swarm from a second swarm of the previous year so early as to disprove Huber's statement?" My first swarm of 1844 swarmed twice—on July 3d and again on July 15th. I saved all three for stock hives. Drones appeared in the first maiden swarm on May 27th, in the second swarm on May 26th, and in the parent hive on May 22d. The parent stock swarmed on May 23d, the second swarm on June 10th, and the first swarm on June 11th. In two of the above cases the queens must have been less than 10 months old when the drone eggs were produced, for, of course, the old hive and second swarm must have been upon an equal footing with respect to the age of their "sovereign lady," a fact which must not be overlooked. The reason why second swarms produce late swarms, I take to be something very different from the age of the queen. In 1843, in more respects than one an extraordinary bee season, the whole of my hives produced an autumn brood of drones, in some cases more than a month after the first slaughter. With respect to the time of swarming after the first appearance of the drones, very much depends upon the room in the stock hives. I have known bees swarm on the first day that the drones appeared, and I have known a delay of 23 days. The average time for the years 1843-4-5 has been with me, 12½ days. This average could, I think, be reduced several days, by dispensing with madired hives, and always saving heavy stocks of middling size. Hives, though, are not always heavy. During the past five years, the period of time between the first and second swarms, has been 15¾ days. Minimum, six days. Maximum, 17 days.—*B. T.*——After 44 years' experience, the month of May of this year has been the most productive of honey in that long period. Swarms, too, are now, and have been larger in size than usual; they have filled their hives in a very short time, and have stored them with honey of superior flavour; the remunerators and additional glasses being well filled previous to swarming, and in all probability the second flights or casts, where they are good, will insure good stocks for the following season. Should the weather continue fine, additional space should be given immediately to stocks which have not swarmed, either by glasses upon the tops of them, or by any collateral method. First swarms of this year should have great attention paid to them to insure an abundant stock. Swarms should be secured into hives the moment they are ready for hiving, or they may escape from the hands of the Apiarian. When they settle upon an immovable substance, such as a post, a body of a tree, or between its branches or boughs, and cannot be shaken into the hive, a large silver table-spoon may be used for delivering a part of them into the hive, by inverting it, if only one-third of them can be collected therein, then tilting it down, and speedily but gently collecting the remainder with the spoon, emptying them upon a board near the edges of the hive, they will speedily enter; let them remain until the evening, when they may be removed to their permanent situation.—*B Savage, Swaffham, Norfolk.*

Fraudulent Seedsmen.—I am really rejoiced to see some symptoms of compassionate interest manifesting themselves towards us miserable victims, in your hitherto hard heart. You have at last been brought to confess that you are now much inclined to thunder your wrath upon a culprit: good. Do it, and you shall have a monument as a memorial of your worth. But, in sober sadness, I could unfold, not one tale, but a folio full of the most barefaced rogueries which have, within these last two seasons, been perpetrated on myself and others, which would startle your editorial senses; and I believe you will agree with me that the time has arrived, from the increased impetus now given to floriculture by your manful battling to the death the glass fraud, to cut up, root and branch, the dishonest traffickers and puffers in the seed and flower trade. There should be, there really must be, something more than the old-fashioned advice given of never dealing a second time with a man who has cheated you, &c. &c. For my own part I shall willingly become one of a club or society (if such a society could be formed) and go to the utmost extent of my means in creating a fund to enable the society at all cost to expose by name every party practising frauds on flower growers in the sale of seeds and plants untrue to name, &c. &c. There will be no resistance made to this by the respectable tradesmen, for it will of necessity insure to them their merited proportion of patronage, while it will drive to the devil all those who long since should have gone to him. This is warm; but it will out. I have now lying beside me a list of names—insignificant puffers in the *Chronicle*, who have played not only myself, but very many other of my friends, the most barefaced and impudent tricks that it is possible, and just possible, only for the veriest rogue in Christendom to conceive; and I must think some very straightforward steps should be set on foot without delay to check this daily increasing evil. The discouragement experienced is one of the greatest drawbacks to, I may say, some thousands as passionately devoted to floriculture, as you or I can be, in prosecuting to the extent they desire this pursuit; and hence the justly intentioned tradesman is injured, and a vast mass of pleasure marred, through an evil which I must think it is greatly in your power to prevent. Permit me to ask the question, whether, if you had placed in your hands unequivocal evidence of the dishonesty of one of your advertising parties, you think it would not be doing some justice to the thousands of amateur florists, who take in and rely almost altogether on your Paper, not to allow this disreputable dealer to continue his advertisements in your columns? I am sure that whilst taking the liberty of proposing this question, I can anticipate your reply. [Our reply is, "give us the proof."] I am aware of the difficulties which the laws of libel and defamation may present, since many a fellow without a character has gained a good one, and costs to boot, by being called a rogue. Hence a club must be beyond that of Hercules to knock down the hydra-headed monsters it would have to deal with. But if the case could not be so openly dealt with as might be wished, yet I have an idea that numbers might, at a very trifling cost, associate themselves together, and through a central board have intelligence soon circulated of all persons who had dealt dishonestly with any member. Five shillings a year from each party thus might prove a protection against a fraud to 50 times that amount. You, perhaps, might suggest something more effective.—*Timon.*

Tomtits.—Reasons why they should not be shot or poisoned with mutton suet and nux vomica:—A pair of the great tit (Parus major) having built their nests in the hole of a wall on my premises, which was conveniently situated for observation, I took the opportunity of satisfying myself of the nature and quantity of food with which they supplied their young. The nest contained seven young ones, which were about a fortnight in becoming full grown and feathered. Other important engagements prevented my watching them at all parts of the day, but I found from the mean of a series of observations that the old birds brought food for their young once in every three minutes. The food was invariably a bright green caterpillar, and allowing three hours (at the very lowest) of the day for feeding, this single nest consumed every day 200 caterpillars; my own opinion is, that considerably more than these were consumed in the 24 hours, besides those taken by the old ones. Macgillivray, in his work upon British birds, relates the result of an observation upon the food brought by a pair of thrushes (Turdus musicus), and if my memory serves me right, for I have not the work by me, they fed their young 230 times in the day, from three o'clock in the morning till six at night. Taking, however, my estimate of 200 caterpillars in the day, my nest of tits consumed in the fortnight 2800 of these destructive larvæ, and if we allow the old ones 20 a day each it makes the sum total 3360. Now, supposing the tit occasionally feeds upon Peas or buds, let me ask any unprejudiced observer of these matters which would do the most harm in a fortnight nine tits or 3360 caterpillars? Depend upon it that in recklessly destroying our insectivorous birds, we not only commit an act of unnecessary cruelty, but we are extirpating the garden's best friends. By-and-by, when the caterpillars are destroyed or changed into chrysalises, the birds will no doubt return to the gardens and ask for payment of their services in some small portion of the good things which, were it not for their assistance, we should never have had at all. I hope all gentlemen will forbid the destruction of birds in their gardens; they are all more or less useful. The least so, perhaps, to the gardener are some of the Fringillidæ, the bullfinches, greenfinches, goldfinches, &c., and yet the two latter certainly feed their young with caterpillars and perfect insects; and if the bullfinch, the most injurious of any bird to the fruit trees, does destroy our buds in spring, we ought to console ourselves with the fact that by invariably taking the fruit-bud and leaving the leaf-bud untouched, the health and vigour of the tree is unimpaired, whereas the caterpillar destroys the leaves, and thus kills the tree entirely.—*C. R. Tree, Manchester.*

Miscellaneous.—In reply to "R. C.," you say you never heard that hedgehogs could resist poison. I believe such to be the case. A few years back the experiment was tried and published. Firstly on rabbits with strychnine, one grain causing death in a very short time. On a domesticated hedgehog it produced no effect, used in quantities; and large doses of corrosive sublimate were also tried without effect.——At Hardwick Hall the gardeners have planted Box to fill up the bottom of the old fences; it has completely filled them up, looks beautiful, and has formed a complete barrier to rabbits. I should think it is a far preferable mode to the wire fences lately spoken of in your columns.——"Moorland Willie" last year spoke of a sort of Mackintosh for the garden in time of drought; the hint has led me to cover some of my Carnations which are in pots (and the soil becoming baked on the surface from frequent waterings), with dried Moss, with the greatest success, those so covered taking quite the lead of the others, the soil always being moist when the others are dry, with one-third of the water the others get.——I have in my garden a large Sweetbrier (double flowering). I never have shown it without surprise being expressed, especially by a nurseryman last week, which has led me to ask, is it uncommon? [No.]—I see in your last number that Burnettised cloth, like all others, becomes rotten by exposure to weather. Common cap paper will not; it will stand wind and weather, and is quite transparent. I use it as a covering for Carnations, &c., tacking it on the root through taps, and I think it improves with age. I use ¼ oz. bees' wax to 1 pint of boiled oil. It is cheap and efficient.—*J.*

Societies.

HORTICULTURAL SOCIETY.

The Second Great Exhibition of the season took place in the garden at Chiswick on Saturday last; and was scarcely inferior to the grand display in May. The day was all that could be desired, although the garden was somewhat parched by the late dry weather. The exhibition was inspected by Ibrahim Pacha, who appeared to be highly gratified with the scene. In large collections of 40 stove and greenhouse plants there was no competition; Mr. Robertson, gr. to Mrs. Lawrence, being the only exhibitor. In this group were several matchless specimens of first-rate cultivation; indeed, nothing inferior to those produced by the same exhibitor in May. At the back stood a Clerodendron fallax, with 7 large spikes of scarlet flowers, and on either side noble plants of Stephanotis floribunda, especially one nearly 6 ft. in height, loaded with bloom. Supporting these again were Erica metulæflora bicolor, a splendid plant, covered with a profusion of red and white tubes; Clerodendrons paniculatum and fallax, and a fine Statice macrophylla. In the same collection were also Phænocoma proliferum, 4 ft. through, and as much in height, exceedingly well grown, but scarce of flowers; and near it another of the same species, equally good. Associated with these were Epacris grandiflora, and large bushes of Coleonema pulchrum, and Pimelea decussata. In front were Manettia cordifolia, 4½ ft. high, and as much through, profusely covered with red blossoms, which contrasted well with the deep green foliage; the well-known and generally well-grown Leschenaultia formosa, 18 inches in height and 2 feet in diameter; a small Erica gemmifera; Pimelea decussata, a depressed bush finely in flower; Clerodendron Kæmpferi, with one strong spike rising about 18 inches above the ample dark-green leaves; Statice arborea, with seven spikes of bloom, together with a rather bare Leschenaultia Baxteri; and a small Ixora coccinea, with eight gaudy clusters of scarlet flowers. Along with these were two plants of ventricosa coccinea minor; Azalea Danielsiana, in good condition, considering the season; Cyrtoceras reflexum, with numerous bunches of pale green and lemon-coloured flowers; two tolerably good plants of Rondeletia speciosa; a neat Eriostemon buxifolium; Erica Cavendishii, measuring 2½ feet in height and as much through; and Tabernæmontana coronaria, a plant not often seen in collections, remarkable for its glossy deep-green leaves and handsome yellow-eyed snow-white flowers. In the same group with these were Ixora coccinea; Epacris grandiflora, 5 feet in height and 4 feet in diameter; a fine bush of Erica tricolor elegans; Clerodendron fallax; a small Azalea variegata, pretty well bloomed; E. perspicua nana; a badly bloomed blue Leschenaultia; Boronia denticulata, in fine condition, measuring 3 feet in height and as much in diameter; and a famous Leschenaultia formosa, 2 feet through and as much in height, with its branches hanging gracefully over the pot.

Collections of 20 plants were contributed by Messrs.

Fraser, of Lea-bridge Road; Mr. Ayres gr. to J. Cook, Esq., of Brooklands, Blackheath, and by Mr. Hunt, gr. to Miss Traill, of Bromley. The Lea-bridge group contained as usual superb specimens of cultivation. Arranged along the back was Clerodendron splendens which has been formerly noticed; an exceedingly neat Aphelexis humilis, 2½ feet in height and as much in width; a very handsome Sollya linearis, 5 feet in height, quite a thicket of pale blue flowers and deep green leaves; and Crowea saligna in the most robust health, but hardly sufficiently in bloom; and not less remarkable were handsome specimens of Ixora coccinea in most luxuriant growth, producing nearly 40 gorgeous scarlet heads of flowers; and a large mass of Coleonema pulchrum, 5 feet in height and as much in diameter, covered with little pink stars. In the same collection were also Statice arborea, with 7 flower spikes; and a splendid Erica Bergiana, literally a mass of small round deep purple blossoms. In front were Clerodendron squamatum, a noble plant of that showy genus; a splendidly grown Phænocoma proliferum, 3 ft. in height and as much in width, but scarce of bloom; Pimelea hispida, a mass of white flowers; a large and fine Polygala acuminata, about 5 feet in height and as much in diameter, a mass of purple flowers; the same Pavetta caffra formerly mentioned, a plant we should like to see oftener in collections; and a small specimen of the lilac-flowered Franciscea acuminata. Along with these were Aphelexis speciosa, a paler flowered and perhaps less handsome species than humilis; a small plant of the yellow-blossomed Gompholobium splendens, and several Heaths, including tricolor elegans, a handsomer variety than tricolor, which likewise formed part of the group, as did also a pretty E. ventricosa. — Mr. Ayres's set, which was next in point of merit, comprised two noble Clerodendrons; the same Allamanda cathartica, formerly described, again produced in first-rate order; as was also the noble Gloriosa superba, alluded to on a former occasion. Along with these were Crowea saligna, finely in bloom, and promising to become still better; the larger and best variety of Aphelexis spectabilis; a small plant of the comparatively new Cyrtoceras reflexum; Leschenaultia formosa, forming a low spreading bush, 18 inches in height and about 2 feet across, together with a very handsomely grown and finely bloomed Polygala oppositifolia. In the same collection were, moreover, a small plant of the pale-flowered Aphelexis sesamoides; a very fine Phænocoma proliferum, 3 feet in height and nearly as much in diameter, well-flowered; and a fine bush of Pimelea decussata, 3 feet in height and as much in width, together with Erica Bergiana; tricolor, with its variety elegans, and a pretty E. ventricosa. In Mr. Hunt's collection we remarked a small but finely bloomed Aphelexis humilis; Dillwynia splendens, 3 feet in height and nearly as much in width, finely bloomed; a small Erica ventricosa superba; Boronia serrulata, 2½ ft. in height and 2 ft. in width; Clerodendron squamatum in luxuriant health, but not well bloomed; Crowea saligna, 2 ft. by 2, in robust health, just coming into blossom, and a large rather thin bush of Pimelea decussata. Associated with these were Erica ventricosa purpurea, a famous plant about 3 feet in height and 2 in width; a small but fine Pimelea hispida; Phænocoma proliferum; a small Leschenaultia Baxteri, in fine health and bloom; and a small but finely grown Pimelea decussata. At the back stood Clerodendron paniculatum, a single-stemmed plant, 6 feet in height, having a noble panicle of flowers; a very neat Pimelea spectabilis, 2½ feet in height, and 3 feet in width; the same fine Leschenaultia formosa formerly mentioned; a small Erica depressa; Polygala cordifolia, 2 feet in height, and as much in diameter, rather "leggy;" a splendid Ixora coccinea, 5 feet in height, producing 17 heads of bloom, and several Heaths, including perspicua nana, and a very large plant of tricolor elegans.

In Collections of 12 STOVE AND GREENHOUSE PLANTS there were three exhibitors: Mr. Barnes, gr. to G. W. Norman, Esq., of Bromley; Mr. Green, gr. to Sir E Antrobus, Bart., of Cheam; and Mr. Epps, of Maidstone. — Mr. Barnes sent a fine Aphelexis humilis, measuring 2 feet in height, and as much in diameter; a pretty plant of Cyrtoceras reflexum; Allamanda cathartica, in good condition; a showy and luxuriant Clerodendron fallax; the same Leschenaultia formosa formerly described; a fine plant of Erica Cavendishii, 3 feet in height, and about as much in diameter; together with an equally large Polygala cordifolia, rather bare at bottom. At the back stood a large Stephano is floribunda; a blue Leschenaultia; the same large and fine Phænocoma proliferum mentioned formerly; a good Rondeletia speciosa; and an immense bush of Clerodendron squamatum.—Mr. Green sent among others Boronia serrulata, in fine health; a large and fine Erica tricolor elegans; a fine bush of Gardenia florida, with numerous sweet scented snow-white blossoms; a well bloomed Erica Cavendishii; and a lovely Epiphyllum speciosum, forming a globe at least 4 feet in diameter, densely covered with showy rosy pink blossoms. In the same group were also Ixora coccinea, small, but finely bloomed; the same noble Aphelexis humilis formerly mentioned, and again produced in equally good condition; a large mass of Coleonema pulchrum; Azalea rosea punctata, well bloomed considering the season; Stephanotis floribunda; a fine Manettia cordifolia, and a small Pimelea Hendersoni.—In Mr. Epps's group were two plants of Ixora coccinea, Aphelexis humilis, Leschenaultia Baxteri, a good Clerodendron fallax, and several good specimens of Cape Heaths.

In Collections of SIX STOVE AND GREENHOUSE PLANTS there were seven exhibitors. A silver-gilt Medal was awarded to Mr. Bruce, gr. to B Miller, Esq., of Tooting, for remarkably well grown plants, comprising Leschenaultia formosa, 1 foot in height and 2½ feet in width; a large Euphorbia splendens; a fine Aphelexis humilis; the gracefully drooping scarlet-flowered Russellia juncea; a large Erica tricolor, a mass of blossom; and the same pretty Æschynanthus parasiticus mentioned on a former occasion. The next group in point of merit was produced by Mr. Carson, gr. to W. F. G. Farmer, Esq, of Nonsuch Park, Cheam. It was altogether composed of large and showy plants, among which were Allamanda cathartica, 6 feet in height, but hardly in bloom; Polygala oppositifolia, 3 feet by 3, perhaps the best plant of the kind exhibited; a standard Ardisia crenulata, which could hardly have been less than 8 feet in height, one half the top being covered with white flowers, while the lower half was ornamented by a profusion of deep red berries; Stephanotis floribunda, 6 feet in height, in tolerably good condition; a large scrambling Euthales macrophylla, and a handsome Pimelea decussata.—Mr. Pawley, of Bromley, produced Clerodendron squamatum; a tall Nerium splendens; a pretty plant of the well known red-flowered stove twiner, Poivræa coccinea; Erica ventricosa; a fine Leschenaultia formosa, 2 feet in height and as much in diameter, and a large and good Euphorbia splendens. Other two groups, equal to the above in point of merit, were exhibited by Mr. Malyon, gr. to T. Brandram, Esq., Blackheath, and by Mr. Catleugh, of Chelsea. The former sent Erica ventricosa; finely grown plants of Ixora coccinea and of Vinca rosea alba; a small but good Epacris grandiflora; Clerodendron fallax; and a fine Leschenaultia formosa, 2 ft. in height, and as much in width, the branches hanging down over the pot.—Mr. Catleugh produced a well-bloomed Hoya carnosa, a Lantana in fine condition; the showy Aphelexis spectabilis, a good Euphorbia splendens, Stephanotis floribunda, and a pretty Statice sinuata.—From Mr. Jack, gr. to R. G. Loraine, Esq, of Wallington, were six good plants, comprising a large and fine Cereus speciosissimus; small but good plants of Ixora coccinea and Aphelexis sesamoides, and a good A. humilis, Pimelea cordata, and the blue Leschenaultia biloba.—Mr. Stanly, gr. to H. Berens, Esq, of Sidcup, Kent, sent a handsome Aphelexis sesamoides, the showy Pimelea spectabilis, Boronia serrulata, Clerodendron fallax, Aphelexis argentea, and a fine Leschenaultia formosa, 2 ft. in height, and as much in diameter.—Mr. Pamplin, of Walthamstow, produced a small Leschenaultia formosa, a good Pimelea decussata, 4 ft. in height and as much in width; large plants of Coleonema rubrum, and of Pimelea linifolia, also Sprengelia incarnata, and a good Callistemon speciosum.

Collections of EXOTIC ORCHIDS were both numerous and magnificent; indeed, it is hardly possible to conceive a finer display. The large Gold Medal was awarded to a collection of 50, produced from the garden of S. Rucker, Esq., of Wandsworth. This was altogether composed of first-rate specimens, more especially one of Aerides odoratum, which was perhaps the finest plant of the kind ever exhibited. It must have been at least 5 feet in height and 4 feet in width, and could not have had on it less than 50 flower spikes. From the same garden also came another specimen (the larger variety of A. odoratum), which was scarcely inferior to the above; and associated with them were Peristeria pendula, having a fine spike of cream-coloured blossoms, thickly covered with minute brown spots, the red variety of Saccolabium guttatum, with two spikes 18 inches in length; the small brown and yellow Oncidium pubes; several fine specimens of Cattleya Mossiæ; two plants of the purple and white flowered Aerides crispum; the curious, rather than beautiful, Cirrhæa viridi-purpurea; Vanda cristata; the white lipped Oncidium leucochilum, with four flower spikes; and Oncidium Wentworthianum. Associated with these were the charming Vanda teres; Angræcum caudatum; the showy Odontoglossum grande; a famous Brassia verrucosa, with seven flower spikes; Oncidium Papilio; Aerides affine; the rare Angulon Clowesii, with three expanded large yellow blossoms; Odontoglossum hastatum; Mormodes laxatum, with cream-coloured flowers; Sobralia macrantha, bearing two of its large exceedingly handsome purple blossoms; Oncidium pulvinatum and Cirrhæa fusco-lutea, with numerous pendent green-coloured flower spikes. In the same collection were likewise Cattleya intermedia; Epidendrum alatum; Oncidium Cavendishii, having a strong spike of yellow flowers; the pretty little white flowered Odontoglossum Egertoni, and Burlingtonia venusta; the well-known Stanhopea saccata, with two blooms; Epidendrum selligerum, having four green flower spikes; the orange blossomed E. cinnabarinum; Cirrhæa squalens and Warreana; the same Cyrtochilum stellatum formerly mentioned; the rare Phalænopsis amabilis, the queen of all the Orchids, and a Paphinia cristata with chocolate flowers. The next collection in point of merit was shown by Mr Rae, gr. to J. J. Blandy, Esq., of Reading. In this group we remarked Cattleya Aclandi, with large purple lip and dark brown petals; Huntleya violacea, with flowers like some bivalve shell; Aerides odoratum, a large mass in fine bloom; two specimens of the showy Cattleya Mossiæ; Phalænopsis amabilis; Lycaste Deppei, with numerous dull greenish-yellow flowers of little beauty; the blue-lipped Vanda Roxburghi; the pretty orange-flowered Oncidium divaricatum; and the pale green-blossomed Epidendrum fragrans. In the same group were Lycaste macrophylla pallida, having brown and white flowers; Odontoglossum hastatum; a small Aerides odoratum majus; the rare white-flowered Angulon uniflora; a variety of Stanhopea oculata, with two fine spikes of richly spotted flowers; a small plant of the Indian Phaius bicolor; and an immense Saccolabium guttatum, having upwards of 20 long drooping racemes of purple flowers. Other two groups of 20 came from Mr. Robertson, gr. to Mrs. Lawrence, and from Messrs. Rollisson, of Tooting. Mr. Robertson sent the larger and best variety of Oncidium Papilio; Aerides affine; Odontoglossum hastatum; a very large Dendrobium cupreum; having buff flowers, with deep brown spots; an Epidendrum, with numerous slender spikes of greenish flowers of little beauty; a variety of Cattleya Mossiæ, with pale lilac blossoms; Oncidium pulvinatum; a specimen of the red variety of Aerides affine; the curious rather than beautiful Acropera Loddigesii; Oncidium flexuosum; Stanhopea oculata; and Mormodes aromaticum, with two spikes of brown-spotted flowers. In the same group were also Saccolabium Blumei, with two pendent racemes of purple and white flowers; the exceedingly handsome large purple flowered Sobralia macrantha; Brassia Wrayæ; Angræcum caudatum, with green petals and white lip; Barkeria spectabilis, the bright orange-flowered Epidendrum vitellinum, the beautiful and graceful Saccolabium præmorsum, Oncidium Lanceanum, and Cattleya Mossiæ. — Finally, Messrs. Rollisson sent Stanhopea saccata, with 12 open blossoms; Oncidium flexuosum, with three spikes of yellow flowers; a small Maxillaria aromatica, the beautiful Oncidium Lanceanum, a fine Stanhopea oculata, with 4 drooping flower-spikes; the lovely Vanda teres, the charming Saccolabium guttatum, Oncidium crispum, the spotted variety of O. luridum, Dendrobium densiflorum, with two clusters of orange blossoms; Epidendrum macrochilum album, Lycaste gigantea, and a fine Calanthe veratrifolia, with 7 spikes of flowers. Associated with these were Oncidium pulvinatum, having a fine spike of brownish yellow flowers; a large Aerides odoratum, the handsome Cattleya Mossiæ, and the rare and very handsome Coryanthes macrantha, having one large flower thickly studded with warm brown spots.

Collections of 12 ORCHIDS were sent by Mr. Eyles, gr. to Sir G. Larpent, Bart., Roehampton; and by Mr. Don, gr. to F. G. Cox, Esq., of Stockwell. In Mr. Eyles' group were Brassia Lawrenciana; the blue-lipped Indian Vanda Roxburghii; Cattleya Mossiæ, an Aerides allied to affine; the handsome Vanda teres; Aerides odoratum, and an Aerides allied to crispum, together with Saccolabium guttatum; a fine Brassia Lanceana; a tall plant of Epidendrum cinnabarinum; and a good Oncidium altissimum.—Mr. Don produced Brassia Lanceana; Aerides crispum; and A. affine; the little white and yellow blossomed Burlingtonia venusta; the curious pale green flowered Cycnoches ventricosum; together with Oncidium pulvinatum; the Ceylon Anæctochilus setaceus; Stanhopea oculata, having two fine flower spikes; and Epidendrum aromaticum.

In Collections of 6 SPECIES there were four exhibitors: Mr. Plant, gr. to J. H. Schröder, Esq., of Stratford; Mr. Carson, Mr. Bruce, and Mr. Barnes. Mr. Plant sent the brown streaked Vanda cristata; Saccolabium guttatum; a good Cattleya intermedia; a famous Oncidium pulvinatum; the white Phalænopsis amabilis; and a pretty Vanda Roxburghii.—From Mr. Carson were the larger variety of Aerides odoratum; Saccolabium guttatum, producing a small drooping raceme of finely coloured flowers; Gongora maculata lutea; a variety of Cattleya Mossiæ; and the rare Chysis aurea, with small yellow flowers.—From Mr. Bruce were the red-flowered Broughtonia sanguinea, Oncidium flexuosum, a fine Cattleya Mossiæ, a small Aerides odoratum, and the pretty little yellow-flowered Oncidium pumilum.—Finally, Mr. Barnes sent a large Oncidium Wentworthianum, Calanthe veratrifolia, Zygopetalum Mackai, with large violet lip, agreeably contrasting with the green petals; two Oncidiums and Trichopilium tortile, remarkable for its twisted petals and funnel-shaped lip.

Collections of CAPE HEATHS were numerous, and made a fine display; but with one or two exceptions there was nothing particularly striking among them. A noble single specimen of ventricosa purpurea was produced from the garden of Sir George Staunton, Bart., and, occupying the place of the noble spotted Cyrtopod (Cyrtopodium punctatum), produced at the previous exhibition, was a worthy rival of that fine plant, as far as good cultivation is concerned.—Another particularly handsome plant was a metulæflora bicolor, in Mr. Fairbairn's collection from Clapham. This variety is generally loose and straggling; but the specimen in question—a plant about 3½ ft. high, and as much in width—was very compact, and a mass of long rosy pink blossoms passing into pure white at the tips, the two colours forming a striking and agreeable contrast. COLLECTIONS OF 20 PLANTS were shown by Mr. Hunt, Mr. Robertson, Mr. Ayres, and by Messrs. Fairbairn and Rollisson, of Tooting. In Mr. Hunt's group were observed a good Cavendishii, a large plant of tricolor, and a red variety of that species, a good depressa, the useful ventricosa, the pretty white-flowered odore rosæ, the larger variety of retorta, a fine Massoni, perspicua nana, nearly 4 feet in height, and as much through, a mass of bloom, which was beginning to fade, and a good plant of Halicacaba, with curious drooping pale green flowers. In Mr. Robertson's collection were inflata, a very large plant, rather bare of flowers; a very fine gemmifera 3 feet in height, and about 4½ feet in width, covered with blossoms down to the pot; a fine ventricosa

carnea, rather thin, but a mass of flowers; a famous Cavendishii, finely bloomed plants of ventricosa superba, and a coccinea minor, the latter a lovely object. In the same group were tricolor elegans, hardly sufficiently in bloom, which was also the case with a good metulæflora bicolor. In addition to these the collection contained a large splendens, densa, and several others. Mr. Ayres' group was composed wholly of small plants, which were all in excellent health and finely bloomed. Among them were jasminiflora, a handsome species; gemmifera; tricolor elegans, with flesh-coloured green-tipped flowers; ventricosa alba, metulæflora, and its more striking variety bicolor, a very pretty Westphalingia, and a neat Bergiana. In the group from Clapham were a Massoni in excellent condition; the comparatively new Vernoni superba, impulsa, covered with long delicate pink tubes; various varieties of tricolor; the fine metulæflora bicolor above alluded to; Bothwelliana, a mass of bloom; the curious little sanguinolenta, with deep red flowers, shaded with violet; varieties of inflata and of ventricosa, and a large jasminiflora. In the group from Messrs. Rollisson we observed a pretty little Massoni, a dense bush of Daphnæflora, and several other well grown plants; all of them were, however, somewhat deficient in regard to bloom.

Collections of 12 HEATHS were shown by Mr. Green, Mr. May, and Mr. Barnes, and among Nurserymen by Mr. Dawson, of Brixton Hill, Messrs. Veitch and Son, of Exeter, and Messrs. Frazer, of Lea-bridge. Mr. Green's plants, which were large and well grown, contained Westphalingia, covered with a profusion of richly coloured red tubes, a fine inflata, a beautiful plant of elegans, Cavendishii, in good condition, and a pretty ventricosa superba.—Mr. May also sent excellent plants, among which were Westphalingia; a fine tricolor, loaded with blossoms; a small elegans; ventricosa alba, a mass of white flowers; a very fine Massoni, 2 feet in height and quite as much in diameter, covered with blossoms; and an excellent plant of odorata.—Mr. Barnes's plants were large and finely grown; among them were odore rosæ; the singular looking Plukenetiana; a large ventricosa, tricolor, the pretty pink-flowered infundibuliformis; and a large ventricosa superba.—Mr. Dawson's group was composed of neat, small plants, which were, however, not different from what has been already mentioned.—The Exeter group came in excellent order; it contained a large tricolor; gnaphaloides; several varieties of ventricosa; and small plants of gemmifera and Coventryana, the latter covered with little pink stars.—In the Messrs. Frazers' group was a fine plant of tricolor elegans; several varieties of ventricosa; and a fine daphnoides.—Groups of six plants were produced by Mr. Bruce, Mr. Jack, and Mr. Malyon. Mr. Bruce sent Bergiana, in capital condition, as also a fine tricolor; and a pretty depressa, together with tricolor elegans, and a variety of ventricosa. Mr. Jack sent six well-managed plants; and so did Mr. Malyon; in the latter group was a neat depressa, Cavendishii, and three varieties of ventricosa.

Of Roses, both cut and in pots, there was a fine display. Those in pots were even superior to what was produced at the May exhibition; and this is the more remarkable when we consider the fleeting character of the "Queen of Flowers" under the bright sunlight and excessive heat we have experienced for the last fortnight or three weeks. In the Amateurs' Class for 12, there were two exhibitors—Mr. Terry, gr. to Lady Puller, Youngsbury; and Mr. Slowe, gr. to W. R. Baker, Esq., of Bayfordbury. Mr. Terry sent the following:—*Tea*: Napoleon, pale pink; Nina, pink; Madame Bréon, pale rose; Comte de Paris, pale blush; Cels Multiflora, blush. *Gallica*: Boule de Nanteuil, shaded crimson; Henri Barbot, bright rose; La Moskowa, shaded crimson. *Bourbon*: Paul Perras, rose; Queen, blush. *Hybrid perpetual*: Duchess of Sutherland, pale rose. *Noisette*: Lamarque, white.—Among Mr. Slowe's plants were:—*Bourbon*: Edouard Desfosses, bright rose; Gloire de Paris, crimson, shaded with purple; Armosa, purple. *Tea*: Safrano, bright fawn; Elise Sauvage, pale yellow, orange centre; Nina, pink. *Hybrid perpetual*: Fulgorie, deep rose, tinged with purple; Pauline Plantier; Princesse Hélène, deep purplish red; Queen Victoria. *China*: Mrs. Bosanquet, pale flesh.—In the Nurserymen's Class, for 18 varieties, there were four exhibitors, viz., Messrs. Lane and Sons, of Great Berkhamstead; Mr. Dobson, foreman to Mr. Beck, of Isleworth; Messrs. Paul and Son, of Cheshunt; and Mr. Francis, of Hertford.—Mr. Lane sent:—*Tea*: Adam, rose, very large; Diana Vernon; Moire, rose, shaded with fawn; Le Pactole, lemon, with bright yellow centre; Abricote, rosy fawn. *Bourbon*: Madame Nerard, blush; Armosa, purple; Celiméne; Phœnix, reddish purple; Théresita; Souvenir de la Malmaison, pale flesh. *China*: Abbé Moiland; Fabvier; Eugéne Beauharnais, bright amaranth; Madame Bureau, white. *Gallica*: Boule de Nanteuil, large, crimson purple *Provence*: Illustre Beauté. *Hybrid China*: Comtesse do Lacépède, silvery pale blush.—In Messrs. Paul's Group were—*Tea*: Roussel; Pauline Plantier; Julie Mansais, white with lemon centre. *Hybrid China*: Madame Plantier, white; Dombrouski; Velours Episcopal; General Kleber; Belle Marie. *Hybrid Perpetual*: Madame Laffay, rosy crimson; Louis Bonaparte, crimson. *Gallica*: Reine des Francais. *Hybrid Sweetbrier*: Madeline, white shaded with pink. *Alba*: Félicité Parmentier. *Bourbon*: Augustine Margot; Paul Perras, shaded rose; and Chenédolé, large crimson.—Mr. Francis produced *Hybrid Perpetual*: La Reine, brilliant rose; Madame Laffay, rosy crimson; Madame Daméme, lilac rose; William Jesse, light crimson, tinged with lilac. *Hybrid China*: Madame Rameau, bright crimson; Reine des Hybrides; General Allard, rosy red; Velours Episcopal; Blairii, No. 2; General Weber. *Noisette*: Smith's Yellow. *Gallica*: Laura. *Bourbon*: Charles Duval, bright rose; Augustine Margot; Armosa, purple. *Tea*: Niphetos, large white. *Moss*: De Metz, bright rose. As a single specimen Mr. Slowe sent Pactolus, a fine plant with upwards of 30 pale yellow blossoms, and Mr. Dobson sent a pretty standard plant of Belle Marie. Famous boxes of cut flowers were exhibited by Mr. Betteridge, Mr. Terry, Messrs. Lane, Paul, and Cobbett; also by Mr. Bunney, gr. to J. H. Slater, Esq., Mr. Milne, gr. to C. S. Chauncey, Esq., Mr. Mitchell and Mr. Cole of Bath. The blooms preserved their freshness well, and engaged that share of attention which the beauty and fragrance of this fine flower deserves.

Collections of TALL CACTI, were produced in fine condition, considering the season, by Mr. Green and Mr. Falconer, gr. to A. Palmer, Esq., of Cheam. Mr. Green sent a large Cereus speciosissimus, a remarkably fine specimen of Epiphyllum speciosum, at least 7 ft. in height and a mass of blossoms, the larger variety of E. Ackermanni, E. aurantiacum, and Jenkinsoni, the latter in lovely condition. Mr. Falconer's plants were little inferior to these; they were for the most part finely in bloom, and altogether the two collections made a most brilliant display. Mr. Green sent a group of Azaleas; but the glory of these, with the advance of the season, had almost departed; they, however, had their admirers, and were wonderful when we recollect that the thermometer has stood at about 84° in the shade for the last fortnight.

Of SINGLE SPECIMENS, of superior cultivation, Messrs. Veitch and Son sent the purple-blossomed Mirbelia illicifolia, and a noble plant of the comparatively new Siphocampylus coccineus. Mr. Mylam, the fine Aerides odoratum already mentioned. Mr. Jackson, of Kingston, two specimens of Erica Massoni, and a fine plant of the well-known Pelargonium tricolor. Mr. W. P. Ayres, an enormous overgrown Clerodendron paniculatum, 7 feet in height, in the most luxuriant health. Mr. Robertson, gr. to Mrs. Lawrence, sent a fine Clerodendron fallax. Messrs. Fairbairn, a very handsome Erica tricolor. Mr. Pamplin, Campylia (Pelargonium) holosericeum. Mr. Wells, of Walthamstow, Vinca alba. Mr. Green, a noble Ixora coccinea. Mr. Wiltshire, Gloxinia Cartoni. Mr. Jack, a fine plant of Achimenes longiflora; also Clivia nobilis, and Crinum amabile. And Mr. Barnes, Cypripedium spectabile, and Ardisia hymenandra. From Mr. Epps was a beautiful specimen of the red variety of Erica tricolor, and Mr. Hunt sent a fine E. Massoni. Mr. May, of Woodford, sent Dracophyllum gracile. Mr. Wells, Vinca rosea alba; and Mr. Pope, of Wanstead, Pimelea decussata.

Of NEW PLANTS, more were present than at the previous exhibition. Mr. Robertson's deep violet-flowered Tetratheca verticillata was a beautiful object; and so was a fine rosy lilac long-spurred Balsam from Messrs. Veitch and Son, who likewise sent the beautiful deep purple-flowered Calandrinia umbellata, a useful plant for rockwork; also Chirita zeylanica, and Æschynanthus pulcher, the latter a new and striking addition to that handsome genus; and, finally, the same nurseryman sent a small plant of the neat white-flowered Ligustrum japonicum, and a tall plant of Dichorizandra ovalifolia, having a terminal spike of violet flowers just beginning to expand, much resembling D. thyrsiflora. Mr. Glendinning, of Turnham Green, sent Cryptomeria japonica, the scarlet-flowered Ruellia macrophylla, which had been over-forced, and was consequently seen to disadvantage. And from Mr. Mylam was a new form of Nepenthes, an interesting plant of its kind. Mr. Carson sent the rare Cattleya granulosa; and Mr. Green a large coarse pale green flowered Tropœolum polyphyllum, more curious than beautiful.—Mr. W. P. Ayres sent Aotus gracillimus, a Swan River species, having small yellow flowers.—Mr. Dods, gr. to Sir G. Warrender, Bart., Goodenia grandiflora, with pale yellow blossoms of little beauty; and a small plant of a pendulous Thuja was shown by Mr. Scott, of Poole. We also observed a Barkeria, something like B. Lindleyana; and last, but not least, was Torenia asiatica, a charming species, from the Royal Botanic Garden, Kew. This lovely object was the admiration of everybody. It forms a branching plant, with opposite sessile ovate leaves, from whose axils are produced two-lipped flowers, the ground colour of which is bluish lilac; the corolla is divided into four segments, the two lateral and the lower one being stained by a deep velvety porcelain blue blotch, which, with the deep blue stained throat, gives the flower a very striking appearance.

For collections of HARDY EVERGREENS in pots, a large Silver Medal was awarded to Mr. H. Waterer, of Knap Hill, near Bagshot. In this group we remarked Ilex speciosa, ciliata, Maderensis, and latifolia; Arbutus macrophylla and Bakeri; a very handsome broad-leaved Box; Pinus strobus, var. pumila; a silver-striped Ivy; Quercus insignis; Q. Ilex, var. latifolia; Q. Ballota, and Q. virens; together with Andromeda tetragona, Cryptomeria japonica, and a Silver Cedar. In the same group were also Euonymus fimbriatus, Juniperus pendula, J. squamata, Daphne Aucklandi, Pernettya pilosa, Thuja filiformis, Taxodium sempervirens, Taxus elegantissima, Berberis cuneata, a variegated Vaccinium and Podocarpus elongatus. Another collection came from Messrs. Lane and Son, the chief features of which were small plants of a silver and gold-striped Yew; Juniperus excelsa; J. Daurica; Cupressus torulosa viridis; Quercus glauca; a variety of Aucuba japonica, with large yellow blotches in the centres of the leaves; and various others. In the group by Mr. Francis, of Hertford, were Abies Smithiana; Cupressus thurifera; Juniperus alpina; Arbutus procera; Ilex platyphylla; Taxus adpressa; Quercus glabra; and various others. Mr. Scott, of Poole, sent, among others, Abies religiosa; Pinus nobilis; Cupressus Lamberti; and Juniperus pendula. Another group was also shown by Mr. Cutter, of Slough.

Of MISCELLANEOUS OBJECTS were a pretty plant of Cereus flagelliformis, from Mr. Bruce; and a small white-flowered Cape Heath, from Mr. Barnes. Mr. Carson sent an Aerides odoratum; Mr. Scott, of Bury-hill, a pan of hybrid Alstrœmerias; Mr. Groom, of Clapham Rise, deep orange Lilies, named Voltaire, Emperor Alexander, Talisman, Prince Albert, Rubens, and Ibrahim Pacha, and a white Pœony; Mr. Wiltshire, a group of Achimenes; Mr. Beaton, flowers of Beaumontia grandiflora; and Mr. Street, large specimens of Champion Cucumber.

On no former occasion has there been brought together so large and so splendid a collection of PELARGONIUMS—considerably more than the accustomed space was allotted to these favourites. The general appearance was enlivening and attractive, and throughout the day the tents were crowded with ardent admirers, who to the last lingered over their beauties. For 12 new and first-rate varieties the Gold Banksian Medal was awarded to Mr. Cock, whose collection contained Mars, Ate, Margaret, Lucifer, Pearl, Orion, Hector, President, Rosy Circle, Zenobia, Desdemona, and Negress.—The second collection in this class was not considered by the judges to contain sufficient new and first rate flowers; it was in consequence awarded the third prize. The best of the new flowers were Nameless, Titus, Magog, and La Polka. First in this class among Nurserymen was Mr. Dobson, foreman to Mr. Beck, of Isleworth, who received the Gold Banksian Medal for the following new varieties:—Rosy Circle, Orion, Hebe's Lip, Othello, Adolphus, Hindoo, Gigantic, Queen Pomare, Arabella, Isabella, Margaret, and Competitor.—Mr. Gaines obtained the Silver Gilt Medal, and among the best and newest of his flowers were Hector, Medusa, Duchess of Leinster, Panela, Arabica, and Pompey.—Mr. Catleugh received the Large Silver; Hector, Rosetta Superb, Pearl, Orion, Aggripina, and Magog, were the most conspicuous for novelty and beauty. This class, which is the most interesting of any, merits much better support than it has hitherto received from the nurserymen; Mr. Beck is the only grower who has supported it in the true spirit in which it originated: his collection consisted entirely of new flowers, either of his own raising, or with one or two superior sorts selected from the new and successful seedlings of others. A mutual advantage between amateurs and nurserymen promised to arise from the establishment of this class; the purchaser would see what was coming out, and the seller afforded an opportunity of exhibiting that which he had to dispose of. We are borne out in these remarks by the catalogues annually published, containing long lists of new varieties, and it is from these lists we expect to see Class A supplied. For Pelargoniums in collections of 12 varieties in 8 inch pots, Mr. Cock, in the Amateurs' Class, received the Gold Banksian Medal for the following fine and well-grown varieties:—Duchess of Leinster, Orion, Repeal, Queen Aggripina, Rosy Circle, Hector, Shield of Achilles, Sir R. Peel, Katinka, Emma, Rosetta, and Duke of Cornwall. To Mr. Robinson, gr. to J. Simpson, Esq., was awarded the Silver Gilt, in whose collection Duke of Cornwall, Erectum, Aurora, and Priory Queen were the best. Mr. Coysh, gr. to R. Hudson, Esq., received the Large Silver Medal; these plants were grown short, with abundance of bloom. Mr. Staines received the Silver Knightian, and the Silver Banksian Medal was awarded to Mr. Moseley. In the Nurserymens' Class, Mr. Dobson received the Gold Banksian for Marcus, Mustee, Rosy Circle, Pulchellum, Isabella, Ragged Robin, Mark Antony, Pauline, Zenobia, Orion, Matilda, and Margaret. To Mr. Catleugh was awarded the Silver Gilt, and to Mr. Gaines the Large Silver for their respective collections.—For Pelargoniums, in collections of 6 varieties, in 12-inch pots, Mr. Cock received the Large Silver Medal, and to Mr. Slowe the Silver Knightian was awarded; and Mr. Gaines received the Large Silver, for his collection in the Nurserymen's Class.

In CALCEOLARIAS there were but two collections, one from Mr. Stanly, gr. to H. Berens, Esq.; the other from Mr. Gaines, of Battersea.

Several stands of PINKS were exhibited, some of them in very fine condition. Mr. Turner's was particularly perfect. In the Amateurs' Class Mr. Hale received the 1st prize, Mr. Ellis the 2d, and Mr. J. Baker the 3d.—Mr. Turner, in the Nurserymen's Class, received the 1st prize; the stand contained the following specimens:—Hale's Queen of England, Turner's Sir H. Smith and Masterpiece, Norman's Henry Creed and Defiance, Brown's Eclipse and Garland, Holmes's Coronation, Harris's Dauntless, Kirtland's Lord Valentia, Unworth's Omega, Garrat's Alpha, Collis's Majestic Seedling, Weedon's Victoria, Willmer's Prince of Wales, White's Warden, Ward's Great Britain, Cant's Criterion, Jones's Huntsman, Cousins' Little Wonder, Hodges' Melona, Bragg's George Glenny, and Hearliston's Prince Albert. The 2d prize was awarded to Messrs. Norman; 3d, to Mr. Henbrey; 4th, to Mr. Ward.

Some good stands of RANUNCULUSES were exhibited in the Amateurs' Class. The 1st prize was awarded to Mr. T. S. Airzee; 2d, to Mr. D. Aust; 3d, to Mr. J. Calmur. Messrs. Tyso were the only exhibitors in the Nurserymen's Class. The Silver Knightian was awarded to their collection, which contained the following beautiful flowers, principally seedlings of their own: Champion, Pollander, Lydia, Sobraon, Alexis, Attractor, Pavia, Paschal, Serena, Delectus, Creon, Victor, Flaminus, Gozan, Solex, Glennaly, with Tippoo Saib, Speculator, Sophia, Charlotte, and Burns. Mr. Tyso also exhibited a collection of 100 specimens, containing many rare and beautiful flowers.

There were but few SEEDLING FLOWERS exhibited. Of Pelargoniums, the following (raised during the present season) were awarded certificates:—Centurion, a flower having a white centre, with deep rosy terminations to the lower petals; the top petals having a large deep blotch upon a rosy purple ground. Gem; this resembles Sunset in size and form, but is superior to it in colour, and is apparently a more constant flower. Cassandra, fine rich velvety top petals of a deep maroon, having a narrow border of bright rose, and delicate pink under petals. The foregoing varieties were sent by Mr. Beck, of Isleworth.—A seedling, from Mr. Hoyle, of Guernsey, named President, somewhat resembling Conflagration, but finer in form and colour.—A few Calceolarias were shown, but not equal to those exhibited at former meetings. A case from Mr. Holmes contained some fine flowers of spotted varieties upon white grounds; but they were not exhibited according to the regulations.—A handsome seedling Gladiolus, named Rex Rubrorum, was exhibited by Mr. Ball, of Taunton, and received a certificate.

Of SPECIMEN FUCHSIAS, Mr Mammock, gr to the Rev. C. Prichard, sent fine plants of Eppsii, Cassandra, Brockmanni, Stanwelliana, Desdemona, and Sir Henry Pottinger; the latter was a particularly fine plant, about 6 feet high, and was mentioned to have been produced from a cutting of 1845.—Mr. Kendall, of Stoke Newington, showed plants of Compacta rubra, and Miss Prettyman.—Mr. Robinson, gr to J. Simpson, Esq., sent specimens of Refraction, Predominant, Sir H. Pottinger, and a fine specimen of Hope (Barnes's), Mr. Gaines' Duchess of Sutherland, and Mr. Dickson, of Chester, Acantha. We must not forget to mention that of the three Fuchsias entered for the sweepstakes, of which notice has been given in our advertising columns, "Mrs. Lane," shown by Messrs. Lane and Son, was the winner.

The exhibition of FRUIT on this occasion was large, and, on the whole, reflected much credit on the growers. Miscellaneous collections were deficient, only three being placed on the tables. The exhibitors of these were Mr. Ingram, of the Royal gardens, Frogmore; Mr. Dods, gr. to Sir G. Warrender, Bart.; and Mr. Davis, of Oakhill, East Barnet. Mr. Ingram received a Silver Gilt Medal for five very handsomely grown Queen Pine-apples, Black Hamburgh and White Muscat Grapes, the latter, perhaps the best of the kind exhibited; Hamburgh and Malta Figs; Victoria, Washington, and Orleans Plums, remarkable productions at this season; British Queen Strawberries large and finely coloured; handsome Elruge Nectarines, and good Noblesse Peaches; Circassian, Early Purple Guigne, and Elton Cherries, the latter not very large but finely ripened; and a Scarlet-fleshed Melon.—Mr. Dods received a Large Silver Medal for a handsome Providence Pine-apple, fine looking specimens of Peaches and Nectarines, Black Hamburgh Grapes, in fine condition; Keens' Seedling Strawberries large and fine; and Circassian Cherries. In the Market Gardeners' Class a Silver Gilt Medal was awarded to Mr. Davis, for three beautiful Queen Pines, and a fine Black Jamaica, together with good bunches of Muscat and Black Hamburgh Grapes, and well swelled Elruge Nectarines and Noblesse Peaches.

Of Grapes, there were no less than 21 exhibitors, all of them producing fine specimens; the best, however, were superb bunches of Black Hamburgh, sent by Mr. S. Horner, gr. to T. Whitmore, Esq., Apley Park, Bridgenorth, for which a Silver Gilt Medal was awarded; and a similar award was also made to Mr. Brewin, gr. to R. Gunter, Esq., Brompton, for fine bunches of Muscat.—Mr. Wortley, gr. to J. F. Maubert, Esq., Norwood, received a Large Silver Medal for handsome specimens of Black Hamburgh; and a similar award was made to Mr. Dods, for famous bunches of the same variety. Silver Knightians to Mr. Hamp, gr. to J. Thorne, Esq., South Lambeth, and to Mr. Davey, gr. to G. Smith, Esq., Colney Hatch, both for Black Hamburgh. Silver Banksian to Mr. Parsons, gr to A. George, Esq., Enfield, and to Mr. Dodsworth, gr. to W. Leaf, Esq., Streatham, for Black Hamburgh. Black Hamburgh and Muscat Grapes were also sent by Mr. Brewin; Black Hamburgh by Mr. Lee, gr to Sir R. Pole, Esq., Draycott-hall; Mr. Ann, gr. to J. H. Vivian, Esq., Singleton; Mr. Braid; Mr. Mc Laurin, of Carterfield; Mr. Foggo, gr. to the Marquis Abercorn, Pynmore Priory; Mr. Boyce, gr. to Sir L. Shadwell, Bart., Down House; and Mr. Turnbull, gr. to the Duke of Marlborough, Blenheim; and White Muscats, by Mr. Maher, gr. to J. Harvey, Esq., Maidenhead; and West's St. Peter's, by Mr. Kemp, gr. to P. Grillion, Esq.—In the Market Gardeners' Class Mr. Davis, of Oakhill, produced famous bunches of Black Hamburgh and Muscats, and the same may be said of Mr. Chapman's Black Hamburgh and Sweetwater. Mr. Mitchell, of Kemptown, Brighton, sent well-coloured bunches of Black Hamburghs. For Pine Apples a Silver Gilt Medal was awarded to Mr. Churcher, gr. to J. Gritton, Esq., Wickham, Hants, for three handsome Queens, and a similar award was made to Mr. Jackson, gr. to H. Beaufoy, Esq., South Lambeth, for a large and exceedingly handsome Providence, weighing 9½ lbs.; a large Silver Medal to Mr. Spencer, gr. to the Marquis of Lansdowne, for two admirable specimens of Providence; and similar awards to J. W. Packe, Esq., M.P., for a famous Providence; to Mr. Brewin, for 4 Queens and 1 Providence; and to J. G. Fuller, Esq., for a Ripley Queen; Knightian Medals to Mr. McEwen, gr. to Col. Wyndham, for 2 Queens, Otaheite, and 2 Black Jamaicas; to Mr. Elliott, gr. to Sir W. Ingilby, Ripley Castle, for a small conical-shaped seedling, and to Mr. Ingram for a very fine Queen. Mr. Parsons also sent 6 finely grown Ripley Queens, and 1 Moscow Queen. Mr. Ann, a Providence. For Peaches and Nectarines a Silver Knightian Medal was awarded to Mr. Spencer for admirably grown Royal George Peaches, and Violette Hâtive Nectarines, and a similar award to Mr. Kemp, gr. to P. Grillion, Esq., East Acton, for large and fine Royal George Peaches. The Banksian Medal to Mr. Paxton, who sent from Chatsworth fine specimens of the same variety, and to Mr. Parker, gr. to J. H. Oughton, Esq., for Elruge and Violette Hâtive Nectarines. Good Royal George Peaches were also sent by Mr. Elliott and by Mr. Slowe; the former were injured from having been too loosely packed. In the Market Gardeners' Class, Mr. Davis was the only exhibitor. He showed fine specimens of Noblesse Peaches, for which a silver Knightian Medal was given. Of Melons, Mr. Davey, gr. to G. Smith, Esq., sent a variety named the Duke of Norfolk's green-fleshed; Mr. Parker, Hill's green-fleshed; Mr. Jackson, 2 Cantaloupes; Mr. McEwen, a Benares; Mr. Smith, gr. to S. Ricardo, Esq., of Titness-park, for Egyptian green-fleshed; Mr. Ann, a green-fleshed; Mr. Urquhart, gr. to Lord Cottenham, a Benares; and Mr. Craggs, gr. to Sir T. Acland, Bart., M.P., a Montagu Cantaloupe. The exhibition of Strawberries was excellent; noble specimens of British Queen came from the garden of the Marquis of Lansdowne, for which a Silver Knightian Medal was awarded, and the same award was also made to beautiful samples of the same variety sent by Mr. Wortley, gr. to J. F. Maubert, Esq. Banksian Medals were assigned to Mr. Ingram, for fine British Queens; and to Mr. Davey, for Keens' Seedling and British Queen. Mr. Parsons sent Keens' Seedling, and specimens of the same variety were also sent by Mr Ayres, Mr. Maher and Mr. Boyce. A Silver Banksian was awarded to Mr. Buck, of Blackheath, who showed British Queens. Seedlings were shown by Mr. Myatt, and Mr. Cole, of Bath, the latter sending one named Early Prolific, for which a Silver Banksian Medal was awarded; it had something of the appearance of a large overgrown Keens' Seedling; he also sent another named Prince Alfred.

Of Miscellaneous fruits, Mr. Braid, gardener to H. Perkins, Esq., of Hanworth Park, exhibited British Queen Strawberries and Figs. Mr Stanly, Madras Citrons; and Mr. Gainsford, Keens' seedling Strawberries and Circassian Cherries. Finally, from Mr. Fortune, were various Chinese fruits, consisting of Chinese Dates, Wampee, Longan, and Litchi.

CALEDONIAN HORTICULTURAL SOCIETY.

The SUMMER QUARTERLY MEETING of this Society and exhibition of Florists' Flowers, was held on the 4th inst. The following are the awards made on that occasion:—For collections of Double Anemones a first premium was voted to Mr. Young, gr. to T. Oliver, Esq., who exhibited 52 varieties; and a second to Mr. Foulis, gr. to J. Tytler, Esq., who produced 36 varieties. For 24 choice Pansies, a first premium was found due to Mr Downie, gr. to J. Russell, Esq., whose sorts were Madonna marginata, Daniel Defoe, Yellow defiance, Great Britain, Black Bess, Prince of Wales, Duke of York, Purity, Zipholia, Prince Albert, Azurea, Amanda, Lord Macgeorgery, Pizarro, Conservative, Sulphurea elegans, Miss Stanforth, Success, Rob Roy, Agnes, Jubilee, Coronation superb, and Vestal. A second premium was awarded to Mr. Currie, gr to Miss Wedderburn, whose blooms were likewise very fine. For 12 choice Tulips (4 roses, 4 byblomens, and 4 bizarres), a first premium was assigned to Mr. Young, whose kinds were: *roses*—Canus de Craiz, Triomphe royal, Dark Triomphe royal, Rose brillance; *byblomens*—Africanus, Marquave de Buden, Roi de Siam, Duchess of Wellington; *bizarres*—Dutch Catafalque, Vulcan, Sir Sidney Smith, Prince Henry. A second premium was voted to Mr. Foulis. For the 6 finest stage Pelargoniums, the highest premium was, without hesitation, found due to Mr. Cossar, gr. to Lady Hay. The kinds were Cleopatra, Regulator, Duke of Cornwall, Othello, Ackbar, and Tisiphone. The plants were compact, and completely covered with brilliant fully expanded flowers on every aspect, far surpassing any specimens hitherto seen at Edinburgh, and evincing a very decided improvement in this department of floriculture. For another collection, consisting of Ackbar, Duke of Cornwall, Elegans novum, Dido, Enchantress, and The Cid a second award was made to Mr. Young. Seedling Pelargoniums were, with one exception, no improvement on kinds already in cultivation, and no award was assigned them. The collections of Brompton Stocks three red and three white, were very fine; and a first award was made to Mr. Paxton, gr. to Mrs. Baird, and a second to Mr. Young. The show of Cucumbers was excellent. A first premium was assigned to Mr. Pousty, gr. to J. Giles, Esq., for Falconer's hybrid; and a second to Mr. Watson, gr. to D. Anderson, Esq., for Manchester Green. For a prize offered by Messrs. Dickson and Company, to practical gardeners, for the six finest varieties of Calceolaria, three competitors came forward, all of them producing very choice flowers. The prize was assigned to Mr. Pousty, the kinds being Standishii, Nymph, Mrs. Nicol, Lady Constable, Isabelle, and Mrs. Giles. An extra honorary award was made to Mr. Christie, gr. to J. Dundas, Esq., and to Mr. Archibald Sleigh, gr. to A. Rutherfurd, Esq. The Society's Silver Medal was voted to Mr. Sanderson, Kirkaldy, for a beautifully flowered and well grown Leschenaultia biloba. On this occasion votes of thanks were passed for numerous communications; in particular, to Graham Speirs, Esq., for Meconopsis aculeata, and Aquilegia glauca, raised at Granton from seeds received from the Himalayan region (specimens of which, along with other rarities, he had obligingly presented for the Society's Garden):—To Mrs. Robert Haig, for exhibiting a rich collection of exotics, including Cattleya Mossiæ superba, Stanhopea oculata, Achimenes picta and grandiflora, Leschenaultia Baxteri, and a very lofty trained specimen of Tropæolum tricolorum. To Messrs. Dickson and Co., for a splendid collection, containing 50 varieties of Calceolaria, 27 well grown Cape Heaths, nine Fuchsias, with the Coral tree, Erythrina laurifolia, in fine flower. To Messrs. J. Dickson and Sons, for a rich collection of Greenhouse Plants, including a magnificent Erica Cavendishii, believed to be the largest in Britain. To Messrs. P. Lawson and Son, Golden Acres, for Cape Heaths and other exotics, including a fine plant of Pentas carnea. To Mr. Handasyde, for a collection of 40 choice Pansies, and a tray filled with 20 sorts of rare Scots and brier Roses. To Messrs. Carstairs and Kelly, for a very extensive collection of well grown Calceolarias, besides a Bilbergia zebrina in flower, and a new plant from Australia, allied to Prostranthera. To Mr. John Blair, Dysart House, for an extensive series of cut flowers of the hardy varieties of hybrid Rhododendrons. To Mr. Crochet, for a very large and fully flowered specimen of Pimelea decussata. To Mr. Sleigh, for a very fine specimen of Cactus Mallisoni, trained in the balloon form. To Professor Dunbar, for select Cape Ericæ. To I. Anderson, Esq., for seedling Calceolarias, and hybrid Aquilegias, crosses between A. Skinneri and a purple seedling of his own. To W. Hunt, Esq., for seedling Calceolarias. To Dr. Neill, for fine specimens of Griffinia hyacinthina, and Orchis foliosa. To R. W. Maxwell, Esq., for a basket of Cape Gooseberries, the fruit of Physalis peruviana; and to Mr. J. Logan, for large tubers of an improved early Potato.—Dr. Neill called the attention of the meeting to a display of dried specimens of all the British Orchids, being the most complete and accurate collection of that family known to exist (!!); and thanks were given from the chair to Mr J. M'Nab, the former of the collection.—Dr Purdie made a communication regarding the cultivation of Ferns in crystal bell-glasses, hung up in drawing-rooms, where they are easily kept, and prove highly ornamental; and he exhibited specimens of Davallia canariensis, Acrostichum alcicorne, Polypodium aureum, Cystopteris fragilis, and Aspidium filixmas, so treated for months and years past, and still in great beauty.—We may mention, that Mr. Fortune, who has lately returned from his mission to China, as botanical collector for the London Society, happening to be in Edinburgh assisted (upon invitation) as one of the judges.

Country Shows.

Stamford Hill Horticultural Society.—This the first exhibition of this Society, for the present season, took place in the grounds of J. Wilson, Esq., Stonard House, Stamford Hill. The number of visitors admitted was about 1000. Several prizes were awarded; but we have only received a list of rewards without the names of the objects for which they were given.

The Norfolk and Norwich Horticultural Society.—At this, the first exhibition for the season, there was a large number of visitors. One of the best collections exhibited was that contributed by Mr. J. Bell, of Braeondale. It contained Azalea Smithii and variegata; Acacia platyptera Achimenes picta, Cytisus racemosus, Chorozema varium, Columthe veratrifolia; of Cinerarias, Enchantress, Fairy Queen, Beauty of Cyston, Eclipse, and Conspicua; of Calceolarias, Attraction, Defiance, Princeps, Empress and Excelsa; of Ericas, intermedia, Hartnelli, Linnæoides, propendens, vestita alba, and campanulata; also Epacris grandiflora, Euphorbia splendens, Gompholobium speciosum, Gloxinia violacea, Gardenia radicans, Helichrysum superbum, Maxillaria aromatica, Tree Mignonette, Pultenæa stricta, and Pimelea rosea. Of Rhododendrons, it contained ponticum, Smithii, and punctatum, and of Roses (Bourbon), Souvenir de la Malmaison, Splendens, Reine de Congres, Edouard Desfosses, Pucelle Gencese, and Queen; (Tea-scented), Fouchier, Melville, Caroline, Comte de Paris, Reine de Bassora, Lucelle Delmart, Princess Eterlinzy, and Niphetos; (China), Madame de Rohan and Archduke Charles; (Hybrid perpetual), Crimson Perpetual, Duc d'Aumale, Prince Albert, Doctor Marx Madame Joly, and Centifolia. In the same was also Tropæolum Lobbianum; and Tree Violet. FRUITS AND VEGETABLES.—*Strawberries*: Mr. J. Middleton, for Keens' Seedling. *Pears*: 1, Mr Samuel Short, for Catillac; 2, Mr. William Rippingale, for Uvedale's St. Germains. *Dessert Apples*: Downton's Nonpareil; 2d, Downton Pippin. *Sauce Apples*: Bed-

fordshire Foundling; 2, Easter Pippin, Mr. S. Short. *Cucumbers*: 1, Mr. Short, for Prizefighter; 2, Mr. Alex. Spence, gr. to Sir W. B. Proctor, for White Spine. *Rhubarb*: 1, the Rev. O. Mathias, for Myatt's Victoria; 2, Mr. W. Gale, gr. to H. N. Burroughes, Esq., M.P., for ditto. *Potatoes*: 1, Mr. W. Whitehouse, for Ash-leaved Kidney; 3, Mr. Wm. Rippingale, for ditto. *Lettuces*: 1, Rev. J. Burroughes, for White Dutch; 2, Mr. Gale, for ditto; *Asparagus*: 1, Mr. J. Potter, for White Battersea; 2, Mr. W. Warner, for ditto. *Broccoli*: 1, Mr. Short, for Salter's Imperial; 2, Mr. W. Exelby, for Wilcove. *Cabbages*: 1, Imperial, and 2, Battersea, Rev. J. Burroughes. *Kidney Beans*: 1, Speckled China; and 2, Buff, Mr. W. Gale. *Leeks*: Mr. J. J. Colman, for London. *Onions*, spring sown: Mr. Short. *Mushrooms*: 1, Mr. J Tunmore, gr. to H. T. Birkett, Esq; 2, Mr. W. Whitehouse. About 1200 persons visited the exhibition; and the sum of 20*l.* 14*s.* was taken at the doors. The prizes awarded to cottagers amounted to 3*l.* 5*s.*

New Garden Plants.

34. Dendrobium aduncum. Hooked Dendrobe. *Stove Epiphyte.* (Orchids.*) East Indies.

Of this very pretty Orchid we know nothing more than that it was sent from Calcutta to Messrs. Loddiges, by Dr. Wallich, and that it flowered at Hackney in July, 1842. In some respects it is allied to D. Pierardi, especially in its small pink flowers and manner of growth; but it is more closely related to D. moschatum, of which it may be regarded as a feeble imitation. It is, however, widely different from both, and is especially known by its half transparent flowers, of the most delicate texture and clearest tints. Like many other Dendrobes, this requires a warm and a humid atmosphere throughout the year. The most convenient and probably the best way of growing it, is in a pot, in turfy heath-mould, which may be renewed every year when the plant is at rest, without injuring the roots. In summer an ample supply of water should be given, and as the young leaves are liable to become scorched by the sun, shading should be used in sunny weather. In autumn, as the shoots become matured, water should be gradually withheld, so that for a few weeks in winter the roots may be comparatively dry. — *Botanical Register.*

35. Solanum lycioides. Lycium-like Solanum. *Greenhouse Shrub.* (Nightshades.*) Peru.

This charming shrub was found by Mr. Hartweg, in the valley of San Antonio, in Peru, and flowered in the Garden of the Horticultural Society in November, 1845. It has a neat habit; the flowers are of the richest sapphire purple, enlivened by a bright yellow eye, and in the wild state appear in clusters, so as to load the little spiny branches. The name is a happy one, for in its natural state it is very much like a dwarf Lycium barbarum. In cultivation, however, it loses some of its stiff spiny habit, and has hitherto not yielded flowers in clusters; but they are larger than in the wild state. It is by no means new to Europe, for it was represented in Jacquin's Figures of Rare Plants, above 60 years since; but it has disappeared from the gardens of this country. So very poor, pale-blue, a variety was indeed at that time possessed, that it hardly deserved to be preserved even in a botanic garden. It is found to be a greenhouse plant, which appears to succeed in almost any sort of soil, but to prefer sandy loam, mixed with a little rough peat. To flower it well, it seems necessary to place it out of doors during summer, in some exposed situation where it can remain till the end of September. By that time the flower buds will be formed, and they expand in a short time after the plant is taken in doors. It is easily propagated from cuttings, and must be regarded as a good addition to our autumn flowering greenhouse shrubs.—*Botanical Register.*

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

Garden Memoranda.

Tottenham Park, the Seat of the Marquess of Aylesbury.—This place has long been celebrated as a first-rate residence, although deriving little advantage from the adjacent locality, which is tame and thinly wooded. The grounds, however, are extensive and finely diversified as regards scenery. The Park is one of the most extensive in England, displaying much taste in the general arrangement, except in the want of variety of foliage, the principal portion of the trees being Beech. These have, however, probably been planted to supply food to the deer, which are both numerous and of large size. The mansion is a noble looking building, principally of the Corinthian order, the east wing of which is not yet erected. The place is chiefly remarkable for its long shady walks and extensive views; from the principal entrance is an excellent view to the north-west, and in the opposite direction the view is continued, of which the whole forms one direct line of 18 miles, the house being nearly in the centre. On each side of the vista to the south-east, Araucaria imbricata has been planted to a considerable distance. The flower-garden is seen to advantage from the principal apartments of the mansion; in the centre is a large fountain, to which a variety of jets can be used as required to give variety. The flower garden is flanked with a very fine collection of Rhododendrons, principally hybrids, which have been raised here; these form immense banks in various parts of the grounds, and have a very imposing appearance, some of the older varieties being from 15 to 20 feet in height. This place has long been remarkable for its hybrid Rhododendrons, which have been raised from the best sorts in cultivation, as regards rich colour. R. arboreum and other Indian varieties have been crossed with the hardy and free-flowering varieties of ponticum and maximum, and have given rise to a race resembling arboreum, but quite hardy. Others are remarkable for the rusty under-surface of the leaves, as in R. campanulatum. One drawback to the value of hybrid Rhododendrons appears to be their tendency to flower earlier than their progenitors, but we observed an instance which was remarkably the contrary in a plant raised from Lee's Late Purple and maximum; this variety had particularly large blossoms of deep purple. R. arboreum, supposed to have been crossed with campanulatum, has produced seedlings having the ground-colour of deep crimson with a dark spotted throat. The same species crossed with catawbiense has produced some fine spotted varieties, others also with caucasicum were well worthy of notice. We remarked another very fine hybrid not yet planted out, of a pure white, with dark spots. The Azaleas were equally worthy of attention, and almost equal care has been taken to raise new varieties; some crosses between A. sinensis and rubescens were interesting, as were also those between A. pontica rosea and some other variety; some were remarkably sweet scented, and presented almost every shade of colour. On the lawn, near the house, was a very large Azalea pontica, at least 60 feet in circumference; also large plants of Kalmia latifolia and Andromeda floribunda, a fine specimen of Abies Douglasii, and the curious A. Clanbrasiliana; several fine deciduous Cypresses, together with large plants of Araucaria imbricata; and associated with them were large plants of Pinus longifolia and P. lancoolata. The specimens of Salisburia adiantifolia were attractive, and a large Fraxinus odorata (?) was particularly interesting, together with immense bushes of the favourite Calycanthus floridus. The many large specimens of the varieties of Magnolia cannot fail to command attention, and not less interesting was a large Pavia rubra. The conservatory, which forms part of the west wing of the mansion, was gay with Pelargoniums, Calceolarias, and several of the best Fuchsias, among which was F. serratifolia. Along with these were well-grown plants of Tropæolum Lobbii and Elichrysum superbum. On the terrace, adjoining the conservatory, was a large Agave Americana, throwing up an immense flower-stem, which is expected to be well in flower by the end of July; the flower-stem, which is measured every morning and evening, is found to grow much less under the sun's influence than at other times. The kitchen-garden is about 4½ acres in extent, and was in good keeping; Pines and Grapes are not only extensively, but well grown; of the former, the principal are the black varieties. We remarked very fine fruit of Surinam Pine, together with good fruit of the Black Sugar-loaf, and Antigua Queen. Two houses have recently been erected for the growth of the Muscat Grape. The Alice Maud Strawberry is much esteemed here, where it succeeds remarkably well; it is said to answer well for forcing, and appears to be worthy of more general cultivation.—*J. H., June 16.*

Miscellaneous.

Death of Mr. Edmonstone.—We regret to see, by the daily papers, that this young and promising botanist has met with an untimely fate. It appears that while off the mouth of the small river Sua, about five miles from Atacamez, a party had been employed on shore, and on returning to the boats a loaded rifle happened to be touched by one of them when jumping into a boat, wading through the surf—it went off, and the ball first struck the arm of the clerk, slightly wounding him, and then passed through the head of Mr. Edmonstone, killing him on the spot. The loss will be greatly felt, as Mr. Edmonstone was deservedly esteemed by his messmates and all on board the Herald, and although but 25 years of age had greatly distinguished himself. He had lately been elected Botanical Professor of the Andersonian University of Glasgow; he was also the author of a botanical work, the "Flora of Shetland." His remains were buried on shore on the following day, with funeral honours, and attended by the greater part of the officers of the expedition.—*Morning Chronicle.*

The Kerguelen's Land Cabbage.—Situated in the centre of the Southern Ocean, and more remote than any other island from a continent, is Kerguelen's Land, or the Island of Desolation, discovered by Captain Kerguelen in 1772. It is about 100 miles in length and 60 in breadth, and seems to be chiefly composed of trap and other volcanic rocks, which rise into hills from 500 to 2500 feet high. The coast is deeply indented with bays and inlets, and the whole surface is intersected by lakes and watercourses. Owing to the coldness and moisture of the climate, the island is almost totally destitute of vegetation, and is generally spoken of by navigators as one of the bleakest and most desolate spots on the globe. Scanty, however, as its vegetation undoubtedly is—for Dr. Hooker, during the recent Antarctic voyage, could detect no more than 18 species of flowering plants on its soil—there is at least one of these species highly interesting, not only from its being peculiar to the island, but from its wholesome and valuable properties. This is the "Kerguelen's Land Cabbage" of the illustrious Cook—the Pringlea antiscorbutica of the systematic botanist. The Pringlea—so named by the naturalist to Cook's first expedition, in honour of Sir John Pringle, who wrote a book on scurvy—belongs to the cruciferous order of plants, which includes the Cabbage, Mustard, Horse-radish, Turnip, and other genera; all less or more possessing pungent, antiscorbutic, and nutritive properties. It is described in the "Flora Antarctica"* as exceedingly abundant over all parts of the island, ascending the hills up to 1400 feet, but only attaining its usually large size close to the sea, where it is invariably the first plant to greet the voyager, like the scurvy Grass upon many northern coasts. Its root-stocks, often three or four feet long, lie along the ground, and are sometimes two inches in diameter, full of spongy and fibrous substances intermixed, of a half woody texture, and with the flavour of Horse-radish. These bear at their extremities large heads of leaves, sometimes 18 inches across, so like those of the common Cabbage (Brassica oleracea), that if growing in a garden with their namesakes in England, they would not excite any particular attention. The outer leaves are coarse, loosely placed, and spreading; the inner form a dense white heart, that tastes like Mustard and Cress, but is much coarser. The whole foliage abounds with essential oil of a pale yellow colour, and highly pungent taste. "During the whole stay of the Erebus and Terror in Christmas Harbour," says Dr. Hooker, "daily use was made of this vegetable, either cooked by itself, or boiled with the ship's beef, pork, or pea-soup. The essential oil gives a peculiar flavour, which the majority of the officers and crew did not dislike, and which rendered the herb even more wholesome than the common Cabbage, for it never caused heartburn, or any of the unpleasant symptoms which that plant sometimes produces. Invaluable as it is in its native place, it is very doubtful whether this plant will ever prove equally so in other situations. It is of such slow growth that it probably could not be cultivated to advantage; and I fear that, unlike the Cow-cabbage of Jersey, it would form no new heads after the old ones were removed, even if it would survive the decapitation. Growing spontaneously, and in so great abundance where it does, it is likely to prove, for ages to come, an inestimable blessing to ships touching at this far distant isle; whilst its luxuriance amidst surrounding desolation, its singular form and appearance, striking even the casual observer, and the feelings of loneliness and utter isolation from the rest of the world that must more or less oppress every voyager at first landing in its dreary and inhospitable locality, are circumstances likely to render the Kerguelen's Land Cabbage—Cabbage though it be—a cherished object in the recollection of the mariner; one never to be effaced by the brighter or luscious products of tropical vegetation." After this description of the character and uses of the Pringlea, Dr. Hooker offers some speculations as to its anomalous position and likely origin. "The contemplation of a vegetable," says he, "very unlike any other in botanical affinity and in general appearance, so eminently fitted for the food of man, and yet inhabiting the most desolate and inhospitable spots on the surface of the globe, must equally fill the mind of the scientific inquirer and common observer with wonder. The very fact of Kerguelen's Land being possessed of such a singularly luxuriant botanical feature, confers on that small island an importance far beyond what its volcanic origin or its dimensions would seem to claim; whilst the certainty that so conspicuous a plant can never have been overlooked in any larger continent, but that it was created in all probability near where it now grows, leads the mind back to an epoch far anterior to the present, when the vegetation of the island of Desolation may have presented a fertility of which this is perhaps the only remaining trace. Many tons of coal and vast stores of mineralised wood are locked up in or buried under those superficial geological formations which have many times destroyed the forests of this island, and as often themselves supported a luxuriant vegetation. The first that desolated Kerguelen's Land are long ago extinct, nor does the island show any signs of the recent exertion of those powers, that have at one time raised part of it from the bed of the ocean with those submarine Algæ which carpeted its shores, but which are now some hundred feet above the present level of the sea. The Pringlea, in short, seems to have led an uninterrupted and tranquil life for many ages; but however loth we may be to concede to anything vegetable production an antiquity greater than it really is, or to this island a position to other lands wholly different from what it now presents, the most cursory inspection of the ground where the plant now grows will force one of the two following conclusions upon the mind: either that it was created after the destruction of the now buried and for ever lost vegetation, over whose remains it abounds; or that it spread over the island from another and neighbouring region where it was undisturbed during the devastation of this but of whose existence no indication remains." It is certainly a curious fact in vegetable geography, that this distant and desolate island should be the only spot on the globe where a plant of such eminent utility is to be found; and equally strange that no known vegetable production bears any generic affinity to the Pringlea. Its origin, however, need not excite any extraordinary marvel, seeing that numerous centres of dispersion are now admitted by naturalists, and that new creations and developments are quite admissible, and in the strictest harmony with the general design of creation. It is not likely that the Pringlea has outlived all the geological changes, the various submersions and elevations which have taken place, since the plants of which Dr. Hooker speaks were converted into silex and coal; and it is as unlikely that its seed was drifted from some adjacent island or continent now submerged,

* Hooker's "Flora Antarctica," parts xii. and xiii.

seeing that the whole surrounding region is geologically contemporaneous with Kerguelen's Land itself. The only plausible theory is that of a new creation or development—a gradation it may be of some humbler and marine form into that of the terrestrial Pringlea. A development of higher forms from marine vegetation has been hinted by several botanists; and considering the adaptability of vegetable life, there is nothing to forbid the hypothesis that the Kerguelen Cabbage may have sprung from such a source. Be this as it may, the existence of the plant is a curiosity in the history of vegetation, and all the more striking that its properties are so eminently useful.—*Chambers' Edinburgh Journal.*

Calendar of Operations.

(*For the ensuing Week.*)

Ripening the Wood. — Those who understand fully the immense importance of a thorough ripening of the wood in all wall-trees, or tender espaliers, will of course pay some attention in the early summer to thorough thinning and early training. Who can expect Peaches to perfect this process when the young wood is dangling from the wall until August? Pears at this period should have as much attention as Peaches; my practice is to cut out a few of the watery and luxuriant shoots, in the way of a slight thinning, in order to equalise the light; then to tie down on the old stems, or to nail down, a regular sprinkling of the brownest, shortest-jointed, and earliest-made wood; and finally to stop the points of all the remainder left in the character of breast-wood. The latter, if totally disbudded now, would cause the embryo fruit-buds for the next year to burst; whereas, if stopped, they will cease to obstruct the light in an unnecessary degree, and will operate as safety-valves for a period. In the early part of August these foreright shoots should all be cut back with the shears or knife, to about six inches or less in length. From that period all the sunlight possible will be wanted to perfect both fruit and blossom-buds for the ensuing year.

CONSERVATORIES, STOVE, &c.

The conservatory being thoroughly relieved of all superfluous stock, nothing remains but to carry out a cleanly system of cultivation, and to introduce fine specimens from other houses or pits. All available surfaces should be moistened with water morning and evening, thorough ventilation obtained, and a thin canvas screen kept on during bright sunshine. *Stove.*—A very free use of the syringe, with abundance of air night and day, should be persisted in, the main business being to produce sturdy plants with short-jointed wood. Liquid manure, composed of cowhouse drainage, guano, and soot-water, should be constantly in use, taking care to use it in no other way than clear and weak. *Orchids.*—Give air most liberally, syringing them freely early in the morning, and shutting up much solar heat, together with wet floors, walls, &c. &c. *Mixed Greenhouse.*—Pursue the directions given for the conservatory. Use abundance of water morning and evening, with a particularly free circulation of air. Continue to make cuttings of gay things for a late autumn display. Camellia stocks may now be grafted, choosing the young wood which has the leaves perfectly developed, and which is of a ripening brown colour at the base. I use the bottle plan, and find it to answer well, if the plants receive close or cutting treatment for a month afterwards. A slight hotbed, with a bottom-heat from fresh fermenting matter (to yield much steam), of 80°, will do well, placing a foot deep of cinder ashes over it, to keep down the worms.

KITCHEN GARDEN FORCING.

Pines.—Use the syringe in earnest to all the stock, shutting up much solar heat, and giving abundance of air to the young and growing stock. Be sure to shade slightly the fruiters, in order to ensure a greater amount of atmospheric moisture, which of course is dissipated by much ventilation. *Vineries.*—The early houses will now be cut, or in cutting, in many places. Do not hurry the plants into a resting state; nothing will be gained in point of earliness next year by such a course; rather endeavour to keep the leaf well fed, as long as the vital forces are at work, and to this end allow laterals to ramble awhile, if so inclined. *Late Vineries.*—Ventilate freely by six or seven o'clock in the morning, and a little all night, if the thermometer can be maintained at 65° without the aid of fire heat. Keep floors and all surfaces wet, in preference to much syringing, if a fine bloom is desired. *Peach-house.*—Give plenty of air day and night, and syringe heavily morning and evening, except those ripening. Persist in stopping robbers. *Frames, Pits, &c.*—If your early Cucumbers are exhausted with much bearing, and infested with thrips or spider, prune them freely, and shut up and shade every morning by 10 o'clock, after a free circulation of air. Let them be syringed before shutting up. The thermometer, with careful shading, may be allowed to rise to 95°; this course persisted in for a little while will kill or drive away the enemy, and throw the plants into a new growth.

FLOWER-GARDEN AND SHRUBBERIES.

All newly bedded out things will, during this hot weather, require daily waterings. The benefits of little basins round each plant will now be readily seen. Let the young shoots on all old Fuchsia stools be thinned out to five or six. Attend diligently to Standard Roses; constant disbudding is necessary at this period; also keeping down suckers. Let every attention be paid to propagating a reserve stock to fill gaps, and let those already rooted, or the remains of store pots, have kindly cultivation forthwith, in order to be ready to fill blanks. They should be kept in a shady border entirely by themselves, and should receive free waterings.

FLORISTS' FLOWERS.

The intensely hot weather has had the effect of shortening the duration of both Pink and Ranunculus blooms, and the season of each is rapidly coming to a close. Great attention must be paid to Ranunculuses, for should they remain in the ground too long, they would immediately make fresh roots, therefore they must be taken up as they arrive at maturity, which is evidenced by the Grass or foliage becoming yellow. Semi-double seedlings of good properties as to form and smoothness of petal should be carefully preserved for the purpose of fertilization. It will be a good time now to fertilize Pinks, selecting those on both sides which have smooth, rose-leaved petals; by attending more minutely to this, I hope to see the serrated leaved and confused flowers done away with in a few years. Pipings may also be taken, cutting through the shoot immediately below a joint; these, inserted in light sandy soil, under a handglass, will with common attention take root freely. *Pansies* require regularly watering and shading, or they are liable to be attacked with mildew; and the season is far from being propitious for Polyanthuses, which are suffering by the continued drought. *Carnations and Picotees.*—The buds may be reduced now, according to the strength of the plants, but to ensure large flowers not more than three ought to be retained on each; remove all laterals as they appear, and attend to the destruction of green fly, which is more than usually troublesome.

KITCHEN GARDEN AND ORCHARD.

Those who desire a good and constant supply of autumn and winter Endive must make a full sowing forthwith; Endive is generally sown too thickly. Another good sowing should be made in the first week of July, and a second towards the middle; after which the plant will not attain full size. As soon as the plants are a few inches high, mow the tops of the leaves off with a scythe, cutting about one-third of the leaves away. This will stiffen the plant, and cause much heart to develope itself, as also enable them to bear transplanting better. A good breadth of dwarf and compact Cabbages may be sown for early Coleworts; also another bed of Horn Carrots. This is a good time for a liberal sowing of autumn Turnips: the Dutch, or Stone, are best for the kitchen garden. Prepare for Leeks by heavy dressings of manure, also for Celery, so as to be ready the moment rain arrives. Water late Cauliflowers most abundantly, also Lettuces for salads. Mushroom spawn should be made without delay. *Orcharding.*—Look to the commencement of to-day's Calendar. See that fresh planted trees, or those heavy laden with fruit, have thorough mulchings and waterings.

COTTAGERS' GARDENS.

As the Early Potatoes are used, the ground should be instantly cropped with useful Winter Greens, &c. If, however, the weather continue sunny, it will be prudent to wait for rain, although it be a week or two. The Savoy, the Brussels Sprout, and, above all, the Green Kale, are amongst the foremost to claim the cottager's attention. If he keep a cow, I would earnestly recommend the Thousand-headed Cabbage; a little of the Early Potato ground should be sown down with Turnips forthwith. Celery and Leek ground should be got ready to wait rain. The Leek is a most useful thing in the cottager's family, more especially if grown large and earthed up. If his Onions are "grubbed," it will supply their place tolerably well, and is moreover a delightful dish to unpampered palates when well stewed and eaten like Seakale. Where the Late Potatoes have failed, their places should be filled, when rain comes, by transplanted Swedes. These, too, are delightful food when well boiled, and if the Potato disease should revisit us, these matters attended to in due time will soften its rigour in regard to the cottager.

FORESTING.

If a leisure time, take extra pains with young hedges, and try the preventive system of pruning, by finger and thumb, on the young forest trees of two or three years' planting.

State of the Weather near London, for the week ending June 13, 1846, as observed at the Horticultural Garden, Chiswick.

June	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain.
Frid. 12	13	30.228	30.126	65	50	57.5	W.	
Sat. 13	14	30.098	30.004	68	52	60.0	N.E.	
Sun. 14	20	30.106	29.974	62	50	56.0	E.	
Mon. 15	21	30.243	30.166	67	56	71.5	E	
Tues. 16	(	30.300	30.280	67	50	68.5	E.	
Wed. 17	23	30.314	30.248	68	53	70.5	E.	
Thurs. 18	24	30.210	30.145	68	54	71.0	S.E.	
Average		30.216	30.161	66.1	55.1	69.1		.00

June 12—Very fine, dry air; clear
13—Exceedingly fine; hot and dry, with gentle breeze; clear at night
14—Hot and dry throughout
15—Hot and dry air; cloudless; clear at night
16—Hot, with slight dry air
17—Continued heat and drought
18—Hot and dry throughout.
Mean temperature of the week 7 deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending June 27, 1846.

June	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds 9 A.M.	3 P.M.	9 P.M.
Sun. 21	74.0	53.6	63.8	9	0.68 in.	1 2	2 1	1 2
Mon. 22	72.0	53.9	60.4	10	0.84	1 2	1 —	2 3
Tues. 23	70.5	46.5	58.5	2	0.60	1 1	2 1	3 7
Wed. 24	72.0	49.7	61.4	7	0.49	— 2	3 1	2 6
Thur. 25	71.2	50.0	60.6	11	0.72	1 1	6 1	2 3
Fri. 26	71.9	49.9	60.9	8	1.60	1 2	4 —	1 5
Sat. 27	69.0	48.4	58.7	10	0.30	2 2	1 2	3 4

The highest temperature during the above period occurred on the 21st, 1836, and 23d, 1844—therm. 91°; and the lowest on the 23d, 1830—therm. 39°.

Notices to Correspondents.

The *Fourth* Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3d. each copy. An index has been added. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 2s for 3s.

BEES—*C G Pattison*—Huber's leaf-hive or the Unicomb one are both good for exhibiting the operations of bees; but a good collateral hive, with glass windows, will nearly answer the same purpose, and be more suitable for the bees. *W.*

BOOKS—*C W*—"Roberts on the Vine."

INSECTS—*Original Subscriber*—Digging up the eggs of the mole-crickets, which are laid up in heaps of 200 or 300, and sinking flower-pots in their runs, 2 inches below the surface, into which they fall in the night, are the best modes we know of to catch them. Spirits of turpentine will also destroy or drive them away. *R.*——*D M*—It is, I expect, a moth named Ilithya colonella, which has taken possession of a humble-bees' nest in the Ivy and old masonry. *R.*

LAWNS—*A Subscriber*—Had you employed soot by itself, your Grass would probably have remained in beauty, and most assuredly could have sustained no injury. Any gardener who understands his business knows that pure soot is one of the best of all winter top dressings for lawns; but you have used fresh wood ashes, the caustic quality of which has killed the Grass, and what is more, has ruined the soot by driving off all its carbonate of ammonia. We scarcely know how to advise you now, but perhaps your best course would be to water the lawn when rain begins to fall with sulphate of ammonia, largely diluted with water, and applied at the rate of two or three cwt. an acre. If you can induce the fine Grasses to grow again, the coarse intruders may possibly be smothered if kept under by the scythe. It is, however, very difficult to give you the best advice without seeing the land, which is impossible.

MANURES—*J P H*—Guano in fermented cow's urine and water is a good artificial manure for Cucumbers; but in applying it care must be taken not to let it touch the leaves or it will burn them.‡——*H B*—Your mixture is gypsum. If there is any free sulphuric acid in it, add gas-water until it ceases to effervesce, then mix it with three times the quantity of soil, and you will have a good compost.——*E Price*—We cannot undertake to analyse guano; but yours appears good, and certainly contains no loam. Mix it with water, in the proportion of a handful to two gallons. When the water is clear, pour it off and use it as liquid manure. The residue may be added advantageously to a compost-heap; the person who condemned it could know nothing about guano.

NAMES OF PLANTS—*S H*—Ornus europæa—the flowering Ash. ——*T G*—1 and 6, Poa pratensis; 2, P. trivialis, 3, Holcus lanatus; 4, Avena flavescens; 5, Aira cæspitosa; 7, 8, and 9, Festuca rubra; 10, Anthoxanthum odoratum; 11, Arrhenatherum avenaceum; 12, Bromus asper.‡——*Mc*—Claytonia alsinoides, an outcast from gardens. The Balsam Apple is Momordica balsamina; it should be grown like a Cucumber.——*A Subscriber*—It is impossible to determine the names of plants when they are shrivelled up by heat.——*Enquirer*—1 is Holcus lanatus; 2, apparently Poa pratensis; 3, Lotus corniculatus. 1 is a worthless Grass; 2 and 3 are useful pasture plants, but convey no particular indications.

ROSES—*Lord A*—Your Roses belong to the fine old double yellow sort, but they are in a very deformed condition. It is not known how to make this Rose flower with certainty. Dry, gravelly, windy situations, not exposed to the fierce sun, appear to suit it best; and it has been found to thrive when watered with dirty soap-suds. A good deal of information about it was collected and published in our vol. for 1841, pages 811 and 813.

WATERING—*F H M*—If you can loosen the surface of the ground and soak it with water in the evening, the garden will be much benefited, but a slight sprinkling is of little service; the reason why gardeners object to watering in hot weather, is that the ground is apt to become baked, but a very little skill might remedy that inconvenience.

MISC.—*F M C R*—Common or Portugal Laurel.——*A Lady*—The Pansy to which you refer is extremely pretty, but it has not yet been advertised.*——*Sudalandus*—We anticipate no risk of your straw burning spontaneously, but just consider what would happen if a chimney near you were to catch fire, and a spark were to be drawn in through the roof upon your straw.——*Carl Shilton*—We cannot tell what is the matter with your Pæony; perhaps the situation is too cold, perhaps it grows in the shade.——*George*—Teal, gulls, swans, and summer ducks.——*Cefn Ila Uske*—Much obliged; the subject of the nuthatch was explained by other correspondents, whose letters were in type before your communication was received. —— *H W*—Two of your plants, namely Olea fragrans and the Crowea are greenhouse plants, and require to be put into larger pots, thoroughly drained, well watered, and placed in the shade for a few days after the operation. The others are hardy. Put Chelone into a damp peat border and the others against a wall, or pales, in any soil, with a southern aspect; soak the place with water when they are planted, and then leave them to their fate.

SEEDLING FLOWERS.

ANTIRRHINUMS—*Z Z Z*—There appears to be no improvement upon the common garden varieties among your seedlings; they are not equal to many of the finer sorts now cultivated, either in size or colour.*——*H C W*—Your seedlings resemble Caryphilloides, but with more yellow; they are too much alike, and No. 1 is the superior flower, being less spotted and possessing bolder stripings; this is a good variety.*

CACTUS—*M*—If your seedling opens freely it will prove a desirable flower, as it possesses that blue tinge in the centre which increases their beauty and brilliancy.*

CALCEOLARIAS—*G R*—The yellow varieties spotted with brown are the most common; but your specimens are large, and the spotting curious and distinct.*——*W H*—Your spotted seedlings are very handsome, particularly those having white or delicate buff grounds spotted with maroon. 5, 11, 12, and 4, are fine examples; 6 and 8 are also very fine. They are the largest in this way we have seen.*

PELARGONIUMS—*A Subscriber*—Your variety is of no use; it is deficient in substance, and inferior to the present race of flowers.*——*G R*—No. 1 is clear and pretty in colour, but there are similar varieties in cultivation very superior to it. No. 2 is desirable in colour, but it is too small, and of no use.*——*A Young Amateur*—The specimens you have now sent are too small, and deficient in substance. No. 1 is decidedly the best, being fine in colour, with well rounded bottom petals. This, also, wants substance, though in a less degree than the others.*

RANUNCULUS—*J G F*—The seedlings you have sent are extremely pretty and fine in form. The light-edged varieties we consider the best, for instance, Zebina, Brunette, Mountain Sylph, John Waterston, Elizabeth Lyon, Wm. Teahar, and Richard Dixon. These are clean grounds and beautifully edged. Fair Acadian, Lochinvar, and in one or two others, the ground appears stained by the colour running too far down the petals: they are fine varieties.*

ROSES—*H S*—Your Rose, though a good one, is not a first-rate flower; it is very double, but the edges of the petals are not even, and have the appearance of being crumpled or scorched. It is delicate in colour, very sweet-scented, and will make an agreeable border variety.*

VERBENA—*W M*—Your seedling, a bright blue purple, is the best of its colour out, and will make a desirable addition to this family.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

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GUANO, Peruvian, (imported by GIBBS & CO.,) and African, from Ichaboe and Saldanha Bay; Superphosphate of Lime (see "Royal Ag. Soc. Journal," Vol. vi., Part 2); Bone Dust, Sulphuric Acid, and Clarke's desiccated Compost; all suitable for the Turnip Crop. Also Nitrates of Soda and Potash, and all other Manures of known value, on sale by MARK FOTHERGILL, 40, Upper Thames-street, London.

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Superphosphate of Lime,	Sulphate of Soda,
Gypsum,	Petre Salt,

And every article of Artificial Manure in the most genuine state.—No. 40, New Bridge-street, Blackfriars.

EDWARD PURSER, Secretary.

The Agricultural Gazette.

SATURDAY, JUNE 20, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, June 24 Agricultural Society of England.
THURSDAY, — 25—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, July 1—Agricultural Society of England.
THURSDAY, — 2—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.

Belfast Flax Society—Leyland Hundred—Portarlington.

FARMERS' CLUBS.

June 24—Newton
— 25—Otery St. Mary
— 30 Rhins of Galloway
July 1—Monmouth
— 2 Harlow—Binfield and Waltham—Richmondshire
July 3—Wrentham—Debenham—Hadleigh—Wakefield—Claydon—Lichfield
— 4—Probus—Collumpton—Cardiff

IN farther considering the circumstances which will determine the landlord in reference to the permanence of his PASTURE LANDS, we must not forget that, besides the greater skill and intelligence necessary, as we lately illustrated, for the cultivation of arable land, and which he must see in his tenants before he can permit them to plough up their Grass fields, there is also a greater capital required by the farmer. This matter we shall discuss in detail hereafter, at present it will suffice to say that a very considerable addition to the farm capital—3*l.* or 4*l.* per acre—is undoubtedly needed in the cultivation of Wheat and green crops, more than is needed in the growth and consumption of Grass: and as everybody knows that a needy farmer is not likely to farm well, or to his landlord's advantage, so it is of importance that any tenant who has received permission to plough up his pasture fields, should possess not only intelligence to direct him, but the means to enable him thoroughly to cultivate the land; the latter as well as the former is necessary, in order that the advantages arising out of the operation may be permanent.

A third subject for the landlord's consideration—one which, we doubt not, will have great influence with him—is the greater employment which the change will offer to the labourer. More labour is involved in the cultivation of plough-land crops than in the management of Grass. There can be no question about it. The only point for determination is, will this be a permanent thing; and the sureties for its permanence we have already considered. Let the tenant possess intelligence and capital sufficient, and it *will* be a permanent thing. We shall consider in detail this branch of the subject when discussing how the interests of the labourer are involved in this matter. At present it is only necessary to assert the fact that more labour *is* thus employed, and that thus a great boon is conferred upon society. We *do* want more employment for labourers; they constitute an immense majority of our population—at least one-half of the 400,000 annually added to our numbers go to increase the number of this class. How are they to be employed? It were an incalculable advantage, even supposing our population to be stationary, were such an increase of employment to be offered as would raise the condition in comfort of our agricultural poor. Of how much more importance is it, then, that additional employment be provided when we consider that our labouring population is annually increasing by hundreds of thousands.

But there are other grounds on which the landlord will base his determination. His tenants may be unexceptionable on both of the counts we have already discussed; and, *notwithstanding this*, it may not be the landlord's interest to grant them permission to convert his pastures; in fact, in certain cases, an intelligent farmer will be justified in declining such permission were it offered him. We have hitherto been all along considering the policy of breaking up those pastures only which would yield more rent, more labour, more profit in a cultivated condition, and we have been pointing out the circumstances necessary to the permanence of these advantages. But the landlord in many instances will not be justified in breaking up the whole of his pasture lands; let us consider why; and we shall have an opportunity of still further detailing the grounds on which an intelligent decision must be built.

The main reason in most cases will be that the land, under present circumstances, is more profitable in its present condition; and it may be well to point out in successive papers those kinds of land with regard to which no such difficulty presents itself.

And at present we may take the case of DOWN LANDS—extensive tracts of natural Grass—clothed with a very thin vegetable soil on a chalk subsoil. They lie chiefly in the counties of Dorset, Wilts, Berks, Hants, and Sussex. They are perfectly dry—they let in their present condition for from 2*s.* 6*d.* to 10*s.* per acre—and from time immemorial they have been used as sheep-walks, the flocks being folded during the night on arable land in the neighbourhood. They have thus been subjected to a constant robbery for the benefit of neighbouring plough-lands. The plough, however, is gradually encroaching upon them. In Lincolnshire they have all been ploughed up, and land which formerly supported a few sheep and many rabbits, letting for about 5*s.* an acre, now yields valuable produce sufficient to pay the farmer for his trouble and the use of his capital, and sufficient also to bear a rent of 20*s.* an acre, and to employ a large labouring population. We are informed by one who has had long acquaintance with these districts, and who has now the management of estates on them, in Wilts and Sussex, that down lands might be increased in annual value to the landlord from 8*s.* to 10*s.* per acre, and that whereas they now let at from 5*s.* to 10*s.*, they might easily be let at from 15*s.* to 21*s.* were they broken up. The only expense which the landlord would incur is the erection of buildings. And these would probably cost from 30*s.* to 2*l.* per acre. A farm of 500 acres of down land to be broken up, would require stabling, a thrashing and straw barn, a granary and implement shed, and two or three yards for stock to consume the straw and a portion of the Turnips grown; and all this might be erected for 1000*l.*; and 10*s.* an acre of additional rent, which would then be gladly offered by the most trustworthy tenant, would amount to 25 per cent upon the outlay. It is in the case of down lands alone that we can obtain the simple consequence of breaking up pastures; for in other cases the advantages of the drainage, the removal of hedgerows, &c., go to swell the result, and it is difficult to determine what portion is due to one cause and what to another: but in the case just referred to, if we deduct 10 per cent. for the cost of buildings, the landlord is proved to have benefited 6*s.* per acre (assuming those conditions be fulfilled to which we have already alluded as necessary to the permanence of this rent), simply by granting permission to break up the Grass. And what additional profit to the farmer, and employment for the labourer, and food for the nation has been derived from this operation we need not here illustrate. If an extreme case be required of the advantages under all these heads, we may point to Mr. HUXTABLE'S farm on Cranborne Chase, near Blandford, Dorset, where down land having been broken up, opportunity has been offered, and energetically seized, for all the appliances of a scientific and most skilful agriculture, and land of which originally "the rabbits had the fee simple" now bears large crops and supports a heavy stock; 135 acres of it, along with 95 acres of "poor clay Grass land" in the vale, have during the past year kept a stock of 31 fatting beasts, 400 fatting sheep, 240 breeding ewes, and 50 pigs.

Down lands are of enormous extent in this country; and what multiple of their present population shall we estimate their ability to support when their landowners shall universally have adopted the example set them by Mr. HUXTABLE!

HOW TO CULTIVATE THE SCARLET TREFOIL, OR TRIFOLIUM INCARNATUM.

IMMEDIATELY after harvest sow or drill a peck and a half of the seed per acre on a Wheat stubble without ploughing, and harrow it in; this is all the cultivation necessary.

It has been said that it will not bear our winters; this may be true when it is brought direct from the south of France or from Italy. I brought mine from Switzerland, and have had it 18 years on my land, and I have no doubt it would stand the winter in every county south of the Grampian Hills; the more sheltered the situation of course the earlier in spring it will lift its crimson head. On burning soils, where in dry summers the Clovers are grilled into tinder, when a barber with a quick eye, a sharp razor, and a steady hand is the most appropriate husbandman; he can take the produce of an acre home in his apron and the work is finished; on such lands half a peck of the Trifolium seed (which I will prove presently will cost but one shilling, if the farmer grows the seed himself,) sown on the young Clover directly after harvest and harrowed in, would double or treble the crop. I always do it in every field where I am doubtful of the young Clover.

I am not advocating growing the Scarlet Trefoil as a crop in place of the Clover; this mistake has been made and it is a great one; it leaves the land, more particularly light land, in too frothy a state for the Wheat crop; it should be sown as a crop after the Wheat, not before it. Sheep and lambs prefer it to Clover when young, but in blossom are not so partial to it; yet when made into stover will eat the whole greedily. Dry land suits it best; in low places on heavy land, where the water stagnates, it is likely to lose plant. If the farmer grows the Trifolium seed himself, one acre of Tares costs him four times the amount of an acre of Trifolium; and I will point out how he may prove himself that one acre of Trifolium is worth two of Tares.

The land on which Tares are grown is the fallow, and whether the Tares are there or not the rent, the tithes, and parochial expenses must be paid; the land also must be ploughed up in the autumn, therefore the only fair charge that can be brought against the Tares is the seed; some agriculturists sow three bushels per acre. I will, however, only reckon two, at 6*s.* 6*d.* per bushel, 13*s.* Now, let us see what the Trifolium will cost. Here is also no extra expense beyond the seed. The average growth of the seed with me has been 15 bushels per acre; if cut when the straw is green, which it may be without injuring the seed, thrashed the next or following day, and the straw immediately stacked, it will pay all the workmanship. When it is also considered that the crop is generally clear from the land the first week in July, leaving the best months of summer for fallowing, 6*l.* per acre is a full remuneration to the agriculturist for the crop; this brings the seed to 8*s.* per bushel or 2*s.* the peck, thus the farmer may have an acre of the Trifolium by the end of April for 3*s.* less than one-fourth part of the cost of his washy Tares. Tares at all times are better physic than food, and in wet seasons they are for horses that which seamen and soldiers designate bad small beer—swipes. As the Potato occupies the lowest step of degradation as food for civilised man, so do Tares for the brute; they are Frenchman's water soup diluted.

As soon as the Scarlet Trefoil begins to blossom, put two or three horses to it in one yard, and the same number on Tares in another; keep them thus a month, no further proof will be necessary of the superiority of the Trifolium. I will grant it is not so certain a crop as the Tares, but what does this amount to? I grow 40 acres of Wheat a year, and have the same quantity of fallow. If I sow the whole 40 acres with Trifolium and 20 acres fail (very unlikely, by the by), on this 20 acres I lose 3*s.* per acre; the 20 acres that remain will pay me ten-fold for the whole. I care nothing about the 20 acres lost, the land is ready for fallow or Turnips, as it was ultimately intended.

I have had above three waggon-loads of Trifolium stover per acre, therefore, exclusive of cutting and getting up, it cost me 1*s.* per waggon-load; if I lose half the crop as above stated, it costs 2*s.*, and I am convinced that the land was not 2*d.* the worse for it. This is no wild theory, no gaudy vision; it is the experience of 18 years. If it can be proved that the land is the worse for this green crop, then some charge ought to be made against it beyond the price of the seed, but I contend it is not. I have grown it side by side with the long fallow, the same with the Tares, and I could see no difference in the following crops, except that my Clovers were invariably better after the Trifolium than after the Tares.

Do not let the farmer dream he is buying the Scarle

Trefoil seed this year at 8*s.* per bushel; if he does, he may well be surprised at finding it 2*l.*, and cheap too. One peck and a half will give an acre of green food next May worth nearly double this money; a second peck and a half on good land, will give three waggon loads of stover, the remaining peck will produce from 10 to 12 bushels of seed.

The first step towards a good crop is good seed. I have seen bushels of seed sold for Trifolium that was not worth its weight in sand; and when the price gets high it floods in from France; seed of all kinds, good and bad, perchance mixed with dodder and other parasites. We are already indebted to the French for something, for which something they say they are indebted to the Italians. However, no matter, let this pass; at all events we require them to give their name to nothing further as a memorial of them; there is no chance of their being forgot.

I have begun cutting the Trifolium for the horses on the 14th of May, and for stover the 19th. This gives time for Turnips if the land is calculated for them.

Before concluding, permit me to say a few words to my nearer neighbours and friends. Let them forget, if they can, that the Trifolium was first introduced by one educated for a profession, not for farming. Let them believe, if they can, that it was first introduced by one born and bred, and nursed upon a farm from infancy to age; then let them put their heads and hands to the task with a good will, to mend that which is wrong, not to mar that which is right. However, whether they do this, or do not do this, let them be assured that the Trifolium is now planted in our soil for ages to come; it has become a denison of our land, a flower of our fields, and food for our stock for generations yet unborn. And when life's short but toilsome race is run, when the spiritual vision shall pierce through the darkness towards brighter scenes of light and life, I trust it may be found that I have contributed one grain as a benefactor to my country.—*J. Foaker, Kirby, Colchester, June*, 1846.

THE BEST WAY TO KEEP FARM HORSES.

(*Continued from p.* 328.)

I have lately been in communication with my friend Mr C., of F., on the subject of horse keeping; and also with Mr. M., of W. In both establishments, I believe, the most approved Scotch system of feeding, working, and general management of the teams, is fully carried out and practised. From a paper handed to me by Mr. C., I find his calculation runs thus:—

Expense of horse keeping from May 1 to October 1, being five months.—Fed on Grass, Vetches, &c, at per horse, 5*s.* per week.—Ditto Oats per week 2 bushels, 5*s.* That is five months at per week, 10*s.* From October 1 to May 1, seven months.—Fed on Carrots, 1 cwt. per day to each horse, at 1*s.* per cwt., is per week, 7*s.* Corn, 2 bushels as before, 5*s.* Seven months at 12*s* per week. *No* hay is ever given.

You will say this is high feeding; but then the work Mr. C.'s horses get through would astonish you. During the long days, 10 hours' work is constantly performed by them; starting at 6 o'clock in the morning they work until 6 o'clock in the evening, with an interval of two hours in the middle of the day, when they and the ploughmen come in to feed and refresh. During the short days of winter the horses are in the field by daybreak and work as long as they can see, with a short interval only

I will now give Mr. M.'s letter in his own words. He thus expresses himself.—"I fear the mode I adopt will be thought by most farmers too expensive; and if the money paid for the food of the horse be taken into the account only, and not the work he performs, they may be right in thinking my horses' food costs too much money. I have almost universally stated (when asked how I feed my horses) that I feed them as I do myself; that is, give them as much as they can eat; but then I get as much work from them as pays me for the extra expense of their keep. Every day in the year, summer as well as winter—when eating cut Clover in summer, as well as when on Carrots and other roots in winter, they have corn, which varies in quantity from 10 lbs. to 18 lbs. per day; viz., from 1 to 2 pecks of Oats per day. The smallest quantity of corn is given when they get Clover during summer, and the greatest quantity of corn when hardest at work, which is generally in March, April, May, and June. And in October, November, and December, in the autumn and winter, the quantity of Carrots which they consume per day is an average of about 50 lbs. Now if you take into account the weight of Carrots which can be raised at, say, an average of 20 tons per acre; and taking the quantity of Carrots which a horse will consume at half a cwt. or 56lbs., then we shall have the keep of a horse for 800 days from an acre of Carrots. My horses during the first year had hay, and as I had to buy the whole of it, I found the quantity which the cart horses ate and consumed was 26 lbs., with the same quantity of corn which I now give them. Now if we can get from an acre 20 cwts. of good hay, and if one horse consumes ¾ cwt. per day, then an acre of hay will keep a horse only 80 days; just one tenth of the time that an acre of Carrots will keep him. Again, the expense of producing an acre of Carrots, rent and all, I calculate may amount to—say the rent (being the same as that of the acre of hay), then there are from 20 to 30 loads of dung, twice ploughing, four times hoeing and weeding, seed and drilling, three times horse-hoeing, weeding, and taking up; which may amount to 4*l.* per acre, besides the rent. Thus is, ploughing, 18*s*; harrowing, rolling, and dunging, 12*s.*; weeding and seed, 20*s.*; taking up, carting, and housing, 30*s.*

"With respect to the quantity of Clover the horses consume during the summer months, I think the eight working horses, two hacks, and two cows, consumed about 6½ acres of the 10-acre field, No. 6, the remainder having been given to the heifers in the yard; the pigs and the sheep were folded over the remainder. The horses of course were littered with straw; and during the winter they have straw to eat if they like it: this is not taken into account. From these data I calculate you can easily make out a money estimate.

"The work my horses perform is equal to ploughing 1¼ acre per day of 10 hours' work; they never go out to Bristol or elsewhere, but they carry from 20 to 24 cwts. on a cart. One horse has taken 40 bushels of Wheat 05½ lbs. per bushel, to Gloucester, and returned home in one day—21 miles out and 21 miles home. The same is their day's work to Bristol; and in hauling dung or roots, or corn from the field during harvest, I reckon 20 miles per day as their day's work."

Having thus, with some pains, collected from various sources, and laid before you, the different systems of individuals of known experience in the management of horses, and having shewn you how much labour they are enabled to perform for a continuance, when highly kept and well attended, it remains for you to make your own comments and calculations thereon, and to balance the expense of horses so fed, and performing a large amount of labour, against that of your own teams, supported as they usually are in this neighbourhood, on an unrestricted quantity of hay with little or no allowance of corn or roots, and doing very much less work. Thus, after due consideration, you will well weigh both sides, and perhaps alter your practice, if you find it can be amended in some particulars.

I think you will grant me thus much—viz., that, in the vale of Gloucester, we do not get as much out of our teams as we might and ought to expect from them under a different system of management; and that we may well take a lesson of industry from our brother labourers in the north, especially as regards horse labour; in the working of their arable land; and in the growth and cultivation of their root crops. But, if I may be permitted to make a remark on the Scotch practice in the management of their horses, it would be this—viz, that I have reason to believe the Scotch would economise their keep, with greater advantage to their horses and themselves, if they would give the corn bruised or ground, and mixed with a certain limited weight of cut hay and straw; which, as I have before shown, has been, and is the practice in the large establishments in the Metropolis and elsewhere, and which has been, I think, adopted by the great coach proprietors all over the kingdom. Having hinted thus much, as a matter of calculation, I will leave the matter in your hands, and to your better judgment and practice.

For myself, although fully convinced of the advantages to be derived, I have not, as yet, steadily carried out the system of cutting all the food given to my horses into short chaff, though for a long time I have bruised all the corn; this I can strongly recommend for your adoption. I stick to the advice of my late friend, Mr. L. B., of H., to lock up the cutting knife from the carters; this I have found to be an immense saving of hay, and amply to repay all extra expense and labour in weighing out the fodder. The coming winter will, I believe, open your eyes, and put you on a system of economising horse keep, particularly in the article of hay; if you do not, the lesson may cost some of you too dear. I have to tell you, that being convinced that carters and their horses wasted and consumed oftentimes in the 24 hours from 20 to 30 lbs. of hay, and having been in the constant habit of weighing out to each horse at the rate of from 12 to 14 lbs. per day, I directed my farmer quietly, and without saying anything to the men, to increase the allowance to 25 lbs.: this was repeated at intervals during several weeks. On my inquiry as to the result, the answer returned was, Sir, at the end of the week they have as far to seek as when we allowed them only 14 lbs.; in short, as you may suppose, the whole was got rid of, and so would a much larger quantity, if it could have been come at. This autumn my allowance has been 8 lbs. per horse per diem, together with any caving or straw the carters chose to have; the horses had, till the latter part of last month, some cut Grass also: of Oats 4 bushels, and Beans half bushel, for four horses for the week. But not having any Carrots or roots for the horses, and Grass being done with, I must now increase my quantum of corn. During summer my horses do not get any corn, but live on Clover. Most of my heavy work has to be performed between Michaelmas and Christmas, since it is desirable that all our ploughings should be finished, if possible, before January, that the land may receive the benefit of exposure to the winter weather to mellow and sweeten it.

While on the subject of horses, let me not omit to mention, that from the Scotch I have learnt to work my cart horses with a long and loose bearing-rein; so as to allow them the complete liberty of their heads; thereby enabling them to bring weight, as well as muscle, into play; and I find my horses can now, with far greater ease than formerly, perform their work. I had more difficulty in bringing about this little simple alteration than you might suppose; till by hitting upon the plan of cutting off the buckle of the bearing-rein, and sewing the leather, I completely beat my men, who I believe are now well satisfied that I was right. For some time I have forbidden that the teams should, as is commonly the case with us, have their heels washed in the pool on coming in from work, or that the horses should be allowed to have their fill of water at the pool, but have directed that they have their proper allowance brought to them in the stable. From these seemingly trifling alterations much good has resulted; my horses have now less tendency to grease, chopped heels, or swelled legs, and some of the old horses, which, from former management, have (as is I believe not unfrequently the case in farmers' stables) become touched in their wind, now perform their work with more ease and comfort to themselves.—*Mr. N., in the 5th Report of the Gloucester Farmers' Club.*

ON THE MANURE PROPER FOR HOPS.

[The following answer by Mr. Nesbit to the observations of Mr. Lawes (see page 305) on his pamphlet on the above subject, is extracted from the *Maidstone Gazette.*]

"Some opinions on my pamphlet, from the pen of Mr. B. Lawes, require some observations from me to place those opinions in a proper light. My professional occupations have not allowed, until now, the opportunity of noticing them. I should certainly have expected from a scientific man like Mr. Lawes some reasons for his opinions, whereas he seems to have dived at once into the matter, and, as a new convert usually does, at once condemns the views of others because he happens to have changed his own.

"Into the great and broad discussion of whether the views of Liebig or Boussingault be right—whether the inorganic or organic elements are the more necessary, I shall not presume at present to enter, because I have great reason to believe them both to be necessary. But I shall certainly endeavour to show Mr. Lawes that, whatever his opinion may be, potash for the Hop plant is a thing of paramount importance. I must first be allowed to correct Mr. Lawes in a point where he seems to have misunderstood me. Mr. Lawes says, 'In the ash of the Hop Mr. Nesbit found more potash than any other substance, and from this he concludes that manures are valuable in proportion to the amount of potash they contain.' Mr. L. has her attributed to me that which is not to be found in my pamphlet. I do not say that manures are valuable in proportion to their potash. I say in my pamphlet that which I still believe to be the fact, that the great amount of potash removed year by year from the land by a crop of Hops, is the main reason, though it may not be the only reason, why the Hop requires to be so highly manured.

"So far as can be gathered from the letter of Mr. Lawes, that gentleman means to assert that the application of inorganic matters to plants without ammonia is useless; for he says, speaking of a manure recommended by me for Hops, 'with the exception of the small quantity of organic matter in the guano, this manure is composed solely of mineral ingredients, and would be almost useless.' 2dly. That the application of ammoniacal compounds without inorganic matter will be attended with benefit to the farmer, for he observes, 'I am sure you can follow no safer rule in selecting manures for that plant than to buy those which contain the largest amount of ammonia at the least price.' I think there will be no difficulty to prove from the experience of agriculturists, that both these views and assertions are erroneous. If, according to Mr. Lawes's theory, the use of mineral ingredients without ammonia be useless, what becomes of the observations of agriculturists on the benefits derived from the application of gypsum, peat ashes, wood ashes, salt, marl, lime, and, among a host of mineral manures, of his own superphosphate of lime. Everybody knows the benefit which Hops in various districts derive from the application of mineral matters, from lime, peat ashes, wood ashes, &c., the two latter of which contain potash. But in addition to the authority of actual experience of practical men, I will adduce the observations of Boussingault himself. He says, 'wood ashes contribute to improve the soil.' Again, 'It is impossible to doubt that salts having potash and soda for their base, are useful in agriculture. The influence of wood ashes, and of paring and burning, is unquestionable; and they are so, in consequence of the salts of their bases (potash and soda) which they employ, and which always enter into the constitution of vegetables. There are even certain crops, which, in order to thrive, require a particular alkali; the Vine, for example, the fruit of which contains bitartrate of potash; and Sorrel, which contains binoxalate of potash, must needs have supplies of potash." The case of Clover, selected by Mr. Lawes as a proof of the utility of potash, is one of the most unfortunate for his argument that can well be imagined. Mr. Lawes says, 'If a farmer were asked which crop he considered the least exhausting to the soil, he would probably say Clover; and yet this plant removes a far larger quantity of potash from the soil than the Hop.' Every practical man knows that Clover is one of the most exhausting, though one of the most nourishing of his crops, and that it is almost impossible either to grow it year after year, or even once every four or five years. Whence arises this difficulty of growing Clover year after year? Doubtless it arises in the main from the great quantity of potash abstracted from the soil by this plant. Boussingault himself ascribes the failure of Clover to this very cause. He says, 'A crop which abstracts from the ground a notable proportion of one of its mineral elements should not be repeatedly introduced in the course of a rotation which depends on a given dose of manure, unless by the effect of time the mineral element has been reconstituted in the land.

A Clover crop takes up, for example, 77 lbs. of alkali per acre. If the fodder is consumed on the spot, the greater portion of the potash and soda will return to the manure after passing through the cattle, and the land will eventually recover nearly the whole of the alkali. It will be quite otherwise if the fodder is taken to market; and it is to these repeated expontations of the produce of artificial meadows that the failure of Clover now observed in soils which have long yielded abundantly, is undoubtedly due.' Now, if it be difficult to grow Clover even once in four or five years, or two years together, how much more difficult is it to grow Hops for 20 or 30 years on the same soil, removing every year from that soil on an average between 50 lbs. and 70 lbs. of potash per acre? But Mr. Lawes says after a Clover crop has been taken away you can get a better crop of Wheat. Without doubt, but this does not prove that Clover is not an exhausting crop. What if these crops take out wholly different proportions of mineral elements, as in fact they do. And this surely has some little to do with the affair.

Clover removes of potash	77 lbs.
Wheat removes of potash	24
Clover removes of potash more than Wheat ..	53
Clover removes of silica	15
Wheat removes of silica	121
Wheat removes of silica more than Clover ..	106

I intend to resume the subject next week."—*J. C. Nesbit, Agricultural and Scientific School, Kennington, London, May* 15, 1846.

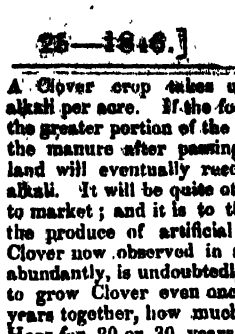
ON GORSE AS FOOD FOR CATTLE.

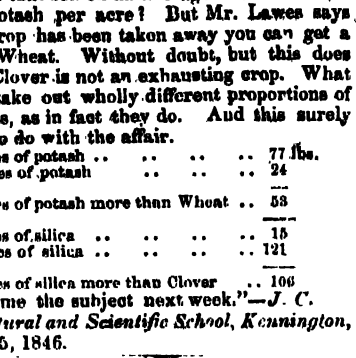
(*Continued from p.* 378.)

9. *The Mode and Expense of preparing Furze* are the next points which have to be considered, and to these I suspect may be traced the various objections which are made to its culture by those who are either unacquainted with its use, or unaware of its great value, when compared with other green crops. In order to assist in removing some of the imaginary difficulties attending the preparation of Furze, I think I cannot do better than describe the several methods which I have seen practised in different parts of the kingdom.

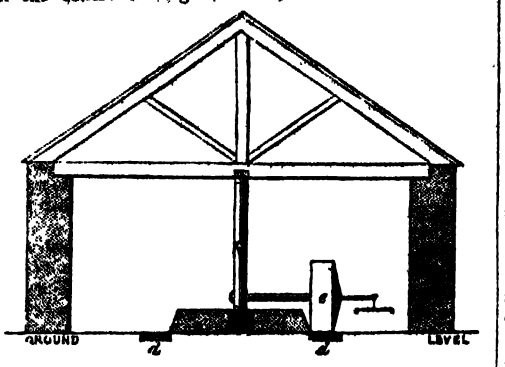
10. *One of the simplest and most original is* that in common use in the north of Scotland, where the Furze after being cut and thrown into small heaps, is either threshed with a flail on the spot, or carried home and afterwards threshed on the barn floor, in the same way as corn. As the object is merely to bruise the hardest of the prickles, it answers the purpose to a certain extent, but the labour required is against the practice being adopted when other means can be found to effect the same object.

11. *Another plan, not half so laborious as the above*, but somewhat more troublesome, is peculiar to certain districts of England and Scotland, and may be thus described:—A large wooden block or solid bench, 2½ or 3 feet high, is fitted up in an out-house or shed, to which the Furze is brought for the purpose of undergoing the process that is to render it fit for use. This consists in beating it thoroughly by handfuls on the block, with a small wooden mallet, bound round with iron, and in some cases shod with the same, until it is thought no inconvenience can possibly arise from the prickles. To those who are obliged to resort to the pounding plan the mallet and chopper combined will be found very useful. This should be of oak, of a cylindrical form, about 10 inches long and 7 inches in diameter, bound round with iron in the same way as the common mallet, but squared at one end, and fitted with two pieces of iron, which cross one another at right angles, and project 4 or 6 inches from the wood, as figured in the annexed drawing. By either of these implements the cost of bruising will vary from 1*d.* to 1½*d.* per bushel. An able-bodied labourer will bruis about 20 bushels in the course of a day.





12. *A third method of preparing Furze* is nearly as common as either of the preceding, and is probably the very best that could have been devised for reducing it to a proper state without the aid of much manual labour. This is by crushing it with a large circular stone placed on its edge, and so constructed as to be easily drawn by one horse in a circular channel into which the Furze is thrown, precisely in the way that Apples are treated when bruised by the cider-mill. Both machines are in fact the same in principle, and differ but little in construction; the cider mill of Gloucester, Worcester, and Hereford being nearly identical with the whin-mill of Aberdeenshire and the north of Scotland, where cider is almost unknown. The mode of erecting such machines will readily suggest itself to persons who have only a slight acquaintance with mechanics; but, with the view of rendering this account more complete and practically useful to those for whom it is intended, I have thought it desirable to subjoin the accompanying section and particulars. Supposing, then, it is intended to erect a Furze-mill, the first thing required to be done is to raise the ground within the circle where the crusher revolves, about a foot above the level of the floor of the shed, as shewn at *aa*, and fix in the centre a large stone *b*, with a hole in the



top, to receive the gudgeon of the upright shaft or spindle *c*, which is to work in it. The diameter of this platform need not exceed 5 or 6 feet, and around it a layer of flat stones is to be placed, as at *d d*, 15 or 18 inches wide, and on a level with the floor of the shed. The crusher *e* may be of granite or any similar hard-natured stone, 3 feet in diameter and 1 foot wide, erect on the inner surface, but bevelled on the outside towards the centre, where it is several inches thicker than at the circumference. It is fixed on an horizontal axle 5 or 6 inches thick, which passes through the centre, the outer end projecting 1 foot or 18 inches beyond the crusher for the purpose of attaching the horse when it is required to be set in motion, while the other is fixed into the shaft *c*, in which there is provision made, by an opening of 2 or 3 inches in length, to allow it to rise and fall, according as the quantity of Furze thrown into the trough may raise or depress the stone. The main shaft *c* may be 6 or 8 inches thick, bound with iron at both ends, and having a pivot in each, the lower one to work in a socket fixed into the stone in the centre of the platform, and the upper in a plate of iron attached to a large cross beam above.

The cost of such a machine will of course depend very much on the facilities there may be for constructing it. Where stone is plentiful, as in Cornwall, I have known one, such as I have described above, to be erected for 4*l.* 10*s*, including stone, wood, and iron-work complete.

13. *A fourth method of crushing Furze* is by using some of those machines constructed on the principle of a chaff cutter, among which I would particularly beg to notice the ingenious one invented by the Messrs. Ransome's, of Ipswich, and some years ago exhibited by them at one of the meetings of the Royal Agricultural Society. It is intended to be worked by hand, and in addition to a couple of strong revolving knives for cutting the Furze into certain lengths, it has the power to give an opposite revolving motion to two cylindrical cast iron rollers, so placed as to receive the Furze immediately it is cut, and effectually bruise it in passing between them.

From the little experience I have had of this machine, and the reports from others who have tried it at my request, I am bound to state that it is much too laborious for working any length of time by hand, and in this respect it requires improvement, so as to diminish the power which is requisite to set it in motion. I believe this is the greatest objection that can be urged against it; although another, which has been found to arise in its working, deserves to be also considered, and I shou'd think might be easily obviated. This is the choking and clogging of the rollers, which from being smooth do not catch the Furze so quickly as they otherwise would if their surface were roughed in some way, and arrangements made to give them a partial cleaning every time they revolve. When these defects are successfully remedied, I have no hesitation in saying that this machine will be found extremely useful, and one of the best of its kind. It costs from 8 to 10 guineas.

Whichever method of bruising Furze is adopted, it must be borne in mind not to prepare any more than may be necessary, as it is not good when it has been crushed and allowed to lie some time before being used. It will, however, keep for a day or two if packed loosely in a bin for that purpose, but the fresher it is the better it will be liked.—*M. E. H*

(*To be continued.*)

ON THE STATE OF HUSBANDRY IN LOWER BRITTANY.

WITH INCIDENTAL OBSERVATIONS ON THE CONDITION OF THE FARMING POPULATION THERE, COMPARED WITH THE SOCIAL STATE OF THE ANALOGOUS CLASSES IN IRELAND.

By Martin Doyle.

(*Continued from p.* 827.)

It is decidedly the opinion of the French respecting the landes of Brittany that the reclamation of them is only profitable by degrees, according as they can conveniently provide hands to till and manure to fertilise. In Hanover, any individuals interested in the cultivation of a waste have the power of calling upon a tribunal to assign them in severalty such portions of it as may be deemed equivalent to their respective interests in that waste; and a law to this purport would perhaps be more effectual for carrying out the objects of the French Government in regard to the reclamation of the landes than the mere permission given to corporate bodies to alienate their rights of commonage with the approval of the Préfect of the Departement. A survey was taken by engineers with the accuracy of our ordnance surveys, and every sort of soil, heaths and bogs of course inclusive, were described.

"The preliminary steps which exceeded the means of individuals were taken at the expence of Government wherever the wastes designed for improvement were the property of the State; and of the municipal bodies wherever they were the property of communities. Roads were laid out in all directions; deep and wide trenches cut across the turf bogs opened a communication between their stagnant waters and the rivers. By this means alone their surface became sufficiently firm to admit of tillage. These grand outlines of the plan having been completed at the general expense, the wastes were divided into allotments of various sizes, though not of great extent, in order to meet the capital and energy of their future cultivators. They were then either let on long leases or sold in perpetuity for the best rent or price which they could command, and the rent or purchase money obtained for these allotments, justified we believe in every instance, all that had been expended on the preliminary measures of improvement."

The Dutch colonies of paupers are well known; the system of settling the redundant population on wastes has been proved most beneficial to the public, and certainly in respect of soil and climate the waste lands of Ireland have a decided advantage, and unquestionably with respect to soil the moors of Brittany are immeasurably a less promising material to work upon than the worn out and therefore very shallow bogs of Ireland which contain a superabundance of humus in which the other tracts are comparatively so deficient; and the heaths of Hanover and the cold clays of the North of Holland are inferior to both. The only advantage which the landes possess is their dryness; but what experienced and industrious husbandman will prefer a poor shallow dry soil of 2 or 3 inches to a deep vegetable mould, capable of raising the finest garden plants, together merely for the labour of first draining it, and then blending the different earths which Providence has placed beneath his spade! That the Breton moors might be made to yield Turnips very well and to multiply the number and improve the quality of cattle we have no doubt, but incomparably more productive are the peat moors of Ireland capable of becoming.

Moors from which the superincumbent peat has been cut away are convertible without much difficulty into very fertile soil. And in several instances deep turf bog is rendered doubly productive; first, by yielding peat for fuel and then becoming good Grass or arable land. A case in point will serve to illustrate this. A company of distillers in Limerick, obtained some years ago about 250 acres of black bog with which we are familiar close to the river Shannon and not far from the city, for the purpose of supplying their establishment with fuel. This bog was so deep that the roof of the neat slated cottage which they built on it was hardly visible from the river until the peat around it was cleared away.

Straight intersecting drains were cut at right angles, dividing the bog into parrallelograms of about 6 acres each, and the peat was then cut away in regular courses down to the bottom. When I visited that place a considerable extent of elastic meadow land had been gained by mixing about 3 inches of the subsoil with the fibrous and refuse portions of the peat over it, and manuring. The intention was to render the base of the whole bog, in the progress of time, Grass-land. The garden was a curiosity, from the peculiarity of its location in the midst of countless masses of turf clumps; the surrounding Thorn-hedge was 8 feet high. Knight's Marrowfat Peas reached a most extraordinary degree of elevation, and other vegetables were proportionably luxuriant; Carrots were particularly so. Among the flowers were Belladonna Lilies, Potentillas, Siberian Larkspur, Gladiola grandiflora, Rockets 15 inches long, Tiger Iris, Paradise Plant, double flowering Pink, Monkey Plant, Celestial Rose; Heaths, Eringoes, sweet-scented Peonies, Dwarf Rhododendrons, and Pansies of a very fine description.

Moorland on the slopes of elevated hills, if wet, is easily reclaimable by judicious draining, destruction of heath and coarse perennial woods by fire and a top-dressing of whatever fertilising matter may be procurable. If streams of water can be diffused over it from the higher ground, here is at once a cheap and certain source of civilisation; by collecting the streamlets, rendering each spring available for irrigation, a large extent of surface may be rendered fruitful—not, indeed, in the herbage suited to sheep, but in abundant, though coarse Grasses, for black cattle. There are strongly urged objections to irrigation in the mountain pastoral districts of Scotland, where each rill, it might be supposed, would be valued inestimably for that purpose; the sheep farmers make no use of them in this way, alleging that, without occasional top-dressing, irrigation exhausts the power of the soil.

To render the watering of Grass-land effective, however, draining must precede it, and this is objectionable

except in a small degree, to most of the hill sheep farmers in Scotland, who assert that it destroys some of the plants on which they depend in winter and the early spring for the subsistence of their sheep, acting on this principle—and I state this from personal observation (as in every instance to which I have referred on matters of practical detail), they merely surface-drain, and that in such a way as will not give the water *too hasty an escape*; the drains are made to meander down a slope—an evidence of the reluctance with which the pastoral farmer parts with the water.

Paring and burning (strong heath, and such like incumbrances, on the ground excepted) would evidently diminish the already deficient amount of vegetable matter, and therefore ought not to be practised, especially if a covering of clay marl can be applied, or a sufficient allowance of lime (that wonderfully efficacious agent on any land naturally deficient in it), or of any calcareous substance. We have pursued the following method on such hungry heath land, within a mile of a marl pit. The very strong plants of heath, with some Gorse or Furze, being hoed out, 300 cubic yards of indifferent clay marl were laid and spread on the surface, which was not ploughed until the autumn of the following year, when it was broken up and sown with Wheat; in the ensuing year a fair allowance of farm-yard dung was given to a Potato crop, which was good; Oats and Grass seeds completed the course, and the land was decidedly reclaimed from a perfectly worthless condition to a state in which it was profitable for pasturage. The marl tended considerably to consolidate the soil, which, in the dry summer seasons, otherwise would have been worthless from its absorbent nature.

The good effects of the dung after the marling was very great; and unless this manure had been afforded, the benefit denied to the soil from the mineral manure would have been (except as to its mechanical effect on it) comparatively insignificant. Turnips might have succeeded to the Wheat in the last case mentioned, and if there had been no compost or farm-yard dung available to them, guano, bone-dust, or some other fertiliser of the same nature, might have been used to raise green crops with nearly equal benefit to the ground. But to think of finding marl-pits within a short distance of high gravelly moors, and covering them with it, is an absurdity; nor are we to assume that even lime (so much more portable) can be conveyed without an enormous expense and difficulty to mountain moors.

We must, to reclaim them, generally speaking, be content either to pare and burn (according to the circumstances of the soil and the vegetation), and sow Rape, as I have recommended, and mixed Grass seeds; or, if there be no manures for Rape or any other such crop (which, considering modern facilities in this particular, need hardly be supposed), we would merely turn up a new surface, and sow in the case of a peat soil (like that of No. 1. in the former part of this Essay) Grass seeds, or leave it to acquire a natural sward. The gradual decomposition of the inverted sod will of itself afford new principles of food to a rising generation of plants; if it be, on the contrary, a light, shallow, vegetable soil, or an open subsoil, we would recommend ploughing and harrowing sufficient to reduce the surface to mould, with a subsoil ploughing to give more space to the roots of plants, and to increase the volume of active earth.

(To be continued.)

EXPERIMENTS WITH MANURES ON POTATOES, TURNIPS, AND WHEAT.

By JAS. CAIRD, BALDOON.

[*Taken from the Galloway Herald.*]

No. 1.—Experiment on Potatoes (Cups), to test the relative value of the following manures—crop planted 22d May, raised 1st November, 1845. Manure applied in the drill along with the seed:—

Manure applied when Potatoes were planted.	Quantity per acre.	Cost per acre.	Quantity of Produce per imperial acre.
			tons. cwt. qrs.
African guano	8 cwt.	48*s.*	5 12 1
Peruvian guano	8 cwt.	80*s.*	6 13 1
Dawson's animal charcoal .	1 ton.	60*s.*	2 13 3

No 2.—On Turnips (White Globe). Manure applied in the drill, and seed sown, 3d June, raised 1st December, 1845:—

African guano.....	8 cwt.	36*s.*	29	14	0
Bone manure	20 bush.	50*s.*	19	16	0
Dawson's animal charcoal	1 ton.	60*s.*	13	10	0

No. 3.—Experiment on Wheat, to prove the value of different applications of lime. Soil, alluvial clay; seed, Hunter's Wheat. Sown 23d Sept., 1844; cut 27th August, 1845:

Quantity of Lime applied per acre.	Cost per acre.	Produce of Grain per acre.	Produce of Straw per acre.	Weight of Grain per bushel.
	s. *d.*	Bushels.	tns. cwt. qr	lbs.
300 bushels of quicklime	107 6	43	2 5 2	60½
Nothing	..	44	2 2 2	60½
240 bushels of quicklime	86 0	42	0 0 0	60½
Nothing	..	40	0 0 0	60½
180 bushels of quicklime	64 6	47	0 0 0	60½
Nothing	..	43	0 0 0	60½

No. 1. The quantity of land experimented on was one-eighth of an acre in each plot; and the three examples detailed above are part of a series of nine intended to determine the relative value of African and Peruvian guano, and of animal charcoal. The land was quite level and of very uniform quality, being in the middle of a large field of carse (*i. e.* alluvial) land, furrow-drained. From the very wet season, it was found difficult to manage correctly the whole set of experiments, and the three here recorded were therefore kept separate, and may be regarded as trustworthy. The result of this experiment seems to show that Peruvian guano, at 10*s.* per cwt., is as cheap as African at 6*s.* 6*d.*, when applied to the Potato crop. Animal charcoal as a manure for this crop is worthless, if applied alone; and in these experiments the land had no other manure.

It was strongly recommended by several practical writers on the subject, to avoid applying guano in direct contact with the Potato-sets; but as that had been done here for two years without loss, this opinion was considered erroneous. To prove the matter, a basket of Potatoes was cut, and each cutting dipped into a basket of guano, the guano adhering to the moist sides of the newly-cut sets; these were then put into an empty guano-bag, and left in it for a fortnight. They were then planted in a drill by themselves. About a tenth part of them never vegetated, but the rest grew so well that when the tops were full grown the blanks could not be discovered without minute inspection. I think, therefore, there is very little danger to be apprehended from applying this manure in direct contact with the seed.

No. 2. The quantity of land in this experiment was one-eighth of an acre in each plot. The soil level carse land, furrow drained. No other manure applied. The experiment explains itself. On this description of soil I have grown Turnips of excellent quality on a large scale, with no other manure than 6 or 7 cwt. of guano.

No 3. The soil on which this experiment was tried was level carse land, furrow-drained; the extent under trial 6 acres, one acre in each division. Each acre was stacked separately, and the whole produce of each carefully measured by itself. This soil had been analysed by Professor Johnston, and contained, according to analysis, rather less, in its natural state, than 1 per cent. of carbonate of lime, which is less than is found in most productive soils. "Therefore," the Professor adds, "the application of a heavy liming is indicated by the composition. It is possible, however, that in a soil such as yours, into which the roots can enter without meeting with noxious matter, the addition of lime may not sensibly, or for a considerable time materially, increase the produce." An inspection of the table will show the correctness of this opinion. There was a considerable increase of straw in each case where the lime was applied; but the increase in grain was so small in both cases where there was an increase (and in one there was a decrease), that no immediate benefit appears to have followed the application. The difference in quality, in so far as that can be ascertained by weight, was in each case slightly in favour of the plots which received no lime. The lime, after being slaked, was scattered on the surface in a state of fine powder, and ploughed in with a light seed furrow immediately before the Wheat was sown.

The foregoing experiments were all made on strong carse land, and may, therefore, not be of general application.—*Baldoon, 5th May*, 1846.

Home Correspondence.

To Irishmen.—We are in this neighbourhood in great want of men to cut the Hay crops. Noticing the absence of Irishmen this season, I avail myself of your paper, in order that you may apprize them that work is to be had, and plenty of it; and not only Irishmen, but all others who work at mowing. The season being so early, I conclude is the cause, not only of scarcity of hands, but of the great demand.—*A Subscriber, Waltham Abbey, Essex.*

The Weather and the Crops.—I beg to send the following remarks as required by "G. W.":—As I am no corn grower, I am no judge; I have taken the two corn harvest months, and have put down decided wet days either in the day or night.

1842 ..	August 2	..	September 10			
1843 ..	,, 14	..	,, 3	}	Number of wet days or nights.	
1844 ..	,, 14	..	,, 3			
1845 ..	,, 22	..	,, 12			

Our Potatoes are very bad about here; but such stacks of corn I never saw before at this time, not taken in even by the very smallest farmer. Wheat, 23*s.* for 168 lbs.; Barley, 12*s.* for 144 lbs.; Oats, 10*s.* for 105 lbs.; Potatoes, 8*s.* for 195 lbs.—*T. W. H., Abergele, May 2.*

Rooks.—One of your correspondents under the head of "Garden Gossip," speaks of "those mischievous vagabonds the rooks, on whose history and evil doings he could write pages." I also could write pages on their history, but certainly not on their evil doings. Your correspondent says he "has no patience with those who write from their libraries in large towns about the poor persecuted rooks;" and goes on to say, "these people can certainly never have used their own eyes in a country where rooks are plentiful." I beg to assure your correspondent that I write from a part of the country where rooks are as plentiful, if not more numerous than in any part of the United Kingdom. I beg to assure him also, that I was born in the country, and have lived in the country all the days of my life, and that I am engaged in agriculture. If rooks are as mischievous as your correspondent asserts, how is it that at harvest time we have anything left in the neighbourhood? Whilst I write, hundreds of young rooks are being constantly fed by the old ones, almost within gun-shot of the table at which I sit. What are these young ones fed with? I have no ripe corn, no Potatoes. What are they fed with? They are fed with countless thousands of grubs picked up from and out of the earth by these invaluable birds, from five in the morning until seven at night. Had your correspondent lived in the Canton de Vaud, in Switzerland, as I have done, he would have told a different story. I have there seen valuable pasture ground so utterly destroyed by the grub which turns to the cockchafer, that there was not a blade of Grass left. The cultivators are there compelled by law (a very unnecessary law you will say), to collect these grubs and destroy them, and I have seen heaps as large as a bushel, and many of them, in a field thus collected to be destroyed. Vast flights of rooks pass over Switzerland in the spring and autumn, but do not remain except to feed, and the peasants say that they do infinite good. I admit that when Beans are coming up they pilfer them. I admit that they steal Potatoes, and I admit that in years of drought they do mischief to the ripe Barley where it is lodged. But this may be prevented by keeping boys constantly in the field at such times, and by firing a gun at them occasionally. How is it that in a large piece of excellent pasture adjoining the rookery at this place, there is nothing like a wireworm to be found? What are the rooks eating for hours at a time (for eating they are) on this pasture? Last year, during Barley sowing a large quantity of rooks were following the plough and eating something; the farmer felt convinced they were eating his seed Barley; he shot one, and in the poor bird's crop not one grain of Barley was found, but it was full of wire-worms. Facts are stubborn things.—*L.*

Grazing and Mowing.—Many thanks for your notice on this subject. I have doubts myself respecting the correctness of the information. It is contained in an essay read by Mr. J. D. Greaves, the secretary of the Burton-upon-Trent Farmers' Club; *vide* "Farmers' Magazine" for March, 1846, page 267. He argues that each successive week during which Grass is left uncropped, it throws up more and more, that the larger it becomes the more it increases, until mature (as a tree does). He then says, suppose a pasture of fair average quality is left without stock in the spring, it will produce 30 cwt. of hay by the middle of June. This is equal to at least (qy. !) 15 weeks' keep of a cow; but if you turn in on 1st May, while the bite is spare, an acre will not more than supply a cow for six weeks, until the middle of June, when the land will be as bare as if mown. The last words meet your objection, but the point is, is all this reasoning true in practice? It is very material, and well worthy of being proved. The essay is worthy attention. I do not know if Mr. Greaves is a practical man or not, but it would be very satisfactory to know what practical men think upon the subject. If an acre of good pasture (it must be good to give 30 cwt. of hay by midsummer) yields 30 cwt. of hay, worth 4*l.* 10*s.*, and the latter worth, say, 15*l.* to 20*l.* If this acre would only keep a cow six weeks before midsummer, say 36*s.*, it would only keep half a cow after midsummer until Michaelmas, or in all 72*s.* The expense of hay-making is the only deduction, for the manure is equally on the farm in both cases.—*Inquirer.*

The Present Potato Crop—"It is now almost a certainty that the whole of the crops which have been planted at the usual season, and that too without any previous preparation of the seed tuber, will be again destroyed." Such is the lugubrious prognostication of Mr. Barnes, Bicton Gardens, Sidmouth. So we find it in his article 1st and 2d columns of p. 396, of the *Agricultural Gazette*, June 13. It is needless to recite the pre-advanced examples; my object is not to deny or refute, I only say pity it is for the noble, the beautiful county of Devon, if a calamity so dire be permitted to devastate it. As, however, the assertion is positive, and of general application,—"the whole of the crops,"—they who are Potato growers, who reside in a different county, who planted fully, extensively, in despite of augury, should investigate for themselves, and bring assertion to the proof. I, for one, certainly, lost half my produce of last year, the disease first appearing about the first week of August. After digging, selecting, and storing in a very dry barn, I reserved a number of diseased tubers, generally of a second early variety like a Champion; and these, some divided, some entire, according to the size, I planted by the trowel with my own hand, so that there should be no mistake. The site, a plot of the garden of sound hazel loam, deep, but over chalk and gravel. The time, middle of November, 1845. Seven rows, 30 inches asunder, were planted, the tubers or sets 10 inches apart, and 5 or 6 inches deep—all were dipped in, and after planting dusted over with air-slaked lime. The earth was then returned, made level, and covered along the line of each row with about half an inch of sifted coal-ashes. These were laid on merely as a mark, it being intended to mulch the rows with litter in the event of frost, but none occurred. The eyes had pushed prior to planting, but they appeared above ground so very late, that deeming it probable the whole might have decayed, I planted in March intermediately, with an early variety. Both arose nearly together, were thoroughly hoed, but not earthed up, and now, June 14, I find the diseased tubers to have produced by far the finest plants, though both are healthy. I cannot discern a spot on leaf or stem, but perceive the autumn sown variety to have the largest stems, the boldest leaves, and a perfect development of blossoms. Disease may show itself—and if it do, as truth and sincerity are my objects, I will announce the appearance of my plants. All my Potatoes of this year, cut or entire, were set with lime, or lime and soot: none had manure placed in contact with them, and all as yet—including the self-sown—that is, those which sprang from

tubers left in the ground, are, to all appearance, perfect. I heard something confirmatory of the statement recently made by Mr. Silver, of White Waltham, a clever gardener, whom I know well. He had seen disease, I was told, but I have not been able as yet to call upon him. I shall add to my own testimony the results of further observations. I have seen early Potatoes grown even in sawdust; others, in pits over dung. I know large plantings in fields, and others in extensive garden plots, but no one case of incipient or confirmed disease has been seen or alluded to. All we fear at present is, a loss of bulk in consequence of the unwonted heat and drought. Having thus recited a few plain truths, and hoping the best, though prepared to admit the worst, if it should occur, it only remains to deprecate needless warnings of alarm, or crying "wolf" by anticipation. If the disease occur there can be no existing remedy—but if it appear that from diseased tubers,* as mine were, a healthy crop be obtained, I think we shall have no reason to anticipate an extensive failure from sound ones. I omitted to say in the former part of this notice, that, among the seven rows, there are some blanks, perhaps to the extent of one-tenth. The tubers in such cases never germinated—they perished during winter: not one that rose above soil has as yet failed.—*J. Towers, Maidenhead Thicket.*

Railways—Broad Gauge.—Industrious and successful as the parties interested in the narrow gauge railways have been in getting hold of the press in the furtherance of their narrow principles, I was astonished on opening the *Chronicle*, to find an advocate in one whom I have always considered a patron of the advance of science, skill, and the general march of improvement in all ways. Is it possible that you can have been seduced by a few *ad captandum* arguments about uniformity of gauge, to fall into what I must call a common error, the result of which can only be, in the infancy of locomotion in this great country to place at the outset an absolute barrier to all future improvement? The real history of the case is this: Mr. Brunell, with a genius and foresight in advance of his age, saw that the gauge, which had been adopted without any view to passenger traffic, admitted only of engines of limited powers; that railways would supersede all other modes of travelling; that increased speed and power would be looked for; and that in laying down expensive works which were to last for ever, ample space should be secured. Whether or not he hit upon the exact width of rail that would accomplish all that could be desired (a problem not yet solved) is immaterial. It is sufficient for our present purpose that it is notorious, with our present experience, that if it were an open question there is not an engineer in England who would lay down a railway upon so narrow a gauge as 4 ft. 8½ in. For a time nothing was heard about break of gauge, or any difficulty resulting from a change of carriages, or a transfer of goods. It soon became apparent that Mr. Brunell's views were correct; that infinitely greater comfort, ease, and speed were accomplished on the Great Western than on any other line in the world. Efforts were in consequence made to accomplish these desiderata upon the narrow gauge, increased power and speed especially, with most confident anticipations of success. The consequence was most beneficial to the public; and the narrow gauge companies thus pushed made considerable advances, and nearly equalled the speed, though all travellers by both gauges know neither, or either, with the degree of ease, comfort, nor punctuality of the Great Western. The broad gauge then began spreading its wings in other directions, and was received with open arms. The narrow gauge at last found its limit in point of speed, accompanied with safety, and also of power. Then and there only commenced the horrible annoyance of shifts of persons and goods, attributed solely to break of gauge, though this had notoriously existed, now does exist, and ever will of necessity exist, in districts wholly irrespective of the break of gauge—inasmuch as there are 50 shareholders in narrow gauge lines for one in a broad gauge line. There are 50 voices and pens at work to one—endeavouring to upset by clamour superior advantages of which the attainment in the fair field of competion has become utterly hopeless. Is not the mere fact that the narrow gauge is clamouring for legislative prohibition, and that the broad gauge is clamouring for open competition, and challenging only a fair public field, in itself a strong ground for public encouragement? All that mere assertion orally, and in writing could accomplish, had been said and written prior to the last session of Parliament, in which the great fight came off in the committees; and that had been carried so far that public opinion had been materially influenced; but what was the result of actual evidence produced before a committee of the House of Commons, where mere assertion went for nothing, and facts and figures were to be dealt with? A committee, too, deemed so favourable from circumstances to the narrow gauge interests, that the broad gauge party fancied themselves fore-doomed? A unanimous report in favour of the broad gauge schemes, though said to be irrespective of the question of gauge, while it is notorious that all the evidence bore more or less on the question of gauge. The battle was again fought before a committee of the House of Lords with the same result. The question was thus substantively referred to commissioners. Observe the admissions in their report, and the evident reluctance with which they were made. See the observations on that report with the appendix, fairly launched as those of the Great Western Railway Board, challenging, scouting, and defying contradiction. Mark whether, in the face of that exposure, any Government dare act upon such a document! Can it be denied that the express train between Liverpool and London 190¼ miles, with six stoppages, occupies in the journey to and fro, 11 hours and 16 minutes, assuming it keeps its time and conveys only first-class passengers; and that the Great Western express to Exeter, 193¾ miles, with seven stoppages, occupies 9 hours and 5 minutes, keeping its time with the greatest exactness, and conveying both first and second-class passengers? Are these times in which we are to retrograde in a matter of such vital importance as locomotion; and are the public in this country to have that retrogression fixed in all time to come? The notion is utterly monstrous, and I am sure would be scouted by you if you had given the matter that enlightened consideration which has hitherto characterised your publication. You seem to be unacquainted with the fact, which has been demonstrated as clearly as any fact can be demonstrated, viz., that the broad gauge is not only the most speedy and safe at high speeds, but by far the most economical. And when you adopt the views you have stated about the convenience of small trucks, it can hardly have occurred to you that while small trucks can be, and in fact are used as well as large ones on the broad gauge, the large trucks required for a variety of purposes cannot be brought upon the narrow gauge; and that the Staffordshire iron masters are at this moment petitioners before Parliament for the introduction of the broad gauge into these districts upon that especial allegation. Rely on it the public will be most benefited in those instances in which they have the luck to have a choice between the broad and the narrow gauge through any particular district. It is the dread of this which is at the bottom of all that has been written during the last few weeks by the narrow gauge shareholders.—*Speed on a Broad Basis.* [We agree with our correspondent as regards speed and comfort—differ as regards cost; but are advocates for the narrow guage because there are 2000 miles of the one and 200 of the other.]

Profitable Feeding.—In criticising the opinions of others we should recollect that our own productions are subject to the same ordeal; and the letter of the "Aberdeenshire Farmer" would come in for a liberal share; but I shall, in preference, proceed to defend myself. How my letters on feeding show animals can have been misunderstood passes my comprehension. I will again attempt to make my meaning more plain. I have not the slightest objection "to dukes and lords" carrying off the prizes, provided they do so fairly, competing with the farmer in breeding, feeding, &c., at the same time producing a debtor and creditor account; and I think if "The Chiel fra the North" would take the trouble of reading over again my effusions, he would find he had formed his judgment on parts instead of taking the whole. I have always advocated good breeding and feeding fat animals for the market at the smallest cost. I do not intend to be driven from this position too easily, and I must have better reasons for giving up my views than the criticism of your correspondent, "An Aberdeenshire Farmer." An animal covered with fat and unable to move is no criterion of good farming, although the tallow may cover a multitude of sins, unless it can be proved that it has been brought to the condition at a remunerating price, and not doctored with stimulants to create an appetite. On the contrary, if a sheep, ox, or pig is exhibited well supplied with flesh, fit for the most scientific butcher's knife, and worthy of the most fastidious epicure's table, at a sum not exceeding the usual market price of meat per lb., I must maintain that it is a strong symptom of judicious management, and far more worthy of a reward and encouragement than the unfortunate mass of animal matter designated a prize beast, whose very limbs are concealed with overhanging blubber. This has always been the burthen of my song, and I cannot change it on slight grounds. With respect to animals set apart for feeding, it must be acknowledged that what is termed good condition is the most conducive to the increase of the species. I trust some practical man will, at the Newcastle meeting, suggest giving prizes for the best bred and cheapest fed animals, always recollecting the debtor and creditor account, age, parentage, &c., being narrowly inquired into. I have no personal interest in the matter, as some may suppose; I simply allude to it with the hope of inducing more competent men to undertake a subject which, in my humble opinion, is of vital importance to the hard working farmer, who at present has not much chance with the rich tenant or landlord. The small farm system will gradually come into practice as the knowledge of agriculture extends. At present land is underlet, and the labourer starved in consequence.—*Falcon.*

The Allotment System.—At page 363 I observe some remarks on the demerits of the allotment system. I cannot see that your correspondent has clearly proved that there are not great and substantial benefits arising from allotments of ground being let to the labouring class. The real question is, does the labouring man receive a sufficient remuneration for his 10 hours of labour to enable him to support a wife and children, independent of any other means of subsistence? If such were the case, allotments of land would not be of such pressing necessity. According to statements made in the House of Commons on the Corn Importations Act, it was stated that 7*s.* per week is given to the Dorsetshire labourer. Is this a fair day's wage for a fair day's work? Let any reasonable man consider, and see how it is possible, with such a miserable sum, to exist without being in starvation. It is, therefore, evident that a labourer with a wife and family will require some other means of subsistence than that received for his labour. How can such means be placed in his power? I say by the allotment system, in advocating which let it be considered whether his time so occupied is profitably spent; for if so, the system is good. Take, for example, Potatoes as a crop to be grown by the cottager. An able-bodied man, without over-exertion, will dig and plant one perch of ground in two hours, and if the ground is tolerably good and properly cultivated, it will produce from 8 to 12 pecks of Potatoes, which, upon an average in this part of the country, would be worth 6*d.* per peck. Here it is clear that even at the extravagant price of 1*s.* per perch [justly] complained of by your correspondent, a man would be better remunerated for his labour than he is by the farmer. As regards the exhaustion of a man's strength by over-work, it ought to be left to himself to discriminate when he has done enough; he will generally be found to be the best judge of his own immediate wants. I have men at work under me who hold allotments; they are constantly under my eye; and whether they may have been at work upon their allotments or not, their strength seems to be invariably the same; indeed, I think the allotment tenant is better able to withstand the extra amount of labour, for by his industry he can afford himself an extra slice of bacon, which his neighbour, whose time is unoccupied, must go without. He would also be better able to afford a little for the education of his children, which in this country has been shamefully neglected. If a general system of allotting land to the labouring class was to take place, I think the intelligence of the community would advance, because it would enable those who are fond of literature to purchase those works that otherwise they could not afford. I know at the present time labouring men who are holders of allotments that take in a newspaper, which 30 years ago would not have been thought of by people in their station of life. But, setting aside all theory, practice has proved that the system is sound in principle, and, beyond a shadow of doubt, a decided advantage to the working man. I will state two places that come within my knowledge, where it has been adopted, and the plan has answered admirably. Near the town of Cirencester, there is let by Earl Bathurst (a true friend to the poor) land to the labouring people at 4*d.* per perch, including rates and taxes. The land is good, therefore not too high rented. There is also at Kemble, let by Robert Gordon, Esq., land at 3*d.* per perch, and I believe that each of the individuals holding these allotments would consider they sustained a severe loss were they to be deprived of them. The allotment system, like many other good measures, has its limits; and, although an advocate of the system, I do not think that any benefit would be conferred on the working man were he allotted too much land, I mean to those who are in a constant place of work: to an able-bodied man of that class 50 perches of land would not be too much to cultivate, either as regards injury to his constitution by over exertion, or the duty that he owes to a master by whom he may be employed: to the jobbing labourer the case is different, as much ought to be allotted as would fill up all time when not otherwise employed. It is a subject I would rejoice in seeing taken up by the legislature—to have the allotment system organised upon sound and just principles, that every labouring man may have an opportunity of renting a small portion of land at a moderate price. I look upon it as a measure that would tend to reduce the amount of crime, by bringing up the rising generation to industrious habits, thereby alluring them from the beer shop, poaching, and a train of other vices, which are a curse to the human race. It is said "the Devil always finds work for idle hands to do;" let us try and take the trade out of his hands.—*Robert Cassilles, Ewen, Kemble, Wilts, June 2.*

Abortion.—In answer to your correspondent's enquiry "Why so many as twelve of his cows should have slipped their calves this season," allow me to suggest that the fault lies with the bull. It is a generally acknowledged fact that a bull communicates this complaint from one cow to any others that are put to him. Then as to the remedy; that suggested by yourself is doubtless the best (to change the whole herd), but where this is impracticable, I would recommend the following:—1st, the bull to be changed; 2nd, no cows that had once slipped their calf to be put to the bull, till, say 6 six weeks after the time they ought to have calved, had all gone right; 3rd, that each cow should have two common "drinks" when gone half her time. These remedies I have found efficacious, though my experience has happily been small.—*G. D.*

Disease in Grass Land.—I write to inform you of a very serious disease in the Grass crops and young corn in certain parts of Yorkshire and Lancashire. These crops are either full or rapidly filling with the green insect or plant louse, which is often seen on the buds of the Rose tree. The people of this country have small farms of Grass and Oats for cow-keeping. Some of the crops are about two-thirds grown, and beginning to diminish gradually and daily by means of this insect. We are at a loss whether to cut or not. The hay may be damaged if got with the insect, &c.,

* My Potato store was picked over twice; the second time, about the middle of March, a bushel or more were carried off, and tossed into a hole in the orchard by a hedge side. Some straw and litter covered them: they now form a dense mass of growing herbage.

in it. Other evils may breed out of it; and, yet to allow it to be eaten off the ground is a very serious thing. An intelligent old farmer, who pointed it out to me this morning, declared it would be much worse than the Potato disease. I shall endeavour to enclose you a specimen, and shall be glad to give any information that I can collect. We have seen no notice of it in the papers. If it be only partial at present, at some future time, even in the present year, and at least in subsequent years, it may again shew itself. I must confess I feel considerable alarm at present; I hope time will bring rain, and a change for the better — *William Simpson, Doleross Parsonage, near Manchester.* [The specimen sent is covered with the aphis].

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A WEEKLY COUNCIL was held at the Society's House, in Hanover-square, on Wednesday last, the 17th of June; present, the Right Hon Lord PORTMAN, president, in the chair; Earl Spencer; Earl of Lovelace; Sir Francis Lawley, Bart.; Sir Matthew White Ridley, Bart.; Sir John V. B. Johnstone, Bart., M.P.; Colonel Austen, M.P.; T. Raymond Barker; Rev. T. Cator; Colonel Challoner; F. C. Cherry, Esq.; E. D. Davenport, Esq.; W. Fisher Hobbs, Esq.; W. H. Hyett, Esq.; J. Kinder, Esq.; Colonel Mac Donall; E. S. Chandos Pole, Esq.; F. Pym, Esq.; E. A. Sanford, Esq.; Prof. Sewell, W. R. C. Stansfield, Esq., M.P.; R. Archbold, Esq., M.P.; J. Baines, Esq.; T. B. Browne, Esq.; Dr. Calvert; Colonel Coles; C. Cure, Esq.; W. Cuthbertson, Esq.; T. Dunne, jun., Esq.; C. Eyre, Esq.; A. Glendinning, Esq.; H. Lewis, Esq.; A. Majendie, Esq.; S. Solly, Esq.; T. Turner, Esq.; and T. R. Tweed, Esq.

The following new members were elected:—

Coulson, Colonel, Blenkinsopp, Haltwhistle, Northumb
Watson, John, Kendal, Westmoreland
Potter, Addison, jun., Heaton Hall, Newcastle-upon-Tyne.
Lucy, William Fulke, Charlecote Park, Stratford-on Avon.
Todd, William Robert, Pelton House, Newc. upon-Tyne.
Dobson, William, Jutlington, Morpeth.
Todd, Fred. Swan, Pelton House, Newcastle-upon-Tyne.
Lowes, John, Allen's Green, Haltwhistle, Northumberland.
Davidson, Thos. Atkinson, Police-station, Manors, Newcastle-on-Tyne.
De Broke, Lord Willoughby, Compton-Verney, Stratford-on-Avon.
Morriss, Nicholas, Blue House, Washington, Gateshead.
Rayne, Charles, Carville Hall, Newcastle upon-Tyne.
Pearce, Colonel William, Fowdgreech, Brecon.
Harter, Rev. Geo. Gardner, Cranfield, Newport-Pagnel
Clay, John, East Boldon, South-Shields, Durham.
Morriss, Robt Martinson, Carville, Newcastle-on-Tyne.
Wheldon, Stephen, Pelton, Chester-le Street, Durham.
Lamb, Joseph, Axwell Park, Newcastle-upon Tyne.
Lowman, Robert, Crewkerne, Somerset.
Geldard, John, South Benwell House, Newcastle-upon-Tyne.
Parkinson, William, Gateshead, Durham.
Swinburne, Rt Walter, Cleadon Cottage, South Shields.
Green, Josephus S., George-street, Newcastle-upon-Tyne.
Richardson, Edward, Cresswell House, Sunderland.
Ornston, John, Cumberland-row, Newcastle-upon-Tyne.
Smith, John, Lady-Kirk, Northumberland.
Bruce, Rev. John Collingwood, Newcastle-upon Tyne.
Groves, Joseph, Radipole, Weymouth, Dorset.

The names of 30 candidates for election at the next meeting were then read.

The following communications were received:

1. Letters from the Secretaries of the Newcastle Literary and Philosophical Society and the Newcastle Farmers' Club, announcing resolutions of their respective committees that the rooms and library of the former establishment, and the club-room of the latter association would be thrown open to the free access of members of the Royal Agricultural Society during their approaching session in Newcastle; for which favours, on the motion of Colonel Challoner, seconded by Mr. Fisher Hobbs, the best thanks of the Council were voted.

2. Communications from Sir RODERICK MURCHISON, K.S.P., one of the honorary members of the Society, explaining the object of M. Gripenberg's visit to England, in bringing from his estate in Finland a sowing machine of practical excellence, which had been entered by Mr. Pusey, M.P., on the part of its inventor, for exhibition at the Newcastle meeting, and had already reached this country in charge of M. Gripenberg; and from M. TORNE, the Swedish Consul, announcing that M. Nathhorst, the Secretary of the Royal Agricultural Society of Sweden, was on the point of leaving Stockholm, by direction of that body, for the purpose of being present at the Newcastle meeting. The Council gave instructions respecting the due attention to be paid to these gentlemen.

3. Printed proof of the Programme for the Newcastle Meeting, having been read by the President, was amended and approved.

4. From Mr. MAJENDIE, of Hedingham Castle, Essex, a supply of foreign Sainfoin seed for distribution among the Members, for trial of its qualities. Mr. Majendie informed the Council that two varieties of Sainfoin are cultivated in the white district surrounding the city of Caen in Normandy, which is usually called the "plain of Caen:" one of these varieties being termed the *grande graine*, or *graine à deux coupes* Sainfoin, the other the *petite graine* Sainfoin. The former, or Large-seeded Sainfoin, is sown on land of superior quality, and gives *two* crops of hay: the latter, or small-seeded variety, is sown on inferior land, and gives only *one* crop, which, however, is by some persons considered to be of a more delicate quality. The supply of seed presented by Mr. Majendie consisted of the larger variety, in the hope that it might have its merits tested on calcareous soils in this country. He had himself grown both varieties, and found a difference in the size of the leaf. The President stated his will ingness to try a portion of the seed at the present time, and also, as the season was now late for the purpose, to reserve a portion of it for trial next year at the proper time, on some of his chalk lands in Dorsetshire, which he had found remarkably good for Sainfoin. He thought it very desirable not to let sheep go into it too soon. He recommended the Members who tried this seed to report to the Council their results. Mr. Raymond Baker stated that he had mowed Sainfoin twice in the same season on his farm in Buckinghamshire. Mr. Beale Browne had also land of an oolitic character, on which he would try the seed in question. On the motion of Mr. Raymond Barker, seconded by Mr. Pym, the best thanks of the Council were given to Mr. Majendie for the favour of this present.

5. Mr. FULLER, M.P., communicated the progress of his trial of a portion of the Wheat and Barley sent to the Society from Australia, on the stiff soils of Sussex, for which the Council expressed their thanks. The President at the same time remarked, that however interesting it might be to learn at different dates the progress of any trial of cultivation, the object of the Council was to gain a sound practical result in every possible case, on which they might carefully and securely proceed in their further enquiries: that it was to the result at harvest time, and at the threshing and selling of the produce, that practical men looked for satisfactory conclusions.

6. From Mr. HENRY DRUMMOND, of Albury Park, Surrey, a copy of the Lecture delivered by him as President of the Guildford Institute, on Chemistry applied to the Arts: intended to show in ordinary language, and with as few scientific terms as possible, the application of Chemistry to Agriculture; to give the meaning of the terms employed as they occur; to illustrate its principles by experiments in the power of every one to repeat with great ease; and, in conclusion, to explain the reasons, according to such principles, why some practices in the farming of that part of Surrey were bad while others on the contrary were good. Mr. Drummond also called the attention of the Council to the advantages which would result from an examination of some of the richest pastures in England, such, for example, as those on the borders of Northamptonshire and Leicestershire, with a view to ascertain exactly what Grasses are found on a given space, and in what relative proportion to each other; whether the hay from meadows in which the Grass is most nutritive when eaten green, is also the best; if not, what the Grasses are in those fields where the hay is best. Mr. Drummond doubted whether a considerable quantity of the hay made from natural meadows, so far as the Grass is concerned, is worth making; any goodness in such hay being, in his opinion, generated in the rick.—Mr. Pym thought that Sinclair, in his work on Grasses, had instituted those enquiries to which the attention of the Council had been drawn by Mr. Drummond.—Colonel Challoner was well acquainted with Mr. Drummond, and having had an opportunity of learning his views on this subject, he explained them to the Council.—The President thought it a great point to ascertain the precise time when the seed of *each* particular Grass was in the best state for being collected for future use.—Mr. Hobbs expressed his opinion of the advantages of inoculation in the improvement of pastures, and explained to the Council the mode in which the turf for that purpose is easily obtained by means of a ploughshare with a wing turned up.—The best thanks of the Council were then ordered to be transmitted to Mr. Drummond for the favour of his communication.

7. From Mr TWEED, of Bowater Crescent, Woolwich, a statement of the results of his experiments on the rate at which water enters and again passes out of a cylindric pipe draining tile. He stated that having as a practical man had the most decided doubts concerning the statements made by Mr. Parkes in reference to the mode in which water finds its way into pipe-tiles, he determined to remove them by actual experiment; and having procured at a draining tile manufactory a pipe 4 feet long and 1½ inch in diameter, open only at one end, he soon found by placing such tube in water with its closed end downwards, that the water permeated through the substance of the pipe, and formed within it a column of water increasing in height at the average rate of 1½ inch per hour, which, on the removal of the pipe from the water, and its vertical suspension in the air, again permeated back again through the pores of the tile, at the average rate of a ¼ of an inch per hour. Mr. Tweed exhibited to the Council one of the pipes he had employed in these experiments, and, in conclusion, stated that however sceptical he had previously been on this subject, he was now perfectly convinced, along with several eminent military engineers, who had been equally sceptical with himself, that Mr. Parkes was perfectly correct in his statement that it was more easy to explain how the water got into the pipes, than to devise means how it was to be kept out.—A very interesting discussion then ensued, in the course of which Sir Francis Lawley stated his experience for two years in strong clay, and that of Mr. Harvey, of Epping, for 27 years, of the satisfactory result attending the use of pipe-tiles.—Colonel Challoner mentioned the success with which he had luted collars to the pipe-tiles with well-worked raw clay, in draining the running sands on his estate; with reference to the diameter of the pipe-tile for draining generally, he understood that sewerage companies had already begun to reduce the size of their drains for the purpose of their being cleansed by the increased fulness and velocity of current which such contraction occasioned.—Mr. Chandos Pole related cases in the early use of pipe-tiles without collars in sandy soil, in which artificial springs were occasioned in the field by the blowing up of the drains, arising from the displacement of the tiles.—Sir Matthew Ridley cited the experiments of Dr. Buckland, in Buckinghamshire.—Mr. Fisher Hobbs expressed his doubts whether so ready a permeation of water through the pores of tiles would take place in the finer material of blue clay of which the white bricks and tiles were made. Mr. Sanford conceived that absorption would prove to be the criterion of permeation, and that if a brick or tile acquired weight by immersion in water, such material would to a certain extent, and under favourable circumstances, allow water to pass through a pipe or tile composed of it. The President reminded the Council that it was always important to bear in mind the given circumstances and conditions of an experiment, and to avoid being misled by an illogical or undue generalisation; that in the present case Mr. Tweed had made an experiment, and according to the care and exactness bestowed upon it, that experiment gave true results under the given circumstances of its particular case, as affected by the material used, and the pressure of water employed; that in the repetition of any experiment an exactly similar result could only be expected under exactly similar circumstances—the experiment proving or showing just so much and no more.—Mr. Sanford took that opportunity of giving to the Council an interesting account of draining running sands by means of poles or thinnings of Larch, and stated the accidental circumstances which had led to his operations, and the satisfactory results with which they had been attended; ground perfectly drained, and on which sheep were now feeding, having three years ago been a floating bog, on which a stone could not be placed without being buried. The President, Sir F. Lawley, Sir M. Ridley, Mr. Chandos Pole, and Mr. Fisher Hobbs, then detailed the advantages or disadvantages they had found to attend the use of particular kinds of wood, as that of Alder, Willow, Thorn, Scotch Firs, &c.—The Council then gave their best thanks to Mr. Tweed for the favour of his communication.

8. From Mr. MECHI, of Tiptree Hall, near Kelvedon, an invitation to the members to pay a visit to his farm in Essex, for the purpose of inspecting the comparative effects of thick and thin sowing, of dibbling by Newberry's machine, of dropping by Bentall's dropper, of consolidation by Crosskill's roller, of the extensive use Garrett's horse-hoe, and of deep and shallow draining generally. The best thanks of the Council were ordered to Mr. Mechi for the favour of this invitation.

9. From Messrs. WALKER, of Gospel-Oak Works, Tipton, Staffordshire, a collection of various articles as specimens of the facility and extensive employment of iron coated galvanically with tin, for the purpose of protecting it for a long period from the corrosive action arising from exposure to the weather, and of obviating the necessity of repeated paintings being applied to such out-door work. These articles consisted of hurdles, pans, lattice, hooks, spouts, nails, screws, grates, chains, and hooped tubs; all of which could be coated with tin by Messrs. Walker's process at an expence varying, according to the construction of the article, from 5*s.* to 15*s.* per cwt. The Council ordered their best thanks to be returned to Messrs. Walker for the favour of these presents.

The Council then adjourned to their weekly meeting on Wednesday next, the 24th inst.

We understand that His Royal Highness the Duke of CAMBRIDGE has accepted an invitation to Ravensworth Castle for the purpose of being present at the Newcastle Meeting.

Farmers' Clubs.

MAIDSTONE.—*The cultivation of Root Crops, May 7.*—Mr. F. B. ELVY: On dry soils, where only an average growth of Turnips is wanted, a previous crop of Rye or early Tares may be taken. It may be doubtful if this plan can be pursued where Swedes are wanted, although I have often taken Rye before them and grown an admirable crop; not 40 tons I admit, nor have I ever seen such a crop save in the newspapers. For any other Turnip except Swedes there is no doubt of the plan succeeding; for Mangold Wurzel, perhaps, it may not. I am not, however, fond of that root, preferring the Swede Turnip, as more hardy and more nutritious. To carry on this system, I admit not only must the land be kept clean, but highly manured. I do not feed off my Rye or Tares, but mow it for my cattle. To feed it off would give the land three coats of manure more than it can require, without you mean to draw the Turnips. Let me state my own plan—men are ever fond of this, and generally think it the best; by comparison, however, the best is traced out, so good is derived out of vanity. Before Turnips, then, I dung the land tolerably in the autumn, and sow Rye or Tares. As soon as either crop is off, I keep ploughing, harrowing, and rolling the land till it is fit to sow Turnips. As the land is not foul this is soon done, and then I sow about 3 cwt of guano, mixed with wood ashes. I harrow it in well, and then sow the Turnips broad-cast. If the land wanted more cleansing, I should drill in the guano and ashes or bone-dust. Rape-dust has been found to answer well. Either of these manures will do as a top-dressing. A top-dressing is wanted to stimulate the plant—the dung being well mixed in the land, and hardly acting quick enough. It is now generally

thought in East Kent, where Turnips are much grown, that the latter ploughing should not be so deep. Turnips are found to bulb best on a hard bottom.

Root crops are said to be the foundation of good farming; I am not convinced of this. On wet, stiff land, which is difficult to feed on, I think if a proper estimate was made, the expense of Turnips would be found more than their value. There is a fashion in all things, and even the plodding yeoman is led by it. I have found Rape far better than Turnips as a preparation for Wheat—Rape sown late after the Tares are off, and ploughed in. I have seen the Wheat better on those parts on which the Rape was ploughed in, than on other parts on which the sheep fed. I do not say fed with oil-cake, but simply fed off, the sheep receiving Rape alone. I am aware everything must depend on the method of farming. If a flock be kept, it must be fed, but the generality of farms provide sheep or stock for what they have to consume, and breed but little for themselves. Also the wisdom of this plan will be tested by the dryness or wetness of the land. On dry land I have seen bullocks folded on Turnips, and sheep following them, eating what the bullocks left, thus doubly closing the land. Let me suppose a farm first taken by a farmer. At the early stage, if it be, as most are, when left, foul and out of cultivation, whole fallows and drilled Turnips will be necessary. When time and attention have brought the farm into a proper state of cultivation, then bastard fallows and broadcast Turnips may insure. A change of crop will be all that is necessary. Rest will be idleness; no garden knows a fallow. Much land has lately been rendered fit for roots by draining—much more will be rendered so. The poorest heaths by paring and burning, and by the application of guano, have grown Turnips, and afterwards corn. The root crop may in such cases be called the foundation of farming. If their worth will pay their cost, then do they induce men to drain their lands, to reclaim heaths, &c. What induces men to think, will also induce to try experiments; by experiments knowledge will be gained, and it fairly recommended, good must result. Even these few lines may produce good. They may raise thought, and thus a spark be struck which will lead better farmers and wiser men to see that agriculture is the keystone of an empire. It may lead philosophers and chemists to communicate their knowledge, and farmers to receive it with gratitude, and apply it with liberality. I have forgotten to speak of my simple manner of housing Swede Turnips; it is by no means new. I cover them with Hop-bines, first laying them in clamps; at first the bines are not laid thickly on, as it is necessary to allow the reek or moisture of the Turnip to evaporate. When this has exuded, then the bines are laid on more thickly, and the Turnips keep well.—Mr. Ewes said, in reference to storing roots, that it was necessary that they should be well dried before being put into clamp. He would recommend them to be sprinkled with about a bushel of slaked lime per ton, as he had known roots affected with disease, in which the disease had been stayed by the application of powdered lime, which, in his opinion, destroyed the fungi that caused the disease, without injuring the root. Deep cultivation was essential for the Carrot. He had sometimes known the Carrot to penetrate 3 feet into the soil. As an agricultural crop, he would recommend the more general cultivation of the Parsnip, which was not only an excellent and nutritious article of food for cattle, but was getting into demand for making sugar. Parsnips should always be sown in the autumn, about September. If sown in the spring, it is a very precarious crop. It could not be dug for too deeply, nor sown too shallow. He believed that the Weald clay, if it was drained so as to be well tilled, would grow excellent crops of Carrots. He thought that farmers often did wrong in sowing their Carrots, Turnips, and Mangold Wurzel too early. He thought that the Carrot would be very likely to fail this season, where already sown. The seeds of these roots, particularly of the Carrot, were very perishable from wet and cold, particularly when too deep in the ground. The land ought, for these crops, to be well pulverised; and the seed ought barely to be covered, in the last week of April or first week of May. The Mangold Wurzel seed was perhaps more precarious than that of the Carrot, the seed being in capsules, which were very liable to rot. He had known a case last year, where it had been dibbled in only 2 inches deep, that the seed had rotted.—Mr. Barnes had just under-drained some of his very stiff clay, and having ploughed it across the drains about 10 inches deep, he had run the mole plough along under every fifth furrow. He did this in the autumn, in the hope, which had failed this last winter, to get the top soil pulverised by the frost. He then sowed broadcast a gallon and a half of seed per acre. One field of about 10 acres he had dressed with 25 loads of dung, and 8 cwt. of Peruvian guano to the acre. The Turnips of that field were pulled, and topped and tailed at a farthing per bushel, by women, girls, and boys. The quantity for which he had paid was 8000 bushels, being 800 bushels per acre for the whole field. He had treated another piece of land in the same way, excepting that he had there put half a ton of Peruvian guano per acre. That piece was not quite so good as the other. He had taken up three acres and had the other portion for seed, which had turned out to be the very finest piece of Turnip seed which he had ever seen grown. In this field he had tried half an acre of the middle of the field, with Brain's English guano at the same cost with the rest of the field, which was dressed with Peruvian guano. This was left for seed. The latter produced, judging by the eye, about 400 bushels of roots the half acre, but the half acre dressed with the English guano had certainly not more than 300 bushels. That portion had not produced more than half the Turnip seed which had been grown with Peruvian guano. He had had 22 acres of seed in all, and although he had many years ago grown Turnip seed in Romney Marsh, the result as to quantity had quite surprised him. Turnip seed had never been grown in that neighbourhood before, and he had been told that the seed had exhausted the land, and that he should get nothing afterwards. He had sown the three fields with Wheat. He had merely broadshared them two or three times without ploughing, and had drilled the Wheat which he had since dressed with nitrate of soda. The Wheat looked at present exceedingly well, and if nothing unusual should ail it before harvest, he would not take four quarters an acre for it all round. He had also grown Carrots on some of the stiffest clay of the Weald, which he had dressed with 12 cwt. of Peruvian guano. These had served for food for cows, horses, and pigs; which all seemed to thrive on them. He had not measured the Carrots, but as far as he could guess, there were about 600 bushels to the acre. He had dibbled in the carrots with a very blunt dibber. He had also put in some Mangold Wurzel with 12 cwt. of Peruvian guano, in the same way as the Carrots, and of which he had grown much about the same quantity, a great portion of which he had now. He had tried another piece of Turnips with Peruvian guano, Boast's inorganic manure, and urate, of which the guano was the best, but the crop was not a good one. In the first field, where the Turnips had been pulled, he had put in Oats after broadsharing. These had produced three loads of sheaves to the acre. He had not measured them separately, but there must have been eight or ten quarters, nearly double what had ever been grown in that field before. These experiments clearly showed that the whole benefit of these artificial manures was not lost in one crop. He had also tried 12 cwt. of guano per acre for Drumhead Cabbages against a heavy dressing of dung. Some of the Cabbages grown on the dung were as large as the crown of a man's hat, but of those grown with guano there were many which would probably weigh from 28 lbs. to 30 lbs., and could scarcely be got into a bushel measure. He felt persuaded that, on the Weald clays, cattle Cabbages were one of the best crops that could be grown. He was so satisfied with his experiment with them, that he had sowed the plants for thirteen acres more this year. He had now given the club the result of his experiments, as he had promised to do last year. His decided opinion was that the first thing to be attended to in the improvement of their stiff clay soils was, to under-drain them. He recommended that they should be dressed after harvest with about a half dressing of dung, and should be allowed to lie, so that the frost should pulverise the soil. Turnip seed should be sown early on clay soils, which were not so warm nor so forward as lighter soils. He thought that it would be madness to expect to grow Turnips on their cold Weald of Kent clay soils, without under-draining. The expense of mole ploughing, in every fifth furrow across the drains, would be about 2*s.* 6*d.* per acre. If a frost came after preparing their land early, they would get a beautiful tilth with very little labour. His plan was to work the soil to about "half a season," and then to sow his guano broadcast. He also sowed his Turnips broadcast, very thickly, as his land would not allow of their being drilled; and afterwards when they had got out of the way of the flea, cut them out with the horse-hoe into rows about two feet apart, and thinned by hand to about a foot apart in the row. He "breaked" [It would be well were fewer provincial and technical terms employed by those who draw up these reports.] the Turnips several times, as he always put his Turnips into land which would otherwise lie fallow. He found that Turnips kept better in the soil than in any other way, and he allowed them to remain in till they began to shoot, when he piled them in rows between rows of hurdles, and covered them with just straw enough to throw off the rain. Not one in a hundred of his Turnips, when so treated, were affected by the rot. They ought to be so placed that the air might pass through them. Mr. Elvy had said in his paper that he thought Turnips on stiff soils could not be grown at a profit. Mr. Barnes thought that frequent failures occurred from just giving the Turnip enough manure, and no more: and then if they did not get a luxuriant crop afterwards, they complained that the Turnips had exhausted the land. If, however, the same farmers who said this, had only gone to the same expence for dung which they had incurred for guano, they would scarcely ever have got Turnips. Nothing was gained by stinting the land. If you put three-quarters of a cwt. of guano per acre, the Turnips would take all and not be satisfied. If you put 4 cwt., you might get a tolerable crop; but if you gave 5 cwt. you would get a crop, and perhaps have a little left in the soil. If, however, you put 10 cwt., you would have 5 cwt. left in the soil, and would grow twice as many Oats and twice as much Clover in following years as you would by putting in 5 cwt. at first. On his land, worth no more than 15*s.* per acre rent, the whole merit of the crop was due to the manure. He had in the last year grown about 30,000 bushels of roots, some of which he had sold at 7*d* per bushel. Those which he consumed he reckoned at half that value, for he thought that he could grow Turnips on his clay soil at 3*d.* per bushel. That would amount to 10*l.* per acre. Without the manure the expence would be 5*l.* per acre. The manure would cost 6*l.* more, but he estimated that half the value of the manure was left in the land, and in addition he had it in as clean a state as if it had lain fallow. Mr. Barnes went on to say that he consumed his Turnips with his stock, consisting of 16 cows, 1 bull, 23 horses, and about 300 pigs. He steamed the Turnips about 45 bushels at a time, which were given with other food. The pigs had a pint of Peas each, and consumed say 50 bushels per day, which cost say 4*l.* 7*s.* 6*d.* per week, for which he calculated that each pig increased in value 1*s.* per week, and if only half this increase was attributable to the Swedes, he should gain say 7*l.* for what had cost him say 4*l.* 7*s.* 6*d.* After some further observations, Mr. Barnes moved the following resolution, which was carried unanimously:—"Resolved,—That in the rag-stone districts, very good crops of Turnips have been grown after guano, both when ridged and drilled in plain land; but that in some localities in dry seasons, those drilled plain have appeared to suffer less than when ridged. Thus on the stiff Weald clay, when drained and mole-ploughed, and after a good dressing of guano, good crops have been grown, when sown broadcast, and afterwards cut out into rows at two feet apart, and one foot apart in the row."—*Maidstone Gazette.*

Tendring Hundred, Essex.—At the late meeting of the Agricultural Association at Thorp-le-soken, the following observations were made by Mr. Mechi, of Tiptree Hall, in connection with the toast, "Success to commerce and trade:"—He said it had all through life been his opinion that manufactures, commerce, and agriculture, were inseparably connected, and that it was impossible to make them antagonistic interests without injury to all. In his own case the greater part of his customers were manufacturers; while on the other hand he consumed corn and meat, some of it in all probability grown in the very neighbourhood where they were assembled; therefore there was a beneficial intercourse between them. The manufacturers were still prepared to supply them with goods, but he hoped they should be none the worse customers of the farmers if they supplied other nations with what was not wanted for the home trade. He looked for the time when agriculturists would be in the same position—when they would be able to say to foreigners, "We have all the corn we want, and here is more to ship." He believed that would be their position, and that it would soon be brought about if they all farmed like his friend, Mr. Hutley, of Witham. He had no hesitation in saying that whilst the agriculture of Essex was very far superior to that of other counties, it was very far inferior to what it ought to be. In the first place, as had been remarked by Mr. Nunn, it was impossible to grow corn without manure; and if so, why waste it? If the manufacturers had thrown money down the drains or into the ditches, they would not be in the position they now were of being able to supply not only the home consumer, but to go into foreign markets and offer their goods in competition with those dwelling on the spot, and living, as was thought in this country, much cheaper than themselves, and yet they could go 10,000 miles and say, "Here's a razor (laughter), or a piece of cotton, which we offer you for less than you can make it yourselves, although we live in a country in which bread is so dear." Could that be done without skill, science, and enterprise? The Chairman—But you have your iron here. Mr. Mechi—No, we have from Sweden all which is used for razors. It was the science and superior industry of the British manufacturers which enabled them to buy iron and other commodities of their opponents, and send them back in the shape of manufactured goods. There was another reason why manufacturers had progressed. When they wanted to build a factory they hired a piece of ground upon lease, and he believed that were it not for the power of getting a certain tenure for a definite period, the improvement which had been alluded to would never have taken place. He believed further, that the basis of agricultural improvement must be leases. He did not state this as being opposed to the landed interest of the country; he knew them to be men of noble sentiments, although of course with some prejudices; but he believed that the effect of leases would be to secure a superior class of tenantry—men of capital—and men whose land at the end of their leases would be more valuable than when they entered upon it. It was a painful thing to see men left to chance; a landlord might be taken away and all his best intentions be frustrated. A tenant ought to have security that in improving his land he will have an opportunity of seeing part of his money back. The reverend gentleman (Mr. Marsden) who had spoken upon the subject was, he thought, rather hard upon the manufacturers as to the connexion between them and their men. It had always been his wish and endeavour to make his workmen as contented as himself. He considered it the duty and the interest of employers to endeavour to improve the minds of those under them; it improved the feeling between them; the work would be better done; they would be less robbed, and better served; while it would generally raise the character of the individuals with whom they were connected. He did not profess to be singular in these views, for he believed that a great many of the most eminent manufacturers devoted much of their time and money to the same object. To return to the subject of agriculturists and manufacturers as not being separate interests, he knew many gentlemen who had made profit enough out of their foreign trade to buy land, and through his advice they had had men from Essex to drain it, so that the tie between them

was shown in the fact that manufacturers who had saved money were using it in giving employment to their fellow-countrymen instead of sending it abroad. He thought the farming of Essex susceptible of great improvement; it was wrong, because it was unprofitable to use waggons instead of carts—it was wrong to waste the liquid manure—it was wrong to plough shallow—it was wrong to put in too much seed—and it was wrong to put in too little manure. In fact he could not do better than to quote again the example of his friend Hutley; and it was certainly to be regretted that having made money he should not tell his brother farmers how he did it. He considered high farming very commendable, and this instance proved that it was high farming which paid best. With respect to his own experience at Tiptree, it was open to the examination of every one. His calculations had hitherto been verified; and if any gentleman would pay him a visit at harvest time, they might tell him of his faults as freely as he told them of theirs. But he must caution them against being prejudiced; a farmer should be guided by facts; he must search for them wherever they are to be found, and then if he did not follow them up he was to blame. He had a strong love for the county of Essex; he should endeavour to grow as much corn as he could at Tiptree Heath, and if they did not do the same he should tell them of it.—Mr. Marsden explained: His observations as to manufacturers and their workmen referred to the large establishments in the north. He admired the good speech of Mr. Mechi, and the good temper with which it had been delivered, but he thought it shaved him rather too closely. (Laughter.)—Mr. Mechi rejoined, that the closer he shaved his customers the better they liked him. (Loud laughter.)

Miscellaneous.

Influence of a Rotation of Crops on their Produce—From Land's End to St. Ives.—This is a busy active neighbourhood, the inhabitants being engaged in fishing, navigation, mining, or farming. The soil is exceedingly good, and notwithstanding its exposure to the sea, good crops of corn are grown on the verge of the cliffs 300 ft. above the wave. The farms vary from 10 to 200 acres, few exceeding 100 or 150 acres. The rental averages from 30*s.* to 60*s.* per acre—a large proportion at 40*s.* The land in this neighbourhood lets exceedingly high from the peculiar character of the small farmers—a hardworking race of men, who keep a number of mulch cows, breed an immense number of pigs, and grow large quantities of Potatoes. The ordinary course of cropping is to break three-year old pasture for Potatoes and Turnips, followed by Wheat, then Barley or Oats, and Grass-seeds. On the better-cultivated farms the rotation is generally Turnips, Wheat, Potatoes, Barley, and seeds; the breadth of green crops averaging from 20 to 25 per cent. The difference in the two systems is as follows:—

100 acres	Under Ordinary Management. Produce per Acre.	Improved System. Produce per Acre.
Potatoes ..	From 8 to 10 tons	10 to 16 tons.
Turnips ..	10 to 18 tons	20 to 30 tons.
Wheat ..	21 bushels	27 to 30 bushels.
Barley ..	30 bushels	30 to 36 bushels.
Oats ..	40 to 45 bushels	45 to 50 bushels.
Hay ..	1 ton to 1¼ ton.	1½ ton to 2 tons.

—*Mr. Kurkeek, English Agricultural Society's Journal.*

Calendar of Operations.

JUNE.

Among the operations just now requiring the especial attention of the farmer is that of hay-making, on which the following observations extracted by Martin Doyle in his "Practical Husbandry," from Middleton's report of Middlesex will be read with advantage.

"In the first day's process, all the Grass mown before nine o'clock in the morning is tedded or spread out, great care being taken to shake it so as to leave it free from lumps, and to strew it evenly over the whole surface of the ground. It is soon afterwards turned, with an equal degree of care and attention; and if the number of hands be sufficient, they turn the whole again, or at least as much of it as they can before twelve or one o'clock. It is then raked into what are called single windrows; or so that each person may form a row at about three feet distance; and the last operation of the day is to put it up into Grass cocks. The business of the succeeding day commences by tedding all the Grass that was mown the first day after nine o'clock, and all that was mown this day before that hour. The Grass cocks are then well shaken out into what are called staddles, which are separate plots of five or six yards in breadth. Where the crop is so thin and light as to leave the spaces between the staddles rather large, they are immediately raked clean, and the rakings mixed with the other hay, in order to its all drying so as to be of an uniform colour. The staddles are next turned, and after that the Grass that was tedded in the first part of the morning once or twice, in the same manner as described in the first day. This business should all be performed before twelve or one o'clock, that the whole may lie drying while the people are at dinner. After this the first thing is to rake the staddles into double windrows, which is done by every two persons raking the hay into opposite directions, or towards each other, forming a row between them of double the size of the single windrows, each being about six or eight feet distant from the other. They afterwards rake the Grass into single windrows; then put the double windrows into bastard cocks; and conclude by putting the single windrows into Grass cocks. The labour of the third day is begun by first tedding and spreading out the Grass mown and not spread the preceding day, as well as that mown in the early part of this day, and then the Grass cocks are thrown out into staddles as before, and the bastard-cocks into staddles of less extent. These narrow staddles though last spread out are first turned, then those which were in Grass cocks; and lastly the Grass is turned once or twice before twelve or one o'clock. When the weather has been sunny and fine, the hay which was last night in bastard cocks, will this afternoon, be in a proper state to be carried, as in fine seasons it may mostly be performed on the third day, but when the weather has been cool and cloudy, no part will be probably fit to carry. In that case the first business after dinner is to rake that which was in Grass cocks last night into double windrows, then the Grass which was this morning spread from the swathes into single windrows. After this the hay which was in bastard cocks last night, is made up into full-sized cocks, and care taken to rake up the hay clean, and also to put the rakings on the top of each cock. And lastly the double windrows are put up into bastard cocks, and the single ones into Grass cocks as in the preceding days. On the fourth day the great cocks just described are mostly carried before dinner. The other operations are similar to those of the former days, and proceed in the same order, continuing them daily until the whole is finished.

"During the whole course of hay-making the Grass should, as much as possible, be protected both in the night and day, against rain and dew, by cocking. In districts where the hay season is later, and the weather more changeable, it would often be dangerous to expose the hay so much abroad as in the above process—a more cautious method should probably be adopted.

"In such cases, instead of keeping the hay almost constantly spread out and exposed to the atmosphere, as in the preceding method, it may be better to put it into small cocks soon after it has been cut down and become a little made; these should then be frequently turned over, but not spread out except when the weather is in such a fine state as to insure their being put up again in the same state, without injury from the falling of rain. This method is much more slow, though the hay is much less exposed to danger in wet weather, than in that which has been described above; and when there is much heat it may be made with very little trouble or expense, and without much expenditure of its nutritious juices.

"Another practice that has been found useful in such situations is, to break out the Grass that is mown, turn and windrow it on the first fine day, and also to put it into small cocks when the ground is dry; on the next fine day a few of the cocks are broken out at a time, and kept constantly turned until fully dry. Three or four of them are then put into one cock, the work proceeding in the same manner till the whole is done. And when the weather is bad, these cocks are never rebroken out, being only lightened up to let the air pass through them more freely. The advantages in the first mode are supposed by some to be, that from the regular tedding that is given, the hay becomes more valuable in quality, heats in the stack or mow in a more uniform and equal manner, and cuts out better in the truss.

"No more of the produce should be thrown out than can be put into cock the same day, or before it is injured by a fall of rain. When the weather is unsettled it may often be permitted to remain in the swathe for several days, only taking care that the undersides do not become discoloured by turning them over by the head of the rake. In this way it will frequently be so much made in a few days as to require little tedding afterwards to form good hay. The preserving hay of a proper green colour is a circumstance of some importance. In order to effect this the bastard cocks previous to their being carried, should be put up in the heat of the day, and remain in that condition till the following morning, when they must be turned and opened so as to dispel any damp that might induce it to heat in the stack, and in that way spoil the colour. The acquisition of a lightish brown colour in the stack is not found injurious to hay; but when it becomes of a dark brown, from too much heat, it is said to weaken and relax horses that are fed upon it, by its powerful diuretic properties. It is of course inferior in quality. When hay heats to such excess as to putrify, the cause is not the fermentation of the natural sap of the hay, but atmospheric moisture; great care, therefore, should be taken in damp weather not to put hay together in large cocks, especially if it has been even once wet (unless it has been perfectly dried afterwards), for in such case it will certainly heat."

Besides this, the Carrots, Mangold Wurzel, and early Swedes, will now require to be repeatedly horse-hoed and hand-hoed, and singled; the 1st to intervals of about 10 ins.; the 2d will be at intervals of about 14 ins., and this interval will also answer well on most soils for the Swedish Turnip.

Rye-grass left for seed (especially of the early Italian species), will now be ready to cut. It should be watched that it may be cut before it is fully ripe, or much of it will be lost by shaking it out when dry. The swathes may lie for a day, and when ready to turn, let them be gathered up and tied in sheaves—the dry grass lumost, and placed in stooks till ready to carry.

Notices to Correspondents.

Burthens on Land—*R Hoss*—We do not print the lords' report for two reasons, firstly, we have no room; and secondly, if we had, we can occupy space better. In fact, no man of common intelligence, be his political opinions what they may, can send it without feeling that it is unworthy of the body from which it emanates.

Eng. Ag. Society.—*T G, Clitheroe*—The period at which competing accounts of the best manure for Wheat must be delivered to the Secretary has not yet been announced. No doubt sufficient time will be given for the necessary experiments.

Landlord and Tenant—*J P Z N*—We should have been happy to assist you; but we have repeatedly stated our inability to give legal advice.

Oats. *L J D*—If the weather continues hot, Oats will doubtless be a light crop; and holding Oats will not, we think, be a bad speculation. What is your wool—it may be worth anything from 9*d.* to 1*s.* 1*d.* per lb.

Oilcake—*G J C*—We should prefer giving it about mid-day if the manure benefited by it is to be dropped in the fold.

Small Farm—*R E*—You may learn how to make the greatest annual income off a small farm by consulting a pamphlet on small farms by Wm. Blacker, Esq.

Taste of Butter—Seeing that one of your correspondents wishes to know the most effectual manner for destroying the taste of Turnips in butter, I send the following, being a complete antidote to the flavour both in milk, cream, and butter: "Make the strongest infusion of nitre by pounding it in a mortar and pouring boiling water upon it; let a dessert spoonful of this solution for every two gallons of milk be stirred up in the warm milk as soon as it is brought in, and all flavour of Turnips will be removed."—*E. W.*

Markets.

SMITHFIELD, Monday, June 15.—Per Stone of 8 lbs.

Best Scots, Herefords, &c	3s	3s10	Best Long-wools	—s	—s
Best Short Horns	3	0	3 8	Ditto (shorn)	3	8	4	0
Second quality Beasts	2	10	3 4	Ewes and second quality	—	—	—	—
Calves	4	0	4 8	Ditto (shorn)	3	4	3	8
Best Downs & Half-breds	—	—		Lambs	5	4	6	4
Ditto (shorn)	4	0	4 4	Pigs	3	4	4	8

Beasts, 3093. Sheep and Lambs, 20,800; Calves, 128; Pigs, 320.

We have again a large market of Beasts, and the weather continuing hot, there is a very small demand: a few of the choicest Scots have made rather over our top quotations, but the instances are very rare. A great many remain unsold.—Sheep trade is exceedingly heavy; and for the most part lower prices are taken.—Lamb trade is brisk, at rather an advance.—Calf trade is no better.—Pork trade is dull, there being but a small demand.

Friday, June 19.

The supply of Beasts continues good, and the trade is still in a very depressed state; our quotations of Monday are supported in what business is done, which is but of small extent.—Sheep and Lambs are plentiful; trade for the former is dull at Monday's prices, but for the latter there is a considerable demand, still the prices are somewhat lower, especially for second rate qualities. The best make very little over 4*s.*—A nice small Calf is making rather more money, but on the whole Veal trade is about the same.—Very little is doing in Pigs; late rates are barely supported.

Beasts, 304; Sheep and Lambs, 15,000; Calves, 683; Pigs, 800.

41, West Smithfield.

HOPS, Friday, June 19.

The accounts from the plantations coming more favourable causes our market to be lower than last week. The duty is now laid at £120,000. There is, however, in many places a large quantity of vermin and honey dew; and, in our opinion, the Hops are still in a very precarious state.

Fattebden & Smith, Hop-Factors.

COVENT GARDEN, June 20.—Most kinds of Vegetables have been plentifully supplied, and all kinds of Fruit in season, except English Cherries, are abundant. Good Pine-apples may be obtained at from 6*s.* to 8*s.* per lb. Hothouse Grapes, of excellent quality, are abundant and tolerably cheap. Some Plums, and a considerable quantity of Peaches and Nectarines, have been offered. Ripe Cherries and Strawberries are plentiful, more especially the latter; and there has also been in the market a good supply of French and Dutch Cherries; they are selling at from 3*s.* to 4*s.* 6*d.* per dozen lbs. Ripe Gooseberries begin to make their appearance in tolerable abundance. Apples and Pears being nearly over for a season, what remain are sold at nominal prices. Oranges, although not abundant, are plentiful; and Nuts of all kinds are sufficient for the demand. English Melons may be obtained at last week's prices. Of Vegetables, Asparagus is plentiful and excellent in quality. Cabbages, Greens, &c., are good and sufficient for the demand. Carrots and Turnips are cheaper, and the same may be said of Peas, whose quality is, however, somewhat affected by the dry weather. Early Masagan Beans begin to make their appearance in the market. Celery is good in quality. Potatoes of the best quality fetch 9*l.* a ton, and in one or two cases 10*l.* and 12*l.* a ton; but inferior samples may be obtained at lower prices. Ash-loaved Kidneys are rather dearer, and the supply is somewhat limited. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Heaths, Jasmines, Azaleas, Calceolarias, Pinks, Cyclamens, Orange flowers, Rhododendrons, Cinerarias, Gardenias, Moss and other Roses.

FRUITS.

Pine Apple, per lb., 6*s* to 8*s*	Lemons, per dozen, 1*s* to 2*s*
Grapes, Hothouse, per lb., 3*s* to 6*s*	— per 100, 6*s* to 14*s*
Apples, Desss., per bush., 7*s* to 20*s*	Gooseberries green, per hf.-sv., 3*s* to 4*s*
— Kitchen, 7*s* to 15*s*	Strawberries, per pottle, 6*d* to 1*s* 6*d*
Melons, each, 4*s* to 8*s*	Almonds, per peck, 6*s*
Peaches, per doz., 10*s* to 24*s*	Sweet Almonds, per lb., 2*s* to 3*s*
Nectarines, per doz., 10*s* to 24*s*	Filberts, English, p. 100 lbs., 50*s* to 60*s*
Cherries, per lb., 4*d* to 6*d*	Nuts, Cob, per 100 lbs., 80*s* to 90*s*
Oranges, per dozen, 1*s* to 2*s* 6*d*	— Barcelona, 90*s*
— per 100, 4*s* to 10*s*	— Brasil, 14*s* to 16*s*
— Seville, per 100, 8*s* to 16*s*	— Spanish, 14*s*
— per dozen, 2*s* to 3*s* 6*d*	Walnuts, per bushel, 12*s* to 16*s*
	Chesnuts, per peck, 3*s* to 7*s*

VEGETABLES.

Cabbages, per doz., 6*d* to 1*s* 3*d*	Carrots, per bunch, 6*d* to 1*s* 3*d*
Cauliflowers, per doz., 2*s* to 3*s*	Onions, per hf.-sv., 3*s* to 4*s*
Greens, per doz. bunches, 1*s* to 1*s* 6*d*	— Spanish, per doz., 1*s* 6*d* to 6*s*
Artichokes, per doz., 2*s* to 4*s*	Shallots, per lb., 10*d* to 1*s*
French Beans, per 100, 2*s* to 3*s*	Garlic, per lb., 6*d* to 8*d*
Peas, per sieve, 2*s* to 6*s*	Lettuce, per score, Cab., 4*d* to 1*s*
Sorrel, per hf.-sieve, 3*d* to 1*s*	— — Cos, 6*d* to 1*s* 6*d*
Potatoes, per ton, 70*s* to 180*s*	Radishes, per 12 bunds, 6*d* to 1*s*
— cwt., 4*s* to 9*s*	Mushrooms, per pottle, 2*s* to 4*s*
— bushel, 8*s* to 4*s* 6*d*	Small Salads, per punnet, 2*d* to 3*d*
— Kidney, per doz. lbs., 3*s* to 6*s*	Fennel, per bunch, 2*d* to 3*d*
— Frame, per lb., 6*d* to 10*d*	Savory, per bunch, 4*d* to 6*d*
Turnips, per bunch, 4*d* to 1*s* 3*d*	Thyme, per bunch 4*d*
Red Beet, per doz., 6*d* to 1*s* 6*d*	Watercress, p. 12 sm. bun 6*d* to 8*d*
Horse Radish, per bundle, 2*s* to 3*s*	Parsley, per bunch, 1*d* to 3*d*
Rhubarb, per bundle, 6*d* to 1*s*	— Roots, per bundle, 1*s*
Asparagus, per bundle, 1*s* to 4*s*	Tarragon, per bunch, 6*d*
Cucumbers, each, 4*d* to 1*s*	Mint, green, per bunch, 6*d* to 8*d*
Spinach, per sieve, 3*d* to 1*s*	Marjoram, per bunch, 4*d*
Leeks, per doz bunches, 1*s* to 1*s* 6*d*	Chervil, per punnet, 2*d* to 3*d*
Celery, per bundle, 2*s* to 3*s*	

HAY.—Per Load of 36 Trusses.

Smithfield, June 18.

Prime Mead. Hay	80*s* to 90*s*	New Hay	55*s* to 60*s*	New Clr.	70*s* to 80*s*
Infr. New & Rowen	55 70	Clover	90 to 112	Straw	30 34

John Cooper, Salesman.

Cumberland Market, June 18.

Prime Mead. Hay	85*s* to 90*s*	Old Clover	110*s* to 115*s*				
Inferior	60 70	Inferior do	95	100	Straw	33*s* to 36*s*	
New Hay	60 70	New Clover	80	91			

Joshua Baker, Hay Salesman.

Whitechapel, June 19.

Fine Old Hay	75*s* to 80*s*	Old Clover	110*s* to 115*s*				
Inferior Hay	55 65	Infr. ..	90	90	Straw	30*s* to 34*s*	
New Hay	58 65	New Clover	80	80			

POTATOES.—Southwark, Watersidf, June 15.

There wor a few fresh arrivals last week from Yorkshire and Scotland, which took a little trade there was on old Potatoes. Those Scotch cargoes left of former arrivals were scarcely marketable at any price. The last shipments from Scotland arrived yesterday and this day, and some of those cargoes are in a heated and damaged state. This is a deplorably bad finish, as there have been hundreds of tons sold during the last month which have barely paid the current expenses. There are also several lots of Montrose, Aberdeen, and Inverness Blues and Bulls in the stores, which are at present unsaleable. The prices are ranging as follows, but several of the quotations may be considered nominal:—York Reds, 100*s* to 140*s* per ton; ditto Regents, 80*s* to 90*s* per ton; Scotch Reds, 80*s* to 70*s* per ton.

MARK-LANE, Monday, June 15.

The supply of English Wheat by land carriage samples this morning being even smaller than of late, factors realised an advance of 3*s.* to 4*s.* per qr., at which the whole was quickly cleared off. Business in foreign is extremely limited, and the demand for bonded to export has nearly subsided.—Barley is more inquired for, and our quotations are fully supported.—Beans must be written 1*s.* per qr. and Peas of all sorts, 1*s.* to 2*s.* per qr. dearer.—Oats sold readily at an advance of 1*s.* per qr. upon the prices of this day se'nnight.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk . . White	55	65	Red .	50	60
—— Norfolk, Lincolnshire, and Yorkshire .	50	54	White	50	55
Barley, Malting and distilling 28*s* to 30*s*	Chevalier	30	38	Grind.	24	26
Oats, Lincolnshire and Yorkshire . .	Polands	25	29	Feed	23	27
—— Northumberland and Scotch . .	Feed	24	28	Potato	27	32
Irish	Feed	22	26	Potato	25	29
Malt, pale, ship		54	60			
—— Hertford and Essex		50	55			
Rye		34	36			
Beans, Masagan, old and new 32 to 40	Tick	29	46	Harrow	31	42
—— Pigeon, Heligoland . 34 to 42	Winds —	—		Longpod	—	—
Peas, White . . . . 36 to 42	Maple	32	33	Grey	32	33

Friday, June 19.

The supplies of English Corn during the week have been small—those from abroad moderate. We note no alteration in the value of any description of Wheat; the demand for bonded to export has much diminished, and the accounts from Belgium are flat.—Barley remains unaltered.—The hot dry weather causes an increased inquiry for Beans and Peas of all sorts, which are 1*s.* higher, as also floating cargoes of the former.—Oats are likewise held with great firmness, but the attempt to raise prices checks business.

IMPERIAL AVERAGES.

	9 per Quarter.	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
May		56*s* 8*d*	29*s* 7*d*	23*s* 9*d*	33*s* 8*d*	34*s* 3*d*	34*s* 7*d*
—	16	57 0	30 4	24 1	35 5	35 11	36 11
—	23	55 5	28 10	23 8	34 6	33 0	34 6
—	30	53 4	28 4	23 9	33 4	35 10	36 2
Jun.	6	52 10	27 8	23 4	33 10	35 10	36 10
—	13	52 0	27 1	23 5	32 4	35 8	36 9
6 weeks' Aggreg. Aver.		54 7	28 6	23 8	33 2	35 10	36 6
Duties on Foreign Grain		12 0	9 0	5 0	9*s* 8	7 0	8 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, June 13.

Prices.	May 9	May 16	May 23	May 30	June 6	June 13
57*s* 0*d*	..		..	..	..	..
56 8		..	..	..	..	..
— 0		..	..	..	..	..
55 15	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 5	..	..	..	..	..	..
— 1	..	..	..	..	..	..
53 4	..	..	..	..	..	..
52 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 0	..	..	..	..	..	..

Kingsford and Lay.

EXOTIC ORCHIDS—SALE TO COMMENCE AT 12 O'CLOCK PRECISELY.

MESSRS. J. C. & S. STEVENS, will sell by Auction, at their Great Room, 38, King-street, Covent-garden, on Tuesday, 23d June, at 11 for 12 o'clock precisely, on account of the number of Lots, a CHOICE PARCEL OF ORCHIDS, FERNS, &c., just arrived per Mail steamer in the finest state, and consisting of a new Arpophyllum, distinct from any yet imported; a new Lælia; also Lælia majalis and furfuracea; Cattleya citrina, various Odontoglossums, Cyrtopodiums, Oncidiums, Epidendrums, and a few Ferns, Bromelias, &c.—On view the day prior and morning of Sale, and Catalogues had.

FARM TO LET.

TO LET.—At Great Waltham, Essex, six miles from the Chelmsford Station of the Eastern Counties Railway, a FARM, consisting of 114 acres of excellent Land, principally arable, in a good state of cultivation. To a responsible Tenant, a long lease will be granted. The situation of the House is healthy and agreeable.—Apply by letter to A. B., Esq., Post-office, Shipdham, Norfolk.

TO BE SOLD.—The LEASE of an old-established NURSERY in the vicinity of the Kent-road in a high state of cultivation. Two Acres of Land, four Greenhouses, Pits, Frames, Sheds, &c.; two Dwelling-houses—one is a Beer-house in good trade; 20 years of the Lease unexpired. Rent and taxes very low.—Apply for particulars to J. KING, Auctioneer, Hackney Road, London.

FOR SALE, about 27 cwt. BEET-ROOT SEED, recently landed per "Spy" from Cephalonica. For samples and further particulars apply to AYLWIN, BEVAN, COLE & Co., Brokers, 90 Lower Thames-street.

TO OWNERS AND OCCUPIERS OF ESTATES.

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D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

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No. 2 Ram,	Ditto	2 in.
No. 3 Ram,	Ditto	1 in.

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ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

PROGRAMME of the Annual Country Meeting of the Society for the Northern District, to be held at Newcastle-upon-Tyne, in July, 1846.

THURSDAY, JULY 9.—Last day of receiving Implements, Seeds, &c., to be exhibited in the Implement Yard, and arranged by the Stewards for the Judges' inspection.

TUESDAY, 14.—The Implement Yard open to the Public from 8 in the Morning till 6 in the Evening, at 2s. 6d. each person.

The Public exhibition of the working of the Implements to take place at the Farm of Mr. Henry Hall, of Gosforth Cottage (two miles from Newcastle), adjoining the turnpike road to Morpeth.

Stock received in the Show Yard from 8 in the Morning till 4 in the Afternoon.

At 5 o'clock in the Evening, Professor JOHNSTON to open a practical discussion, by reading a paper in the Lecture Theatre, Nelson-street, on the Chemical Principles involved in the preparation of Manures, and their Action upon Crops; with Chemical Demonstrations. Members and their friends admitted by free tickets, to be obtained of the Secretary. Doors open at 4.

WEDNESDAY, 15.—The Judges to inspect the Stock and award the Prizes.

The Implement Yard open to the Public from 8 in the Morning till 6 in the Evening; admission, 2s 6d.

At 5 o'clock in the Evening, Mr. Parkes, C. E., Consulting Engineer to the Society, to open a practical discussion, by reading a paper in the Lecture Theatre, Nelson-street, on the subject of Draining; at the conclusion of which, at 8 o'clock, the Judges' Award of Prizes (with the exception of those for Horses), will be read by the President. Members and their friends admitted by free tickets, to be obtained of the Secretary. Doors open at 4.

THURSDAY, 16.—The Cattle and Implement Yards open to the Public from 6 o'clock in the Morning till 1 in the Afternoon; admission 2s. 6d.:—and, from 1 o'clock till 6 in the Evening, at 1s.

Dinner of the Society in the Great Pavilion, on The Forth, at 4 o'clock: doors open at half-past 3.

FRIDAY 17.—Cattle Yard open at 7. admission 1s.

The Auctions to begin at 9 for 10 precisely.

General Meeting of the Members in the Music Hall at 12 o'clock.

The Cattle and Implement Show Yards, on the Town Moor, behind the Hall Parks.

President: THE RIGHT HON. LORD PORTMAN.

Stewards of Departmeat.

Cattle	Earl SPENCER, Mr. DRUCE; Mr. KINDER.
Implements	Mr. SHELLEY; Mr. MILES, M.P.
Finance	Col. AUSTIN, M.P., Col. CHALLONER.
Sale of Tickets ..	Mr. HENRY WILSON.
Receipts and Admission to Show Yards	Mr. RAYMOND BARKER.
Pavilion Dinner ..	Mr. ASHFORD SANFORD.
General Arrangement of Show	Mr. BRANDRETH GIBBS.

By ORDER of the Council,
JAMES HUDSON,
Secretary.

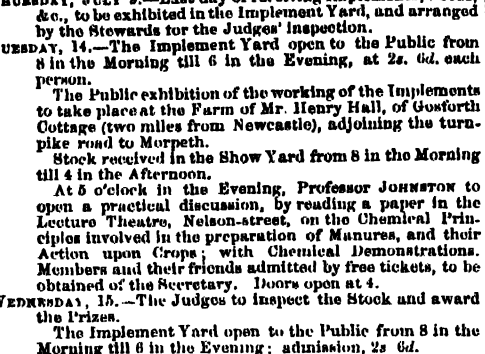
London, June 17, 1846.

By the Regulations of the Society

All Persons admitted into the Show Yards, or other places in the temporary occupation of the Society during the meeting, shall be subject to the Rules, Orders, and Regulations of the Council.

N.B. Sale of Tickets for the Pavilion Dinner, to Members of the Society, at the Music Hall, from 12 to 4 o'clock on Wednesday, the 15th of July, and from 8 to 12 o'clock on Thursday, the 16th of July; and to Members, or their friends, from 12 to 2 on the latter day.—Price (including a pint of wine) 10s. each.

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HOLLOWAY'S OINTMENT AND PILLS IN NEWFOUNDLAND.—Charles Thorne, Esq., merchant, of Harbor Grace, had a bad leg, of a fearful nature and long duration, for which the Medical Aid of the Island afforded no relief, whereupon he determined on proceeding to England to try if it were possible to get it soundly healed; but, as a last resource, and before adopting such a course, he used Holloway's Pills and Ointment, which speedily effected a cure of his leg. The particulars of this surprising case were received, by last packet, from Mr. Spry, proprietor of the *Mercury* newspaper, Carbonear, Newfoundland.—These celebrated Medicines, which are sold at Professor HOLLOWAY'S Establishment, 244, Strand, London, and by every dealer in Medicines, will Cure all Skin Diseases, Wounds, Sores, and Ulcers.

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New Publications.

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Foreign Correspondence.—"Il Grotto di Matrimania."

Our Weekly Gossip.—Sale of Mr. Upcott's Library and Collections—Fete of Horticultural Society—Testimonial to Mrs. Fry—Ventilation of new Palace at Westminster—Restoration of St. John's Gate—Mr. Read's Delivery of Hamlet—Cambridge University Endowments—Booksellers' Provident Institution—Annual Meeting of Members of London Library—New College at Galway—French Gossip—Deaths of MM. Maizan and Aimé Bonpland—Gold Mines in Siberia—London Assessed Taxes.

Societies.—Archæological Institute: (Mr Birch on Personal Ornaments of great races of antiquity, and on ornamental design.)

Fine Arts.—Royal Academy Exhibitions—Sale of the Saltmarshe Collection of Pictures—Water Colour Society Exhibition—Angel Delivering Daniel from the Lions, by Mr. Burbank—Portrait of Mr. Pugin.

Fine Art Gossip.—Emperor of Russia's Prize at Ascot Races—Steel's Statue of Sir W. Scott—Discovery of ancient tablet in St. Mary's Church, Nottingham—Dr. Hume on antiquities procured at Roylake—Mr. Kirk's Group at Royal Academy—Paris Academy of inscriptions—Louvre Exhibition of Tapestries, &c.—Antiquarian Forgeries at Rome.

Music and the Drama.—Church of England Music, by W. H. Plumpstead—Her Majesty's Theatre—Concerts of the week—Mr C. Potter's Concert—Musical Losses.

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Professor of Chemistry to the Horticultural Society of London,
Lecturer on Chemistry in the Hon. E. I. Co.'s Military Seminary at Addiscombe, &c. &c.

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In preparing a Second Edition of this little book, the opportunity has been taken of correcting several errors which the First Edition contained. The whole has been carefully revised, and such additions have throughout been made, as the advanced state of knowledge rendered necessary. In particular, the Tables of Analyses have been greatly extended, by the addition of the latest and most complete Analyses of almost all those plants which are cultivated as crops, as well as of the principal substances employed as manure.—April 20, 1846.

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[SPECIMEN OF THE WORK.]

The roots of some are emetic. According to Deslongchamps, the powdered root of E. Gerardiana vomits easily in doses of 18 or 20 grains. The root of Euphorbia Ipecacuanha is said, by Barton, to be equal to the true Ipecacuanha, in some respects superior; and not unpleasant either in taste or smell. E. Pithyusa in the Mediterranean is also esteemed. Euphorbia thymifolia is somewhat aromatic and astringent, and is prescribed in India in the diarrhœa of children, and as a vermifuge. In the same way is employed E. hypericifolia, a plant of tropical America, which is astringent and somewhat narcotic. Nevertheless E. balsamifera has no such qualities, and is eaten when cooked. E. mauritanica is also employed as a condiment, but its acridity is by no means inconsiderable; they say it is used to adulterate Scammony. The sap of E. phosphorea shines with a phosphorescent light in a warm night in the ancient forests of Brazil.

The genus Pedilanthus stands nearest to Euphorbia, and is not less potent in its quality; P. tithymaloides has an acrid bitter milk; a decoction of the dried shrub of it and P. padifolius (called Jewbush) is employed in syphilitic cases, and in amenorrhœa; the root is emetic. Some of the trees again are among the most poisonous of all that tropical countries produce. The juice of Excœcaria Agallocha, and even its smoke when burnt, affects the eyes with intolerable pain, as has been experienced occasionally by sailors sent ashore to cut fuel, who, according to Rumphius, having accidentally rubbed their eyes with the juice, became blinded, and ran about like distracted men, and some of them finally lost their sight. This juice is described as being thick, nauseous, and a violent purgative. The smoke of the burning branches is said to injure the eyesight. Agallochum or Aloes wood, an inflammable, fragrant, resinous substance, has been supposed to belong to this plant, but is really produced by quite a different race. *See* AQUILARIACEÆ. The famous Manchineel tree, Hippomane Mancinella, is said to be so poisonous that persons have died from merely sleeping beneath its shade. This is doubted, indeed, by Jacquin, who, however, admits its extremely venomous qualities; but it is by no means improbable that the story has some foundation in truth, particularly if, as Ad. de Jussieu truly remarks, the volatile nature of the poisonous principle of these plants is considered, and the various degrees of susceptibility of such influences in the human constitution. The juice of Manchineel is pure white, and a single drop of it falling on the skin burns like fire, forming an ulcer often difficult to heal. The fruit, which is beautiful, and looks like an apple, is turgid with a similar fluid, but in a milder form; the burning it causes in the lips of those who bite it guards the careless from the danger of eating it. The juice of Hura crepitans is stated to be of the same fatal nature as that of Excœcaria; its seeds are said to have been administered to negro slaves as purgatives, in number not exceeding 1 or 2, with fatal consequences. The juice of Sapium aucuparium is reputed poisonous. A case is mentioned by Tussac of a gardener whose nostrils became swollen and seized with erysipelatous phlegmasis, in consequence of the fumes only of this plant. The sap of Commia cochinchinensis is white, tenacious, emetic, purgative, and deobstruent. Cautiously administered, it is said to be a good medicine in obstinate dropsy and obstructions.

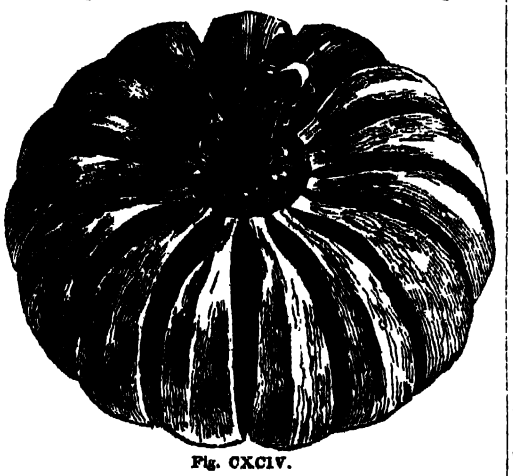


Fig. CXCIV.

The juice of this Order is not, however, always as dangerous as in the instances just given. That of Siphonia elastica, a tree inhabiting Guayana and Brazil, yields the bottle India Rubber, which is known in Europe; in preparing it the natives smear clay moulds with repeated layers of the juice, at the same time drying it in smoke. Aleurites triloba, whose seeds will be mentioned presently, exudes a gummy substance which the natives of Tahiti chew; A. laccifera furnishes gum lac in Ceylon; and the secretions of certain Crotons, viz. Draco and sanguiferum, become a similar red substance in the tropical parts of America.

Among the crowd of emetic and purgative plants having more or less reputation

Fig. CXCIV.—Fruit of Hura crepitans.

ORDER CLVII. DROSERACEÆ. SUNDEWS.

Droseraceæ, *DC. Théorie*, 214. (1819); *Prodr.* 1. 317. (1824); *Endl. Gen.* clxxix.; *Meisner*, *p.* 22.

DIAGNOSIS.—*Berberal Exogens, with regular symmetrical flowers, parietal placentæ, and stamens alternate with the petals, or twice as many.*

Delicate herbaceous plants, often covered with glands. Leaves alternate, with stipulary fringes and a circinate vernation. Peduncles, when young, circinate. Sepals 5, persistant, equal, with an imbricated æstivation. Petals 5, hypogynous, imbricated. Stamens distinct, withering, either equal in number to the petals and alternate with them, or 2, 3, or 4 times as many. Ovary single; styles 3-5, either wholly distinct, or slightly connected at the base, bifid or branched. Ovules 00, parietal, or attached to a placenta at the base, anatropal. Capsule of 3 or 5 valves, which bear the placentæ either in the middle or at their base, and sometimes turn in their edges so as to form almost perfect dissepiments. Seeds either naked or furnished with an aril. Embryo minute, in the base of fleshy albumen.

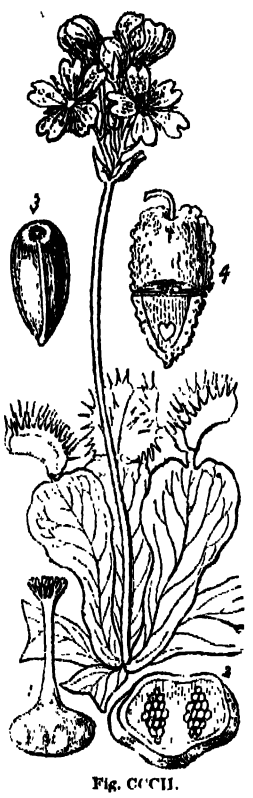


Fig. CCCII.

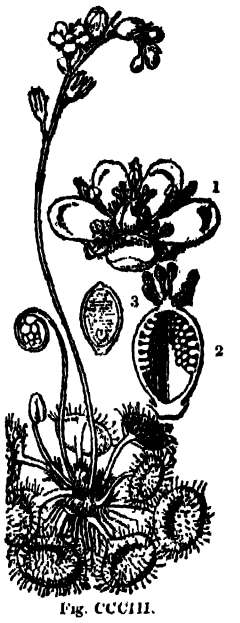


Fig. CCCIII.

These plants are generally supposed to be nearly allied to Violetworts, from which the circinate vernation, several styles, and exstipulate leaves, distinguish them. They are also no doubt related to Tutsans, among which Parnassia accords with Sundews. Rock-roses (Cistaceæ) are also named as approaching Sundews, and so are Turneras, the parietal placentation of these Orders having led to the comparison. But if we regard the minute embryo and copious albumen of Sundews as the first point of importance in their structure, then they must be removed from immediate relation to all the Orders already mentioned, and will fall into either the Berberal or Erical Alliance. They will correspond with the former in the number of parts in their ovary not agreeing with that of the surrounding parts, and with Fumeworts in their parietal placentation; on the other hand they will claim affinity with Ericals in their general appearance. Aldrovanda, a water plant, inhabiting the ditches in the South of Europe, is remarkable for its whorled, cellular, shell-like leaves.

At the Cape of Good Hope, in South America, North America, New Holland, China, Europe, Madagascar, the East Indies, wherever there are marshes or morasses, these plants are found. Drosophyllum lusitanicum grows on the barren sands of Portugal.

The common Droseras are rather acid, slightly acrid, and according to some, poisonous to cattle. The Drosera communis of Brazil is said by A. de St. Hilaire to be poisonous to sheep. Drosera lunata has viscid leaves with glandular fringes, which close upon

Fig. CCCII.—Dionæa muscipula. 1. its pistil: 2. a sectional view of it showing the placentæ; 3. a seed; 4. the same without its crustaceous skin, and opened so as to show the embryo.

Fig. CCCIII.—Drosera longifolia. 1. a flower; 2. a perpendicular section of the ovary; 3. a perpendicular section of a seed

LONDON: PUBLISHED FOR THE AUTHOR BY BRADBURY AND EVANS, 90, FLEET-STREET, AND WHITEFRIARS.

THE DAILY NEWS,

NEW LONDON MORNING NEWSPAPER,

PRICE TWOPENCE HALFPENNY.

PUBLISHED IN TIME FOR THE MORNING MAILS.

WHITEFRIARS, JUNE 11th.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 26—1846.] SATURDAY, JUNE 27. [Price 6*d*.

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FUCHSIAS,	ditto	ditto	6*s*	,,
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GERANIUMS, finest show flowers, strong plants in 48 sized pots			12*s*	,,
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*** Orders from unknown correspondents must inclose remittance.—June 27

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LOBELIA ERINUS GRANDIFLORA 3*s* per doz

" Milleri
" gerotina,
" rosea
} 6*s* per dozen, fine

" Bouvardia strigosa 1*s* Splendens 1*s* fine Dichotophylla 1*s* fine

Abutilon acutifolium	2*s*	6*d*
Paxodium sempervirens 6 to 9 inches	10	0
Lycoris plumbifida good	2	6
Alonia coelestis	2	0
Veronica paniculata	2	0
Stachys inodora recommended for bedding at, per dozen	3	0
Andromeda coriifolia	2	0
Fuchsia serratifolia	3	0
Calceolaria florilundia for bedding	2	6
Roses, two species Chusan each	3	0
Do one do Amy	3	0

With a few plants to compensate for carriage An allowance to the Trade Taunton Nurseries June 27

SEEDS—CORNER OF HALF MOON-STREET,

THOMAS GIBBS and CO

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND Beg to remind the Members of the Society and Agriculturists in general that their only Counting House and Seed Warehouse is at the Corner of HALF MOON STREET PICCADILLY, London as for the last Fifty Year

Priced Lists of Agricultural Seeds are always ready and may be had on application

CURTIS'S BUDDING KNIFE.—"This is the neatest Budding Knife we have seen the ivory handle is shaped like the blade of a curved Penknife, sharp and turned up at the point, and is evidently extremely well contrived for the purpose it is intended."—*Opinion of Professor Lindley in the Gardeners' Chronicle, July 29 1843*

GEORGE PLUM, Surgical Instrument Maker and Cutler, No 262 Strand, London, and at No 3, Dolphin street, Bristol begs to call the attention of the public to the above desirable article Sent free to any part of the kingdom on receipt of 18 penny postage stamps, or a post-office order for 3*s* 3*d*

G P cautions Horticulturists and the Public in general against numerous imitations of the above article, he being the only appointed Manufacturer

FLOWER POTS AND GARDEN SEATS

JOHN MORTLOCK, 250, Oxford street, respectfully announces that he has a very large assortment of the above articles in various colours and solicits an early inspection Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash —250, Oxford street near Hyde park

NEW AND RARE PLANTS

A. BALSTON begs respectfully to call attention to the undernamed species of ORCHIDACEOUS AND OTHER PLANTS, which he confidently recommends Many of which are new and almost unknown in this country having been very recently imported from Guatemala, Borneo, the Interior of Mexico and Brazil

Arpophyllum giganteum	Epidendrum fragrans
" squarrosa	" 6 new vars (Oaxaca)
" sp Nova (Guatemala)	" 3 do (Guatemala)
" do (Oaxaca)	Lycaste Skinneri
Bapteria spectabilis	Maxillaria aromatica
" var like Lindleyana	" 3 other vars (Oaxaca)
Brassia verrucosa	Oncidium bicallosa
" Wrayii	" Cavendishii
" other vars (Oaxaca)	" leucochilum
Cattleya Skinneri citrina	" tabulatti
" var like Citrina	" Wentworthiana
Cyrtochilum Russellianum	Odontoglossum grande
" filipes	" Cervantesii
" 5 other var new (Oaxaca)	" pulchellum
" 1 ditto (Guatemala)	" several others (Oaxaca)
Cuitlauchia macroantachya	Stanhopea Wardii
" white var	" tigrina
" sp Nova (Oaxaca)	" insignis
Cyrtopodium 14 vars	" saccata
Epidendrum Skinneri aurantiacum	3 other vars (Oaxaca)
	" 2 vars from 65 Fahrenheit

Rhododendron Gibsonii	Gardenia Stanleyana
Rudolphia sp (Havanna)	" Sherbourniana
Siphocampylus coccineus	Gloxinia Passinghamii
Christa sinensis	Francisca Hydrangeiformis

Poole Nursery, June 27

GERANIUMS AND DAHLIAS

J. HARRISON having a surplus Stock of many Thousands of the above Plants in all the choice show Varieties, begs to offer them to his friends and the public at the following very reduced prices, viz

GERANIUMS at 3*s* per dozen—Duke of Cornwall Constellation, Duchess of Sutherland, Enchantress Gipsey Lady, Cotton Shepard, Nestor, Nymph, Princess Royal, Pluto, Sir R. Peel, Symmetry, Wyah, Tom Thumb, Yorkshire Lass, Wonderful, &c, &c Older Varieties for bedding, 2*s* per dozen

DAHLIAS, strong Plants at 9*s* per dozen—Becawing Standard, Lord Howden Alice Hawthorn, Antler Athlete Arethusa, Admiral Stopford, Bathonia, Cleopatra, Darell, Orlando Duke of York Emperor of Whites, Essex Bride, Essex Primrose, Essex Scarlet, Fulwood Hero Gloria Mundi, Grand Duke Lady Sale, Nonpareil, Ondine Queen of Roses, Rembrandt Stewart Richardson, Victory of Sussex, Vivid, &c Older Varieties, 4*s* per dozen

Grove Nursery York June 26

GENUINE HARE RABBITS—THE LARGEST AND FINEST BREED IN THE KINGDOM

This large beautiful and scarce variety (the colour of the hare) has great length and depth of carcase great width and suitance full long erect ears and weighs when at maturity from 15 to 17 lbs As hardy and prolific as the common wild rabbit from one to two months old 1*l* 5*s* per pair, (male and female) three to four months 1*l* 8*s* to London or Hull from which they are transmitted with safety to any part of the United kingdom A few fine Breeding Does at 21*s* each

Apply to Mr John Barry Market place Great Yarmouth

FRUITS PRESERVED BY COOPER'S PATENT APPARATUS have been proved to keep in a sound and perfect state for family use for five years This process is well suited for the preservation of Pine apples Wall fruit Strawberries Mulberries &c retaining and concentrating all their excellent and peculiar flavour The Strawberries are well adapted to be used with cream at all seasons of the year Sample hampers of the fruits generally preserved for family use a machin cork screw with the whole particulars of the patent process and testimonials will be delivered at any part of London for TEN SHILLINGS, by an order addressed to the Patentee James Cooper 7 the upper part of St John street Clerkenwell London



The Patent Apparatus and Vessels are on sale at the Manufactory as above

BENTALL'S BOTANICAL DRYING PAPER—This Paper is prepared expressly for the purpose of drying specimens of plants and is considered by all Botanists who have used it to be far superior to everything previously employed It is recommended by Sir W J Hooker Dr Lindley Dr Balfour Mr Babington and other eminent botanists

The following are the sizes in which it is sold

16 by 10 inches	..	15*s* per Ream
18 by 11	,	18*s* ,,
20 by 12	,,	21*s* ,,
20 by 16	,,	28*s* ,,

Sold by the Manufacturers W and T Bentall Halstead, Essex, E Newman 9 Devonshire street, Bishopsgate, London, R T M Intosh North St Andrew street Edinburgh, G Davey Bridge street, Bristol, H Whitmore Market street, Manchester J W Keys, Plymouth

BRITISH AND FOREIGN SHEET GLASS, for Horticultural purposes, &c, may be had at James Broadley 315 Oxford street London at the following reduced prices —In crates containing about 200 feet of coarse Lizer at 4½*d* per foot, or 4th quality, 5*d* per foot ditto 18 oz coarse, 5½*d* per foot, ditto ditto 4th quality 6*d* per foot Or cut to any size not exceeding 40 in this long by 10 inches wide, at ½*d* per foot extra

Also Microscopical Glass, French Shades Patent and Crown Window Glass

A discount to the Trade

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, from 25*d.* to 52*d.* per foot. Glass Pantiles, 7*s.* 6*d.* per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at P. ELPHICK'S, 28, Castle-street East, Oxford-street.

*** For Ready Money only.

FOREIGN AND BRITISH SHEET AND CROWN GLASS for Hothouses, Garden and other purposes.—R. COGAN having again reduced the prices for small crown squares, invites a comparison of the present quotations with his former lists:

per gross.		per gross.		per gross.
6 in. by 4 .. 6*s.*	8 by 5 .. 12*s.*	9 by 7 .. 18*s.*
7 in. by 4½ .. 9*s.*	8 by 6 .. 14*s.*	10 by 8 .. 26*s.*

R. C. will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, & GRAPE GLASSES, of every description, cheaper than at any other house.—For New Lists, apply to R. COGAN, Glass, Lead, and Colour Works, 48, Leicester-square, London.

GLASS FOR CONSERVATORIES.

APSLEY PELLATT AND CO., Falcon Glass Works, Holland-street, Blackfriars are prepared to supply (in quantities not less than 100 square feet), SHEET AND CROWN GLASS OF BEST QUALITY, at the following *Net Cash Prices*:—

Any size under 40 ins. long.	Per square foot.
13 oz. weight per foot	4*d.*
16 oz.	5
21 oz.	7
26 oz.	11

SMALL Squares up to 10 ins. by 8 ins., from 12*d.* to 3*d.* per square foot.

N.B.—The 16 oz. is full strength for Greenhouses.

PROPAGATING GLASSES, White, 1*s.* per lb., or from 2*s.* 6*d.* to 21*s.* per dozen. CUCUMBER GLASSES, from 6*d.* to 4*s.* each. GRAPE SHADES, with holes, 1*s.* 9*d.* to 2*s.* 6*d.* each. FISH BOWLS, from 1*s.* 6*d.* each. APSLEY PELLATT & Co., Falcon Glass Works, Holland-street, Blackfriars.

BRITISH AND FOREIGN SHEET AND HORTICULTURAL GLASS.

PHILLIPS AND WELCH have to announce to the Nobility and Gentry, that they have just concluded arrangements with J. WELCH, jun., PHILLIPS and Co., for the purchase of the business lately carried on by them, at 12, Panton-street, and beg to call attention to their extremely low prices for Horticultural Glass of every description.

PRICES OF HORTICULTURAL GLASS:

Not above 40 in. long by widths from 5 in. to 18 in.

No.			
13	British or Foreign sheet 13 oz. to the foot	4*d.*	per foot.
,, 16	16 ,, ,, ...	5*d.*	,,
,, 21	21 ,, ,, ...	7*d.*	,,
,, 26	26 ,, ,, ...	11*d.*	,,
,, 32	32 ,, ,, ...	1*s.* 2*d.*	,,

SMALL SQUARES.

Packed in 100 feet boxes, not particular to thickness.

Under 5 in. by 3 in.	1½*d.*	per foot.
5 by 3 and under 6 by 4	2*d.*	,,
6 by 4 ,, 9 ,, 7	3*d.*	,,

FOR GLAZING.

Black Cement, as used at Chatsworth.	24*s.* per cwt.
Best Linseed Oil Putty	10*s.* ,,

White Lead, Window Lead, Solder, &c. &c.

Horticultural Glazing Executed in any part of the United Kingdom.

The selection of Patent Plate, Sheet, and Rolled Crown Glass for Pictures, &c., particularly attended to.—12, Panton-street, Haymarket.

GLASS DAIRY PANS.

EDWARDS & PELL, FOREIGN AGENTS AND IMPORTERS OF GLASS, AND GLASS MILK PANS, have received a large supply of PANS from 18 to 23 inches in diameter. They are made of great strength, and are very cool and cleanly. Cold water cleans them quite as well as hot, and without trouble.

EDWARDS & PELL have also a large stock of Propagating Glasses of the most approved form.

The very best Glass for Horticultural and other purposes, very strong and free from specks.

15, Southampton-street, Strand.

FOREIGN SHEET GLASS, &c.

C. JARVIS having just imported a large quantity of Foreign Sheet Glass, of the STOUTEST KIND, in substance 15, 16, and 17 ounces to the foot superficial, can offer the same at the unprecedented low price of 4*d.* per foot in the case, as imported, any size in stock; a less price than he has hitherto received from large purchasers for the thinnest quality, viz., 13 ounces to the foot, at his old established WINDOW GLASS WAREHOUSE, 28, Great Castle-street, a few doors from Regent-street. GLASS PANTILES equally low in price. English Manufactured Glass of every description, on the lowest terms, for ready money only.

SMITH AND CO.



ESTABLISHED NINE YEARS

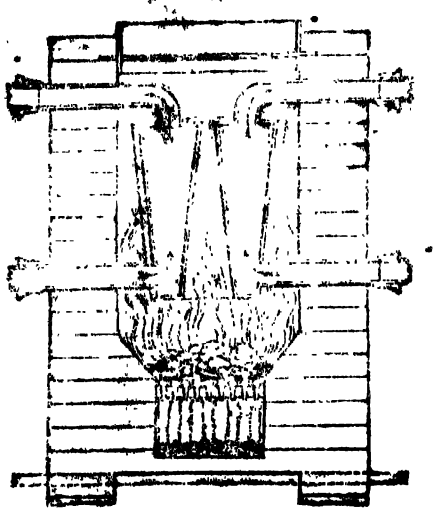
HORTICULTURAL BUILDERS, HOT-WATER APPARATUS, AND GENERAL GARDEN FURNITURE MANUFACTURERS;

GLEBE PLACE, FACING KING'S PARADE, KING'S ROAD, CHELSEA, LONDON.

FOUNTAINS, VASES, FIGURES, &c. &c., IN GREAT VARIETY.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SURMEN, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Porter's, Plymouth, Mr. Henderson's Pine-apple-place, and in the Horticultural Society's Gardens.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places: Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—120, Fleet-street, London.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
WM. JOSEPH MYERS AND CO., LIVERPOOL;
And by their Agents,
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL;
COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold Liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

TURNIP SOWING.

THE URATE OF THE LONDON MANURE COMPANY, Four Guineas per Ton. The experience of the last five years has fully established the above as one of the best of all the light manures for the production of Turnips, for which crop it is particularly adapted, seldom failing in the driest season to secure a good plant, and to produce a great weight per acre. Availing themselves of the many improvements in the science of artificial manures, the Company so manufacture the Urate, that the food requisite for a rotation of crops is fully maintained, therefore parties using the Urate for Turnips will find their succeeding crops of Barley and seeds materially improved. Full particulars, with testimonials, forwarded on application. No. 40, New Bridge-street, Blackfriars. EDWARD PURSER, Secretary.

TURNIP SEASON.

GUANO, Peruvian, (imported by GIBBS & CO.,) and African, from Ichaboe and Saldanha Bay; Superphosphate of Lime (see "Royal Ag. Soc. Journal," Vol. vi., Part 2): Bone Dust, Sulphuric Acid, and Clarke's desiccated Compost; all suitable for the Turnip Crop. Also Nitrates of Soda and Potash, and all other Manures of known value, on sale by MARK FOTHERGILL, 40, Upper Thames-street, London.

Agent also for DINGLE'S HAND DIBBLE, suitable for every description of seed.

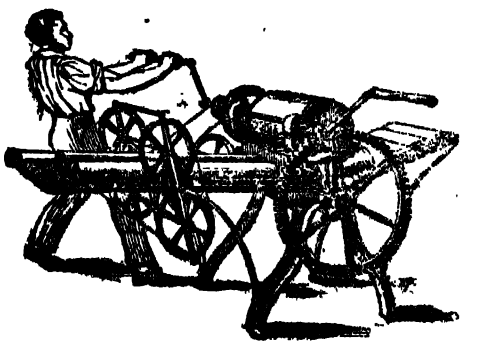
THE LONDON MANURE COMPANY beg to offer Genuine PERUVIAN GUANO, delivered direct from the Importers' bonded warehouses:—

Nitrate of Soda,	Fine Bone Sawdust,
Sulphate of Ammonia,	Sulphuric Acid,
Superphosphate of Lime,	Sulphate of Soda,
Gypsum,	Petre Salt,

And every article of Artificial Manure in the most genuine state.—No. 40, New Bridge-street, Blackfriars.

EDWARD PURSER, Secretary.

DRAINING TILE MACHINES.



AINSLIE'S PATENT IMPROVEMENT for MAKING and DRYING Draining Tiles.

The PROCESS combines EFFECT with ECONOMY. Gentlemen having works in operation, or who are about to erect them, will find the above worthy their attention.

For particulars apply to Mr. JOHN PATON, at the office for the sale of AINSLIE'S Patent Brick and Tile Machine, 195A, Piccadilly, where they may be seen at work; also at the Polytechnic Institution, and at the Works, Alperton, Middlesex.

ORNAMENTAL TILES for Floors, Walls, &c, of Greenhouses, Conservatories, Garden Terraces; Encaustic, Venetian, &c., in EVERY VARIETY. May be seen at Messrs. PARKES and WYATT'S, Surrey-street, Blackfriars, London. Agents to Messrs. MINTON & CO., the Patentees, of Stoke-upon-Trent. Also Patentees of the PORCELAIN BUTTONS, cheaper and more durable than Mother-o'-Pearl, &c.

PATENT VULCANIZED FLEXIBLE INDIA-RUBBER HOSE-PIPE and TUBING, for Gardeners, Brewers, Railway Companies, Fire Engines, Gas Fitters, Plumbers, and for Agricultural and all other purposes where a perfectly flexible strong Pipe is required. Sole Manufacturer, J. L. HANCOCK, Goswell-mews, Goswell-road, London.

ECONOMICAL, EFFECTUAL, AND DURABLE ROOFING.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

CROGGON'S PATENT ASPHALTE ROOFING FELT, with which the Committee Rooms of the Houses of Parliament are entirely covered. The above Material has been used and highly approved by the Nobility, Gentry, and Agriculturists generally, and Patronised by many Members of the Royal Agricultural Societies of England, Scotland, and Ireland, and by Her Majesty's Office of Woods and Forests, Charles Barry, Esq., R.A., &c. &c.; has been used for several years at the Royal Horticultural Society's Gardens, Chiswick; the Swiss Gardens, Shoreham, Sussex; on the Duke of Buccleuch's, and the Marquis of Anglesey's Property, &c. &c. and (under slate) the Royal Agricultural Society's House, Hanover-square; its Advantages are—CHEAPNESS, LIGHTNESS, DURABILITY, and ECONOMY. Being a Non Conductor, it has been proved an efficient "Protective Material" to Plants.

PRICE, ONE PENNY PER SQUARE FOOT.

Samples and Testimonials sent by Post on application.

THOMAS JOHN CROGGON.

8, Lawrence Pountney-hill, Cannon-street, London.

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton, Draining Engineer to Her Majesty, at Osborne, Isle of Wight; the inventor of a Patent Tile and Pipe Machine (applicable to making Bricks); also a new Machine for taking roots and stones out of clay, both which are to be seen at the Royal Polytechnic Institution, Regent-street,—offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P.S.—Land drained at a fixed sum per acre, including every expense.

HIS GRACE the DUKE of DEVONSHIRE, PRESIDENT of the HORTICULTURAL SOCIETY, has kindly directed the grounds of Chiswick-house to be opened for the reception of the visitors to the Society's garden at the next exhibition on the 11th July.—Tickets are issued to the orders of Fellows of the Society ONLY at this office, price 5s., or at the garden in the afternoon of the 11th July, at 7s. 6d. each, but then also ONLY TO ORDERS SIGNED BY FELLOWS OF THE SOCIETY.—N.B. No tickets will be issued in Regent-street on the day of exhibition.—21, Regent-street.

ROYAL BOTANIC SOCIETY, REGENT'S-PARK. —The LAST EXHIBITION this season of PLANTS, FLOWERS, and FRUIT, in the Gardens of this Society, will take place on WEDNESDAY next, the 1st of JULY. In the course of the day the Three Military Bands will join and perform the following Overtures—"FRA DIAVOLO," by Auber; "EGMONT," by Beethoven; "ZAMPA," by Herold.

Subscribers to the Society are admitted free.

Visitors are admitted by Tickets to be obtained at the Gardens only by orders from Subscribers; price, until the day, 5s. each, or on the day of Exhibition 7s. 6d.

Gates to open at 2 o'clock. Carriages to fall into the line in the road from Park-square, over the bridge facing York-gate, to set down at the Front Gate, or at the New Gate at the north side of the circle, and to take up at the same. Parties on foot may enter conveniently at the Gate facing the road from Chester-terrace. J. De C. SOWERBY, Secretary.

BECK'S SEEDLING PELARGONIUMS. — A descriptive Catalogue of these, with directions for their cultivation, blooming, &c., will be ready by July 11th, in exchange for 8 postage stamps.

Worton Cottage, Isleworth, June 30.

The Gardeners' Chronicle.

SATURDAY, JUNE 27, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, July 1	—Royal Botanic Gardens	2 P.M.
TUESDAY, — 7	—Horticultural	2 P.M.
SATURDAY, — 11	—Horticultural Gardens	1 P.M.

COUNTRY SHOW.

WEDNESDAY, July 8—Craven Horticultural.

WHETHER viewed as possibly affecting the yet obscure question of the POTATO DISEASE, or merely as the result of a physiological experiment, the knowledge of which may prove useful, the following will doubtless be considered interesting.

Mr. KNIGHT states, "Hort. Transactions," v. 4, p. 448, that "it has been contended there is much waste in planting large sets; because the old tuber is often found to have lost little in weight, when an early crop is taken up in an immature state; and it has thence been inferred that a very small part only of the matter of the old tubers enters into the composition of the new. But I believe a false inference has in this case been drawn, and that under ordinary circumstances a very large portion of the soluble matter of the old tubers is employed in the formation of the new; for I have proved by experiments purposely made, that the vital union and community of circulating fluid between the old tuber and the plant which has sprung from it is not so soon dissolved. Some Potatoes of rather large size and early habit were placed in such situations that the fibrous roots only of the plants entered into, or were in contact with, the soil. Thus circumstanced, an abundant blossom appeared, and seeds would have been produced in the manner I have described in the "Horticultural Transactions," v. 1, p. 58; but both the blossoms and the runners, which would have formed young tubers, were alike removed. The old tubers, though fully exposed to the sun and air, still retained life, and were obviously supplied with moisture by the stems which had sprung from them; and the result was ultimately just what I had anticipated. The plants, after many frustrated efforts to produce blossoms and tubers upon every part of their branches, at last threw their sap back into the old tubers; and a numerous crop of young tubers was suspended from the buds or eyes of the old. This did not occur till autumn; and therefore the vital union must have subsisted through the whole summer; and I entertain but very little doubt that such an union subsists under ordinary circumstances, till almost the whole of the soluble and organizable matter has been absorbed by the new [plant]."

Twenty-five years have elapsed since the above was written by Mr. KNIGHT; and we now witness a lamentable change in the vegetation of the Potato plant. The absorption of the decaying substance of the old tuber goes on as formerly; but at the same time a brown tinge, resembling that of the putrifying set, is communicated to the under-ground portion of the stem, whilst yet in connexion with the set; the bark decays, and, in consequence, cannot receive the returning sap from the foliage to make a supply of roots; for want of fresh nourishment the stem and leaves become diseased, and die prematurely.

During the late excessively hot dry weather, some quarters planted with various kinds of Potatoes grew rapidly; and up to the present time, June 24, the plants exhibit the most healthy appearance imaginable. But on pulling up some stems the part next the old set is found decaying as above described. Many are quite dead, and can be twisted like a piece of dry rope. They are affected in the same way as last season, though, as yet, not so universally.

Such being the case, if anything can be done there is not a moment to lose. The tops are as yet to all appearance in healthy vegetation, with the exception of that of the very early varieties, which are of course approaching their natural period of decay. But the main crops ought to grow for many weeks, if they had only roots to support them; they are young enough to make fresh roots above the present useless underground portion, if A FRESH EARTHING UP IS IMMEDIATELY COMMENCED. What may be the result of such a proceeding no one can now tell; but the time was when the Potato-plant endured earthing up to any extent during the whole summer, and continued making successions of fresh roots and tubers with which hills a yard wide were filled, as was observed in the course of some experiments made in the garden of the Hort. Society.

We would, therefore, earnestly advise that the crop be examined, and that wherever the stem is found affected under ground, the operation of earthing-up be immediately put in practice. Because this, and this alone, appears to offer a chance of saving many crops. Not that we pretend to say that it will certainly be a successful operation; but it *can* do no harm, and *may* perchance do much good.—‖

IN these days of WARMING and VENTILATION, and particularly in reference to exotic gardening, it may be useful to inquire into the means employed by Nature, with a view to the better imitation of her effects. For this purpose our readers are invited to a meteorological speculation which is believed to be new, if not true; and which may, perchance, elicit from our contributors something both new and true.

The peculiar coldness of the east wind is pretty generally admitted. The poet BURNS, indeed, speaks of the "wintry west," though he to some extent neutralises this by talking elsewhere of "biting Boreas" and the "stormy north."

SHAKSPEARE is equally heretical. King John exclaims—

> "Intreat the north,
> To make his bleak winds kiss my parched lips
> And comfort me with cold."

Later poets, however (unless these matters have changed), do the elements more justice. They "tax not with unkindness," the north, but assail the east. Sir WALTER SCOTT, in a letter to SOUTHEY, upbraids certain "abominable easterly afternoons," and MOORE illustrates some theological point thus:—"as in the same quarter of the heavens arises the sunbeam which gives life to the flower and the withering gale that blasts it."

This pretty simile serves to bring home the subject to the pursuits of Horticulture; and though the fact doubtless is, as MOORE states it, that the east is the withering wind, the east wind does not perhaps arise precisely in the same quarter as the sun, and this leads to the views about to be put forth.

The admitted coldness of the east wind is generally ascribed in this country to its supposed passage over the Continents of Europe and Asia, and to its consequent dryness; but this is negatived by the fact that the East is equally a cold wind on the eastern shores of America and Australia, whither it arrives fresh from the surface of the Ocean.

The truth seems to be this: that inasmuch as there is a constant current westward, to some distance on both sides of the equator, the atmosphere north and south of these currents must of necessity be thrown into a series of whirls, just as a wide piece of water, through which runs a stream, has its margins filled with circling eddies. On this supposition the greater part of the variable winds are, in fact, whirlwinds, precisely similar in kind, though inferior in violence, to the tropical hurricanes, which are now nearly decided to have this character.

The dotted lines and arrows within the annexed circle, fig. 1, are intended to explain this idea; and if it be granted that such whirls will probably be created within and beyond the temperate zones by the continuous currents of the tropics, the second figure, which represents one of these whirls from the northern hemisphere on a larger scale, will show the real circumstances under which each particular wind acts upon us.

fig. 1.

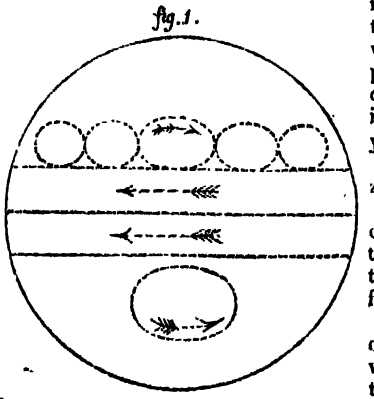
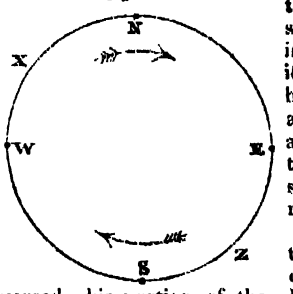


fig. 2.



To an observer at the point N, for instance, the air is moving from west to east; it is therefore called by him a *west wind*, and as it has rotated altogether in latitude south of the observer, it is of course relatively warm.

To an observer at the point S, all the conditions are reversed; his portion of the whirl strikes him from the east; it has previously traversed a region wholly to the north of him, where its superfluous water had been condensed; its appetite for moisture is revived by the higher temperature of the latitude at which it has now arrived; and at S it is clearly a *dry east wind*, though forming part of the very same revolving current, which impinging in a saturated state on the observer at N, had been called by him a *moist west wind*.

In like manner an observer at W would call the wind *south*; and one at E would call it *north*; though they are similarly situated in reference to the latitude of the space in which the revolution occurs; but one receives it immediately from the north and the other from the south

The extreme points of such a whirl are those which occur just after the current has been most rapidly changing its latitude, such as X where the wind is

> "A dripping south-west;"

and Z, where it is

> "a north-east,
> Good neither for man nor beast."

A.

IT appears from a paragraph which has been going the round of the newspapers, that one JOHN DIGBY, a Norfolk peasant, has discovered some WONDERFUL BERRY in the hedgerows of his neighbourhood, which "will grow the finest Potatoes in quality that ever were grown. One quart of these berries will produce as much as one bushel of our common Potato." And the gentleman further reports that although the said berries must go through "some regular process in the course of the winter," yet that "it is attended with scarcely any trouble and no expence."

Is it possible that people can be simple enough to believe this story? It would seem so, from letters that have reached us. We really cannot waste time in speculating upon the true meaning of this absurd announcement. The man has, perhaps, found out that the roots of what the Norfolk people call Lords and Ladies (*Arum maculatum*) are eatable; if so, we lament the destitution which has led to such a diet, for it says little for the condition of the Norfolk peasant. The starch of the Arum is very good, no doubt, when properly mixed with sugar and wine; but the roots themselves are only to be classed with Pignuts, Acorns, and Beechmast, which might have suited GURTH and WAMBA, but are not exactly what we should recommend as the diet of the 19th century.

THE INCENSE OR FRANKINCENSE OF SCRIPTURE.

THE word "Lebonah" occurs in numerous places in the Old Testament, in all of which it is translated Incense or Frankincense in the authorised version. In the New Testament the word *libanos* is considered to indicate the same thing, and is likewise translated Frankincense. Matthew ii. 11: "and when they (*i. e.* the wise men from the east) were come into the house, and when they had opened their treasures, they presented each their gifts, gold and frankincense and myrrh." Also, in Revelations xviii. 13, incense is enumerated among the articles of merchandise of the mystic Babylon. In the Old Testament it is first mentioned in Exodus xxx. 34, and then in Levit. ii. 1, 2, 15, 16; v. 11; vi. 15; xxiv. 7: Numbers v. 15; 1 Chron. ix. 29; Nehem. xiii. 5. In all of which it is mentioned as one of the ingredients of the offerings directed to be burnt upon the altars. The other ingredients were fine flour, ears of corn, Barley meal, with oil, and in some cases sweet spices. In other places it is used in a figurative sense, as in Canticles iii. 6: "Who is this that cometh out of the wilderness like pillars of smoke, perfumed with myrrh and frankincense;" iv. 6: "I will get me to the mountain of myrrh, and to the hill of frankincense;" Isaiah xliii. 23: "I have not caused thee to serve an offering, nor wearied thee with incense;" so, also, lxvi. 3. In other passages we get a hint of the countries whence incense was obtained; thus, Isaiah lx. 6: "The multitude of camels shall cover thee, the dromedaries of Midian and Ephah; all they from Sheba shall come; they shall bring gold and incense." So in Jerem. vi. 20. "To what purpose cometh there to me incense from Sheba." From all these passages, we

learn that it was an article of distant commerce, that is obtained from Sheba, which was early known, was probably of a resinous nature, and fragrant.

The name *lebonah* is derived by Celsius, vol. i. p. 231, from a word signifying white; but it is very similar to the Arabic—*luban*, signifying milk: and in a secondary sense, a gummy or resinous exudation from a tree, more especially frankincense. The Arabic *luban* has been stated by some authors to have been derived from the Greek *Libanos*, which was itself said to be applied to the above substance, because it was thought to be a produce of Mount Libanus. But this, it was never supposed to be by any of the better informed of the ancients. There are, besides, several other words in the Arabic, which have a similar meaning, and which it is more probable were all originally derived from the same root as the Hebrew *lebonah*, and the Arabic *luban*, which are applied in both languages to the same substance. This the Greeks called *libanos*, and the Romans *Thus*; it is now commonly called *olibanum*. Several kinds of resin, have, however, at different times been confounded together under the names incense and frankincense, as well as under the latin name *Thus*.

Dioscorides describes two kinds of olibanum: first, that which is produced in that part of Arabia called Thurifera, and that which is produced in India, besides several commercial varieties depending on purity, form, and size. Theophrastus notices it in lib. ix. c. 4, and Hippocrates under the name of Λίβανωτὸν. Theophrastus describes the tree yielding it as large and like a Pear tree. According to Diodorus Siculus, it is like the Egyptian Acacia, with Willow-like leaves. But from the contradictory descriptions it is evident that the ancients were totally unacquainted with the tree yielding olibanum. Garcias ab Horto said the tree was like a Lentiscus, Thevet stated it to be a Pine, and Linnæus conjectured that olibanum was the produce of a Juniper, at one time of Juniperus thurifera, and at another of J. lycia, the former growing in Spain, and the latter in Africa and the south of France; but neither have been proved to yield any frankincense. It is necessary, in the first instance, to determine the country or countries whence this incense was and is obtained before we attempt to ascertain the plant which yields it, because travellers are so apt to mistake one thing for another, that little reliance can be placed on many of their statements. The prophets Isaiah and Jeremiah both point to Sheba as the country yielding frankincense. This has generally been supposed to refer to Saba, on the coast of Arabia. The ancients almost universally refer to this, as may be seen in the numerous quotations by Celsius. Thus Theophrastus mentions that part of Arabia which is about Saba, Adramita, and Citibrena; so also Strabo states, that in the happy region of the Sabæans, both myrrh and frankincense (λίβανος) are produced. Pliny repeats the same, and the poets refer to it "*solis est thurea virga Sabæis.*" By some it was supposed to be produced on Mount Lebanon; but Celsius quotes R. David Kimchi, on Jerem. vi. 20, "*Apportabatur thus e terris longe dissitis quia non invenichatur in terra Israelis.*" Dioscorides, however, states that λίβανος or olibanum is produced both in Arabia and in India. Two kinds are known in the present day, the African and the Indian. The author of the Periplus mentions λίβανος expressly as procured with myrrh, at Malao, Masylon, and Aromata, which probably correspond with the modern Tajoura, Zeila, and Berbera, on the east coast of Africa. Arab writers, as Serapian and Avicenna, who evidently refer to the description of Dioscorides, state that *loban* is also called *koondur*. A Persian author affirms that it is produced on the coast of Yemen and of Oman. Avicenna states that it comes to Merbat, which is on the sea coast near Dafar. Niebuhr states that the plant is cultivated at Keshin and Schahr, which are on the same south coast of Arabia, but that it was originally introduced from Abyssinia. Forskal says positively that it is produced by a species of Amyris, one of which, indeed, yields myrrh. Lieutenant Wellsted, in his travels on the south coast of Arabia, and in Oman, does not say that frankincense is produced on that coast, but that he was never able to see the tree which produced it. There is nothing improbable in olibanum being produced along the coast of Arabia, but it has never yet been proved that it is so. Many of the exports of the Arabian coast, both in ancient and modern times, are first imported from Africa. This is the case with the greater part, if not the whole of the myrrh of commerce, and probably also with frankincense. Mr. Johnston, the author of Travels in Southern Abyssinia, has informed the author of this article that frankincense, so called, is exported in large quantities from Berbera, on the Soumalee coast of Africa, and that it is brought from the interior. So Dr. Malcolmson writes, from Aden, that it is largely imported into that port, and also into other ports of the Arabian coast, whence it is re-exported to Bombay. Another kind of olibanum is no doubt produced in the interior of India, and exported from Calcutta. It will be shown in another article that these are produced by two species of the same genus of plants.—*R.*

ON THE ORGANIC COMPOUNDS WHICH CONSTITUTE THE NUTRITIVE PORTIONS OF THE POTATO.

By the Rev. Prof. HENSLOW.

(*Continued from p. 405.*)

From starches obtained from seeds, I pass to such as are procured from the stems of certain plants. Sago is a starch of this class. It is largely obtained from certain Palm-trees, and more especially from one which is called the Sago-Palm (Sagus Rumphii) of which Fig. 3 affords you a representation. The character of such trees is very different from that of any which we ever see in our own climate. They grow only within the tropics, or in warm countries contiguous to them. The interior of their trunk is pulpy and pith-like, and

Fig. 3.



often contains an abundance of starch. In order to procure this, the trunk is split into logs a few feet in length, and the soft interior is then extracted and pounded, and thrown into water. The water is then drained off from the pulpy mass, and the starch comes away with it; and upon being allowed to settle, is afterwards prepared and purified by successive washings. The Sago-meal, as it is called, and of which I show you a specimen, is the form in which this starch is procured, although it is not commonly imported to England in this state. The usual form in which this starch is to be met with, is the common article called Pearl Sago, composed of little spherical grains; a character given it by passing the Sago-meal through a cullender, and then drying it on hot plates. Potato starch is sometimes prepared in this form, and is then sold by the honest dealer as Potato-Sago, and by the fraudulent tradesman as true Sago.

Fig. 4.



There is another tribe of plants to which the genus Cycas belongs, containing one or two species from which it is stated that a coarse description of Sago is sometimes procured. They have short thick stems, crowned with a circle of large leaves, but are totally unlike Palms in their botanical characters. The public enjoy the opportunity of seeing these tropical plants in perfection at the great national establishment at Kew, which is now as freely accessible as the British Museum.

The trunks of the different plants which furnish the Sagoes of commerce rise into the air; but there is a class of stems which are either wholly or partially subterranean, and which abound in starch. Some of this class of stems are so variously modified in form and character as to require specific names for designating them. The tubers of the Potato, and of the Jerusalem Artichoke, are only swollen portions of under-ground stems which are thus modified to serve the important purpose of becoming magazines of nutriment for the future development of their buds (or eyes as they are usually called) into those stalks and branches which rise above ground, and bear leaves and flowers. We must not confound the true tuber (with its buds) with certain tuberous roots that are merely swollen expansions of some part or other of this latter organ. These we find in the Dahlia, Peony, and in certain of the Orchis tribe. Such tuberous roots also serve as magazines of nutriment, but they bear no buds upon their surface, unless such are formed and forced upon them by peculiar treatment. The nourishment which is stored in tubers, tuberous roots, and the other forms assumed by subterraneous stems and roots, is very frequently starch; though in some cases it is gum or sugar, according to the peculiar plant, or even according to the time of year in which we search for it. Several species of the Indian Shot tribe, growing in tropical countries, are capable of furnishing a great abundance of starch, which is stored up in their underground stems. The starch imported under the name of Arrow-root comes from plants of this tribe; especially from one which itself bears this name (Maranta arundinacea, fig. 4), because of its native name Ara. Another of the same tribe furnishes the "*Tous les Mois*" of commerce, a starch which is considered to be an equally excellent article as Arrow-root, and which is sold much cheaper. I am not aware of any facts that have been sufficiently authenticated by competent authority, to prove that either of these exotic starches are more wholesome than common Potato starch, when this is properly prepared and thoroughly purified of all adventitious matters. I consider the Potato-starch much more palatable than Arrow-root, in the usual form in which the latter is prepared for invalids. Starches must be boiled to make them digestible, and then they all assume the form of a homogeneous jelly-like paste. "But," says Raspail, "it is evident that pure starches being chemically identical in all plants, they must possess similar medical properties. It is mere quackery to direct a patient to use any one of them rather than another, and to give a preference to the more costly exotic article over the cheaper indigenous one; consequently, we ought always to prescribe Potato-starch in preference to Sago or Arrow-root; both of which are so readily imitated."

(*To be continued.*)

Home Correspondence.

The Fruit and its Judges at Chiswick.—I beg to offer a few observations in reply to your correspondent of last week, who signed himself "A Fruit-grower but not an Exhibitor." I fully agree with him that the exhibition of collections of fruit should be encouraged, and I think it must be admitted by every impartial person competent to form a correct opinion on the subject that they have frequently been rewarded at Chiswick with much higher prizes than their real merit warranted, and your correspondent himself asserts that the judges formerly acted too liberally towards them. When collections of fruit were first shown it was thought advisable by the judges to give them unusual encouragement, and I do not hesitate to confess, that with a view to stimulate the exhibitors, I have on many occasions acquiesced in awards which I considered higher than the collections in strictness merited. The evil consequences of that course soon, however, began to develop themselves; unripe and second-rate fruit was constantly sent by parties who not having a sufficient variety of good articles to form a collection, made it up with those of inferior quality, and to so great an extent was this abuse at length carried, that the Horticultural Society thought it right to enact a new rule, viz., that "all fruit must be fully ripe and well coloured; if, the contrary, it will be disqualified." Notwithstanding this judicious regulation the unripe fruit continued to make its appearance, and was of course passed over by the judges, who are bound to consider a collection as a whole, and have not the power to separate the good portion of it from the bad, and award a prize for the good part alone. Much angry feeling has occasionally been shown by the unsuccessful exhibitors who disregarded the Society's rule, and some good advice to them has from time to time appeared in your Paper; but it has produced little effect, for it is no longer ago than your report of the last May meeting when speaking of their obstinacy in continuing to send fruit in an unripe state, you observe, "We trust that the judges will not flinch from their duty by passing by unripe fruit, and that the growers will learn in time to distinguish between vinegar and sugar." I now come to your correspondent's complaint that Mr. Ingram's collection was not adequately rewarded, and in considering this point it will be necessary to bear in mind that in addition to requiring all fruit to be fully ripe and well coloured, it is expressly enjoined by the Society that the judges shall "not make any award in cases where the objects exhibited do not appear worthy of the medal, otherwise a bad single exhibition might obain a prize merely because there is no better exhibition of the same class to oppose it." It is very easy to apply the terms "beautiful," "admirably grown," "fit for a queen," &c. &c., to any fruit, no matter how inferior it

may be; but all such things must be considered good or bad by comparison, and their precise character must be determined by the standard whereby they are judged. The high sounding terms of praise applied by your correspondent to productions which were looked upon by the judges unanimously as second-rate, lead me to suppose that want of experience has caused him to mistake mediocrity for excellence; and his extraordinary argument that variety of colour in a collection, even if produced by the introduction of an inferior article, ought to constitute an additional claim to a prize, may excite a smile, but cannot require an answer. Gooseberry wine is often pronounced superb by those who know not the vinous flavour of champagne, and stewed calf's head is perfectly satisfactory to the man who never tasted turtle; so in like manner the collection of fruit in question might have gained the first prize if we had not been accustomed to see much better; but the judges felt bound, under the before-mentioned regulations, to consider what were its real merits, and unanimously decided that it did not contain three different kinds of fruit of first-rate quality; and entertaining that opinion they would, if they had acted strictly up to their instructions, have considered it altogether disqualified, but leaning as usual towards the exhibitor, they gave him the best prize which they felt at liberty to award. The Pines no doubt were very good, and your correspondent asserts that if they had been shown separately they would have been entitled to a medal of the same value as that which was awarded for the collection; but on that point he is in error, inasmuch as that was the highest prize which could be given for Pines alone, and there were many better on the table. I agree with him that the Muscat Grapes were better ripened than any others exhibited, but they were not nearly so fine in bunch or berry; the Peaches and British Queen Strawberries were not so good as many others on the table, while the Nectarines, Melons, Cherries, and Figs, were decidedly of very inferior quality. The Pine shown by Mr. Ingram separately was such as any person would be glad to get in the months of March or April, but by no means first-rate for the middle of June; the judges particularly noticed its extreme lightness in comparison with its size. Experience for more than 30 years has enabled me to become well acquainted with the productions of most of the celebrated fruit growers in the kingdom during that period, and it may, perhaps, be satisfac ory if I explain what I mean (and what I believe is meant by the other judges) by first rate fruit; I therefore beg to observe, that I do not expect to meet with such bunches of Grapes as those to which your correspondent alludes, viz, weighing 19 lbs., 15 lbs., or even 8 lbs. each, but I think it is perfectly fair and reasonable to expect to find at the first meeting in the kingdom such fruit as I formerly saw grown in a general way by Baldwin, Dowding, Andrew, Crawshay, and many others, and is at present produced by such gardeners as Breffit, Snow, Fleming, Spencer, and though last not least, by Mr. Ingram himself on most occasions, whose collection, although it contained ample variety, was no more to be compared in quality with the one for which he obtained the first prize last year than copper is comparable with gold; and that gentleman himself was aware of its deficiencies, and with his usual candour and good sense, did not hesitate to admit them, for after the prizes had been awarded and before the names of the exhibitors were announced, I heard him exclaim, "I have got a collection of fruit here, but when I saw it this morning it did not please me." Some Nectarines exhibited by another party were much admired by persons who did not understand them, they were large and of a most beautiful colour, and a casual observer might have thought them excellent, but they were so unripe that they were as hard as Apples. Your correspondent declares that the regulations of the Society as they now stand are quite unobjectionable, and yet he blames the judges for carrying them out; it should, however, be borne in mind that his censure is merely the opinion of an anonymous individual against the deliberate consideration of a body appointed by a Society whose managing members are perfectly capable of estimating the competency of the judges whom they appoint, and who certainly would not request any one to act in that capacity unless possessing a generally admitted reputation for ability to perform the duties confided to him. Your correspondent also states that the decision of the judges as regards Mr. Ingram, was "incomprehensible as well as unfair:" it is very likely that he cannot comprehend it, but that is no fault of ours; it is his own misfortune, and it is no part of the duty of the judges to find comprehension for malcontents; with regard to his charge of having acted unfairly, I cast it back in his teeth with the utmost contempt. I really recommend this gentleman for the sake of the public not to hide his light under a bushel, but to appeal in *propria persona* to the Council of the Society, and if he can impress them with as favourable an opinion of his abilities as he himself evidently entertains, they will, doubtless, gladly avail themselves of his assistance as a judge in future.—*One of the Judges of Fruit.*——I am not greatly surprised at the strictures in the last *Chronicle*. When, owing to the regulations the judges of fruit are required to adhere to, it becomes a very difficult matter to satisfy themselves, it is little wonder that their awards should fail to give satisfaction to others. I agree with much that your correspondent states as to the results of such decisions on collections, and told you personally last season that such would be the consequence; but I disagree with him in stating that the regulations are unobjectionable, and that the judges are solely to blame. I contend that these regulations, taken in connection with the apparent determination of exhibitors to send articles so opposed to the rules laid down by the Society, that the judges must either pass them by altogether, or make a disagreeable compromise between their prescribed duty and their convictions, are the chief causes of the disappointments experienced. It very likely would have been more satisfactory to the exhibitors if we had united in being more liberal in our awards; but censuring the judges is not the way to get out of the dilemma; honourable men, whatever be their private opinions, when they consent to act, must do so according to the rules appointed for their guidance, and the only satisfactory mode of settling the difficulty is, either for the exhibitors to pay more attention to the rules by which fruit is to be judged, or for the Society to give up the stringent application of these rules, and leave more to the unfettered judgment of practical men; or take a middle path, and while conferring their full approval upon ripe well-coloured fruit, leave it in the power of the judges to reward superior productions as to growth, though they may be deficient in ripeness or colouring; and then, whoever may be the judges, if the majority are practical men, I am convinced that there will be no complaint of undue stinginess on their part. Every exhibitor knows, or ought to know, that according to the present arrangements, he must produce at least three different kinds of fruit of first-rate quality, before he can receive a prize for a general collection; and that in no case are the judges to award a prize for fruit, unless perfectly ripe and well coloured. These rules prevented the judges both last season and the present from awarding a premium to specimens showing in their growth great horticultural skill, and collections were disqualified, however fine one or two kinds of fruit might be, because three kinds in unison with these regulations could not be found, it having been decided in a disputed case upon high authority, that the judges had no power to award a prize to a separate article or two in a collection, but that the exhibitor must alone determine, whether he will try for a high prize in a collection, or content himself with humbler premiums, by showing in the different classes. We are given distinctly to understand that quality and not quantity was what the Society wished to reward. We need not say that in many cases this principle is completely lost sight of by the exhibitors, who merely to swell the quantity of their dishes, mix up articles with their collection, that by their inferiority, instead of adding to, detract from the value of the really good articles. If in acting according to these printed regulations, the result has been that one celebrated grower, to whom your correspondent alludes, has been driven into class showing instead of making up a collection, why stop with throwing the blame upon the judges for merely doing their duty? Would it not be a more manly part, either to exhibit in conformity with the regulations, or honourably endeavour to get these regulations altered? So long as perfect ripeness is considered indispensable, I can easily imagine that there will be a deficiency in collections, and for these reasons, first, because it will travel less safely than if it wanted a little of the extreme of ripeness, and secondly, because as the greater part goes to the fruiterer's shop after being exhibited, if perfectly ripe, it will not command so high a price as it would do if less ripe; the tradesman knowing that he is more likely to lose by its spoiling on his hands before a sale is effected. But whether the present rules be adhered to, or be slightly modified, I trust that in justice to the judges, there will be a large placard placed in front of the fruit tent, specifying the principles on which their awards are to be made, which at any rate will tend to relieve them from the annoyance of being troubled with repeated enquiries, as to how they did this, and why they did not do that, with respect to this and that person's fruit; enquiries which, if willing, I could give little reply to, as I seldom know who are the successful winners in the fruit department, until the list appears in the *Chronicle*. I must now say (and very reluctantly) a few words respecting Mr. Ingram's collection. I agree with your correspondent, that Mr. Ingram would have received the same prize for his Pines, that he did for his collection. Of this there can be no doubt. But I disagree with him when he states his Muscat Grapes were the best ripened that were on the table; simply because, in whatever else they might differ, the judges were unanimously of opinion that they were not ripe; and any one might see that they were quite green in their colour. So much was this the case, that, however the judges might admire their fine growth, they could not, in compliance with the rules, have awarded them a prize if shown singly, but would have been obliged to pass them by, as Mr. Ingram knows well they were constrained to do in similar cases formerly. Putting these splendid Grapes aside, and making due allowance for the rarity of forced Plums, the collection as a whole, with the exception of the Pines, became marked by extended variety and respectability rather than the first-rate quality of its constituent parts. Your correspondent allows that, if the Elton Cherries were well ripened, they were small; that other Cherries, Figs, and Melon were not so fine; and that the Nectarines were hardly ripe, but handsome; though in what that handsomeness consisted, I am at a loss to divine—the largest of them not being large, and the smallest of them very small; the impression on my mind being that both they and the Melon would have detracted from the value of any collection. It would pain me to pursue the subject farther. The judges are liable to err, and may have erred upon the present occasion; but whether fit for the duty assigned us or not, it is some consolation to know that your correspondent allows we did the best according to our poor ability. I have directed your attention to the source of the evils complained of, which tends to take the blame off the judges, and place it where it should be—between the exhibitors and the rules of the Society, which the judges have nothing to do but to administer. And, in conclusion, I have no hesitation in stating that but for these rules, Mr. Ingram would have received the gold medal, to which the variety, and, with several exceptions, the superior growth of the articles in his collection, would have rendered him justly entitled.—*Another of the Judges.*

Drainage of Pots.—I beg to remark that the trouble and expense of using crocks and breaking them up is a mere trifle compared with the benefits derived from their use; and, indeed, good draining is the *sine qua non* of all successful cultivation of pot plants, as of every other. The plan I have long pursued is to get a quantity of common red brickbats (any others will do), and to break them with a hammer on an iron slab, or on some other hard substance; and I think the moderately soft bricks answer best, as they appear to take up and retain a small quantity of moisture not at all injurious to the plants. I never allow any plant to be potted without using some, but I do not, except for very small pots, reduce the pieces so small as a Bean or Pea: the size of a Hazel-nut, and between that and a small Walnut, I have found most convenient, and I seldom take the trouble to cover the whole with a larger crock, the broken drainage itself being sufficient. A man and a boy can break several bushels in a day, and they can be easily sorted into sizes with a sieve, first using a fine one to put away the dust and small pieces. The greater part of my stove plants stand on a slate table covered 4 or 5 inches with the above materials, and I find it to answer exceedingly well, retaining a moisture which, if the slates were exposed, could not be easily or so well obtained.—*George Wood, Rochford.*

Extracts from Correspondence with Sir G. S. Mackenzie, Bart.—Girling's Dunecroft Pea.—Having read Mr. Girling's description of his Pea, which is a well-marked sort, I procured some quarts of it; and it is with pleasure I announce that I consider it the very best of all the early sorts. It has not, indeed, proved a very abundant bearer, the pods being small, but the quality, which is the first point for the table, is most excellent, resembling that of the Marrows; and therefore it deserves space. It is earlier than the Charlton, with which I compared it, by 10 days at least. I am trying it as a succession Pea. Even when it has acquired its full size it is tender and rich when cooked, which is not the case with any Pea I am acquainted with, except the Marrows. The early Peas, cultivated about Edinburgh by the market gardeners, may be prolific, but they are bad. The gardeners are excusable while they can get bad things sold, some say; I think they ought to cultivate the best they can procure. *Alstræmerias.*—Having read the high-sounding praises of Van Houtte's collection, I procured 50 varieties from him, in good order, and followed his directions respecting them. In his catalogue, he says, "La nature semble avoir epuise sa palette pour enricher de tous riches ou tendres, les plus varies, les corolles delicates et sveltes de ces plantes." I am of a different opinion. The bed has a very heavy, dingy appearance; and I only wait till a few that have not yet expanded their flowers (though they promise nothing) show what they are fully, to banish the entire collection from the garden. *Fuchsias.*—There seems to be a good deal of humbug going on in what may be called the Fuchsia trade, and those who fancy this fine tribe should require a specimen of the flowers before they give orders for plants. Among a considerable number of the newest which I procured, none of the reds which have yet flowered excel older varieties. The best light one that has yet flowered is Dickson's Acantha. It is of a decided character, and though the corolla be not very bright, it is pleasing, sufficiently contrasted with the white sepals and tube. I have two strong plants of Serratifolia (why has it that name?); but they have not yet shown a single flower. The appearance of the plant strongly indicates a species; some of the leaves are seven inches long. I procured the plants direct from Messrs. Veitch. Messrs. Dickson and Co., of Edinburgh, also got a plant from them, which was exhibited at one of the Caledonian Society's shows, and it was so different in its whole appearance from mine, and the flowers were so like some of the pink varieties, that I was very positive in affirming it was not the Serratifolia. Messrs. Dickson's plant had been kept in a stove, and that might have caused it to differ so much from mine, which is in a greenhouse. A gardener in my neighbourhood had purchased a plant from Messrs. Dickson which had many flowers, though the plant was small. I have given him a cutting from mine that he may compare their progress; and Mr. McNab, of the Experimental Garden, is making observations. If the plants sold by Messrs. Veitch be all from one original, the facts are curious; but if not, there may be varieties.—*Pansies*: De Gustibus, &c. While this flower in some of its varieties is pleasing, and even brilliant, I cannot say I admire some that have got great names, and fetch good prices. There may be too much of a good thing; and the advice may be repeated as to this flower—see a specimen before you give an order; and it may be said of everything.

Hedgehogs —(See p. 389).—Dr. Herbert has come to the rescue of the unfortunate hedgehog. My opinion is that the hedgehog is more useful to man than otherwise; however, last summer, hearing the cry of a leveret in our wilderness, I was induced to ascertain what was the matter, and, to my surprise, a hedgehog had got it in his mouth. What he was going to do with it I am unable to say. I thought to kill and eat it, therefore I put my foot on him and stopped him, and returned the leveret to its companion, that was seated hard by. On going the next morning both were removed; I suppose by their mother, to some quieter retreat.—*W. Brown, Merevale.*——I perceive that Dr. Herbert denies, "without hesitation," the truth of the statement concerning a hedgehog eating a rabbit. I know nothing about the case in question, further than seeing it in the newspapers; but I will give some instances which have come under my own observation, and which, I imagine, will fully prove the hedgehog to be carnivorous. Two years ago my father's gamekeeper caught one in a trap set for vermin and baited with rabbit; about a month afterwards he caught another in the same manner. One evening last summer, whilst walking through a cover, I came upon one lying in a pheasant's nest, with the shells of the eggs lying scattered around. I conveyed him carefully home, and had him put into a box, and different sorts of vegetables, boiled and raw, a plate of porridge or stir-about, and milk, a pheasant's egg, and a dead rabbit put in beside him. On examining next morning, I found nothing had been touched; in the evening, still nothing touched; but on the second morning the egg was eaten, and the greater part of the rabbit; the milk, &c., having been quite neglected. I may here mention that, when a boy, I have kept hedgehogs at different times upon porridge and milk, of which they seemed very fond. Lastly, about two months ago, whilst the keeper was employed trapping rabbits, he caught three within a period of ten days, in the traps set in the mouths of the holes. I will add one other case which happened to an intimate friend. He had a leveret which he amused himself with as a pet, and which he kept in a small wooden house erected for it. One day he caught a hedgehog, rather undersized, which he took home, and believing it to be granivorous, put it in beside the leveret. Next morning, whilst feeding them, he observed a long deep scratch on the leveret's side, which he imagined had been done by a nail; but he looked in vain for any obtruding point. The following morning the leveret was eaten up, nothing but skin and bones remaining. Still, he would not believe the hedgehog to be the culprit, but tried to imagine that rats or some other vermin had been the murderers. That same day he caught another hedgehog, considerably larger than the first, which he put in beside it. Next morning he discovered the smaller one had killed and eaten the greater part of the larger. If the Dean has any doubts as to the veracity of the latter statement, I will be glad to give him the name and address of the gentleman alluded to, when he may communicate with him himself.—*R. B. D.*

Manna on the Elm.—A few days since information was given me that the flat top of a stone wall at Fotheringhay was covered with little globular transparent bodies resembling boiled sago. On inspecting the production *in situ* it was at once apparent that it had fallen from a row of broad-leaved Elms which overhung the wall, some globules of a similar character, or a more diffused gummy substance, still adhering to many of the leaves. It is supposed that the fall of the bodies took place about the 7th of June, and probably in the course of that day, which appears to have been a remarkably hot day everywhere. I inclose a portion of the substance, which appears from its more obvious characters to be manna. The globules have contracted considerably since they were first collected. Manna has occasionally been gathered in hot summers in England, from the common Ash, and it is probable that many trees are capable of producing it; the common Larch, a species of Tamarix and Hedysarum, a Eucalyptus, &c., are recorded as yielding manna. Honeydew, whether exuding from the leaves, or produced by aphides, appears to be very similar, if not identical. —*M. J. B.*

What Measures shall I take with my Tulips?—This is an important question with Tulip growers, and I have no doubt that it has often suggested itself to the amateur during the present disastrous season. The oldest grower does not remember one so unfavourable, and we have some growers in our neighbourhood 50 years old; many collections are reduced to one half, and how to manage the remaining portion is the subject of this article. There are but a few who have been fortunate, although I am one of the number, having had only 12 roots which died down in the best beds containing 199 rows; my greatest loss has been in seedlings. The subject has occupied my attention daily, lest disaster should fall to my lot next season, and after much consideration I am convinced that the greater the change of soil the better would be the chance of success. Since last April I have been busy preparing for next planting season. Some will say, how is this to be done? I am not in a neighbourhood where soil may be obtained. Money in most instances will, however, purchase it, and what is 20*s.* or 40*s.* to secure your roots! The plan I propose to put into execution is as follows:—Being so fortunate as to have five different qualities of rotten Grassy turf, I intend to put under them three inches deep of soil such as I have never used before for growing Tulips, to mix the other four together to cover with, and the soil at the top I shall put at least two feet deep; this, I am convinced, is the only way of preventing any consequences which are likely to arise from this season. Where this cannot be effected, however, the only way is to change the soil entirely, and to substitute fresh from another part of the garden; I have seen three inches of the top soil of an Onion bed, as well as soil from the Potato ground, used with good effect, the ground having been enriched by manure. But I should not advise soil from the Potato ground to be used, as there is a disease in some Tulips similar to that affecting the Potato crop; all soil ought to be well exposed to the sun and air, and should be very frequently turned over; the greatest losses have arisen in collections where soil of the previous year has been employed, thus showing the necessity of changing it every year. I am now, however, giving advice that I do not strictly follow; I am only enabled to change the soil of three beds 18 yards long, the other three are upwards of four feet deep, and I remove the earth from three to four feet in length, and the width of the bed, trenching it and bringing fresh soil to the top. If the bed is intended for breeders, I manure it, and turn it over twice or three times, and sow it over with Turnips, but if for broken varieties, I keep turning it over until planting time. This plan I have followed some years.—*John Slater, Florist, Cheetham Hill, near Manchester.*

The Potato Crop.—An article by Mr. Barnes, of Bicton, appeared at p. 396, in which it is stated that nearly all the Potatoes in our county (Devon) are "almost to a certainty" consigned to destruction. It seems that Mr. B. has lately detected the presence of disease in some field or other. Now I, too, have been in the fields, and have examined the plants as narrowly as Mr. B. could have done, but cannot find anything like the "detestable enemy" so bitterly complained of; I have also heard the opinion of many people on the subject, all of whom "fully concur" with me, that at present there is nothing the matter with the general crop. Mr. Barnes is, however, singularly unfortunate in his predictions, for last spring he stated that in no instance would diseased tubers produce a healthy crop, and large quantities of decayed Potatoes were, in consequence of this announcement, thrown away, and by many who could ill afford the loss, while those who would not be humbugged, but chose to use their own brains, were rewarded with excellent crops.—*W. Major, Powderham Castle.* [We have inserted this letter, for the sake of the *supposed* fact which it includes; but we have omitted much which was, by no means, creditable to the writer.]

The Nuthatch.—Your correspondent "Anon" has correctly noticed my mistake in regard to the nuthatch only having two toes before instead of three. By some unaccountable means (for I had a specimen before me when I wrote) I fell into that error. When I mentioned that the nuthatch cracked nuts, I did not mean, nor indeed did my words intimate, that it made mechanical use of its bill for that purpose, or that it broke the nutshell by compression. My observation was, that "it makes a tapping noise, while striking forcibly with its beak upon a nut placed in the cleft of a branch." Any casual observer in winter or spring must have heard and seen the bird thus employed without thinking with "Anon" that it was engaged upon any Herculean task beyond its strength. As to the other error which "Anon" accuses me of having fallen into, another correspondent bears me out in what I have stated viz. that the nuthatch's nest is made of the smooth bark of the Scotch fir. The fact does not, however, require any corroboration, for the nest is now in my possession. Therefore I agree with "Anon," that the study of Nature is better than "ten thousand books," and recommend him to carry out the precept. My information respecting the nuthatch not being found in Cornwall was taken from the "Museum of Animated Nature," and I am indebted to "S." for his information to the contrary. As both he and "Anon" are afraid of a visit of this bird to their gardens because it might pilfer their nuthushes, I may observe that I have known the little bird to frequent the gardens under my care about 18 years, and never found him a mischievous visitor. Since the above was written I find other correspondents state that the nuthatch cracks nuts for the sake of their kernels, still my own opinion is, that it does so for the sake of the larvæ or pupa of weevils or beetles in the nuts. Be this as it may, and since it is not plentiful nor gregarious, what lover of nature would grudge a handful of nuts to a bird that does not alight on the ground to pick up seeds nor injure the fruit, but whose food is chiefly insects. While my pen is in my hand I see a nuthatch descending a Plum-tree looking into the chinks of the bark for insects which might have escaped the sight of its little neighbour, the gray-creeper (Certhia familiaris) while ascending.—*J. Wighton.*

Rats.—A correspondent a week or two back complained of a trick of a rascally rat-catcher, and asked how to punish him. I answer, *employ another man* to destroy the rats, telling him as well as the first that you will never send for them a second time.—*C. D.*——A good mode of destroying rats and mice is to cut old corks in slices as thin as wafers, and to fry them in the frying-pan after it has been used for frying any meat, but not burnt; place them about where the vermin appear, and all will be destroyed, for they eat them voraciously.—*Anon.*

Roses; Hedge-budding.—Mr. Thomson (p. 302) appeared to doubt my ability to produce flower-buds, in the short space of 35 or 40 days, after the buds had been inserted. After his last communication on the subject had, however, been published, I took an early opportunity of inserting some buds, and the result has proved my former statement to be correct. The stocks upon which I budded this year were removed from the hedges in October last, when they ought to have been planted in their situation for budding, but from unavoidable circumstances this was deferred until the end of February; on May the 20th I selected six of the best plants, and budded them with the varieties—Bouquet de Flore, Devoniensis, and Paul Joseph. Three of the plants produced flower-buds by June 18th (being the 30th day from budding) out of the six budded, and there is only one that will not show a flower-bud within 40 days, fully proving my former statement to have been no exaggeration; and if anybody doubts it, all I have to say is, come and see. I again assert that I find my plants well established within a year by the method I pursue. In the autumn of 1844 I took up from the hedges nearly 300 Briers: about 100 of the best were budded in the early part of June, 1845; very few of the buds missed, and during the summer and autumn a large portion of them made good plants, many of them flowering. In November 76 of them were transplanted on the lawn, and each plant has produced from three to 70 flower-buds. The plants are not large, but they are sufficiently established to be objects of great beauty. Now, instead of the fine display of Roses on my lawn I have had this season, according to Mr. Thomson's system they would still have been gracing the hedge-rows. Mr. Thomson says that his system gains two important points, a luxuriant start, and a steady vigorous growth; but these points are also gained by my system. Plants of Victor Hugo, budded last June, made shoots during the summer and autumn 4 feet 7 inches in length, besides being once headed down; and this is surely luxuriance enough. By my system the most important point, that of securing good roots from the beginning, is obtained. Mr. Thomson seems to think the method recommended by Mr. Rivers, to cut the tap-root of his Briers, and form a trench to be filled up with manure, would suit his purpose; but I think he would do better to take up the plants while he is about the job (if at the proper season), and to plant them without any manure. If the soil is well adapted to the growth of the Rose, he may expect to have shoots fit for budding by June. Mr. T. says that my plan is hazardous, but has not explained why. Also that I was singular in finding shoots from plants taken up in October fit for budding in June; but he never can have tried the system, otherwise he must have found shoots strong enough for that purpose. My opinion is that the earlier in the season budding is performed the sooner will a union take place. I therefore prefer May or June (of course all seasons are not alike), and if the shoots are pulpy they must be tenderly handled. In regard to morning or night being the best time for budding, that is a mere whim. The principal points are the state of the stocks and the buds to be inserted, together with the efficient performance of the operation. The Roses which I have budded this year were done at mid-day, and they are doing well. As regards Mr. Rivers's system of docking and pruning I will say nothing; it is sufficient that the Wild Brier docked and cut soon makes a good stock, which is all that is wanted—*Robert Cassilles, Ewen Kemble, Wilts.*

The late Fuchsia Challenge.—Being one of the exhibitors of the rival Fuchsias at Chiswick, on the 13th, and having agreed to the decision of the question by the judges of the Horticultural Society, it will naturally be said that I have no right to complain of their decision, nor do I, as far as it goes; but I have the greatest right to complain of their want of decision when all the answer I can get to my inquiry is, that the judges have decided that Mr. Lane's Fuchsia is the best, but that they decline to name any other as second, and that the whole of the stakes are paid to Mr. Lane. I certainly did not expect, when I gave my consent to have the judges of the Horticultural Society, that we should have been judged by a secret and unaccountable inquisition; but that every point would have been stated fairly and openly, just the same as if we had our own judges, and which I wished for, but was overruled by Mr. Lane. According to our agreement, the 1st Fuchsia was to have had 10*l.* out of the stakes of 15*l.*, and the second best 5*l.*, unless it was thought unworthy by the judges; but the judges, after naming Mr. Lane's as the 1st, declined to name a second. If they were incompetent to name a 2d or 3d, they were equally incompetent to judge which was first. And, if they were competent, they ought in common justice to have decided which was 2d and 3d, or to have stated publicly their reasons for withholding a second prize. Had they acted in this straightforward way, and placed me even 3d, I should have been satisfied. For, having placed myself in their hands, I should have had no right to find fault with their judgment, had they carried out their decision; but, having declared themselves undecided, and incompetent as to placing the 2d or 3d, I have a right, and so has the public, to consider them equally incompetent as to the first; and we have also a right in this case to consider, that in direct opposition to our agreement, they gave the prize to the best plant, instead of the best variety. —*J. Hally, Blankheath.* [We believe the judges have a complete answer to this complaint; and we dare say that next week will produce it. In the meanwhile, we are bound to declare that they were unanimous in their decision not to award any prize to either Mr. Hally's Seedling, or that of Mr. Epps.]

Societies.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

June 24.—This the third show of the season was held in the Surrey Zoological Garden. The day was all that could have been wished. The exhibition was, however, inferior to the last, both in regard to the quality and quantity of the subjects produced. The best collection of Miscellaneous Plants was shown by Mr. Bruce, who sent among others the pretty Æschynanthus parasiticus formerly described; a lovely Epiphyllum speciosum; the blue-flowered Ruellia ciliata; Aphelexis humilis, 2½ feet in height, and as much through; Mella

Asedanach; and a tall Ixora coccinea; together with the scarlet-flowered Gardoquia Hookeri; Clerodendron squamatum; the green-flowered Heath (Erica viridiflora); and other plants. Another collection came from Mr. Hamp, gr. to I. Thorne, Esq., in which we remarked a neat plant of Kalosanthes minista, with eight heads of gay red and white blossoms; a pretty Achimenes grandiflora; two Clerodendrons; and Thyasanetus proliferus, the latter hardly in bloom. In the Nurserymen's Class, Mr. Fairbairn, of Wandsworth-road, obtained a Gold Medal for a group composed of Fuchsias, Pelargoniums, Verbenas, and Calceolarias, together with a Polygala and a small Veronica speciosa. Of groups of four specimen plants, Mr. Bruce obtained a 1st prize for pretty plants of Leschenaultia formosa and Achimenes picta, together with Clerodendron squamatum and Pimelea decussata. Mr. Roser was second with Epacris grandiflora, Erica Bergiana, Fuchsia corymbiflora, and Nerium Oleander. Of single specimens, Messrs. Fairbairn, of Clapham, sent the noble Erica metulæflora bicolor, formerly described. Mr. Dawson, of Brixton-hill, Erica ampullacea, 2½ feet in height and as much in width; and Mr. Bruce, Epiphyllum speciosum, 3 feet in height and about 2 feet across, quite a mass of bloom. Mr. Hamp also sent a fine plant, not in bloom, of Veronica speciosa. The best collection of Cape Heaths in the Amateur's Class was shown by Mr. Hamp, and in the Nurseryman's Class by Messrs. Fairbairn. Mr. Dawson also produced good plants; other groups came from Mr. Roser and Mr. Kay, of Norwood.—Of Orchids, Mr. Bruce sent the showy Cattleya Mossiæ, three Oncidiums, and the red flowered Broughtonia sanguinea.—Two good plants of Achimenes grandiflora were shown by Mr. Robinson, of Pimlico. We also remarked four good pots of the blue flowered Lobelia erinus grandiflora. Mr. Cuthill showed Leianthus longifolius; and Mr. Kay a small but good Veronica speciosa; and Mr. Stow, of Dulwich, the pretty Campanula fragilis, Hoya carnosa, a large Fuchsia fulgens, and Achimenes longiflora. Mr. Wood, of Norwood, variegated plants, and an interesting collection of Alpines.—Collections of cut Roses were produced in excellent order, and formed perhaps the most attractive feature of the show. In the Amateur's Class the 1st prize was awarded to Mr. Parsons; and in the Nurserymen's, to Messrs Paul and Son. Of Summer Roses, in the latter group, a few of the best were—*Provence*: Crested, pale rose; Angers, dark glossy rose. *Moss*: Alice Leroi, lilac beautifully cupped; Celina, fine shaded crimson; Hélène Mauget, compact even rose; Louise Clet, glossy blush shaded. *Damask*: Duke of Cambridge, large rosy purple; Louis XVI., vivid crimson and purple; Pope, dark violet shaded with crimson, large. *Alba*: Etoile de la Malmaison, pale flesh; Félicité Parmentier, flesh, white margin; La Séduisante, large rosy blush; Madame Audot, flesh, finely cupped. *Gallica*: Adèle Prevost, large silvery blush; Belle Rosine, large rosy lilac; Boule de Nanteuil, dark crimson purple; Colonel Combes, crimson and purple, very large; Columella, rosy crimson, of fine form; Donna Sol, rose spotted with white, very neat; D'Agueseau, rich crimson, fine; Duode Valmy, purplish rose; Ebloursanto de Laqueue, crimson with scarlet centre, most brilliant; Feu Brillante, vivid crimson, scarlet petals very large and even; Grain d'or, bright crimson shaded with purple; Grandissima, crimson large and compact; Latour d'Auvergne, cherry shaded, with purple, very large and fine; Œillet parfait, white with crimson stripes; Pharercus, rose, of good form; Randolph, blush pink, fine; Surpasse Tout, bright rosy crimson; Triomphe de Jaussens, crimson and purple, very vivid. *Hybrid Provence*: Emerance, pale lemon, very compact; La Volupte, bright rose, fine form; Madame Henriotte, rosy lilac with blush margin. *Hybrid China*: Belle Marie, rose; Bronnus, deep carmine; Charles Fouquier, cherry red with blush edges; Charles Duval, fine deep pink; Coupe d'Hébé, pink, form exquisite; Galieu, rosy crimson, spotted, large and fine; General Allard, dark crimson; Le Météore, brilliant rose; Marie de Champlouis, deep crimson, fine; Paul Perras, large pale rose; Philibert Delorme, peach; Smith's Seedling, light carmine, Richelieu (Duval), pale rose, finely cupped: Suzanne, lilac, neat; Triomphe de Laqueue, dark violet with crimson centre. *Autumn Damask Perpetual Roses*: Bernard, salmon pink; Celestina, large rose with paler edge; Laurence de Montmorency, rich rose, nicely cupped. *Hybrid Perpetual*: Augustine Mouchelet, carmine; Baronne Prevost, large rose pink; Comtesse Duchatel, rose, full and fine; Duchess of Sutherland, pale rose; La Reine, glossy lilac, very large; Madame Laffay, crimson; Marquise Boccella, peach. *Bourbon*: Bouquet de Flore, carmine; Duc de Chartres, deep rose, full; Charles Souchet, purplish crimson; Edouard Desfosses, pale pink; Comte de Rambuteau, bright crimson; George Cuvier; Lady Canning, fine large lilac; Madame Souchet, blush edged with cherry; Paul Joseph, brilliant crimson; Proserpine, violet purple; Queen, salmon rose; Souchet, large crimson purple; Souvenir de la Malmaison, clear flesh, very large and splendid; Cérès, rose. *Noisettes*: Aimée Vibert, white; Clara Wendel, cream, centre fine yellow; Le Pactole, fine pale yellow. *Chinas*: Antheros, blush, centre rose and yellow; Cramoisie supérieure, velvety crimson; Madame Bréon, distinct rose; Tancrède, dark rosy purple. *Tea-scented*; Silene, rose shaded with carmine; Bougère, rosy bronze; Devoniensis, creamy white, tinted with rose; La Renommé, white, centre brimstone; Madame Roussell, white, centre flesh; Marie de Medicis, rose, centre fawn; Safrano, buff, centre apricot; Princesse Marie, copper colour, very good; Though past their prime, the Pelargoniums much enlivened the exhibition, which in some points was scanty of flowers, and devoid of interest. For eight Pelargoniums in 12 inch pots, the large Silver Victoria Medal was awarded to Mr. Coysh, whose plants were well bloomed, and in fine condition; for eight varieties, in 8-inch pots, the 1st prize was given to Mr. Foster, gr. to Mr. Staines; and the 2d, to Mr. Robinson, of Pimlico.—In the Nurserymen's Class: the 1st prize was awarded to Mr. Gaines, who exhibited 12 well-bloomed varieties; 2d, to Messrs. C. and D. Smith. This collection displayed anything but good management, the flowers being small, and the foliage scanty.

In Carnations and Picotees: an extra prize was awarded to Mr. Norman, of Woolwich, for a Stand of 24 Carnations, comprising the following flowers:—Wilmer's Conquering Hero, Hudson's Miss Barton, Puxley's Prince Albert, Calloct's Brutus and Juba, Parson's Sir G. Crewe, Smith's Lord Combermere, Taylor's Lord Byron, Eason's Admiral Curson, Brooks's Flora's Garland, Grange's Earl Grey, Hale's Prince Albert, Wilmer's Solander and Earl of Errol, Wildman's Bonaparte, Shenning's Duke of Cumberland, Seedling, Ely's Regulator, Sir R. Hill, William Caxton, and Mungo, Manley's Beauty of Woodhouse, Lady of the Lake, and Kay's Omnium Primum. The Picotees were very fine, and extra prizes were awarded to Mr. Dickson, and to Mr. Norman, for their collections. The stand of the former contained the following 12:—Gidden's Sir R. Peel, Sharp's Agitator and L'Elegant, Gidden's Teaser, Dickson's Charles Stanford (a new and very fine flower), Sophia, and a Seedling, Mrs. Barnard, Prince of Wales, and Wilmer's Princess Royal; and Mr. Norman exhibited Sir Geo. Cockburn, Brinkler's Masterpiece, Lady Chesterfield, and Jamie Gardener; Wilmer's Bride and Princess Royal, Norman's Dick Lee, Sharp's Agitator, La Delicate, Gem, and Ne plus Ultra; Ely's Emperor, Crask's Prince Albert, Barraud's Lady Douro and Borderer, Burroughes's Duke of Newcastle and Mrs. Bevan's Trip to Cambridge, Garrat's Lady Douro, Kirtland's Princess Augusta, Matthews' Enchantress, Gidden's Ne plus Ultra, and Sir R. Peel.—The Pinks were indifferent, no doubt owing to the continuance of dry weather; for Amateurs, the 1st prize was awarded to Mr. Hall, of Enfield; 2d, Mr. Edwards, of Holloway; 3d, Mr. Hale, of Hillingdon.—In the Nurserymen's Class, a prize was awarded to Mr. Henbrey, of Croydon.—Fuchsias were fine; Mr. Robinson, who obtained the 1st prize, produced his plants in fine condition, uninjured by carriage; R. Dutton, Esq., Dulwich, had the 2d prize; and in the Nurserymen's Class, Messrs. Fairbairn received an extra prize.

Of Fruit there was little. Mr. Chapman sent good Black Hamburgh Grapes; and bunches of the same variety, together with Queen Pine apples, were shown by Mr. Hamp. Other fruit consisted of Raspberries and Strawberries, some of the latter fine-looking specimens. Cucumbers were shown by Messrs. Cuthill, Robins, and Fletcher. And of collections of Vegetables, the best was shown by Mr. Martin.

Reviews.

Taylor's Bee-keepers' Manual. Third Edition. Groombridge & Sons, Paternoster row.

This is a well got-up book, and is a great improvement on the former editions, especially as regards the drawings and description of the hives. The author's views are similar to those of Nutt and other recent writers on bees, with which, however our experience is, in some instances, at variance. For instance, with the statement that "the eggs to produce future queens are laid after those of common bees and drones." The fact is, that the eggs of working bees are laid, more or less, at all periods of the year. Again, we find "the cells soon become coated by the cocoons from the brood to produce healthy bees." Such is not the case, colonies will continue to produce healthy swarms for many years; nor are there different sorts of bees for different occupations; common bees are servants of "all work," whose habits are the same in common hives as in those of more novel construction: from both they swarm, cast out the young queens, and destroy their drones, nearly alike, according to the condition of the colonies. Again, our author quotes from Gelieu "that bees search in the neighbourhood for a place where they may deposit their honey until the young shall have left the combs in which they were hatched." The translator surely must have made some mistake here, into which so accurate an observer as Gelieu would hardly have fallen. As bees never fix their combs to the sides of the hive near the bottom, Mr. Taylor's plan of contracting a little the lower part of deep ones would not prevent the comb from falling from the top, and his observation respecting the "disposition of bees to work downwards in preference to climbing" is not very clear. They are fond of ascending, therefore the entrances in common hives are in the right place. The Nadir-hive is, of course, the same as the old plan of eking, and zinc feeding pans are objectionable on account of their coldness. In fact, there is no better feeding-dish than a bit of old honey-comb. The fact of Gelieu's enormous populated hive not decreasing so much in weight during winter as a weak one, might be more owing to the increase of weight from the early brood than from the real consumption of honey. Neither is the charge against bees just, regarding their "want of prudence and foresight" in storing up more pollen than they want. If pollen was as valuable as honey, such a thing would not have been thought of; but, nevertheless, it is as essential to the prosperity of the colony as honey. Our author inclines to the old notion respecting the larvæ of working bees being changed into queen bees by royal jelly; and observes, we believe with good feeling, "never kill your bees." As much difference of opinion exists about this, and as cottagers still persist in it, whose returns, we know, often exceed that of the amateur, we shall endeavour to show the comparative merit of the old and new system. Supposing H. and B. to begin to keep bees at one time; H. furnished with a collateral hive, B. with a common one. H.'s colony ought not to swarm, but enter his side boxes and glass at top, unless it happens that they choose to follow their own natural way in spite of an improved habitation. B.'s hive will have thrown off three swarms and thus quadrupled itself; and though his hives be weaker than H.'s, still he will have the produce of four queens during the latter part of the season, while his neighbour will have only one. Both obtain honey by their respective plans: B. selects the best calculated of his four hives to stand the winter, and destroys the bees in the others, while H. removes his boxes and glass; the weight of honey may be equal; although H. may assert that his is all pure, supposing his bees entered the side boxes at the same time his neighbour's swarmed, his combs will in truth be no purer than B.'s. Both are now precisely as they were the previous spring, each having one hive; the only difference is that the former has the fullest, requiring in all probability to be fed, the latter the best conditioned stock, with plenty of provision for the winter. The charge against B. may be thus met; he has destroyed three swarms or hives it is true, but his neighbour has also destroyed three queens, at least prevented them from becoming useful and prolific, and the boxes taken away most likely contained much brood, which shortly would have been of more use than thrice their number of old bees; for late hatched bees are the principal supporters of the colony the following season. B. also destroyed much brood, especially in his strongest swarm, weak ones seldom containing much. B.'s stock is the best after the honey is taken, from the greater part of the old bees leaving the hive. Supposing he kept the old stock in the first swarm, of course the brood were not disturbed, and they will shortly make up the loss of bees destroyed. Thus B. saves the food which the number of old bees would have eaten, while H., by his plan, is obliged to feed them, to die in a short season. Having thus placed the two systems in a fair point of view as to profit, I wish it to be understood that I most heartily concur in the now general feeling against the practice of destroying bees by suffocation, provided the means taken to deprive the industrious collectors of their store be not injurious to them in the main.—W.

Coloured Illustrations of British Garden Fruit, with Descriptive Letter-press. By H. L. Meyer. Part I. 4to. Longmans.

The author does not inform us in what light he wishes this work to be regarded, and perhaps he was right, for it is equally beneath criticism in relation to art, science, or literature. The first part contains a Peach, said to be the Royal George, and a Pear said to be the Jargonelle. The representations are, we presume, taken from the ingenious imitations in stone of Peaches and Pears, which one sees occasionally among the chimney ornaments of the poor.

Miscellaneous.

Savage Food.—The Bannaks, a related tribe to the Shoshonies, have almost nothing of the skilful horsemanship of their cousins, but live the most wretched life of any Indians in the West. They are generally designated Root diggers and are very well described by Captain Bonneville. Oftentimes, when they can get neither game nor roots to live on, they eat grasshoppers, a species of Gryllus, very large and fat, of every shade of brown and black, wherewith these deserts abound. For this purpose they are caught in large quantities, boiled alive without ceremony, and eaten like craw-fish. It is said that the soup of them is very sweet and a favourite drink; even gentlemen of the Hon. Hudson Bay Company, who had been compelled to live on it, spoke to the same effect. In case of scarcity of such grasshoppers, the Bannaks make soup of a large species of ants, which abounds towards the uppermost waters of the Arkansas river, and further south in the Sierra de los Mimbres, Upper California, and Texas.—*Hooker's Journal of Botany.*

On the Action of Soluble Protosalts of Iron on Vegetation. By M. Gris.—According to the author, the soluble protosalts of iron, when they are absorbed by the roots or leaves of the plants, give rise to an increased production of chlorophylle, especially in chlorotic specimens. The author thence draws the conclusion, that the action of the iron is identical in the vegetable and in the animal kingdom, and that the formation of chlorophylle is not, as is generally admitted, dependent on the action of light. The soluble protosalts of iron are also stated to further the growth, especially of pot plants.—*Comptes Rendus*, xxi. p. 1386.

Calendar of Operations.

(*For the ensuing Week.*)

Winter Crops.—We have had most abundant rains here for the last 12 hours, and as there is some probability of such being general, I cannot do better than urge the importance of attending in a most special way forthwith to those crops of the kitchen garden which must constitute the chief supply for the ensuing winter,

and the coming spring. Getting out Celery in its various stages, Broccolies, Cauliflowers, Brussels Sprouts, Savoys, Green Kale, and a host of other useful things, should be matters of very frequent occurrence. The ground from which early Peas, early Potatoes, early Beans, Winter Spinach, &c. has been cleared will come to hand for this purpose. Exhausted plots of Strawberries, too, after the fruit is gathered, will be excellent as a change for the better Broccolies and Cauliflowers. Deep digging and heavy manuring must be resorted to in all these cases, more especially for the Celery, which cannot be produced of that tender and crisp character if lacking manure and moisture.

CONSERVATORIES, STOVE, &c.

Conservatory.—Many of the plants belonging to this structure will, in a majority of cases be set out of doors. Care must be taken that they are thoroughly attended to with water, and the worms kept out. Good depths of cinder ashes are efficient for this purpose, yet even these should be lime-watered occasionally. No drainage can be long complete in pots or tubs if liable to the inroads from beneath of the earth-worm. *Stove and Orchids.*—Some of the stronger growing stock, such as Poinsettias, Eranthemums, &c. may be stopped occasionally, in order to keep them bushy, as also to produce a degree of succession in the order of their flowering. Attend well to the Euphorbias for winter flowering, more especially the E. jacquiniflora; a gayer plant does not exist if well grown. They delight in a soil one-half fibrous and gritty heath soil, and the other half porous materials, such as charcoal, pounded crocks, small gravel, &c., and the drainage should nearly equal that for Orchids. Clear and weak liquid manure may be given them. *Orchids.*—Those on blocks or in suspended baskets will require much water at this period. The blocks are much improved by being half immersed in water for a few hours. The grosser Stanhopeas, Gongoras, and other such may be dipped over head for a quarter of an hour; those things when in large masses are not easily watered thoroughly by the water-pot. The Sobralia macrantha seems to delight in shade; and the Phalænopsis amabilis enjoys a coating of damp Moss on the block. Dendrobiums in full growth take abundance of water; not so, however, the Cattleyas; some moderation is necessary here: these delight in a very free circulation of air. *Mixed Greenhouse.*—Let every attention be paid to young stock of Correæas, Epacris, Polygalas, Ericas, Chorozemas, &c. &c. in general, as to thorough watering, stopping the gross shoots, and giving them sufficient room, with a free circulation of air, if in-doors. Such of these as are intended for winter flowering should not be shifted after this time. If any Achimenes remain in a state of rest, they may be potted for a late display. Cinerarias from seed should be put into single pots as soon as large enough, and suckers taken from the old plants and nursed in a similar way. All Cactaceæ exhausted with flowering should have the old and withered shoots thinned completely away, receive liquid manure, and have every encouragement to rapid growth. Pelargoniums should be cut down in due time, before thoroughly exhausted, and cuttings made. The plants should be suffered to get dry in their pots before cutting in, to prevent bleeding, which exhausts them much. They may be laid on their sides for a week, if out of doors, after cutting, to prevent them getting wet, and when the young bud has fairly shown itself, they may be disrooted. Get out cuttings of hybrid Roses if firm, and let Chrysanthemums have every attention.

KITCHEN GARDEN FORCING.

Pines.—Those who still grow their Pines by the old system must bear in mind that the final shift must in great part be regulated by the period at which the "shows" are required. This, as a general maxim, is at least as safe as perhaps any other. About eight or nine months may be allowed in the present state of Pine cultivation. Queens receiving their final shift now may be expected to show well, without any trickish manœuvres, by the early part of January. However, their culture under a moist heat in close pits, and in open, airy, or, it may be, lofty houses, makes great difference. Give fruiters clear liquid manure frequently, a little at a time, and be sure to keep the forward succession stock thin, and to give abundance of air. *Vineries.*—See that Vine roots are moistened with warm liquid manure, whether in-doors or out, if dry. Even those from which the crop has been recently cut should not be suffered to dry up or wither prematurely, merely because they are to be forced early next year. *Peach-houses.*—It is a good plan to stop the wood of strong and healthy Peach-trees about the period when the last swelling for ripening takes place, at least all the grosser portion of the shoots; give also liquid manure freely at the same time, provided the borders are dry, and that size in the fruit be a particular object.

KITCHEN GARDEN AND ORCHARD.

The abundant rain we have had in the north has put us on the alert in an unusual way to get out various culinary crops, which the previous extreme drought had thrown into arrears. The remarks made at the commencement of this day's Calendar will save repetition on this head. See that nothing is delayed at this period, having a bearing on the supply of the table through the next winter. To this end I would recommend an extra labourer to those overpowered by spring business. Continue to prune away or stop forwright shoots on wall trees generally, and begin to lay early runners of Strawberries for forcing. Be sure to get in a sowing of Peas immediately; the Knight's Marrows will be eligible, if a fine autumn; the seed, however, should be soaked for a couple of hours, to gain time, as it is getting rather late for Peas.

FLOWER-GARDEN AND SHRUBBERIES.

The late rains will enable many to plant out the remaining portion of China Asters, Stocks, and various annuals which have been kept back by the hot weather. Tying up will be the order of the day generally; all is confusion unless flowers are well staked. A thorough thinning of the shoots of various herbaceous plants should take place previous to the general staking period. Proportion is considered an essential element of beauty, and a mixed bed will never look well, in which gross and overgrown plants infringe on the territories of their weaker but more graceful neighbours. Let all bulbs be well housed in a dry state.

COTTAGERS' GARDENS.

The cottager, as before observed, should follow every inch of ground from which Potatoes have been removed with either winter Greens or Turnips. Broad Beans, in rows, may have a drill drawn, and Broccoli or Greens introduced. His row of early Peas will also furnish another opportunity for Greens or Celery, when removed. This is an excellent time for a principal crop of autumn Turnips; and where a cow is kept, I would recommend the Dale's Hybrid where too late for Swedes

State of the Weather near London, for the week ending June 25, 1846, as observed at the Horticultural Garden, Chiswick.

June		Moon's Age.	Barometer. Max	Min.	Thermometer. Max	Min.	Mean.	Wind.	Rain.
Frid.	19	21	30.196	30.151	88	57	72.5	S.E.	
Sat.	20	28	30.191	30.027	87	62	74.5	E.	
Sun.	21	27	30.190	30.001	81	72	63.5	E	
Mon.	22	26	29.957	29.649	91	59	76.0	S.E.	.59
Tues.	23	●	29.644	29.577	69	48	58.5	S.W.	.05
Wed.	24	0	29.817	29.401	67	48	57.5	N.W.	
Thurs.	25	1	29.643	29.497	70	45	57.5	W.	
Average			29.801	29.761	80.0	53.0	66.5		.64

June 19—Foggy; uniformly overcast, with dry haze; clearing; excessively hot; clear
20—Hot and dry, sultry; distant thunder between 3 and 4 P.M.; overcast
21—Uniformly overcast; very fine; clear at night
22 Uniform slight haze; sultry; excessively hot; lightning in the evening; thunder, lightning, and heavy rain commenced 11 P.M.
23—Densely clouded; showers; overcast
24—Cloudy throughout; partially overcast at night
25—Fine, with clouds; very dry air.
Mean temperature of the week 3½ deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending July 4, 1846.

June	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun 28	72.2	48.1	60.1	6	0.65 in.	2	1	3	1	2	3	0	4
Mon. 29	72.6	50.0	61.3	5	0.20	2	3	2	—	0	5	5	2
Tues 30	73.2	50.8	62.0	7	0.80	—	3	3	1	4	3	4	2
July													
Wed. 1	72.2	52.7	62.4	10	0.88	1	1	4	—	4	4	5	1
Thur. 2	73.8	54.5	64.1	7	0.78	1	1	2	—	4	6	5	1
Fri. 3	75.6	53.4	64.5	9	0.70	—	2	2	1	1	7	6	1
Sat. 4	76.8	51.6	64.1	4	0.24	—	1	3	—	3	7	6	—

The highest temperature during the above period occurred on the 4th, 1830—therm. 98°; and the lowest on the 1st, 1817—therm. 37°.

Notices to Correspondents.

POST-OFFICE ORDERS—In order to obviate the inconveniences which are now constantly being experienced by parties who wish to remit small sums to the office of the GARDENERS' CHRONICLE for Advertising, we have to request that all Post-office orders may in future be addressed to Mr. JAMES MATTHEWS, 5, Upper Wellington-street, Covent Garden, and made payable at the Post-office, 180, Strand, London. Post-office orders, remitted by Subscribers for the Paper, should be sent to the respective Agents who supply them.

The *Fourth* Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each copy. An Index has been added. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 2*s* for 5*s*.

BACK NUMBERS OF THE GARDENERS' CHRONICLE.—The Volumes for 1844 and 1845 can be had, bound in cloth, price 1*l.* 10*s.* each. The following Numbers in the respective years can also be had. Any Subscriber who will forward to the publisher post-office stamps equivalent to as many Numbers as are requested, will have them sent free by post.

1841—1, 8, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 34, 47.

1842—3, 4, 6, 8, 9, 11, 12, 16, 18, 20, 23, 24, 27, 30, 31, 32, 34, 35, 38, 40, 41, 42, 45, 46, 47, 48, 50, 51, 52.

1843—10, 11, 12, 13, 14, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 48.

1844—All but Nos. 36, 46, and 50.

1845—1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 31, 32, 33, 37, 39, 40, 41, 42, 43, 44, 47, 49, 50, 51, 52.

1846—All but No. 2.

BOOKS—*A B C*—"Parnell on Grasses."—*G*—First, "School Botany;" then, "Vegetable Kingdom."—*Botanist*—If you wish to *study* botany, make yourself familiar with "School Botany."—*T C*—"Lyons on Orchidaceous Plants," gives the best directions for cultivating Orchids.—*A J.*—Surely you might spend your time better than in studying Latin; English is more important. As you are a gardener, apply your industry to mastering Chemistry, Botany, and Vegetable Physiology.

CEMENTS—*J J P* inquires for the best cement for the joints of stone cisterns or tanks, where water of nearly a boiling heat is frequently made use of. Roman cement does not answer.

CROPS—*Lq*—We have observed that some of the daily papers are lamenting the high (?) price of sugar, the hardship of which, they say, will be enhanced by the abundant crops of fruit, for which sugar will be required. We wonder, with you, where those abundant crops are to be found. As far as our information goes the crop of fruit will prove deplorably small.

FLOWER-GARDEN PLANTS—*C C*—In a garden within five minutes' walk of the sea, on the east coast (at Lowestoft, in Suffolk), the soil being little more than sand, plant the following, viz., the different kinds of Crocus, Narcissus, Fritillaria, Ornithogalum, Scilla, Dog-tooth Violets, Alstrœmerias, Statices, Armerias, Homerocallis, Œnothera, and Campanula; also Lathyrus grandiflorus, Poppy Anemone, Hyacinths, and Double Pinks. Rhododendrons, &c., will not thrive well without peat soil.¶

INSECTS—*H W*—Set your Myrtles out of doors, and syringe the underside of the leaves if you can with tobacco-water. Washing over the scales with gum-water, using a camel's-hair brush, is recommended, but it is a tedious operation. *R.*—*R M W*—They are the pupæ of some tortrix, and we shall feel obliged by your favouring us with specimens of the moth. *R.*

MONSTROUS ROSES—Our table is covered with letters and specimens relating to these, in which the season has been unusually prolific. In the majority the petals are changing into leaves, owing to some disturbance of the usual order of development, the cause of which is unknown. In other cases young ones are springing forth from the axils of petal; thus offering evidence of the latter being modified leaves. This has happened to Botanicus, whose calyx is, moreover, converted into common leaves.—*Lord A* and *T S P* are different persons, but their cases are the same. No one knows why these singular deformities appear; but they all enter into the well ascertained laws of Morphology. Insects have no share in their production.

NAMES OF PLANTS—*S W*—Some Solago, but the specimen is not good enough for determination; perhaps S. Gillii.—*Augustus*—There must be some mistake. Your plant is the old Silene quinquevulnera, and not Viscaria oculata. The latter is an Algerine and not a New Zealander.—*A Young Flower Fancier*—African Marigolds have large self coloured flowers; French Marigolds have smaller flowers, beautifully striped with chocolate brown. They are also very different in their foliage and stature; the French are the smaller.—*William Smith*—Trifolium tridentatum.—*C D*—A Micoula, and apparently argentea.—*St G.*—Apparently Mesembryanthemum aureum, but it is smashed by the letter stampers.—*J A*—Odontoglossum laeve.—*A S*—Lycium afrum.—*R E*—A., Festuca pratensis; B., F. ovina v. cæsia; C., F. ovina; D., Agrostis vulgaris; E., Aira cristata; F., Festuca myurus.§.—*Woglog*—Hedysarum coronarium, or French Honeysuckle.—*A C*—1, Punica nana; 2, Bryonia africana.—*Adelaide*—Just received; answer next week.

PINKS—*O P Q*—In mixing compost for Pinks, sea-sand would be detrimental; pit or silver sand is most proper, or if that is not easily obtained, washed sand. Pinks have not bloomed well this season; the buds most probably have been withered with the excessive drought, which the sea-sand would tend to aggravate. Twelve very fine Pinks are: Headley's Duke of Northumberland; Creed's President; John Huntsman; Kirtland's Melrose; Sharp's Splendid; Church's Navigator; Hasling's Tom Long; Garrat's Queen of Roses; Beauty of Weston; Wilmer's Miss Jeans; Queen Victoria, and Hudson's Red Rover. *W.* [With much respect for our excellent and experienced correspondent "W." we submit, that the effect of sea-sand on Pinks is open to further examination.]

PRUNING—*A Steady Admirer*—That which was stated as applicable to the summer pruning of the Apple-tree is equally so to the Pear and Plum. Standard Apple, Pear, Plum, and Cherry-trees require particular attention in regard to pruning for several years after they are planted, otherwise their tops will get into confusion. Pruning, therefore, is essential in the first instance, even if you should find it impossible to regulate them every year after they get large. Having tied in every shoot of your Pear and Plum-trees, and converted each branch into a sort of besom, you must forthwith loosen them; for you will find that much of the foliage is in the way of being blanched, and from such no good will result. Thin out the shoots that have been most shaded, and gradually shorten the other forerights till the spur-leaves at their bases are duly exposed to the light; but take care not to do this all at once. It is now a good time to shorten the shoots of dwarf standards. One-fourth of their length may be cut off. Shoots are useless, or worse than that, if their foliage cannot be well exposed to the light.‖

SOILS—*Maria*—Your soil is neither peat nor bog earth, but a sour worthless material, fit for the growth of nothing except Rushes and Sedges. Heat and dryness have caused your Rhodanthes to bloom prematurely.—*A Y*—You should consult some analytical chemist. We could not possibly undertake such investigations as are necessary to answer your question. The examination of each sample will cost you about a guinea, we imagine.

THE BUILDING ACT—*B E N*—The only clause in this act of Parliament which expressly relates to greenhouses, is sched. c. part vii., in which greenhouses are excepted from rules concerning detached buildings. As one great object of the framers of the act appears to have been to extract money from the community for the purpose of filling the pockets of district surveyors, we dare say you will be punished if you do not fee these gentlemen. If your walls *all* rest on surface sleepers, then we presume that your greenhouse will be as removable as a dog kennel. But these are legal questions, as to which you should consult a solicitor.

VINES—*Plymouthian*—If the roots in the bank are kept alive, and encouraged to go on growing there, the Vines will be improved by them. There is no objection to the Vine's throwing out roots from its stem, provided they are kept alive. The objection consists in their being formed only to perish again in a few weeks.

WINTER PLANTS—*T S P*—You can only keep such plants as Myrtles, Oleanders, Scarlet Geraniums, and *perhaps* Camellias, in your vestibule. Nothing at all delicate will succeed there in winter.

MISC.—*Carmel*—For present information the thermometer indicating the maximum and minimum temperatures at Chiswick are placed on the lawn, away from buildings. The maximum one is attached to a post, and is 3 ft. above the surface of the ground. It is shaded from the sun. The minimum thermometer is fully exposed and elevated a foot above the ground.‖—*A Constant Reader* should complain to the agent from whom he receives the paper. We do not send copies out folded; but supply the trade in *sheets*. They are often very carelessly folded, no doubt. Why not re-fold, and place in a napkin press before cutting?—*D W*—Your China and Tea-scented Roses whose beauty is past should be placed out-of-doors. In autumn prune them and repot them and keep them in a cold frame through the winter.‡—*A Sub*—If we understand your question you are a market gardener, and must not show as a gentleman's gardener.—*W D*—We do not believe that there was at the last Chiswick show a single Queen Pine that weighed 4 lb. As carriage is paid backwards and forwards we think it would be worth your while to try the experiment.—*M C Y*—There is no objection to your planting Orange-trees, Acacias, &c., in the soil of a Vinery, the forcing of which commences in March. Putting plants out of doors will not prevent the attacks of scale; care and cleanliness must do that.—*J P*—Yams are climbing plants, requiring as much heat as a Pine-apple, and as much room as a Cucumber. They are not worth growing except in tropical countries.—*W G*—You can only keep Rhubarb by preserving it with sugar like Raspberries, &c.

SEEDLING FLOWERS.

CALCEOLARIAS—*C L S*—A very good seedling, but much resembling many others we have seen.*

PELARGONIUMS—*Anon*—With regard to your white seedlings, No. 2 is the best and the only one worth keeping; the white is pure, particularly in the lower petals, and the spot is decided. The plum-coloured spot, however, is much objected to, and where seedlings are raised it should be kept out of the way, as it exercises a contaminating influence wherever it is present, and renders the light colours impure. Of the coloured varieties, 4 is decidedly the best; good texture and substance, with broad under petals, and pleasing in colour; the other specimens are of no use.*—*J P S*—Your seedling is very deficient in substance, and of no use in the present day.*

PETUNIAS—*F H*—Although rather small, No. 6 appears to be your best seedling; it is fine in colour, and the white throat is rather novel; 1 and 5, dark veins upon lavender grounds, are coarse and ill-formed flowers, not equal in marking to sorts already out. 3 is pretty, 2 is coarse, and 4 tolerably good.*

VERBENAS—*W M*—Nos. 1 and 5 are novel and desirable flowers; the former a decided buff, and the latter a near approach to blue; 2, 3, and 4, can be matched among the older varieties.*

ERRATUM—In the remarks last week upon the Tomtit, at p. 407, col. 5, line 21 from bottom, for "three hours" read "ten hours."

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The Agricultural Gazette.

SATURDAY, JUNE 27, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, July 1—Agricultural Society of England.
THURSDAY, " 2—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, " 8—Agricultural Society of England.
THURSDAY, " 9—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.

Ceylond Hundred—Ross—Co. Cork—Wiltshire—Carluke.

FARMERS' CLUBS.

July 1—Monmouth
" 2—Hawick—Blofield and Walsham—Richmond hire
" 3—Wrentham—Debenham—Hadleigh—Wakefield—Claydon—Lichfield
" 4—Probus—Colmpton—Cardiff
" 6—St. Columb—Great Oakley—W. Market—Cirencester—Yoxford—Market-hill—Wellington—Banchory
July 7—Dorking—Wingerworth—Abergavenny—Ardleigh—St. Quivox—Romford Hundred—Richmondshire—Lewes—Wivelscombe—St. Peter's
" 8—Harleston
" 9—Grove Ferry
" 10—Northallerton—Tavistock—Chelmsford—Halesworth—Wadebridge
" 11—Dartford—Winchcombe—Swansea

THE advantages which a system of AGRICULTURAL STATISTICS would confer upon the practice and the science of Agriculture, are not unimportant. If they are not generally appreciated it is because they are not generally known. We have already seen how such a body of information would bear upon the public interests. It would form a judicious appendix to past legislation, and a valuable index to future policy; and similarly, by putting us in possession of a more enlarged experience than individual observation can grasp, and by setting forth the many *great facts* which are calculated to encourage and instruct us in the improvement of cultivation, would it form both counsellor and guide to the science and the practice of farming.

To render it thus valuable, however, it is evident that our statistics must be both correct and complete, affording a full and perfect epitome of the details and results of practice under its various aspects in every part of the country. This would involve a statement of the acreage produce and management of each of the cultivated crops; of the various systems of management, their expenses, and results; of the various breeds of stock; the number of each class; their ages and weights; of the extent and management of each description of soil, and of the rents, labour, and improvements executed and required upon each; also of the uses to which agricultural capital and productions are applied; the amount spent in manures, in hand-labour, in animal and mechanical power, and in machines; it would also require an account of the proportions of the produce used directly for food, converted into beef and mutton, and consumed in maintaining the physical power by which the operations of the farm are carried on.

The statistics should also not merely state general results on each head, but they should refer to each district and each system separately. We must have details as well as mere summaries. Returns ought also to be gathered periodically, so as to point out the progress made in each locality during each interval, and they should particularise the various discoveries made and improvements executed in each period; the extent to which they have been carried out, and the room there is for further extension.

If thus constituted they would be illustrative of agriculture in all its phases, and capable alike of *exciting* and *satisfying* our enquiries; and there cannot be a doubt but that their collection and publication would be an invaluable boon to the agriculture of the country, and would serve alike to stimulate and to direct the future exertions of science and practice to improved systems of cultivation.

Their value to science is explained by the consideration that philosophy builds her general principles on a wide basis of facts, and that agricultural science must arise out of the materials supplied by experience.

And we must not forget that the information thus collected from the results of experience over large districts is not liable to those incidental influences which may disturb the results of single and isolated experiments. A statement of the experience of twenty persons in twenty parishes is as valuable and trustworthy as that of the experience of one person twenty times repeated; on which account the suggestions of science, based on the experience of a district, will be safer and more useful than if they were founded on individual experiment or individual opinion only. A great saving of time in the diffusion of truth, which is of the highest importance, would thus be accomplished. An authentic statistic record of our agriculture would afford to men of science a source from which they would extract truths that no one could refuse to acknowledge. We should, in fact, by such means supply them with a well of information, whose waters none would hesitate to drink.

The same means which would enable science to improve agriculture, would also confer a similar ability on the *practical farmer*. They would point out to the cultivator the full extent of the riches which the soil can be made to yield, and the nature of the means which have been, and are, employed to develope the resources of particular districts. They would show him what Nature can do when her energies are directed by capital and skill, agents which have in so many cases converted the morass into meadow land, the heath into harvest fields, and the fever-breeding fens into first-rate feeding pastures. They would show him, by the evidence of facts, how an improved rotation, a fresh sort of crop, a fresh mode of managing an old one, the adoption of a new power, or the use of a new implement, has increased the produce or reduced the expenses of cultivation. They would point out what energy has accomplished; how it has enabled us to overcome natural difficulties; to remove the superfluous water from the hill and the hollow; to remedy physical imperfections of surface soils by the addition of materials which are hid beneath them; and to create fertility by the use of manures gathered from the caves of India, the battle-fields of Europe, the deserts of Africa, and the distant islands of the Pacific. They would also show him the vast unexhausted resources which the cultivator has yet to avail himself of.

A volume of agricultural statistics worthy of the country must, in this manner, be of use to all classes who are connected with the cultivation of land Containing a concentration of our knowledge and experience, it would alike instruct by its details and stimulate by its results the capitalist, the landowner, and the tenant. If the tenant should be encouraged to imitate others in improvements which he was previously ignorant of, and to make such further improvements as his own peculiar circumstances might call for, the capitalist would be taught that there is ample scope and verge enough for investment in the improvement of the uncultivated and half-cultivated acres of this country; while for speculation he would be informed that the earth-bank is of all "banks" the safest—the ploughshare is of all "shares" the most pleasant to hold—the manure deposit of all "deposits" is the most certain to afford a "return;" for interest upon each of these is secured by the strongest of all "bonds" the bond of gratitude, which binds mother earth to return to her children full recompense for the exertions used in her service.

The landowner would learn an equally valuable lesson—that his estates are valuable to him in proportion as skill and capital are employed in their cultivation; and that, therefore, in giving his tenant equitable terms and liberal tenure, he is giving him the power to improve.

From the same source he would obtain a knowledge of the many contingencies which are a hindrance to the profitable cultivation of the soil—the mischances of season, the ravages of insects, the losses arising from wind, hail, blight, and mildew, and from the advent of epidemic and endemic disorders, alike common to the vegetable and animal produce of the farm—from the national and local burthens which bear upon the cultivator—the amount of capital sunk in permanent improvements, which with interest has or ought to be returned.

A collection of agricultural statistics would also be of essential use in the determination of specific questions relative to agricultural practice. For instance, they would afford us definite and trustworthy information of the extent and quality of the waste and uncultivated lands—details of the progress of any specific improvement, and facts that would tend to throw light on various disputed practices. For example; if we obtained an account of the various systems of draining, the cost and the effects produced by each, we should also possess the equally important statement of the quantity of land yet requiring draining; and of the impediments to such improvement arising from want of capital, want of outfalls, &c. As an instance of the usefulness of this sort of information; of its applicability to the elucidation of points of policy or practice, we may recall attention to the manner in which the statistics of South Gloucestershire, collated by "M. S." (pages 195, 196, and 215, *Agr. Gaz.* 1845) afforded us valuable illustrations of the policy of breaking up inferior Grass lands. (Vide pp. 261, 277, 1844.)

Nor would it be the least valuable use of statistical information, that in pointing out the peculiar products and resources, and the special burthens of various districts, it would afford the best of all evidence as to the real claims of each locality to the consideration of the Legislature, in the furtherance of local improvements and national works.

Take for example railways, in the prompt yet judicious encouragement of which practical agriculture is deeply interested. Had it been possible for a Committee of the House to have obtained correct statistics of the capabilities and requirements of various portions of the country, much money that has been spent in expenses might have been saved; many schemes originated for purposes quite irrespective of public good, which have been carried by dint of bold assertions, might have been rejected; and many projects which have been burked by individual influence, or the power of monopoly, might have been successfully prosecuted to the advantage of the community at large.

BESIDES DOWN LANDS, to which we referred last week, there is an immense extent of inferior Grass lands in this country which might profitably be broken up. These are for the most part our low-lying undrained pastures, either clayey, or, because wet, of an adhesive texture; they produce large quantities of the Sedge (Carex), intermingled with the other Grasses; they are to be found in large tracts on our blue lias, coal, and old red sandstone geological formations; and large portions (provided only we could get capital for tenants and capital for landowners; the one to enable their due cultivation *afterwards*, and the other to lay out in drainage and buildings *now*) might be broken up with profit immediately, and doubtless all of them will be broken up with profit to all parties concerned, ultimately.

The farm from which we write affords a good illustration. A few years ago it contained some arable land, but for the most part consisted of cold undrained meadows. The difference between its present and former value is doubtless owing in great measure to a large outlay on buildings, roads, and drainage; but what has given these their influence has been the permission of the landlord to break up these pastures. In the following table we have selected some of its fields, and stated their valuation ten years ago and their value now:—

1. No. of Field on old Plan.	2. Nature, 1836.	3. Gross acreable Value, 1836.	4. No. on new Plan.	5. Nature, 1846.	6. Gross acreable Value, 1846.	7. Difference in Value 1836 & 1846.
		s. d.			s. d.	s. d.
The whole farm.		22 9	..	..	47 0	24 3
92	Pasture	13 0	8	Arable	50 0	35 0
84	Do.	17 0				
59	Do.	27 0	2	Do.	50 0	23 0
89	Do.	11 0	16	Do.	34 0	21 6
91	Do.	12 0				
67, 71, 72	Do.	17 0	1	Do.	52 0	35 0
75	Do.	20 0	6	Do.	50 0	30 0
105, 106	Do.	11 0	24	Do.	32 0	21 0
85, 86	Do.	13 0	7	Do.	47 0	34 0
*148, 144, 152	Arable	36 0	12	Do.	44 0	8 0
*153	Do.	34 0	13	Do.	44 0	10 0

* These were dry grounds—"the best Potato grounds in the parish."

We consider this to be both an extraordinary and an instructive Table; but let us first justify the items in the 6th column by a history of some of these fields.

No. 8 (see col. 4) was one of the poorest fields on the farm; it was drained in 1840, and pared and burned in the autumn of that year. It was ploughed into perch-wide ridges, without reference to the position of the drains, and it lay so till the spring of 1841, when it was sown to Oats and yielded a large crop, upwards of

8 quarters per acre. The stubble was ploughed, and in the spring of 1842 it was manured and grubbed or "cultivated," and sown to Mangold Wurzel, and it yielded an enormous produce of that root—certainly much above 30 tons per acre; in 1843 it was sown to Wheat, and yielded upwards of 46 bushels per acre; in 1844 it was planted with Potatoes, but these partly failed, not on account of the soil, but because of the dry rot among the sets; in 1845 it bore Wheat again, and never was a finer looking plant than that which covered it in the month of June; but the weather of July laid it, and its produce was greatly injured both in quantity and quality. Clover seed and Italian Rye Grass were sown among the Wheat in 1845, and we are now consuming in the house the second cutting from it of a very luxuriant crop of Grass. We consider then that the rental of this field is not put too highly at 50*s*.

Now, take No. 2; a field of much better quality in its original condition; its rent was, in fact, double that of No. 8.

It was pared and burned in the spring of 1840, and sown to common Turnips, of which it yielded upwards of 25 tons of bulbs per acre; in 1841 it bore Oats—a crop of 10 quarters per acre; in 1842 it was sown to the White Belgian Carrots, and yielded 22 tons per acre of them; in 1843 it was sown to Wheat, of which it yielded about 42 bushels per acre; in 1844 it was sown to Swedes, not a very good crop (about 15 tons per acre) owing to the very dry spring and summer; in 1845 it yielded Wheat, which would have been an extraordinary crop but for the rough weather of July and August, which laid it; and it has been covered as has No. 8 with such another heavy crop of Rye Grass. We have put its gross annual value at 50*s*.

But we need not enter into further detail. We are very confident of the accuracy of the figures placed in column 6, and what then do we learn from it? This, that the farm is, on the whole, more than double its former value, and that some of its parts are worth four times their former rent. To what do we attribute this? Partly to the advantage of good farm buildings and roads—in great degree to the influence of a perfect drainage—and for the rest to the conversion of its pastures—*to the conversion of its pastures* not simply considered in itself, but as affording opportunities for the application of capital and skill. It is difficult, as we stated last week, to divide this whole result amongst its several causes; but here is a fact which will assist us. Nos. 12 and 13 (see col. 4) were dry, arable, and well farmed in their original condition; they have increased in value about 9*s*. per acre, since 1836. We will suppose this to be attributable to their share of the advantages arising from good farm buildings and roads. Let us then consider that these advantages are worth 9*s*. per acre on the other fields, and subtracting this sum from the increase given in col. 7, which the fields 2, 6, and 8 have respectively experienced in their value to rent, we have a rise in annual value of 14*s*., 26*s*., and 26*s*., respectively, as the effect of drainage and conversion under the plough. The first of these fields had not suffered so much from wet as the others, and putting 10*s*. per acre as the interest of the expence of drainage in its case, and 15*s* per acre as the proper interest in the others, we have 4*s*, 11*s*, and 11*s*. as the agreeable consequence of arable culture in these instances; and the greater advantage in the two latter cases teaches the policy of breaking up the poorer lands first, especially if they are wet, and if their soil and subsoil together constitute a sufficient depth of improvable material.

It is very certain, we think, that there are enormous advantages in store for the landlord, when men of capital, possessing good professional abilities, shall offer themselves as tenants of his "cold Grass lands" on condition of his draining and erecting buildings, and permitting them to be broken up. We shall hereafter have a few words to say about some of these expences being, under certain conditions, borne by the tenants.

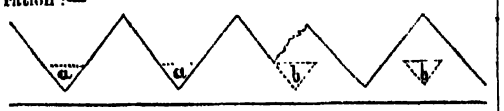
ON THE DRILL HUSBANDRY OF TURNIPS.

(*Continued from p. 393.*)

From the above statement it will be found that the quantity of manure applied is large and excessive, when compared with the supply which farmers on all poor thin soils have at their disposal, but to explain this, we have purchased for several years 100 cart-loads annually, and the application of pulverised manures to our common Turnips enables us to concentrate our farm manure and that which is purchased to the production of a superior crop of Swedes, and a few acres of Potatoes and Mangolds, which crops occupy 1-6th of our arable land, as described in section second.

The effects of such a manuring, aided by the method of its application, is immediately seen on the young Swede. At its first appearance (in prosecuting my experiments) I always observed that where this dunghill manure was applied, the seed generally brairded three or four days before those ridges which had none, or where pulverised manures were; and in the former case the seed leaves quickly expanded and exhibited a bright green healthy appearance, while in the latter they continued small, weak, of a bluish red dingy colour, and hardly perceptible, making little or no progress in putting forth the second or rough leaf. This manifest superiority in the rapidity of the braird over the dunghill manure shows that it must primarily affect the plant at the instant it bursts from the seed, by supplying it with an aliment, effluvium, or exhalation, on which it feeds and thrives, as I feel quite certain that one-third of the young plants have not struck their tap roots through the intervening mould into the manure, until after they can be readily traced with the eye, like a bright green cord laid on the top of the ridge.

The following diagrams will illustrate the appearance which the ridges exhibit in the different stages of preparation:—



Ridges put up to receive the manure.

a, *a*, position of manure after it is spread.

Appearance of ridges after the splitting process to cover the manure.

b, *b*, position of manure after the covering process.

I shall now describe my mode of drilling where pulverised manures are used; but having already hinted my preference of the use of those manures on the flat or level ground on all the dry, poor, thin soils of the midland and southern counties of England, I shall first state my reasons for entertaining such an opinion. In the first place, I have found, from experience on this farm, and have observed the same results on others in the neighbourhood, that when the land has been ridged up and pulverised manure applied, the braird in severe droughts suffers much, and even the young plants, after the thinning process, have died away to a much greater extent than on land drilled on the flat; and I think it is very evident when land is put up in ridges for these manures (which in themselves are dry as dust), that a severe parching time will very soon penetrate entirely through, and destroy any vegetation which may have begun in them.

On the contrary, land in the flat or level, having less extent of surface exposed, and not lying so loose, must hold out longer against severe droughts, while every variety of these manures is as completely and beneficially deposited in the soil, and the seed dropped with equal exactness and regularity over it, in the one case as in the other. In the second place, few ridges are put up less than 21 inches wide, but in most cases they exceed that width; this brings us to the great objection urged by nine-tenths of the practical men in those poor districts of England already alluded to, against ridging for Turnips of any kind, even with farm or heap manure. They say the rows are too far apart; that much land is wasted, having no plants thereon. I perfectly agree with this doctrine in so far as the width of the rows is concerned, being of opinion that 21 or 22 inches for Swedes, and even for the common sorts, would be wide enough when moderately well dunged with farm-yard manure, and 18 inches for pulverised manures. Experience, however, has proved to me that it is impossible to cover yard manure perfectly unless the ridges are 26 to 28 inches wide. But the advantages are so great in getting the manure completely covered that the loss of ground should be disregarded, being counteracted in a great degree by leaving the plants rather closer together in the rows, and by the superior manner in which the land can be cleaned by the horse hoe. Again, those enthusiasts who advocate the ridge system universally, and for every kind of manure, who, by the way, increase in number and obstinacy the nearer they have been bred to the north pole, argue thus:—"If land is well cultivated and manured, 26 or even 30 inches is not too wide for any soil, for the plants will fill up, and if they have space enough and well worked between the ridges with the horse hoe, the bulbs as a natural consequence will all be large. This may prove very true on some deep rich loams in England and on the best Turnip soils of Scotland. Indeed, in the latter district, the Turnips at these widths incline to produce too many leaves, and about the 1st of October it is impossible to distinguish the rows. This profusion apparently prevents the bulb swelling in proportion to the top, and altogether indicates that the plants are not far enough apart. But let every possible effort be made to produce similar crops on this farm, or on any of the still dryer and poorer soils alluded to, it will then be found the droughts in a majority of seasons completely frustrate all our exertions on the best of these lands, and the poorer, which is by far the larger portion, has neither substance nor capability to produce any Turnips beyond the size of a quart pot in the most favoured seasons, and however far apart they may be placed. Therefore, the great effort should be to get the land completely covered with such sized plants as that particular soil in average seasons is found to produce. Thus a general rule, governing the width at which Turnips should be grown, is apparent for every district, and it is indispensible to the successful production of that valuable bulb. It is this: when the plant is at its full expanse of leaf, which is just before the under or first formed ones get yellow and begin to fade, the ground should be completely hid by the foliage from the rays of the sun, and the leaves of the plants should be so intermixed or overlaying each other that the rows ought not to be readily distinguishable. Following this rule, I have never found 17½ inches too narrow on this farm, for the crops produced from pulverised manures, for the moment the under leaves turn yellow, which is about the middle or end of August, the bulb rapidly progresses in size and to maturity, and the under leaves as rapidly fall, so that by the end of September the surface of the land is no longer hid by the foliage; in fact, the tips of the longest leaves remaining do not now touch between the rows,—an incontrovertible truth that the power of the land is exhausted, and that the Turnips are at their maximum growth. Another unequivocal mark of the complete maturity of our earlier Turnip crops at this season, is the great number of the larger ones which first exhibit signs of disease in the leaves, and then decay in the bulb, which in a few weeks is nothing but a soapy rotten mass. But go into the best districts of Scotland at this period, and it will be found the Turnips there are 2 or 3 feet high in the tops, and the 28-inch ridges not discernible; so much for soil and a moist climate: therefore the cultivators must adopt those widths which the proper development of the bulb requires. I may farther add, that on the poorest of the Cotswolds, or of the chalk districts, such as Salisbury Plain, 15 inches may be quite wide enough for the productive powers of these weak soils.

I shall now describe my mode of sowing on the flat or level when pulverized manures are used. The land having been left tolerably well pulverized, and allowed to remain 10 or 12 days, as already described, the ploughing commences for the last time, keeping as close together as convenient, and are followed by drags, roller, and harrows, as may be needed; but I generally find three or four turns of the harrows, and once over with the roller, sufficient. In dry weather I always drill in the afternoon the land which has been ploughed the previous afternoon and same morning. Thus we proceed regularly, and the field is finished drilling about half a day after the ploughs leave it. It is of great consequence to finish off rapidly, in order to keep as much moisture in the soil as possible, and all kinds of Turnip vegetate more kindly on this farm, in land newly ploughed, than where it has lain at rest for a short time, however well it may be harrowed and pulverized; and I believe this remark will be found applicable to most soils in the kingdom.—*W. Fernie, Manchester.*

IMPROVEMENT OF ROADS.

[THE following article is extracted from *The Plough.*] —Second only in importance to the good cultivation and improvement of the land in any country, is the judicious repair and improvement of its roads, by which all the operations of agriculture are facilitated and economised, in the easy transit of produce and manures, and on which the safety and comfort of all who travel along them so much depend. The system of maintaining parish roads by the contribution of labour, called "Statute work," of the farmers, one of themselves being the surveyor or overseer for the year of his parish or township, has long been notoriously ill adapted to obtain the object of improvement to the roads, and has been by no means attended with advantage to the tenants and rate-payers, in point of economy. That a description of work, in the judicious application of which experience and something of scientific knowledge are required, should not be well executed in the hands of persons holding the office annually by rotation, each anxious to get off with as little as possible, and to do that little in some situation most beneficial to himself, is not to be wondered at. It would indeed be rather wonderful if neglect, ignorance, and partiality were not found to be in constant operation in such a system. But besides the inefficient or wasteful application of the means provided for repairs, great inequality and injustice are found to prevail in maintaining the roads throughout a country, by its division into small districts, such as single parishes, and more commonly, townships of still smaller dimensions, each maintaining their own portion without reference to the benefit which it derives from the roads, in comparison of other parties who contribute nothing towards their repair. One parish or township may be rich in mineral produce, coal for instance or iron ore, and yet have less road to keep than some adjoining parishes or townships through which the whole of that heavy material is carried, to the great injury of the roads and expense in maintaining them; thus imposing a heavy burthen on parties who derive no benefit from the article which creates the evil. To obviate this inequality, and to provide a more scientific, and in the end a far more economical and efficient application of the funds for the repair of public roads, a bill has been brought into Parliament by Sir James Graham, the object of which is, to throw together a number of parishes into districts or unions for the maintenance of their public roads, each union to be placed under the care of a surveyor, to be occupied solely in that work, and to be appointed by a Board of Waywardens to be elected by the rate-payers, in like manner as the election for Guardians of the Poor is conducted; such Board of Waywardens to be in their turn subject to the direction and control of commissioners, as in the case also of the Poor-law Boards of Guardians. It is no part of my object at present to enter minutely into the provisions of a bill which may be found capable of improvement when they come fully under discussion, and perhaps still more so when in operation; but I should be glad to be allowed, through your columns, to draw the attention of your agricultural readers to the obvious and acknowledged defects of the old system, and to a consideration of the promised, and in many respects apparent benefits of the proposed change, ere they engage, with true attachment to old customs and prejudices, in a course of opposition to the measure. Instances are not

fitting in which the abuses and defects of the old system worked their own cure, and induced parties voluntarily to abandon it, and place the roads in certain districts under a more regular course of management, directed by a skilful and experienced surveyor, employing able workmen, at proper seasons, to apply the necessary materials, and some careful hands at all times to keep the water-scourses clear and the ruts filled in, and to see that no pools are allowed to collect on the surface; all piece-work and days' wages being paid from a general rate, but no labour being received in lieu of payment from tenants, unless it be to cart materials for hire at such prices as would be paid to indifferent parties for doing the same work. And in such cases the result has been a saving of outlay, after the first two or three years, of at least one-third, besides the immense advantage of substituting a road of easy draught and pleasant to travel upon for one cut into ruts and full of holes and quagmires, wasteful of time, distressing to horses, and straining to wheels and harness. I have at present under my own charge a township road which a few years ago was barely passable by laden carts or waggons, having been repaired, as it is called, with round-stones taken from the fields, roughly applied, and soon crushed down, covering the road with a thick coat of mud like mortar, to be removed at great cost, that the same unprofitable process might be repeated. I determined on taking the appointment of township surveyor, which I did eight or nine years ago, and have kept it ever since. I then proceeded to put the road into proper form, to take means by sewers and culverts to keep it clear of water, and to give it by degrees a cover of blue whinstone from a quarry which I opened at some distance. The tenants and occupiers at first felt alarm at the expense of bringing materials from a greater distance, thinking it would be ruinous; but they are well satisfied now, on finding that, after the first three years, the road has been maintained by a smaller rate than used to be collected for it, in which all carting of materials is included; whereas they had previously done all the carting with their own draughts, which was equal to one-third of the whole, besides paying the rates; and we have the satisfaction of a smooth and sound road. Such, I doubt not, will be the result, in every instance, of the adoption of a better system. And such a system the present government measure proposes to make compulsory and universal, by which the whole community will be benefited. Allow me, in conclusion, to relate an anecdote to which I was a party, in proof of the manner in which the public interest in respect of township roads is attended to. It used to be, and perhaps sometimes is still, the habit, at times when the land was too wet for ploughing, to send the draughts from the farms to perform statute work on the roads, not regarding the fact, that at such times and in such roads they probably did more harm than good. On such an occasion, several years ago, I saw a large number of carts standing on a gravel bed by a river side, the horses looking cold and disconsolate, and by no means partaking of the enjoyment of their drivers, who were assembled and engaged in a contest at hop-step-and-jump. After watching their sports for a short time, I asked one of them how they reconciled it to themselves thus to waste their master's time and starve his horses. "O!" said he, "we are not wasting our master's time, we are at statute work to-day, on the king's highways. Six hours a day is plenty for him; we've been going six hours, and now we're taking a game to ourselves."—*John Grey, Dilston, April* 21, 1846.

ON MEASURE WORK.

II. We now come to the second class of farm operations—those which are annual, and concerning which it behoves the farmer to know both their actual cost and how to set about them. In estimating the expenses connected with these operations we shall assume the daily wage of a man to be 2*s.*, and of a woman 10*d.*; of boys, 4*d.* to 1*s.* 4*d.* The price of horse labour again varies exceedingly: a single Farmers' Club, in Suffolk, found the experience of its members, in this particular, to vary as much as 50 per cent. We cannot here enter on the lengthened calculations necessary to illustrate our assumption (any one wishing to see such calculations will find an admirable specimen in the appendix to Professor Low's work on "Landed Property,") but we shall assume that to plough, ordinarily deep, an acre of land of ordinary texture costs 8*s.*, that being the cost of a man and pair of horses per diem; and other operations will cost similarly in proportion to the time and horse labour they require. Professor Low, I may mention, puts the cost of ploughing at only 6*s.* 6*d.*, including tear and wear (for which we think he charges too little), and interest on cost price of animals and implements.

(*a*) *Tillage Operations.*—These are all, we think, better performed at day's wages by the regular farm servants. The industry of these men must be preserved by the farmer's superintendence; in fact, we know of only one instance where this sort of work is paid for by measure, and this is referred to in Mr. Bacon's Report of Norfolk; as follows:—

"Mr. Cyrus Gillet, of Markshall, an agriculturist in East Norfolk, both as an owner and occupier, ploughs all his land on one farm of 400 acres, throughout the year, with eight oxen and two ploughs. The Turnip land is ploughed for Barley twice, ofland for Wheat once, and stubbles for Turnips five times. The farm is in 100-acre shifts. The oxen are changed four times in the course of the day, and each set is brought up by a boy who has the care of the beasts. The men do not leave their work during the day, and the ploughing is paid for at the rate of 11*d.* per acre for all kinds except ofland, for which 1*s.* 3*d.* is allowed. This account may, perhaps, appear incredible, but its truth has been tested by many farmers. His land is scarcely ever behind his neighbours' in any of the business of the farm, and he very often precedes them in sowing his crops." This is well said to be *almost* incredible, and it can be true only on very light land. As regards ploughmen, they should work ten hours a day, and take care of their horses besides (of course receiving wages accordingly). A good horse fed well will work each day from six o'clock till eleven, A.M., and with an interval of two hours in the stable, from one o'clock till six, P.M., and keep its condition. During that time it ought to have walked 16 miles, pulling all the time with an effort on the average of about 200 lbs. This is what he will do on the average in ploughing, where the pair-horse system prevails, and putting out of consideration the time lost in turning on the head-land, which, according to the length of furrow, will vary from 20 to 60 per cent. of the whole day, the two horses will, during the course of it, have turned a furrow say 9 inches wide and 16 miles long, equal in extent to rather more than an acre and a quarter. This is quite within the power of a good pair of horses; the draught of the plough being about 400 lbs. And as a curious coincidence, and illustrative of Watt's accuracy in estimating a horse-power at 30,000 lbs. raised 1 foot high in a minute, I may just point out that this is equal to 200 lbs. raised 150 feet in a minute, or to 200 lbs. raised 90,000 feet in ten hours, which is equal to 200 lbs. raised about 17 miles, or very nearly the distance which we assume the horse to walk in that time.

Subsoil Ploughing requires four good horses, accompanied by their two men; we leave out of consideration the ploughing which precedes this operation. This force will, in average circumstances, subsoil-plough 10 acres in a fortnight or 12 days, thus costing, at 8*s.* a day per man and pair of horses, about 19*s.* 3*d.* per acre; but to this must be added the cost of the men following the plough with the pickaxe, to remove land-fast obstructions, and this will vary according to the nature of the ground.

Ploughing costs, at 8*s.* a day for a man and pair of horses, from 5*s.* or 6*s.*, up to as much, in some cases, as 16*s.* per acre, according to the nature and previous cultivation of the land, and the depth of the ploughing.

Harrowing, for each time, will cost from 4*d.* to 8*d.* per acre, according as a light implement requiring a boy and one horse, or a heavy implement requiring a man and pair of horses is employed.

Scarifying, Cultivating, or Grubbing.—Three acres of land may be scarified 4 to 5 inches deep, by the use of the proper implements, by two good horses, in the day; it should thus cost about 2*s.* 8*d.* per acre, and may be fairly put at from 2*s.* 6*d.* to 3*s.* 6*d.*, according to the state of the land.

Rolling will cost, according to the number of horses employed; a 6 feet roller, drawn by a pair of horses should get over about 8 acres a day, and the operation will thus cost about 1*s.* per acre.—*M. S.*

Home Correspondence.

"*Sæpe etiam steriles incendere profuit agros.*"—In the *Gazette* of the 13th, the Hon. and Rev. L. Vernon Harcourt, after speaking of manuring, says:—"The only other great expenditure, by which it is expected fertility can be materially increased, is that which is incurred by draining." Has he ever tried burning "stiff soils"? For this process, the ground should be in a rough state, full of clods; the coal of a description called "slack": the price of this at the pit's mouth is about 2*s.* 6*d.*, short weight, per ton, and railways charge 1*d.* per mile carriage. The quantity required per acre is about 4 tons. The price of labour in burning and spreading about 2*l.* Having drawn some coal a-field, and shot it down, commence by sifting it with a rather fine cinder sieve, and make a blazing fire of knobs of coal; then clear a space of ground, about 2 yards over, by shovelling away the soil; make therein, with clods, three 9-inch circles, placed relatively triangular, about 18 inches apart; in each of these circles or nests, strew a little fine coal, then with a shovel place therein some of the blazing coals from the fire; pile each little fire up with knobs of coal not larger than a hen's egg; form a cone of clods over the whole, cover it with fine soil; strew some coal dust over this, and then more soil, completing a heap of about 5 feet in diameter; so proceed till you have burnt the whole surface of the field. When you have a large headland to burn, make your small fires in two continuous rows, 18 inches apart, at angles, and form your clods, soil, coal-dust, and more soil, into a long heap, adding fires *secundum artem* along the sides; when these are burnt rake down the top, and make more fires on the surface, thus completing a heap of any width, height, and length, you like. This process requires about 2½ tons of coal per 100 cubic yards, which is a sufficient dressing for an acre; the price for labour in burning, filling, and spreading, should be 6*d.*, or something over, per yard; follow this with a green crop, as Vetches, Turnips, Rape, or Mustard; eat off with sheep, and then grow corn. From what I have seen of this process, combined with, as a *sine qua non*, thorough draining, and witnessed of its effects, I have no hesitation in saying, that by it, a great portion of England may be more than doubled in fertility, and I consider one of the great benefits of railways in rural districts will be in conveying cheap coal for burning soil. How does burnt clay operate? It doubtless improves the texture of the soil, making it more porous; it, perhaps, renders the salts more soluble; but, I believe, its chief effect arises from the well known property certain porous substances have of absorbing gases; charcoal will absorb many times its own volume of carbonic acid, spongy platinum condenses hydrogen so rapidly as to make the metal red hot, and burnt clay absorbs nitrogen as ammonia in a very considerable degree; it has been proved highly efficacious on Grass land, while the component parts applied in another shape had no effect.—*G., Avonside.*

Ireland.—On referring to the statistics of England we find that crime increases or decreases in the several counties according as employment is scarce or plentiful. Now, what is a fact in one country may fairly be applied to a neighbouring island, under the same Queen, laws, and government, with this difference only, the [partial] exemption of Ireland from taxation. A kind Providence has bestowed upon Ireland a fertile soil, a good climate, water power, coals, iron, copper, marble, &c. The Irish are a generous race, and if their spirits are more volatile than John Bull's, it only makes them more cheerful under adversity, and more ready to enjoy prosperity when it raps at the doors of their cottages; but this, under the present aspect of affairs, is seldom their lot; its visits are, like angels', "few and far between." To illustrate my argument, and prove that Paddy is capable of becoming as useful a subject as his brother John, I will instance the soldier; let him be enlisted from any part of Ireland, north, south, east, or west. Is he less tractable, less obedient, less able to bear fatigue, less patient, or less to be depended upon in the hour of danger, than an Englishman? If a man, left to his own resources, in his own country, becomes a lawless member of society, setting at defiance all authority, human and divine, how is it that his entry into a barrack-yard almost immediately converts the discontented marauder into a trustworthy companion? It strikes me the reasons for this sudden reformation are obvious. He is treated kindly; he is well fed, paid, and housed; he is clothed and attended in sickness; he is profitably employed whilst his health and strength last; and if he behaves well, at the expiration of his service, he has the prospect of obtaining a pension; he is looked upon as not a whit inferior to his fellows, and has an equal chance of promotion, and of gaining the esteem of his officers, who make no difference between the natives of the united kingdom, provided they do their duty. These are incontrovertible truths, and are evidence of what may be done by pursuing a steady system of improving the condition of the poorer classes. It may be urged, that the fear of the lash may induce unruly subjects to be more circumspect in their conduct: no doubt the dread of punishment operates as a wholesome restraint in curbing vice, but the discipline of a regiment is not more stringent than the common law, nor is it more likely to restrain bad passions if there was nothing else to encourage the growth of dormant worth. Now, this "something else," in the case of the soldier—this "something else," so wanting among the labouring-classes of Ireland, is a knowledge that those placed over them are interested in their welfare, and will see that they have everything to make them comfortable—compatible with their position; further, that in time of danger, want, or severe work, their officers undergo the same hardships as the privates. Now, this fellow feeling, this relying on each other for support in all difficulties, is the magician's wand that turns a reckless Irishman into a respectable soldier, and the world cannot produce better. I hope and believe that had the lower classes in Ireland the advantages of superintendence, kindness, and employment, from those on whose estates they reside, the country would rapidly improve, British capital flow, and the Emerald Isle become happy and flourishing. It is useless expatiating upon the lawless state of the south and south-west; it is wasting both time and patience in saying what ought to be done. Let an attempt be made to accomplish what all persons agree as most desirable, and most likely to pacify the country, viz., plenty of employment; there is no necessity to occupy the people in unprofitable toil: a good return might be anticipated from tens of thousands of pounds laid out in Ireland, and till this is tried, vain will be Coercion Bills. Will the sons and the adopted sons of Erin never be convinced of the necessity of making a sacrifice for their magnificent country? will they still permit it to be pointed at as behind others in civilisation? Let them join hand in hand in the effort—let them visit their property, drain, cultivate, introduce a style of agriculture more in character with the soil, and they will soon gain the affections of their brethren. Take an Irishman out of his own country and he is docile, attached, and evincing, when treated with common humanity, the finest traits of feeling. The fault must, therefore, lie at home; it is the want of the protection, support, and countenance of the landowners, who are, I believe, at present but slightly sprinkled over the face of the disturbed districts. With a money-market overflowing with gold and with enterprise not exceeded at any period of Great Britain's history, it is lamentable to witness capital leaving our own shores to enrich our foreign neighbours when we have within our grasp an inexhaustible field for the profitable expenditure of surplus cash in Ireland. Railroads may do a great deal so far as encouraging the exportation of food, but this will never render the lower orders contented and happy; they want a home consuming market—a circulation of money. Vast quantities of grain are sent to England,

but unfortunately the money paid for it does not benefit the grower, but leaves Ireland in the shape of rent paid to absentees. No country, however fertile and productive, can stand a continued drain on its resources without a corresponding return to prevent exhaustion. A man can have no heart to work when he feels that all his exertion, and every endeavour he makes to better himself in the world, are paralysed from the want of encouragement and the neglect of his interests. Let us hope to see a united band rise up determined to devote their time, talents, and strength to the service of Ireland, casting politics and party spirit aside. There cannot be a doubt of the result of such a patriotic design. It would spread over a distracted country peace, contentment, and good fellowship.—*Falcon.*

Autumn-planted Potatoes.—I am anxious to know what results have been experienced by others from the system of planting Potatoes in the autumn. I tried the experiment last November in two situations on my glebe, and gave every advantage of husbandry and manure. One of the plots has just been dug over and planted again, in consequence of the failure of 9-10ths of the plants; the other still remains with about half its plants alive. The Potatoes which I put in in March are a most promising crop, far outstripping the autumn plants in growth, and hitherto not indicating a single failure.—*Clavicus, Isle of Wight.* [We have many acres in this neighbourhood of flourishing autumn-planted Potato crop.]

Potatoes.—The following statement may be relied on:—A person near Ross got up his early Potatoes before the severe frost of July. They were all sound. He did not plant his late Potatoes till after that frost. These were sound also.—*T. Randall, Fakenham, May* 18.

How to establish a Rookery.—Some of your correspondents have occasionally expressed a wish to hear of any mode by which rooks might be attracted to trees which they do not now frequent, and the beginning of a rookery be established. I think we have been successful here in an attempt of this kind, as we have induced a number of rooks to haunt our lines of old trees, and a pair have this year built a nest and are now far advanced in the business of incubation. They and their young will undoubtedly return to the spot another year, and as no guns are ever fired near the place, we shall most likely soon have a rookery. The nearest nests of these birds are in two small assemblages about a mile and a half from us. We have formerly tried the plans of fixing nests and bundles of sticks upon the trees, but with no success. The rooks came, but only to pull the nests to pieces and to carry away materials, never showing any disposition to remain. Two years ago we determined to try what must indeed be a slower but seemed a more promising method. We sent to a distant rookery, not nearer than ten miles, as the crow flies, for a number of strong well-fledged young nestlings. These were brought home, carefully tended, fed almost every hour in the day for many weeks with coarse butcher's meat and the few earth-worms that could be procured in that dry spring, while their thirst was satisfied frequently by water from a spoon. Being very sensitive of cold in the absence of the parent birds, they were kept in a warm stable, upon a bedding of hay, and some of that material was strewn over their backs when they had settled down to sleep for the night. When the sun shone the door was kept open, and they were carried outside to bask in its beams, which seemed to do them great good. It is recommended that not more than ten birds be taken for this experiment, and these as large and as strong as possible. They will be found to require a great deal of meat. If soaked bread, or paste, or Potatoes, or any other vegetable substitute be tried, they will immediately fall back in condition, and some will die. While the young bird is growing and its plumage maturing, it must have the most substantial animal food, and that continually administered together with water. A careful woman will be the best nurse to such a family. As soon as they are strong enough they must have full liberty to exercise their wings by scrambling and flying on to the nearest wall, railing, or bushes. There is no risk of their leaving the place. This they will not do for nearly three months yet. Already their cawing will have attracted many wild rooks around the spot, which will show a kindly sympathy for the orphans, but will not seek to allure them to any other place, as their own parents would do if within hearing. As soon as they can perch at nights high enough to be safe from cats, they may be left in the open air. It may be some weeks yet before they will learn to peck up their food from the ground, even when thrown down to them. Soon after they learn to do this they will begin to forage a little in search of food, and sometimes to take a flight into the nearest fields in company with wild rooks, but they must still be fed as often as they return and clamour for food, and especially in an evening. The longer they continue to be fed the more will they become attached to the locality. At length, however, they will become entirely independent and will form a little flock of rooks who will continually come and rest upon the nearest tall trees and consider these as their home. They will go to roost, indeed, with the other rooks of the country, perhaps in some distant wood; but they will frequently come and repose, in the winter months, upon their favourite trees during the day time. This they will continue to do not only for the first but in subsequent years. They will attract large flocks of strangers to come and rest in the same manner. If unmolested by guns some of them will be seen to break off and carry twigs in the spring, but very possibly none of the birds may be sufficiently mature to breed until a second season. Eventually, if there be any gratitude in rooks, some of them will come and form a settlement in earnest, as has been the case at this place.—*R. Carr, Dunstan Hill, Durham.*

Gas-tar Concrete.—The mixture I use is in the following proportions:—

Broken flints, to ¼ inch guage	6 bushels.
Powdered chalk, or slaked and sifted lime ..	1 ,,
Road dirt (washed or powdered), and sifted stone or clean sharp sand	1 ,,
Coal-gas tar	6 gallons.

I level the floor carefully, according to the purpose for which it is required. I have a board 4 feet square of slabs, with ledges 9 inches high on two opposite sides, and ledges 3 inches high on the other opposite sides. I throw down on this board 2 bushels of stone, and mix gradually with them 2 gallons of tar, till every stone is wetted, and then sift over it and mix with it one-third of a bushel of lime, and the like of sand. This mixing is done with spades, by a man and boy turning it over and over till it forms a stiff black concrete, which is immediately spread 3 inches thick evenly over the levelled space, and lime and sand sifted over it. Proceed till your space is covered, or a day's work done; as soon as it will bear it, which, if thoroughly mixed, is immediately, roll it with a heavy iron roller, sifting sand and lime after the roller as tar oozes up from the consolidation of the stones. It does not harden so as to be used in less than a week, nor completely for a month; but it is then hard as glass, impenetrable by liquid, by horse or pig, or by rats. Until quite hard, it should be frequently rolled—the more the better will it be. Rolling I have found to be the only method to obtain a solid body and even surface. If time cannot be granted it to harden, it should be covered with a coat of sand several inches thick, which may be afterwards removed. I have had in use floors thus constructed for several years, quite sound and uninjured by horse and pig; I have done some in the last week, carefully noting the expense for the purpose of this communication. I find it to be at the utmost 1*s.* per yard, allowing the highest prices and best materials, namely, flints broken to ¼ an inch and sifted, delivered at 5*d.* per bushel; lime, delivered at 5*d.* per bushel; tar, 4*d.* per gallon; labour, man 2*s.* per day, boy 1*s.* per ditto; I allow 1*d.* per yard for carting sand, and for the labour of rolling at odd times after the floor is laid. Any light materials (provided they are hard and free from clay mould, or lime in lumps) will answer the purpose equally well, if to be procured cheaper; and to the powdered chalk fine powdered glass or stone, or scales from a forge, are good additions. Any farmer laying down such a pavement in stables, yards, or neat-houses, would be repaid in the first year by the saving of manure alone in quantity and quality, besides the advantages gained in the health and cleanliness of his animals. It is obvious that I have charged high prices for all the materials used. I have tried boiling the tar; no advantage resulted, and the cost and trouble were somewhat increased.—*J. P. B., June* 19.

West Indian Agriculture.—You were good enough some weeks back to refer me to various sources of information respecting the coccus insect, of which you said the specimen I sent you from the West Indies was a variety. The situation in which the insect ensconces itself is so secure a one that I almost despair of success in contending with it by artificial means. The lower part of the cane leaf embraces the stalk so closely that it is not easily separated, and yet it is between the two that this terrible insect lives and commits its depredations, the precise nature of which is not very apparent, though the effects are wofully so, for the plant in which it has established itself inevitably withers and dies. To strip these leaves from the stalk would be, I apprehend, death to the young plants; and yet there is no other means of getting at the insect. I can only think that steeping in some poison must be looked to, and even this is a formidable operation where you have to deal with plants by the tens of thousands; and I confess I fix my hopes more upon an improved tillage of the soil, and consequently a more vigorous and rapid growth, for I suppose in the great majority of cases disease is caused by an unhealthy condition of plant. If it be desirable to expedite and strengthen the growth of the Turnip against the ravages of the fly, so, I presume, must it be desirable to invigorate the cane plant against its various enemies. I am happy to say that during my short stay in the west I saw that a very decided improvement in the character of cultivation was on foot, and that men's minds are not merely open to conviction, but eager for it; that not only the plough, but various other implements are multiplying, and that there is every reason to hope that whilst the soil will thus be brought into a better state of cultivation, the planter will be rendered more independent of manual labour, of which it seems to me that under the new system of things it is absolutely impossible to command a sufficiency to work the estates according to the old methods. It is true that hitherto the cane has appeared to demand a peculiar kind of cultivation which could not be afforded it, otherwise than by the use of the hoe; but I doubt not that as agricultural information is diffused, it will be found that that implement will supply most if not all that is wanting. Indeed, this point may be said to have been fully demonstrated not only upon numerous estates throughout the different islands, but in an especial manner in the island of St. Kitt's, where the canes appear more luxuriant than anything I saw in the northern group of islands, and where, I understand, the cultivation is exclusively implemental. Probably something may be here allowed for the richness of the soil, resulting from the disintegration of igneous rocks, and something to the less severity with which it has been cropped; still the success of implemental culture may be said to be here firmly established, and I doubt not that the result of each experiment will induce an extension of the system. For my own part, I look upon it as the only thing which can save the West Indies from the ruin which threatens them. The old system has been carried, if I mistake not, nearly or quite to the limits of its capabilities; I judge more particularly from the island of Barbadoes, and yet the same estates still make adequate returns; this cannot be said to be the case with the great majority, and it is a rare thing indeed for a small estate to hold its own. The fact is that a West Indian estate must be highly cultivated if it is to be remunerative; and in most instances a very high state of cultivation is maintained by the planter, who may truly be said to be indefatigable to a degree which would surprise many who have never visited the islands. But it is clear that high cultivation by manual labour, even where it can be obtained, must be very expensive, more so than can be met by low prices of produce, with the most deplorable uncertainty of result, owing to the great uncertainty of weather which often, at the end of the cane's growth, ruins all the well founded hopes and expectations of the preceding 10 or 12 months; not to speak of those numerous enemies with which the cane is affected, such as that which led me to take up my pen to address you, and which actually caused the gentleman from whose estate the specimen sent you was taken to plant his crop over five times last year, and after all without establishing a crop. Yet this is an estate in the very highest state of cultivation. When I speak of high cultivation you will observe that I am speaking of the old system. I feel convinced that the condition of the land may be still further improved by a more scientific culture, and particularly by deepening where the soil will admit of it, and by admixture both with mechanical and chemical views. For instance, I have seen much land of a deep tenacious character deficient in calcareous material, yet lying on beds of the finest marl. I need not say what must be required in such cases. Again, I have seen fine soils of this heavy character thoroughly tilled by implements and bearing luxuriant canes, which, however, have not ripened so as to make good sugar. I apprehend in such cases that a very large dose of lime or marl would be well bestowed, and so on. But the planter is grievously hampered for means to carry such improvements into execution, without running into debt, which he knows would be his ruin; he has the greatest difficulty in keeping his estate supplied with cash for the weekly labour, and for extra work he is quite unable to pay. Under such circumstances it is clear that he must have recourse to the most economical means of cultivation, and, as I conceive, especially the substitution of implemental instead of manual labour. It is maintained, however, by many that this is no saving at all, for that in such islands as Barbadoes, where pasturage does not abound, the providing for the keep of the beasts employed would be an increased burden. I shall not attempt to discuss this subject here, but I feel convinced that you will agree with me that this must be a mistake, and that on every account it must be the true interest of the agriculturist to feed a large portion of stock on an arable farm, where farm-yard manure cannot be purchased, and to feed it well up to its work. I should be heartily glad to assist in drawing attention to our West Indian colonies, with the appearance of which I have lately been much interested, of the capabilities of which I think in the highest possible manner, even under existing circumstances; but of the fate of which (many of them, at any rate), I entertain the liveliest apprehensions.—*P.*

The Necessity for an Extension of Savings' Banks in Rural Districts must, I think, be at once manifest. These excellent institutions, to confer the fullest advantages which they can be made capable of extending, must reach the homes of the masses of our labouring population—the habit of saving must become more general. The parish of Ruthwell, in Dumfriesshire, gave birth to the first savings' bank in this country from the indefatigable exertions of its minister Henry Duncan, who, while engaged in inquiries relative to the condition of the poor, read a pamphlet, proposing a scheme for the gradual abolition of poor-rates in England, of which, though he considered it as too complicated for general use, conceived that one of the subordinate provisions which proposed the establishment of an economical bank for the savings of the industrious, might be so modified as to be carried into effect with advantage. He accordingly proposed to the gentlemen of Dumfriesshire the establishment of savings' banks in the different parishes of the county. While his zeal was applauded, his recommendation was neglected; steady, however, in the pursuit of his object, and anticipating the benefit to be derived from it, he formed the Ruthwell Savings' Bank in his own parish, and not only were his expectations of its success fully realised, but he could be proud of being the founder of that society that gave the impulse which has fast spread through the kingdom. That so praiseworthy an example should not inspire with zeal the clergy and other influential residents in our parishes, in England, Wales, Ireland, and Scotland, where these institutions extend, in carrying it out more generally, is truly surprising. While I have in former communications pointed out the advantages to be derived (and which are derived by comparatively few) from savings' banks, it is lament-

able to know that their extension is so confined, particularly in agricultural districts; while they offer advantages to some, they debar others. Compared with manufacturing and other districts, our agricultural counties offer a fair contrast in the amount of deposits in proportion to the population, &c.; for instance, according to the last official returns Buckinghamshire had a population of 155,989 souls, with, however, only four savings' banks, and deposits amounting to 128,000*l.* from 4657 depositors, being less than 17*s.* per soul, and an average of 27*l.* to each depositor. Manufacturing Lancashire contained 1,667,064 souls, and had 35 savings' banks, with deposits of 1,980,000*l.* from 65,402 depositors, being nearly 1*l.* 4*s.* per soul, and an average of 30*l.* to each depositor. In the former case is evinced not only a disposition but a capability to save—hence the need of an extension of savings' banks. In the agricultural county of Devon, from the want of these institutions, 400 local receivers are obliged to be appointed who pay the monies into the Exeter Savings' Bank; I will not speak of the risk thus attending the poor man's savings, and various causes which may even deter him from so depositing. Dr. Chalmers has well said, "If our aim be a universal common education, there must be schools everywhere; or an universal Christian education, and there must be churches everywhere; or a universally well-conditioned people, through the medium of higher wages, and by the operation of their own general economy, and we must have savings' banks everywhere. He ought not to think that he has lived in vain who can operate for good, though it be only on his own little neighbourhood, or on some district that he may have assumed of a few hundred families, whether it be by the erection of a local church for the moral and religious good of the surrounding householders, or of a local school for the educational good of their children, or of a local savings' bank for the economical good of the working classes, and other humble depositors of the vicinity in which it is placed." I have before hinted who must lead in the laudable undertaking for providing these institutions in parishes and other populous districts where they are not already established—the clergy and other influential residents. There are no obstacles or difficulties in the way of their formation; I would just state here that those who may be desirous of procuring information on this head will, I am sure, meet with every due attention gratis, from Mr. Tidd Pratt, the barrister. The success of savings' banks hitherto is an inducement for every philanthropist to engage in the work, and the anticipatory accruing benefit will incite him in carrying it out. As another instance of the want of savings' banks, I will relate the following:—A professor of the "mystic art" lately succeeded in wheedling from the wife of a poor labourer, in whose neighbourhood there was no savings' bank, a sum of between 30*l.* and 40*l.*, the savings of himself and family, and the hard-earned savings of an elderly female relative. But there is another powerful motive for the increase of savings' banks; they must be made to supersede what are antagonist to them; the money club, the sick club, Odd Fellowship, and the Building Society; the one has a mischievous tendency; the other is insecure and inefficient; the third has a wasteful expenditure, promoting evil for good; in the latter fines and forfeitures are incurred.—*J. H.*

Farm Profits.—A few years ago I came into possession of a farm in a midland county, consisting of 600 acres, 350 of which are arable, the remainder Grass. The farm was in good condition, and though perfectly inexperienced myself, I was assured that with the assistance of a steady and trustworthy bailiff, I should find it a profitable undertaking. I was, therefore, tempted to begin and judge for myself. I now copy out for your inspection (and that, I hope, of your readers) my balance-sheet of receipts and expenditure, from Michaelmas, 1844, to Michaelmas, 1845, which I hope you will do me the favour to insert in your Paper, in the hopes that some of your experienced farming friends will point out in what way I can improve my management, so as to enable me to continue my amusement without losing more than I can afford. I should add, as one redeeming feature of my balance-sheet, that the valuation of my stock at Michaelmas, 1845, exceeds that at Michaelmas, 1844, by 538*l.*:—

Abstract of Farming Account from Mich. 1844, to Mich. 1845.

Dr.				Cr.			
Labour	£818	4	5	Beasts	£ 942	11	0
Bills	93	8	2	Hogs	97	5	0
Levies	136	19	0	Sheep	578	9	0
Live Stock	913	6	0	Dairy	82	16	0
Poultry	9	0	0	Poultry	24	8	6
Grain and Seeds	64	2	0	Sundries	12	16	6
Artificial Food	150	17	0	Grain, viz.,			
Beer	21	18	0	Wheat, 66 acres			
Sundries	22	16	0	Barley, 37 ,,	1222	0	0
Rent	748	0	0	Oats, 21 ,,			
				Beans, 10 ,,			
	£2978	10	7		£2960	7	0
				Loss on the Year	£18	3	7

—*S. B., Woodford.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held at the Society's House in Hanover Square, on Wednesday last, the 24th of June; present, the Right Hon. Lord Portman, president, in the chair; Duke of Richmond; Earl Spencer; Earl of Lovelace; Viscount Newry and Morne; Hon G. C. Agar; Sir Charles Lemon, Bart., M.P.; Sir John V. B. Johnstone, Bart., M.P.; Sir John Ogilvy, Bart.; T. Raymond Barker, Esq.; John Benett, Esq., M.P.; S. Bennett, Esq.; W. R. Browne, Esq.; Colonel Challoner; John Cotes, Esq.; H. Gibbs, Esq.; W. H. Hyett, Esq.; S. Jonas, Esq.; John Kinder, Esq.; Col. Mac Douall; W. Miles, Esq., M.P.; R. Milward, Esq.; E. A. Sanford, Esq.; Prof. Sewell; W. Shaw, Esq.; John Villiers Shelley, Esq.; George Turner, Esq.; J. Baines, Esq.; H. Blacket, Esq.; T. B. Browne, Esq.; Dr. Calvert; C. G. Cotes, Esq.; T. Dunne, Jun., Esq.; J. B. Glagg, Esq.; T. M. Goodlake, Esq.; J. Greene, Esq.; Algernon Greville, Esq.; Rev. James Linton; E. Parkyns, Esq.; E. Poole, Esq.; S. Solly, Esq.; E. Tull, Esq.; T. Turner, Esq.; and T. R. Tweed, Esq.

The following new members were elected:—

Clinton, Colonel, 66, Eaton-place, London
Clinton, Major, 6, Audley-square, London
Linzee, Robert G., Hamp'on Lodge, Farnham, Surrey
Ravenshaw, Rev. Edward, West Kington Rectory, Chippenham
Clepham, James, Gateshead, Durham
Bird, Rev. Christopher, Ouollerton, Hexham
Barnes, John Stagg, Middleton-in-Teesdale, Durham
Brakenridge, John, Bretton Park, Wakefield
Orde, Rev. Leonard Shafto, Alnwick
Davidson, A. A. Greaves, Hylton-grove, West Boldon, Gateshead
Forsyth, Thomas, South Shields, Durham
Markham, Rev. Rice, Morland, Penrith
Cook, William, Catraw, Stannington, Morpeth
Burn, Richard, Orton Hall, Penrith
Forster, John, Shafto, Cambo, Morpeth
Cookson, Isaac Thomas, Newbiggin House, Newcastle-upon-Tyne
Featherstonhaugh, Walker, Hermitage, Chester-le-street
Cookson, Charles Edward, Newcastle-upon-Tyne
Brown, Isaac, Cowpen Lodge, Blyth, Northumberland
Dobson, Thomas, Eldon-street, Newcastle-upon-Tyne
Fowles, Thomas William, Hurworth, Darlington
Richardson, Thomas, Newcastle-upon-Tyne
Matthews, R. W., Beamish, Gateshead
Humble, William John, Northumberland-street, Newcastle-upon-Tyne
Watson, John, Burnopfield, Gateshead
Hawthorn, William, Benwell Cottage, Newcastle-upon-Tyne
Robson, Joseph, Gateshead Park, Gateshead
Briggs, Rawdon, Bratwith Hall, Harrogate
Stott, Robert, Tanfield, Gateshead

The names of 25 candidates for election at the next meeting were then read. The following communications were received:—

1. Six specimens of the sheet-iron baskets used for ordinary purposes on Mr. Hudson's farm, at Castleacre, in Norfolk: presented by Mr. Fisher Hobbs, to whom the Council ordered their best thanks to be conveyed for his kind attention to their wishes on this point.

2. A specimen of a glass milk-pan, weighing 15 lbs., and manufactured at the rate of 8*d.* per lb.: from Messrs. Edwards and Poll, to whom the thanks of the Council were also given for this present.

3. Results of communication into which Mr. W. R. Browne, at the request of the Council, had placed himself with Mr. William Browne, of Winterbourne Stoke, on the subject of his employment of cut straw for litter. The Council appointed Mr. Benett, M.P., and Mr. W. R Browne, to be a committee for the purpose of paying a visit to Winterbourne Stoke, and reporting to the Monthly Council in November next the result of their personal inspection of Mr. Browne's plan and its advantages.

4. A communication from Mr. Parker, of Sweeney Hall, near Oswestry, on the subject of a new barometer of his invention, preparing by him for the purpose of presentation to the Society.

5. A statement from Mr. Stott, of Bristol, on the advantages of employing charcoal obtained from refuse tan as a cheap vehicle for the mechanical suspension and distribution of concentrated animal manure.

6. Specimens of Wheat grown in Shropshire and Yorkshire, presented respectively by Mr. Wigley and Mr. Blacket. An interesting discussion followed the presentation of these specimens, in the course of which many important facts connected with the cultivation of Wheat on different soils and under different circumstances, were communicated on the personal experience of the members present, and several valuable suggestions made for carrying out future experiments on that subject.

The President reported to the Council, that he had communicated with the Secretary of State on the subject of the grant of a certain number of the metropolitan detective police force at Newcastle, for the purpose of guarding the members attending the ensuing County Meeting in that town from the depredations of the swell mob, and that Sir James Graham had given instructions that every attention should be paid to the application of the Society.

The Members of Council and Governors present then proceeded to the business of the Special Council: Lord Portman, President, in the Chair. Reports were received from Earl Spencer, on the part of the General Newcastle and Judges' Committees, and from Mr. Shelley, on that of the Committee for the selection of the Trial-ground at Northampton; and the Council, having despatched the miscellaneous business brought before them connected with the ensuing Country Meeting, proceeded, on the motion of the Duke of Richmond, to pass an unanimous vote of thanks to the Committee of the Exchange and News Rooms at Newcastle, for their liberality in throwing open those rooms to the free access of Members of the Society during the period of their visit in that town during the Meeting.

The Council stands adjourned to Wednesday next, the 1st of July.

AGRICULTURAL SOCIETY OF IRELAND.

At the meeting of the Council, June 11, 1846, Sir Robert Kane in the chair, the Secretary stated that he had visited the city of Limerick since their last meeting, and he was happy to report that the most active preparations were in progress for the great national cattle show, to be held in that city on the 12th of August next. A most admirable site had been selected for the show-yard, situated near the terminus of the Waterford and Limerick Railway, and which the company had in the handsomest manner placed at the disposal of the local committee for the purpose; it consists of upwards of five acres completely walled in, and would form one of the best show-yards that had yet been selected. Professor Johnston, of Durham, and Mr. Smith, of Deanston, had intimated their intention of being present at the meeting, and of contributing by every means in their power to its effect. The secretary also stated that the time had now come for putting in notices of entry for the cattle show. Monday, the 20th of July, would be the last day for receiving them, but even already he had received many applications from several quarters both for stock and implements.

Farmers' Clubs.

Moreton Hampstead, *June 2.—The Progress of Agricultural Improvement.*—Mr. Jackson began by reviewing the state of agriculture in ancient times, going back as far as the time of William the Conqueror, and noticing also the rude and imperfect state of the implements then used, and also the various tenures by which land was held. He then went on to notice the various gradual improvements both in the art itself, and also in the various implements used up to the present time; and then proceeded to consider the principal causes and circumstances which stand in the way of agricultural improvement. 1st. The uncertainty of tenure. 2d. The desire of a great majority of landlords to grow timber on arable land. And 3d. The preservation of game. Showing, under the first head, the inconsistency of expecting farmers to lay out their money to benefit their landlords without being sure of an adequate return for their capital, and that short leases gave a decided check to agricultural improvement. Showing, under the second head, the various injuries done by growing timber on arable land by the roots absorbing the manure intended to assist the growth of the crops, by obstructing the free access of the sun and air; the hedges also being the resort of vermin and encouraging the growth of weeds, &c. Referring to Mr. Mechi's fourth letter for an estimate of the loss incurred by growing timber on arable land, and to "Grant on Hedges" for an estimate of the expense of so doing. And showing, under the third head, the great loss sustained from game, not merely by the farmer in the neighbourhood, but also by the country at large. He observed that it was not carried to the extent in this country it was in those farther north, yet that no doubt great loss was incurred by preserving game. Mr. J., with regard to our future prospects, took into consideration, 1st, The relative position of landlord and tenant; 2d, The most practical way of improving the same; and 3d, The benefit that each party would derive by the desired alterations. He considered that all permanent improvements of the freehold ought exclusively to belong to the landlord, as well as every improvement that a tenant cannot take with him at the end of his lease; such as the erection or alteration of all buildings; the removing of useless hedges and fences; the making of any roads or pathways, if such should be desirable; and the reclaiming or draining of bog land; and though there might be various obstacles in the way of his suggestions, such as the lands being in the hands of trustees, &c., yet these must be considered the exceptions and not the rule with which future legislation should deal for the benefit of all parties. 2d. He would state that the great bulk of the landed property in this neighbourhood, and of the kingdom generally, is occupied by tenantry under landlords who are free to do what they please with their own; and he would ask what better security could a man have than his own land, whilst there were so few tenants who would not willingly pay a higher rate of interest, in the shape of an advanced rent, than could be obtained in any Government security for money so invested. It lay in the power of most landlords to do all those improvements; they could easily destroy their game or allow their tenantry to do so; they could get a ready market for all their timber growing in arable land, and the same money could be applied to the draining of bogs, the erection of manure tanks, or the removal of crooked hedgerows, &c., though none of these improvements should be undertaken indiscriminately, but only to such extent and where there would be a certainty of having a fair return for the capital expended; and 3dly, in conclusion, Mr. J. remarked that it had been his intention to show that there are very few securities so good, and none better, for the investment of capital, than the permanent improvement of land; that there is nothing a tenant can better afford to pay than the interest of money so invested; that in a great number of cases where timber encumbers the hedgerows of arable land, its removal can be accomplished without drawing money from other sources, and that it would confer a great benefit on all parties concerned, and in which society generally would participate in no small degree.—Among those present who were tenants there was a general feeling that if their landlords would expend capital in improvements, they would willingly pay

5 per cent. on the outlay, reckoning that the increased facilities in working the land, and the improved produce, would fully enable them to do so.—*J. C. Bowyer, Secretary.*

HARLESTON: *June* 10.—*The Assessment of Cottage Property.*—Resolution: It is the decided opinion of this meeting that the present system of collecting the poor-rates from the tenants of some cottages and excusing others, is partial and unfair; as, however deserving of relief such tenants may be, the property they inhabit is justly intitled to pay its share of the expenses of maintaining the paupers belonging to the parish in which it is situated. The club considers that the only remedy for such a state of things is to make the payment of rates compulsory on the owner of the property through the tenant, in all cases where the net assessment does not exceed 6*l.*; the overseer's receipt to be a legal tender to the landlord for such portion of the rent.

Miscellaneous.

Cirencester Agricultural College.—This elegant and commodious building is now open for the reception of students, of whom, when the additional wing now erecting is completed, it will be capable of accommodating 200. It is a spacious and imposing structure, of the ornamented Elizabethan style, the principal front, which is to the south, showing a façade of 190 feet by 50 feet in height, the centre relieved by a well-proportioned tower, surmounted at the north-west angle by an octangular turret, the whole rising 93 feet from the lawn. The interior consists of a large dining-hall, 70 feet by 25 feet, in height 25 feet; a library, museum, and laboratory, besides class rooms, on the ground floor. Ranges of lofty and commodious sleeping rooms extend through the two upper floors and the tower, while the offices, and apartments for the servants, are kept distinct from the part occupied by the students. A theatre, for lectures, is in project, and it is in contemplation to add a chapel. Every attention has been paid to the heating and ventilation, and the best mode in use adopted; separate rooms are also provided in case of illness. A more pleasant or healthy site could hardly have been chosen. It is situated on an elevated part of the farm, about a mile and a half from the town of Cirencester, commanding from the south an extensive prospect over North Wiltshire; while the rear of the building is near adjoining the Park, and sheltered by the woods of Earl Bathurst. The objects of the Institution are to provide, what has ever been a desideratum—scientific instruction in all that pertains to agriculture; and every subject treated in such a manner, and to such an extent, as its bearing upon agriculture demands; while every description of trial and experiment will be made, so as not to risk general results, it being the determination of the Council that the system pursued on the farm shall be the one most profitable, and such as the pupils may adopt with confidence in their future occupations. The theoretical and practical teaching go hand in hand, and the whole is combined with the advantages of collegiate discipline.—Students are only admissible upon the nomination of a proprietor or donor of 30*l.* From 14 to 18 is the age at which they will be eligible to enter, nor will they be allowed to remain but six months after their 20th birthday. The annual payment of each student is 30*l.*, with such charges as the Council may fix for the library, museum, &c. Medical attendance, books, and laundress, are not included. Non-resident students of any age will be allowed, on the recommendation of a proprietor, to attend the lectures, and avail themselves of the practical instruction, upon the same annual payment of 30*l.* While attending at the college, or on the farm, they will be amenable to the college authorities for their conduct, on pain of forfeiting the fee. The management of the college is committed to the Principal, who is responsible to the Council for the orderly conduct of the students, and for the general well-being of every department. A regular attendance at the daily prayer of the Church of England, and at the parish church on Sundays, is required; but the sons of dissenters may respectively attend such places of worship as their parents shall, by letter to the Principal, request.—*Cirencester Paper.*

The Approaching Cattle Show in Limerick.—We understand that the most active preparations are in progress for the great Cattle Show of the Royal Agricultural Improvement Society of Ireland at Limerick, on the 12th of August next. We have seen a ground plan of the Show-yard, by which it appears that it is admirably well situated, near the Terminus of the Great Waterford and Limerick Railway, the directors of that body having, in the most liberal manner, placed a large enclosed space of ground, of upwards of five acres in extent, at the disposal of the local committee. The Show-yard is completely enclosed by a stone wall upwards of 16 feet high, having once belonged to the District Lunatic Asylum of the town, and will certainly be the finest and most convenient locality that had ever yet been seen for the purpose. From the facilities thus afforded, great expense will be spared, and the general effect will be imposing in the extreme to those who will visit the Show. The different entertainments will also be upon the same scale as has distinguished the other meetings of the Society; and no place affords such facilities as Limerick for assemblies of the kind, from the extent of the district, and the vast number of resident gentry in the neighbourhood. Situated as it is in the centre between the great counties of Clare, Limerick, Tipperary, Kerry and Cork, and with the internal navigation of the Shannon, connecting the different counties that border its shore, it is expected that on no former occasion will there ever have assembled such a collection of practical improvers and agriculturists from all parts of the country. We understand also that arrangements are in progress for securing the same facilities of conveyance by canal from Dublin that were afforded at Ballinasloe, and which contributed so much to the great success of that meeting. Various communications have been already received, both from England and Scotland, relative to the exhibition of stock and implements at the show; these include some of the best breeders in Yorkshire and Northumberland, and some of the leading implement manufacturers in both countries. It is most desirable to have this point specially attended to, as the entire success of the meeting depends in a great degree upon the facilities that will be afforded to every class of exhibitors, to forward the different lots to their place of destination. The time has now arrived for serving notices of entry, and we trust that every one in the south and centre of Ireland will use their utmost efforts to contribute, by every means in their power, to render the meeting as effective as possible. Limerick is famed for the tone and quality of its society, and the different entertainments, particularly the balls and assemblies, will be on a most splendid scale. We understand, also, that efforts will be made to give the meeting a practical and scientific turn, as at Ballinasloe, and that first-rate lecturers on agricultural subjects will be secured. On the whole, the time is approaching for preparing the notices of entry, and we hope that the nobility and gentry of the neighbourhood will make every exertion to render the meeting worthy of the locality, and equal, if not superior to any of its predecessors.—*Irish Farmers' Gazette.*

Calendar of Operations.

JUNE.

THE operation of singling and horse-hoeing the earliest Turnips will now be proceeding. The latter is a very important operation, and should be repeated at intervals of a fortnight as long as the crop will permit. It is now the farmer should consider that he is growing the grain crop which succeeds his Turnips: for undoubtedly it is upon the due cultivation of the land *now* that its produce *then* will depend. If the land be horse-hoed once to destroy weeds, it should be horse-hoed three or four times merely for the purpose of preserving a fine tilth between the rows to a depth of five or six inches from the surface. It is surprising how the plants will avail themselves of the *feeding ground*, so to speak, thus afforded them. In a few weeks the whole soil to that depth will be a complete network or sponge of rootlets. The operation of singling the plants is also important. The interval between the plants must be determined on after considering the richness of the soil, and the variety of root grown: 11 to 15 inches will generally answer the purpose. The singling may be done by women, and will cost from 2*s.* 6*d.* to 3*s.* 6*d.* per acre. It is done by a hoe, which is alternately pushed and pulled, leaving an edged ridge along the ground, with single plants at the above interval along its ridge line. The young plants may be very roughly treated without injury, and indeed with advantage. If attached to the ground by but one single fibre of their root, they will grow and flourish.

This, and sowing the later Turnips, and hay-making, and the second hoeing of the Mangold Wurzel crop, will occupy the farmer during the latter end of this month.

Notices to Correspondents.

CHICKENS—*Ninaroo*—We should give them curds from *new* milk. Perhaps some experienced reader will give advice.

FARM STOCK—*A Sub*—"Perhaps one of your readers would obligingly furnish me, through you, with an estimate of the expense of stocking a farm of 200 acres in any of the south-western counties of England, supposing two-thirds of the farm arable and the remaining third Grass. As the estimate is desired chiefly with the view of comparing it with one for a farm of the same extent in Scotland, the more particularly every item is stated the better. Any hints with regard to the requisite amount of capital will be thankfully received."

GORSE—*G S*—You must either *pull* the weeds, or plough up for Turnips. The latter will be most advisable.

HAYMAKING MACHINES—*Rhoriensis*—They are in common use about us; and we never heard any objection to them. If the Grass be cut as it ought to be, before it is in seed, it is plain that no seed can be shaken out. Grass containing much Clover would be injured by much shaking; but the machine is only used for the first tedding.

RENT-CHARGE—*K C*—Point out the rick to the collector. Do not sell it yourself. You should apply to your attorney. We cannot answer legal questions.

SPECIMEN OF WHEAT—*Leamington*—Thank you. It is Egyptian Wheat, Triticum compositum.

WHITE MUSTARD—*A Sub*—"Having been a grower of White Mustard the last two years, and judging that many others have also done so, and put their sheep on it, I would ask whether any have ever felt any ill effects from it?"

*** Communications reaching town after Wednesday, cannot be answered the same week.

Markets.

SMITHFIELD, MONDAY, June 22.—Per Stone of 8 lbs.

Best Scots, Herefords, &c	3s	4s to 4s10	Best Long-wools	-	-	—s to —s	
Best Short Horns	-	3 6	3 8	Ditto (shorn)	-	3 8	4 0
Second quality Beasts	-	2 10	3 4	Ewes and second quality		—	—
Calves	-	3 8	4 0	Ditto (shorn)	-	3 4	3 8
Best Downs & Half-breds		—	—	Lambs	-	5 0	6 0
Ditto (shorn)	-	4 0	4 2	Pigs	-	3 4	4 4

Beasts, 2704; Sheep and Lambs, 33,830; Calves, 208; Pigs, 290.

Although we have rather a small supply of Beasts, there is quite enough for the demand; indeed, several remain unsold.—There is an extraordinary increase in the number of Sheep and Lambs, and trade consequently considerably worse; it is with great difficulty our top quotations are obtained for the best qualities.—Veal trade is rather worse.—Very little is doing in Pigs.

FRIDAY, June 26.

The number of fresh Beasts up in this day's market is not very large, and trade is rather more cheerful, but prices cannot be quoted higher. The considerable change in the weather has also caused a briskness in the Mutton trade, but prices remain the same.—Lamb trade is heavily as good; it is difficult to make 6s of the choicest.—We have again a good supply of Calves, and trade very heavy; 4s 6d is quite the top price.—Pork trade is exceedingly heavy.

Beasts, 726; Sheep and Lambs, 13,070; Calves, 197; Pigs, 290.

41, West Smithfield.

HOPS, FRIDAY, June 26.

The reports from the plantations this week very a good deal; Sussex, with but few exceptions, is going on favourably, also part of Weald Kent; middle Kent is in a very doubtful state, although their bine grows very fast, they have a great quantity of lice, which increases rapidly and follow up the bine the present weather being in favour of the vermin it is very probable, with a continuance of it, the bine will sink under the effect of the vermin; Worcester and Faraham have improved of late. The market has declined considerably, but we have a steady demand.

PATTENDEN & SMITH, Hop-Factors.

COVENT GARDEN, JUNE 27.—Vegetables have been plentifully supplied, and most kinds of Fruit have been abundant. Good Pine-apples may be obtained at from 5*s.* to 6*s.* per lb. Hot-house Grapes, of excellent quality, are abundant and cheap. Plums, with Peaches and Nectarines, of good quality, have been offered. Ripe Cherries and Strawberries are plentiful, more especially the latter; and there has also been in the market a good supply of French and Dutch Cherries; they are selling at from 3*s.* to 4*s.* 6*d.* per dozen lbs. Ripe Gooseberries begin to make their appearance in tolerable abundance. Apples and Pears being nearly over for a season, what remain are sold at nominal prices. Oranges are plentiful, considering the season, and Nuts of all kinds are sufficient for the demand. Lemons are scarce and dear. English Melons may be obtained at last week's prices, and some good foreign ones are also in the market. Of Vegetables, Asparagus is scarcer, and consequently dearer. Cabbages, Cauliflowers, &c., are good and sufficient for the demand. Carrots and Turnips are cheaper, and the same may be said of Peas. Early Masagan Beans begin to make their appearance in the market. Celery is good in quality. Potatoes of the best quality fetch 9*l.* a ton, and in one or two cases 10*l.* and 12*l.* a ton; but inferior samples may be obtained at lower prices. Ash-leaved Kidneys are rather dearer, and the supply is somewhat limited. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Heaths, Jasmines, Azaleas, Calceolarias, Pinks, Cyclamens, Orange flowers, Rhododendrons, Cinerarias, Gardenias, Moss and other Roses.

FRUITS.

Pine Apple, per lb., 4*s* to 6*s*		Gooseberries green, per hf.-sv., 3*s* to 5*s*	
Grapes, Hothouse, per lb., 2*s* to 4*s*		Currants, red, per hf.-sv., 4*s* to 6*s*	
Apples, Dess., per bush., 7*s* to 30*s*		— white, do. 6*s* to 7*s*	
— Kitchen, 7*s* to 15*s*		Strawberries, per pottle, 6*d* to 1*s* 6*d*	
Melons, each, 4*s* to 8*s*		Raspberries, per pottle, 6*d* to 8*d*	
Peaches, per doz., 10*s* to 24*s*		Cherries, per lb., 4*d* to 6*d*	
Nectarines, per doz., 10*s* to 24*s*		Almonds, per peck, 6*s*	
Oranges, per dozen, 1*s* to 2*s* 6*d*		Sweet Almonds, per lb., 2*s* to 3*s*	
— per 100, 4*s* to 18*s*		Filberts, English, p. 100 lbs., 80*s* to 60*s*	
— Seville, per 100, 10*s* to 16*s*		Nuts, Cob, per 100 lbs., 90*s* to 90*s*	
— per dozen, 2*s* to 3*s* 6*d*		— Barcelona, 90*s*	
Lemons, per dozen, 2*s* 6*d* to 6*s*		— Brazil, 12*s* to 16*s*	
— per 100, 16*s* to 30*s*		— Spanish, 14*s*	
		Walnuts, per bushel, 12*s* to 18*s*	

VEGETABLES.

Cabbages, per doz., 6*d* to 1*s* 3*d*		Carrots, per bunch, 6*d* to 9*d*	
Cauliflowers, per doz., 2*s* to 6*s*		Onions, per hf.-sv., 3*s* to 4*s*	
Artichokes, per doz., 1*s* to 4*s*		— Spanish, per doz., 1*s* 6*d* to 3*s*	
French Beans, per 100, 1*s* 6*d* to 2*s*		Shallots, per lb., 10*d* to 1*s*	
Peas, per sieve, 2*s* to 6*s*		Garlic, per lb., 6*d* to 8*d*	
Carrot, per hf.-sieve, 6*d* to 1*s*		Lettuce, per score, Cab., 4*d* to 1*s*	
Potatoes, per ton, 70*s* to 180*s*		— Cos, 1*s* to 2*s*	
— new, 4*s* to 8*s*		Radishes, per 12 bunch., 4*d* to 1*s*	
— bushel, 3*s* to 4*s* 6*d*		Mushrooms, per pottle, 2*s* to 4*s*	
— Kidney, per doz. lbs., 2*s* to 4*s*		Small Salads, per punnet, 3*d* to 8*d*	
— Frame, per lb., 2*d* to 3*d*		Fennel, per bunch, 2*d* to 3*d*	
Turnips, per bunch, 4*d* to 1*s* 3*d*		Savory, per bunch, 4*d* to 6*d*	
Red Beet, per doz., 6*d* to 1*s* 6*d*		Thyme, per bunch, 6*d*	
Horse Radish, per bundle, 2*s* to 3*s*		Watercress, p. 12 sm. bun. 6*d* to 8*d*	
Rhubarb, per bundle, 3*d* to 1*s*		Parsley, per bunch, 1*d* to 3*d*	
Asparagus, per bundle, 2*s* to 7*s*		— Roots, per bundle, 1*s*	
Cucumbers, each, 4*d* to 1*s*		Tarragon, per bunch, 6*d*	
Spinach, per sieve, 3*d* to 1*s*		Mint, green, per bunch, 6*d* to 8*d*	
Leeks, per doz. bunches, 1*s* to 1*s* 6*d*		Marjoram, per bunch, 6*d*	
Celery, per bundle, 2*s* to 3*s*		Chervil, per punnet, 3*d* to 3*d*	

HAY.—Per Load of 36 Trusses.

CUMBERLAND MARKET, June 25.

Prime Mead. Hay	85*s* to 90*s*		Old Clover	100*s* to 115*s*			
Inferior -	68	78	Inferior do.	90	100	Straw	34*s* to 36*s*
New Hay -	60	70	New Clover	80	98		

JOSHUA HARRIS, Hay Salesman.

ENGLISH TIMBER AND BARK.—June 25.

Round Timber, per load.			Plank, per foot cube.			Inch board pr. ft. sqpl.	
Oak	5*l* 10*s*	to 8*l* 0*s*	3*s* 0*d*	to 3*s* 6*d*		4*d*	to 6*d*
Ash	5 0	7 15	2 6	4 0		3	4
Elm	3 0	4 0	1 0	2 3		2	3
Beech	2 10	3 0	1 0	2 0		2	2½
Lime	3 10	4 0	2 0	2 6		2½	3
			1 5	1 6			

Oak Bark.—In London some extensive contracts have been entered into at 12*l.* to 13*l.* 10*s.* per load of 48 cwt., delivered.

MARK-LANE, MONDAY, June 22.

The supply of Wheat from Essex, Kent, and Suffolk, although rather larger than last week, met a tolerably free sale at 1*s.* per qr. advance upon the rates of this day se'nnight. In free foreign there was very little doing, but bonded was more inquired after than of late, particularly by parties from the country, without, however, leading to much business.—Barley is held with increased firmness.—We raise our quotations for Beans and Peas, each 2*s.* per qr.; bonded are held still higher, but the demand is not extensive at the advance.—Fine Oats are fully 1*s.* per qr. dearer, but the out-of-condition and light foreign qualities do not participate in this improvement.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk . . White	56	60	Red .	50	60
—— Norfolk, Lincolnshire, and Yorkshire .	50	54	White	50	55
Barley, Malting and distilling 30*s* to 36*s*	Chevalier	30	33	Grind.	23	26
Oats, Lincolnshire and Yorkshire . .	Potatoes	26	30	Feed	20	26
—— Northumberland and Scotch . .	Feed	26	30	Potato	30	32
—— Irish	Feed	25	29	Potato	26	31
Malt, pale, ship		54	60			
—— Scotland and Essex		50	52			
Rye		34	36			
Beans, Masagan, old and new . 30 to 40	Tick	32	40	Harrow	34	42
—— Pigeon, Heligoland . 36 to 42	Winds —			Longpod	—	—
Peas, White . . . . 36 to 42	Maple	32	36	Grey .	32	34

FRIDAY, June 26.

There was a fair show of English Wheat by land carriage samples from Essex, this morning, which, owing to the passing of the Corn Bill and consequent release of bonded stocks, could not be disposed of without submitting to a decline of 2*s.* to 3*s.* per qr., and therefore remained unsold. In foreign very little business was done, holders generally demanding an advance of 2*s.* per qr. and upwards upon the late bonded prices, independant of duty, which buyers were unwilling to comply with.—Barley remains as on Monday.—Beans and Peas are very unsaleable, but we do not alter our quotations.—The Oat trade is flat; free corn must be written 1*s.* to 2*s.* per qr. cheaper, and bonded is held for 1*s.* per qr. more money.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
May	16-year Quarters.	57*s* 0*d*	30*s* 6*d*	24*s* 1*d*	36*s* 6*d*	35*s* 11*d*	36*s* 1*d*
—	23 . . .	55 5	30 10	23 8	34 6	36 0	36 6
—	30 . . .	53 4	28 4	22 9	33 4	33 10	34 2
Jun.	6 . . .	52 10	27 8	22 4	32 10	33 10	34 10
—	13 . . .	53 0	27 1	22 3	32 4	33 6	34 2
—	20 . . .	51 5	27 8	22 5	32 4	33 4	33 6
6 weeks' Aggreg. Aver.		53 5	28 1	22 7	33 1	33 11	34 3
Duties on Foreign Grain		19 0	9 6	5 0	9 6	7 6	8 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, June 20.

Price.	May 16	May 23	May 30	June 6	June 13	June 20
57*s* 0*d*						
55 10						
— 9						
— 8						
— 7						
— 6						
53 4						
52 10						
— 9						
— 8						
— 7						
— 6						
51 5						

SEEDS, June 26.

Canary . .	per qr	40*s* to 48*s*	Linseed Cakes, Foreign, p. ton	7*l*	to	8*l*
Caraway . .	per cwt	45 48	Mustard, White - p. bush.	—		—
Clover, Red, English	—	—	— Superfine	—		—
— — Foreign	—	—	— Brown	—		—
— White, English	—	—	Rapeseed, English, per last	36*l*		38*l*
— — Foreign	—	—	Rape Cakes - per ton	—		—
Coriander . .	—	10 16	Rolandsin	—		—
Hempseed . .	per qr.	32 36	Turps, Eng. winter p. bush.	—		—
Linseed . .	per qr	46 48	— Foreign	—		—
— English	—	46 48	Trefoil . .	per cwt	—	—
— Cakes, Eng. per 1000, 10*l*		11*l*	Turnip (see variable for quantities)			

KINGSFORD AND LAY.

EAST INDIAN ORCHIDS.

MESSRS. J. C. & S. STEVENS beg to announce they will sell by Auction, at their Great Room, 38, King-street, Covent-garden, on Saturday, 4th July, at 12 for 1 o'clock, a Parcel of very Choice EAST INDIAN ORCHIDS, just arrived, in fine condition, and consisting of Phalænopsis amabilis, Vanda insignis, a new species of Aerides, a new Renanthera, &c. May be viewed the day prior and morning of Sale, and Catalogues had of the Auctioneers.

WANTED TO RENT, at Lady day or Michaelmas, 1847, a convenient COTTAGE, and 50 acres of land, with suitable buildings, in good condition. A lease would be preferred, and a purchase would not be objected to.—Direct to W. H. B., the Office of this Paper.

FARM TO LET.—A FARM to be Let on Lease from Michaelmas next, for a term of 21 years, consisting of about 650 acres of excellent land, situate in one of the Western Counties, and contiguous to several good Market Towns, and distant about four miles from a railway leading from the Metropolis to the heart of the manufacturing district. The farmhouse and agricultural buildings are in good repair and most convenient. No party but of undoubted respectability and capital need apply, and all applicants must give the names and addresses as well of themselves as of two respectable referees.—Direct to A. B., Farmers' Club, York Hotel, Bridge-street, Blackfriars, London.

AGRICULTURAL PRIZES.—£200 Prizes for Implements; £500 Prizes for Farms, Stock, Essays, &c., are offered by the YORKSHIRE AGRICULTURAL SOCIETY at its meeting at WAKEFIELD. The last day of entry is JULY 23d. Forms, &c., may be had on application to

Thirkfield, Thirsk. MATTHEW M. MILSUM, Secretary.

EARLY HARVEST.

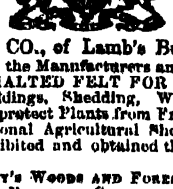
DRUMMOND'S IMPROVED REAPING SCYTHES continue to give great satisfaction, and are recommended with every confidence as being cheaper, quicker, and not so wasteful as the ordinary mode of mowing grain; are delivered free by the Subscribers in *London, Liverpool, Hull, Newcastle, Cork, Belfast,* and *Londonderry,* at 11s. 6d. each; and when more than three are taken, at 11s. each.

N.B. No order will be attended to from unknown correspondents without a remittance. W. DRUMMOND & SONS.

Agricultural Museum, Stirling, N.B., and 50, Dawson-street, Dublin.—June, 1846.

BARROWMAN'S PLOUGHS.—Parties who were, owing to the great demand, disappointed in not getting these Ploughs last spring, are respectfully informed that a stock is now on hand, and orders can be executed forthwith.

CHEAP AND DURABLE ROOFING.

BY HER MAJESTY'S  ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, the Manufacturers and only Patentees of THE ASPHALTED FELT FOR ROOFING Houses, Farm Buildings, Shedding, Workshops, and for Garden purposes, to protect Plants from Frost.

At the Great National Agricultural Shows, it is this Felt which has been exhibited and obtained the Prize, and is the Felt patronized by

HER MAJESTY'S WOODS AND FORESTS,
HONOURABLE BOARD OF ORDNANCE,
HONOURABLE EAST INDIA COMPANY,
HONOURABLE COMMISSIONERS OF CUSTOMS,
HER MAJESTY'S ESTATE, ISLE OF WIGHT,
ROYAL BOTANIC GARDENS, REGENT'S PARK,

And on the Estates of the Dukes of Sutherland, Norfolk, Rutland, Newcastle, Northumberland, Buccleugh (at Richmond), the late Earl Spencer, and most of the Nobility and Gentry; and *at the Royal Agricultural Society's House, Hanover-square.*

It is half the price of any other description of Roofing, and effects a great saving of Timber in the construction of Roofs, made to any length by 32 inches wide.

PRICE ONE PENNY PER SQUARE FOOT.

*** Samples, with Directions for its Use, and Testimonials of seven years' experience, with references to Noblemen, Gentlemen, Architects, and Builders, sent free to any part of the town or country, and orders by post executed.

☞ *The Public are respectfully cautioned* that the only Works in Great Britain where the above Roofing is made, are

F. M'NEILL & CO.'S

Patent Felt Manufactory, Lamb's-buildings, Bunhill-row, London, where Roofs covered with the Felt may be seen, as also the new Vice-Chancellor's Court, and the Passages and Offices at the entrance to Westminster Hall, and other buildings at the New Houses of Parliament, done under the Surveyorship of Charles Barry, Esq., R.A.

Note.—Consumers sending direct to the Factory can be supplied in lengths best suited to their Roofs, so that they pay for no more than they require.

ORNAMENTAL WIREWORK FOR THE GARDEN.

G. B. THOMPSON AND CO. beg respectfully to announce that they continue to prepare at their Manufactory, 390, Oxford-street, London, all kinds of Fancy Ornamental Wirework suited for the Garden, Greenhouse, or Conservatory, consisting of Flower Trainers, Stands and Borders, Garden Arches, Seats, and Vases, Improved Garden and Hothouse Engines, Syringes, Fumigating Bellows, and other Floricultural Implements.

Also, G. B. THOMPSON'S Improved Waterpot, which possesses considerable advantages over all others, the smaller sizes being suitable for ladies' use. They have now on sale a novel folding portable Wooden Garden Chair, at 3s. 6d. each, or 36s. per doz., which quantity is packed in a small space.

CHEAP AND EFFECTIVE FENCE AGAINST HARES AND RABBITS.—Iron wire netting of various patterns, and of superior workmanship, supplied in either large or small quantities, on very reasonable terms. A coarser description of net will be found useful as a substitute for Pea-sticks, ornamental Arches, and other garden purposes. None sent out without receiving at least *two* coats of a newly-discovered and very durable anti-corrosive paint. Prices from 7d. to 1s. per lineal yard. Apply to Mr. RAYNHAM, 21, Brownlow-street, Holborn (where specimens may be seen); or to Mr. SAMUEL TAYLOR, Stokeferry, Norfolk.

DRESS COATS, superfine cloth, made to measure, 30s. to 42s.; extra Saxony, 60s.; frock coats, silk facing, 35s. to 45s.; extra Saxony, 50s. and 56s.; fashionable trousers, 7s. to 12s. 6d.; doeskin, new patterns, 12s., 16s., and 21s.; waistcoats, of the newest patterns, 6s. 6d. to 10s. 6d.; rich satin and cloth, 7s. 6d. to 12s. 6d.; overcoats of the newest style, in paletots, Alberts, and Codringtons, of llama cloth and cashmerettes (waterproof), 21s. to 35s.; travelling wrappers 8s. 6d. to 18s. Boys' and youths' clothing of every description. Tunic and hussar suits, 21s. to 30s.; office, garden, and shooting coats, 8s. 6d. to 12s.; a suit of superfine black cloth, 3l. 3s.; extra Saxony ditto, 3l. 10s. to 4l.—FISHER & Co., Tailors, 31, King William-street, City, 10 doors from London-bridge.

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth-Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose—1s. An improved Clothes Brush, that cleans in a third part of the usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian bristles, which do not soften like common hair. Flesh Brushes of improved graduated and powerful friction. Velvet Brushes which act in the most surprising and successful manner. The genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at METCALFE'S Sole Establishment, 130 a, Oxford-street, one door from Hollos-street.

Caution.—Beware of the words "From Metcalfe's," adopted by some houses.

TEA TRAYS, Tea Urns, Knives and Forks, Dish Covers, &c., at C. WATSON'S 41 and 42, Barbican, and 16, Norton Folgate.—Established half a century. A set of three Paper Tea Trays, including the largest size made, 35s., very richly ornamented all over, 50s. a set of three, and up to 14l.—Japan Tea Trays, 7s. 6d. a set, and upwards.—A 5-quart London-made Bronze Tea Urn, 2l5s., with the newest patterns up to 5l. 5s.—A set of six patent raised London-made Dish Covers, 18s. 6d.—Best imperial raised, 25s. 6d., set of six.—Elegant silver shape, 52s. 6d., set of six.

Ivory Table Knives, 11s. per doz.; Desserts, 9s.; Carvers, 3s. 6d. per pair.

	Table.	Dessert.	Carvers.
9-inch handsome Balance-handle..	18s. doz.	14s. doz.	6s.6d. pr
4-inch Balance-handle, largest and best made	20s. ,,	16s. ,,	7s. 6d. ,,
Ditto, with Watson's Albata Plate-handles, equal to Silver.....	22s. 6d.	18s. ,,	8s. 6d. ,,

Forks half the price of the above.

C. WATSON'S handsomely ILLUSTRATED CATALOGUE and PRICE CURRENT is just published, and families who regard economy and elegance should possess themselves of this useful Book, which may be had *gratis*, and post free, from the above address. Sole inventor of the celebrated Albata Plate, which is so rapidly superseding silver.

TO ARTISTS, &c

CALIGRAPHIC BLACK-LEAD PENCILS.—These Pencils are perfectly free from grit, and for richness of tone, depth of colour, delicacy of tint, and evenness of texture, are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use. They will also recommend themselves to all who use the Black-lead Pencil as an instrument of professional importance or recreation, by their being little more than half the price of other Pencils.

H, HH, HHH, HB, B, BB, F, FF, W*..	4s. per dozen.
BBB, EBB	8s. ,,
BBBB	12s. ,,

W*—This Pencil is particularly recommended for writing and counting-house use.

May be had of all Artists' Colourmen, Stationers, Booksellers, &c.; and at the Manufacturers', E. WOLFE & SON, 23, Church-street, Spitalfields, London.

A single Pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

HEAL AND SON'S LIST OF BEDDING, containing a full description of Weights, Sizes, and Prices, by which purchasers are enabled to judge the articles that are best suited to make a good set of Bedding, sent free by post, on application to their Establishment, the largest in London exclusively for the manufacture and sale of Bedding (no bedsteads or other furniture being kept).—HEAL and SON, Feather Dressers and Bedding Manufacturers, 196, opposite the Chapel, Tottenham-court-road.

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Gardenia florida, var Fortunians 447 a
Grass of Iowa 450 c
Grass land 450 b
Grass of 451 c
Hedges Kaystone of 444 b
— Osage 445 a
Holly fly 444 a
Hop 451 b
Horticultural Society Gardens 447 b
Jam 441 c
Lime 449 a
Manure 449 a
— gum of 453 c
Mushroom 455 c
Nurseries 444 c
Pine marble 445 b
Pinks 445 c
Potatoe long 445 c
Pot 455 a
— pollyanthus 448 b
Rain 451 c
Road Reform new 453 a
Rose show 445 c
Royal Botanic Society 444 c
Sluice 444 c
Success 448 c
Tenant rights 444 c
Thorn 448 b
Wasp 455 a
Wheat 453 c
Wire fly 445 c

GRAND EXHIBITION OF CARNATIONS AND PICOTEES—Open to all England

To be held on the Bowling Green and Pleasure Grounds of the Crown Hotel, Slough on Wednesday July 8th 1846 Liberal Prizes will be given Schedules of which may be had of H J Lort, Hon Sec, Post office Slough

BECK'S SEEDLING GERANIUMS OF 1845 —

The whole Set of Twelve for 8*s*

LYNE'S SEEDLING GERANIUMS OF 1845

The whole set of Twelve for 10*s*

Priced Catalogues of Geraniums now ready and will be forwarded gratis on application to

Plymouth July 4 WILLIAM E RENDLE and Co

LYNE'S NEW SEEDLING GERANIUM "FORGET-ME-NOT"

will be sent out next autumn It is a very great improvement on Mr Lyne's celebrated flower "THE DUKE OF CORNWALL" which has this season appeared in almost every winning collection not only at the Chiswick and Regent's park Shows but at nearly all the Floricultural Exhibitions in the provinces

Descriptions and Priced Catalogues of Mr LYNE'S new Seedling Geraniums will soon be ready

Plymouth, July 4 Apply to WILLIAM E RENDLE and Co

LILIUM LANCIFOLIUM ALBUM

WM JACKSON & Co, NURSERYMEN, beg to announce that their splendid NEW WHITE LILIUM "MRS FREDERICK MILBANK," is in full bloom, and is acknowledged by those who have visited all the London Exhibitions to stand unrivalled as a light variety

W J & Co have at present nearly all the New Lilliums in bloom and parties can now judge for themselves

Cross lanes Nursery Bedale, Yorkshire

ROSES IN POTS

E BECK is desirous of disposing of his fine Collection perhaps unrivalled It consists of about 400 Plants, a considerable portion of them are in 11 inch pots, which will not want shifting for two years The varieties have all been proved and consist of Tea scented China, Bourbons Perpetuals Hybrids &c &c Price without any abatement, 50*l* May be seen on application to Mr Dobson Worton Cottage, Isleworth E B's motive for disposing of them is that he requires the room for Pelargoniums

NEW AND RARE PLANTS

A BALSTON begs respectfully to call attention to the undernamed species of ORCHIDACEOUS AND OTHER PLANTS, which he confidently recommends Many of which are now and almost unknown in this country having been very recently imported from Guatemala, Borneo, the Interior of Mexico, and Brazil.

Arpophyllum giganteum
" spectabile
" sp Nova (Guatemala)
" do (Oaxaca)
Barkeria spectabilis
" var like Lindleyana
Brassia verrucosa
" Wrayii
" other vars (Oaxaca)
Cattleya Skinneri
" citrina
" var like Citrina
Cyrtochilum Russellianum
" filipes
" 3 other var new (Oaxaca)
" 3 ditto (Guatemala)
Cælia macrostachya
" white var
" sp Nova (Oaxaca)
Cyrtopodium Andersonii
Epidendrum Skinneri
" aurantiacum
Epidendrum fragrans
" 6 new vars (Oaxaca)
" 8 do (Guatemala)
Lycaste Skinneri
Maxillaria aromatica
" 3 other vars (Oaxaca)
Oncidium bicallosum
" Cavendishii
" leucochilum
" cebolletii
" Wentworthiana
Odontoglossum grande
" Cervantesii
" pulchellum
" several others (Oaxaca)
Stanhopea Wardii
" tigrina
" insignis
" saccata
" 3 other vars. (Oaxaca)
" 2 vars. from 85° Fahrenheit

Rhododendron Edgworthii
Rhododendron sp. (Himalaya)
Rhododendron arboreum
Clematis montana
Twyford Nursery, July 4.

Gardenia Stanleyana
" Sherbourniana
Skimmia Fortunei
Franciscea Hydrangeæformis

FLORICULTURAL SEEDS

JAMES CARTER, SEEDSMAN and FLORIST, No. 238, High Holborn London, begs leave to submit a list of FLOWER SEEDS proper for present and autumn sowing, to the notice of his customers —

I —LINE HARDY PERENNIALS

	Per packet	
Anemone choice, mixed	0	6
Antirrhinum very fine	0	6
Aquilegia 20 fine var	0	6
Campanula 6 species	0	6
Carnation finest German	2	6
Delphinium fine tall	0	6
Chinese extra	0	6
Dianthus, 6 fine sp sep	1	0
Digitalis 12 sp mix	0	6
Geum finest mixed	0	6
Heartsease finest	1	0
Hollyhock, 20 finest sep	6	0
15 do do	4	0
extra fine	1	0
Œnothera fine mixed	0	6

	Per Packet	d
Papaver finest mixed	0	6
Pentstemon 12 sp	1	0
Potentilla 6 do do	0	6
Ranunculus finest	1	0
Rhododendron do do	1	0
Scabiosa splendid new	1	0
Stock Queen 12 var sep	3	0
" Brompton 4 do do	1	0
new Imperial	1	0
Sweet William 20 vars	0	6
Scarlet and crimson	0	6
Wallflower 12 var sep	5	0
" double mixed	0	6
do blue, 3 var	1	0
" single all var	0	6

II —HARDY AND HALF HARDY ANNUALS

10 German tall Larkspur	0	6
Fine dwarf do	1	0
212 fine hardy Annuals	3	0
212 fine half hardy do	4	0
20 var German Stock	8	0
25 do do	4	0
1 var German Stock	2	6
12 do large packets	4	0
12 do Persian Stock	4	0
12 do Autumnal do	4	0
Fine mixed German do	1	0
New scarlet do	0	6

If sown immediately those marked with an would probably flower this autumn a portion might be sown about the middle of August

III —LINE GREENHOUSE SEEDS

Alstrœmeria finest mix	1	0
Brachycome iberidifolia	0	6
Cineraria splendid new	1	0
Calceolaria finest mixed	1	0
Chænostoma polyantha	0	6
Cobæa scandens	0	6
Cytisus 4 fine species	0	6
Cyclamen 4 do do	1	0
Helichrysum 5 Cape sp	1	0
Phlox 10 fine species	1	0
50 do do mixed	2	6
Fuchsia improved	1	6
Geranium fine mixed	1	0
Gloxinia 12 fine species	1	0
Ipomœa tyrianthina	1	6
rubro cerulea	1	6
Leucadendron 12 sp	7	6
Lupins 4 fine species	0	6
Lobelia 4 Cape sp	0	6
Lophospermum 4 sp	0	6
Mimandyas 4 sp	0	6
Passiflora 6 sp	1	0
Petunia finest mixed	0	6
Phlox Drummondii, ext	0	6
Proteas 10 fine sp sep	10	0
Thunbergia alata	0	6
25 fine Greenhouse seeds	10	0
Very fine mixed do do	1	0

Mr C has also a very large collection of kitchen Garden and Flower Seeds of which a Catalogue is published And a new Catalogue of Genuine Dutch Bulbs will be ready at the usual time, and will be sent prepaid, on application as above

FINE CAMELLIAS, WITH FLOWER BUDS

YOUELL & Co are now supplying very healthy plants of the above comprising the following very handsome varieties at 10*s* per set—namely Donkelaeri Juliana Beallii Monsreh, Eclipse Perfection Bruceana Carolina, Florida, Chandleri Double Striped Double White Colvillii Elegans, Grand Frederic Pimbriata Imbricata alba, Conspicua Tricolor Rosa Mundi Ochroleuca Noblissima Horsfallii Invincible Candidissima Imbricata picturata Minuta, Anemoniflora rosea Kew Blush &c

Great Yarmouth Nursery July 4, 1846

TO AMATEURS OF BULBS

BERNARD SAUNDERS, NURSERYMAN & FLORIST, Island of Jersey most respectfully informs the Nobility Gentry Amateurs and the Trade in general that his list of CAPE and other BULBS is now ready and may be had on pre paid application —Jersey, July 4.

NEW SEED OF TRANSPLANTED GREEN ROUND TURNIP.

JOHN RIVERS begs to inform his Friends that he has for Sale an improved variety of GREEN ROUND TURNIP, which has been crossed with Dale's Yellow Hybrid, it has consequently given it much greater degree of sweetness and likewise a quicker growth making it peculiarly adapted for sowing in the present late season Satisfactory references can be given as regards hardiness feeding qualities, &c

Price 2*l* 2*s* per bushel (of 56 lbs) not less than half a bushel will be sent, carriage paid to London and 25 miles from Sawbridgeworth down the Northern and Eastern Line Please to direct JOHN RIVERS Seedsman, Sawbridgeworth Herts

FRUITS PRESERVED BY COOPER'S PATENT APPARATUS



have been proved to keep in a sound and perfect state for family use for five years This process is well suited for the preservation of Pine apples Wall fruit Strawberries, Mulberries, &c retaining all their excellent and peculiar flavour The Strawberries are well adapted to be used with cream at all seasons of the year Sample hampers of the fruits generally preserved for family use a machine corkscrew with the whole particulars of the patent process, and testimonials will be delivered at any part of London for TEN SHILLINGS, by an order addressed to the Patentee JAMES COOPER, 7, the upper part of St John-street, Clerkenwell, London

The Patent Apparatus and Vessels are on sale at the Manufactory as above

SEEDS.—CORNER OF HALF-MOON-STREET,

THOMAS GIBBS and CO

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," beg to remind the Members of the Society, and Agriculturists in general, that their only Corn-ing House and Seed Warehouse is at the Corner of HALF-MOON STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are already, and may be had on application.

PLANTS AT VERY REDUCED PRICES.

WILLIAM E. RENDLE & Co, having a large surplus stock of the following plants, are enabled to offer them at very low prices —

MISCELLANEOUS PLANTS — *Customer's Selection of 12 from the following list for 10s* — Bouvardia flava Bignonia picta, Pimelea spectabilis Veronica Lindleyana, Veronica speciosa, Genista Ætnensis, Chamæstoma Polyanthe, Rhododendron fragrans, Kennedya monophylla, Pimelea decussata, Amphicoma arguta, Kalosanthes minlata, Correa Cavendishii Cortusa bicolor, Luschenaultia biloba, Phyllea ericoides, Escallonia montevidensis, Bouvardia tryphilla, Lobelia compacta, Lycrinus grandiflora, Chorisema varia rotundifolia, Leasa aurantiaca, Genera Greviliana Grahamia, Passiflora Buonapartea, Francisca Ropeana Allamanda cathartica, Thunbergia chrysops, Euphorbia fulgens, Passiflora racemosa, P. Londonii, Eranthemum pulchellum, Ardisia crenulata, Centradenia rosea, Ficus elastica (Indian rubber-tree), Ixora coccinea, Convolvulus pentanthus Gardenia florida, Manettia bicolor, Stephanotis floribunda Vinca oculata rosea, Araucaria imbricata, Lilium japonicum, Lilium lancifolium album, Achimenes grandiflora A longiflora, Azalea japonica, and Azalea carnea grandiflora

FRICAS *Customer's Selection of 12 from the following list for 10s* Bowlana, Launsoides, Montana, Mollis, Patersonia, Picta, Vestita rosea, V flava Versicolor, Viridiflora Willmoriana, Albens Lilata Intermedia, Muscaria, Transparens.

PINUS — *The following Set of choice Pines for 8s* —Araucaria imbricata, Cedrus Deodara Pinus Gerardiana, P excelsa, P. Webbiana P Ruthrow

CAMELLIAS *Customer's Selection of 12 from the following list for 35s* —Double White Fimbriata, Lady Hume's Blush, Imbricata Eclipse Punctata, Double Striped, Colvillii, Elegans Imbricata alba Picturata, Punctata major Delicatissima Candidissima Tricolor Beali, Frankfordensis, Ochroleuca Henri favre and Donkelaeri

CHRYSANTHEMUMS —*Customer's Selection of 20 from the following list for 10s* – Anchantress Triomphe, Isabella Astre lumineux Pyramidalis, Glory, Defiance, Empress, Luxaria, Prince de Benevento, Duc de Caligman Julius Cæsar, Demosthenes, General Labrede David Marechal de Crequi, Bijou, Solon, Imogene, Leetetia Buonapatte, Rose de Plusieu, Col. Coombe Minerva, Maria Grand Napoleon, Charlemagne, La Superbe, Marechal Messina, Leonora, Rethulia, Aruge Princess Marie Casimer Perrier, Criterion, Starry Dwarf, Compactum, Madame Pompadour, Georgiana, Phillis, Imperial, Theresa Mirabile Queen (Saunders), Formosum, Victory, Conductor Beauty, Hero, Vesta, Invincible, Elegans Spanish Brown, Adventure, Queen (Squibb), Golden Lotus, Grandis, Park's Imperial Yellow, and Elegans

AZALEA INDICA —*Customer's Selection of 6 from the following list for 15s* —1st CLASS Rosea punctata, Minerva, Barbata, Candidissima maxima, Grandiflora maculata, Purpurea plena, Gledstanesii Lucelia, Additonii, and Alba triflora

Customer's Selection of 8 from the following list for 8s.—2ND CLASS Variegata, Gledstanesii, Lateritia Danielsiana, Rawsonii Rosea, Rosea semi-duplex, Woodsii, Splendens, Speciosissima and Smithii

CACTUS —*Selection of 6 from the following list for 10s*.—Gardneri, Truncatus Truncatus violaceus, Majestatis, Formosissimus, Speciosus, Coccineus, and Egertonii

MISCELLANEOUS CLIMBERS — *Customer's Selection of 12 from the following List for 8s* – Lonas aurantiaca Lophospermum erubescens Bridgesii smeata Bignonia picta R capensis Passiflora racemosa, P Sullivanii P Neoh Cæroperia elegans C Stapeliæformis Ipomœa Sellowii, Tropæolum brachyseras, Thunbergia aurantiaca superba T alata, T alata alba Allamanda cathartica Convolvulus pentanthus, Combretum coccineum Manettia glabra, M bicolor, and Maurandya Barclayana

ARAUCARIA IMBRICATA —12 fine young plants of this valuable Tree for 20*s*

Great attention is paid to careful packing. All plants forwarded to long distances are packed in Fir Boxes and firmly secured Orders will be executed in strict rotation Early orders are desired as there will be a limited quantity of many of the sorts Circulars containing Lists of Flower Seeds, Forest and Fruit Trees, Bulbous Roots, &c, can be had on application

*** *All Orders above 3l will be delivered (package and carriage free) to London, Bristol, Exeter, Barnstaple, or Falmouth, or above 6l. to Liverpool, Dublin, or Cork.*

A Remittance is not required from known Correspondents, or those who give reference in London

Steamers from this Port three times a week to London, Cork, Dublin Liverpool, and Falmouth

WILLIAM E RENDLE and Co, Office Union-road, Plymouth, July 4.

FLOWER-POTS AND GARDEN SEATS,

JOHN MORTLOCK, 250, Oxford street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash —250, Oxford-street, near Hyde-park.

BENTALL'S BOTANICAL DRYING PAPER.—

This Paper is prepared expressly for the purpose of drying specimens of plants, and is considered by all Botanists who have used it to be far superior to everything previously employed It is recommended by Sir W J Hooker Dr Lindley, Dr. Balfour, Mr Babington, and other eminent botanists

The following are the sizes in which it is sold –

16 by 10 inches	..	..	..	10*s*. per Ream,
18 by 11 "	..	..	..	12*s*. "
20 by 12 "	..	..	..	21*s* "
20 by 16 "	..	..	..	28*s*. "

Sold by the Manufacturers W and T BENTALL, Halstead, Essex; E. NEWMAN, 9, Devonshire-street, Bishopsgate, London; R. T. M'INTOSH, North St Andrew-street, Edinburgh; G DAVEY, Broad-street, Bristol, H. WHEELHOUSE, Market-place, Manchester, J. W. KEYS, Plymouth.

FOREIGN AND BRITISH SHEET AND CROWN GLASS for Hothouses, Garden and other purposes.—CHANCE having again reduced the prices of foreign crowns, begs, invites a comparison of the present quotations with this former lists:

	per gross.		per gross.		per gross.
21 by 4	6s.	8 by 5	13s.	9 by 7	18s.
21 by 4½	9s.	8 by 6	14s.	10 by 8	26s.

He will in future receive weekly consignments of STOUT FOREIGN SHEET GLASS, of which he purposes keeping such a stock as will enable him to execute all orders as soon as received.

PROPAGATING, BEE, CUCUMBER, & GRAPE GLASSES, of every description, cheaper than at any other house.—For Lists, apply to R. COGAN, Glass, Lead, and Colour Works, Chichester-square, London.

BRITISH AND FOREIGN SHEET AND HORTICULTURAL GLASS.

PHILLIPS AND WELCH have to announce to the Nobility and Gentry, that they have just concluded arrangements with J. WELCH, jun., PHILLIPS and Co., for the purchase of the business lately carried on by them, at 12, Panton-street, and beg to call attention to their extremely low prices for Horticultural Glass of every description

PRICES OF HORTICULTURAL GLASS:

Not above 40 in. long by widths from 5 in. to 18 in.

No. 13	British or Foreign sheet 13 oz. to the foot	4d. per foot.
,, 16	16 ,, ,, ...	5d. ,,
,, 21	21 ,, ,, ...	7d. ,,
,, 26	26 ,, ,, ...	11d. ,,
,, 32	32 ,, ,, ...	1s. 2d. ,,

SMALL SQUARES.

Packed in 100 feet Boxes, not particular to thickness.

Under 5 in by 3 in.	1½d per foot.
5 by 3 and under 6 by 4	2d. ,,
6 by 4 ,, 9 ,, 7 ,, ...	3d. ,,

FOR GLAZING.

Black Cement, as used at Chatsworth. 24s. per cwt.
Best Linseed Oil Putty .. .. .. 10s. ,,
White Lead, Window Lead, Solder, &c. &c.

Horticultural Glazing Executed in any part of the United Kingdom.

The selection of Patent Plate, Sheet, and flatted Crown Glass for Pictures, &c., particularly attended to.—12, Panton-street, Haymarket.

BRITISH AND FOREIGN SHEET GLASS, for Horticultural purposes, &c., may be had at JAMES CHANCE'S 315, Oxford-street, London, at the following reduced prices:—In crates containing about 200 feet of coarse 13 oz., at 2d. per foot, or 4th quality, 5d. per foot; ditto, 16 oz., coarse, 3d. per foot; ditto ditto, 4th quality, 6d. per foot. Or cut to any size not exceeding 40 inches long by 10 inches wide, at 1d. per foot extra.

Also Microscopical Glass, French Shades, Plate and Crown Window Glass.

A discount to the Trade.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, from 3¾d. to 5½d. per foot. Glass in quantities, 13s. 6d. per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at F. ELPHICK'S, 28, Castle-street East, Oxford-street.

*** For Ready Money only.

TENTS FOR LAWNS MADE ON THE PRINCIPLE OF AN UMBRELLA—put up or taken down in a few minutes, quite 6 feet high in the lowest part, and forming a very ornamental Tent. It requires no side lines, which are an objection to Tents in general. Price 5l. each, 36 feet round. Square Tents, without any pole in the middle, 5l. each, 12 feet by 12 feet.—ROBERT RICHARDSON, 21, Tunbridge-place, New-road. Temporary Rooms erected, Balconies Enclosed, &c. &c., on very reasonable terms.

SHEEP NETS, FISHING NETS, RICK CLOTHS, &c. Strong Net for folding Sheep, for temporary fences, and other purposes, nearly 4 feet high, 1½d. per yard; Drag, Seine, Flue, Trammel, Casting, and other Nets, at very moderate prices. Rick Cloths dressed with a pliable composition of tar and boiled oil, 1s. per square yard, made up, including all lines attached to the Cloth for 30 tons of Hay, 30 feet by 30 feet, for 5l. An early order is asked for, as they are sold at a mere nominal profit.—ROBERT RICHARDSON, Net and Tent-maker, 21, Tunbridge-place, New-road, London.

TRANSPARENT COVER for SHADING GREENHOUSES, for Flower beds and for Frames, done with a composition which preserves the fabric, is waterproof, and will last 4 years. It effectually preserves plants from frost as well as other purposes. 2 yards wide, 1s. per yard, or 6d. per square yard.—ROBERT RICHARDSON, 21, Tunbridge-place, New-road, London.

NEW GARDEN NET 1½d. per yard; 1 inch mesh, ditto; mended Fishing Nets, 3d. per yard, Worsted Garden Nets, 1 inch mesh, 2½d. per yard. Fine Net to exclude wasps and flies, and give plenty of sun and air to the Fruit, 7½d. per yard, much approved. All kinds of Nets made to order.—ROBERT RICHARDSON, 21, Tunbridge-place, New-road, London.

CLARK'S METALLIC  HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.

Proprietor, Mr. THOMAS CLARK.
Superintendent of the Works, Mr. JOHN JONES.

IN returning his grateful thanks to the Nobility, Gentry, and Public at large, for their liberal patronage of the above Establishment during a period of nearly 30 years, Mr. CLARK begs to state that the repeal of the duty on Glass enables him to offer his METALLIC BOX and GREENHOUSES at a greatly reduced price. Those Houses are glazed with British Sheet Glass, in panes of from 24 to 30 inches in length, and of such thickness as to preclude all danger of accidental breakage, whilst that which arises from the action of frost (frequently amounting to 25 per cent. per annum), is effectually prevented by the peculiar mode of glazing adopted. As a sample of his Metallic Hothouses, in which all the most recent improvements are happily combined, Mr. CLARK refers with pride and satisfaction to the magnificent range erected by him in the Royal Gardens at Frogmore, which is admitted by all Company, and Judges to be the most complete and perfect of the kind ever proceed from the world.

Several dates.

Claims to

The Assured to the Public with the greatest confidence, being

No change whatever to all those poisons containing arsenic and

The Prospectuses. It is most greedily eaten by rats and mice as in London, or offered to them, and invariably proves certain de-

Prepared only by EDWARD PURSER, 40, Bridge-street, London. Sold in pots, with full directions for use, 2s. each.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus; and B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. A Prospectus can be forwarded, upon application, detailing particulars and price, at 130, Fleet-street.

TURNIP SEASON.

GUANO, Peruvian, (imported by GIBBS & CO.,) and African, from Ichaboe and Saldanha Bay; Superphosphate of Lime (see "Royal Ag. Soc. Journal," Vol. vi., Part 2), Bone Dust, Sulphuric Acid, and Clarke's desiccated Compost; all suitable for the Turnip Crop. Also Nitrates of Soda and Potash, and all other Manures of known value, on sale by MARK FOTHERGILL, 40, Upper Thames-street, London.

Agent also for DINGLE'S HAND DIBBLE, suitable for every description of seed.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
WM. JOSEPH MYERS AND CO., LIVERPOOL;
And by their Agents,
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL;
COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

TURNIP SOWING.

THE URATE OF THE LONDON MANURE COMPANY, Four Guineas per Ton. The experience of the last five years has fully established the above as one of the best of all the light manures for the production of Turnips, for which crop it is particularly adapted, seldom failing in the driest season to secure a good plant, and to produce a great weight per acre. Availing themselves of the many improvements in the science of artificial manures, the Company so manufacture the Urate, that the food requisite for a rotation of crops is fully maintained, therefore parties using the Urate for Turnips will find their succeeding crops of Barley and seeds materially improved. Full particulars, with testimonials, forwarded on application. No. 40, New Bridge-street, Blackfriars. EDWARD PURSER, Secretary.

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Sulphate of Ammonia,	Sulphuric Acid,
Superphosphate of Lime,	Sulphate of Soda,
Gypsum,	Petre Salt,

And every article of Artificial Manure in the most genuine state.—No. 40, New Bridge-street, Blackfriars.

EDWARD PURSER, Secretary.

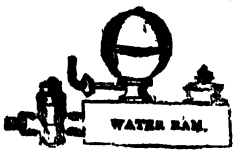
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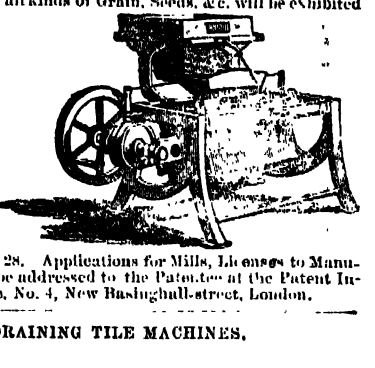


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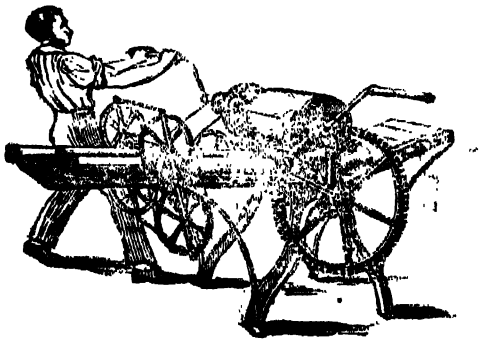
The AGRICULTURAL CHEMICAL ALMANAC, by FREEMAN ROE, price 2d., now ready.

TANNER'S PATENT INCLINED STONE MILL, for grinding all kinds of Grain, Seeds, &c. will be exhibited at the forthcoming July Meeting of the Royal Agricultural Society at Newcastle. The attention of the agriculturist is particularly requested to this novel and very useful machine.



It will be exhibited by GARRETT and SON, at their Stand, No. 28. Applications for Mills, Licences to Manufacture, &c., to be addressed to the Patentee at the Patent Inclined Mill Office, No. 4, New Basinghall-street, London.

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The PROCESS combines EFFECT with ECONOMY. Gentlemen having works in operation, or who are about to erect them, will find the above worthy their attention.

For particulars apply to Mr. JOHN PATON, at the office for the sale of AINSLIE'S Patent Brick and Tile Machine, 193A, Piccadilly, where they may be seen at work; also at the Polytechnic Institution, and at the Works, Alperton, Middlesex.

PATENT VULCANIZED FLEXIBLE INDIA-RUBBER HOSE-PIPE and TUBING, for Gardeners, Brewers, Railway Companies, Fire Engines, Gas Fitters, Plumbers, and for Agricultural and all other purposes where a perfectly flexible strong Pipe is required. Sole Manufacturer,
J. L. HANCOCK, Goswell-mews, Goswell-road, London.

ECONOMICAL, EFFECTUAL, AND DURABLE ROOFING.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

CROGGON'S PATENT ASPHALTE ROOFING FELT, with which the Committee Room of the Houses of Parliament are entirely covered. The above Material has been used and highly approved by the Nobility, Gentry, and Agriculturists generally, and Patronised by many Members of the Royal Agricultural Societies of England, Scotland, and Ireland, and by Her Majesty's Office of Woods and Forests, Charles Barry, Esq., R.A., &c. &c.; has been used for several years at the Royal Horticultural Society's Gardens, Chiswick; the Swiss Gardens, Shoreham, Sussex; on the Duke of Buccleuch's, and the Marquis of Anglesey's Properties, &c. &c. and (under slate) the Royal Agricultural Society's House, Hanover-square; its advantages are—CHEAPNESS, LIGHTNESS, DURABILITY, and ECONOMY. Being a Non-Conductor, it has been proved an efficient "Protective Material" to Plants.

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DRESS COATS, superfine cloth, made to measure, 30s. to 42s.; extra Saxony, 36s.; frock coats, silk facings, 35s. to 45s.; extra Saxony, 50s. and 55s.; fashionable trousers, 7s. to 12s. 6d.; doeskin, new patterns, 21s., 25s., and 21s.; waistcoats, of the newest patterns, 6s. 6d. to 10s. 6d.; fashionable cloth and cloth, 7s. 6d. to 12s. 6d.; overcoats of the newest style, in palotots, Alberts, and Codringtons, of Bonna cloth and cashmerettes (waterproof), 21s. to 35s.; travelling wrappers, 6s. 6d. to 18s. Boys' and youths' clothing of every description. Tunic and hussar suits, 21s. to 30s.; office, garden, and shooting coats, 8s. 6d. to 15s.; a suit of superfine black cloth, 3l. 3s.; extra Saxony ditto, 3l. 10s. to 4l.—Truman & Co., Tailors, 31, King William-street, City, 10 doors from London Bridge.

[illegible] of Fellows of the Society [illegible] the Garden in the Regent's Park [illegible] this day of exhibition.—H. Register-keeper.

DRIED PLANTS FROM CHINA.—A few sets of the VALUABLE DRIED PLANTS collected in China by Mr. Fortune, may still be procured by applying to R. Edwards, Esq., Young-street, Kensington, London. Among them are many new and rare species scarcely known to Europeans.

The Gardeners' Chronicle.

SATURDAY, JULY 4, 1846.

MEETINGS FOR THE FOLLOWING WEEK.

Tuesday, July 7—Horticultural . . . 3 P.M.
Saturday, " 11—Horticultural Gardens . . . 1 P.M.

COUNTRY SHOW.

Wednesday, July 8—Craven Horticultural.

THAT the old POTATO DISEASE is again making its appearance very generally is now unhappily beyond all question. Every post brings us intelligence of its having commenced its attacks, and that, too, where every conceivable precaution had been taken to guard against it. We would, therefore, earnestly recommend our friends to examine their crops without loss of time. They should pull up the haulm, or dig it up, down to the old set; if disease is beginning, they will find the skin of the haulm brown and blotched, or even brittle if it has made much progress; if, however, the haulm is clear coloured, or colourless, the crop is safe for the present. This is a much better mode of examination than trusting to the look of the leaves, which will remain green and healthy long after the evil has begun underground.

IT will not have escaped attention that in our two last Papers communications have been inserted concerning the AWARD OF THE JUDGES appointed by the HORTICULTURAL SOCIETY to determine the merits of the FRUIT at the last meeting in the Society's Garden at Chiswick. Their award was criticised by "A Fruit Grower, not an Exhibitor," and the critic has been answered by two of the judges. Both sides have now been heard; the discussion has also produced some private communications, and we now proceed to express our own opinion upon the subject.

Before we do so, we shall, however, dispose of an objection that has been taken to this discussion, on the ground that we should not have allowed the decision of the judges to be called in question. Nothing can be more absurd than such a remark; nothing can be more short-sighted than such a policy as it indicates; nothing more unjust to the exhibitors, or more detrimental to the high character of the judges, who would be the first to court, not deprecate, inquiry. It would seem as if to question an award was, in the opinion of some persons, tantamount to the reversal of it. But the judges of the land are open to criticism for their public conduct, and much the better for it: and why should dignitaries of a lower order be exempt? All that we, or any one else, ought to demand in such a matter is that the charges to be considered shall be reasonable, specific, conveyed in becoming language, and produced by a person of good reputation, not a mere caviller or calumniator. Those conditions have been fulfilled to the letter on the present occasion.

The writer who complains of the fruit award, is of opinion that the judges should not be over strict, but should induce a man to show collections of fruit by very liberal conduct; because, if a gardener *can get more money* by showing his fruit separately, than in a collection, he will do so to the detriment of the exhibition. The complainant *would therefore have collections encouraged*, which he says is not done by the judges, whom he charges with being over-critical, penurious, and unfair. And he adduces the treatment of a collection of fruit from Her Majesty's Garden at Frogmore, as a proof of his complaint being well founded.

We cannot undertake to say, of our own knowledge, what force there may be in the last statement, for we had no opportunity of examining the fruit upon the occasion in question. As the fruit produced by Mr. INGRAM is among the finest in the kingdom, the presumption would doubtless be that he could not have furnished an inferior collection. We must, however, observe, that not only does one of the judges maintain that the award was right, but that we have before us a letter signed, "A Market Gardener," who well knows what fruit should be, and was surprised at the judges having given more than a silver medal for the collection said to have been treated unjustly. We may, therefore, reasonably conclude that opinions, among equally competent observers, [illegible] the consideration of the matter [illegible] which [illegible] should be guided in deciding [illegible] merits of fruit, and the complainant's general allegation of unfairness, penuriousness, and over-criticism.

One of the judges states in reply to his accuser that instead of being penurious they are the reverse, having often given exhibitors prizes of higher value than was merited. This is admitted by the complainant, whose disapprobation seems indeed to have been mainly produced by the judges having discontinued that practice. In fact, he would have the judges give a man more than he deserves to-day, for the sake of enticing others to become competitors to-morrow, in the hope that they too may get more than they merit. Such is, we believe, the true meaning of the complainant's argument. Is that right? Surely not.

If you authorise or encourage judges to act thus you render their awards an arbitrary act; you release them from all necessity for careful consideration of the matters brought before them; and you reduce the process of rewarding merit to a mere exercise of caprice. In short, for law you substitute despotism. In our opinion it is the plain duty of the judges to decide according to the rules that are placed before them; not to swerve to the right or the left for fear or for favour; and most especially not to allow considerations of expediency to interfere with their judgment. The only license which is permissible is, when a reasonable doubt exists as to the kind of medal which an exhibitor can claim, then to give him the benefit of that doubt.

The rules laid down by the Horticultural Society for the guidance of the Fruit judges are these:—

All fruit must be FULLY ripe and WELL COLOURED and PROPERLY NAMED by the Exhibitor as far as practicable; if the contrary it will be disqualified.

Exhibitors of collections of Fruit should bear in mind that however fine one or two of the kinds in their collection may be, they cannot gain a prize unless they furnish at *least* three different kinds of fruit of *first-rate quality*.

The judges have the power of *increasing* or *diminishing* the number and value of the Silver Medals offered by the Society for particular objects, and also of *conferring* Silver Medals or Certificates in cases not contemplated in these regulations, if they think it necessary to do so.

The judges are also not to make any award in cases where the objects exhibited do not appear worthy of a Medal; otherwise a bad single exhibition might obtain a prize, merely because there is no better exhibition of the same class to oppose it.

Are these rules unreasonable or injudicious? One person says they are; another that they are not. For ourselves we can discover nothing in them which is objectionable; for what do they exact beyond what every master would demand of his gardener at his own table, namely perfect ripeness? As to the remainder of the regulations they are so obviously necessary that it is needless to advert to them. One of the judges thinks, however, that ripeness is too much insisted on; because fully-ripe fruit travels badly, and will not keep. We do not think there is much in this argument; for the rule does not require over-ripeness, nor can it be applied very rigorously. It is intended to exclude *unripe* fruit, which no one will pretend ought to be made a subject of exhibition, although we *have* seen it produced in a state which betrayed a lamentable want of judgment on the part of the exhibitor. Sour Grapes, hard Peaches, or Nectarines, and green Pine-apples are certainly not what medals are intended for. But it is said that demanding fruit to be ripe and fine limits the quantity, and prevents a grand display. We will be no party to such an imputation upon English gardeners; for they are the last men against whom it should be charged that they *cannot* produce all that is demanded. Nor is it desirable to see a table loaded with fruit no better than may be seen in Covent Garden Market. Those who are anxious to gaze on heaps of middling fruit may do so any day without the trouble of attending an exhibition.

But it must be obvious to any one that medals given away to undeserving objects can have no value in the eyes of the world; and that their importance rises in exact proportion to the difficulty of procuring them. Exhibitors, therefore, instead of complaining of the rigour of the judges are, of all men, those who should uphold it. If they do not, and if judges allow themselves to be persuaded to be what is called liberal, a gold medal will be as worthless as some of those knighthoods which have been unwisely distributed with such profusion, that nobody now-a-days will pick them up. It is, however, alleged that it is not the honour of the thing that exhibitors look to, but the money value of it; that it is quite a mistake to suppose gardeners to have that high feeling of honest [illegible] claims of Society. We positively repudiate such opinion, which rests on [illegible] indeed, a few sordid exceptional cases [illegible] taken as the rule. Indeed, the smallness of the intrinsic value of the prizes for which gardeners contend is the best proof of their being influenced by honourable ambition, and not by the mean desire of obtaining money. If the time should ever come when Mammon is the object of a gardener's worship, he will sink to the level of a huckster, and then the world will leave him.

That the judges are not unfair is so unitedly admitted that we can only suppose our correspondent to have used the term hastily, and not in the common acceptation of the term. That they are not penurious is sufficiently proved by their having, at the very exhibition in question, given away more than *twice the number* of medals offered for Grapes, Pines, and Peaches and Nectarines; and that for a show of fruit, by no means remarkable, 38 medals, of the money value of 68*l.*, were, in fact, assigned. In short, we are bound to say that the complaint that has been made is not sustained by argument or evidence, and we therefore honourably acquit the defendants.

SUCCULENTS.

HAVING some years since commenced the formation of a collection of succulents, and built a house expressly for them, and they having now repaid their culture by perfecting their grotesque forms and producing an abundance of blossom, perhaps a short account of them may not be void of interest.

I think it was in the spring of the year 1835 that I received an invitation to visit the gardens at Woburn Abbey, but it was not till the month of June that I could avail myself of the opportunity. I had always, and my father before me, grown a few succulents. I had seen those of the old Chelsea Gardens, and of the then Kew Gardens, besides the collections at Brussels, and others in France and the Netherlands. But when Mr. Forbes opened the door of the new succulent house, containing, as it did, hundreds of forms that were new to me, and arranged in a manner to give complete effect, I was overpowered with surprise. The late Duke of Bedford with that munificence that particularly distinguished him, did not allow me to go away empty handed. I took away with me small specimens of many kinds wholly new to me, and went home with a firm resolution to collect and possess a race of plants that had excited me so powerfully.

I soon saw that their interest was wholly lost by being in any way mingled with other kinds of vegetation. The few I could muster added to my new prize were too insignificant to form the staple of a house, so I made the round of the London nurseries, buying wherever anything could be found that I did not possess. I remember on this occasion to have purchased every succulent in Mr. Lowe's collection at Clapton, amongst which were some newly imported. But I must not forget the liberality of Mr. J. Knight, of the King's-road, who freely gave me any succulent he possessed not in my collection, and I also received considerable augmentation from Mr. C. Palmer, of Shacklewell. With all these accessions I returned, but still found that many more were required to form the staple of a house; so I set out to collect them in Normandy, where many are grown; to Paris, and from thence through the Netherlands, and eventually obtained enough to warrant the building a house specially for their culture. Thus matters have stood for the past few years; but during the present spring an occasion of an augmentation occurred that I could not allow to pass over.

An amateur, who was as devotedly attached as myself to this tribe, and whose occupation had frequently for the few past years taken him into Germany, in which country he made considerable purchases, determined upon parting from his whole stock, amongst which were many novelties to my collection, and also many seedlings from species oddly hybridized. This entire collection I have added to my own, and together it forms an arrangement, that I am informed no nursery in England can rival.

To the succulent grower, I would advise not alone that no other kind of plant should be permitted a place in the house,—for they all detract; but that such genera as Crassula, Mesembryanthemum, except the dwarf species, Sempervivum, and most of the succulents from the Canary islands, should be exempted also. I have plants of Cereus abnormis 5 or 6 feet in height; so long as they are associated with other species of Cereus, or Opuntia, or some Euphorbias, they preserve their strange character, and rivet the attention of the spectator, but let an overgrown Sempervivum be on either hand, and a large Mesembryanthemum be placed in front, and their character is lost. It then would require a practised eye to discover their merit. I have now grown these plants long enough to find out that there is much confusion in nomenclature, and this, no doubt, arises from the circumstance of the same species putting on very different aspects according to its age; and also, whether it has been raised by offset, or from seed. So complete is this metamorphosis, that some kinds are perfectly turbinate at one [illegible] growth, and as globular at another; [illegible] globular for years, and become columnar in their [illegible]

the second flower." It thus appears from the above extract, that the point upon which Mr. Hally founds his complaint, in one left to the option of the judges; it was a point upon which they were called to exercise their judgment, whether to place a second or not, and that, in coming to the decision they did, the terms of the agreement have been strictly complied with. After carefully examining the specimens, they were unanimous in opinion that the Fuchsia exhibited under the letter C (which proved to be Mrs. Lane), was the best in point of flower and general habit, and that no further award should be made. There is no doubt that had either of the light varieties been considered "sufficiently meritorious," a second prize would have been given; but the inconstancy of the Empress as regarded that most important part of the flower, the corolla, and the hidden beauties of the Countess from the sepals not expanding, combined with other imperfections, influenced the judges in their determination; nor were they blind to the defects in the winning flower. As the note of preparation had long been sounded, something first-rate was looked for, both as regarded quality and growth, and it was a matter of surprise that three better Fuchsias had not been selected for the occasion.—*One of the Judges.*

Societies.

LINNEAN SOCIETY.

June 16.—The BISHOP OF NORWICH in the chair. J. Birkett, Esq., and Dr. Lightfoot, were elected Fellows. A paper was read by Mr. Lovell Reeve "On the functions of Calcification in the Cowrie and the Olive, two pectinibranchiate Mollusks." The object of the paper was to point out the different process by which the same end was accomplished in animals closely allied. Having called attention to the fact that the pearly nautilus secretes a heavy shell, capable of resisting great pressure, whilst the paper nautilus secretes a light elastic boat, used only by the female for the purposes of oviposition; the author pointed out the difference between the process of secretion of the shell of the Cowrie and that of the Olive. He concluded his observations by a caution against generalising or speculating on the probable nature of a mollusk from the analogies presented by its shell. The paper was illustrated by diagrams of the naked animals and their shells. No discussion followed the reading of this interesting paper.

ROYAL BOTANIC SOCIETY.

July 1.—This the THIRD and LAST EXHIBITION for the season was held in their garden, Inner Circle, Regent's Park. The day, although cloudy, continued favourable, and during the afternoon a considerable number of visitors entered the garden, including His Highness Ibrahim Pacha. The exhibition itself, although presenting little novelty, was a fair one considering the season.

Collections of 30 STOVE AND GREENHOUSE PLANTS were shown by Messrs. Fraser, of Lea-bridge-road, and Mr. Barnes, gr. to G. W. Norman, Esq., of Bromley, both receiving first prizes. There was a cleanliness and freshness in the entire appearance of the Lea-bridge group that particularly distinguished it from all others. At the top of the stage stood a superb specimen of Allamanda cathartica, 5ft. in height and finely in bloom, and on one side of it the beautiful Sollya linearis, mentioned on a former occasion; and on the other, a lovely plant of the sweet scented Stephanotis floribunda. Supporting these were noble bushes of the genus Kalosanthes, including nitida, 3 feet in height and as much in diameter, beautifully grown and in excellent condition as regards bloom. K. grandiflora miniata superbly done, and a less handsome plant of K coccinea. Associated with these were Aphelexis humilis, 2ft. in height and as much through. Fine plants of Vinca alba and rosea alba, a large Tristania nerifolia, not sufficiently in bloom, and a fine Ixora coccinea. In front were Francisceas acuminata, the pretty Dracophyllum gracile, whose chaste looking heads of snow white flowers answer well for bouquets; Crowea saligna in luxuriant health, but hardly sufficiently in bloom; two plants of Clerodendron fallax; a pretty Gardoquia Hookeri; Phænocoma prolifera, rather scarce of flowers; a highly coloured Achimenes longiflora, together with Statice arborea, the violet-flowered Burtonia conferta, and a plant of Leschenaultia formosa, 18 inches in height and as much in width. Mr. Barnes' collection also contained some good plants, at the top of the stage stood Clerodendron paniculatum, about 8 feet in height, with a panicle of flowers 2 feet in length, and supporting it two plants of C. fallax, a noble Crowea saligna, 6 feet in height and 4 feet in width, a good Allamanda cathartica, and the same large Phænocoma prolifera formerly exhibited. In the same collection were also large plants of Pimelea decussata, and Veronica speciosa, the latter insufficiently in bloom; Polygala cordifolia; Ixora grandiflora, in good condition; the red and white Kalosanthes insignis and nitida, and a variety of the old K. coccinea; two plants of Leschenaultia formosa, a lovely Roella ciliata, together with two of Rondeletia speciosa, a miserable Ardisia hymenæoides, and a fine Erica jasminiflora. In front were Oncidium Wentworthianum and O. Lanceanum, the former a large plant, and near them a large but middling Aerides odoratum. Associated with these were Ixora grandiflora, having numerous deep orange heads of bloom, the green flowered Heath (Erica viridiflora), and a variety of E. ventricosa.

Two famous Collections of 20 STOVE AND GREENHOUSE PLANTS were shown by Mr. Ayres, gr. to J. Cook, Esq., of Brooklands, and by Mr. Hunt, gr. to Miss Traill, of Bromley, to both of which first prizes were awarded. In Mr. Ayres' group, at the top of the stage, stood the large Clerodendron paniculatum formerly described, with its three enormous panicles of flowers still in perfection; and supporting it C. fallax, Polygala oppositifolia, a famous Crowea saligna; the fine Allamanda cathartica, mentioned on a former occasion; also the noble Gloriosa superba. And associated with these were Leschenaultia formosa; Kalosanthes media, 3 feet in height, and as much in diameter, covered with bloom; the old K. coccinea, more straggling than the former, a fine Phænocoma prolifera; and a large Veronica speciosa, hardly sufficiently in bloom. In the same group were, moreover, the lovely pink-flowered Erica Parmentariana rosea, Ixora crocata, hardly sufficiently in bloom; the larger flowered Aphelexis spectabilis; a Rondeletia; the somewhat scarce Achimenes multiflora; and several Heaths. In Mr. Hunt's collection were plants of Vinca rosea, and rosea alba, both about 3 feet in width, and 2½ feet in height; an Allamanda cathartica, rather bare of flower; a good Ixora coccinea; the well known Russelia juncea; and Rondeletia speciosa; Cattleya crispa, in fine condition; Oncidium Lanceanum, with one poor flower-spike; a spreading Erica infundibuliformis, hardly enough in bloom, and a large E. ampulliacea. In front were Pimelea spectabilis, and P. decussata; a fine Leschenaultia formosa; a small Gardoquia Hookeri; Clerodendron fallax, with six flower-spikes, a large Cattleya; and several Cape Heaths, which were rather bare of flowers.

Collections of 10 STOVE AND GREENHOUSE PLANTS were shown by Mr. Green, gr. to Sir E. Antrobus, Bart., of Cheam, Mr. Bruce, gr. to D. Miller, Esq., of Tooting; Mr. Malyon, gr. to T. Brandram, Esq., Blackheath; and by Mr. Hamp, gr. to J. Thorpe, Esq., of South Lambeth.—Mr. Green sent a large Clerodendron fallax; Calanthe veratrifolia, with eight spikes of snow-white flowers; the blue Roella ciliata; a neat Ixora crocata, Manettia cordifolia, and Leschenaultia formosa. In the same collection was also the same fine Aphelexis humilis, formerly described, whose flowers, however, did not open on account of the dullness of the day; Phænocoma prolifera, in fine health, but not well in bloom; a small Ixora coccinea, with 10 large heads of bright red flowers; and a good Erica Shannoni.—In Mr. Bruce's group was a very highly-coloured Leschenaultia formosa; a fine Aphelexis humilis; the pretty Eschynanthus parasiticus formerly mentioned; a green-flowered Heath; and a variety of E. tricolor, together with Gardoquia Hookeri; a small Pimelea decussata, Clerodendron fallax, and the blue Roella ciliata. Among Mr. Malyon's plants were Vinca rosea alba, Clerodendron fallax, and a tall C. squamatum; a well-grown, but not finely-bloomed Leschenaultia formosa; together with a dwarf variety of L. biloba, and a good Statice arborea. Associated with these were likewise Ixora coccinea, the pretty red and white Kalosanthes versicolor, an Oncidium, and a C[illegible]cHeath.—Mr. Hamp sent, among others, Veronica speciosa, the pretty pink-flowered Erica Juliana, Clerodendron squamatum, Gesnera splendens, the handsome Kalosanthes miniata, and Rondeletia speciosa.—Groups of Six Plants were shown by Mr. Clarke, gr. to W. Block, Esq.; Mr. Taylor, gr. to J. Costar, Esq., Streatham; Mr. Stanly, gr. to H. Berens, Esq.; Mr. Kay, gr. to B. D. Colvine, Esq., of Norwood, and by Mr. Cole of Blackheath. Mr. Clarke's plants comprised the well known Pelargonium tricolor; an Ixora coccinea; a fine Achimenes longiflora, and a good Aphelexis humilis, together with Erica inflata, and the pretty yellow Cassia corymbosa. Mr. Taylor sent a neat Erica jasminiflora alba; the showy Clerodendron fallax, a charming Stephanotis floribunda, together with Leschenaultia formosa, in good condition; Statice sinuata and a pretty Hoya carnosa. From Mr. Stanly were Achimenes longiflora; a tall Clerodendron fallax; a good Gardoquia Hookeri; Pelargonium tricolor, and Leschenaultia formosa. Mr. Kay sent the fine Malvaviscus laciniatus, formerly described; a good Veronica speciosa; Achimenes grandiflora, and Begonia parvifolia, in good condition; and a pretty Erica inflata. From Mr. Cole were Gardenia radicans; Aphelexis humilis; Statice arborea, and the purple Erica[illegible] erginea. Mr. Calver, of Hampstead, also exhibited six plants, among which were pretty plants of Sollya heterophylla and Leschenaultia formosa.

The display of ORCHIDS was indifferent. Collections of 15 were shown by Mr Dom, gr. to F. G. Cox, Esq., of Stockwell, and by Messrs. Rollisson, of Tooting. Mr. Don sent Stanhopea tigrina hardly sufficiently in bloom; a good Acropera Loddigesii, with numerous pendent spikes of dull yellow flowers, Vanda teres, the charming Aerides maculosum, with two flower spikes, Grammatophyllum multiflorum, with two strong gracefully pendent spikes of green and brown blossoms; a fine Oncidium pulvinatum, with Brassia Wrayæ, and the sweet smelling Epidendrum aromaticum; together with Aerides odoratum, Lycaste tetragona, a poor Schombnrgkia tibicinis, a small Barkeria spectabilis, Brassia Lanceana, and Cirrhæa tristis; the latter with numerous pendent spikes of insect-like blossoms. In the collection from Tooting we remarked the rare Oncidium nobulosum, a Brazilian species with beautiful large yellow and brown blossoms, O. pulvinatum, having a fine flower spike, O. luridum guttatum, a fine Stanhopea tigrina, the pale variety of S. Wardii, Huntleya violacea, Lycaste cruenta, the white-flowered Calanthe veratrifolia, and the curious green-tailed Dendrochilum filiforme. In the same group were also Warrea tricolor, the showy Cattleya Mossiæ, with eight expanding blossoms, Miltonia spectabilis, and the curious Trichopilia tortilis.—Collections of 10 were exhibited by Mr Plant, gr. to J. H. Schroder, Esq., and by Mr. Rae, gr to J. J. Blandy, Esq., of Reading. In Mr. Plant's group were Aerides odoratum, rather past its best, the lovely A. maculosum, a fine Oncidium pulvinatum, O. Lanceanum, with eight spikes of flowers, and Trichopilia tortilis, together with Cirrhæa fusco-lutea, and the blue lipped Vanda Roxburghii. Mr Rae sent a large Oncidium Bauerl, a small Phalænopsis amabilis, Cattleya Mossiæ in good condition; Aerides affine, Rodriguesia secunda, the odd little Maxillaria stapelioides, and a Huntleya violacea.—In Mr. Burnes's group of six plants were Calanthe veratrifolia, a Gongora, Oncidium roscum, and Trichopilia tortilis.

The Display of CAPE HEATHS was far from being fine, although a large number of this beautiful tribe was brought together. With the exception of some noble bushes of the red and white flowered E. metuliæflora bicolor, and one or two fine specimens of jasminiflora alba, there was nothing worthy of remark. This was not, however, the case with Roses. These, both cut and in pots, were produced in excellent condition, fully equalling any former exhibition of this fine flower. The group of 12 plants from Mr Dobson, foreman to Mr. Beck, of Isleworth, was superbly done; and so was that from Messrs. Lane and Son, of Great Berkhampstead. Among Mr. Dobson's plants, to which the first prize was awarded, we remarked Duc de Luxembourg, Madame Desprez, Caroline, Hardy, Dulchire (?) Edouard Desfosses, Eugene Beauharnais, Souvenir de la Malmaison, La Reine, Napoleon, and Odorata (white).—Messrs Lane and Son sent La Reine, Gloire de Paris, Marquise Boccella, Theresita Celine, Cardinal Fesch, Calypso, Triomphe du Luxembourg, Grandissima, Devonensis, Coupe d'Hébe, and Triomphe de Laqueue.—Mr. Francis, of Hertford, also sent a good group, in which were Rongere, Virginalis, Goubault, Queen, Comtesse de Rességuier, Fulgoric, and Prince Albert.—Cut Roses, in Collections of 100 varieties, were shown by Messrs. Francis, Lane, and Paul, as well as fine boxes of 12, by the same growers.—Of Autumnal Roses: Mr. Rivers, of Sawbridgeworth, sent fine boxes of *H. Perpetual:* Comtesse Duchatel, Clementine Seringe, Duchess of Sutherland, Baronne Prevost, De Marx, Rivers, and Laffeine.

Of SHOWY PLANTS Mr. Green produced a collection of Cacti in good condition, and groups of Clerodendrons were shown by Mr. Barnes, Messrs. Fraser, of Lea-bridge, and by Mr. W. P. Ayres, of Brooklands. Of the genus Nerium Mr. Kay produced a handsome plant of splendens, for which a first prize was awarded.

Of SINGLE SPECIMENS of superior cultivation a large number of Plants were staged.—Mr. Hunt had a fine Erica Massoni, measuring 3 ft. in height and as much across; Mr. Green, a capital Erica jasminiflora alba, Pentas carnea, a pretty Ixora coccinea, and Medinilla erythrophylla; Messrs. Rollisson, Stanhopea tigrina, Astelma eximia, and Erica metuliæflora bicolor; Mr Dawson, of Braxton-hill, a fine Erica ampullacea; Messrs. Fraser a very fine Kalosanthes nitida, Crowea saligna, Manettia bicolor, and Erica eximia; Mr. Duncan Leschenaultia formosa; Mr. Crosten, Hoya carnosa; Mr. Stanly, Achimenes grandiflora; Mr. Bruce, of Tooting, Roella ciliata; Mr. Kemp, Achimenes longiflora; and Mr. Pamplin, of Walthamstow, Erica viridiflora.

Of NEW OR RARE PLANTS in bloom, Messrs. Henderson, of Pine-apple-place, sent Æschynanthus Boschianus, a beautiful new form of this handsome genus, and their Achimenes Leibmanni, which appears to be a variety of grandiflora; Mr. Smith, of Regent's Park, the lovely Torenia asiatica; Mr. Stanly, a seedling Thyssanotus. Messrs. Rollisson, Calystegia pubescens, mentioned in another column; Mr. Ayres, Mussænda macrophylla, and Clitoria Ternatea; Mr. Dobson, Achimenes argyrostigma; and Mr. Dod, a Lobelia, and Ruellia macrophylla.

Of OTHER OBJECTS of an interesting but not showy kind were several collections of British plants, including some of the rarer species. Two collections of Alpines from Mr. Smith and Mr. Wood, of Norwood, who also had a group of variegated plants, two groups of British Ferns, from Mr. Smith and Mr. Taylor, gr. to J. Costar, Esq., a box of dwarf Cacti from Mr. Oliver, and finally a handsome green slate basket, containing Physurus pictus, and the Ceylon Angiotochilus setaceus, from Mr. Beck, of Isleworth.

The general appearance of the PELARGONIUMS, though good for the season, showed an evident decline from their former splendour. Mr. Staines obtained the 1st prize for 12 new, first-rate, and distinct varieties, grown in 8-inch pots; his flowers were Camilla, Rainbow, Nameless, Sultana, Emperor Nicholas, Phœbe, Josephine, Champion, Matilda, Duke of Wellington, Trafalgar, and Plato. 2nd to Mr. Cook, who exhibited Hector, Negress, Orion, Arabella, Lucinda, Duchess of Leinster, Milo, Momus, Lucifer, Sunset, Marc Antony and Shield of Achilles. For collections of 12 distinct varieties grown in 11-inch pots, Mr. Staines and Mr. Cook were the only competitors. The 1st prize was awarded to the former, the 2nd to Mr. Cook. For collections of 8 varieties grown in 8-inch pots, Mr. Robinson, gr. to J. Simpson, Esq., took the 1st prize, and Mr. Coyah, gr. to G. Hudson, Esq., received the 2nd. In the NURSERYMEN'S CLASS for 12 new, first-rate, and distinct varieties, the 1st prize was awarded to Mr. Dobson, foreman to Mr. Beck, for Marcus, Margaret, Zenobia, Arabella, Orion, Marc Antony, Mustoe, Repealer, Othello, Queen Pomare, Desdemona, and Isabella. Mr. Gaines received the 2nd prize for Gazelle, Pluto, Leander, Snowflake, Duchess of Leinster, Amelia, Rising Sun, Exoniensis, Princeps, Success, Oberon, and Milo. In CALCEOLARIAS, for 6 distinct varieties, the 1st prize for Amateurs was awarded to Mr. Bennet, gr. to G. J. Smith, Esq. In the Nurserymen's Class, Mr. Henderson was awarded the 1st prize for 6 well grown and distinct varieties, Countess Roslyn, General Robison, Duke of Buccleuch, Standishii, Surprise, and Examplar; Mr Gaines obtained the 2nd prize. FUCHSIAS were shown in capital condition by Messrs. Kendall, Fraser, Munnock, and Robinson. Mr. Kendall's plants (which were neatly grown and well bloomed), were Ercota, Elegans, Enchantress, Sappho, Gigantea, Miss Prettyman, and Cassandra. Messrs. Fraser sent Formosa elegans, Britannia, Coronet, Conductor, Sir Henry Pottinger, and Colossus. Mr. Munnock showed Brockmanni, Cassandra, Stanwelliana, Eppsii, Sir H. Pottinger, 6 feet in height, and a fine Exoniensis. Mr. Robinson sent tall fine plants of Nymph, Exoniensis, Hope, Duchess of Sutherland, Norfolk Hero, and Sir H. Pottinger. Some good single specimens were also shown, and collections inferior to the above were produced by Gaines and others.

There was a good display of CARNATIONS and PICOTEES. In the former 1st prizes were awarded to Mr. Turner and Mr. Ward, and a 2d to Messrs. Norman, of Woolwich. Mr. Turner exhibited Kayes, Omnium Primus, Puxley's Prince Albert, Hale's do., Beauty of Woodhouse, Princess Charlotte, Flora's Garland, Hepworth's True Briton, Lady of the Lake, Paul Pry, Tomline's Irisela, and Smith's Queen Victoria. Mr. Ward's stand contained, Flora's Garland, Hale's Prince Albert, Ward's Lady Sarah Payne, and Fireball, Lady Burns, Hatson's Miss Barton, Appleby's Prince of Wales, Elliott's Little Nell, Bright Phœbus, True Briton, Epaminondas and Paxley's Prince Albert. Several other stands were also exhibited. In Picotees, the 1st prize was awarded to T. Edmonds, Esq.; the stand contained, Barraud's Borderer, Sir W. Middleton, Isabella, L'Elegant, Burroughes's Mrs. Bevan, and President, Matthew's Enchantress, Mrs. Trahar, Regina Clarissa, Mrs. Barnard, and Willmer's Princess Royal. Messrs. Norman, of Woolwich, received a 2d prize for Miss Desborough, Crask's Queen Victoria, Mrs. Bevan, Sharp's L'Elegant, Isabella, Gem, Matthew's Enchantress, Burroughes's Emma, Mrs. Barnard, Sharp's Wellington, Wood's Princess Alice.—Mr. Ward, of Woolwich, received a 2d class prize also.—Mr. Griffin also received a Certificate, for a stand of Picotees and Carnations. There were several stands of VERBENAS exhibited; those selected for prizes were from Mr. Turner, of Chalvey; 2d, Mr. King, gr. to B. H. Stoney, Esq.—PANSIES were exhibited, and prizes awarded, 1st, to Mr. Turner, of Chalvey; 2d, to Mr. Bragg, of Slough. Among seedling Verbenas, two were selected; 1st Satellite, a light-bright scarlet from Mr. Pearson, and Ibrahim Pacha, from Mr. Smith, of Hornsey. two seedling Fuchsias were awarded prizes—Great Britain from Mr Kendall, a very large red variety; and Leucanthe, from Mr. Wright, gr. to the Hon. Mrs. Rushout, a large flower with light tube and pale rosy corolla. Specimens of a scarlet Clove, named the Prince of Denmark, very sweet-scented, was exhibited by Mr. Cuthill, of Camberwell.

The display of FRUIT was large, and some of it of very fine quality, more especially Peaches and Nectarines. There were no fewer than 40 Pine-apples, 24 dishes of Grapes, 47 Melons, 32 dishes of Strawberries, 34 dishes of Peaches and Nectarines, and several of other fruit. Of MISCELLANEOUS collections, the best came from the Royal Gardens, Frogmore. This collection contained a good Queen Pine, a Beechwood Melon, West's St. Peter's and Black Hamburgh Grapes, Royal George Peaches and Elruge Nectarines, good Victoria Plums, British Queen and Elton Strawberries, and a dish of Moor-park Apricots. Mr. Fleming, gr. to the Duke of Sutherland, at Trentham, obtained a 2d prize for a small Providence Pine, Hybrid Persian, and Benares Melons; white Muscadine and Black Hamburgh Grapes, fine Royal George Peaches and scarlet Newington Nectarines, and good Strawberries. Another collection from the garden of Sir George Warrender, contained good fruit; some of it, however, was hardly ripe. The Pine-apples were generally large, but some of them deformed; the 1st prize was awarded to Mr. Belton, gr., Nostell Priory, for a Providence, weighing about 11 lbs.; the 2d prize was also won by Mr. Belton; and Mr. Bray, gr. to E. B. Lousada, Esq., of Peak-house, near Sidmouth, obtained the 3d award. Mr. Spencer, gr. to the Marquis of Lansdowne, also showed a good Providence. Queen Pines were numerous. Mr. Bray sent a finely-swelled fruit, with a small crown; and Mr. Spencer received a 2d prize for a very handsome Ripley Queen; Mr. Brewin, gr. to R. Gunter, exhibited four good Queens; and the same variety also came from Mr. McEwen, gr. to Col. Wyndham; Mr. W. P. Ayres, and Mr. Pearson, gr. to A. George, Esq. Mr. Baggs also sent two good Queens. Other fruit came from Mr. Hamp, Mr. Kemp, and Mr. Reid, of Noblethorpe. For Melons, the 1st prize was given to Mr. Gadd, Betchworth Castle, for a Cantaloupe, and the 2d to Mr. Calver, of Hampstead, for an orange Cantaloupe. Mr. Spencer sent Butler's scarlet-fleshed. Of Persian varieties Mr. Bushy, gr., Stockwood-park, produced a handsome fruit weighing 9½lbs, named Kesingee. He also showed a sweet Ispahan. Mr. Spencer sent a Persian green fleshed; Mr. W. P. Ayres received an extra prize; as did also Mr. Daniels for a Roosaince. Of Grapes, Mr. Barnes, of Apley Park, sent Black Hamburghs, Muscats, and Black Frontignans, some of them, however, hardly ripe. For Black Grapes, the first prize was awarded to Mr. Hunt, gr. to Miss Traill; the second to Mr. Davey, Colney Hatch, whose bunches were, however, not very finely coloured. Mr. Mitchell, of Kemp-town, Brighton, sent good Black Hamburghs. Of White Grapes Mr. Davis produced excellent bunches of Muscat, and good Muscadines were shown by Mr. Gadd and Mr. Butler, gr., Saltbill. Vines in pots were produced by Mr. Northcote, of Wanstead, and by Mr. Smith, gr. to J. Anderson, Esq., Regent's Park. The former had a plant of Black Hamburgh, on which were six fine clusters, and the latter a fine Frontignan with four clusters. The Peaches and Nectarines were generally fine; Mr. Parker, of Roehampton, sent excellent Galando Peaches and Elruge, Violet Hâtive and Tawney Nectarines; and Mr. Kyle, gr. to C. Barclay, Esq., fine Royal George and Vanguard Peaches, and Violet Hâtive and Roman Nectarines. Mr. Collins, Elruge Nectarines, and Royal George and Chancellor Peaches. Mr. Snow, good Noblesse and Violet Hâtive Peaches, and Elruge Nectarines. A dish of Marseilles Figs was shown by Mr. Foggo. Fine Black Tartarian Cherries by Mr. Snow, and a variety called the Carnation Cherry by Mr. Kemp. Good Black Eagles were produced by Mr. Bray. Farley and Scone Pippin Apples were exhibited by Mr. Brass, of Tooting. For Strawberries, Mr. Lydiard, of Bath, received the first prize for good British Queens, Alice Maude, Elton and Keens' Seedling; and good samples of British Queen, Deptford Pine, Alice Maude, and Elton came from Mr. Bennett, of the same town. Mr. Cole, of Bath, also showed the same sorts, and a variety named Prince Alfred. The best single dish was

exhibited by Mr. Snow, who sent fine specimens of British Queen. Samples of Victoria Raspberry came from Mr. Cornwall, of Barnet. Strawberries, Raspberries, and Black and Red Currants, from Mr. Lydiard; and Mr. Bennett showed these, with the addition of White Currants. Mr. Rose sent a dish of Guavas. Cucumbers were shown by Mr. Batcher and others.

ERRATA.—Two errors have crept into the report of the Horticultural Exhibition, p. 407; for "Champion Cucumbers were shown by Mr. Street," read "by Mr. Mills." And for "Mr. Scott, of Poole," read "Mr. Balston."

New Garden Plants.

36. AZALEA OVATA. Ovate Azalea. *Hardy Shrub.* (Heathworts.*) China.—From Chusan, where Mr. Fortune found two varieties; "the one with white, the other with pink or lilac flowers; both spotted and very beautiful."

Among the early despatches from Mr. Fortune was received a drawing of this beautiful shrub, which, according to the Chinese artist, has most delicate pink flowers of the size and form of the Davurian Rhododendron.—The original plants did not survive the voyage; but a packet of seed has furnished an abundance of young plants, which have been distributed extensively to the Fellows of the Society under the name of "Azalea 274." The dried specimens received from Mr. Fortune enable the species to be positively determined. It is entirely different in foliage from all the other Chinese Azaleas; for instead of the pale-green colour and abundant hairs which characterize them all, this has perfectly hairless leaves, unless in the seedling state, and they are of a very dark green. Their form, too, is quite distinct; for instead of tapering gradually to the stalk they are abruptly ovate, or even in some cases almost heart-shaped. The plant has been too recently acquired for any knowledge of its true habits to have been acquired: but seedlings in the open air have borne the frost of last autumn, and it was considerable on two occasions, without having suffered in the least; and if, as seems probable, the plant should not be inclined to push early, it will not only be a hardy evergreen, but one of the finest in the country.—*Journal of the Hort. Soc.*

37. ACHIMENES PATENS Spreading Achimenes. *Greenhouse Herbaceous Plant.* (Gesnerads.*) Mexico.

One of the first objects to which Mr. Hartweg directed his attention on his return to Mexico, in 1845, was the recovery of this beautiful plant, which he had found in the course of his former researches, but which had not been reared in the garden of the Society. Although the season was so far advanced that herbage had all become withered, he succeeded in discovering some roots, which were immediately sent home by the post, and proved to be this plant. Nor does it disappoint the expectations that had been formed of it; for with the habit and foliage of A. longiflora it bears flowers of so intense a violet that no artificial colours can imitate them. This most remarkable tint fades away on the outside of the corolla into a clear bright purple, and is renewed on the tube of the corolla in an intermediate tint. The border of the corolla is slightly notched, and its tube is extended into a singular blunt horn, which projects beyond the calyx, and is more or less lobed at the sides. The corolla measures about an inch and a half across the flat border, and the tube is rather larger. Achimenes patens, like most of the other kinds, may be treated so as to flower nearly at all seasons of the year, and only requires to be kept in a dormant state and quite dry when at rest. It should be started gradually, and grows best in a soil composed of a small portion of well decomposed cow dung and half decayed leaf mould, in a very rough state. It is easily increased by the scaly roots, and requires a close atmosphere, but not a very damp or hot one. It is a very handsome kind, being one of the finest both for colour and foliage.—*Journal of Hort. Soc.*

38. GARDENIA FLORIDA, L.; var. FORTUNIANA. Mr. Fortune's Gardenia. *Greenhouse Shrub.* (Cinchonads.*) North of China.

The common single and double varieties of this plant are known to every one. That which is now noticed differs merely in the extraordinary size of the flowers, which are nearly 4 inches in diameter, and in having fine broad leaves sometimes as much as 6 inches long. The flowers are pure white, changing to light buff as they go off, and not unlike a very large double Camellia. Their calyx has the long broad lobes of the original species, instead of the narrow lobes, at least twice as short as the tube of the corolla, of G. radicans, by which that species is technically known. It is one of the very finest shrubs in cultivation, and ranks on a level with the double white Camellia, which it equals in the beauty of the flowers and leaves, and infinitely excels in its delicious odour.—*Journal of Hort. Soc.*

Garden Memoranda.

Horticultural Society's Garden, Turnham Green.—We observed at this establishment, in the greenhouse, next the Orchid-house, a specimen in bloom of the old, but comparatively neglected Chironia floribunda, a plant well deserving a place in every collection; possessing, as it does, rich pink flowers of considerable size and beauty, and a good foliage, it is a matter of surprise that we do not oftener see it on our exhibition tables. It is a plant of easy cultivation, requiring only to be potted in a mixture of turfy loam and peat, and to be placed where it has plenty of light and room. In the same house were Cedronella pallida, a plant from the north of Mexico, producing racemes of labiate flesh-coloured flowers, and Mr. Fortune's Indigofera decora. The latter forms a dark-green bush, with somewhat glaucous branches and pinnate leaves, from whose axils are produced racemes of beautiful light rosy flowers; indeed the whole appearance of the plant is very handsome, fully realising all that has been said of it. Near it was another of Mr. Fortune's plants in bloom in the shape of Rhynchospermum jasminoides, a pretty sweet-scented greenhouse twiner, with snow-white flowers something like those of the white Jasmine. It will, no doubt, form a valuable addition to this class of plants. On a front shelf was a Lysimachia, producing racemes of small white flowers; if hardy, this may possibly be a good plant for bedding out. It was raised accidentally from seeds which had been deposited among the mould with which Mr. Fortune packed one of his Chinese importations of plants. On the same shelf was Calandrinia umbellata, a beautiful object, either for ornamenting the shelves of our greenhouses, or for planting out in patches on rockwork. The flowers are produced in tolerable abundance, and the colour (a deep purple) is the most lovely imaginable. We may here mention a little experiment which has been made on the growth of Cacti in water. On the 11th of June, 1845, a plant of Mammillaria pulchra in a 3-inch pot was placed in a 6-inch pot, which, having the hole at the bottom stopped up, has been kept full of water, and, singular as it may appear, the plant is growing very luxuriantly under this anomalous treatment, although it has been constantly kept in the water, from the above date to the present time, and fully exposed to the ever varying temperature of a greenhouse. This being quite the reverse of the treatment such things generally receive, would seem to offer a useful hint to the growers of this interesting tribe, and it further shows that the nature of Cacti under cultivation is but imperfectly understood. In the range of pits in front of this house was Mr. Fortune's last importation of plants from China. They are all in good condition; the Paeonies are just beginning to break, the Camellias and Roses also look well, more especially the Camellias, and some Caprifoliaceous plants. In the same range was Achimenes patens, the lovely new species lately received from Mr. Hartweg: with the habit and foliage of A. longiflora, it bears flowers of an exceedingly beautiful violet colour, changing on the outside of the corolla into a clear bright purple. The tube is extended into a singular blunt spur which projects beyond the calyx. It is, perhaps the most beautiful of all the species yet introduced, fully realising the high expectations formed of it. In this pit was also an Arabian production like a Plumeria, with a large fleshy stem swelling out at the base, and with gnarled Ceradia-like branches bare of foliage, except at the ends, where a tuft of tolerably large, shining, dark-green, obtuse ovate leaves surround the flowers. The blossoms themselves are very handsome, something like those of an Echites; the tube being about an inch in length, of a pale yellow outside, spreading out into five delicate pink petals, edged with deep rose. Associated with it was the Naras fruit, a production about which as yet little is known. It was found growing on little knolls of sand by Captain Sir James Alexander, when he visited the country near Walwich Bay, on the south-west coast of Africa, forming bushes 4 or 5 feet in height, without leaves, and with opposite thorns on the light and dark green striped branches. The fruit is stated to have a coriaceous rind, rough with prickles, and to be twice the size of an Orange; the inside resembling a Melon as to seed and pulp. When ripe it has a sub-acid taste very agreeable in that hot country; and without it the natives could not remain near the coast. Inhabiting as it does that excessively dry, hot, and barren region, it was considered that the plants would succeed without water; but this is a mistake; for it has been found that out of all the plants that germinated from seeds sown in the garden, those only which have received plenty of water have survived. Two plants in a pot, receiving a copious supply of water every morning, with a slight shade and a moist heat of about 80°, are now nearly a foot in height, producing spiny-looking stems, rising from between two cotyledons, exactly like those of a Melon or Cucumber. What the result, however, may turn out to be, it is as yet impossible to foretell.

In the large stove we remarked a variety of Justicia carnea, named superba, which appears to be in all respects better than carnea, the flowers being larger and better coloured, and produced in greater abundance. Along with it was the useful Turnera elegans, which has been in bloom all the season, and which no stove should be without. It does best when grown quickly in a moist atmosphere. The span roofed house recently erected in the hardy department was gay with Calceolarias and Pelargoniums; among the latter we noticed Queen Victoria, which has been shown at our late metropolitan exhibitions. It is a lovely variety, well worthy the attention of the amateur, being a most profuse bloomer, whose petals do not fall off readily like those of the other sorts. In the same house was Statice eximia, a very handsome, rather robust, hardy species, introduced by Dr. Fischer from the Chinese limits of Tartary; it produces a large panicle of bluish purple and white flowers. Along with it was Maurandya Barclayana, scrambling over a twiggy branch (inserted in the pot), which it closely covered with deep green leaves, with which the snow-white flowers agreeably contrasted. By this mode of growing it, all trouble of tying and training is dispensed with. Associated with it was the handsome but transitory blue-flowered Hellophila trifida, whose blossoms close up at noon, and drop off soon afterwards; Convolvulus Sibthorpii, with handsome pink flowers, somewhat resembling C. althaeoides, or rather like a pink flowered Petunia; Mr. Fortune's Viburnum, producing a large bunch of white flowers like a Guelder-rose; and Calystegia pubescens, also introduced from China, by Mr. Fortune. This *has been* very finely in bloom, forming an exceedingly handsome object when covered with its large double pink flowers, whose petals are arranged with the irregularity of the Rose; indeed, the whole blossom has much the appearance of that noble flower. If it should not turn out to be hardy, which is expected, it will at least be a striking object in our greenhouses. In the large conservatory, a specimen of Buddlea Lindleyana is in bloom. It forms a pleasing object, whose slender branches terminate in long one-sided racemes of small tubes, which are lilac on the outside, and deep violet inside, the two colours forming an agreeable variety. It will, no doubt, have a fine effect on the conservative wall, which will probably be its ultimate destination. In the same house was also in bloom the well known Banksia speciosa, producing conical heads of flowers, of a pale yellow colour, 6 inches in length, and 3 inches across. The flesh-coloured Canna iridiflora has likewise been in blossom. In the border in front of the Council-room has been planted a collection of new and rare shrubs, with a view to test their respective hardiness. Among them we remarked Mr. Fortune's beautiful pink-flowered Weigela rosea, and various Tree Paeonies; Lonicera discolor, Spiraea Lindleyana, Syringa Emodi, Philadelphus Chinensis, Eleagnus parviflorus, and the Japan Ilex latifolium. The experiments, made with the view to ascertain the effect of different kinds of artificial manure on Wheat, have been repeated this year for the fifth time, and the crop looks better than it has done in any bygone year. The salts of ammonia have been found most beneficial, more especially the muriate; 3 cwt. of the latter to an acre has been found to be more than is necessary, inasmuch as it has a tendency to produce over-luxuriance, causing the crop to be easily laid.

In regard to Mr. Bickes' experiments on steeping seeds, which occupy the plot of ground on the opposite side of the walk, we can only say for the present that, *on the whole*, the plants from the steeped seeds are not at all superior to those that were not so prepared. The real result, however, cannot be ascertained till after the crops are taken up and weighed.—In the orchard, along a south wall border near the walk, has been planted a row of Indian corn, in order to ascertain the earliest of the dwarf kinds. Although it is not probable with our short summers that Indian corn can ever be grown for the purposes of human food in this country, yet it becomes a question whether or not it cannot be cultivated as green fodder for cattle. It contains much sugar, its growth is very rapid, and now that we have got cheap glass abundance of plants could be raised and prepared for planting out, as soon as the spring frosts were over, at a trifling expense.

In conclusion, we may mention that the Potato crop in the kitchen garden, although to all appearance in the most luxuriant health above ground, is diseased at the root; every plant examined being decayed and dried up from its connection with the old set to near the surface of the ground, where the few roots that exist as yet are healthy, but insufficient to support the plant for any length of time, far less to produce a crop. The only remedy, therefore, is to speedily adopt the earthing-up system recommended in the Leading Article of last week. Some on which this plan has been practised are throwing out roots rapidly, and if the disease does not extend upwards perhaps a portion of the crop may by the timely application of this means yet be saved.

Calendar of Operations.

(*For the ensuing Week.*)

Ripening of Fruits.—This is a subject worthy of some consideration, more especially as to fruits grown in structures with artificial heat. It is a well established fact, that hurried ripening is accomplished at the expense of flavour. Plenty of sunlight, a free circulation of air, with a moderate temperature, and a considerable diminution of atmospheric moisture, are the essential conditions whereby flavour is obtained. For Grapes, Melons, Pines, Figs, Peaches, &c., under glass, I would say, let 80° by day, of sun-heat, and 60° by night be your maximum; whereas, in a cloudy period, 60° to 65° by day will be sufficient. Although root-moisture should be somewhat diminished, yet a healthy action of root is essential in obtaining both flavour and plumpness in fruit; without such a root a healthy leaf cannot be maintained: in the absence of which, I need scarcely add, all other means will prove in a great degree abortive. Slow ripening, without starvation, is therefore, the point by which the highest amount of flavour can be obtained.

CONSERVATORIES, STOVE, &c.

Conservatory.—Where a due amount of attention can be spared to this structure, all will be neatness and gaiety. Fuchsias in large specimens, Pelargoniums, Liliums, Thunbergias, Euphorbias, and a variety of other showy and highly cultivated plants, will, of course, take the place of the New Holland tribes, Orangery, Camellias, &c. See that all such stock has due attention in regard to watering, using constantly liquid manure, according to former directions, viz, clear and weak. *Stove and Orchids.*—Endeavour from [illegible]

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

period to establish rather a robust than a rapid growth in the majority of stove plants. Do this, and give air most freely at all fitting opportunities; avoiding, however, cold currents. *Orchids.*—The weather having changed, and the late thunder storms being succeeded by cooling breezes, (as generally happens on the breaking up of a period of drought,) fires must be immediately resumed, for without artificial heat it will scarcely be possible to give these plants the amount of air necessary. A lively circulation of air, especially in the morning, is essential to a perfect state of growth. Do not shade them unless the sunshine is of some continued duration, rather increase the air. Some of the earlier growths will now be approaching that state, termed by gardeners "ripening the wood," and to accomplish this more sunlight is necessary. *Mixed Greenhouse.*—Clerodendrons will enjoy liquid manure constantly, with liberal shifts if not already done. The Tree Violet should have the side shoots constantly pinched off. The Sollya heterophylla is a very useful plant, and deserving a place in every greenhouse. Fixed to a trellis and constantly stopped, it forms a very ornamental shrub. See to thorough watering daily, with a free circulation of air. Provide successions of gay flowers for the autumn, and keep up a constant war with all insects.

KITCHEN GARDEN FORCING.

Vines.—Secure a regular bottom heat to all stock, taking care to renew it when it gets below 80°. Stir up the surface of the tan frequently, and syringe amongst the stems of the fruiters every evening. Be sure to supply all the atmospheric moisture possible—too much through the ordinary medium, at this period, is next to impossible. *Pineries.*—Apply the principles explained in the early part of this Calendar to the Grapes now in the course of ripening; not only flavour but colour will be increased thereby. It is impossible for a Vine, with its roots in a state of depressed temperature, or it may be torpid through stagnation, to colour its fruit thoroughly if hurried. Late Grapes may be treated as nearly as possible as if they were out of doors, merely avoiding cold currents of air. *Peaches.*—See that the red spider does not establish a footing in consequence of the late bright weather. If such should be the case during the ripening process, sulphur should be carefully dusted on the under side of the leaves. Don't hurry the ripening, and as soon as the fruit successively has nearly reached its full size, remove leaves sufficient to admit the sun's rays over the fruit. *Figs.*—Continue stopping young wood. Give abundance of water to those in pots or tubs; those in pots do well plunged in an old bark bed if to spare. Syringe constantly between the ripening periods. *Melons.*—Where pits are artificially heated, a late crop may now be ridged out. For this purpose I would recommend a good hardy green-flesh; perhaps the Beechwood. Syringe swelling fruit, and give abundance of air day and night to those ripening. No fruit improves more by slow ripening than the Melon. Lay shoots in pots of the superior Cucumbers; they will make a fine autumn and early winter crop in pits or boxes, in a warm and moist stove.

FLOWER-GARDEN AND SHRUBBERIES.

Continue to clear away everything decaying, and to introduce good things from pots in the reserve ground. A good reserve garden, if properly situated, and systematically planned and conducted, would be one of the most useful plots of ground about a garden. Such a valuable adjunct would, however, require the constant attendance of a man possessing some little knowledge of flowers; and therefore could not be carried out where there is a stint of labour. Decayed patches of bulbs, which are required to stand for early spring flowering, may have dressy Verbenas, or other things, introduced from pots between them. Cuttings of Pansies should be got out in succession, before the shoots are too much exhausted. All boundary or other hedges should be clipped forthwith.

FLORISTS' FLOWERS.

Auriculs and Polyanthus seed ought to be carefully collected; it should be retained in the capsules till the proper season for sowing; perhaps the best way of preserving it is to tie the stems together in small bunches, inserting them in thin paper bags, and suspending them in a dry airy situation. *Ranunculuses* should now be out of the ground; when the tops are withered, they are extremely susceptible of moisture, and if not taken up will emit fresh roots, which has a most prejudicial effect on them. They may be parted with facility, and this is better done now than when they are dry and hard. Seedlings should be carefully taken up, many of these will be very minute; in order that none may escape, it is a good plan to put the soil in which they have been grown into a fine wire sieve, then in working it about in a tub of water the soil will be washed away and the roots retained, which may be spread out to dry, and then stored in any place where they cannot contract mouldiness. *Pinks.*—Continue to put in pipings, shading them from extreme heat. Extract decayed petals from the pods in which the seed is forming. *Carnations and Picotees.*—As seedlings show their colour, all foolish ones and selfs should be removed, unless any of the latter are of fine form and petal, in which case they might be retained as border varieties. In the south of England most of the main blooms are expanded; where seed of good quality is required, the proper fecundation of the various sorts should now be attended to. It is foolish to leave this to chance, when by a little attention and delicate manipulation the varieties may be crossed with great certainty. Look through the directions given during the few past weeks for the routine culture required.

KITCHEN GARDEN AND ORCHARD.

Let a plot of ground be trenched and highly manured forthwith to receive a good breadth of Cauliflowers and the Walcheren. Grange's Impregnated, if true, is most valuable also, as it is of a self protecting character, and if planted with the Cauliflower it will form a complete succession. These things done well at this period, will insure a supply of those useful vegetables all through November, December, and even January. Let late Peas have every encouragement, more especially by thorough sticking. The crops of Knight's Marrows and British Queen should be topped when at the top of their sticks; they will branch out sideways if the ground has been thoroughly prepared. Sow a little Endive every week in July. Good breadths of brown Cos Lettuce may soon be sown, as it will not be so liable to "run." Sow more Coleworts of the dwarf and compact kinds; also a pinch of Chervil and Corn Salad. Herb cutting must be attended to, choosing a perfectly dry day, and cutting the moment they begin to blossom. Cut off all the bloom from the latest Alpine Strawberries; the flowers after this period will be sufficient for the latest crop.

COTTAGERS' GARDENS.

If the Carrots have failed, a small bed of the Early Horn may yet be sowed. Continue to fill spare ground with various winter greens. York Cabbages may be sown for autumn Cabbages; they will do to plant in any small gaps that may exist amongst other crops. Stake up flowers, dub hedges, pipe Pinks, and lay Carnations. Cuttings of choice Roses may be made, choosing the early wood, now getting firm.

FORESTING.

Hoe or otherwise stir the ground amongst young forest stock. Keep the seed beds clean, and attend to summer pruning of young plantations.

State of the Weather near London, for the week ending July 3, 1846, as observed at the Horticultural Garden, Chiswick.

June	Moon's Age.	Barometer. Max	Min.	Thermometer. Max	Min	Mean.	Wind.	Rain.
Fri. 26	2	29 681	29 647	67	54	60 5	S.W.	.09
Sat. 27	3	29 707	29 679	71	50	61 5	S.W.	.01
Sun. 28	4	29 850	29 800	74	48	61 0	S.W.	.03
Mon. 29	5	29 814	29 786	76	57	66 5	S.W.	
Tues. 30	6	29 978	29 893	75	46	61.5	S.W.	.03
July								
Wed. 1	7	30.014	29 979	70	58	64 0	S.W.	.04
Thurs. 2	8	30 074	29 988	75	59	67.0	W.	.01
Average		29 887	29 816	73.0	51.8	62.8		.21

June 26—Overcast, heavy shower at noon, rain at night
27—Fine, cloudy; partially overcast
28—Cloudy and fine throughout
29—Fine, partially overcast
30—Fine, with light clouds; overcast
July 1—Fine, cloudy, overcast; rain at night
2—Overcast; slight drizzle; densely clouded; overcast.
Mean temperature of the week 2 deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending July 11, 1846.

July	Aver. Highest Temp.	Aver. Lowest Temp	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain	Prevailing Winds						
						N.	N.E.	E.	S.E.	S.	S.W.	W.
Sun. 5	77 0	53.2	65.1	9	0.89 in	—	3	—	4	2	5	1
Mon. 6	75 7	54.1	63 9	8	0.48	—	1	2	1	3	7	4
Tues 7	77.2	54 1	65 7	12	0.93	1	2	1	3	2	8	—
Wed. 8	74.0	51 8	62 9	10	0 40	—	3	1	—	7	0	9
Thur. 9	76 3	50 7	64 1	5	0 87	3	1	—	2	4	7	3
Fri. 10	74 1	51.7	62.9	5	0.36	—	1	1	3	9	3	3
Sat. 11	74.3	52.7	63 5	6	0 71	2	—	—	4	5	4	3

The highest temperature during the above period occurred on the 8th, 1837—therm. 94°; and the lowest on the 6th, 1842, and 9th, 1839—therm. 40°.

Notices to Correspondents.

ANTS—*W R*—Put some lumps of camphor among your ants, and keep the frame as well ventilated as you can.

APHIDES—*G O S*—If you refer to what we have said about smelling salt, you will find that we have pointed out the uncertainty of its strength. If it is fresh and well made it is very strong, and should be used in the proportion we have given. If it is old and weak it is useless. Can you not procure it directly from the great manufacturing chemists? If not you had better try a parapetticoat.

CACTI—*M W K*—These, like other plants, are the better for being repotted; but care must be taken not to injure their roots in the operation.

CAMELLIAS—*M W K*—On no account mutilate your Camellias. We never heard of such monstrous advice as your gardener has given you.

CHERRY-TREES—*Delta*—Your success in moving some May Dukes, 10 or 12 years old, having been but indifferent, we should not advise you to attempt transplanting the Bigarreau, for it belongs to a tribe of Cherries with broader leaves, stronger growing shoots, forming wood more apt to gum than the May Dukes, after the check from removal. It dislikes a wet soil; and on the other hand it will gum and die off in one that is too dry in summer. Better get young Morello trees for your north wall.‖—*E R*—There is no White Morello.‖

FRAUDS—*A Constant Reader*—No doubt it is a fraud to send out one thing for another; just as a man would be cheated of his shilling to whom a showman produced the three-legged child instead of the little abortion called Tom Thumb.

FRUIT-TREE BORDERS—*X*—In digging out entire gravel, the proper depth you should excavate, will depend on whether the gravel is dry or wet. If dry you may go to the depth of 2½ or even 3 feet; but if wet, the more shallow the better, and raise your border above the level so as to have the above depth of good soil for the roots of the trees. A little good peat may be used; but one-third would be too much.‖

GRASSES—*W G*—The Hard and Meadow Fescues, the Meadow Poa, and Crested Dog's-tail will answer your purpose best. In your light land you should add White Clover and Yellow Medick. The fine appearance of good lawns arises from good soil, a damp air, and fine Grasses, but you cannot make a very good lawn in burning land, guano will assist you in doing so. Heavy soil is the better for being disturbed at the surface in dry weather, but light soil is injured. The object is to keep it cool rather than wet. Watering with ditch or pond water heated by the sun is advantageous, provided the ground is soaked in an evening, otherwise it does little good. Syringing the leaves in the evening with water in which a little carbonate of ammonia has been dissolved is a great help, if you do not mind the expense.

GREENHOUSES—*Subscriber*—We see no reason why the conservatory should not join the house. On the contrary, if well constructed it will be a great convenience to the ladies of the family.—*Andrew Clarke*—You can keep Orange trees in the winter perfectly well in such a place, and you hardly require a stove; for mats will keep out frost, which is all that is necessary. If you must have heat, a flue is as good as anything. Orange flowers are not used that we know of, except as a perfume, unless in yielding distilled water.—*T V*—It is quite impossible for us to say what such a building would cost. The expenses depend upon a variety of circumstances that can only be settled on the spot—perhaps 50*l.* or 60*l.* You had better get some hothouse builders to make a tender for the work. It may be heated by some sort of small stove, no doubt.

INSECTS—*W B*—They are the larvæ of Dermestes Lardarius which infest bacon, destroy dried skins, and are most destructive animals. *R.*—*A Subscriber* will find the history of the Slug larvæ in vol. ii., p. 692 of this Journal, with the best mode, I believe, of getting rid of them. Cannot you dust the leaves well with soot or unslaked lime? They will, I expect, shortly disappear. *R.*—*V H R*—Pull up and destroy the infested Onions, filling the holes with unslaked lime; water the beds well with lime-water, and persevere in the application, or sow wood-ashes thick over the surface. *R.*—*G W G L*—The same advice is applicable to you. If, however, you crop the same piece of ground annually with Onions, without trenching, you must expect to suffer from the fly called Anthomyia cepæ rum; vide *Gard. Chron.* vol. i., p. 396. *R.*—*H B*—Unless we had the live maggots, and could rear the flies, we cannot ascertain the economy of the insect. Dipping the Rose-buds in tobacco-water would perhaps remedy the evil. You had better trap the mice by sinking baited jars, or by any other means suited to circumstances. *R.*—*T C* may possibly obtain some mole-crickets at Chiswick. *R.*—*A R*—Your caterpillar belongs to one of the sawflies, but we cannot tell you the specific name. If the solution of ammonia be applied too strong, it would in all probability cause the Rose-buds to fall off. *R.*

KITCHEN GARDEN SOIL—*X*—In excavating gravel, and supplying its place with good soil for kitchen garden crops, a depth of 3 feet will generally be requisite. This will do for Sea Kale and Rhubarb. Asparagus 5 feet.‖

NAMES OF PLANTS—*G L*—Nicotiana glauca.—*S S*—Broomrape, or Orobanche elatior.—*Tyro*—Potentilla reptans.—*Adelaide*—A new Cyclolobium, Hibiscus Wrayæ; and 2 species of Acacia not determinable without their flowers. Of the seeds received from Lady M. in Feb. last, a Convolvulus has come up, but not flowered; the other has not grown.—*J F N*—Potamogeton pusillus.—*A Sub*—Scirpus maritimus.—*E T W*—Seriasa foetida.—*Anon*—Juglans nigra.

PEAR-TREES—*M W K*—You state that Christmas twelvemonth you buried part of a pig near the roots of your large Jargonelle tree, planted five years, now covering 25 yards of wall, and it is making over-luxuriant shoots, but has produced no blossoms. It is doing well; you must have wood, the French gardeners say, before you can expect fruit. As the roots will soon be in a poor light hungry soil, you had better not interfere with them. You cannot err by cutting a few inches from the extremities of all the fore-rights *immediately*, then *gradually* thin out portions by cutting some shoots within 4 inches of their bases, and others may be shortened half their length. You need not again treat the roots with rich food till the tree is in full bearing.‖

STRAWBERRIES—*Alpha*—Your specimen was crushed to pieces, and we can form no opinion about it.

VINES—*Distress*—Most probably your Vine-roots have been allowed to get too dry. Recollect the border is formed of very dry materials.‖—*Y Z*—You ought to admit plenty of fresh air.‖

MISC—*Q*—We regret to say that we are unacquainted with any glass manufacturers at Bristol or elsewhere, in the west of England. You had better apply to London or Sunderland.—*Rosus*—No doubt your Woodbines are too dry at the roots.—*D C L*—Your letter is sent to Sir Wm. Hooker.—*Alpha*—Your inquiry is so extensive that we are quite unable to answer it. We should take whatever is handsome, grow it till we were tired of it, then throw it away and replace it with something else. Sow your packets of seed next spring. Common Laurels will make such a fence as you want quicker and better than anything else, if you encourage them with a little manure.—*J. Smith*—Rhubarb Champagne is made exactly in the same way as Gooseberry wine.‡—*P*—Your seedling Potatoes appear to be sound specimens of the Ash-leaved Kidney, or something very like it.‡—*J G*—You have, no doubt, scorched your Cucumber leaves by applying the sulphur to the flue when the latter was in too hot a state.‡—*Reader*—If you will be kind enough to refer to p. 116 of our volume for last year, you will find a plan of a pit that may possibly answer your purpose.‡—*Inquirer*—The directions in the Calendar in regard to disbudding Roses were intended to apply to the disbudding of Rosestocks. The Wild Hedge-rose throws up abundance of suckers, as well as stem-shoots; these must be kept cleared away, with the exception of a few branches at the top. The general treatment of dwarf standard Pears, as also of those on walls, in July, is to remove a great portion of the watery breast-wood, in order to throw sunlight on the fruit spurs. This is better done at twice or thrice. In the first thinning, a portion of the grossest shoots may be entirely removed. In the second (a week afterwards), a few more; and finally the remaining shoots may, by the early part of July, be "stopped," excepting those intended for leaders. It is good management to remove the breastwood entirely, certainly not until August. Such a course would force many of the embryo fruit-buds into wood shoots.—*R. E.*

SEEDLING FLOWERS.

CALCEOLARIAS—*J S M*—Your seedlings are common and too small, with the exception of No 1, which is of a good size and richly marked.

FUCHSIAS—*E J L*—Your light variety is a very good seedling, decided in colour, and, if a free bloomer, must look well upon the plant. The darker variety is not so good and there are several better in cultivation.*—*J J*—All your seedlings are deficient in the corolla; they want substance, depth, and contrast of colour. No. 2 appears to be the prettiest flower, having a bright vermillion corolla, but the effect of this is lost from there being so much colour in the tube; this and No. 6 are the two best.*—*W M*—Your seedling is large and showy, but the corolla wants decision of colour.*—*W M*—There is no improvement upon the flowers already in cultivation in your seedlings; they are delicate and pretty, but the colours are weak; 3 and 2 appear to be the best.*—*S*—Your seedling is no improvement upon the flowers we have; the sepals are long, narrow, and want substance.*—*G W*—Your seedling is pretty, from the tube and corolla being so distinct. We fear the sepals do not expand sufficiently.*

GLOXINIAS—*J H*—We can see nothing in your seedlings to distinguish them from others already in cultivation.†

PANSIES—*G W*—Your specimens are very small, and will never equal in size show flowers; they are deficient in form, being rather long; the tip in each being small compared with the other petals; the precision of the marking is the best quality they possess.*

PELARGONIUMS—*W M*—Neither of your seedlings are equal to flowers of the same colours now in cultivation; they are deficient both in size and substance.*—*A H Y*—Your seedling wants size, substance, and form; it is much below the standard of the present race of Pelargoniums.*—*Ajax*—Your seedlings are all quite second-rate flowers; the best is 30, which is good in colour and substance, but appears to be very deficient in form. Zanoni is pretty, so is Kate Kearney, but the latter wants substance, and both are deficient in size.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

EARLY HARVEST.

DRUMMOND'S IMPROVED REAPING SCYTHES continue to give great satisfaction, and are recommended with every confidence as being cheaper, quicker, and not so wasteful as the ordinary mode of mowing grain; are delivered free by the Subscribers in *London, Liverpool, Hull, Newcastle, Cork, Belfast,* and *Londonderry,* at 11*s.* 6*d.* each; and when more than three are taken, at 11*s.* each.

N.B. No order will be attended to from unknown correspondents without a remittance. W. DRUMMOND & SONS.

Agricultural Museum, Stirling, N.B., and 58, Dawson-street, Dublin.—July, 1846.

BARROWMAN'S PLOUGHS.—Parties who were, owing to the great demand, disappointed in not getting these Ploughs last spring, are respectfully informed that a stock is now on hand and orders can be executed forthwith.

The Agricultural Gazette.

SATURDAY, JULY 4, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, July 8—Agricultural Society of England.
THURSDAY, — 9—Agricultural Imp. Soc. of Ireland.
TUESDAY, — 14
WEDNESDAY, — 15 } Meeting of the Eng. Ag. Soc. at Newcastle.
THURSDAY, — 16
THURSDAY, — 16—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.

Ross—Wilts (July 15) Flax Society, Belfast—Carluke.

FARMERS' CLUBS.

July 6—St. Columb—Great Oakley—W. Market—Cirencester—Yeaford—Market-hill—Wellington—Bunbury
— 7—Barking—Wingerworth—Abergavenny—Aveleigh—St. Quivox—Rochford Hundred—Richmondshire—Lewes—Wivelscombe—St. Peter's
July 8—Harleston
— 8—Grove Ferry
— 10—Northallerton—Tavistock—Chelmsford—Halesworth—Wadebridge
— 11—Dartford—Winchcomb—Swansea
— 16—Bolsover

WE have already on many occasions called attention to the most injurious consequences of the DEFECTIVE DRAINAGE OF TOWNS. Certainly the greatest of these is its influence on the health of their inhabitants; but that with which we have more immediately to do is the immense loss of fertilising matter which is thus sustained by the land. The former subject, more immediately, and the latter, in a subordinate degree, is now being brought pretty generally under public notice by the efforts of societies and individuals; and, assuredly, when we consider the vast interests at stake, no efforts can be more truly benevolent and patriotic. An excellent lecture "*On the Health of Towns* as influenced by Defective Cleansing and Drainage; and on the Application of the Refuse of Towns to Agricultural Purposes," was lately delivered* by Professor GUY, at the Russell Institution, in which the statistics of the subject which the reports of the Health of Towns Commission have published are arranged and illustrated, in a manner very instructive, on the one branch of the subject, and in which such evidence as exists on the use of town manure here and on the Continent is brought to bear upon the other. The main facts are these:—That the average health of England is indicated by an annual mortality of two per cent. of her population; that the average annual excess of deaths in thirty-seven of our largest towns, during the years 1840, 1841, and 1842, above the healthy standard of two per cent, was 28,505; or, if we add other large towns not enumerated, we may say 30,000; that if we add the population of Scotland and Ireland, we may fairly estimate as the consequence of adopting perfect sanatory measures, an annual saving of 60,000 lives to this country; that for every unnecessary death due to defective drainage, &c., we may assume the occurrence of 28 attacks of unnecessary sickness; that thus the loss and cost of all the preventable sickness and death annually occurring in the United Kingdom may be fairly estimated at 20,000,000*l.*

And as regards the agricultural view of the subject, we must conclude by transferring the following extract to our columns:—

"I must now endeavour to estimate the other branch of national extravagance which I have brought under your notice—to fix a value on the manure which we are annually throwing into the sea.

"I shall say nothing of the liquid manure which, as I have been given to understand, is suffered to drain away into the ditches, thence into the rivers, and from them into the sea, from fully one half of all the farmsteads of England; I will speak merely of the unappropriated refuse of large towns.

"In Flanders, where manure is carefully collected, instead of being, as here, suffered to run to waste, the excreta of an adult are valued at 1*l.* 17*s.* Considering the enormous additions made to this manure in our towns, it will not be thought unreasonable to estimate the value of that part of the refuse which now runs to waste at 2*l.* per head of the population; and supposing that in England and Wales, the towns which are guilty of this extravagance contained in all only 5,000,000 inhabitants, we shall have an annual waste of at least ten millions of money.

"I am now speaking of the gross value of town-manure, and not of the profit which it would yield; for there is no commodity of which the value is more dependant upon the expense of conveyance and distribution than manure. Thus, manure which on the field is worth 10*s.* a load, may have fetched in the place from which it was brought, only 1*s.* or 1*s.* 6*d.*, the difference being the expense of cartage and distribution. But, in the case of liquid manure, the cost of conveyance and application would be so small as to increase the relative value of the manure itself, and to yield a large profit on the capital employed. This profit has been variously estimated at from 12 to 15 per cent.

"Hence, after all the cost of its application to the land has been defrayed, the refuse of towns which now runs to waste would have a high money value—a value probably exceeding, one year with another, that of all the corn and manure which we import.

"If this estimate were extended to the whole of the United Kingdom, it seems highly probable that the value of town-manure annually wasted would be equal to the loss and cost entailed upon the nation by premature death and unnecessary sickness. According to this supposition, which does not appear unreasonable, the total annual waste from these two causes would be about 40,000,000*l.*!

"Such, then, are rude, but I believe by no means exaggerated estimates of the twofold waste of health and life, on the one hand, and of the most valuable means of production, on the other, of which England is at present guilty, and it becomes a very serious question whether such extravagance can be persisted in without entailing the most alarming consequences. Our neglect of sanatory measures is obviously chargeable with no inconsiderable part of the heavy and increasing burden of the poor-laws, which, though their ostensible object be the relief of destitution and suffering, must tend to occasion both by withdrawing several millions a-year from the labour-fund, which fund would probably effect much more towards the prevention of poverty than the best devised system of poor-laws can possibly do to relieve it. Sanatory measures would have all the certainty which attaches to measures of prevention, while the poor-laws are open to all the objections and the abuses which attach inseparably to the amiable but inefficient substitute for justice—charity."

* Since published by H. Renshaw, 356, Strand.

IN further discussing the interest which owners of land have in the conversion of their pastures; having already exhibited the policy of breaking up down lands and cold pastures so soon as suitable tenants shall offer themselves; we arrive at the case of those of better quality—GOOD GRAZING GROUNDS. These comprised much of the Grass lands on the richer clays of the old red and new red geological formations as well as those on some of the clay members of oolitic series and on some parts of the London clay. The first are found developed to a great extent in Herefordshire; the second in the counties of Somerset, Gloucester, Worcester, Warwick, Leicester, and Nottingham, as well as in Cheshire; and the third are found in Gloucestershire, Oxfordshire, Northamptonshire, and in the counties of Rutland and Huntingdon; and the last in some parts of Essex, Hertfordshire, Middlesex, Hampshire and Sussex. In the above enumeration we have not considered our alluvial pastures, for certainly they should still remain as meadows until all of inferior quality shall be under the plough.

It is for the interest of individual proprietors that the poorer Grass land should be converted first, and it is for the interest of all that the "good grazing grounds" remain till the last in the general extension of arable culture. The question regarding them need not be entertained till our down lands and cold pastures are more generally under the plough. Nevertheless it may be for the interest of landowners to convert portions of good grazing grounds on their several farms—a higher rent will readily be given in consideration of this accommodation, and no expense will be incurred, as in cases where the operation is extensive, for the erection of farm-buildings. And in the case of small estates it is questionable whether it may not be advisable to plough up the whole. The following is a case in point; we cannot give the details in the form of *history*,—the operations have not yet commenced, and we must, therefore, confine ourselves to *anticipation* and *estimate*; nevertheless the following statement will not be uninstructive, as it will exhibit the mode in which a proposal for the conversion of good pasture land should be discussed.

It is proposed to improve a small estate of about 100 acres which lies on the clay of the new red sandstone formation—its rental is at present about 80*s.* per acre—it is nearly all in Grass, and though not of first-rate quality, it may properly be designated "good grazing ground." It is proposed to drain it, build on it, exeoute good roads on it, and finally break it up. The first thing to be determined (the tithes having been already commuted), is an answer to the question—What increase in annual value may be expected from all these operations? The neighbouring arable lands in good cultivation have been examined, and it is expected that this property may be made better than it is by 21*s.* per acre, or 105*l.* per annum on the whole. Now the proprietor expects 10*l.* per cent. for what money he invests in this way, and he must therefore endeavour to effect the desired change in the value of his estate by the expenditure of 1000 guineas.

The Drainage he expects will cost 4*l.* per acre, or on the whole	£400
And he will have to spend in improving the old roads and making new ones about	150
The buildings he has to erect must therefore not cost more than	500
Or else his whole expenditure will exceed at which he has pitched it.	£1050

The plan proposed for these buildings must be adapted for the very high cultivation of so small a farm, in order that the expected rental be forthcoming. Mr. WARNES'S system of box-feeding is to be adopted, as its superiority has been considered fully established over the other methods in vogue. The cattle stalls will therefore consist of a space of 45 feet by 80 feet, with a floor of burnt clay, enclosed by walls, and divided into 32 spaces, each 8 feet by 10 feet, arranged so that a passage shall adjoin each, and covered by a roof supported by the pillars dividing the "boxes." Accommodation will thus be given for 32 head of large cattle, or for 12 oxen and 200 sheep, or for any other arrangement of stock of equal size and consuming ability that may be desired. To this, of course, is annexed stabling for a sufficient number of cart-horses, a cart and implement shed, and a threshing and straw barn and granary; and the plan involves the erection of a steam engine to work the machinery, but the good policy of this erection may be doubted, unless it is desired the proprietor should be able to make additions to his little property. Now, this transaction, though on a limited scale, is perfectly illustrative of the method in which a decision must be made in the case of good grazing grounds. The probable increase in the value of the land must be estimated, and if it should prove a large per centage on the estimated expence attending the operations, then, provided the landlord has a trustworthy and capable tenant for the land, it should be broken up. This method of procedure affords, we think, the only limit which can in reason be put to this proceeding. It may answer well in practice to adopt a simpler method of determination, as, for instance, that Grass lands of 40*s.* per acre annual rental should remain in pasture (and certainly they ought till all of inferior quality be converted), or that Grass land capable of feeding an ox of a certain weight per acre per annum should remain, but these are certainly arbitrary, and may be inaccurate guides; the only method of making an intelligent decision is by careful calculation of expense and returns under the circumstances of each case.

In reference to the landlord's interest in the conversion of his pasture land, we may safely arrive at this conclusion, that, after deducting all those portions of his estate whose conversion to arable land would injure to any great extent its landscape beauty, as well as those portions which it is advisable should remain on each farm, as a convenience for the tenant; having deducted, moreover, all those portions which he is perfectly convinced would not yield him so much more rent as would pay a sufficient interest on his necessary outlay for buildings, drainage, &c.—then, with the rest, it is the interest of the proprietor to proceed, beginning with those parts of poorest sort, and building and draining and breaking up as fast as his own means will enable him, and as fast as he can obtain tenants of the requisite trustworthiness, intelligence, and capital.

AGRICULTURAL STATISTICS OF NEW YORK, U. S.

REPLY OF COLONEL H. S. RANDALL TO A TREASURY CIRCULAR. PUBLISHED IN THE "CORTLAND DEMOCRAT."

THE average net profits of agricultural production, where a considerable section of country is included in the estimate, must necessarily be, to some extent, conjectured. The United States census, though giving gross amounts of products, does not give the number of acres cultivated, the amount of labour, or the animals employed to obtain them. Dairy products, for example, are stated, but not the number of cows milked, acres depastured, or labourers employed. On sheep alone are we enabled to obtain the product per animal. It appears that in 1840 the number of sheep in the State was 5,118,777, and the product in wool 9,845,295 lbs., or less than 2 lbs. per head. It is to be hoped, and it

is probably true, that this miserably low average weight of fleece was improved in 1842, and has continued to improve since. We will assume that the average for that and the three succeeding years has been 2 lbs. per head. The average price for that period has been, as will be shown hereafter, 31 1-16 cents. It would require land of more than medium quality, "on well-managed farms," to sustain five sheep to the acre during summer, or the hay from half an acre to sustain the same number during winter.* The land which would do this would be worth at least 20 dollars per acre.† The average price of sheep, immediately after shearing, has not been far from 1 dol. 25 cts. per head; lambs at the same time 75 cents. The average annual increase in lambs is probably not far from 80 per cent.; or where the number of lambs is less by reason of the number of wethers in the flock, the growth of the latter would give a corresponding profit.

The profit and loss account, then, with 100 sheep, would stand thus:—

	Dols.	Cts.
100 sheep, to interest on purchase money	8	75
To interest on 30 acres, at 20 dollars per acre ..	42	00
To curing and storing hay on 5 acres of above ..	6	25
To expense of shearing	3	00
To loss by death—say two per centum over and above value of pulled wool	2	50
To labour of foddering during winter—say ..	5	00
To salt, tar, and summer care	4	00
To interest on winter shelter (worth, say 25 dols.)	1	75
Dols.	73	25
Cr.		
By 200 pounds wool, at 31 1-16 cents. per pound	62	12
By 80 lambs, at 75 per head	60	00
By manure	5	00
	127	12
Balance Dols.	53	87

Making a net profit of 1 dol. 79 17-30 cts. per acre on lands worth 20 dollars.

Now, 100 acres of cleared land of above quality (and this would at least equal the average in the southern section of New York) would support 333 1-3 sheep, and give an income of 179 dol. 56 2-3 cts. On the average, at least 30 acres of wood land will belong to every farm which contains 100 acres of cleared land. The interest on this would be 42 dols. Deduct from this 11 dols. 25 cts. for 30 cords of wood, for use of family (worth not to exceed 37 1-2 cents per cord, standing); leaving the account of an exclusively sheep farm of the above specified size to stand thus:—

Farm of 130 Acres.	Dols.	Cts.
To interest on capital	182	00
To taxes and insurance—say	12	00
To repairs to fences and buildings	20	00
Dols.	214	00
Cr.		
By keeping 333 1-3 sheep, yielding a profit of ..	319	56
By 30 cords of wood, at 37 1-2 cents. per cord ..	11	25
	330	81
Balance Dols.	116	81

I will now give a profit and loss account of rearing neat stock; selecting steers, which give a better return to the breeder and grazier than cows. I shall here be under the necessity of abandoning estimates by acres, as no farmer in the United States has, so far as I am informed, made experiments to determine the average amount of land required to supply the summer feed of neat stock of the various ages, from which reliable data can be drawn. I shall, therefore, estimate by the average price of pasturage, hay, &c.

	Dols.	Cts.
Cost of rearing a calf up to first winter	4	00
Hay for first winter, ½ ton, at 6 dollars per ton ..	3	00
Dols.	7	00
Summering a yearling, 26 weeks, at 10 cts. per week	2	60
Hay for second winter, 1 ton	6	00
Interest on first year's disbursements	0	40
Dols.	9	00
Summering a two-year old, 26 weeks, at 16 cents. per week	4	16
Hay for third winter, 1½ ton	9	00
Interest on previous year's disbursements	1	12
Dols.	14	28
Pasturing 8 weeks to ordinary time of sale, at 22 cents. per week	1	76
Interest on previous disbursements, 8 weeks ..	0	35
Previous disbursements	30	37
Total cost of raising a steer until three years and two months old	32	48
Average price of Grass and hay-fed steers, at that age, not to exceed .. .. Dols.	18	00

I have not estimated the pasturage as high as it will average in this (Cortland) and some of the better southern counties; perhaps a trifle higher than the price in some of the more sparely settled and remote from markets. At all events, I feel authorised in saying that no farmer can rear neat stock on Grass and hay alone to "three years old past," and obtain within 18 dollars per head of the nominal prices of the Grass and hay consumed by them. In the above estimate I have let manure offset against labour in feeding, &c.

Dairying, though sufficiently familiar with by the estimates of others, I have not had sufficient personal experience in to undertake to speak of its various processes with entire accuracy.—The average profits are not far from those derived from sheep husbandry, but it is attended with much more hard and confining labour. It also requires better soils and a larger investment of capital.

Fattening pork beyond what is necessary for family use, is not generally considered so profitable as wool-growing or dairying. The same remark will apply to the rearing of horses.

The expense of preparing the soils for the cereal grains (with the exception of Indian Corn) is not far from the same. In the following Table all expenses are included:—

Cost per acre.	Average number of bushels per acre.	Average value of stalks or straw.	Total value, estimating grain at average prices for the last five years.	Yet profits per acre.
	dols.	dols. cts.	dols. cts.	dols. cts.
Indian Corn ..	15	30	5 00	20 00	5 00
Spring Wheat ..	9	12	1 00	12 40	3 40
Barley	9	28	1 25	13 29	4 29
Oats	7	38	1 25	10 18	3 18

In considering the profits of these several branches of husbandry we are not to forget that there are but a few farms where we can select a single branch, that which appears most profitable under favourable circumstances, and pursue it to the exclusion of all others. There are lands and Grasses on most farms adapted to one kind of animals and not to another; and the same is true in relation to grains. Wet lands and coarse Grasses are unsuitable for sheep, they must be depastured by grosser feeding animals. High poor lands and steep declivities, on the other hand, could not be as profitably grazed by neat cattle as by sheep. He who has lands adapted to the cultivation of Indian corn will always find it a highly profitable crop; but there is rarely a farm in New York where the whole, or even a half, is suitable for Indian corn. If it were, it would be impracticable to obtain the necessary manure. If that was obtained it is out of the power of any ordinary farmer to raise force enough to get in, hoe, and finally harvest such a disproportioned crop. If we cultivate Indian corn, we must have cattle or horses to consume the stalks, and swine to eat the soft or unmarketable corn. To crop our lands with any reference to an economical preservation of their fertility, we must resort to a rotation of crops, requiring at least three kinds of grain, or two kinds of grain and one kind of roots; and so on through the whole circle of husbandry.

Whatever theoretical reasons there may be in favour of a division of labour on the farm, as well as in mechanical occupations, and however well the theory might work on favourable soils and near large markets, where every product can be sold, without converting it into another product, it is a reasoning which will not apply in the inland agricultural regions of the United States. I have already stated that, although in those inland positions all products bear a nominal price, many of them, such as hay, Potatoes, and even the coarse grains, find a cash market only to a very limited extent.

On the whole, it is my opinion that 10 per centum is realised on agricultural investments only by farmers of skill and under favourable circumstances; that from 6 to 7 per cent. is not far from the average profit from and including the year 1842.

ON GORSE AS FOOD FOR CATTLE.

(*Concluded from p. 415.*)

14. *As regards the Mode of Feeding with Furze*, it is difficult to lay down a rule that shall be applicable in all cases, or be generally approved. The great art of feeding with any particular kind of food does not consist so much in the quantity which may be given at a time as in the regularity with which it is supplied at stated periods of the day. Much, therefore, depends on the person who may be entrusted with the management, as it is to his care and discriminating judgment that the success or failure which may attend the use of this or that sort of food are mainly to be attributed From habit and observation he becomes acquainted with the quantity which ought to be given to each individual horse or cow, and regulates the proportions accordingly, so that no more is thrown before them than it is thought they can properly consume. This is very important, and when neglected is the cause of much waste and extravagance. It is well known that the same weight or quantity of food which may be enough for one animal at a time may on the contrary be too much or too little for another of a different nature and constitution. Hence arises the difficulty of fixing a standard, and of giving directions which may be referred to as a guide under such circumstances. What I should recommend to those who may be induced to make trial of Furze, is to be rather sparing in the supply of it at first; not that there is any fear of its being disliked; for cattle and horses are both remarkably fond of it, and will prefer it even to hay. In giving it to horses, the best way is to let them have a small portion at noon and night along with their hay and corn, and as they become accustomed to it the quantity may be increased, and the hay and corn diminished in like proportion. A horse will consume from 1½ to 2 bushels a day, and may be kept in excellent condition for about one-fourth less than the usual cost. It is not to be expected, however, that horses fed on green food can perform the same amount of work as others that are fed on such nutritious substances as hay and corn; but for the common purposes of husbandry, I have reason to know they can be kept in excellent working order when partially fed on Furze, and have coats as soft and silky as if they had been fed on Carrots, and kept in a warm stable. One great advantage to be derived from the feeding with Furze is that it becomes fit for use at the time the horses are housed in autumn, and by occasionally using it during winter, it enables the farmer to dispense with a larger proportion of hay until the spring, when the horses are harder worked, and, of course, require to be better fed.

For cattle, but more particularly milch cows, I do not know a better description of winter food, or one that is relished by them with a keener appetite, than Furze after it has been properly bruised. It is a singular fact that they prefer it when pounded with a wooden mallet, or crushed by the stone mill, to that which has been cut and bruised by iron. The latter appears as if it were acted on in some way by the juice of the plant, and communicated a peculiar taste, which cattle are not very fond of, but which is effectually overcome by mixing a little salt with the food previous to using.

The average quantity given to working cattle is about 2½ bushels a day, with a due allowance of straw. On this meagre fare, it is astonishing how much labour they will perform and continue to look well. Milch cows will thrive on Furze, and yield nearly as much milk as when fed on Clover. A moderate-sized cow will consume from 3 to 3½ bushels a day; but 2 or 2½ bushels, with a few Turnips and about 3 lbs. of hay, may be considered a fair allowance. I have taken some pains to ascertain the relative cost of keeping a cow on Furze, and one in the common way; and I believe I am correct in stating that the difference amounts to nearly a third in favour of the former.

15. Notwithstanding all that has been advanced in favour of Furze, I believe the general feeling of those who are most interested in this matter and likely to be most benefited by it in a pecuniary point of view, will be found to be against the use of it, on account of the extra labour which the cutting and grinding occasion, as compared with hay and Turnips, and it is only when there happens to be a scarcity of these that Furze will be resorted to. On large farms where there is no want of capital, and a supply of produce always equal to the demand, it will probably not be considered worth while to try the feeding with Furze; but on farms of moderate extent it will prove a valuable auxiliary, and amply compensate for what may have been expended on its culture. It is to this class of farmers—by far the most numerous—that I wish my remarks may be of service. Their prosperity mainly depends on pursuing a rigid system of economy in the feeding and management of their stock, and I feel confident if they could only be induced to make the feeding with Furze form a part of that system, they would be gratified with the result, not only in the saving it would effect in their expenditure, but in the improved condition and healthy appearance of their cattle.—*M. E. H.*

ON MEASURE WORK.

MANAGEMENT OF MANURE.—This is for the most part very properly measure work. Manure is either allowed to accumulate in the yard, till spring, and then turned over there, once or perhaps twice, and then taken to land and spread or ploughed in, or, which is the better plan, it is removed during the winter at convenient (say monthly) intervals from the yards to heaps round the liquid manure tanks, where it can be conveniently soaked; or to heaps in the fields on which it is ultimately to be applied where beds of mould have been prepared for its reception. In these latter cases it is turned generally twice, once in January or February, when the earth on which it lies is mingled with it; and the whole heap thrown up and well broken to pieces and commingled; again in April about three weeks before it is carted on the land. Let us suppose that the latter is the practice adopted; the expenses connected with it are, 1st the loading the carts in the yard, and carting to the heap; 2d, the first turning; 3d, the second turning; 4th, the loading the carts at the heap, and carting a distance of say 500 yards to the field; 5th, emptying the carts in the field; 6th, spreading the dung broadcast or in rows. Some of these items, for instance the carting, for reasons already given, and the emptying in the field, because of the care required to do it evenly, are done at day's wages; but all the rest is properly piece-work, and it is even well to let it all to the same party of men; and further if all manure sank equally in bulk during its decomposition, and if the earth were equally supplied for mixing with it, the whole of this work might be advantageously bargained for at so much per cubic yard, measured just before it is applied to the land. As an illustration of the mode in which manure sinks in bulk we may mention, as borne out by facts observed here, that 4000 cubic yards of straw, measured af er it has settled in the ricks, or to speak by weight, perhaps 200 tons of straw used as litter for beasts and horses, sheep and pigs, which during the winter months consume about 1400 tons of roots, will turn out about 3500 cubic yards of made manure, in the management of which the ordinary quantity of earth (say 6 inches deep under each manure heap), has been used.

Of the items already enumerated, the first (filling carts) will cost 2d. a yard, measured in the heap as soon as made (the carts are made to go over it, if it be early in the season,

* It is ordinarily estimated that, on the average, one acre will keep three sheep a year.

† The grazing lands of the southern section are far lower priced than the Wheat region, though they will produce probably as much or more Grass and hay.

and this compresses it). Three men can work at one cart; if strong men they may fill 320 yards in a day. A man and pair of horses (for at least two carts are needed) works with them, and this adds another ¼*d.* a yard to the cost.

The 2d operation (turning) costs 1*d.* per cubic yard measured before turned; two men work at one heap, a right and a left handed man should work together; a hay knife must be used to cut the heaps down in slices 2 feet wide, and these are successively thrown up and mixed with 6 inches of the earth on which they lay. The 3d operation (second turning) will cost about ½*d.* per yard, also measured before turned. The 4th operation (loading and carting to the field), will cost ¾*d.* per yard to fill; and four horses and carts are needed in travelling the distance of 500 yards. One man and horse are in the field emptying; another horse is at the heap with the cart that is being filled; a third is going full; and the fourth returning empty. Three men will fill enough (*i. e.* 120 yards a day) to keep the whole going.* Two boys will be needed to lead the carts. The expense of horse labour, besides the ¾*d.* a yard, putting two boys as equal in expence to one man, will be 16*s.* a day, or rather more than 1½*d.* per yard. The 6th operation (spreading) will be done by two men if the dressing be not very heavy, as fast as the dung is got ready, and three ploughs will suffice to plough it in. The expense of the spreading will therefore amount to about the half of three farthings a yard. We assume about 30 cubic yards per acre to be the dressing, and that it is applied broadcast; if applied in the drills, it needs in the spreading not two men, but one man and three women. Each row of heaps is on three drills; the man goes first, and, dividing every heap into three, the women follow and distribute each in its drills.

We shall now recapitulate, and in a second column estimate the cost of each operation per yard, measured when fully manufactured, of course allowing for an estimated reduction of bulk.

	Actual expense per yard, measured before each operation.		Estimated expense per yard, measured before the manure has been made	
	Piece-work.	Day and Horse work.	Piece-work.	Day and Horse work.
	d.	*d.*	*d.*	*d.*
1. Filling in yard, and carting to heap	¾	¾	1¼	1¼
2. First Turning	1	,,	1½	,,
3. Second Turning	½	,,	¾	,,
4. Loading and Carting	¾†	1½	¾	1½
5. Dividing in Field				
6. Spreading	⅜	,,	⅜	,,
Total Piece-work	4¼			
Total Day and Horse-work	2¾			
	7*d.*			

In all, the expense of manure-making, up to its being spread on land, need not exceed 7¼*d.* per yard, measured just before being spread; but 1¾*d.* of this (or, if we subtract the spreading also, 2⅛*d.* of this) is done at day's wages, and all the rest, which is properly piece-work, may be bargained for at 4¾*d.* a cubic yard.

I may just say one word here on the policy of arranging men in a chain of operations; the force at each link, so to speak, being proportioned to the work or strain which is brought to bear upon it. Thus, the filling, carting, dividing in the field, spreading, and ploughing in are such a chain, and if the force at each link be sufficient with industry to do the work which will come to its share, then, though the first party only be on measure work, yet *their* industry thus exerted is a surety for that of all the others.—*M. S.*

Home Correspondence.

Small Farms.—The following extract contains so much truth and common sense, it may be worth a corner in the *Agricultural Gazette*. "If we listen to the large farmer, the scientific agriculturist, the political economist, good farming must perish with large farms; the very idea that good farming can exist, unless on large farms cultivated with great capital, they hold to be absurd. Draining, manuring, economical arrangement, cleaning the land, regular rotations, valuable stock and implements, all belong exclusively to large farms, worked by large capitals, and by hired labour. This reads very well; but if we raise our eyes from their books to their fields, and coolly compare what we see in the best districts farmed in large farms, with what we see in the best districts farmed in small farms, we see, and there is no blinking the fact, better crops on the ground in Flanders, East Friesland, Holstein, in short, on the whole line of the arable land of equal quality of the Continent, from the Sound to Calais, than we see on the line of the British coast, opposite to this line, and in the same latitudes, from the Frith of Forth all round to Dover. Minute labour on small portions of arable ground give evidently in equal soils and climate, a superior productiveness, where these small portions belong in property, as in Flanders, Holland, Friesland, and Ditmarsh in Holstein, to the farmer. It is not pretended by our agricultural writers that our large farmers even in Berwickshire, Roxburghshire, or the Lothians, approach to the garden-like cultivation, attention to manures, drainage, and the clean state of the land, or in productiveness, from a small space of soil not originally rich, which distinguish the small farmers of Flanders and their system. In the best farmed parish in Scotland or England, more land is wasted in the corners and borders of the fields of large farms, in the roads through them, unnecessarily wide because they are bad, and bad because they are wide, in neglected commons, waste spots, useless belts and clumps of sorry trees, and such unproductive areas, that would maintain the poor of the parish if they were all laid together and cultivated."—*Falcon.*

Pigeons.—We have a pigeon-house with many birds, of the rock sort chiefly, in it. About two years ago, two milk-white strange birds came in an almost starved state, and the rocks attacked them fiercely; they were secured, and have been kept in a large wicker-cage, in a room in the house, and the lady who has them has in vain tried to obtain young pigeons from them. They build and hatch in the cage, then quarrel and forsake the young birds. Sometimes the eggs are forsaken after a few days' sitting. Thinking that boxes might induce them to sit more steadily, they were supplied, but to no better purpose. The cock appears to sit more upon the eggs, or at least as much as the hen. Can you oblige me by pointing out the best mode of proceeding to obtain young birds? and also by saying what sort you suppose they are—being white, with ruffs over the head extending down to the wings?—*Capuchin.*

Slugs.—Having seen two or three methods suggested lately by your correspondents for destroying slugs, I am tempted to send you the results of a very old-fashioned method for getting rid of these pests to the young crops. Finding that the slugs were very busy with a piece of Parsnips, I had the ground strewed with Cabbage leaves, and I had an account kept of the result of the three first pickings from the Cabbage leaves, which was done about 5 o'clock in the morning; there were upwards of 4000 slugs taken from the leaves in the three mornings from off about 25 rods or poles of ground. I cannot think that there can be any remedy more simple or more effectual than this, especially in a damp season, as this has been.—*J. H., Bayshot.*

Transmutation of Corn.—Being one of those to whom the announcement of the transmutation of Oats into Barley or Rye was by no means welcome, inasmuch as if true, the fact would overturn many cherished opinions, and at the same time desirous of proving the accuracy of the statements set forth by many persons, above the suspicion of intentionally propagating an error, I determined last year to satisfy myself by making the experiment. On the 16th of June, 1845, I dibbed a quantity of carefully-selected Oats on a space on the outside of my garden, and also on two other spaces the same quantity of Talavera Wheat and Barley. On the 15th of July I cut off the three crops almost close to the ground, and repeated the cutting on the 16th of August on the 22d September, and in the first week of November. At the last cutting I noticed that several of the Oat-plants had perished; whereas the Wheat and Barley had survived, and the remaining Oats as well as the Wheat and Barley had thrown up numerous stems. Early in the spring all the plants grew vigorously, and were in blossom in the first week of this month (June). No change, however, can I discover in the Oats, or in the Wheat and Barley. The Oats are still Oats, and not one of them has undergone the slightest metamorphosis. The strength of the plants, and the apparently increased number of stems of the three kinds of grain, as well as the early ripening of the crop, lead me to think that some good may result from the experiment, and that it may be found in many situations profitable to sow at Midsummer, and feed off two or three times before winter. It should be borne in mind that the soil in which the above experiment was made is not what is understood as garden-mould, as it contains little or no manure, having been burnt to a considerable depth the previous autumn, and has not been manured subsequently.—*G. Lloyd, Warwick.*——At the request of my employer I sowed on the 18th of June, 1845, about one rood of ground in an orchard, with white one-sided Oats, and cut them first early in August, and again in October, each time previous to their coming into ear. The result is part Wheat and part Oats now in full ear. In support of transformation I beg to state that two labourers were present at the time of sowing, and being naturally rather incredulous upon the subject, fully satisfied themselves that no other grain than Oats was sown, and in order to prevent seeds being deposited with the manure, the ground was dressed about six weeks previously with manure collected from a common, where the cattle had no means of picking up any grain. I have stated the above particulars because disbelievers are apt to conjecture that the transformed grain must have been deposited along with the Oats by some means or other. Dr. Weisenhorn tried the experiment, and the result was Rye. He states "let any one sow Oats during the latter end of June, and the transformation in question will certainly take place." In the present case part is Wheat; the other part might not have been properly cut. In conclusion, I would recommend all who doubt to try the experiment, bearing in mind that the crop must only be twice cut, and each time previous to the grain coming into ear. Since writing the above it has been suggested that the Wheat might have been sown by somebody unknown to us; but I give that idea no credence, for had any one attempted that they most likely would have sown Rye, which was the grain we expected. I inclose for your inspection two ears of the Wheat and two of the Oats for your opinion.—*George Robson, Gardener to R. W. Blencowe, Esq., The Hooke, Lewes, Sussex.* [We should certainly prefer believing that some mistake *by* the experimenter, or some trick *upon* him, had been made or played, rather than that this is a real case of transmutation.]

On the Potato Disease, &c.—I suppose the cause may have arisen from minute or animalculous flies spawning or depositing their eggs on diseased parts of the Potato-haulm, which upon hatching, the larvæ or young produced, descend or creep down and enter into the Potatoes, particularly those inclined to, or begun to rot, or become diseased from damp or wet. Microscopic examinations I cannot make; but an intelligent and to be depended upon gardener assured me that in some diseased Potatoes he perceived them to be quite crammed with minute white maggots, and I have myself seen some few diminutive ones slowly crawling on the outside of diseased Potatoes. A minute species of Beetle is reported to have been found also in diseased Potatoes; but as insects of that class live chiefly on animal substance, I conceive they get there with the piratical intention of attacking and devouring the maggots therein for food. I would recommend when going to plant Potatoes (when not sprouting), to give them a hasty dip, and remove from scalding water, to destroy the living principle in the eggs of the flies, should any of them have been deposited on them. To preserve the Potatoes in future, and to prevent the flies from assailing them, I think the best and most assured plan will be to keep them dry and unfrosted, with a good sprinkling of lime over them after a moderate fumigation of Tobacco-smoke, so as not to give any flavour of it to those for dressing, but more largely for the seed reserved.—In addition, I will also notice the Turnip flies, to state that I think if the Turnip-seeds were to have a little fumigating of Tobacco smoke just before sowing, that the Turnip-flies would not assail them to deposit their eggs, as perhaps they usually do, and that when the seeds vegetate and peep above the ground, I would sprinkle them over with a watering-pot [The watering-pot is not a *farm* implement], with a mixture composed of half an ounce of creosote, added to a gallon of water, or as bitter plants and herbs are seldom molested by insects, instead of the water substitute a moderately strong infusion of some bitter herbs, as Tansy or Wormwood, &c., or some shavings of Quassia, or a little Aloes, with which also the growing Potato-haulm may be occasionally sprinkled, and the trial of its efficacy may be made on the young vegetating Turnips on a selected patch in a Turnip-field, for I do not believe that the mischief is done to the Turnips in the character of flies, but by their larvæ or young; therefore, I do not recommend this as a remedy to destroy, but a preventive of the deposit of the eggs. By this plan I have submitted, if attended to, I feel confident that in future not only the cause may be removed and the prevention of the Potato disease be also effected, but likewise all farther injury to the Turnips from the Turnip-flies. Let my plan be decided by trial and proof.—*Henry Jenner, M.D., F.L.S., Berkeley, Dec.*, 1845.

Allotment System.—A paragraph upon the allotment system at page 363, by "a Dorset Labourer," elicits the following remarks from my pen:—The writer in question asserts, that in many instances as much as 1*s.* per perch is charged for land let to the poor in allotments. Now, in answer to this, I can state, that in no one instance that has come under my observation (and I have had opportunities of observing a great many) have I known of more than 10*s.* being charged for the rood or ¼ of an acre, *i.e.* 3*d.* the perch. Indeed, in the parish in which I am living (a parish in Herts) the poor have allotments of land at 5*s.* the rood, *i.e.* 1¼*d.* the perch; whilst the average rate of rent paid by the farmers in the parish and neighbourhood is 1*l.* the acre, exclusive of poor's-rates, &c., whilst in the allotments these are paid by the owners. But your correspondent considers it a question, whether an allotment of land let even at a reasonable rent be in reality a desirable thing for the poor man; and his reason is this, that it requires more labour to cultivate than a man, after being employed all day in a master's service, is capable of giving, if he does justice to his employer. (As nothing is said about the size of the allotment, and as this is a material consideration just here, we will assume it to be a rood or ¼ of an acre, which, in my estimation, should be the limit). Now, the objection above may apply in some few cases, but in the generality of cases I deny that it does. If the man is single, or married and has no family, or a very young family growing up, so young that not one can handle a spade or pull a weed; his wife an invalid, and himself engaged from years' end to years' end, in hard labour all the day long,—it may not be in the power of such an one to cultivate his rood of ground. But, in a parish where you would find one labouring man circumstanced as above, you would find 50 in totally opposite circumstances; you would find one with a strong and active wife, able to dig and plant and sow. Another, with a numerous family, one or more capable of sharing in the labours of the allotment. A third,

* As an illustration of the contrivances which will always occur to the practical man, and which are useful as fillips to the industry of the men, I may mention this:—Our carts hold rather more than one cubic yard; in fact, 100 loads are equal on an average to 120 yards. We keep an account of the loading both ways, and calculate the wages due to them, viz., 7*s.* 6*d.* per 120 yards or per 100 loads, on both of these data, and we retain liberty to pay them according to either of these methods. If they have worked well and with a will, we pay them the way in which the sum due is brought out the largest, and vice versa.

† I may mention that the men who at piece wages filled into carts 120 cubic yards in a day, used formerly, when at day's wages, rarely to exceed 100 cubic yards daily.

employed in light work in the day, and therefore able to give a considerable portion of his own strength to his ground. A fourth, having work only at particular seasons, is able to give whole weeks and days to his allotment. But granting that the labourer has the vigour left him in the evening after his day's work to cultivate his rood of ground. Is it desirable? This is your correspondent's next position. Ought so many hours to be devoted to the cultivation of the soil—so few, or rather none, to that of the mind? Doubtless it were most desirable that all people should be allowed time to devote to the cultivation of their minds. All, *i. e.* who are likely as well as capable of putting the time thus appropriated to its proper use. And I rejoice at the labours of those benevolent individuals who are now in London, Liverpool, and other large towns, exerting themselves to get the shops closed at an earlier hour of the day, that the class of persons engaged in them may have time to devote to intellectual pursuits, to healthful recreations, mental and bodily. But how would this time be spent by our agricultural labourers?—the great majority of whom have been suffered to grow up (shame to our rulers, our owners of the soil, and in those places where church property is not alienated, on our clergy), without having anything approaching to the name of education given them. Why in nine cases out of ten it would be spent either in listless idleness or active sin; in the haunts of drunkenness, in the company of the profane and dissolute. When the present youthful generation of agricultural labourers is grown up, many of whom are being educated, most of whom are being taught to read and write,* notwithstanding your correspondent's assertion about few schools being built for the children of the poor, it will be time enough then to think of providing time for the agricultural labourer to devote to intellectual pursuits; till then it is absurd, more than absurd. An overtasked body and a stunted intellect are slight evils to their possessor when compared with the evil of a depraved and corrupted heart. So convinced am I of the solid advantage of an allotment to the poor man that my fears lest the letter in question should mislead in ever so slight a degree, have induced me to trouble you with these few remarks on it.—*One who is in daily intercourse with the Poor Man.*

Wind Power.—I noticed in your Paper a letter from Mr. Grey, of Dilston, and could not but observe the kindly feeling therein exhibited; he states that as there is one—one remaining individual who wishes for information on wind power, he thinks it a pity that he should not have that information given him; now it so happens that I in a previous paper recommended a kind of horizontal sails; you will recollect that I made no boast of the matter, but merely said that if the gentleman to whom Mr. Grey has written would write to me, I should be glad to give him all the information I could. I have since received a letter from the Isle of Man and another from near Dunbar (North Briton), which I have answered to the best of my ability, and without charge, and with your leave I will make one or two remarks on Mr. Grey's letter; he is quite right in one sense, but he reminds me of a person in my neighbourhood who had got a steam engine on a new construction to turn his thrashing mill, straw cutter, millstone, &c., and I went to look at it—he was so condescending as to show me it himself—and in conversation he stated how little it cost him a quarter thrashing his Wheat; the smallness of the sum surprised me; I asked him what interest he charged for the money laid out, "Oh," said he "I did not think of the interest." Now it appears to me that Mr. Grey has not, perhaps, thought what effect the interest of a steam thrashing mill would have upon a farm of 150 or 200 acres of land: in my humble opinion, it would have a great effect; then there is getting the steam up, there is also keeping the engine in good order, and many other things, all these might have a serious effect upon a farmer of 150 acres; when he is going to thrash, he must have sufficient corn in the barn to make it worth while getting the steam up—it ought to go near a whole day; then, in order to keep the engine in order, he should at least thrash once a week. Suppose an engine cost 200*l.*, at 7 per cent. interest, coals, &c., &c., why, bless me, the man would get all his corn thrashed, and be beggared, too, before harvest, therefore I should not recommend any but large farmers to have steam power, nor windmills either, if they have them with vertical sails, but they might find horizontal sails very available, as they can be placed upon a common barn, provided the walls are moderately strong. I should be glad to give you an account of my plan, but am afraid I could not sufficiently explain it to be understood, but I will try to get a drawing made of it, and will send you it to use as you think proper.—*John Howgate, Naya Park, Knaresborough.*

ERRATA.—For "that *that* implement," in the 8th line from the bottom of the 2d col. in the article on West Indian Agriculture, published last week, read "that *other* implements." And in the 13th line from the top of the 3d col., for "the same," read "some."

* There is scarcely a parish of any size in this county where there is not a school for the children of the poor either in active operation, in the course of erection, or in contemplation.

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—A MONTHLY COUNCIL was held at the Society's House, in Hanover Square, on Wednesday last, the 1st of July. The following Members of the Council and Governors were present:—Sir Francis Lawley, Bart., in the Chair; Hon. R. H. Clive, M.P.; Sir Matthew White Ridley, Bart.; Sir Charles Lemon, Bart., M.P.; Sir John V. B. Johnstone, Bart.; Sir Robert Price, Bart., M.P.; Colonel Austen, M.P.; Thomas Raymond Barker, Esq.; John Bennett, Esq., M.P.; S. Bennett, Esq.; H. Blanshard, Esq; Colonel Challoner; F. C. Cherry, Esq.; S. Druce, Esq.; H. Gibbs, Esq.; B. Gibbs, Esq.; W. H. Hyett, Esq.; J. Kinder, Esq.; R. Milward, Esq.; E. A. Sanford, Esq.; Prof. Sewell; W. Shaw, Esq.; J. V. Shelley, Esq.; and C. Hampden Turner, Esq.

The following new members were elected:—

Cummins, Thomas, Mayor of Gateshead
Bigge, Matthew Robert, Sheriff of Newcastle-upon-Tyne
Dent, Ralph, Streatlam Castle, Barnard Castle, Durham
Surtees, Robert Lambton, Redworth, Darlington
Bertram, Charles (J.P.), Gateshead
Dent, John, Streatlam Castle, Durham
Dodd, T. A., Woodhouse, Ryton, Durham
Ruddock, John, Cukerland, Hexham
Turner, John, Thorpe, Perrow, Bedale
Headlam, Ven. Archdeacon, Wycliffe Rectory, Greta-Bridge
Blackwood, William, Saintfield, Co. Down, Ireland
Headlam, Morley, Wycliffe Rectory, Greta-Bridge
Allen, John, Willington, Newcastle-on-Tyne
Wilson, Ashley Henry, The Abbey, Wigton, Cumberland
Cooke, William, Camerton Hall, Workington, Cumberland
James, Thomas, Otterburn Tower, Newcastle-on-Tyne
Marshall, William, Westoe, South Shields
Greville, Fulke, S., North Mimms Park, Herts
Stephens, John Moore, Winscott, Torrington, Devon
Wilson, Robert, South Shields, Durham
Rogers, Francis (E. I. C. S.), Douglas, Isle of Man
Nethercoat, John, Moulton Grange, Northampton
Viner, Henry, Newby Hall, Ripon, Yorkshire
Newby, Henry, Hall Garth, Durham
Binks, Christopher, Friar's Goose House, Gateshead

The names of 33 candidates for election at the next meeting were then read.

FINANCES.—Colonel AUSTEN, M.P., Chairman of the Finance Committee, laid before the Council the Special Report of that Committee on the Arrears of Subscription, and the Monthly Report of the Accounts of the Society to the 30th of June. The former contained a statement of the various steps undertaken and in progress under the directions of the Committee, to facilitate the payment of the annual subscriptions as they become due, and to regulate the expenditure in reference to the current income, with a recommendation that a list of all members in arrear should be drawn out and published in the next Part of the Journal of the Society. The latter announced the invested capital of the Society as standing at 7000*l.* stock, with a current cash-balance of 2568*l.* in the hands of the bankers. These reports, and the recommendations which they contained, were unanimously approved and adopted by the Council. The Chairman then read a letter received from the Treasurer of the Local Committee, at Newcastle, in which it was stated that the sum of 1000*l.* as a subscription from the Northern District, towards the expenses of the ensuing Country Meeting, had been placed to the credit and at the disposal of the Society.

On the motion of Mr. SHELLEY, it was resolved, "That the Finance Committee be recommended to employ the Union Collectors in the county of Sussex, and in such other counties as they may deem expedient, for the collection of the arrears of subscription."

Mr. MILWARD laid before the Council two letters addressed to him by parties in Nottinghamshire, on the subject of the arrears of their subscription. These communications were referred to the Finance Committee, with special instructions.

POLICE.—The PRESIDENT transmitted to the Council a letter addressed to him by the Right Honourable Sir J. Graham, one of H. M.'s principal Secretaries of State, in reply to the application his lordship had made to him on the part of the Society, for the grant of the usual amount of detective police force at the Newcastle Meeting: in which communication Sir James Graham informed the President, that he had given directions for the assistance of the number of such police required for the use of the Society.—The Council ordered a vote of their best thanks to be transmitted to Sir James Graham for this communication.

GLASS PANS AND PIPES.—Sir JOHN WILLIAM LUBBOCK, Bart., one of the life-members of the Society, having received, through the liberality of Captain Stanley Carr, a certain number of the German glass milk-pans referred to by him in his paper on the Rural Economy of Schleswig, Holstein, and Lauenburg, published in the first volume of the Society's Journal (p. 380), both for his own use and for presentation in Capt. Carr's name to the Council, had induced Mr. PELLATT, of the Falcon Glass Works, Blackfriars, to undertake the manufacture of these utensils for sale in this country; and this gentleman having, from time to time, announced to the Council his progress in reducing the price of the glass pans and improving their manufacture, at this meeting informed the Council that he had been enabled to effect a still further reduction in the price of pans similar in size, but stronger in body, than those previously presented by him to the Society, namely, that he could now manufacture the pans at 3*s.* each in green glass, or of any size at the rate of 5*d.* per lb. in green, and 7*d.* per lb. in the best white flint glass. Mr. Pellatt further stated that it was his intention to attend, as a member of the Society, the next weekly meeting of the Council, for the purpose of communicating to the members a statement of his process of casting glass pipes for conducting water or other liquids.

The Council having finally ratified the Report of the Judges' Committee, and nominated the parties (whose official duties precluded them from inspecting the exhibition in the show-yards on the Thursday) who should have the privilege of admission into the cattle yard on the evening of the Wednesday, after the judges had completed their awards, then adjourned to the weekly meeting on the 8th inst.

Farmers' Clubs.

DARLINGTON: *June* 18.—*The best Seeds to sow for Green Crops to plough in as a Manure; also under what circumstances it is desirable to adopt this mode of cultivation.*—Mr. T. DIXON said, the value of green crops to plough in as a manure has, I believe, been long known to many farmers. Green crops, when ploughed in as a manure, very speedily decompose and combine with the soil; and being composed entirely of those substances and gases which plants require for their food (viz., carbon, oxygen, hydrogen, and nitrogen), this constitutes its principal value as a manure; and we may easily conceive that those substances being added to the soil in a half-digested state, it will require a much less effort from the succeeding crop to derive the requisite amount of sustenance from the soil than if such green crop had not been ploughed in; or rather, from the same effort, the succeeding crop will be able to derive a much more abundant amount of sustenance than if this kind of manuring had not been adopted. It may appear at first sight that the ploughing in of a green crop is but a very ineffectual mode of restoring or increasing the fertility of the soil, when we consider that we are adding no manuring or other substance, except the small quantity of seed sown to produce that green crop, and therefore, before going further into the subject, it may be necessary to explain my own views with regard to the constituent parts of green crops, and whence the whole of the food of which they are composed is obtained. It is now pretty well understood that all crops, plants, trees, and vegetables, receive a considerable portion of their food from the air; and that whilst the roots are sucking in food in a liquid state from the soil, the blades of corn and Grass, and the leaves of Turnips and other plants, are inhaling from the air such gases as are requisite for their growth; and as we know that carbon forms so large a proportion of all plants and vegetables, we may at once see the benefit that must arise from ploughing in a green crop, which must have in its growing state previously imbibed such a considerable proportion of carbonic acid from the air, the whole of which we are now adding to the soil. But, besides this, there is another advantage which is derived by ploughing in certain descriptions of green crops—I mean those crops, such as Clover and some others, which send their roots to a much greater depth than others; and which, in fact, strike their roots quite through the active soil into the subsoil in search of food, and thereby derive a considerable portion of their food from the subsoil. I think therefore that although we, in ploughing in a green crop, add no additional substance to the soil further than what has been produced thereon, yet the ensuing crop will be able to obtain food from the soil with increased facility after such a dressing, as we also by ploughing in deep-rooted green crops as a manure avail ourselves at once of something valuable derived both from the air and subsoil; and this is what I conceive to constitute the value of a manuring of this description, and which, to my certain knowledge, have produced both a great and likewise a lasting improvement in the soil. One of the best descriptions of green crops for that purpose is, I believe, Clover; or, at least, I happen to know more about the benefits of occasionally ploughing in a Clover fog than of any other description of green crop, although there are many others which I have no doubt will answer well. The proper time for ploughing in green crops as manure is, I believe, when just coming into flower, or a very little earlier; this being the period at which green crops contain the greatest quantity of sap and juices, which, when ploughed in, decompose more readily at this stage than if ploughed in at a later period of their growth. Now, with regard to what kind of crops, what description of soil, and what course of cropping, is best adapted to the ploughing in of green crops as a manure, I will not pretend to point out; but I am quite certain that the subject is well worthy of discussion and consideration, for I know it is of much more value than is generally believed.—An animated discussion took place, in which Clover fog appeared the favourite crop for ploughing in as a manure, although Beans and other descriptions of crops might answer well under certain circumstances. At the conclusion of the discussion it was resolved, that a Clover fog is the best description of green crop to plough in as a manure for a grain crop, which should afterwards be fallowed; and if then planted with Potatoes or Turnips, a less quantity of manure will do than under ordinary circumstances.

Tenants' Rights.—June 22.—After an interesting and instructive discussion on this subject, for which we regret our inability at present to find room, this Club arrived at the following resolutions, which were carried unanimously:—That the customary arrangements between landlord and tenant are capable of great improvement; That a yearly tenancy is more especially disadvantageous to both parties. 1st. Because the tenant will be likely to evade, as far as possible, the best system of husbandry if it in any way interfere with his immediate profits. 2d. Because he cannot be expected to invest the amount of capital needful for the best cultivation of the land. 3d. Because the landlord is not likely to obtain tenants of the same capital and talent. That for these reasons the Darlington Farmers' Club is of opinion that a lease ranging from 14 to 21 years ought to be adopted as far as possible. That in the absence of a legal agreement for the mutual protection of both landlord and tenant is most desirable.

Reviews.

Road Reform: a plan for abolishing turnpike tolls and statute labour assessments, and for providing the funds necessary for the public roads by an annual rate on horses. By Wm. Pagan, Writer. Wm. Blackwood and Sons, Paternoster-row, London.

THIS is a new edition, in a cheap form, of a work already reviewed in this Paper (see p. 89.) Though on an apparently dry subject, it is full of interest—the author illustrates his subject most skilfully, both by anecdotes and statistics, all exhibiting the partial, unjust, and injurious working of the present system of road management.

And this injustice and injury he *proves*; he shows that the general public are injured by the loss of that industry which, under other circumstances, would be developed, and that individuals, especially those by the tax on whom the roads are now, for the most part, maintained, and road trusts and parishes, have all a direct interest in the abolishment of the present system. We believe him to be perfectly right; and so also, as far as we have had any means of knowing, does every one else who has read his book. The principle which he advocates has been affirmed by large meetings in Fife and Forfarshire—the counties whose road statistics he has brought to bear on his subject. It is simply this, that in place of the costly and cumbrous system of toll houses, weigh bridges, and parish rates, which now prevails, there should be established a tax upon draught animals. What a saving there would be in the administration of road management were such a method adopted! The *net* cost of road maintenance in Fife and Kinross-shires is about 18,000*l.*—*the real cost to the public* is 33,000*l.*—for 15,000*l.* of this sum are lost in the expenses of collection!

The cost of management under this system is thus upwards of 44 per cent. of the whole; while under Mr. Pagan's system of a tax upon horses, it would amount to little more than 8 per cent. Well, we take this to be a considerable difference, and it appears to be fairly estimated; it is a difference, too, which would doubtless be paralleled all over the country, were the subject inquired into. The difference between the two plans, however, is not confined to the question of cost. Consider their relative tendencies; the one a direct and proportionate tax upon industry, increasing if *it* offers to increase, and thus keeping it down to the lowest point; the other a fixed annual payment, the same whether the animals taxed be at work or not, and thus a direct *bonus* upon their employment. We have no hesitation in saying that a legislative sanction of Mr. Pagan's plan of road reform would be of the greatest use, not only to the agricultural but to every other interest in the kingdom. Every one is more or less interested in the subject; we recommend our readers therefore, each to spend a shilling in the purchase of this book, and read what the author urges in favour of his scheme; and then, themselves convinced, let them urge its truths upon their neighbours, and public opinion, thus excited, will soon effect the reform which it will feel to be necessary.

Miscellaneous.

Burnt Clay for Wheat.—Several accounts of the good effect of burnt clay as a manure have appeared in the Journal: having used it with success, I am induced to add my own testimony in its favour, chiefly on account of the very bad quality of the land on which it succeeded. It is a farm of about 500 acres, which I bought seven years since, on the Oxford clay, of the very stiffest description, never ploughed with less than four, sometimes with five or even six horses. The soil was like bird-lime in wet weather, and in dry summers like stone, requiring a pickaxe to break it. Many of the fields might be described as being all subsoil, there being no real mould on the surface. The average yield of Wheat did not exceed 16 bushels an acre, and on some fields the Thistles were more numerous than the stalks of Wheat. It had the worst possible character, so that even in 1839, when prices were good, many farmers who looked at the farm declined to occupy it, and I had great difficulty in finding a tenant at all. Having bought the farm, however, chiefly because it is the most difficult sort of land to manage (said, indeed, to defy improvement), in order to try what could be made of it, as Lord Ducie and Mr. Morton have done at Whitfield with so much success, I underdrained the whole, in the first instance at 10 feet apart, but now at 30 feet apart, and 34 inches in depth. In order to make the land work more easily, I procured from Essex some labourers conversant with the mode of burning clay which is there practised. Into the details of that process I need not enter, as excellent accounts of it have been given in this Journal by Mr. Pyin (vol. iii. p. 323), and by Mr. Randell (vol. v. p. 113). I burnt large quantities for the tenant, but until last year no record of the effect had been kept, when, seeing him apply it to a small Wheat-field of 8 acres, I begged him to omit the burnt clay on one corner of the field, that we might know whether it was worth while to burn any more clay. Mr. Cheer did so accordingly. The crop was a very fine one; and after harvest he threshed out about one-eighth of an acre separately. He found the result as follows:—

One Acre.	Wheat.
No manure	37½ bushels.
80 yards burnt clay	45½ ,,
80 yards ditto, and sheep-folded	47½ ,,

It will be remarked that this is not a garden experiment, but applies to a whole field of Wheat, and that the account was given in by the occupier of the land. Now I have lying before me the valuation at which I bought this identical field, one of the worst on the farm. It is 10*s.* an acre for rent, or 14*l.* for the fee-simple. Thorough draining with thorns, at 10 feet asunder, cost about 3*l.* 10*s.* It could now be done with pipes for 2*l.* Dressing with 80 bushels of burnt clay cost about 2*l.* 5*s.* The crop must have been worth this year about 17*l.*, or nearly the fee-simple of the land and the cost of the improvements. It will be observed that on a third lot the land was dressed with sheep-folding, in addition to the burnt clay, but that the increase of yield was trifling. The manure, in fact, was more than the crop would bear, and the Wheat was consequently laid by the wet summer. This is a conclusive proof that the burnt clay, in this instance, acted as a manure, and not merely mechanically. I do not mean that burnt clay will always act as a manure, indeed I know that it sometimes fails to do so, and there is yet much to learn on the subject; but this case of success being beyond suspicion of accident, I have thought it right to detail the circumstances of the trial, as an encouragement to the owners and tenants of the worst and most expensive kind of heavy land, which I believe to be the Oxford clay, where it is not covered with soil of a different quality. This farm at Longworth is that on which the trial of the ploughs reserved from Shrewsbury took place last autumn; and Mr. Parkes, in his report on the implements, bears witness to its obstinate nature.—*Mr. Pusey, in English Agricultural Society's Journal.*

To avoid Exhausting the Land, by Growing Flax.—It has always been urged against Flax culture, that it exhausted the soil; but this is not necessarily the case. If the seed be saved, and cattle fed upon the bolls, a valuable addition will be made to the manure heap, as perhaps the richest manure is produced by this kind of food. The putrescent water from the Flax pools should be carefully preserved, and either used as a top dressing for Grass, or mixed with the weeds, and other refuse of the crop, in a heap to ferment. By these means, almost all the matter abstracted from the soil, by the Flax crop, would be returned in the shape of manure—the fibre being supplied by the atmosphere alone.—*5th Report, Flax Society.*

Hop Culture.—I have submitted to several experienced planters the following estimate of the cost of raising and cultivating an acre of Hops in the Weald of Kent, presuming the plantation to be in its full vigour, and the cultivation liberal. 1. Raising the plantation:—

	£	s.	d.	£	s.	d.
Ploughing and subsoiling	1	10	0			
Harrowing	0	5	0			
Manure—50 loads of dung, at 2*s.*	5	0	0			
Setting out hills	0	2	6			
Digging holes, and filling up with manure	1	5	0			
Plants, 5000 at 6*d.* per hundred	1	5	0			
Planting	0	8	0			
Expenses of planting				9	15	6
Skimming, or horse hoeing, 5 times	1	5	0			
Four-feet-poles, one to each hill, and labour	0	5	0			
Chopping round the hills, at 8*d.* per hundred	0	6	8			
Striking furrows and shovelling	0	3	4			
Draining, 240 rods, at 9*d.*	9	0	0			
Rent, taxes, and tithe	2	0	0			
Total expense, first year				22	15	6

2. Cost of cultivation from the second to the sixth year, both inclusive:—

	£	s.	d.	£	s.	d.
Striking up and furrowing	0	5	0			
Stripping and stacking poles	0	6	6			
Digging, at 2½*d.* per hundred	0	17	6			
Manure, carting on, &c.	8	0	0			
Dressing (pruning), at 6*d.* per hundred	0	5	0			
Sharpening poles and poling, 1*s.* 6*d.* per hundred	0	15	0			
Tying, at 10½ per hundred	0	8	4			
Ladder tying	0	3	0			
Chopping, at 9*d.* per hundred	0	7	6			
Skimming, or horse-hoeing, 5 times, rolling, &c.	1	5	0			
Hilling at 3*d.* per hundred	0	2	6			
Setting up poles and incidental expenses	0	3	0			
Poles, carting on, &c.	8	10	0			
Rent and repairs to oast	1	5	0			
Rent, rates and tithe	2	10	0			
Interest on capital, 30*l.* per acre	1	10	0			
Cost of cultivation per annum				26	18	4
Estimated growth, 10 cwt. per acre.						
Picking	5	0	0			
Drying, packing, &c.	3	10	0			
Duty	8	14	6			
				17	4	6
Total cost per annum				£43	17	10

The above calculation will probably somewhat exceed the actual cost per acre of an entire plantation, consisting of several gardens of different ages and strength, as in such case the poles would be thoroughly worn out, and a few other expenses diminished. It must nevertheless be considered as a fair average of the class of Hops to which it relates. In Mid-Kent the cost per acre is several pounds higher. The Mid-Kent Hops, however, consist mostly of the finer sorts, and will command from 15 to 25 per cent. higher prices than those of the Weald; the duty in each case being precisely the same. It must be observed that there is no crop the first year, and that the second is generally but trifling. I have added nothing for interest on the original cost of rearing the plantation, since draining is a permanent improvement, and Hop-gardens, when grubbed are in a much improved condition for every purpose of cultivation. The following is a summary of the produce, &c. of a Hop-plantation in the Weald of Kent for ten years. The plantation may be considered quite an average for the district, either as it relates to the suitability of the soil, the state of cultivation, or the prices obtained.

Years.	Acres.	Growth. Cwt.	qrs.	lbs.	Sold for £	s.	d.	Average p. Acre. Cwt.	qrs.	lbs.
1835	27½	315	0	0	*1148	5	0	11	1	22
1836	30	245	0	0	801	11	2	8	0	18
1837	28	207	0	0	727	10	0	7	1	16
1838	25½	298	2	0	1302	0	3	12	2	22
1839	21½	329	0	4	980	16	0	15	1	6
1840	22½	14	1	17	70	8	6	0	2	15
1841	22½	228	0	11	1316	0	7	5	3	16
1842	22½	228	3	6	962	14	6	10	0	12
1843	25½	274	0	0	1328	3	3	10	3	6
1844	25½	78	2	23	549	0	3	3	0	0
		2213	2	5	9249	13	6	8	3	7

Average value per acre for 10 years.. .. £36 17 6
Average value per cwt. after deducting expenses of carriage and commission .. 4 3 6

* The price per cwt. ranged between 48*s.* and 150*s.* in the above case during the ten years.

In this statement neither the duty nor the expenses of picking, drying, &c. have been charged—a sum usually computed at 35*l.* a ton, or 1*l.* 15*s.* per cwt.—*Mr. Buckland in English Ag. Soc. Journal.*

Turnips.—The introduction of artificial manures, and of the manure seed-drill, has effected an important change in the cultivation of this invaluable root. Swedes should properly succeed the Wheat, or lay Oats; and when this takes place the land is ploughed as soon after harvest as possible. When grown on a Grass-lay the first ploughing seldom takes place until Lady-day, and the ground is worked sufficiently to cleanse it of weeds, as shortly after May as possible. In June it receives the seed furrow, and the dung when applied is covered in by that ploughing. The seed is usually drilled on the flat surface, at 18 inches apart, with a machine that deposits the manure at the same time, which is generally bone or guano; and when dung is applied, either a smaller quantity of those manures or ashes of some kind are commonly drilled in with the seed. On many of the cliff lands on the south coast, sea-weed is extensively employed for this crop, ploughed under the furrow with the first ploughing, in most instances producing a crop of white Turnips; but generally, dung, bone, or ashes are employed also, in order to secure a good crop of Swedes. The cost of producing an acre of Swedes, grown after Wheat, is thus estimated by two farmers:—

	£	s.	d.		£	s.	d.
3 ploughings, at 6*s.*	0	18	0	First ploughing	0	7	6
4 harrowings, rolling and cultivating, &c.	0	15	0	Second cross ploughing	0	6	6
3 cwt. Peruvian guano*	1	16	0	Harrowing and rolling	0	7	0
Seed	0	2	0	20 loads of dung, at 2*s.* 6*d.*	2	10	0
Drilling	0	1	0	Carting & spreading	0	4	6
2 hoeings & singling	0	10	6	Third ploughing	0	6	6
				Harrowing and rolling once over	0	5	0
				12 bush. of bone-dust, at 20*s.* per qr.	1	10	0
				Drilling	0	1	0
				2 hoeings & singling	0	10	6
	£1	2	6		£2	7	6

In the Turnip prizes that have been obtained for the last five years at the winter meetings of the Cornwall Agricultural Association, the Swedes average 25 tons per acre, and 198 roots to the perch. The usual time of sowing white and yellows is from the 24th June to the 25th of July. For Swedes, from the latter part of May to the middle of June ‡—*Mr. Karkeek, English Agricultural Society's Journal.*

One-Horse Carts.—The advantages derived from the use of one-horse carts I shall here point out in the order in which they were brought under my notice on my own farm, and which are of course to be realised on all farms in proportion to their size. The first advantage I derived was in stocking my farm, which contains about 230 acres, all arable, and would, under the waggon system, have required four waggons and four carts, which, if purchased new, would have cost as follows:—

	£	s.	d.
2 waggons, at 30*l.*	60	0	0
2 harvest do., at 15*l.*	30	0	0
4 carts, at 12*l.*	48	0	0
Total	£138	0	0

But by using one-horse carts, with fittings for harvest-work, my outlay was—

	£	s.	d.
4 carts complete at 13*l.*	52	0	0

In order to prove, however, that there was a saving of 86*l.*, as appears here, it will be necessary to show that I am in no way inconvenienced by the entire substitution of one-horse carts for waggons and carts of a larger description. In the first place, there is no farming purpose to which waggons or large carts are applied for which one-horse carts are not also adapted, and it will be seen in the following table (which I have

* From 2½ to 3 cwt. of guano are used per acre. The Ichaboe was tried last season, and answered exceedingly well. I have witnessed some exceedingly good crops produced by 2½ cwt. of Ichaboe guano per acre.

† 2*s.* 6*d.* per load is considered to be full value for farm-yard manure, such as is generally made in Cornwall.

‡ *Storing of Turnips.*—The Cornish farmers have a dislike to the loss of the tops of the Swede Turnips, and a very common plan of "storing" is to cart the Swedes in their entire state to some convenient meadow near the farm-yard, and there place them close to each other on the surface of the land, just in the same state as when growing—this is called "pitching." Others pile them up indiscriminately, without any protection from the weather, after having lopped off the "tops and tails." Others store them in caves, and a few carefully pile and thatch them, to preserve them against the winter frosts.—See the best mode of storing Turnips in Cornwall in the Journal of the Royal Agricultural Society, vol. ii. p. 225. Prize Essay, by Mr. W. E. Gleach, of Cornwall.

laid down from a careful observation of the capabilities of one-horse carts and waggons), that one horse in a cart is capable of conveying much more than half what can be carried on a waggon with two horses.

ONE-HORSE CARTS.		TWO-HORSE WAGGONS.	
Wheat-sheaves	.. 172	Wheat-sheaves	.. 207
Corn, cake, &c.	.. 25 cwt.	Corn, cake, &c.	.. 45 cwt.
Bones ..	.. 60 bush.	Bones ..	.. 100 bush.

The difference in the quantity of sheaf-corn carried by each though small, may by some be considered a great disadvantage; but I think it matters not so much how many sheaves are carried at a time, as that the stacker should be kept well employed; and the little time that may be taken up in the extra tying on of the load is amply regained by the additional number of bottoms of loads the pitcher has to put up. Thus, for harvest-work four carts with four horses are equal to four waggons with eight horses. And again, for manure carting, four one-horse carts are equal to four two-horse carts, with these advantages, that being more lightly built, and carrying somewhat less loads, they are not so liable to poach the land when wet; and the labour of the four horses thus saved not only enables me to get more forward with my work, but also to obtain more fully the advantage generally admitted of ploughing down the manure as soon as laid upon the land. Though it requires one person to every 25 cwt., and with a waggon only one to every 45 cwt., it is not less economical, as I find a boy 14 years old, at 8*d.* a day, as capable of managing one horse in a cart as a man is of driving two in a waggon. I think I have now clearly shown that a farmer is in no way inconvenienced by using only one-horse carts, and consequently 86*l.* may be saved by their use in stocking a farm of 230 acres. The next advantage I derived was in building a hovel to shelter my farming carriages, which cost 35*l.*; had I used waggons and carts, a hovel to shelter all would have cost upwards of 70*l.* The advantage derived from their use in summer is very apparent, when having fallows to work and Clover to carry, I do not materially retard the operation of fallowing by taking three horses to carry my Clover. In harvest four of my older horses carry all my corn; and the four younger being severely worked on the fallows, are rested to prepare them for Wheat seeding and other autumnal work. There being seldom other work during harvest for horses than carrying corn, it may be considered no advantage to use only half of them, but it gives the farmer the opportunity of changing horses during a long day's work; and if any should be prevented from working by accident or illness, he is not obliged to stop a team, which he must do did he employ all his horses in waggons. Carts are less destructive to the roads than waggons, because carrying more upon four wheels than waggons they consequently occasion less wear—but especially in a hilly country, where it is necessary to lock the wheels. It is there also that one-horse carts are much less dangerous than larger carts, because the shaft horse having to regulate the pace down-hill, can more easily do so with a one-horse load than with a two-horse load behind him. A horse is more able to recover himself, and consequently less liable to injury from falling, when drawing by himself than when another horse is pulling before him. The next advantage, though small, deserves attention, as it tends in some degree to lessen the annual expenses of the farmer, viz., carts being more easily turned and guided than waggons, the drivers are not so liable to knock down gate-posts or the corners of buildings. One-horse carts are indispensable on a farm, some parts of which require, on account of their distance from the farm-yard, more carriages for the conveyance of corn or manure to and fro than the number of horses requisite for the working of the farm would be sufficient to draw if worked in double harness. I do not consider that there is any saving of manual labour in the use of one-horse carts; and if the distance is so great from one place to another that a continued chain of carts cannot be kept up, the advantage gained is only the difference between two one-horse cart loads and one two-horse waggon load. But should both ends be kept employed in all our most busy times, such as Bean-sowing, Potato-setting, Oat-sowing, Turnip-sowing, hay-harvest, Corn-harvest, Wheat-seeding, and whenever other work is in hand besides carting, the farmer can gain or save the labour of as many horses as the number of the one-horse carts he employs amounts to. The most economical application of horse-labour should be the study of all farmers.—*Mr. Loomes, in English Agricultural Society's Journal.*

Substance of Report by Sir R. Kane on the Nature of different Parts and Products of the Flax Plant.—

Substance analysed.	Ashes per cent.	Phosphoric acid per cent.	Nitrogen per cent.
Capsules	8.80	0.39	1.80
Husks	6.51	0.38	1.50
Seed	5.18	0.47	1.81
Cake	8.67	0.81	2.25

To establish a comparison of the nutritive values of these bodies, it is first necessary to remark, that, according to the analyses of Boussingault, whose correctness is worthy of great confidence, the nitrogen and phosphoric acid of Wheat and Oats, which we may take as standards, are as follows:—In 100 parts, Wheat contains 2.8 of nitrogen, and 1.13 of phosphoric acid, per cent. Oats contain 2.2 of nitrogen, and 0.60 of phosphoric acid, per cent. Now, representing the real nutritive powers of these varieties of food as being the result of the nitrogen and phosphoric acid conjoined; that is, of their product, and assuming the nutritive power of Wheat as a standard—100, we find that we may express the

Nutritive power of	Wheat	100
,, ,,	Oats	51
,, ,,	Flax capsules with seeds ..	27
,, ,,	Husks	22
,, ,,	Flaxseed	83
,, ,,	Linseed cake	70
,, ,,	Dry Clover hay	39

The precise nutritive value of the different substances yielded by the Flax plant is thus seen, and it becomes evident, that the capsules or husks may be used as food with very great advantage, although they are not equal to the other richer materials with which I have compared them. It will be easily understood that the quantities of each kind of food necessary to support the life of an animal will be inversely proportional to the numbers assigned above, as expressing their nutritive powers.—*Robert Kane, Dublin. Feb.* 52.

Rape.—The culture of Rape has been partially introduced with success as a preparation for the Wheat crop and food for sheep.* The method of cultivation, where the pasture is coarse, is to plough the Grass deeply at Christmas, and, after it has been cultivated and well worked, lime or sand and dung are applied, but now more frequently guano or bone-dust, which are drilled in with the seed, after the second ploughing in April. But when the land is free from stroil and weeds, only one ploughing is required, which is done in March or April, with a "turn-wrest plough," having a skim-coulter attached, by which the rim of the soil is turned completely under the furrow.† This has been successfully practised for many years in Probus, on Trewithen, Barteliver, and other farms. Mr. Tremayne, of Heligan, has written a very interesting paper on the cultivation of Rape in Cornwall, in this Journal. He imagines, and very justly too, that a great part of the expenses of the wheat crop may be saved—particularly the lime bill—by the growing of Rape and feeding of sheep. The cost of growing an acre of Rape and Wheat as practised on a coarse piece of land may be thus stated:—

1st.—Deep ploughing	£0	8	0
Cultivating and harrowing ..	0	7	6
2d.—Ploughing	0	6	0
Harrowing and rolling	0	7	0
2½ cwt. of Ichaboe guano, at 8*s.* per cwt.	1	0	0
Seed, from 6 to 8 lbs.	0	2	8
Expenses of sowing, drilling, &c. .	0	1	0
	2	11	8

Expenses of producing a crop of Wheat after Rape:—

1st.—Ploughing	0	8	0
Harrowing	0	2	0
Seed and sowing	0	17	0
	1	8	0
	£3	19	8

The cultivation of the Wheat crop by the old method, in the cheapest manner, can never be done much under 5*l.*, and when lime is applied, it will generally amount to 6*l.* per acre, thus making a clear profit of 40*s.*, besides the gain on the feeding of the sheep.—*Mr. Harkeek, English Agricultural Society's Journal.*

Calendar of Operations.

JULY.

Though it be late now to be sowing Turnips, yet as we receive many inquiries about the best way to prepare superphosphate of lime for that crop, we may as well just state here all we know about it. Undoubtedly, in our opinion, where manure dealers or manufacturers to be depended upon, are near, the best way is to buy the materials (acid, bones, and

The following experiment on the use of Rape as food for sheep was made on Barteliver Farm, where the practice has been to commence sowing in April, and continue until the latter part of July:—

5 acres, sown 10th and 14th May, stocked to 2nd July.
3 do. do. 21st June, do. 2nd August.
6 do. do. 10th July do. 21st August.

These 14 acres kept (folded) from 68 to 110 sheep to the 2nd of November, averaging 80 in number during that period. On the 10th August, 10 wether hogs were weighed that were feeding on the Rape, and again on the 21st of September; the increase of weight is as follows:—

Average Weight of each Sheep, Aug. 10.	Average Weight of each Sheep, Sept 21.	Average Increase of Weight in Six Weeks.	Average Profit of each Sheep, at 6*d.* per lb.
146 lbs.	166 lbs.	20 lbs.	10*s.*

The difference between this system of farming and that of grazing the sheep on thin pastures is very considerable. Suppose the gain on the whole flock to average only 12 lbs. of mutton, or 6*s.* each sheep, it would pay 6*d.* per week each for the keep, whilst the Grass that would have grown on the 14 acres would be trifling compared with the profit from feeding on Rape. The expenses, too, of the Wheat crop which follows are greatly reduced, since the manure left after the folding of the sheep is far more valuable on light soils, than any lime which may be applied.

† It must be observed that in using this plough, the land must be clean and in good condition. The ploughing need not take place until March or April, which may be accomplished in wet weather when no other field work can be performed. The expenses of cultivating a crop of Rape by this method are as follow:—

Skim-coulter ploughing	£0	10	0
Harrowing	0	3	0
Guano	1	0	0
Seed	0	2	8
Sowing and Drilling	0	1	0
	£1	16	8

The skim-coulter may be screwed at any fixed height, so that in its progress through the ground it pares off the surface at the requisite depth, turns it over, and the slice thus cut off is buried by the common share of the plough beneath the soil. It is easily worked by two good horses, the draught not being more than 4 cwt. Another advantage in the use of this plough is, that in addition to the saving of labour, the land may be pastured up to the time of sowing. Very little harrowing is required, and the soil is in a better state to receive the seed than can be possibly obtained by any other method. I have seen Wheat, Barley, Oats, Turnips, and Potatoes also cultivated in this manner.

drifted coal-ashes) of them, and get them to prepare it—they will do it for 2*s.* per bushel of the bones. But when it is to be done at home, any of the following ways will answer:—that of Mr. Lawes, as described at page 393; that of Mr. Tennant—"I put," says he, "25 bushels into three old boilers (of which every farm-liera has a supply), and next pour in two bottles of acid of about 170 lbs. each, and 18 imperial gallons of boiling water into each boiler. It boils away at a great rate for some time, and in a day or two we empty the boilers into two carts of light mould, and turn the mixture over. At this stage the bones are only partially dissolved, but they heat and decompose in the heap, after being turned over two or three times, and in the course of seven weeks the compost becomes dry and breaks down with a shovel, in a state fit for spreading with the hand in a drill." Or that of Mr. Pusey—"I formed a flat heap of dry mould about 10 feet across, the surface of which was scooped into a hollow basin, capable of holding 20 bushels of ground fresh bones. Sulphuric acid to the amount of half the weight of the bones was gradually poured into this basin. They soon began to heat, seething violently, and sending out a great deal of steam with a peculiarly offensive stench; presently the whole mixture wears the appearance of boiling blood, and swells so much from the escape of gas, that the workmen stirring it with their hoes, must take great care to prevent it from escaping over the sides of the earthen basin. In a short time, however, the cauldron becomes quiet, and the bones disappear altogether, except a few fragments, so that the heap may be shovelled together, and might be drilled on the same day, but this would not be advisable, as some small lumps still remain in a half liquid state."

Hay-making, and horse-hoeing and hand-hoeing green crops, are the main occupation of the farmer during the early part of this month.

Notices to Correspondents.

AMMONIA—*T D W* asks, how sulphuric acid is to be used for the purpose of fixing ammonia in stables? Perhaps some one who has used it may inform us. We should be afraid to use it for this purpose, but sulphate of iron (green vitriol) would answer equally well, and be safer; and the way we would use it, would be to dissolve about 1½ lbs. of the sulphate of iron in a bucket half full of water, and after the horse has stoled, just after coming in from work, and before bedding it down for the night, take and throw the water over the floor of its stall, and let all run into the tank.

BONES AND SULPHURIC ACID—*T D W*—The lumps may not break down immediately, but throw the whole into a heap with ashes for a few days, and it will crumble after a bit—see Calendar. Are your rows of Lucerne far apart? It is recommended to single out the plants to six or eight inches apart—*i. e.* if your soil is rich.

BOOKS—*A Sub*—Reid's "Chemistry of Nature," and Professor Johnston's "Lectures on Agricultural Chemistry and Geology."

BURNT CLAY—*P*—It is not, properly speaking, a *fixer* of ammonia. It detains it merely in virtue of a *mechanical* affinity (so to speak), just as charcoal does. It may be burnt most cheaply as recommended by "G." in last week's paper.

DISEASE IN SHEEP—*Inquirer*—Next week. We have some recollection of having received the question before, but can find no answer recorded, if this be so, we must beg your pardon.

EGGS—*M D T* would much like to know if eggs will keep for any certainty in an ice-house; if so, would not hanging shelves (such as are used to keep mice from cheese) suspended in the ice-house, and perforated for the reception of the eggs, be the best way of preserving them?

FISH OFFAL—*Picador*—The refuse bones will be worth more per ton alone than if mixed with gypsum, they would probably be worth 3*l.* to 4*l.* per ton if delivered in a condition fit for applying to the land. If you are disposed to speculate in this matter, you had better first get the quantity of phosphate of lime in an average specimen ascertained by the chemist. Gypsum may be reduced by calcining or grinding. We have plenty of it here cheaper than you can import it.

GARDEN FARM—*Capricle*—St. John's Day Rye will probably give you the earliest spring feed; this should be grown, as food to cattle, along with some Mangold Wurzel and Carrots kept from autumn; then Vetches and Mangold Wurzel; then Italian Rye Grass and Clover; then Lucerne, which with Vetches and the Rye Grass and a few Cabbages should keep you all summer and into autumn; when, first, the early Horn Carrot may be given along with the last of them; then the Carrot and early Turnips, along with a little hay or Linseed and Bean meal mixed; and then the Swedes for the rest of the winter, along with hay chaff soaked with Linseed soup, and dusted with Bean meal. We will endeavour next week to obtain for you a statement of the quantities you may or should grow, with the stock it will keep. But please to say if these 20 acres are to be all kept *constantly* in green crop, or all every other year, or half only constantly alternating with a grain crop.

GOLD OF PLEASURE—*Gold, &c.*—When the seeds are ripe mow or reap; tie in sheaves; thrash them out when dry, crush the seed, and give it along with Bean meal to your cattle; and use the straw as litter. Flax is in every respect a superior plant.

GUANO—*J A*—It will not suffer any injury by lying for a time mixed with bones or burnt clay. It might from ashes; but that depends upon their composition. If old you might safely use them also. To be quite sure of keeping all the volatile parts of guano you should add to it some sulphuric acid—say 15 to 20 lbs. per cwt., according to its composition. Sulphuric acid may be had for 1*d.* a pound. About Oats and Beans see pages 327, 395, and 414.

OFFENSIVE POND—*H G*—How would it answer to throw in at intervals, at the upper side of the pond, a cart load of charcoal dust? This would probably remove the smell and purify the water, and increase the value of the mud whenever you may clean it out.

PLENTY OF STRAW PRODUCED, BUT LITTLE WHEAT—*Vicars*—Your friend should try marling his land. You have not told us its quality; but his experience is similar to that of those who attempt to grow Wheat on vegetable—*e. g.* peaty—soils.

Markets.

SMITHFIELD, MONDAY, June 29.—Per Stone of 8 lbs.

Best Scots, Herefords, &c.	3	10	to 4	0	Best Long-wools	— to —
Best Short Horns	3	4	3	8	Ditto (shorn)	3 8 4 0
Second quality Beasts	2	8	3	2	Ewes and second quality	— —
Calves	4	0	4	6	Ditto (shorn)	3 8 3 8
Best Downs & Half-breds	—	—			Lambs	5 0 6 0
Ditto (shorn)	4	0	4	4	Pigs	3 8 4 0

Beasts, 3641; Sheep and Lambs, 31,360; Calves, 201; Pigs, 290.

The supply of Beasts is rather small, but quite adequate to the demand. The trade is more cheerful, and 4*s* is pretty generally obtained for the best Beasts; a few of the most selling Short-horns have made 3*s* 10*d*.—Although there are not quite so many Sheep, yet the supply is good, and trade is scarcely any better.—Lamb trade is dull.—The trade for Calves and Pigs is exceedingly heavy.

FRIDAY, July 3.

The warm weather makes trade very heavy amongst the Beasts; 4*s* is with difficulty realised for the best Beasts, and 4*s* 2*d* is the top price for Short-horns.—Mutton is not quite so plentiful, but the demand being small trade is very heavy, and Monday's prices with difficulty supported.—Lamb is in demand, but prices no higher.—Calves are a little more in request; some of the choicest have made nearly 5*s*.—Pork trade continues very heavy.

Beasts, 3664; Sheep and Lambs, 11,940; Calves, 491; Pigs, 320.

41, West Smithfield.

HOPS, FRIDAY, July 3.

The accounts coming more unfavourable from the plantations during the last few days, the duty is again declining, and we have a better demand for all qps at improved prices. Duty now 70s. to 80s.

FAIRBAIRN & SONS, Hop-Factors.

COVENT GARDEN, JULY 4.—Most kinds of Vegetables have been plentifully supplied, and Fruit has been abundant. Good Pine-apples may be obtained at from 4s. to 8s. per lb. Hot-house Grapes, of excellent quality, are abundant and cheap. Good Plums, and excellent samples of Peaches and Nectarines, have been offered. Ripe Cherries and Strawberries are plentiful, more especially the latter. Gooseberries are abundant, and a considerable quantity of Dutch Currants has been offered, and have realised tolerably good prices. Apples and Pears are nearly over for a season, what remain are sold at nominal prices. Oranges are plentiful, considering the season, and Nuts of all kinds are sufficient for the demand. Lemons are scarce and dear. English Melons may be obtained at last week's prices, and some good foreign ones are also in the market. Of Vegetables, Asparagus is scarcer, and consequently dearer. Cabbages, Cauliflowers, &c., are good and sufficient for the demand. Carrots and Turnips are cheaper. Peas have been rather scarce during the week, and good young samples have been fetching high prices. Beans remain nearly the same as last week. Celery is good in quality. Potatoes of the best quality fetch 9l. a ton, and in one or two cases 10l. and 12l. a ton; but inferior samples may be obtained at lower prices. Ash-leaved Kidneys have not altered since last week, nevertheless, the supply is somewhat limited. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Heaths, Jasmines, Azaleas, Calceolarias, Pinks, Cyclamens, Orange flowers, Rhododendrons, Cinerarias, Gardenias, Moss and other Roses.

FRUITS.

Pine-Apples, per lb., 4s. to 8s
Grapes, Hothouse, per lb., 2s. to 6s
Apples, Dessert, per bushel, 7s. to 20s
— Kitchen, 7s. to 12s
Melons, each, 2s. to 6s
Pears, per doz., 10s. to 24s
Nectarines, per doz. 10s. to 24s
Oranges, per dozen, 1s. to 2s 6d
— per 100, 6s. to 10s
— Seville, per 100, 10s. to 16s
— per dozen, 2s. to 3s 6d
Lemons, per dozen, 2s 6d to 6s
— per 100, 10s. to 20s
Gooseberries green, per bl., 2s. to 3s
Currants, red, per bl. 2s. to 3s
— white, do. 4s. to 5s
Strawberries, per pottle, 6d. to 1s 6d
Raspberries, per pottle, 4d. to 6d
Cherries, per lb., 4d. to 6d
Almonds, per peck, 6s
Sweet Almonds, per lb., 2s. to 3s
Filberts, English, p. 100 lbs., 80s. to 90s
Nuts, Cob, per 100 lb., 80s. to 90s
— Barcelona, 20s
— Brazil, 15s. to 16s
— Spanish, 14s
Walnuts, per bushel, 12s. to 16s

VEGETABLES.

Cabbages, per doz., 6d. to 1s 3d
Cauliflowers, per doz., 2s. to 6s
Artichokes, per doz., 1s. to 4s
French Beans, per bl. 2s., 2s 6d to 4s
Peas, per sieve, 2s. to 6s
Sprue, per bushel-sieve, 3d. to 1s
Potatoes, per ton, 70s. to 100s
— cwt., 4s. to 6s
— bushel, 3s. to 4s 6d
— Jersey, per cwt., 12s. to 19s
— Flukes, per lb., 2d. to 6d
Asparagus, per bunch, 2d. to 10d
Beet (red), per doz., 1d. to 1s 6d
Cucumbers, each, 3d. to 6d
Mushrooms, per pottle, 1s. to 2s
Onions, per doz. bunches, 2s. to 3s
Shallots, per lb., 6d. to 8d
Garlic, per lb., 4d. to 6d
Lettuce, per score, Cabs., 1s. to 1s 6d
— Cos, 1s. to 2s 6d
Radishes, per 12 bunches, 6d. to 1s
Mushrooms, per pottle, 1s. 6d. to 2s
Small Salads, per punnet, 2d. to 3d
Fennel, per bunch, 1d. to 2d
Savory, per bunch, 4d. to 6d
Tarragon, per bunch, 4d
Watercress, p. 12 sm. bun. 6d. to 8d
Parsley, per bunch, 1d. to 2d
— 12 do. per bundle 1s
Tarragon, per bunch, 6d
Mint, green, per bunch, 6d. to 8d
Marjoram, per bunch, 4d.
Chervil, per punnet, 2d. to 3d
Carrots, per bunch, 4d. to 10d
Onions, per doz. bunches, 2s. to 3s
Shallots, per lb., 6d. to 8d
Garlic, per lb., 4d. to 6d
Lettuce, per score, Cabs., 1s. to 1s 6d
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— 12 do. per bundle 1s
Tarragon, per bunch, 6d
Mint, green, per bunch, 6d. to 8d
Marjoram, per bunch, 4d.
Chervil, per punnet, 2d. to 3d

HAY.—Per Load of 36 Trusses.

SMITHFIELD, July 2.

Fine Meadow Hay	75s. to 88s.	New Hay	— to — s.
Inferior do.	60	70	Clover	100 to 112
New & Rowen do.	80	60	New Clover	80
New Cir.	65s to 85s
Straw	31	37

JOHN GOODES, Salesman.

CUMBERLAND MARKET, July 2.

Fine Meadow Hay	75s to 88s	Old Clover	110s to 115s
Inferior do.	65	72	Inferior do.	92	105
New do.	60	72	New Clover	80	90
Straw	33s to 36s

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, July 3.

Fine Old Hay	80s to 84s	Old Clover	110s to 115s
Inferior do.	60	70	Inferior do.	—	—
New Clover	58	65	New Clover	70	81
Straw	30s to 35s

MARK-LANE, MONDAY, June 29

There was a moderate supply of Wheat from Essex, Kent, and Suffolk, this morning, the sale of which could not be proceeded with in the early part of the day without submitting to a decline, which as the day progressed amounted to fully 4s. to 5s. per qr. In foreign, business was limited, being kept on the same terms as on Friday, with which buyers were unwilling to comply. There was a small supply of Beans and Peas, for which former rates have been obtained.—Barley meets a ready sale at previous quotations.—The large quantity of Oats received from Ireland has depressed the value of this article 2s. per qr. and upwards.

AVERAGES, PER IMPERIAL QUARTER.

	s.	d.		s.	d.
Wheat, Essex, Kent and Suffolk, White	55	60	Red	50	55
— Lincolnshire, and Yorkshire	50	54	White	50	54
Rye, Cambridgeshire and Hertfordshire	30	33	Chevalier	30	33
Oats, Lincolnshire and Yorkshire	20	30	Poland	22	30	Peas	25	28
— Northumberland and Scotch	—	—	Feed	22	30	Potato	30	33
Barley, grinding	—	—	Feed	25	29	Potato	30	31
— malting	—	—	—	34	39			
— Chevalier	—	—	—	30	36			
Beans, Tick	32	36	Tick	32	36	Harrow	34	40
— Horse, Lincolnshire	36	to	42	Winds	—	—	Longpod	—	—
Beans, Pigeon	36	to	40	Maple	33	36	Grey	32	34

FRIDAY, July 3.

The arrivals of English Wheat since Monday amount to [illegible], those of foreign to 15,190; business in either has been slow and quite of a retail character, but we do not alter our quotations from that day.—In Barley, Beans, and Peas, very little is done, and their value remains unaltered.—Flour is to obtain late prices, but inferior sorts are again the turn cheaper.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	7040	540	180	1,190 Sks
Irish	—	—	8390	—
Foreign	15,190	520	24,40	—

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye	Beans.	Peas.
Mon. 29th per Quarter.	50s 8d	30s 10d	23s 8d	34s 6d	36s 0d	34s 6d
— 30	53 4	31 4	23 0	32 4	35 10	34 2
Tues. 30	52 10	27 8	22 4	32 10	35 10	34 10
— 31	52 0	27 1	23 8	32 4	35 8	— —
— 00	51 6	27 3	23 3	33 4	36 4	35 6
— 27	52 2	27 4	23 6	32 7	37 6	37 6
Week's Average	52 10	27 9	23 0	33 0	35 0	35 2	34 4
Duty on Foreign Corn	5	4 0	1 6	4 0	4 0	4 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, June 27

	May 23	May 30	June 6	June 13	June 20	June 27
56s 0d						
52 1	..	..	..	..	..	..
— 4	..	..	..	..	..	..
52 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 2	..	..	..	..	..	..
— 0	..	..	..	..	..	..
51 5	..	..	..	..	..	..
— 1	..	..	..	..	..	..
— 3	..	..	..	..	..	..
— 2	..	..	..	..	..	..

SEEDS, July 3.

Canary	per qr	38s to 44s	Linseed Cakes, Foreign, per ton	7l to 8l
Coriander	per cwt	45 48	Mustard, White	—	—
Clover, Red, English	—	—	—	Superfine	—	—
— Foreign	—	—	—	Brown	—	—
— White, English	—	—	Rapeseed, English, per last	26l	28l
— Foreign	—	—	Rape Cakes	per ton	—	—
Coriander	—	—	10 16	Safflower	—	—
Hempseed	per qr.	38 36	Tares, Eng. winter p. bush.	—	—
Linseed	per qr	45 48	— Foreign	—	Bucked
— Baltic	—	40 48	Trefoil	per cwt	—	—
— Cakes Eng. per 1000	10l 11l	Turnip (too variable for quotation)		

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Societies.—Geographical Society (Currents of the Ocean)—Geological Society (Mr. Darwin and Associated Papers)—Royal Society (Col. Sykes, on Catalogue of Books—Institute of British Architects—Sharps of Columns of Mr. Nasmyth, on Machine—Mr. Shipbuilding, on Origin—Statistical (Mr. Phillips on Col. Sykes, on Mortality of Bath—Rural—Linnean (Election—Functions of Cuticle—Zoological—Ethnological (Mr. Bathurst—Civil Engineers (Mr. Hawkshaw, Trains at various velocities over Wensum)—Institute of Painters in Oil (Criticism on Art).

Fine Arts.—British Institution—Exhibition of Mr. B. R. Haydon—Mr. Howard—Mr. de Lys—Mr. Howard—Mr. Mosaic of Roller pavement.

Music and the Drama.—Monday Concerts—Her Majesty's Theatre—Royal Italian Opera—the Week—Madame Pasta—Mr. Hullah's Upper School—Lyceum—Adelphi—Haymarket (Miss Cushman's Performances).

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30	2 2 9	2 13 5	50	3 17 0	4 10 8
35	2 8 0	2 19 10	55	4 10 4	5 6 4

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AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 28—1846.] SATURDAY, JULY 11. [Price 6*d*.

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GRAVESEND AND MILTON HORTICULTURAL EXHIBITIONS.—Exhibitors are respectfully informed that an Exhibition will be holden on the Royal Terrace Pier on the 16th of July, inst., when the following Scale of Prizes will be distributed, without any deduction for entrance:—24 best Stove and Greenhouse Plants, 6*l*.; 18 do., 5*l*.; 12 do., 3*l*.; 6 do., 1*l*. 10*s*.; together with second and third prizes in proportion. Also for 12 best Pelargoniums, 3*l*.; Calceolarias, 2*l*. 10*s*; 12 Fuchsias, 2*l*.; and most other plants usually exhibited, together with second, third, and fourth Prizes for each. Prizes also for all kinds of Fruit are offered.

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RESPLENDENT, 1844.—Rather small flower, the colour of Foster's "Conflagration," with a whitish-tinged eye and a well-defined spot; a free bloomer and good habit. 1*l*. 1*s*. Shown for the scarlet prize at the Botanical Society's Exhibition, 1845, and obtained it.

SIRIUS.—A large-sized crimson-scarlet flower, of excellent quality and substance, and has been much admired in my collection, 1*l*. 11*s*. 6*d*.

GIGANTIC.—This is sent out as a Trade flower only. It is of great size, forming large and abundant trusses, making a striking object on the stage, and is also well adapted for exhibition, particularly in the country, 10*s*. 6*d*.

In offering the above to the Public, I beg to remark, their characters are not my own, but taken from the Reports of the Exhibition, with the exception of the two last. I am glad to hear the last year's selection has given such general satisfaction, and I think the above will do the same.

Worton Cottage, Isleworth.

VAN HOUTTE'S NEW VARIETIES OF CHILIAN ALSTRŒMERIAS.

LOUIS VAN HOUTTE, Florist, to the King, Ghent, Belgium, begs to offer his Chilian ALSTRŒMERIAS at the following rates, viz—12 varieties, 10*s*.; 25 varieties, 16*s*.; 50 varieties, 28*s*. Orders received by Mr. George Rahn, 52, Mark-lane, London; or application may be made (post paid) to Mr. Van Houtte, at Ghent. The deliveries will commence on the 1st of August next, and the plants forwarded to London free.

The Rev. Dean of Manchester, speaking of his visit to Mr. Van Houtte's establishment at Ghent (see *Gardeners' Chronicle*, 12th July, 1845), says of these plants:—"They are of every tint from scarlet to lemon colour; and from crimson to pale green variegated with white." He further adds of their effect in masses—"I do not recollect ever having seen a bed of flowers so beautiful, and I should think Mr. Van Houtte will find it difficult to supply the demand for them, when their merit shall become fully known."

In the report of the same Journal, on the meeting of the Horticultural Society of the 5th August, 1845, is the following account of this flower:—"Messrs. Van Houtte sent a bouquet from Ghent, composed of Alstrœmeria blooms from the open ground; they were hybrids of various colours, and although somewhat tarnished by the journey and wet weather, to which they were said to have been lately exposed, yet they sufficiently showed what beautiful objects large masses of them would be in the flower-garden, and fully justified the opinion given of them by the Dean of Manchester in a late Number."

N.B. Each packet contains directions for planting and cultivating them. The usual discount to the trade.

FLORICULTURAL SEEDS.

JAMES CARTER, Seedsman and Florist, No. 238, High Holborn, London, begs leave to submit a list of FLOWER SEEDS, proper for present and autumn sowing, to the notice of his customers; they will be sent prepaid.

I.—FINE HARDY PERENNIALS.

Per packet—	*s*.	*d*.
Anemone, choice, mixed	0	6
Antirrhinum, very fine	0	6
Aquilegia, 20 fine var. m.	0	6
Campanula, 6 species, m.	0	6
Carnation, finest German	2	6
Delphinium, fine tall ..	0	6
,, Chinese, extra, m.	0	6
Dianthus, 6 fine sp. scp.	1	6
Digitalis, 12 sp. mixed..	0	6
Geum, finest mixed ..	0	6
Heartsease, finest ..	1	0
Hollyhock, 20 finest, sep.	6	0
,, 15 do. do. ..	3	0
,, extra fine m.	1	0
Œnothera, fine mixed ..	0	6
Papaver, finest mixed ..	0	6
Pentstemon, 12 sp. m...	1	0
Potentilla, 6 do. do. ..	0	6
Ranunculus, finest m...	1	0
Rhododendron, do. do..	1	0
Scabiosa, splendid new	1	0
Stock, Queen, 12 var. sep.	3	0
,, Brompton, 4 do. do.	1	0
,, new Imperial ..	1	0
Sweet William, 20 vars.	0	6
,, Scarlet and crimson	0	6
Wallflower, 12 var. sep.	3	0
,, double mixed	0	6
,, do. blue, 3 var.	1	0
,, single, all var. m.	0	6

II.—HARDY AND HALF-HARDY ANNUALS.

10 German tall Larkspur	2	6	12 var. German Stock ..	2	6
Fine dwarf do. per oz ..	1	6	12 do. larger packets ..	4	0
12 fine hardy Annuals	3	0	12 do. Prussian Stock ..	4	0
*12 fine half hardy do ..	4	0	12 do. Autumnal do. ..	4	0
50 var. German Stock ..	8	0	Fine mixed German do.	1	6
25 do. do. ..	4	0	New scarlet do. ..	0	6

If sown immediately, those marked with an * would probably flower this autumn; a part might be sown about the middle of August.

III.—FINE GREENHOUSE SEEDS.

Alstrœmeria, finest mix.	1	0	Ipomœa tyrianthina ..	1	6
Brachycome iberidifolia	0	6	,, rubro-cœrulea..	1	6
Cassalpinia, splendid new	2	6	Leucadendron, 12 sp. ..	7	6
Calceolaria, finest mixed	1	0	Lotus, 4 fine species m.	0	6
Chœnostoma polyanthus	0	6	Lobelia, 4 Cape sp. m...	0	6
Cobœa scandens ..	0	6	Lophospermum, 3 sp. m.	0	6
Cytisus, 4 fine species ..	0	6	Maurandya, 3 sp. m. ..	0	6
Cyclamen, 4 do. do. ..	1	0	Passiflora, 6 sp. m. ..	1	0
Elichrysum, 5 Cape sp.	1	0	Petunia, finest mixed ..	0	6
Erica, 40 fine species, s.	20	0	Phlox Drummondii, ext.	0	6
,, 30 do do. mixed	2	6	Proten, 15 fine sp. sep.	10	0
Fuchsia, impregnated..	1	6	Thunbergia alata	0	6
Geranium, fine mixed..	1	0	25 fine Greenhouse seeds	10	0
Gloxinia, 12 fine species	1	0	Very fine mixed do. do.	1	0

*** J. C. has also a very large collection of Kitchen Garden and Flower Seeds, of which a Catalogue is published. A new Catalogue of Genuine Dutch Bulbs will be ready at the usual time, and will be sent prepaid, on application as above.

E. BECK informs the Public that the various Articles manufactured by him in Slate for Horticultural purposes, may be seen in use at Worton Cottage, Isleworth, upon application to the gardener (*Sundays excepted*).

TO AMATEURS OF BULBS.

BERNARD SAUNDERS, Nurseryman & Florist, Island of Jersey, most respectfully informs the Nobility, Gentry, Amateurs, and the Trade in general, that his list of CAPE and other BULBS is now ready, and may be had on pre-paid application. Jersey, July 11.

JEPHSON GARDENS.—A Premium of TWENTY-FIVE POUNDS will be awarded by the Trustees of these Gardens to the person who shall produce the best Set of PLANS, accompanied with a Specification for laying them out. A Premium of TEN POUNDS will be awarded for the second-best Plan. The Ground consists of about Eleven Acres of Land, which it is intended to convert into an Ornamental Garden and Pleasure Ground. The Plans upon which the Premiums are awarded will become the property of the Trustees. All Plans must be accompanied with an Estimate of the probable Cost. A Lithographic Ground Plan may be seen at the Office of Mr. Owen White, Honorary Secretary, Lower Parade, Leamington; of whom, also, further particulars may be obtained. The Plans to be delivered to the Secretary on or before Saturday, the 15th of August, 1846.

By Order, Owen White, Honorary Secretary.

Leamington, June 25, 1846.

FRUITS PRESERVED BY COOPER'S PATENT APPARATUS have been proved to keep perfectly sound and good for family use for FIVE YEARS. This process is well suited for the preservation of Pine-apples, Strawberries, Wall-fruit, &c., retaining and concentrating all their excellent and peculiar flavours; the Strawberries are adapted to be used with cream at all seasons of the year.



Sample hampers of the fruits generally preserved for family use, including extras, a machine corkscrew, with the whole particulars of the patent process, and testimonials, will be delivered at any part of London, for TEN SHILLINGS, by an order addressed to the Patentee, James Cooper, 7, the upper part of St. John-street, Clerkenwell, London.

The Patent Apparatus and Vessels are on sale at the Manufactory as above.

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.

EXHIBITION, JULY 1st, 1846.

AWARD OF THE JUDGES.

THE FIRST GOLD MEDAL.

To Mr. Barnes, gr. to G. W. Norman, Esq., Bromley, for 30 Stove and Greenhouse Plants; to Mr. Fraser, Nurseryman, Lea-bridge road, for do.; to Mr. P. N. Don, gr. to P. G. Cox, Esq., Stockwell, for 15 Exotic Orchids; to Messrs. Rollissons, Nurserymen, Tooting, for do.

THE SECOND GOLD MEDAL.

To Mr. Ayres, gr. to J. Cook, Esq., Blackheath, for 20 Stove and Greenhouse Plants; to Mr. Hunt, gr. to Miss Traill, Bromley, for do.; to Mr. H. Plant, gr. to J. H. Schroder, Esq., Stratford Green, for 10 Exotic Orchids; to Mr. Ingram, gr. to Her Majesty, Frogmore, for a collection of 10 dishes of Fruit.

THE THIRD GOLD MEDAL.

To Mr. Hunt, for 15 Cape Heaths.

THE FIRST SILVER GILT MEDAL.

To Mr. Green, gr. to Sir E. Antrobus, Bart., Cheam, for 10 Stove and Greenhouse Plants; to Mr. Barnes, for 15 Cape Heaths; also for 6 Exotic Orchids; to Mr. Rae, gr. to J. J. Blandy, Esq., Reading, for 10 Exotic Orchids; to Mr. Stainer, Middle-row-place, for 12 Pelargoniums in 8-inch pots; also for do. in 11-inch; to Mr. Dobson, gr. to Mr. Beck, Slate works, Isleworth, for 12 Pelargoniums in 10 8-inch pots; to Mr. Fleming, gr. to the Duke of Sutherland, Trentham, for a collection of 10 dishes of Fruit.

THE FIRST SILVER MEDAL.

To Messrs. Fairbairn, Nurserymen, Clapham, for 12 Cape Heaths.

THE SECOND SILVER GILT MEDAL.

To Mr. Bruce, gr. to D. Miller, Esq., Tooting, for 10 Stove and Greenhouse Plants; to Mr. Clarke, gr. to W. Block, Esq., Muswell-hill, for 6 Stove and Greenhouse Plants; to Mr. Green, for 6 tall Cacti; to Mr. Olive, gr. to Mrs. Hoffman, Regent's-park, for 30 dwarf Cacti; to Mr. Ayres, for 15 Cape Heaths; to Mr. Fraser, for 12 Cape Heaths; to Mr. Green, for 6 Cape Heaths; to Mr. Bruce, for 6 Cape Heaths; to Mr. G. Bennett, gr. to J. Smith, Esq., Dulwich, for 6 Calceolarias; to Messrs. Henderson, Nurserymen, Pine-Apple-place, for ditto; to Mr. Cook, Chiswick, for 12 Pelargoniums in 8-inch pots; also for ditto, in 11 inch pots; to Mr. Gaines, Nurseryman, Battersea, for ditto; to Mr. Dawson, gr. to J. Simpson, Esq., Pimlico, for 8 Pelargoniums in 8-inch pots; to Messrs. Lane and Sons, Nurserymen, Berkhampstead, for 12 Roses in pots; to Mr. Burton, Hampstead, for a Device in Flowers; to Mr. T. Bolton, gr. to W. Wynn, Esq., Nostell Priory, Wakefield, for a Providence Pine; to Mr. T. Bray, gr. to E. Lousada, Esq., Peakhouse Sidmouth, for a Queen Pine; to Mr. Brewin, gr. to R. Gunter, Esq., Earl's-court, for an Antigua Pine; to Mr. Hunt, for a Cluster of Black Hamburgh Grapes; to Mr. Davis, gr. to A. Smith, Esq., Woodhall-park, for a dish of White Muscat Grapes; to Mr. Parker, gr. to J. H. Onslow, Esq., Roehampton, for 4 dishes of Peaches and Nectarines.

THE SECOND SILVER MEDAL.

To Mr. Malyon, gr. to T. Brandram, Esq., Blackheath, for 10 Stove and Greenhouse Plants; to Mr. Taylor, gr. to J. Costar, Esq., Streatham, for 6 Stove and Greenhouse Plants; to Mr. Hunt, for Erica Massoni; to Messrs. Henderson, for Æschynanthus Boschovianus; to Mr. A. Smith, gr. to J. Henderson, Esq., the Holme, Regent's-park for British Ferns; also for correct Labels; to Mr. Keith, Botanic Garden, Chelsea, for 25 British plants (exogenous); to Mr. Williamson, Royal Botanic Garden, Kew, for ditto (endogenous); to Messrs. Rollisson, for 12 Cape Heaths; to Mr. Fraser, for 6 Fuchsias; to Mr. May, gr. to E. Goodhart, Esq., Beckenham, for 6 Cape Heaths; to Mr. Rosser, gr. to J. N. Helling, Esq., Streatham, for 6 Cape Heaths; to Mr. Kaye, gr. to B. D. Colvine, Esq., Norwood Hill Lodge, for Nerium splendens; to Mr. Barnes, for 4 Clerodendrons; to Mr. Gaines, for 6 Calceolarias; to Mr. Kendall, Nurseryman, Stoke Newington, for 6 Fuchsias; to Mr. Coysh, gr. to R. Hudson, Esq., for 6 Pelargoniums, in 8-inch pots; to Mr. Dobson, for 12 Roses in pots; to Mr. Francis, Nurseryman, Hertford, for 100 Cut Roses; to Messrs. Paul and Son, Nurserymen, Cheshunt, for new Roses; to Mr. T. Bolton for a Providence Pine; to Mr. Spencer, gr. to the Marquis of Lansdowne, Bowood Park, for a Queen Pine; to Mr. Gadd, Betchworth Castle, for a Cantaloupe Melon; to Mr. Bushy, gr. to S. Crowley, Esq., Stockwood Park, for a Persian Melon (Honsianee); to Mr. Davey, gr. to G. Smith, Esq., Colney Hatch, for a dish of Black Hamburgh Grapes; to Mr. Gadd, for a dish of White Muscadine Grapes; to Mr. Northcote, Wanstead, for a Fruiting Vine in a pot; to Mr. Kyle, gr. to R. Barclay, Esq., Leyton, for 4 dishes of Peaches and Nectarines; to Mr. Parker, for two dishes of ditto, to Mr. T. Bray, for a dish of Guavas.

THE THIRD SILVER MEDAL.

To Mr. Haup, gr. to J. Thorne, Esq., Lambeth, for 10 Stove and Greenhouse Plants; to Mr. Stanley, gr. to H. Berens, Esq., Sidcup, for 6 Stove and Greenhouse Plants; to Mr. Kaye, for ditto, to Mr. Cole, gr. to C. Lawis, Esq., Blackheath-park, for ditto; to Mr. Green, for Erica jasminiflora alba; to Mr. A. Smith, for Toremia asiatica; also for 12 rare Alpine Plants; to Mr. Taylor, for 30 British Ferns; to Mr. H. Plant, for Correct Labels; to Mr. Williamson, for 25 British Plants (exogenous), to Mr. Keith, for ditto (endogenous); to Mr. Dawson Nurseryman, Braxton hill, for 12 Cape Heaths; to Mr. Taylor, for 6 ditto; to Mr. Fraser, for 4 Clerodendrons; to Mr. Robinson, for 6 Fuchsias; to Mr. Munock, gr. to the Rev. Mr. Pritchard, Clapham, for ditto; to Mr. Francis, for 8 Roses in pots; to Messrs. Paul and Son, for 100 Cut Roses; also for 12 single blooms of Roses, to Messrs. Lane and Son, for 100 cut Roses; and also for 12 new Roses; to Mr. Turner, Florist, Chalvey, for 12 Verbenas; also for 12 Carnations; also for 24 Pansies; to Mr. Ward, Woolwich, for 12 Carnations; to Mr. Edmunds, Wandsworth-road, for 12 Picotees; to Mr. Pearson, Nurseryman, Hampstead road, for a Seedling Verbena "Satellite;" to Mr. T. Bray, for a Providence Pine; to Mr. Spencer, for a Queen Pine; to Mr. Dods, gr. to Sir G. Warrender, Bart., Clieffden, for an Enville Pine; to Mr. Calver, gr. to — Melville, Esq., Hampstead, for a Golden Cantaloupe Melon; to Mr. Spencer, for a Persian Melon (Bowood); to Mr. Mitchell, Fruiterer, Brighton, for Black Hamburgh Grapes; to Mr. Cutler, gr. to R. F. Champnas, Esq., Salt hill, for White Muscadine Grapes; to Mr. A. Smith, for a Fruiting Vine in a pot to Mr. Collins, Hornsey, for 4 dishes of Peaches and Nectarines; to Mr. Snow, gr. to the Earl de Grey, Wrest-park, for two dishes of ditto; to Mr. Foggo, Priory, Stanmore, for a dish of White Marseilles Figs; to Mr. Lydard, Bath Easton, for 4 dishes of Strawberries.

THE BRONZE MEDAL.

To Mr. Dawson, for Erica ampullacea major; to Messrs. Rollisson, for Strobilanthes varians, var superba; to Mr. A. Smith, for Oncidium cebolleta; to Mr. Stanly, for a new plant (Thysanotus sp.); to Mr. Wood, Nurseryman, Norwood, for Alpines; to Mr. Malyon, for 6 Cape Heaths; to Mr. Ayres, for 4 Clerodendrons; to Mr. Roser, for 6 Fuchsias; to Mr. Banks, for do.; to Mr. Gaines, for do.; to Mr. Francis, for 12 new roses; also for 12 single blooms of Roses; to Messrs. Lane and Son, for do.; to Mr. King, gr. to B. H. Storey, Esq., Kentish Town, for 12 Verbenas; to Messrs. Newman, Florists, Woolwich, for 12 Carnations; also for 12 Picotees; also for ditto; to Messrs. Dickson, Nurserymen, Acre lane, for 12 Carnations; to Mr. Wood, for 12 Picotees; to Mr. Blest, Woolwich, for do.; to Mr. Prigg, Clough, for 24 Pansies; to Mr. Smith, Nurseryman, Bermondsey road, for 6 Seedling Verbenas—Ibrahim Pacha; to Mr. Ewer, for a Queen Pine also for do.; to Mr. Brewin, for do.; to Mr. Garrod, gr. to H. B. Foreman, Esq., Hampstead, for a Cantaloupe Melon; to Mr. Ayres, for a Persian Melon; to Mr. Spencer, for a Black Hamburgh Grape; to Mr. Chapman, Fruiterer, South Lambeth, for do.; to Mr. Wright, gr. to the Honourable Miss Rushout, Wanstead, for two dishes of Peaches and Nectarines; to Mr. Snow, for a dish of Black Tartarian Cherries; to Mr. Bennett, Bath, for 4 dishes of Strawberries; to Mr. Wood, for a Collection of variegated Plants; to Mr. Banks, Kent-road, for a Collection of British Grasses; to Mr. C. Moore, Royal Botanic Garden, Regent's-park, for Illustrations of the Cryptogamic Flora of Britain; to Mr. Stanly, for Cape Pelargoniums.

CERTIFICATE OF MERIT.

To Mr. Robinson for Fuchsia Sir H. Pottinger; to Mr. Bruce for Rocilia ciliata; to Mr. Carsten for Hoya carnosa; to Mr. Bray, gr. to Sir J. L. Goldsmid, Bart., Regent's Park for Fuchsia exoniensis; to Mr. Dawson for Erica pulverulenta; to Messrs. Rollisson for Erica metuleflora bicolor; to Mr. Fraser for Kalosanthes nitida; also for Crowea saligna; to Mr. Green for Pentas carnea; also for Ixora coccinea; to Mr. Kendall for a Seedling Fuchsia, "Great Britain;" to Mr. Wright for ditto, "Lemanthe;" to Mr. Spencer for a Queen Pine; to Mr. Brewin for ditto; also for ditto; to Mr. Spencer for Butler's Scarlet-fleshed Melon, to Mr. Hamp for a dish of Black Hamburgh Grapes to Mr. Barnes, Aply Park, for ditto; to Mr. Gadd for ditto, to Mr. Fleming for two dishes of Peaches and Nectarines; to Mr. Kemp for a dish of "Carnation" Cherries; to Mr. T. Bray for ditto, "Black Eagle;" to Mr. Bruce for a dish of Apples, "Stone Pippins;" also for ditto, "Farley Pippin;" to Mr. Cole, Bath, for four dishes of Strawberries; to Mr. Snow for a dish of British Queen Strawberries; to Mr. Lydard for ditto; to Mr Winfield for ditto; to Mr. Damell, gr. to the Rev. T. Stevens, Bradfield Rectory, Reading, for a Hoosiance Melon; to Mr. Bailey for ditto; to Mr. Butler for a collection of cut blooms of Alstrœmerias; to Mr. Butcher for four Manchester prize Cucumbers.

CURTIS'S BUDDING KNIFE.—"This is the neatest Budding Knife we have seen, the ivory handle is shaped like the blade of a curved Penknife, sharp and turned up at the point, and is evidently extremely well contrived for the purpose it is intended."—Opinion of Professor LINDLEY in the *Gardeners' Chronicle*, July 29, 1843.

GEORGE PLUM, Surgical Instrument Maker and Cutler, No. 262, Strand, London, and at No. 3, Dolphin-street, Bristol, begs to call the attention of the public to the above desirable article. Sent free to any part of the kingdom, on receipt of 38 penny postage stamps, or a post-office order for 3s. 2d.

G. P. cautions Floriculturists and the public in general against numerous imitations of the above article, he being the only appointed Manufacturer.

FOREIGN SHEET GLASS, &c.

C. JARVIS having just imported a large quantity of Foreign Sheet Glass, of the STOUTEST KIND, in substance, 15, 16, and 17 ounces to the foot superficial, can offer the same at the unprecedented low price of 3d. per foot in the case, as imported, any size in stock; a less price than he has hitherto received from large purchasers for the thinnest quality, viz., 13 ounces to the foot, at his old established WINDOW GLASS WAREHOUSE, 38, Great Castle-street, a few doors from Regent-street. GLASS PANTILES equally low in price. English Manufactured Glass of every description, on the lowest terms, for ready money only.

DUTY OFF GLASS.

GREEN AND HOTHOUSES, CONSERVATORIES, &c., made and fixed Complete in all parts of the Kingdom, at a considerable reduction. One, two, and three light Cucumber and Melon Boxes and Lights of all sizes, kept ready for use, packed and sent to all parts of the Kingdom; warranted best material. Two light Boxes and Lights complete, from 17s. Garden lights of every description, at JAMES WATTS'S, Hothouse Builder, Claremont-place, Old Kent road.

Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

BRITISH AND FOREIGN SHEET AND HORTICULTURAL GLASS.

PHILLIPS AND WELCH have to announce to the Nobility and Gentry, that they have just concluded arrangements with J. WELCH, jun., PHILLIPS and Co., for the purchase of the business lately carried on by them, at 12, Panton-street, and beg to call attention to their extremely low prices for Horticultural Glass of every description.

PRICES OF HORTICULTURAL GLASS:

Not above 40 in. long by widths from 5 in. to 18 in.

No. 13	British or Foreign sheet 13 oz. to the foot	4d. per foot.
,, 16	16 ,, ,,	5d. ,,
,, 21	21 ,, ,,	7d. ,,
,, 26	26 ,, ,,	11d. ,,
,, 32	32 ,, ,,	1s. 2d. ,,

SMALL SQUARES.

Packed in 100 feet Boxes, not particular to thickness.

Under 5 in by 3 in.	1½d per foot.
5 by 3 and under 6 by 4 ,,	2d. ,,
6 by 4 ,, 9 ,, 7 ,,	3d. ,,

FOR GLAZING.

Black Cement, as used at Chatsworth.	24s. per cwt.
Best Linseed Oil Putty	10s. ,,
White Lead, Window Lead, Solder, &c. &c.	

Horticultural Glazing Executed in any part of the United Kingdom.

The selection of Patent Plate, Sheet, and flatted Crown Glass for Pictures, &c., particularly attended to.—12, Panton-street, Haymarket.

BRITISH AND FOREIGN SHEET GLASS, for Horticultural purposes, &c., may be had at JAMES BROMLEY'S 315, Oxford-street, London, at the following reduced prices:—In crates containing about 260 feet of coarse 18 oz., at 4½d. per foot, or 4th quality, 5d. per foot; ditto, 16 oz., coarse, 5½d. per foot; ditto ditto, 4th quality, 6d. per foot. Or cut to any size not exceeding 40 inches long by 10 inches wide, at ½d. per foot extra.

Also Microscopic Glass, French Shades, Plate and Crown Window Glass.

A discount to the Trade.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, from 3½d. to 5½d. per foot. Glass Pantiles, 13s. 6d. per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at F. ELPHICK'S, 28, Castle-street East, Oxford-street.

*** For Ready Money only.

ORNAMENTAL WIREWORK FOR THE GARDEN.

G. D. THOMPSON AND CO. beg respectfully to announce that they continue to prepare at their Manufactory, 396, Oxford-street, London, all kinds of Fancy Ornamental Wirework suited for the Garden, Greenhouse, or Conservatory, consisting of Flower Trainers, Stands and Borders, Garden Arches, Seats, and Vases, Improved Garden and Hothouse Engines, Syringes, Fumigating Bellows, and other Floricultural Implements.

Also, G. D. Thompson's Improved Waterpot, which possesses considerable advantages over all others, the smaller sizes being suitable for ladies' use. They have now on sale a novel folding portable Wooden Garden Chair, at 3s. 6d. each, or 36s. per doz., which quantity is packed in a small space.

SPLENDID NEW VERBENAS & FUCHSIAS, &c.

Those who wish to improve their collections of these elegant flowers, have now an excellent opportunity, as the list contains every novelty of the season. The plants are strong and will make a fine display in the autumn, at 12s. per dozen, or 21s. for 24: if by post, free; or when sent by hamper, package and hamper free; *viz.* Smith's Duchess of Sutherland; Duc de Nemours, Emperor, Lovely Ann, Modesta, Miss Watson, Merry Monarch, and Queen of Beauty; Youell's Exquisite, Grandissima, Helena, Heroine, Celeste, Aurora, and Auberon; Miller's Coquette, Samyo, Sunbeam, Turban, Alba purpurea, Comet, and Sappho; Girling's Blanda, Bicolor odorata, Bouquet de Flore, Rosy Morn, and Lavendula Magna; Mandle's Queen of Beauties; Ivery's Wonder of Scarlets; Alexander's Blue King; Pearson's Rosetta, &c. &c.

New FUCHSIAS at 20s. per dozen—*viz.* Halley's Empress, Marchioness of Camden, Silver Globe, and Candidissima; Newberry's Delicata; Barkway's Duke of Norfolk, Mary Ann, and Delicata; Jackson's Mrs. Frederick Milbank; Jenning's British Queen and Giantess; Ivery's Trafalgar; Smith's Beauty of Dalston and Eximia; Epps's Lady Julia and Queen of Virgins.

All Post-office orders will receive the strictest attention.

GEO. SMITH, Tollington Nursery, Hornsey-road, Islington, near London.

WEST KENT GARDEN POT, Invented by GEORGE FRY, Gardener, Lee Park, Blackheath, and manufactured by the Proprietor JOSEPH PASCALL, West Kent Potteries, Chislehurst, Kent, for the purpose of facilitating the operation of shifting and examining the roots of large plants, rendering the operation to be performed without subjecting the plants to the slightest injury. The following extracts are from the leading horticultural works of the present day, which from the limits of this prospectus are necessarily much abridged:

"This little apparatus is simple and effectual, and will be of service to the growers of specimen plants for exhibition."—*Gardeners' Chronicle, February 21, 1846.*

"Mr. Fry exhibited a model of a very useful contrivance, by means of which he proposes to examine the soil of plants growing in large pots without inconvenience." *Report of the Meeting of the Horticultural Society, Regent-street, Feb. 17, 1846.*

"Mr. Fry has invented a new Flower Pot which offers peculiar advantages in shifting. The ball of earth can be examined and either shifted into another pot, or returned exactly into its place, whichever is required. Some of the principal specimen growers have certified in its favour."—*Gardeners' Gazette, February 21, 1846.*

"We think this Garden Pot will be found exceedingly useful to persons of every class who grow plants in pots. In the ordinary process of potting large plants, the least injury will often disfigure beautiful specimens, and this is almost unavoidable where the plants have to be turned upside down, and otherwise tossed about on a potting bench. It will be at once seen by the use of this pot and mode of potting that all risk of this kind is avoided."—*United Gardeners' and Land Stewards' Journal, March 7, 1846.*

"West Kent, famous as it is in the annals of horticultural competition, has hardly produced anything of more value to horticulture than the Improved Garden Pot."—*Mechanics' Mag., March 7, 1846.*

"This contrivance, exhibited before the Horticultural Society on the 17th February, may be regarded as one of the best aids to cultivation which has been brought under the notice of practical men for a long time past. How frequently are valuable plants lost from the want of water, because from the surface soil being wet, the cultivator imagines they are all right in point of humidity, while, in reality, when they come to be turned out after they are dead, half the ball, sometimes the bottom and sometimes the side, is found to be as dry as dust; but when the West Kent Pot comes into use, we have nothing more to do than to place the ball on the shifting block to make every necessary examination. It will facilitate very materially the shifting of large specimens, as the plants will require no capsizing, and therefore not so likely to be broken. For my own part I will purchase no other kind of pot after Mr. Fry's are in the market."—*Mr. Ayres, in the Gardeners' Chronicle, March 21, 1840.*

"The contrivance cannot fail to be properly estimated by all interested."—*Florists' Journal & Gardeners' Record, April, 1846.*

"There can be little doubt that when these Pots are manufactured and brought into the market, they will become generally used by those who have plants of large size to manage. For the purpose of facilitating the operation of re-potting, and also of adjusting the supply of water to the wants of the plants, they will be of the greatest use to amateurs, and those who are not quite familiar with all the operations of plant culture. Whatever tends to do away with difficulties which stand in the way of success, deserves every encouragement that can be afforded to it."—*Horticultural Magazine, May, 1846.*

Licenses granted throughout the United Kingdom, for the manufacture of the West Kent Garden Pot on application to Messrs. MADOX and WYATT, Solicitors, Clements-lane, Lombard-street, London.—REGISTERED FEBRUARY 6th, 1846.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

VINAIGRE DE BORDEAUX.

PURITY, STRENGTH, and an agreeable FRUITY FLAVOUR, distinguish the first quality of FRENCH WHITE WINE VINEGAR, and render it preferable to all other for domestic use.

It may be procured at a moderate price of the Chemists, Grocers, and Wine Merchants, whose names may be learnt by applying to the Importers, W. and S. KENT and SONS, Upton-upon-Severn; or W. S. RUMSEY, 3, Queen-street Place, Cheapside, sole Wholesale Agent for London and the surrounding counties.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

H. GROOM, CLAPHAM RISE, near London (removed from Walworth), by Appointment FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY, begs to call the attention of the Nobility, Gentry, and Amateurs, to the following new and rare Plants:—

	each—s.	d.		each—s.	d.
Calystegia pubescens ..	10	6	Hydrolea spinosa ..	2	6
Weigela rosea	21	0	Indigofera decora ..	10	6
Abelia rupestris ..	21	0	Phlox Drummondii alba	3	6
Anemone japonica ..	21	0	Siphocamphylus coccinea	3	0
Stylidium androsaceæ ..	26	6	Lianthus nigrescens ..	2	6
Chirita sinensis ..	5	0	Dichorisandra ovalifolia	15	0
,, Zeylanica ..	7	6	Platycordon grandiflora	3	6
Clematis Gebleri ..	2	6	Achimenes argyrostigma	3	6
Spiræa Douglasii ..	1	6	Columnea crassifolia ..	7	6
,, ovata	1	6	Corokia buddlioides ..	15	0
Epacris miniata ..	5	0	Mussœnda frondosa ..	7	6
,, lævigata ..	5	0	Totrathoca hirsuta ..	7	6
,, elegans	5	0	Cryptomeria japonica ..	10	6

GERANIUM DUKE OF HAMILTON.

Foreign Orders executed and the trade supplied.

A remittance will be expected with orders from unknown correspondents.

MOUNT ETNA.

WILLIAM MILLER takes this method of informing those persons who are anxiously inquiring about this very splendid Geranium, that a full Advertisement, with all particulars, will appear in a week or two; also an Advertisement of Mr. Hoyle's, Beck's, Catlough's, and Foster's Geraniums, sent out in 1845 at 2s. to 3s. per dozen.

Providence Nursery, Ramsgate.

DRIED PLANTS FROM CHINA.—A few sets of the VALUABLE DRIED PLANTS collected in China by Mr. FORTUNE, may still be procured by applying to R. HEWARD, Esq., Young-street, Kensington, London. Among them are many new and rare species scarcely known to Europeans.

BECK'S PELARGONIUMS OF 1844.—

Arabella ..	15s.	0d.	Mustee	15s.	0d.
Othello	15	0	Rosy Circle	15	0
Desdemona	15	0	Favourite	7	6
Marc Antony ..	15	0	Margaret	7	6
Isabella	15	0	Zenobia	7	6

For prophyment only, delivered free in London in October next, well established in 4-in. pots.—Worton Cottage, Isleworth.

The Gardeners' Chronicle.

SATURDAY, JULY 11, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, July 22—South London . . . . 1 P.M.

COUNTRY SHOWS.

THURSDAY, July 16 Gravesend and Milton Horticultural.
FRIDAY, — 24—Stamford Mill Horticultural.

WHAT *is a* PARAPETTICOAT? We are astonished at the numerous inquiries that have reached us about this article. Its name reveals its nature. It is a hybrid between a parasol and a petticoat. This is not banter but fact. And why should there not be such a thing? What is there *in rerum natura* to prevent an ingenious person from applying those two needful articles of shelter and dress to gardening purposes? They will fade, and wear thin, in the custody of the most economical gentlewoman, and to find a use for them afterwards is an adaptation of means to end which cannot be too highly commended.

Let us give a receipt for making a Parapetticoat. First find a good sized parasol, or small umbrella, covered with cotton, and not rubbed into holes. Then select a cast-off petticoat, not a crinoline, which Mrs. MALAPROP calls a Kremlin, nor yet a flannel, but some other form of the vestment; it need not be very full; indeed, it will be the better for being scanty; sow up the opening, and it is ready for attachment to the parasol. For this purpose the latter instrument must be opened, and kept so; then the upper end of the petticoat is to be sowed to the edge of the parasol, and a staff six feet or more long is to be secured to its handle. Thus the parapotticoat is constructed.

But what a word! cries Sir ERASMUS VERBAL. What a barbarous compound of Greek and Saxon! The thing may be well enough, but its name is unendurable. Pray call it a parachiton, or a parachitonisk. We can have no objection to the change, if the world prefers it; and we agree with Sir ERASMUS, that it will be as well to adopt it when parasol is called parahelion, and parapluie a paraombrion—but not till then.

And what is the parapetticoat *for*? For, Madam! for a most important purpose. It is an instrument of execution; it is the shirt of Nessus; it is the robe of Atropos. It is to enable the gardener to dispatch his mortal enemies. It is to relieve his Rose bushes from that foe which he assails in vain with snuff, gas water, and smelling salts. It is to kill green-fly.

The instrument is used thus. In the first place the petticoat is drawn up till it rests upon the outside of the parasol. The staff of the latter is then introduced perpendicularly into the centre of a Rose bush, and secured in its place by being pushed into the ground. The petticoat being then drawn down, the bush is completely covered in by the garment.

——riget horrida tergo
Palla ——.

The gardener then blows his tobacco smoke beneath it: in a few minutes the Rose bush is enveloped in a cloud which has no outlet; the green-fly seeks in vain to escape from the fatal atmosphere which enters every fold and lurking-place; he clings in vain to his beloved Rose-buds; his grasp relaxes; he falls; he dies, and with him

Innumbered corses strew the fatal plain.

Five minutes suffice for the execution. The veil may then be raised; the instrument removed, and the operation repeated upon a new horde of delinquents.

Beware however of leaving the poison which killed Aphis, upon the leaves of the Rose tree. Let them be immediately syringed abundantly with lukewarm water, so as to remove the odour, or it may be found that in destroying our enemies we have also ruined our friends.

IT is now some weeks since we ventured to propose to our practical and scientific friends the discussion of the question, "Whether, in order to form a good FRUIT-TREE BORDER, it is really necessary to rob a pasture of its surface soil and turf, as so many aver?" (See p. 268, April 25.) The proposition has not only not been accepted, but has been received with absolute silence: a circumstance which must be regarded as most remarkable when we consider how ready are the champions of opinion respecting the most trifling questions to rush into the field of controversy. Here we have an inquiry that concerns every country gentleman, and every country gentleman's gardener, and yet there is not one of the intelligent men who have to deal with it in practice who ventures either to condemn or vindicate the dogma that a good fruit-tree border, especially one for Peaches, *must* be made from the top spit of a rich old pasture.

To what is this silence to be attributed? Is it that intelligent men feel that the opinion is indefensible, and that the unintelligent are incapable of dealing with it? or is it that men's minds are so made up upon the point that they see no room for argument? Or, finally, is it not that no one likes to *begin* a discussion which may end in the abandonment of another point of popular belief? We believe the latter to be the true cause. We suspect that the most sensible part of gardeners feel that this theory of fruit-tree borders is very likely to be consigned to the tomb in which repose the remains of florists' composts, Dutch prescriptions, pot-crotchets, and tan-beds, and they do not like to be concerned in another funeral ceremony.

We however have no such scruples; we have so often assisted at the interment of prejudices that one more or less can make no difference; and we therefore declare that we hold the custom of skinning fine old pastures in order to grow Peaches, as one that should be killed and buried without loss of time.

Not that we object to the sods of an old pasture; on the contrary we recognize their excellence; and admit that they will never be surpassed. Our aversion is to the cost of them.

There is a story of a noble epicure, who being discontented with vulgar cookery, ordered a dish of peacocks' hearts to be provided. We entertain no doubt of the virtues of his savoury mess; but we suspect that as many ounces from a calf would have done as well. To strip a field for the purpose of making a fruit border, is very like ordering a dish of peacocks' hearts. There are Heliogabali in gardens as well as kitchens.

The goodness of pasture sods depends upon the quality of the soil, upon its richness in soluble matters, and upon the texture mechanically resulting from the presence of roots and straws which aerate the mass. Put together proper soil, enrich it artificially, and bring it to a due mechanical condition by means that are obvious to everybody, and where is the difference? Will any one inform us?

THE AMATEUR GARDENER.

ON FLOWER SHOWS.—In connection with the principle that Art should be made subservient to Nature in floral culture, it should be remembered that in reference to fruits and vegetables, utility should always be the test of excellence. This rule is often forgotten at country shows, and a monstrous size is preferred to flavour and adaptation to culinary purposes. If a prize is offered for a Cow Cabbage, its dimensions must be considered of primary importance; but when Cabbages are mentioned in the list of a Horticultural Society, their fitness for the table should regulate the decision of the judges. In the same way, with regard to fruit, flavour must be taken into account, unless rational views are to be superseded by mere enthusiasm. Of what use is a gooseberry as large as a hen's egg, if it is almost tasteless? Yet it must be confessed that insipidity distinguishes many of these unusual growths, and if so, art loses its right aim, and expends its energies in trifles. The amateur should not pander to such folly, by competing for prizes for things he considers of no value, but should use his influence to bring about a more reasonable mode of estimating the productions of horticultural skill. I know the case of a nobleman who, on being asked to contribute to a horticultural society, said he would willingly do so, but he hoped it would not aim at producing *great* things, as he had never found large Gooseberries, large Celery, or large Rhubarb were worth eating. A large size without the diminution of fine flavour is the end to be contemplated.

If the decision of a judge appears at first to be contrary to your own judgment, it is unwise to be irritated or to admit the idea that carelessness or ignorance have taken the place of discrimination. It is not always that which exhibits the most showy front which is really most worthy of approbation. Some productions may evidently be the result of more science and attention than others which have greater attractions, and as the object of a society is to encourage skill in growing, this circumstance must be considered. To return, for instance, to Picotees and Carnations; it is well known that some kinds grow freely and flower well without much care, while others are exceedingly tender and will only yield a good bloom to the patient and skilful cultivator. Now, suppose two stands of 12 sorts in each presented to the attention of a judge. One stand may have decidedly finer flowers in themselves considered than the other, but on examination it is found that this more attractive collection is composed of flowers which are well known to be of easy growth, while the other is made up of those which demand much attention for their development. Ought not the latter to have the prize? I think so, if it is conceded that by a prize skill is to be rewarded. This is only one instance out of many I could bring forward to illustrate the necessity of using thought and candour before we conclude that we have been treated unjustly.

The amateur should feel himself bound by every principle of taste and propriety to exhibit his flowers in the best way he possibly can, so that as neatness and elegance adorn the most beautiful person, his favourites may have every external advantage. What an insult to Flora to exhibit Carnations in blacking-bottles, or a bouquet in a pie-dish! yet both these violations of taste have I recently seen. Apart from the good sense and taste which will prevent such anomalous practices, self-interest should dictate a different conduct, for the vehicle will often regulate our opinion of the thing contained, and the mode of tying up may be all the difference between a rejected and an approved bouquet. I have known parties who have gained many prizes at exhibitions, who yet penuriously refuse to spend anything in tasteful boxes or stands. Hence, cut flowers appear in old baskets, Roses in kitchen crockery, and Pansies on the lid of an old hat-box, pierced with holes for their reception. Much depends upon the officers of societies for the prevention of this vandalism, and committee-men should habitually discourage everything that will render an exhibition unfit to be an abode of the Graces.

Great care should be taken that your plants and cut flowers for exhibition are well provided with moisture, as on that will depend much of their success, and sometimes much of their safety. A stand of Pansies will often present shrivelled flowers at the time the judges go round, because the stalks do not reach the water, and the whole are thus rendered unfit for competition. Plants in pots, when carried from place to place and exposed much to the air, exhale more rapidly than usual, and should therefore have an extra supply of water on the morning of the show-day. But, perhaps, I am descending to particulars too minute, and will leave the subject. In reference to shows generally, I have a high idea of their value, both to cottagers and persons in higher walks of life. The following extracts from the Report of a country society may be appropriately introduced:—"It may thus be fairly presumed that the Horticultural Society has answered the direct end contemplated at its formation, and has silently improved the practice of gardening. One result of a collateral character has been undoubtedly obtained; that is, the promotion of kindly feeling among all parties in the town and neighbourhood, who, forgetting among the gentle scenes of Nature the differences of public life, have found a pleasure not soon to be forgotten—a pleasure procured without the sacrifice of principle and followed by no regret. The committee therefore feel they are justified in asking for this institution the continued support of its patrons, and they conclude by enforcing their appeal by the following elegant tribute to the value of the pursuits they are anxious to encourage:—'The cultivation of flowers is, of all the amusements of mankind, the one to be selected and approved as the most innocent in itself, and most perfectly devoid of injury or annoyance to others; the employment is not only conducive to health and peace of mind, but probably more good-will has arisen, and friendships been founded by the intercourse and communication connected with this pursuit, than from any other whatsoever. The pleasures of the horticulturist are harmless and pure; a streak, a tint, a shade, becomes his triumph, which, though often obtained by chance, are secured alone by morning care, by evening caution, and by the vigilance of days; an employ which, in its various grades, excludes neither the opulent nor the indigent, and, teeming with boundless variety, affords an unceasing excitement to emulation, without contention or ill-will.*'"

—*H. B.*

GREENHOUSE SUCCULENTS.

THE cultivation of greenhouse succulents is a subject on which little appears to have been written.

* Journal of a Naturalist.

They are in general regarded as plants possessed of little or no beauty, a circumstance which may arise from little attention having been paid to their culture, for where are to be found colours more agreeably blended together than in some of the Mesembryanthemums, for instance? Besides if not all beautiful, most of them are at least curious, and therefore interesting.

In giving some account of their treatment, we will begin with *Aloes, Mesembryanthemums*, and some of the species belonging to *Crassulaceæ* or *Houseleeks*.

Aloes.—Under this head may be added Apicra, Haworthia, Gasteria, Bowiea, and Pachydendron. These being chiefly from the Cape of Good Hope, it cannot be expected that any of them will bear frost, and they may therefore be considered to be greenhouse plants. Although several species of Agave and Fourcroya may be seen growing in stoves, and are often called Aloes, yet they belong to a different family and cannot be enumerated under this head. As regards soil, I prefer turfy loam and peat, in equal proportions; these, well mixed together, form a compost in which any of the species belonging to the above genera will grow freely. As a general rule they require to be repotted every spring, as soon as they begin to show symptoms of growth. An important point is the watering, for here I am persuaded the greatest error is most likely to be committed. For a few weeks in winter little or no water should be given; certainly no more than will keep the leaves from shrivelling. In spring, after the operation of repotting has been effected, give water about once a week. This will be sufficient until the roots have made some progress in the new soil throughout the summer months. However, they should be watered always when dry, but never till then, or the roots will perish. If watering in spring must be increased gradually, it should be decreased in autumn in like manner, in order that the plants may enjoy their season of rest without a check.

Mesembryanthemums.—Most of these being also from the Cape, they require to be treated nearly in the same way as Aloes so far as watering and repotting is concerned; but, as regards soil, they seem to thrive best in sandy peat. Being, however, very tenacious of life, they will live in almost any sort of soil. As might be expected in so large a family, some are compact growers, while others are very straggling. To keep such as M. uncinatum, M. dilatatum, or M. tenuifolium dwarf, they must have their branches pegged down on the soil. This is not only a good mode of making compact specimens, but also a good plan whereby to propagate them; for if the operation be performed in spring, every branch will root in a few weeks.

Houseleeks.—In selecting a few subjects from this extensive natural order, which contains both hardy and stove as well as greenhouse plants, those most commonly met with will perhaps be the most suitable, such as Rochea falcata, Kalosanthes coccinea, Crassula arborescens, Sempervivum arboreum, Cotyledon ovata, and Echeveria secunda. Some of these may be seen in almost every garden, flourishing where other plants would perish, thus showing how easily a collection of such plants might be cultivated. They grow freely in any light soil, whether poor or rich; requiring little or no water in winter, and in summer, if not in too exposed a situation, water applied once a week will be sufficient. Although Echeveria secunda, a native of Mexico, is stated to be a stove plant, it has been proved that it may with propriety be numbered among the greenhouse species, as may doubtless many others mentioned in catalogues as being stove plants.

Few groups of plants are more easily multiplied than greenhouse succulents. Aloes may be increased by cuttings, or from suckers, which they generally send up from the root, requiring only to be taken off and potted. Mesembryanthemums all strike freely from cuttings, without a bell-glass; if some of the dwarf sorts, from which cuttings cannot be obtained, be divided, every crown will strike root. Plants of the Houseleek order all strike freely from cuttings; a great number of them will strike from leaves laid on a pot filled with silver-sand. Such as Monanthes polyphylla may be divided.—*D.*

ON THE ORGANIC COMPOUNDS WHICH CONSTITUTE THE NUTRITIVE PORTIONS OF THE POTATO.

By the Rev. Prof. Henslow.

(*Continued from p. 428.*)

The starch called "Portland Arrow-root" is prepared from the tubers of the common "Lords and Ladies" (Arum maculatum), which, I am told, are cultivated in the Isle of Portland for this purpose. The Arum tribe possesses many species which have large tuberous expansions at the base of their stems; and some of these are cooked for food in the countries where they grow. One of the most remarkable may be here noticed, Arum campanulatum (fig. 5.) It is found in the East Indies, and an account of it, with a coloured plate, which best represents the extreme singularity of its appearance, is given in the "Bot. Mag.," vol. lv., pl. 2812. This tuber abounds in an acrid juice, which is rendered harmless by boiling, or is dissipated by drying the tuber. One plant of this tribe, called the "Dumb Cane" (Dieffenbachia Seguina), has its juices so exceedingly acrid, that if a person merely bites the stem, his mouth swells to such an extent that he is rendered incapable of articulation; and the ill effects will last for days or even weeks. Some serious accidents are recorded to have occurred with this plant even in this country, though it is only to be met with in the hothouses of our botanic gardens. It is said that certain tyrannical planters in the West Indies used to punish their unhappy slaves by obliging them to bite it. I have procured a sample of starch from this formidable plant, and find it abundantly deposited in the stem. There is, however, a still more deadly poisonous plant, from which not only a starch is largely extracted for economical purposes, but the very tissue itself is extensively manufactured into a variety of articles for food. This is the Manihot (Janipha manihot), which grows in tropical climates, and is much cultivated in Brazil, where, we are told, an acre of it will yield eight times as much wholesome food as an acre of Wheat (see "Bot Magazine," v. lviii., plate 307). Its swollen fleshy root abounds in a milky juice of a poisonous nature. After the root has been reduced to pulp, by pounding or rasping it, this juice is removed by pressure; and then the pulp is prepared for food under the form of bread or biscuit, called Cassava or Cassada, and with this our ships are often victualled in the West Indies. If the expressed juice is allowed to stand, it soon deposits an abundance of starch, which may be readily purified by washing, and is then sold, either in the form of powder, as Brazilian Arrow-root, or, after being dried on hot plates, and when it has assumed the form of little irregular lumps, as the well known article called Tapioca. This again may readily be imitated by Potato starch. I believe I have now named to you the chief starches of commerce, and I show you these, and samples of some others are also before you, which I have procured from a variety of plants. For example, this starch is abundant in the common Pig nut (Bunium flexuosum); this in Crocuses, this in the root-stalks of Irises, &c. It was the starch of one species of Iris (that which furnishes the Orris root of the shops), Iris florentina, which was so much in vogue in those days when the hyegone absurdity prevailed of powdering the hair. Hair powder is either this starch or, as I believe, is more frequently the starch of Wheat so scented as to imitate it.

Fig 5.



(*To be continued.*)

Home Correspondence.

The Fruit and its Judges at the Chiswick Exhibition.—Some remarks which appeared with reference to the above, at p. 408, having called forth replies from two of the judges, I had determined to let the affair rest, leaving the public to form their own opinions of the discrepancies. But I perceive in the leading article of last week a statement which requires explanation on my part, and likewise in behalf of the great object of these exhibitions, namely, the advancement of horticulture. The paragraph to which I allude is this:—"One of the judges states, in reply to his accuser, that instead of being penurious they are the reverse, having often given exhibitors prizes of higher value than was merited. This is admitted by the complainant, whose disapprobation seems indeed to have been mainly produced by the judges having discontinued that practice. In fact, he would have the judges give a man more than he deserves to-day for the sake of enticing others to become competitors to-morrow, in the hope that they too may get more than they merit. Such is, we believe, the true meaning of the complainant's argument. Is that right? Surely not." Now, I beg to explain that in advocating liberal awards rather than the contrary, with a view to the advancement of Horticulture, I wish it to be distinctly understood, that the thought of giving a man more than he deserved, for the sake of enticing others to become competitors, in the hope that they, too, would get more than they merit, never entered my mind. Anybody who will be kind enough to refer to my former communication, will see that I aim at raising the characters both of exhibitors and their exhibitions to such a pitch as to swamp all inferior objects. That this is desirable all must admit. I shall endeavour to prove that it can be brought about by fair means. If a farmer choose to lay out a sum of money in improving his land, in order to obtain, ultimately, a superior sample of Wheat, no one ought to find fault with him for so doing, even although the outlay does not produce immediately the desired effect. Can anybody find fault with the Horticultural Society if it give notice to the effect that certain medals shall be given, unreservedly, for the best collections of fruit? Something of this sort must be done; or the judges must act liberally, as they did at a former period, when their so doing brought such abundance of good fruit under their notice, that there was no danger of a gold medal being on hand for want of a suitable collection whereon to bestow it. There was then no occasion for the judges to trouble themselves about inferior fruit; they had enough to do to decide which of the good was best. The judges may faithfully perform their duty; they may console themselves that they act justly, the collections and the awards perfectly corresponding, being alike poor; and so they may go on from year to year, dispensing inferior awards *ad infinitum* without elevating the character of the productions above mediocrity. The Society's medals go in a small form, and nothing great results. It is a state of things which neither the Society nor, indeed, any one would wish perpetuated. The object of the Society, as regards fruit exhibitions, is frustrated, and the money value of the medals next to thrown away. The collections have taken several years to fall into their recently observed depressed condition; but it is in the power of the Society to say—"Here are first-rate awards for the best fruit growers, strive to deserve them, for it has been determined that, in the ensuing season at least, they shall on no account be withheld." It is my firm belief there would be no necessity for withholding them. The place of bad or unripe fruit would soon be occupied by productions of a superior description. The judges are pronounced to be "all honourable men;" but I am not certain therefore that they cannot do wrong, for all men are liable to err. "One of the Judges of Fruit" pities my want of comprehension. I confess I am again puzzled, and so are others, by his statement that a well-grown Queen Pine apple was found light in proportion to its size in the month of June. And again, on looking over the list of awards, I find Mr. Brewin had a silver medal for Muscat Grapes, similar to that which Mr. Ingram had for his whole collection, which included also Muscat Grapes. Now "One of the Judges of Fruit" admits (p. 429) that Mr. Ingram's Muscats were the best ripened of any exhibited; consequently they must have been riper than Mr. Brewin's, and therefore Mr. Brewin has received a prize, a silver-gilt, too, for Grapes that were comparatively not ripe; and this others as well as I cannot comprehend.—*A Fruit-grower, but not an Exhibitor.*

Draining Pots.—I have tried for some months a plan of draining pots for plants, which is, I believe, new, and which promises to be very useful. In lieu of the ordinary bottom crock, I use a piece of flat crown or sheet-glass, broken to suit the size of the pot. The pot is dipped in water, a little of the coarse river-sand used for mortar is shaken over the bottom, the loose sand is thrown out, and the glass placed over what adheres to the moistened surface; a little of the same sand thrown over the glass to the depth of half an inch completes the drainage. The advantages of this method are, that a perfect drainage is obtained with very little trouble—that the greatest possible room is left in the pot for the mould or compost, and that worms are effectually excluded. A large watering-pot drained in this manner and half filled with fine sand or charcoal-dust over the coarse sand makes an excellent filter. If any of your readers who may think a regular gradation of draining materials of varying dimensions essential to perfect draining will consider that in the ordinary mode of potting it is in fact the upper layer of fine particles, or sand, that is the free medium of communication between the mould and the aperture of exit, and that the substructure is of use only to support this and prevent its being washed away; they will perceive that the method I have described provides for everything that is required. The plate of glass being supported by a single layer of grains of sand at such a height as will allow a free passage to water but not to mud, and the sand above supporting the soil by a freely permeable medium. As far as my present experience goes, this method is applicable to every description of potting.—*S. G.*

Singular appearance of a Dew-drop.—In last Number Mr. P. Mackenzie refers to a curious phenomenon presented by the rotation of a dew-drop on the leaf of a Sow-thistle, which he well describes as resembling "a storm" within the rotating drop; and he asks "whether the disturbance was caused by any external agent, or proceeded from anything connected with the internal arrangement of the leaf?" The phenomenon your correspondent refers to, was, in all probability, caused by what Dutrochet calls "Forces Epipoliques," *i. e.*, by the action of the forces exerted by particles on and near the surfaces of all bodies. A piece of clean metal, sufficiently heated, will cause precisely the same phenomenon to be exhibited by a drop of water thrown upon its surface; *i. e.*, the drop will instantly assume a spheroidal form, and begin to rotate violently and appear "as if there were a storm in it." Hence the forces exerted at the surface of the heated metal, are analogous to those excited by the clean Sow-thistle leaf, and which I have observed on the common Nasturtium leaf; and are exhibited, no doubt, by most or all other clean leaves. Sir John Herschel, some years since, instituted a series of beautiful experiments, wherein he produced similar rotations, through the medium of voltaic electricity. This subject appears to be so intensely interesting, and so closely connected with an endless variety of other phenomena of molecular force in general, that I am surprised it has not hitherto met with that attention from philosophers which it unquestionably merits. At the present moment, when Faraday has, by his experiments on light, demonstrated the probable identity of internal molecular action with that produced by electrical force, it would be peculiarly interesting to take up the study

of phenomena such as those referred to above.—*Rutlandd, Bourne.*

To make Rhubarb Wine.—To every pound of green Rhubarb stalks, when bruised, put a quart of cold spring water; let it stand three days, stirring it twice in a day, then press, and strain it through a sieve, and to every gallon of the liquor, put 2½ or 3 lbs. of good loaf sugar; barrel it, and to every 5 gallons add a bottle of white brandy; hang a piece of isinglass in the vessel, suspended by a string, and stop it up close; in six months if the sweetness be sufficiently off, bottle it for use, otherwise let it stand in the cask a longer time.—*S.*

The Nuthatch.—On looking over your Number for June 20th, I find three communications on the subject of the nuthatch: the first is by Mr. Bree, on which I have no remarks to offer, further than that I am perfectly aware of what is said in "Mr. Yarrell's excellent work upon British Birds," and that I never said that the bird in question did not belong to the family of creepers; what I said was, that if it did belong to the family of creepers it must have three toes before, and one behind. In the second, which is by Henry Doubleday, Esq., I am taxed with being "an anonymous correspondent"; how far this is correct you will be able to judge; but be this as it may, Samuel Gibson presents his compliments to Henry Doubleday, Esq., and wishes him to inform S. Gibson what constitutes the food of the nuthatch in the spring and summer months, and at the same time to inform S. G. how he is to make the account given of the nuthatch cracking the "seeds of the Yew" to correspond with Sir William Jackson Hooker's account of the Yew itself! for in the fifth edition of his "British Flora," he (Sir W. J. H.) tells us, that the drupes (seeds) of this plant are esteemed poisonous, and that the name of the Yew was given, "it is said because arrows were poisoned with its juice." In Sutor's note, I find a few rather bold assertions; first, that "there are no nuthatches at Mytholmroyd"; in this he is so far from being correct, that I have now five nuthatches before me: two of them are from Buckinghamshire, one from Wetherby, in Yorkshire, one from Highgreen Wood, 10 miles north-west of Mytholmroyd; this specimen was shot on the 18th of October, 1844, and one was shot in Crow-nest Wood, on the 8th of April, 1846. In addition to these, others might be mentioned, such as one which is in the possession of Mr. Thomas Gibson, of Hebden Bridge, which was shot near Burnley, in Lancashire. Mr. T. G. has given me three fine specimens of the stomachs of this little bird, with an account of their contents; but as that does not directly bear on the relative strength of materials, it will be of no use here. Sutor tells us, that on entering one of the fine old woods, in the midland or southern countries, we shall not have long to wait for the arrival of the nuthatch, for "in a few minutes he comes with a nut between his mandibles"; but, by the bye, he has forgot to tell us where he has fetched his nuts from, and how he has contrived to carry such an unwieldy piece of stuff between his slender and smooth mandibles, which, if examined, would be found very badly, if at all constructed for carrying nuts in; but this he would perhaps explain by comparing it with some of the movements of a "blacksmith," the same as he has done the story of cracking; for certainly, this comparison is one of the most unfortunate he could have hit upon: for, according to his own account, the task is rather performed in the way a collier performs his work, that is by picking, not by hammering; as, instead of the nuthatch reducing to form, it would reduce form to shapeless masses; but be this as it may, it appears that Sutor in his travels has never had much experience in hammering, or he would never have compared it with his own account of the nuthatch's mode of cracking nuts. Does he not know that a blacksmith's hammer, be it ever so small in proportion to the shapeless mass which has to be reduced to form, is always a little harder than that iron. If this was not the case a blacksmith would just look as ridiculous as a nuthatch would do picking at the hard shell of a nut with his soft beak, which certainly is much softer than the shell of any nut when it is ripe. Perhaps Sutor had never the curiosity to try how much weight it will take to crack an ordinary nut, and I will now tell him that the average is about 50 lbs. I have seen a common Hazel-nut sustain 80 lbs.; and when Sutor can make it appear that the bird in question is capable of producing that amount of pressure, I will believe him when he says "nuthatches do crack nuts;" or if he can prove that the mandibles of the bird are harder than a nut-shell, then, and not till then, will I believe that the nuthatch can pick a hole in a nut; and with all due respect, I will now tell Sutor that a bookbinder's press would be a better machine for cracking nuts in than the mandibles of this little bird, and leave him for the present.—*Samuel Gibson.* P.S.—I have just now received your last Number, and am glad to find that Mr. Wighton's attention has been aroused to the examination of the nuthatch, and shall now call his attention to the subject of sound. Perhaps he can tell me how far he is able to hear the sound which it is possible to be raised by the fine point of the beak of this little bird coming in contact with a nut-shell. He tells us that any casual observer in winter, &c., must have heard the bird thus employed; he also tells us that he did not mean that it made mechanical use of its bill; but let me tell him that if it either makes a noise or breaks a nut at all, it must be done by mechanical power; and so far as regards the nest, if Mr. W. knows when he meets with the smooth bark of the Scotch Fir in a bird's nest, he can tell me what peculiarities there are in this bark which are not common to the smooth bark of some other trees. [It certainly is Scotch Fir bark.—Ed.] Mr. Wighton's opinion on the food of the bird in question being that of insects or their larva, perfectly agrees both with the form of its stomach and beak, the latter being evidently formed for the purpose of picking insects or their larva from the crevices in the bark of trees. For his advice in recommending me to carry out the precept of studying nature, I must tender him my sincere thanks, and at the same time tell him, that if he should ever be in this neighbourhood and will give me a call, I will convince him that I have ever adhered to that precept, by showing him all or any part of 70,000 specimens of subjects of nature, which are now in my possession.—*S. G., Mytholmroyd.*

Vine at the New Inn, Ilmington, Warwickshire.—This very old black Hamburgh is planted against a south wall, in a border of Nature's forming, composed of stones and stiff clay. It stands close to the foundation of the house, and bears every year abundant crops of fruit, which frequently ripens, and is highly flavoured, although the situation is low and damp, receiving all the drip from the house. This sturdy old fellow is no teetotaler, for he drinks freely with every guest who visits the inn, which seems to improve his condition, as well as the flavour of the produce. All the pruning he receives is from a common hedge carpenter in a rough way.—*R. R. W., Ilmington, June* 20.

Dandelion Coffee.—Had Mr. Mackenzie differently prepared his Dandelions, he perhaps would have got a less indifferent cup of coffee. I have had a packet, the label on which, headed "Patronised by the Faculty," describes it as Dandelion root, prepared as coffee by W. Twinberrow, (late of Leamington Spa), Chemist, 2, Edward street, Portman-square, London. I have used some myself, and a poor woman, who had some with sugar and milk, spoke favourably of it. I think this might be more grateful to the palates of your correspondents, although I cannot answer for its being suited to their ailments.—*G. A. C.*

Orange Flowers.—These, in addition to being useful as a perfume, make an excellent sweetmeat, candied in the same way as Violets.—*A Subscriber.*

Orchis latifolia.—Parishes which lately abounded with this beautiful flower, now do not upon diligent search exhibit a single specimen. Drainage is the cause. But thorough drainage is not requisite; open cuts are sufficient for its extirpation. Therefore, there will soon not remain a specimen in the island. But it is not the dryness which destroys it. For it flourishes in a high state of improvement in raised garden-borders, certainly drier than the half-drained meadows from which it is expelled. The Dean of Manchester ascribes its disappearance to the increased vigour of the competing vegetation in drained pastures. It is a beautiful garden flower of easy, that is, of no treatment; and it is desirable that private florists (without procrastination), and nursery gardeners should secure the plant for permanent cultivation, while the English meadows still furnish it. There is an increase of offsets; even supposing the art of raising this genus from seed should never be realised.—*A. Herbert.*

Foreign Correspondence.

Hamburgh, June 30.—Within the last few days I have not failed to visit the principal gardening establishments in the neighbourhood of this beautiful place. Booth's nursery gardens at Flotbeck were, of course, among the first that I saw, and here I found great progress during the 10 years that had elapsed since my last visit. The commercial importance and extensive correspondence of this establishment throughout Germany and the north, the great care, zeal, and liberality with which it is managed by Mr. John Booth, are too well known to the horticultural world to need repetition; but I find them better appreciated even here than formerly, and in the garden itself are many improvements. The cultivation is now under the immediate management of Mr. Goode, formerly gardener to Mrs. Lawrence, and he has been able successfully to introduce the modern English method of cultivating and flowering Heaths, stove plants, and Orchids. For the latter tribe Mr. Booth has lately built a span-roof stove, 100 feet long, of moderate elevation, and covered with double lights—a plan which Mr. Goode finds to succeed as well in summer as in winter. In cold weather it must produce a great economy of fuel, and, perhaps, by giving better means of equalising the temperature in different parts of the house, give more command over artificial ventilation. In summer, one would have thought the double glass would have intercepted the light too much, but Mr. Goode does not find that to be the case either for Orchids, Ferns, or stove creepers, such as Stephanotis, Schubertia, Dipladenia, &c., and it is certain that the collection of Orchids is healthy-looking, and, as it strikes me, a full average, or rather beyond an average of them, are in flower. The double glass, however, does not suit Gesnerads, or other showy-flowered stove plants, even here, where there is more light than with us. The building of this Orchidaceous house, and the fine specimens there flowered has very much extended in Germany the taste for that tribe, and the orders given to Mr. Booth for them are rapidly increasing. An extensive new span-roof propagation-house has also been added since I was here. The old collection of specimen hardy trees and shrubs has outgrown the space allotted to it, and does not answer the purposes Mr. Booth had in view in planting them; but the numbers and variety of the shrubs in stock for sale have increased in a very great degree. In the hasty survey I was able to make, I observed many (for example, Populus laurifolius, Ainus oxyacanthifolia, &c.) in considerable quantities, and very ornamental, which I do not recollect as common in our shrubberies. The occasional severity of the winter, however, diminishes much the number of hardy shrubs here; many of our commonest shrubs, especially evergreens, Ericaceæ, Nepal shrubs, Jasmines, &c., though planted in the open borders in spring for the autumn sale, require, if not old, to be potted and housed in winter; most of our new hardy, or almost hardy, Conifers can here only be grown in pots; even the Deodara is sometimes affected; the frost of the winter before last killed one, 14 feet high, notwithstanding it was matted up. Of Conifers in pots Mr. Booth has a great number, especially a valuable set of Abies Nordmanniana, all very healthy, and a great many Mexican ones. I observed also a considerable variety of Mexican, N. American, and S. European Oaks, in pots, inarched on Q. pedunculata. In the other houses the stove plants, the Heaths, and the New Holland plants for specimens, were generally very well flowered; the Heaths, many of them, remarkably fine for their age; and some of the blue Leschenaultias were as full of flower, or fuller, than any of those at our June Exhibition; but the variety of Australian plants is not great. The botanic garden just without the old ramparts, so beautiful in situation, is recovering, under the direction of Mr. Edward Otto, from the depressed state into which it had fallen under the previous curator. As it is a much frequented promenade, much attention is necessarily paid to the ornamental part of it—the Roses, herbaceous flowering plants, ornamental shrubs, &c. The purely botanical part has not much of importance, and the houses are not extensive. Among the fine specimens may be remarked, a considerable number of Encephalarti, including nearly all the species known, in fine healthy specimens, some with trunks 5 or 6 feet high. Amongst them one E. latifrons, and four E. Altensteinii, flowered this year; one of the latter had three cones. There are also some very large Cape Testudinarias. One of the great horticultural beauties of Hamburgh is the Wallgärten or Rampart Gardens, that is to say the old ramparts converted into walks, shrubberies, lawns, and flower-beds; they are completely open to and continuous with the streets. Clumps of Roses, Hollyhocks, Dahlias, herbaceous plants, and even Pelargoniums, are full of flower, and not a flower is picked, nor do you see even a child venture upon the lawns. These gardens extend nearly round the town, and are kept up under the superintendence of the Bau-Direction (the Woods and Forests office as it were), by the Wallgärtner, Mr. Menchen, and from 100 to 150 men. The private gardens about Hamburgh are very numerous; every one of the merchants' country houses, the villas, or the bourgeois houses which cover the outskirts of the town along the Alster, the Elbe, and the principal roads from the town, has its garden of more or less extent and beauty, where the owners may be seen, every one of them, on summer evenings, sitting round a tea, coffee, or work-table, and enjoying themselves often close to, and generally in sight of the road. Very few indeed are entirely shut out from public view, and many have no more fence than what you might easily step over. The great characteristic of all these gardens is neatness, and that without the lawns being generally well kept. This neatness appears to arise from absence of weeds in the walks and beds, and the clean, well painted, and neatly finished houses and other buildings, gardens, tables, and chairs, flower stakes, &c.; even in the kitchen-garden the Scarlet-runners and Peas are neatly and regularly stuck. Booth's garden, which was formerly not the best in this respect, is now as neat and as clean as any; his houses, whether show stoves or propagation houses—new or old—are equally clean and neat, and so it is in almost every garden I have seen. What they want is more frequent clipping of their Hawthorn hedges, and especially mowing and dressing their lawns. Booth's lawns near his own house are very good. Mr. Steers', at Ham, are neat and velvety, like good English ones; some few others also might be named, but, generally speaking, they have too much fancy for making hay to have thick lawns. The Roses are everywhere now in great beauty, and are very extensively grown, either pruned low or tree Roses, of various heights; many of the latter have a stem 5 feet or rather more high, and if at that height they bear a large head of some kind, having a tendency to climb, so as to hang all round, they have a very pretty effect; otherwise these tall tree Roses look rather naked, unless in a bed with lower ones intermixed. In Booth's garden are several tree Roses not grafted on a wild stock, but trained up on their own stem; there does not seem, however, to be any advantage gained, and certainly the process must be more troublesome. Of trees, there are few evergreens will do here, except the common Pines or Firs, the red Cedar, and the Thuja. Among deciduous ones Robinia Pseud-Acacia is handsomer than with us. Booth has some fine specimens of Magnolia cordata, the cut-leaved Beech, &c.; but Tulip-trees were killed the winter before last, when the thermometer fell one night to —21° Reaum. and was for several nights at —17° or —18°. Some of the European Cytisi, not much cultivated with us, such as C. sessilifolius, C. capitatus, and even Genista tinctoria, have a very pretty effect in the low shrubberies when neatly planted and trimmed and full of flower; there are also some old herbaceous plants which we never see in England, particularly Linaria

versicolor, which makes very pretty tufts. All accounts of the harvest prospects in this neighbourhood, and in Holstein, are very good; after a four weeks' drought, the rain came just time enough to swell out the Rye, which was in some places almost too far gone; the Wheat, Oats, and Barley, will have the full benefit of it. Early Potatoes are good and abundant; the main crop is still very young, and consequently not much can be said of them; but all accounts agree, that not a trace of the disease, so general here also last year, has as yet shown itself. The Hamburghers do not lack to much benefit from our corn-bill, on account of our presumed abundant harvest; and I am told, that in Mecklenburgh the housewives are very angry with our free-trade measures, which they aver have raised the price of butter in Mecklenburgh 1*d.* or 2*d.* a pound. The fruit crop this year is very deficient; the Apples, Pears, Plums, and wall-fruit having, as in England, almost entirely failed. Small fruit, however, seems plentiful, judging from the profusion of Cherries and Strawberries (chiefly real Hautbois from the Vierländer) brought to the market. We also see quantities of very fine Bilberries, which I am told are much liked here.—*O.O.*

Societies.

HORTICULTURAL SOCIETY.

July 7.—R. H. Solly, Esq., in the Chair. The Dowager Marchioness of Hastings, the Earl of Ellesmere and, R. G. Loyd, Esq., were elected Fellows. Although the subjects produced on this occasion were not numerous, a circumstance no doubt owing to the proximity of the large exhibition at Chiswick, some of them were not devoid of interest. Foremost among them may be mentioned a cut specimen of the Clove tree (Caryophyllus aromaticus), from the garden of the Duke of Northumberland, at Sion. This remarkable tree, on account of the difficulty of keeping it alive, is still comparatively rare in this country. At Sion, however, it is found to succeed well planted in Norwood loam and sand, in which it was mentioned the Mangosteen and Nutmeg likewise thrive. The specimen exhibited bore large shining pale green leaves, and had on it several of its fragrant coriaceous flower-buds, which are the Cloves of merchandise; the corolla forming a ball or sphere on the top between the teeth of the calyx; thus, with the narrow base or germen tapering downwards, giving the appearance of a *nail*, and hence in French the name *Clou* from which the English Clove is evidently derived.—From the same garden were also two plants of Evolvulus, with pretty blue Anagallis-like flowers, one was named caruleus, the other purpureo-caeruleus, the deeper blue of the latter distinguishing it advantageously from the former, which is much paler. They were found by Mr. Purdie on dry rocks near the sea in Jamaica. A Knightian Medal was awarded for the Clove tree.—Messrs. Whitley and Osborn, of Fulham, sent the new Calystegia pubescens or double Bindweed, one of Mr. Fortune's valuable importations from China; and Mr. Low, of Clapton, a rosy-pink flowered Stylidium, apparently *S. scandens*.—From Mr Cuthill, of Camberwell, were cut bunches and a plant of his Prince of Denmark scarlet Clove Carnation, a brilliant coloured, very fragrant, hardy, border variety, together with bunches of other Picotees and Carnations of less moment.—Very fine boxes of the best sorts of Picotees and Carnations, for which a certificate was awarded, also came from Mr. Norman, of Woolwich.—Messrs. Veitch and Son, of Exeter, sent a small Hydrangea, from Java, said to be Otaksa, but which, if not identical with japonica, did not essentially differ from that species.—Of Fruit, Mr. Barnes, of Bicton, sent a dish of large white Strawberries, which were rather over ripe and somewhat bruised, and disfigured by travelling; but when first gathered they are said to be clear-skinned fine-looking fruit. It was stated to be a good late variety, and to be a very abundant bearer; appearing to be an improvement on the white Chili, a certificate was awarded it.—From Mr. Barton, gr. to J. Thorpe, Esq., of Chippenham Park, Cambridgeshire, was a large oval-shaped scarlet-fleshed Melon, weighing 4 lbs.—And finally, various dried Chinese fruits or sweetmeats, brought over by Mr. Fortune, were placed on the table. They consisted of Jujubes, called Dates, the produce of the Jujube tree (Ziziphus Jujuba) of which there are many varieties; also Litchi and Longan, two species of Dimocarpus. The Litchi fruits are the largest, having a much rougher coat than the Longan, which is, moreover, an inferior variety. Both are round fruit, with the pulp surrounding the stone, covered by a tough thin leathery coat, which is semi-transparent and colourless. Another dish contained pressed Oranges, a preserve obtained from a small acid Orange, common about Chusan. It looks as if the pulp had been taken out, and the rind boiled in sugar, and pressed. Associated with these was also a dish of Wampee—the Cookia punctata, whose small peculiarly-flavoured berries form a very agreeable preserve. Of plants from the Society's Garden were Epidendrum alatum; the well-known Oncidium Wentworthianum; the lovely new Achimenes patens, recently received from Mr. Hartweg; also A. grandiflora, from which the former differs in many respects, but especially in the flowers being of a much deeper colour, and in the leaves being smaller and smooth; two species of Gloxinia; the useful blue-flowered Plumbago capensis; Chironia floribunda and frutescens; Sinningia guttata; and cut specimens of Buddlea Lindleyana, one of Mr. Fortune's first importations from China, which, if not altogether hardy, has been proved to be at least as hardy as a Fuchsia.

CALEDONIAN HORTICULTURAL SOCIETY.

June 27.—On this the last summer meeting the day proved remarkably wet and inclement. Nevertheless, the show of exotic plants was admirable, and amply repaid those whose zeal induced them to visit the garden. —For shrubby or suffruticose exotics, there were four competitors; the Silver Medal was awarded to Mr. Reid, gr. to J. Syme, Esq., for very large and well-grown plants of Pentas carnea, Statice macronata, Pimelea Hendersoni, and Statice arborea, this last being of unexampled size—5 feet high, 16 feet in circumference around the branches, and bearing 63 spikes of flowers.—In Cape Heaths there was keen competition. The first prize was again assigned to Mr. Reid, for E. tricolor, speciosa, ventricosa superba, and pregnans major; and a second premium was voted to Mr. Young, gr. to T. Oliver, Esq., for pregnans, ventricosa coccinea, V. globosa, and eximia.—For Fuchsias there were four competitors. A first premium was awarded to Mr. Thomson, gr. to W. E. Hope Vere, Esq., for Serratifolia, Duchess of Sutherland, and Sir Henry Pottinger; and a second to Mr. Cameron, gr. to S. Hay, Esq., for Duchess of Sutherland, Vesta, and Eppsii. An award was made to Mr. Thomson, gr. to Dr. Neill, for Maxillaria Harrisonice var., and Stanhopea oculata, both in fine flower.—For Pelargoniums there appeared five competitors, some of them producing specimens indicating improved culture, and forming altogether a brilliant display. The palm was at once assigned to Mr. Cossar, gr. to Anne Lady Hay, for Lyne's Sunrise, Princess Royal, Pluto, Nestor, Sir Robert Peel, and Conflagration. A second premium was voted to Mr. Sleigh, gr. to A. Rutherfurd, Esq., for Garth's Discount, Symmetry, Comte de Paris, Foster's Dido, Nymph, and Gaines's Masterpiece.—The offer of a prize for the best grown single specimen of a tender suffruticose exotic, brought forward several choice plants, for which awards were made: the highest to Mr. Veitch, gr. to R. Dundas, Esq., for a magnificent plant of Veronica Lindleyana; a second to Mr. Reid, for Statice Dicksoni, of large size; and a third to Mr. Pousty, gr. to J. Giles, Esq., for a lovely specimen of Leschenaultia formosa.—A prize offered by Messrs. J. Dickson and Sons, for the best six Calceolarias, was awarded to Mr. Thomson, for Duke of York, *Ne plus ultra*, Standishii, Exquisite, Duchess of Roxburghe, and Earl of Eglinton. Another prize, by the same firm, for the best 24 Roses, (Moss, Provins, French, Perpetual, China, and Bourbon, four of each sort), was voted to Mr. Sleigh, whose kinds were—*Moss*: Cristata, Selina, Common, and Duncan's. *Provins*: Rivers' Unique, Victoria, Duchesne, and Blanchefleur. *French*: Surpasse-tout, William Tell, Boule de Nanteuil, and Kean. *Perpetual*: Lady Peel, Rivers' Edward Jesse, and Marquise Boccella. *Hybrid China*: Madame Rameau, Chenédolé, Billiard, and Blairii. *Bourbon*: Paul Perras, Cardinal Fesch, Capitaine Sissolet, and Mrs. Bosanquet. For another excellent collection of Roses an extra award was made by the Society to Mr. Thomson. On this occasion various productions of merit, though sent for exhibition only, were considered as well deserving of honorary awards. In particular for a specimen of Cyrtochilum maculatum var., with a raceme 8 feet long, studded with flowers, an honorary silver medal was voted to J. Syme, Esq. Another medal was awarded to Messrs. Dickson and Co., for a collection of plants, including an Echeveria from Mexico, having two spikes of nearly sessile flowers; 24 varieties of double Dianthus barbatus, &c. A third award was made to Messrs. Carstairs, Kelly, and Co., for Hindsia longiflora alba, and Myosotis azorica; and a fourth to Mr. Handasyde, for an extensive collection of Roses of the different classes. For Orchids, the thanks of the meeting were voted to Mrs. Haig, for a fine flowering plant of Clerodendron infortunatum, and for Cape Heaths; to Messrs. J. Dickson and Sons, for a collection of tender exotics, the kinds being, Gloxinia digitaliflora and Gesnera zelrina, both very fine, together with a collection of Roses; to Messrs Lawson and Son, for a collection including Siphocampylus duploserratus, Pentstemon speciosum, and Ixia erecta viridiflora; to Mr. Watson, for 56 varieties of China Roses; to Mr. Macnaughton, for greenhouse plants, and specimens of Barley from seed received from India, with stalks 6 feet high; to Mr. Kilgour, for seedling Ranunculuses; and to Mr. John Downie, South Bank, Canaan, for the true Pentstemon Cobæa, now rare about Edinburgh.

BOTANICAL SOCIETY OF LONDON.

June 5, 1846.—The Vice President in the chair. Dr. Dewar presented a specimen of Luzula nivea, discovered near Broomhall, Fifeshire. Dr. Dewar considers this plant undoubtedly wild in that locality. The following specimens were exhibited:—Specimens of Ranunculus aquatilis, approaching very near to Ranunculus Lenormandi, but differing by their more completely tripartite leaves, and the more lateral position of the style on the grown fruit; sent by Mr. Hewett Watson from Esher Common, Surrey. Specimens of a Filago, which would be referred to Filago germanica by English botanists, but which is thought likely to prove a distinct species by its discoverer, the Rev. G. E. Smith, who communicated the following descriptive account of the plant along with the specimens for the Society's Herbarium:—"Filago (apiculata: provisional name) Sandy borders of fields, hedge-banks, and roadsides; Cantley, Rossington, &c., near Doncaster. Stem flexuose, copiously downy, more or less erect. Leaves alternate, scattered upon the stem and branches, sessile, spathulate, or spathulate-cordate, or cordate-oblong, or, beneath the heads of flowers, obsolete-hastate, all acute; smoother above, pale green, with the odour of Tansey. Heads of few flowers, 10 to 20, very woolly; globose, scattered on the branches, and terminal as well as axillary. Flowers pentagynal, conical upwards. Scales of flowers swelled and convex below the point, spinous point smooth, purple, strong. Seeds with few elevations on the evanescent epidermis, oval. Stouter than F. germanica, which is grey, not green, and has the heads of 30 to 40 flowers, and all (?) terminal to their common stalk. The leaves of the latter are taper to the point, narrower: the involucral leaves with a broad base, and long, taper point. Our plant flowers later than F. germanica, and is rarely observed in the midst of fields where F. germanica abounds. The scent of the latter is very feeble: the spinous points of the flower scales yellow, or very rarely orpiment. The leaves of our plant are smoother above, and rather woolly than silvery with short down, as those of F. germanica are. I have not met with one plant on clay land, upon which the other often too much abounds. Seedling plants of both preserve the character of the foliage, &c."

Reviews.

Vestiges of the Natural History of the Creation. Fifth edition. 8vo. Churchill.

Explanations: a Sequel to the Vestiges, &c. By the Author of that work.

A general statement of the views of the author of this work having been given at page 6 of our volume for 1845, we are only called upon, on the present occasion, to notice the new topics introduced into the fifth edition, and the "Explanations."

That a book, which has raised such a host of admirers as this has, should also have found its fierce antagonists was to be expected. Indeed, that the author is on all sides open to criticism, is abundantly manifest to everybody who examines his work with reference to such points of detail as he may be most familiar with himself. It is, therefore, amazing to us that the opponents of the peculiar opinions set forth in the "Vestiges" should not have been able to muster even a decent array of hostile facts and arguments against this anonymous author. It is still more surprising that any man of science should have so totally failed in his arguments as the writer of an adverse geological criticism in the "Edinburgh Review," the worthlessness of whose reasoning it is a part of the object of the "Explanations" to expose.

The theory of the "Vestiges" is, that no specific creation has ever taken place; but that the Almighty has commanded matter to oboy certain laws of creation, which laws have been in operation from all time; that the effect of those self-acting laws has been the production, by successive degrees of completeness, of this world and all that it contains; that they are still in operation as they always have been, and that they will continue to act to the end of time.

Supposing this theory to be correct it will follow that new and more perfect species of plants and animals must have been continually appearing since life was, by the will of the Creator, infused into matter; that races have successively disappeared, and been succeeded by others (which, indeed, is conclusively proved by geological evidence); that new species are still appearing on the face of the globe; and that man himself will eventually disappear, to be succeeded by beings more perfect in their nature, and more nearly allied to the angels.

This, in the opinion of the author, is a more philosophical way of accounting for the appearance of new species of living things than to assume that every new form of plants and animals is produced by the special and direct intervention of the Almighty; and, he adds, a more reverential way. But we must let him make his own statement.

"The whole question, then, stands thus. For the theory of universal order—that is, order as presiding in both the origin and administration of the world—we have the testimony of a vast number of facts in nature, and this one in addition,—that whatever is reft from the domain of ignorance and made undoubted matter of science, forms a new support to the same doctrine. The opposite view, once predominant, has been shrinking for ages into lesser space, and now maintains a footing only in a few departments of nature which happen to be less liable than others to a clear investigation. The chief of these, if not almost the only one, is the origin of the organic kingdoms. So long as this remains obscure, the supernatural will have a certain hold upon enlightened persons. Should it ever be cleared up in a way that leaves no doubt of a natural origin of plants and animals, there must be a complete revolution in the view which is generally taken of our relation to the Father of our being. This prepares the way for a few remarks on the present state of opinion with regard to the origin of organic nature. The great difficulty here is the apparent determinateness of species. These forms of life being apparently unchangeable, or at least always showing a tendency to return to the character from which they may have diverged, the idea arises that there can have been no progression from one to another; each must have taken its special form, independently of other forms, directly from the appointment of the Creator. The Edinburgh reviewer says, 'they were created by the hand of God, and adapted to the conditions of the period.' Now, it is, in the first place, not certain that species constantly maintain a fixed character, for we have seen that what were long considered as determinate species have been transmuted into others. Passing, however, from this fact, as it is not generally received among men of

science, there remain some great difficulties in connection with the idea of special creation. First, we should have to suppose, as pointed out in my former volume, a most startling diversity of plan in the divine workings, a great general plan or system of law in the leading events of world-making, and a plan of minute nice operation, and special attention in some of the mere details of the process. The discrepancy between the two conceptions is surely overpowering, when we allow ourselves to see the whole matter in a steady and rational light."

"It seems hardly conceivable that rational men should give an adherence to such a doctrine, when we think of what it involves. In the single fact that it necessitates a special fiat of the inconceivable author of this sand cloud of worlds to produce the flora of St. Helena, we read its more than sufficient condemnation. It surely harmonises far better with our general ideas of nature, to suppose that, just as all else in this far-spread scene was formed by the laws impressed on it at first by its author, so also was this. An exception presented to us in such a light, appears admissable only when we succeed in forbidding our minds to follow out those reasoning processes, to which, by another law of the Almighty, they tend, and for which they are adapted. As is well known, most of the large carnivores and pachyderms of the late tertiary formations very closely resemble existing species; but they are, nevertheless, determined to be distinct species by Professor Owen and other eminent authorities, in consideration of certain peculiarities. The peculiarities are, in general, trifling, such as differences in the tubercles or groovings of the surface of teeth, or greater or less length of body or extremities; but no matter of what the differences consist. Enough for the present that they are held by Mr. Owen and his friends to be of that character which are never passed in generation, but necessarily imply a new creation, a separate effort of divine power. Now it so happens that all the tertiary species, or so-called species, have not been changed or extirpated. There is a badger of the Miocene, which cannot be distinguished from the badger of the present day. Our existing Meles taxus is, therefore, acknowledged by Mr. Owen to be 'the oldest known species of mammal on the face of the earth.' It is in like manner impossible to discover any difference between the present wild cat and that which lived in the bone caves with the hyæna, rhinoceros, and tiger of the ante-drift era, all of which are said to be extinct species. So also the otter has survived since an early period in the pliocene, while so many larger animals were shifted. The learned anatomist takes occasion from these facts to speak of a survival by small and weak species of geological changes, which have been accompanied by the extirpation of larger and more formidable animals of allied species. The inference from the facts and doctrines of this school is, that divine power has seen fit to change the species of elephants, rhinoceroses, tigers, and bears, using special miracles to introduce new ones, one with perhaps an additional tooth, another with a new tubercle or cusp on the third molar, and so forth, while he has seen no occasion for a similar interference with the otter, wild cat, and badger, which accordingly have been left undisturbed in their obscurity. Such may be the belief of men of science, anxious to support a theory; but assuredly it will never be received by any ordinary men of fair understandings who may be able to read and comprehend the works of Mr. Owen. It were too much for even a child's faith. Yet the Edinburgh reviewer, a member of this school, talks of 'credulity!"

Of course the author relies upon the evidence afforded by islands to support his doctrine. It is certainly true that the original flora of St. Helena is peculiar to itself; and it is equally well ascertained that Australia, New Zealand, Juan Fernandez, the Gallapagos, &c. have each their own animal and vegetable productions which occur nowhere else. How is that? The doctrine of the "Vestiges" seems to explain it. We do not say that no other will; but such facts present great difficulties in the way of a different interpretation.

After all, the weakest point of the "Vestiges" consists in the absence of proof that new species are still appearing on the earth. The author ought to produce evidence of it, if the views he entertains are just, or his theory falls; because the law of creation which he assumes to rule the universe must be, and has been, ceaselessly in action from the beginning of time. It can know no pause.

Without pretending to say that such a fact can be made out, we must represent to the consideration of our readers a few circumstances which deserve to be thought upon. Among the more recent of the remains of ancient plants, whose impressions have been preserved in rocks, there are no species identical with our own, though very like them. Take the impressions of leaves found at Armissan, or at Aix in Provence, for an example. There we have Poplars, Pines, Birches, and Hornbeams, not belonging to existing species. What has become of them? They have disappeared. But we still have Poplars, Pines, Birches, and Hornbeams, although not the same. Thus, then, one species has replaced another in even comparatively recent times. Has not, it may be asked, the same change of species been going on ever since? The only honest answer to such an inquiry is that we do not know. The vague descriptions of the ancients afford no means of judging; or if they do throw any light upon the question they lead to the conclusion that species have disappeared; for where is the Bactrian corn, of Pliny, now to be found? and what has become of the Pancration and Seammony of Dioscorides? If we had ancient herbaria, or collections of dried plants to consult, such a question might be solved; but we believe that two centuries are more than the age of any existing herbarium, and in the absence of such evidence all is so uncertain that no argument can be built upon it.

To what is taking place around us we must look then. And we cannot say that we disbelieve the existence of actual changes now. We disbelieve it in theory; but not in our conscience. For do we not find men boasting every year of their discoveries of new species by paths that have been trodden by acute observers for a thousand times? We have now before us an account of a new Avena called, *intermedia*, just discovered in Sweden by Lindgren. The other day our well-known Glyceria fluitans was found to include two species. A new species of Erodium has made its appearance at Pau. The Dean of Manchester has created new Narcissi. A new species of Melic has been lately found in Sicily by Parlatore. Smith speaks in 1824 of 9 Epilobiums, 3 Heaths, 8 Cerastiums, 10 Polygonums, and 10 Rumices, as natives of Great Britain; but Mr. Babington now names 10, 6, 9, 15, and 13 of those genera respectively. Of course it will be said that these additions are owing to the acuteness of modern observers, and that they do not show that new forms are appearing, but only that the forms had been previously overlooked. But surely that is begging the whole question; and we do not know that we are entitled to assert that botanists were so mole-eyed thirty years ago that their quick-sighted successors have been able to add 25 per cent. to the number of ascertained species growing at their own doors. We at least cannot unconditionally accept such a vain-glorious dogma as the representative of truth—it may be so—but where is the proof of it?

We therefore submit that in this point of view the opinions of the "Vestiges" must be held to be supported by recent evidence until some *proof* shall have been adduced to show that the evidence is worthless.

And then with regard to successive stages of development visibly in progress now, can any botanist affirm that Cardamine parviflora is not the first step towards C. hirsuta; nay, more, that Cardamine Chelidonii is not a form advancing towards Chelidonium majus? or that Ruppias are not Confervæ in a condition of higher development? or even that Nymphæa is not itself the more complete stage of Villarsia? We most assuredly will not say that they are so; but then who can undertake to affirm that they are not?

New Garden Plants.

39. AZALEA SQUAMATA. Scaly-stalked Azalea. *Greenhouse Shrub.* (Heathworts.*) China. From the mountains of Hong Kong, whence it was sent by Mr. Fortune, as a fine and distinct species.

With the habit common to all the Chinese Azaleas they present the following peculiarities:—In its natural state it blooms without leaves, producing at the end of every little shoot a large solitary flower of a clear rose-colour, distinctly spotted with crimson on one side, and guarded at the base by a large sheath of bright brown scales (whence its name). Its calyx, unlike that of the neighbouring species, is reduced to a mere five-toothed rim. Its ovary, immediately after the fall of the corolla, projects in the form of an oblong body quite covered with coarse brown hairs. The leaves when young are somewhat like those of A. indica, and have nothing distinctive in their shape or surface; but when old they are oval, sharp at each end, perfectly hairless, and as even on the upper surface as those of Rhododendron punctatum. This plant has been long known from dried specimens and drawings sent from China by Mr. Reeves, the latter of which are preserved in the library of the Society: but it has never before been introduced alive. At present its flowers have only been produced by plants out of health, and therefore they have given no just idea of the beauty of the plant, which is one of the finest in cultivation. It will probably prove hardy. In a case, containing several plants, Mr. Fortune sent home a portion of the soil, brown loam, in which this species was found wild, and for the purpose of trying its effects one plant was potted in it; but it has by no means the healthy appearance of those potted in rough sandy peat. It strikes freely from cuttings of young wood under ordinary treatment. The beautiful spotted flowers (although not large) and the neat foliage, together with a dwarf habit, will render this a plant of considerable importance either in a greenhouse or in the shrubbery.—*Journal of the Hort. Soc.*

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

Garden Memoranda.

Messrs. Rollisson's Nursery, Tooting.—The plant-houses at this establishment consist of a range extending the whole south side of the nursery, for the most part having lean to roofs, but intersected by two elevated erections, with span-roofs. The whole of this range is devoted to Camellias, Azaleas, and miscellaneous greenhouse plants. Trained along the back of one of these houses is a fine specimen of Glycine sinensis, clothed with beautiful foliage, and richly ornamented the second time this season with a profuse display of flowers. The principal stove and present Orchid houses are rather low, span-roofed erections, but closely adjoining them is to be a large new Orchid-house, the foundation of which is already laid, the dimensions being 100 feet by 20. Among Orchids in bloom was Epidendrum macrochilum album, which was exhibited at the first great exhibition of the season, and whose flowers are still as fresh as when they first expanded. In the stove, among other plants in bloom, we particularly remarked Clerodendron calamitosum, with large leafy panicles of white flowers; the useful old Begonia nitida, whose rosy-white flowers are in beauty nearly all the year round; Gesnera pellucida, a tall growing species, with blush blossoms, and woolly leaves; Hibiscus flavescens, having double straw-coloured flowers; the comparatively new Rhodocetesmma gardenioides, with sweet-scented blossoms; and a curious Achimenes, named A. alba, having small tubular flowers, the tube dotted with black, the limb only being white: it is a dwarf-growing variety, with broad hairy leaves. In a smaller stove, Mussœnda macrophylla and frondosa were in flower, whose large white bracts give them a striking and interesting appearance; and associated with them, the useful stove plant Rondeletia speciosa major, a better variety than speciosa, with numerous heads of orange flowers; also Porphyrocoma lanceolata, with deep violet flowers; and the handsome stove Fern, Gymnogramma chrysophylla. The collection of Orchids is in a flourishing condition, but beyond the one already referred to, and some Stanhopeas, few were in bloom. Several novelties are, however, deserving attention, particularly an Oncidium, a Brazilian species, with light coloured flowers, the most beautiful I have seen; the sepals and petals are mottled yellow and brown, and the large lip, its most striking feature, has a deep-yellow ground colour, with black markings at its base; towards the outer edge is a broad band of light brown: associated with this was the new Achimenes patens, together with the double flowered Bindweed (Calystegia pubescens), producing its fine lilac flowers, as large as those of the Cape Jasmine (Gardenia radicans), and a climbing Torenia, with dark-coloured tubular flowers.—*A. B., June* 30.

Miscellaneous.

Manna fallen from Heaven.—It appears from the researches of Professor Miquel that the "manna" which fell in the province of Van, in Asia Minor, in 1845, consisted of fragments of Lichen esculentus. These must have been torn from their woods by a storm, and transplanted through the air to the places where they fell.—*Bot. Zeit.*

Sale of East Indian Orchids.—A small collection of these plants was sold the other day by Messrs. Stevens. They appeared to be from Java, and it was reported that they were an importation by Messrs. Veitch and Sons, of Exeter. They were in excellent condition, and produced high prices; thirty-six lots of Phalænopsis amabilis, many of them extremely small, from 12*s.* to 6*l.* 10*s.*; the majority fetched from 2*l.* to 3*l.* Vanda insignis, which is quite new, and a fine thing, with flowers as large as Oncidium Lanceanum, and not unlike them in colour except that they are pale, was an object of great interest. The first and best specimen produced 13*l.*; the others from 2*l.* 12*s.* 6*d.* to 12*l.* 10*s.*, according to the state of the lots, of which there were 26. Some Renantheras, called new, but which did not appear different from R. matutina, produced from 2*l.* 5*s.* to 4*l.* 5*s.* Two lots of a so-called new Aerides, 6*l.* 15*s.* and 7*l.* 10*s.*; a Vanda, said to have bright scarlet flowers, but of which no specimen or drawing was produced, from 4*l.* 5*s.* to 9*l.* 15*s.*; and Dendrobium compressum, a very odd looking thing, 6*l.* 10*s.* and 3*l.* 15*s.* The total sum received was 312*l.*

Calendar of Operations.

(*For the ensuing Week.*)

Double Potting.—Large climbers, with other specimen plants of considerable size, are liable to become pot-bound; and as it is not always expedient to give them a thorough shift, it is a very good plan to sink the pot into another, which is somewhat larger. The pot selected should be thoroughly drained; and fibrous heath soil and loam in lumps, with charcoal and pounded crocks, should be laid over the drainage before placing the plant. The rim of the pot inserted may be elevated about one-third its depth above the level of the exterior pot. This will give room for the prepared compost. After placing it perfectly level, the space between the two pots may be filled up with the same coarse materials. This space affords a good chance of introducing stakes or trellising, without injury to the roots. I have large plants which were thus treated four years ago, and are still thriving, having been constantly fed with liquid manure during the growing season.

CONSERVATORIES, STOVE, &c.

Conservatory.—Camellias may be shifted at this period. I consider it an excellent plan to perform this operation the moment that the flower-bud is decidedly formed. As compost, I would recommend two-thirds of fibrous loam of an unctuous character, and one-third of fibrous heath soil. The more fibrous and lumpy it is the better, and a good sprinkling of charcoal in small masses, with sharp silver sand, should be added. Let the pots be most completely drained, by placing some large crocks in a very hollow position at the bottom; topping these up with a pounded mixture of broken crocks and charcoal, from which all the very small particles have been riddled. Cover this with very fibrous turf in small lumps, before placing the ball, and keep pressing the material (not ramming) close, with the fingers, during the process of filling up, observing to have the compost in a mellow state, rather inclining to dryness. One most material point is, to see that the ball is thoroughly moistened before shifting; if any doubt of this exist, let the ball be steeped in water for a quarter of an hour, previous to potting

Stove and Greenhouse.—Some of the Begonias, as also the old Phaius grandifolius, are well adapted for producing winter flowers. Such should have their growth completed with all possible rapidity; they enjoy abundance of liquid manure. Keep the old shoots of the Russelia juncea cut away, and healthy shoots trained in their room; and beware of the green-fly. Stop the shoots occasionally of some of the young Euphorbia jacquiniflora—they will produce a succession of somewhat later blossoms. Thunbergia seedlings having been provided, they should have most liberal shifts, and receive a good staking or trellising, in order to secure good healthy specimens through the autumn, and perhaps the winter. Two or three plants in a mass (one of each colour) produce a pretty effect. *Orchids.*—Let those making surface-roots be attended to in regard to top-dressings of peat, &c. Continue in other respects last week's directions. *Mixed Greenhouse.*—Some of the Statices—as sinuata, puberula, &c., exhausted with blooming, may be shaken out of their pots, and repotted. These plants delight in an open compost, with thorough drainage, and some of them are partial to a close and moist atmosphere. Stop gross shoots of the greenhouse Azaleas, and see to cuttings of the best Pelargoniums. The earliest sown Primula sinensis may now receive their final shift—these will blossom through October and November, when flowers will be scarce. Continue to pinch off all blossoms from pot Roses intended for flowering in November and December, and stop all luxuriant shoots. Young stock of these for winter work should now have their final shift.

KITCHEN GARDEN FORCING.

Pines.—Continue former directions; little new can now be added. Those who desire constant successions of fruit should make it a point to give the final shift at various periods from the end of May until the end of August; after which period nothing, in my opinion, but extreme cases can warrant extensive shifts. *Vineries.*—Follow up former directions with regard to Grapes in the course of ripening. Those ripened weeks since, and approaching a state of rest, may be allowed to sink quietly into that state, if required for early forcing. If ripening Grapes are not required to hang long, a considerable portion of the laterals may be removed. This will slightly increase the colour, add to the saccharine character of the fruit, and assist in perfecting the buds for the following year by exposure of the principal leaves.

KITCHEN GARDEN AND ORCHARD.

Let a good planting of Leeks be made directly, using as much manure as for Celery. Endeavour to get out good breadths of Celery forthwith. I prefer what is called the Scotch plan, viz., beds of from 4 to 6 feet in width. These beds, which with me succeed crops of Peas, are trenched two spits deep. The bottom spit has plenty of raw manure or half-rotten leaves, and the top one old manure. The principal secret in growing very tender and crisp Celery, irrespective of size, is to sow it rather late, and grow it very quickly by means of plenty of manure and moisture. Shallots inclined to ripen should be raised slightly with a Potato-fork, in order to admit air to counteract mouldiness. Let a good breadth of autumn Turnips be got in without delay, choosing for the kitchen garden the Dutch or Stone. I prefer the former. *Orchard.*—See that watery breast-wood is progressively done away with in the wall and espalier Pears. Have an eye to Strawberry runners for forcing or other purposes. The Elton is invaluable for late work.

FLOWER-GARDEN AND SHRUBBERIES.

The late abundant rains which have, according to the papers, been general, will furnish a good opportunity, if the time can be spared, for a thorough rolling of lawns. An English lawn is ever reckoned an object of admiration, and thorough rolling is necessary both to preserve its beauty and to facilitate the business of the mowers. The annuals will now be gay, and amongst the newer kinds I would point to the Schizopetalon Walkeri, the obelia ramosa, the Ipomopsis elegans, the Calandrinia speciosa, and the Ipomœa elegans, as worthy a place in every parterre.

FLORISTS' FLOWERS.

Carnations and Picotees.—The most forward may now be layered; they should be put down in light soil, consisting principally of leaf-mould. Those shoots, which apparently will not get sufficiently strong, may be taken off, and treated in the same way as Pink pipings. Take every opportunity of fertilising blooms for seed; do not cross a Picotee with a Carnation, and prefer those which have broad, stout, well formed, and smooth petals. The risk is considerable, even under these circumstances; but the gratification arising from the production of one first-rate flower repays all the trouble. *Dahlias.*—Remove all misshapen blooms, and place neat stakes round the main stem, to which the lateral shoots may be attached, otherwise they are apt to be twisted off by rough winds. *Pinks.*—Occasionally examine the pipings which are under hand-glasses; remove any which have contracted mouldiness, and carefully extract all weeds from amongst them. The latter blooms have very much improved, though now nearly over, except in the most northern districts; and varieties, which, owing to the extreme hot weather the early part of the blooming season, could hardly be recognised, have now assumed their distinctive character. Continue to put in pipings as well as cuttings of Passion, &c. &c.

COTTAGERS' GARDENS.

The cottager who can afford ground for the luxuries of Celery and other salads must keep his eye on the kitchen garden portion of the Calendar. Little can be added here at present. Let every spare bit of ground be constantly broken up at this period and filled with some kind of Greens or Turnips. If the cottager is short of manure, extra spade husbandry will in some degree compensate for the want of it. This is the cottager's chief capital, and is generally most efficient.

FORESTING.

There has always been much difference of opinion about the summer pruning of young forest-trees. Some recommend a preventive system, based on stopping with the finger and thumb all competing leaders for a few years after planting. Others seem partial to the operations of the saw and the bill-hook. For my own part, I prefer the former; and I am of opinion that the rivalry of competing leaders may be easily prevented by the simple operation of stopping, if performed in due time. These operations, however, could be well performed in the winter; as stopping in the middle of summer might cause the production of late and immature growths, which, in the case of such trees as the Sweet Chestnut, would be somewhat prejudicial.

State of the Weather near London, for the week ending July 9, 1846, as observed at the Horticultural Garden, Chiswick.

July	Moon's Age.	Barometer. Max.	Min.	Thermometer. Max.	Min.	Mean.	Wind	Rain.
Frid. 3	9	30.165	30.129	80	46	63.0	S.W.	
Sat. 4	10	30.134	29.940	82	66	70.0	S.	
Sun. 5	11	29.768	29.608	85	70	72.5	S.	.24
Mon. 6	12	29.650	29.448	71	55	63.0	S.W.	.13
Tues. 7	13	29.676	29.744	78	49	63.5	W.	
Wed. 8	0	29.850	29.764	65	56	62.0	S.	.08
Thurs. 9	15	29.869	29.641	72	56	64.0	S.W.	.16
Average		29.873	29.760	78.5	51.6	66.8		.81

July 3—Overcast; cloudy; clear and fine
4—Sultry; hot, with very dry air; clear and fine
5—Hot and dry; excessively hot; the temperature in the shade higher than it has been for 60 years at least; thunder half past 2, and at 3 P.M. rain in torrents
6—Hail round the sun early A.M.; rainbow; heavy showers; cloudy; rain at night
7—Cloudy; overcast and fine throughout
8—Overcast; slight drizzle; rain at night
9—Overcast; heavy showers; cloudy and fine; rain.
Mean temperature of the week 3½ deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending July 18, 1846.

July	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest quantity of Rain	Prevailing Winds							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 12	73.8	52.0	62.9	10	1.10 in.	—	1	1	—	3	6	5	4
Mon. 13	73.9	51.3	62.6	9	0.60	—	1	1	—	—	14	3	1
Tues 14	74.7	50.8	62.7	8	1.40	—	1	1	—	2	8	7	1
Wed. 15	74.2	50.4	62.3	11	0.15	1	2	1	—	2	9	6	1
Thur 16	75.7	50.1	62.9	4	0.46	1	1	2	—	2	5	6	—
Fri. 17	77.2	54.8	66.0	4	1.23	1	1	1	2	4	5	5	1
Sat. 18	78.7	53.6	66.0	9	0.63	—	—	—	—	5	6	6	8

The highest temperature during the above period occurred on the 17th, 1834—therm. 94°; and the lowest on the 13th, 1840—therm. 41°.

Notices to Correspondents.

Our Correspondents are prayed to write their inquiries on only one side of the paper. If they knew the inconvenience of their not doing so, we are sure that they would endeavour to oblige us.

Books—*A L*—Read Solly's "Rural Chemistry;" it is the best book for you.—*G*—Murray's "Home and Colonial Library" is one of the very best books of the day. We always notice such of its Numbers as relate to Natural History.

Bulbs—*Tyro*—Lilium lancifolium is the better for protection in winter, if the roots are left in the ground. The following are autumnal flowering sorts:—Gladiolus psittacinus and byzantinus, Amaryllis lutea, Crocus nudiflorus, Colchicum autumnale (double) and variegata, Tigridias, and Amaryllis Belladonna.¶

Cacti—*Emily*—If your old Cactus is in good health do not repot it this season now; it is too late. If overgrown, thin out all superfluous branches, then tie the remainder to the stakes, or over a trellis. They like rich free soil.§

Camellias—*S*—We did not say that Camellias should not be pruned at all; on the contrary, few plants will bear the knife better than the Camellia, but it is very bad management to cut off the young wood, seeing that on it the flower buds are formed. If it is necessary to prune overgrown Camellias, do it in spring just before the young wood has begun to grow. Plants in pots are best placed out of doors for a few weeks after they have made their young wood. Cacti and other succulents may also be turned out of doors with advantage during the summer months.†

Fuchsia—*A R C*—The flowers of Smith's Queen Victoria we have not seen so large or so fine in colour as in its first season. At the present time it is rather out of character; it has light pink tube and sepals, the latter slightly tipped with green; the corolla is of a rich red, with a very slight tinge of violet; the sepals expand tolerably well, but not quite sufficiently.*

Garden Walls—*J L*—Use 14-inch walls; they need not have a coping at all; its advantage is doubtful. The depth of the foundation must be settled on the spot; all depends upon the state of the soil. Make the border 15 ft. wide, and take care that it is not only well drained, but so prepared as to prevent the roots getting down into the deep soil. There is an excellent paper on this subject by Mr. Reid, of Noblethorpe, in the last Journal of the Horticultural Society. It is better not to crop the border if you can avoid it; and at all events nothing should be grown upon it except light crops which come quick to hand. As to houses, you had better consult some garden architect, as directions without plans will be useless to you.

Glass—We find that there are two respectable window glass manufacturers at Bristol, viz., Messrs. Coathupes and Co., and Messrs. Ricketts. This will, we trust, meet the eye of a correspondent who last week made inquiry respecting West of England Glass Houses.

Heating—*C C*—You will find plenty of details in our columns concerning tank heating. It matters little what plan you adopt; the management of the tank is the main thing. Iron ones are eventually the cheapest; but wooden tanks do very well and cost less. Read "Moore" on the Cucumber.

Hollies—*Old Reader*—There is no difficulty in transplanting Hollies, provided their roots are not allowed to become dry. You have, we fear, neglected that precaution. Out of some hundreds of small plants, we have not lost half-a-dozen in even this bad spring, and although carelessly planted in heavy land. Once dried, Hollies are ruined.

Insects—*C L*—Your Ichneumon fly, which is considered rare, has been named Rhyssa persuasoria. It is a female, and the long oviduct is employed for depositing eggs in the larvæ of other insects, which live in timber. *R*—*P C*—The Silver Firs are infested by a species of Eriosoma, I believe, which in all probability is the cause of the trees dying. *R*

Labels—*J H H*—Neither wood nor iron are suitable for tropical countries. We advise you to employ zinc, and Burrows and Thoms's ink, which is invaluable. It is advertised in another column.

Kew—*D C L* will find upon further inquiry, that the Turkey Oak in question is scarcely "encroached upon;" not certainly "crowded by" *three trees* of the same relative size and age and beauty, with the Oak; but opinions may differ as to their being of very "inferior value." "D C L" is perhaps not aware that they are the finest Cedar of Lebanon, the finest Oriental Plane, and the finest Ailanthus glandulosa, in the garden.

Monstrosities—*M C D*—The Fern-leaved Beech is a mere accidental variety of the Fagus sylvatica, and is very apt to "run away" into ordinary leaves.—*Reneilla*—The collections of small twigs on trees are supposed to be owing to branches having been attacked by insects, which have arrested the onward growth, and compelled the buds to break into innumerable laterals.

Names of Plants—*A B*—The fungus that infests your Carnation leaves is the Depassa Dianthi.—*W H*—Euphorbia Lathyris, a powerful purgative, and not a Caper, as it is vulgarly called. It was one of the medicinal plants cultivated by the Monks.—*Querous*—Jurinea elata is a hardy perennial, very like a thistle.—*W A O*—You have no sort of conscience; how can you suppose that we can occupy time and space with naming 50 common plants, with which every gardener is bound to become acquainted before he takes a place. You ought to study for yourself.—*Busy Body*—46, Serissa fœtida; 24, some Gladiolus †; and perhaps cardinalis, but the flower is crushed to pieces.—*Anon*—Apparently the mycelium of some fungus.—*E H*—1 and 2, Poa pratensis; 3, Poa trivialis; 4, Bromus mollis; 5, B. racemosus; 6, B. sterilis; 7 and 8, Avena pratensis; 9, A. flavescens; 10, Arrhenatherum avenaceum; 11, Holcus lanatus; 12, Festuca ovina; 13, F. rubra; 14, Aira cæspitosa; 15, Poa fluitans. Fix your specimens on with glue. Cartridge paper is best. Common printing paper is too weak. "Hortus Gramineus Woburnensis" will probably suit you.§—*T N P*—1, Dactylis glomerata; 2 and 3, Cynosurus cristatus; 8, Holcus lanatus; 4, Poa trivialis; 6, Bromus mollis.§—*A C*—Platycodon grandiflorus, one of Mr. Fortune's beautiful plants.—*A S*—Cicer arietinum.—*Dorothea*—Pallurus aculeatus or Christ's Thorn, so called because the "crown of thorns" was made from its spiny branches.

Peach-trees—*An Early Subscriber*—If you determine on growing your trees in pots, they will be best plunged; but if you allow their roots to get through the holes at the bottom of the pot into the soil, those inside the pot will soon become useless. Better clear away the old bark-bed, introduce 2½ ft. deep of fresh rich loamy soil, and into this turn your plants out of the pots, training over a trellis not too far from the glass.‖

Plants, &c., to withstand the Sea Air—*D Milne*—*Trees:* Acer Pseudo-Platanus, Hippophae rhamnoides and conferta; Pinus Strobus, Pinea, and Cembra; Quercus Ilex, and Pyrus Aria. *Shrubs:* Coronilla Emerus, Pyrus japonica, Leycesteria formosa, Tamarix gallica and germanica, Spiræa salicifolia, Colutea cruenta, Sambucus racemosa. *Herbaceous:* Statice latifolia, tatarica, and others; different kinds of Armeria, Lathyrus grandiflorus, Coronilla varia, Saxifraga cordata and crassifolia, and Iberis sempervirens.¶

Potatoes—*P A* says an elderly person who is very asthmatical suffers more from that disease when scraping Potatoes than at any other time; and he inquires what it arises from.—*R W G*—We heartily wish you may be right. If, however, you had as many opportunities of looking into the Potato crop as we have, you would soon find that we are very far from being "humbugged," as you fear. Just inquire of the salesmen in Covent-garden Market, or look through the market itself. Our own Potatoes are all going off as before.

Roses—*G M*—The following are six hardy climbing Roses, of different colours:—Rose de Lisle, Boursault, Bougainville, Jaune Desprez, Ruga and Blairii.‡

Misc.—*J C L & Boroughbridge* will find a receipt for Rhubarb wine in another column.—*E x*—Your soil, in its present state, is unfit for gardening purposes. It requires to be thoroughly broken down by frost, and mixed well with water in which has been dissolved some common alkali, such as wood-ashes, or soda, or potash. What Daphne do you mean? There are so many sorts that we must beg you to be more explicit. Stop your Camellia by nipping off the end of the shoot, and it will form laterals by degrees.—*Ignoramus*—There are several yellow Portulacas.—*E A J*—Grow Cardoons like Celery; consult French cookery books as to the way of preparing them for table; they require a good cook. Seakale plants should not on any account be cut down at this season. Treat Vegetable Marrows like Gourds and Cucumbers out of doors.—*A Subscriber*—We believe that all insurance offices will insure a man of 62, *if he is in good health.*—*Amateur*—Yucca flaccida is quite hardy.‡—*Devon*—Thysanotus proliferus is a greenhouse plant; use sandy loam and peat. It may be increased either by division of the roots or by seeds.‡—*Vexation*—See answer to "Distress" in last week's Paper. It is impossible to say why your Pines have not produced larger fruit.‖—*O C*—The best way (without taking the plants out of the pots) of destroying worms, is to water with clear lime-water once a week. The cause of Fuchsias shedding their flowers when kept in a window is the dry atmosphere, and allowing the plants frequently to suffer from the want of water, particularly if their roots are confined in small pots. The only remedy for such is regular attention to watering and air. "The Fuchsia paper" hereafter.¶—*Twyslden*—Clematis azurea will possibly suit your purpose.§

SEEDLING FLOWERS.

Fuchsias—*J M*—Your seedling is a large and showy flower, but the corolla we think objectionable on account of its colour not being sufficiently strong and decided, and the divisions, which should remain firmly embracing the stamens, unfold, and give the flower a rough and loose appearance.*—*W A O*—No. 2 is a showy and pretty seedling; the corolla is rather short, and, should the plant be of a drooping habit, will be but little seen; in other respects it is a very pretty flower. Rubens is a stout and good flower.*—*R*—No. 1 is very large, showy, and singular in colour, but coarse, with a corolla disproportionately small for the size of the flower; 2, common in colour, sepals not expanding nearly hide the corolla; 3, large and stout, but wanting contrast in the colours; 4, sepals too long, but stout and showy; 5 wants compactness of form, and the sepals hide the corolla; 6, an elegant flower, rather common in colour; 7, the best of the light-tubed flowers; the absence of the violet or purple in the corolla we consider a defect in your flowers.*

Gloxinias—*Drysdale*—Your seedling was so much bruised by travelling, that no opinion could be formed of it.‡

Pelargoniums—*J H S*—The best of your seedlings are but second-rate flowers; they possess generally long and narrow under petals, are wanting in substance, and the spot in the top petals is poor in character; the best are 6 and 7; the former on account of its colour—the latter has good form and clearness.*—*S B*—Your seedlings are quite second-rate varieties; 10 is decidedly the best—the colours are clear, and the white centre is pretty, but we have the same disposition of colours in flowers very superior to your specimen in size and substance.*—*E E or E L*—Your seedlings are very inferior in size, substance, and form to the Pelargoniums of the present day, and the spots in the top petals are generally too undefined. No. 1 is decidedly the best, desirable in colour, but in other respects second-rate.*

Petunias—*J H S*—Your seedlings are small; in colour and marking 2 is very pretty.—*W M*—Many of your blooms were quite destroyed by the time of their arrival; probably they were old when cut, and the dampness of the Moss did the rest. 112 is a large and finely-coloured flower; 162 do.; the remainder were not in a state to form an opinion upon.*

Erratum—In the article on "Entomology" at p. 444, col. b, line 23 from top, for "their," read "this."

INCREASE OF PREMIUMS TO £600, which is offered this year by the YORKSHIRE AGRICULTURAL SOCIETY, at its NINTH GREAT ANNUAL MEETING at WAKEFIELD, on THURSDAY, 6th of AUGUST next.

LORD WENLOCK, *President.*

Vice-Presidents.

Earl Fitzwilliam.	Earl of Harewood.
Earl of Tyrconnell.	Lord Wharncliffe.
Richard Bethel, Esq.	Viscount Morpeth.

EIGHT HUNDRED POUNDS will be offered as prizes for Stock, Implements, Farms, Essays, Poultry, &c.

The entry Closes on THURSDAY, the 23rd of JULY. Prize Sheets and Forms may be had free, on application to the Secretary.

No charge is made to Members of the Society for exhibiting, nor to any party for exhibiting Implements and Poultry.

For Implements 200*l.* is offered in Medals and Money, to be decided after *actual trial.*

Reduced charges will be made by the Railways; on the Manchester and Leeds Railway, articles for the Show will be conveyed free.

For the convenience of persons who may prefer to deliver their entries personally, Mr. JOHN WATSON, of 1, Clarence-street, York; and W. BARBAT, St. John's, Wakefield, will also receive them, and transmit them to the Secretary; but all entries made to them must be at least one day before the 23rd of JULY.

Programmes of the proceedings and particulars of the Exhibitions, Dinners, Discussions, &c., will be ready by the 20th of July, and may be had on application to

MATTHEW M. MILBURN, Secretary.

Thorpfield, Thirsk, July 1846.

ROYAL AGRICULTURAL COLLEGE. — The Midsummer Term will begin on the 27th JULY, instant. Students who wish to enter at that time, and whose names are not already on the list, are requested to have their papers filled up and sent in without delay, that they may pass the Council previous to that day. Printed Forms may be obtained by application in writing to the Principal. No In-student can enter without the nomination of a Shareholder.

Shares, until the list is full, may be obtained by applying to the Secretary. By direction of the Council,

Cirencester, July 11. ROBT. J. BROWN, Hon. Sec.

The Agricultural Gazette.

SATURDAY, JULY 11, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

TUESDAY,	July 14	
WEDNESDAY,	— 15	Meeting of the Eng. Ag. Soc. at Newcastle.
THURSDAY,	— 16	
THURSDAY,	— 16	Agricultural Imp. Soc. of Ireland.
THURSDAY,	— 23	

FARMERS' CLUBS.

July 21—Bromsgrove | July 27—Wellington
— 22—Plymton St. Mary

ON Tuesday, the 27th of January, Sir ROBERT PEEL, after expounding his views with regard to the REPEAL OF THE CORN LAWS and the remission and reduction of various protective duties affecting the agricultural in a greater degree than the manufacturing interest, stated his intention to grant to the former certain beneficial provisions as compensation for the excess of protection he then proposed to remove from them, and which they have since been obliged to relinquish. We wish scrupulously to avoid any manifestation of party feeling regarding those political subjects upon which our readers may hold different opinions; but that period in the Parliamentary session has arrived (without regarding the unsettled state of ministerial movements), when it behoves all parties interested in bills before the legislature to urge them forward with despatch. The new Corn Bill has become law. The tariff has been amended; but where—in what stage of progression are the *compensating* measures to which we have alluded? We cannot say,—

"The bitter past, more welcome is the sweet."

For however well intentioned the Government were at the beginning of the session, when contemplating their *future* proceedings, it is a fact that the Agricultural interest is not *now* so sure of the proffered compensation as it is certain of the permanent loss of protection.

The promised provisions were four in number, viz.:—

1st. To amend the laws relating to highways.
2d. To amend the law of settlement.
3d. To authorise the advance of public money to promote the drainage of land.
And 4th. To relieve the county rate-payers of the charge of maintaining prisoners in gaol and of prosecuting felons.

Of these we have only heard of the *introduction* of the first and third, and while we protest against the delay of measures which it was implied were to become law contemporaneously with the repeal of the Corn-laws, it is our present intention to advert but to one of the proposed bills, the most important of the whole, and which we trust all parties will do their utmost to secure. We allude to the bill brought into the House of Commons by the Chancellor of the Exchequer, "To authorise the advance of public money to a limited amount to promote the improvement of land in Great Britain and Ireland by works of Drainage."

The principle of charging land and the inheritance with money expended in permanent improvements of the soil, repayable by instalments, was advocated by Mr. PUSEY, and recognised by the legislature in the statute of the 8 and 4 Victoria, cap. 55. This Act was carried through Parliament bare of operative provisions, more with a view to procure an admission of the preamble, and the principle it involved, than to obtain at that time an effective measure. It was anticipated that the discovery of the difficulties which beset the question of dealing with property in which the owners had only a limited interest would lead to suggestions from persons practically informed on the subject, and that an amending act would then be sought and obtained.

In the year 1843, an Association was formed at the instance of Mr. CHARNOCK, of Wakefield, called the "Yorkshire Land Draining Association." It was actively supported by many leading agriculturists, who found the expence and delay of using Mr. PUSEY'S Act a veto upon their proceeding. The Association is now dissolved, but to the zeal of some of its members (among whom were Mr. BAILEY DENTON and Mr. BALLENDEN KER) may be ascribed the present Government measure. An amending bill prepared by them was introduced into the House of Commons by Mr. PUSEY, in July 1844, and was dropped in the following month on an understanding that it should be originated in the House of Lords under the conduct of the Duke of RICHMOND. A select committee was appointed before whom evidence was adduced, and by whom a report was drawn up, resulting in the Act of last session, which effected several important improvements on the former measure but left its jurisdiction still in the Court of Chancery. It would appear that the notice of Government was attracted to the emanations of this committee, and, satisfied that "the great capability of improvement inherent in all kinds of land" would afford security to the nation for an advance of three millions of the public money to a particular class of the community, the minister did not hesitate to propose such a step, being assured that a reciprocal public advantage would be gained in the employment of rural labour and in the vast increase of agricultural produce.

The bill in question deals alike with the owner in fee as with the tenant for life, and any landowner presenting a case by which it is clear that an improvement in annual value will be effected, exceeding the amount to be charged on the land, may borrow the public money irrespective of his title to such land.

The Inclosure Commissioners being constituted the agents for carrying the measure into execution, the apprehensions of delay and expence innate to the Court of Chancery will not be called forth. Other facilities hitherto wanted are here supplied.

A landowner may obtain advances of money as the works proceed, and he will have the advantage of the scientific skill of the officers of the commission, who will report to the Commissioners from time to time, and are required in the first instance to certify their opinion of the amount of benefit the proposed improvement will afford. Supposing the cost of draining an estate to be on the average 4*l.* per acre, then the officer of the commission will be required to report that in his opinion the land will be increased in value 5*s.* 3*d.* per acre at least. This being done by an indifferent competent person, the Government will be secure against an improvident use of the public money, and the landowner against incautious and unskilful work. The amount of rent-charge is fixed at 6*l.* 10*s.* for every 100*l.* expended, and the term of years over which this payment will extend is to be 22 years, so that by 44 half-yearly instalments of 3*l.* 5*s.*, a loan of 100*l.* will be repaid.

But we think the greatest amount of benefit will arise from the enactments in clauses 34, 35, and 37, by which it is *suggested* that any tenant may join his landlord in an application to the Commissioners, and may render himself liable to pay the rent-charge to the Collector of Assessed Taxes. By this means an active tenant may secure the advantage of borrowed capital, with no other aid from his absentee landlord than an acquiescence in the object sought, and an understanding that upon leaving his farm before the expiration of the 22 years the tenant leaves the land subject to so much additional rent. Several tenants, too, may co-operate in one scheme, and by an apportionment of the rent-charge, each may pay their respective shares.

We think that the Commissioners' charge for investigating and reporting upon the works should be charged on the land, and form part of the borrowed money, but as we are anxious to have the Bill we will raise no objection on this head, which is of minor importance, but close our remarks with the hope that sufficient has been said to enlist the energies of our influential agricultural friends to secure to the country, without further delay, this valuable measure.

PRINCIPLES FOR FARMING OF ARABLE LAND IN THE SOUTH OF ENGLAND, RECOMMENDED FOR GENERAL CONSIDERATION.

1. NEVER to be contented until all your land has been trenched and turned over by the plough a foot in depth, nor until

2. The wet land be made dry by deep draining, and consider no land effectually drained unless the drains be 4 feet in depth—that is to say, unless the water-level be so far below the surface that the corn shall have at least a foot of dry earth to root in unaffected by capillary attraction of moisture from below, and the chill that water nearer to the surface causes; this can be done only by having the drains 4 feet from the surface.

3. For sowing of spring corn consider the season commences with the new year, and have no other fear than that of being too late. When the ground is dry enough, and fine enough, the sooner it is in the better, it will yield more, and the liability to blight or be beaten down will be less.

4. In sowing, drill or dibble all, and have the rows not nigher than a foot between them, so as to admit of hoeing either by horse or hand, and hand-weeding at late periods.

5. Hoe and hand-weed all corn; let not a weed in flower be seen amongst it; ever recollect that weeds occupy space and consume nutriment, displacing corn, or robbing the land.

6. Never sow two crops of one genus in succession; Legumes or Pulse may follow Cereal grain, and Cereal grain may follow Legumes or Pulse; but never Cereal after Cereal, or Pulse after Pulse. Recollect Rye-grass is a Cereal plant, and unsuits the land for White Straw corn.

7. In apportioning the rate of seed per acre, do not lose sight of the bad consequences that must ensue if too much be sown. Bear in mind that if so much be sown as to produce more plants at first than the space will afterwards allow to attain maturity, the latter growth of the whole will be impeded, and a diseased stage will commence and last till harvest as soon as the plants cover the ground.

8. Manure should be applied only to green or cattle crops, and never to corn; by giving it to the former the earth derives the advantage of the extra dressing that the extra growth returns, but when applied to corn the earth is so much the more exhausted by the extra growth of straw, and frequently, too, the grain is thereby positively injured by being beat down and blighted in the straw; it always is made more hazardous by dressing.

9. Were farmers to buy all their manures they would find that the cost of maintaining their land in fair heart would be about one pound per acre per annum. This quantity of dressing every farm in fair productive cultivation will supply of itself if a proper use and economy be made of its material to form manure and a due care taken of it afterwards, but from misapplication and waste of the straw and fodder and from negligence in the preservation of the dung and urine, at least *half* is usually lost, and the arable land of England may thus be said to be prejudiced to at least 10*s.* per acre.

10. Were no other injury done to the crops by trees and hedges in small enclosures than that which arises from their mischievous shade and shelter, it would be equivalent to the ordinary rent of such fields, but the farmers sustain a further loss in the additional time occupied in its tillage by the more frequent stoppages and turns they cause, and by the encouragement to idleness in the men that their cover afford. I believe arable fields with large hedges and hedge-row timber round them whose dimensions are under eight acres are seldom or ever worth a farmer's cultivation. I see much poor open down land in profitable cultivation, and large districts of enclosed land of far better quality ruinous to the occupiers, and I have not a doubt that to the difference in the size of the fields this may be principally if not entirely traced. — *Hewitt Davis, 3, Fredericks-place, Old Jewry, London.*

ON THOROUGH DRAINING.

BEING AN ADDRESS TO THE HEXHAM FARMERS' CLUB,

By Mr. GREY, of Dilston.

GENTLEMEN,—I regret that I should have been so much occupied up to this moment, as to have had no opportunity of making any arrangement of the subject on which I am expected to address you. I must, therefore, bespeak your indulgence, if what I may say should be found to be, as it doubtless will, less correct and concise than if it had been prepared and written down, as has been the laudable custom with those gentlemen who have introduced other subjects for discussion at your meetings. Most of agriculturists are now so well acquainted with tile draining, that it is probable much that I shall say may be already familiar to you; but if from the experience which I have had in the matter, I should have made observations which some of you have not made, or come to conclusions different from yours, there may be some use in bringing such observations and conclusions under discussion; for, in my opinion, the information which is elicited by after discussion in such meetings as this, is frequently more important than that which is derived from any single address. First, then, allow me to make a few remarks on the utility of draining land thoroughly. So much of the land of this country lies on a retentive subsoil, causing in it a great degree of humidity and coldness, that the portion which is na-

turally so dry and open as not to be improved by draining, is the exception to the general rule.

To obtain good crops from such land is always a matter of uncertainty. A wet spring delays the sowing to a late period; or if the weather be tempting for sowing, and storms of rain or snow should interrupt the operation, as was the case this year, such land has small chance to recover the injury it sustains during the remainder of the season; but admitting the seed time to be good, and the crop to a certain period to be flourishing, a fortnight of wet and cold weather any time during the summer, cuts down the fair prospect, and leaves a thin and unproductive crop for the harvest. Such was the case, many of you will remember, in the high and cold districts of this county four or five years ago; up to the end of June the crop was most promising, a succession of heavy rains then came on, the ground was saturated with wet, the corn became yellow, and by degrees thinner and thinner, till, ere harvest, the crop consisted more of Thistles and weeds than grain. Against such contingencies, thorough draining is the only security; by means of it, an earlier seed time, as well as an earlier harvest, is obtained; the average produce of the land is greatly increased, in many cases it is doubled, and the expense of working it is immensely lessened. Every one accustomed to cultivate heavy and undrained soils, knows the injury which his fallow sustains by one ploughing before it be sufficiently dry, or by a heavy fall of rain directly after ploughing, and how much labour is required to recover it from that injury, if it can be done at all, during that season.

When, then, I hear tenants remark upon the expense of bringing tiles to drain a field, I tell them to think of the future labour which the dryness and consequent friability of the soil after draining, will save them; more perhaps in one year of fallow than all the carting of tiles, with the certainty of a much better crop to boot

So far I have alluded to corn crops, but in our days the root crops have grown into an importance almost greater than those of corn, especially on soils of inferior quality. It becomes, then, a great desideratum to substitute Turnips for naked fallows, in all possible cases, and this thorough draining enables us in a great measure to do. I have seen a field which, previous to draining, never was thought capable of growing Turnips, produce a crop the year after being drained, which was sold, for eating on the land, at 6*l.* per acre; and the produce of the Barley crop in the succeeding year was the double of what it had ever been known to grow before, thus returning the entire cost of draining in those two seasons; but on land less unfavourable, and on which Turnips have hitherto been cultivated, though at great risk from wet seasons, the advantage of draining is found, in its easier and earlier cultivation, in the greater certainty of its produce, the ease and comparatively small injury which attends the removal of the crop from the field, and the increased benefit derived both by the land and the stock, if consumed on the ground. Every one knows how much better sheep thrive on dry than damp land, and how much less waste of food is occasioned. But it is not to tillage lands only that the benefit of draining is confined. I know a rough ox pasture for which an allowance for draining was made by the landlord, but which did not finish the job, and a part is left yet undone by the tenant. The part which was first drained comes earlier and affords a full bite to cattle three or four weeks sooner than the other, and is besides so much sweeter and more nutritious, that they are constantly upon it and never upon the other, till necessity compels them. By abstracting the water, the coarse and aquatic plants are destroyed, and again succeeded by Grasses of finer quality and earlier growth, by which means the value of the pasture is much increased.

The beneficial effects of rain in promoting vegetation are too well known and too obvious to require remark; every shower conveys a portion of ammonia from the atmosphere to the earth, and communicates a fertilising property. It is only when the land is saturated with it, and when, instead of passing through, it remains in it, till abstracted by evaporation, that it becomes pernicious. The most intense cold is produced by a process of evaporation, and if water falling upon land with a retentive subsoil is left till it be removed by that means, which in winter is very slow, the earth is starved, and the plants it contains frequently perish, or, as is the case with Wheat, lose their hold, and are thrown out by frost. By draining thoroughly, we make the rain our friend, and not our enemy; we take all the benefit, and avoid the injury. It is not, however, only during winter that superabundant moisture in the land is pernicious; its effects are equally injurious in the drought of summer. We see the strong soils which in winter were saturated with water, in the drought of summer become hard, impervious and unmanageable; cracked it may be with large fissures, but baked together, so as to exclude all the beneficial influences of the atmosphere. The same effect is produced in hard frost; let any man attempt to push his walking stick into such land at such a time, and he finds it bound in a coat of iron, while that which had been rendered dry and friable by draining, is still loose and pervious. One obvious effect of water lodging in the soil is, the exclusion of air; but as the water is drawn off by draining, the air immediately takes its place, and intermixing with the particles of soil, communicates to it that divisibility and mellowness to which farmers give the term of friability.

It is from the admission of atmospheric air to a greater depth, charged as it always is with some degree of moisture, that dry and loamy land is found to resist drought better than wet and adhesive clays. [Mr. Grey then went into a curious and interesting dissertation on the principle of atmospheric pressure, showing its effects on all external objects, its tendency to insinuate air into the ground and occupy the place of water, and even aid in expelling it; and illustrated its effects as needful to the human body, by relating a circumstance which occurred to the celebrated travellers Humboldt and Bonpland, who, when taking observations at a great elevation on the Cordillera mountains, found the air so rarefied as to make breathing painful, and at length to cause the blood to flow from their eyes and ears, the external pressure being no longer equal to counteract the internal impetus of the heart. Apologising for the digression, Mr. G. proceeded.]

Having said thus much on the utility of draining, allow me now to make some remarks upon the mode of carrying it into effect. The first thing, and that is of essential importance in setting out drains, is to secure a clear outfall for the water which is to be discharged from them. I have seen much injury and loss sustained by allowing the drainage of a field to be emptied into an open ditch with little declivity, while by negligence in allowing Grass and weeds to obstruct its course the ends of the drains were sanded up and rendered useless; it is much safer to incur the expense of conveying the water in a covered drain till a clear outlet can be found for it. Another thing to be especially avoided is the laying of tile-drains through a hedge, that they may be emptied into a ditch on the opposite side.

The roots of trees have a great tendency to insinuate themselves into the cavity of drains, and to run along them to a great extent; the root of the Ash is especially pernicious in this way. I have seen drains which had been run across a hedgerow with Ash-trees in it, which stopped running, and on taking up the tiles they were found to be filled with the roots of the trees, which were grown over with a hairy-looking vegetable substance resembling a badger's tail, and had entirely stopped the circulation of water, and spoiled the drains for a considerable distance from the fence. But I would not only avoid placing drains in a hedge—I would also keep them in general, and as much as possible off the headlands, in tillage fields. It is, I see, a common practice to run the carry drain along the headland; my objection to that is, that the headland is travelled upon by corn-carts and dung-carts, and is turned upon in ploughing, so that drains are in much greater danger of being broken in or disturbed, or so pressed into hollows that sand may filter into them, than when laid across the ends of the ridges 2 or 3 yards above the headland furrow.

I would also recommend in draining that the drains of every field be laid down upon a plan when finished, so that no difficulty may afterwards be found, in case of stoppage or inefficiency, in going directly to the spot.

Then, with regard to the depth of drains, a subject of much discussion and controversy, I am of opinion, and that opinion has not been formed without much observation, that we have wasted a good deal of money, and a great many tiles, by laying them too near the surface. The tendency of water is downward, and the nearer its downward course approaches to the perpendicular, the quicker will be its escape. It follows, then, that it will find its way more quickly to a drain of 3 or 4 feet deep than of 2 feet. And in fact, in the case of drains only 20 inches or 2 feet deep, and 20 feet apart, the water from the middle of the interval must have a course so nearly horizontal as to be very slow in its progress, and to expose the land to wetness for a considerable time. The theory of deep drains is this, that by abstracting the water and admitting air instead, the soil (but especially the clay), contracts to the depth at which the water is drawn off; and in contracting, small fissures or veins are formed, which serve as channels for the water to reach the bottom of the drain. To leave theory, however, as we are all practical people here, I will tell you what I have seen myself:—A field had been drained at the depth of 2 feet from one side to the other; still, as it did not produce the effect of drying the land so quickly as had been expected, the owner had a few drains cut here and there at a depth of 4 feet. After a heavy rain, I along with others went to examine the field; we found a small run of muddy water from some of the shallow drains; but a copious one of clear water from all the deeper ones, showing that in its descent to them, it had not robbed the soil of any of its finest parts, as was the case in the shallow drains, and that it was escaping much faster from the land. You will find it also recorded, from most authentic information, in the "Journal of the Agricultural Society," that the water drawn from an acre of land in an hour, drained at a depth of 4 feet, was one-third more than from another adjoining acre, with 2 feet drains; and that the run began sooner, after the fall of rain, in the deeper drains, and of course also ceased sooner, than in the shallow ones. My own opinion is, that in hardly any case should tiles be laid at a less depth than 3 feet, but that in many cases 4 feet would be preferable. The expense should be estimated more by the efficiency of the operation than the outlay of money; but even in respect of expense the balance is in favour of deep draining; for, if drains 3 feet deep and 30 feet apart are more efficacious than those of 2 feet deep and 20 feet apart, the former comes cheaper by the acre, as there is only one foot more of soil to remove in the deeper drains than in the shallower, against which is to be set the saving in the purchase and carting of one-third of the tiles.

It is, of course, impossible that one rule can be applicable to all situations. Much must be left in every case to the kind of subsoil which is met with; in some places seams of sand are found intersecting beds of clay, and then probably one deep drain may lay a whole acre dry better than many shallow ones would. There is one description of subsoil common in this county, in which I think it may be advisable to make the drains frequent and shallow rather than deep and more distant; because it is so firm and hard that I believe no cracking or contraction will take place in it so as to allow water to descend; on which account the best way probably is just to dig through the soil, and lay the tile into a groove cut in the subsoil. This subsoil we call Moorband (in other parts it is called Pan), and is a concretion of gravel and clay with oxide of iron, so hard that it is scarcely possible to break it up.*

One thing I have omitted to remark, and that is, that in making drains it is desirable that they should be done as much as may be in the spring, or in dry weather, when bottomed out—care being always taken to lay the tiles or pipes level, and directly opposite each other; let them be covered just so much with clay, taken from the bottom of the drain, as to keep them safe, and then leave the drains open for as long a time as may be convenient for working the land; because the volume of air which in this way has access to the drain is so much greater than that which can pass through the tile or pipe, that the contraction of the soil or clay takes place more rapidly, and the drains come so much sooner into full action.

Then as to the tile or pipe which it is advisable to use—for a long time we used tiles of unnecessary size, and in many situations those tiles could not be used with safety without soles, which became very expensive—of late years pipes have been substituted for tiles, and are, I think, in every respect deserving a preference; I prefer them because they are safer against stoppage, stronger, more durable, and more economical. The circular shape is that which in all sewers, and carries of water, is found to be least liable to be stopped up, because the current is always deepest and strongest in the centre, into which every substance that comes must fall and be carried off, whereas a flat bottom admits of deposits and accumulations which the shallow current cannot always remove. Pipes are less apt to be sanded up on this account than tiles in flat ground, and on steep hill sides they are safer, as, when once fixed, the current cannot displace or undermine them. They are stronger of necessity, by the equal pressure upon the circle, which any one may prove for himself. I lately broke several tiles with my hands at a tile kiln, while I stood and jumped upon pipes of the same clay without effect; and they are more economical, because they are cheaper to purchase, and a cart carries a much greater number. It is objected to pipes that they may roll aside when laid into the drain, and the end of one may not be exactly opposite the end of the next; but then it may be objected that careless workmen may spoil any job, and unquestionably all kinds of draining require attention and nicety in the execution. Admitting this as an objection, however, I think it is fully obviated by the kind of pipe now made at Whittonstall, and at other places in this district, which, while it preserves the circular form for the water, is attached to a flat bottom, which keeps its place in the drain as steadily as anything of the kind can do, a specimen of which I expected to have found here, but it has not made its way into the room. Such pipes of various bore can be made at from 16*s.* to 20*s.* per 1000.

I think, gentlemen, I have now noticed most of the points which are important in connexion with this highly interesting subject—a subject which is now occupying much capital, and giving employment to a multitude of hands in the agricultural districts, and which is destined, I believe, to render the produce of our soil much more certain than heretofore, and greatly to increase its average annual amount. There is yet one thing in connexion with draining, and especially when it is accompanied by subsoil ploughing, which perhaps you will allow me to advert to, and that is the depth to which plants will send their roots in search of nourishment, if not impeded by impervious subsoils, and by water which is pernicious to them. I recollect to have seen in Bamburgh Castle some stalks of Wheat which were placed there, I believe by the late Lord Barrington, whose roots had penetrated to upwards of 8 feet below the surface of the ground; they had been got, I think, by breaking in the edge of a quarry near which the Wheat was growing, and which had found means to penetrate its open soil. The extent to which the Fern pushes its roots, far exceeding the height of its stem, may have been remarked by most of you on a steep bank or by the side of a brook; we find the roots of trees, too, pushing outwards into the soil, to the great obstruction of the plough, as far as their tops rise into the air. If then this be the natural tendency of plants, there can be no doubt that in proportion as we draw off the stagnant water by deep draining, and make the land permeable to atmospheric influence, and accessible to the roots of plants, in the like proportion shall we increase its productive powers—while by lessening the evaporation, and ridding the earth of noxious vapours, we shall contribute materially to the warmth, dryness, and salubrity of our atmo-

* ANALYSIS OF MOORBAND.

From Flodden Field.		*From Milfield Plain.*	
Oxide of iron ..	24 parts.	Oxide of iron ..	43 parts.
Silex	76 ,,	Silex	64 ,,
Alumina (clay) ..	6 ,,	Alumina	8 ,,
Water and loss ..	6 ,,	Water and loss ..	5 ,,
	110		120

upkeep. I now beg to thank you, gentlemen, for the very attentive hearing with which you have favoured me, in an address which may have appeared to you rather desultory, and if any one has objections to make to my statements, or explanations to ask for, I shall be most ready to attend to him.

A question was asked by Mr. Stephenson as to the size of pipes which Mr. Grey deemed sufficient to contain the water from drains 30 to 33 feet apart.

Mr. Grey: I consider pipes of one inch diameter generally sufficient—more, indeed, than ever will be filled; look at the quantity of water vented by a lead pipe of much smaller dimensions in your stable yard; but it is an object to admit air as well as to convey water, and therefore I am not strenuous for very small pipes, that is more a question of economy. If your drains are say 300 yards long, begin with 1-inch pipes for 100 yards, then take 1¼ inch, and so go on increasing as you approach the outlet; and your carry drain may be made of a single large pipe or of three smaller ones, two side by side, and one above them, which makes a safe and excellent main drain; the top pipe, however, being seldom needed.

Mr. Smith inquired if Mr. Grey would recommend to put small stones over the pipes, or straw, or any other substance.

Mr. Grey said the object was to draw the water, not along the surface and down into the top of the drain, but by a downward fall through the soil into the bottom of the drain, when it would insinuate itself into the joints of the tiles or pipes; he therefore considered that the firmest stuff was best for the top of the pipe. He disliked to see straw carried out for that purpose, because it robbed the fold-yard and the dung-heap, and did as he thought, no good. He had had occasion to drain a good deal of thin moorish land, where it was necessary to cut through a sharp yellow sand; he had laid Heather, which is a very imperishable article, on the tiles in that case, to prevent the sand from being washed into them.

Another question was then asked, as to the direction in which drains ought to be laid, whether directly upwards or in a slanting direction.

Mr. Grey replied, that he considered all drains ought to be laid perpendicularly and at right angles to the incline; for in that way, the strata as they crop out, are cut through, and the water they contain is immediately discharged into the drains; whereas, in the old way of laying the drains obliquely, they frequently ran along in beds of clay, drying only a yard or two in their immediate vicinity, but without abstracting the water which was proving injurious to the land.

Some further discussion took place among several members, when Mr. Grey stated that having an engagement at some distance within two hours, he must take leave of them. A vote of thanks to Mr. Grey was then proposed by Mr. Trotter, seconded by Mr. Lee, and adopted by acclamation.

After the chairman's departure, it was unanimously resolved that a deputation should wait upon him with a request that he would allow his address to be printed and circulated among the members of the club, subject to his revision and correction, for which purpose the notes taken by the Secretary and others were placed in his hands.

ON THE DRILL HUSBANDRY OF TURNIPS.

(*Continued from p.* 481.)

The drill we use is one manufactured by Messrs. Smyth, of Peasenhall, Suffolk. It is made for sowing 10 rows of corn, 6 inches apart, either with or without pulverised manures, and we can set it to drill 4 rows of Turnips 17½ inches wide. All lever drills should be of such sizes as will admit of being converted to sow equal numbers of rows of Turnips, viz., two, four, six, or eight, as the manure box is divided in the centre to assist in distributing it equally, for it is evident if there should be an odd number of coulters at work, say five, two of them would be depositing as much manure as the other three. There is just one deficiency in those drills, if not distinctly named in ordering them, viz., the want of an extra set of levers with wider manure tubes for using in the Turnip sowing, and furnished also with separate small tubes and coulters for depositing the seed apart from the manure. In pouring down 50 or 60 bushels of ashes or other manure per acre, if the tubes are not 4 or 4½ inches in diameter they are frequently choking; this causes a stop to clean out the tube, and what is worse a good many yards of the row gets no manure. And if, as is usual with many Suffolk-made drills, the seed is deposited through the same tubes with the manure, the row is without seed. This I consider to be an imperfect and dangerous mode of depositing the seed. In the first place it is better to be placed over the manure than mixed among it; and, secondly, when put in with the manures, it is frequently buried, because in depositing these it is necessary to have them 2 inches under the surface, consequently the coulter performing this work goes to the bottom of the furrow and must deposit some of the manure, and also the seed perhaps 3, 3½, or even 4 inches deep. And at these latter depths I am convinced the greater part of the seed never brairds. I proved this in 1835, having with a hired drill of this description sowed six acres of Swedes on the 26th May with bone manure, allowing 3 lbs. seed per acre, the land being very dry at the time. I looked and looked in vain for a sufficient plant, and after waiting until the first week in July, I found there was nothing to produce one-sixth of a crop; this being the case I determined to plough up one half the piece, and sow common Reds and Whites, and the other half I re-sowed with some sorts on the same day, wishing to give what few Swedes there were a chance. This drilling was done across the line of the Swede drills. On ploughing up the other half of the ground, to my surprise I found a great quantity of the seed had shot out stems 3 or 4 inches long, but had curled and twined about stones and clods; and, in fact, did not appear to know which crevice was the way to the surface; there was also plenty of seed lying whole, and very probably, like Charlock-seed, would have lain sound there for many years, and only have vegetated when brought near the surface by some subsequent effort of the plough. The braird in this case was evidently obstructed to such a degree as to cause the loss of the crop of Swedes, and as the manure was deposited from 2½ to 3½, and may be at some soft places 4 inches deep, the seed, of course, was equally deep, and therefore buried. From this moment I saw the advantage in having a drill on the farm, in order to sow as fast as the land was ploughed, and that it should be fitted up as the one we now use, with extra coulters, having large tubes for manure, and separate small tubes and small coulters for the seed. That part of the field which was ploughed up and re-sown with the common Turnip proved a very good regular crop, while the other part drilled among the straggling Swedes was irregular in plant as well as in size.

To return to our process, and mode of sowing: the manure is brought to the field in carts, or waggons, and placed in proper situations for the drill drawing alongside for getting filled. Three horses, two men, and a boy are required for our drill, and an active fellow with a large shovel, to throw in the manure, is necessary when it is sown in large quantities. It is equally as important to have a painstaking person to lead the drill as to manage it; indeed, the true and steady conducting of the machine is more difficult to acquire than the management of the machinery, and in order to give the leader a guide to keep him straight. I always drill the same way the land has been ploughed, so that when a new breadth is taken on, the driver commences it by leading the horses along a perfectly straight furrow, and this is done every 30 yards, thus getting rid of any twists and imperfections he may have got involved with in last breadth. As the drill proceeds onwards, the manure coulter, being pretty large, throws up the mould at each side, the greater part of which rapidly falls back in its place, as the coulter passes along, and in so doing intermixes with the manure as it pours down the tubes, and, for the most part, overlies or covers it 1 or 2 inches deep; consequently, the great bulk of the manure is placed 1½ to 3½ inches under the surface.

In the levers, and some 12 or 15 inches behind the manure coulters, small ones are fixed to deposit the seed which descends through small tubes thereto from the cup apparatus; these are so regulated as to place the seed from 1 to 1½ inches deep; but, it sometimes happens, from the constant and every varying perpendicular action of the levers, that the seed coulters do not always touch the ground; nevertheless, I never found any irregularity in plant from this circumstance, as the action of the manure coulter creates a hollow into which the seed is sure to be dropped, and the roller which immediately follows the drill naturally crushes down the sides, and forms a covering, in my opinion, quite sufficient for the safety of the seed. I have adopted this plan for several years, and have always had a full, regular, and even plant in every instance. As the rows are much closer on the flat than by the ridge system, I always sow 3 lbs. of seed per acre. Every operation is done in dry weather, and, I need scarcely add, that the same process is adopted with every variety of Turnip. As already noticed, a one-horse roller closely follows the drill, and so soon as a sufficient breadth is finished I make it go across the drilling also; preferring this plan much to putting on light harrows after the drill, feeling convinced that that process scatters the seed from the manure, makes it braird in a wide ill-defined row, and thereby delays the first hoeing for days, a matter of vast importance on this farm, and on all those dry thin lands we have been so frequently alluding to, being infested beyond description with the seeds of Mustard, Charlock, and other annual weeds, which will not be got rid of until the present careless and imperfect mode of preparing the land, and the still more inefficient and wretched hoeing which the broadcast system has established, are displaced by modes more likely to produce and perfect a crop of Turnips, and at the same time thoroughly cleanse the land. It would be well for England if the landlords were to make every farmer pay double rent on all lands on which he grows Turnips broadcast; there cannot be any excuse now for persevering in this ancient and slovenly mode of trying to grow Turnips, as drills can be readily hired in every part of the country. Some may think the seed will not be properly covered without a harrow, or something else following the drill, and before the roller; to such I would say again, that there will be no danger. And if anything is applied, it should only be a hurdle with a few small thorn or other branches drawn into it. —*W. Fernie, Manchester.*

Home Correspondence.

Rents.—It may be considered a bold assertion to state that tenants "do not pay their landlords rent for their farms." This is the opinion of a clever writer, supported by fair argument, and may be worth inquiring into at the present moment, when tenants are so busily engaged in protecting themselves by leases, &c., a very proper mode of proceeding if the question is not taken partially but in all its bearings, including the interests of every one engaged in agriculture, viz. landlord, tenant, and labourer. A man rents a farm, and expects to obtain it on such terms that he may be enabled to make under ordinary tillage, three rents, or nearly so—one for the owner of the property, one to pay the expences, and one as profit for himself, as a remuneration for his skill; number two rent giving him a per centage for capital laid out in stock, &c., which is recoverable again on his leaving his farm, making allowances for wear and tear of carts and other implements. It may be denied that farmers receive three rents. Well, supposing the actual sale of corn and animals comes short of the olden times of high prices; to make up the deficiency we must take into the account—house almost rent free [Was it not so in "olden time," then?], if not quite so; provisions home-made, saving the extra expense of the butcher's, baker's, &c., profit on articles which must otherwise be purchased from the shops, such as bacon, cheese, milk, bread, &c. [You cannot suppose these to make up for any deficiency, because all these advantages have existed all along, and are considered in the rent.] Now this, it appears, will cover what might fall short of the three rents, and proves that the palmy days under the ancient system of careless tillage were yet more profitable to the tenant than was imagined. Fortunes have been acquired in farming, by the possession of large tracts of land at almost a nominal rent, providing pasturage for animals at a small cost of labour exclusively to the advantage of the tenant. This plan cannot be deemed an equitable arrangement, and can only have been tolerated in the ignorance of the value of scientific knowledge as applied to the soil and manner of breeding and feeding stock. A change is being gradually developed; the landlord is beginning to find out his land has been underlet [?], from the absence of capital amongst his tenants, preventing the employment of sufficient labour. The farmer is becoming aware of how much he has lost by adhering to customs which had nothing to recommend them, excepting their antiquity. Now, with a better spirit growing up between the principals, let us hope the workmen, who are the real source of wealth to the farmer, will not be overlooked, and kept at the lowest rate of wages. It should be the object of agriculturists to bind their servants to them by the ties of affection and esteem, and not force them, from the fear of starvation, to toil ten hours a day under a broiling sun for a pittance, amounting in fine weather, to 8*s.* a week; in some rural districts it may be a little more, but totally inadequate to raise the condition of the poor labourer, or even keep him and his family from positive want. Hence, poaching, petty thefts, idle ill-bred children, and a host of other things, calamitous in themselves, and entailing on the next generation a working community having no sympathy with their employers, treating them as Egyptian task-masters rather than the natural protectors placed over them by a kind Providence. The responsibility of a master to a "Higher Power" for his conduct towards those who serve him is great in the extreme, but too little thought of when weighed in the balance against gain. Farmers often complain of paying rates, because, as they say, they keep so many men on their farms who must otherwise fall on the parish. Is this done out of the pure love of charity? We fear not, and a rainy day will answer the question. When a man is dismissed, because his time cannot be profitably occupied, showing that the hands busily engaged on a farm are expected to return a per centage something like cent. per cent. for their scanty wages. If the men were better paid it is all right that they should contribute by laying out their capital (sinews, bone, and health) for the public good; but at the same time, their own advantage should not be forgotten. Money may be placed either in the funds or laid out in many other speculations, and may be handed down to children; but if the poor man's strength fails him, and the per centage on his only hope barely keeps him and his family alive, when in full vigour, what is to become of him in sickness? that which he abominates; that which must not only degrade him in his own eyes, but almost break his heart to feel himself reduced to claim assistance from the workhouse, be advertised as a pauper, and publicly branded with this, to an independent spirit, offensive appellation. From various circumstances over which the landlords and tenants have control, our well-conducted and long-enduring agricultural population are becoming a different class of persons to what they used to be; they deeply feel whilst everything around them is advancing, they rather decline in comforts and respectability (not from any faults of their own, they are as ready as ever to toil). The labourer knows that there is plenty of work if the farmers choose to cultivate the land as it ought to be; and they must, in the long run, be compelled to greater exertion by raising their rents. This may seem an odd remedy; however the apathetic must be stimulated by a little wholesome compulsion. Why should many acres remain almost unproductive which might be made to feed thousands? Allotments pay more than double the rent of similar land let to a farmer, and only separated by a ditch. If land can be thus rendered so much more valuable by the personal labour of an individual unassisted by capital, what may not be accomplished by both combined? And how is it that farmers are so much (apparently) behind their labourers in the knowledge of agriculture? This question might suggest itself to a more observer who took

no further trouble to inquire into the matter. The enigma is not so difficult to solve, but the present letter is already too long to admit of a further trespass on the columns of the *Chronicle*. I will therefore merely add, that my sole object in putting pen to paper is for the benefit of agriculturists in general. Many may differ in opinion with me, and I shall be happy to have the advantage of their experience to assist me in correcting any errors I may have fallen into.—*Falcon.*

Potato Disease.—I have lately dug Potatoes in my garden which turn out perfectly sound; the sort is White Quarrys; they were planted in autumn, the sets being selected from among diseased tubers. I have also been digging white Kidney Potatoes for the past fortnight, without being able to discover the least symptom of disease; they, too, were planted in autumn. A drill planted with diseased tubers are as good as any in the garden, extending a foot on each side of the drill and coming into blossom, but it remains to be proved whether the produce will be sound or not. The following facts may, in some measure, account for the rumours which have appeared in regard to the recurrence of our old friend the disease of last season:—Several of my neighbours had early Potatoes, which, before the great drought of June, were as fine as any in the country, but suddenly they began to decay, the lower leaves falling off, and some of the plants dying altogether. At first I imagined that this was the disease, but on examining the young tubers they were found to be healthy but stunted, the soil about them being as hard as a road. The symptoms, too, were different from those of last year, the first attack being then made on the tops of the leaves; in this instance, however, the bottom leaves are those that are first affected; on the return of rain, however, the plants recovered, and any of the leaves which had not assumed a yellow appearance are at present green and healthy. I should remark, that growing side by side with them, were fine healthy plants, which received no check; but those that died were on a gravelly subsoil, which I think sufficiently accounts for the disaster. Even Privet in a hedge along the side of the Potatoes was, if possible, worse than they. The garden is on the side of a stream, the hedge in question being the only division between them, and as far as the gravel extended the Potatoes were decayed. If your correspondents from Cork and Inch examine more closely they will, I imagine, find something in the above to account for the appearance of which they speak.—*J. K. C., County Waterford, Ireland, July* 3.——I am happy to say that the Potato crops in general never looked better (although the system of farming all kinds of crops in this part of the country is wretched). I am now digging as fine Potatoes as I ever saw; they were planted last October, not a diseased tuber can I find amongst them. They are of the sort called Early Glasgows; and they well deserve the name of early, as some other kinds, planted at the same time in the same sort of soil and situation, have not yet formed a tuber. My mode of planting was in drills 3 feet apart. The ground got a good coat of lime before being dug, the sets were then laid on the surface, and the mould drilled over them; by this mode the plants are raised above the bottoms of the drills, and lie quite dry early in April. The crowns were raked off the drills, and when the plants were sufficiently high they were moulded up. I planted other crops in February, which is early for planting in the open ground. The autumn planted ones are far more advanced, but all are quite healthy, as are also a quantity of seedlings sown in April and May. I should add the seed Potatoes were limed, all of them; and those kept for spring planting were packed in peat in pits.—*John J. Geogheyan, Tipperary, July* 1.——Since we have had showers of rain the disease has appeared amongst my Potatoes in several quarters so visibly that some of my neighbours who thought that too much had been said respecting the reappearance of the malady, were readily convinced to the contrary; especially when I showed them Potatoes going to decay. As some of my early sorts were nearly ripe I have dug them up, for I think let the case be as it may, that they are better out of the ground than in it; and I trust that the warning in last week's Paper will be attended to.—*J. Wighton.*——The disease has made its appearance in this locality, attacking autumn and spring-planted alike. Last season we knew nothing of it till September.—*Busybody, Ulverston, North Lancashire.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held at the Society's House, in Hanover Square, on Wednesday last, the 8th of July; present, the Rt. Hon. Lord Portman, President, in the chair; Duke of Richmond; Hon. Robert Henry Clive, M.P.; Rt. Hon. W. Bingham Baring, M.P.; Sir Hungerford Hoskyns, Bart.; Sir C. Lemon, Bart, M.P.; Sir J. V. B. Johnstone, Bart, M.P.; Sir R. Price, Bart., M.P.; T. Raymond Barker, Esq.; Rev. T. Cator; Col. Challoner; F. C Cherry, Esq.; J. J. Farquharson, Esq.; H. Gibbs, Esq.; W. Fisher Hobbs, Esq.; J. Hudson, Esq.; J. Kinder, Esq.; Col. MacDonall; F. Pym, Esq.; E. A. Sanford, Esq.; Prof. Sewell; W. R. C. Stansfield, Esq., M.P.; J. Baines, Esq.; Dr. Calvert; W. A. Commerell, Esq.; C. Capel, Esq.; H. J. Farquharson, Esq.; A. Ogilvie, Esq.; E. Parkyns, Esq.; T. Turner, Esq.; and T. R. Tweed, Esq.

The Marquis of Bute, K. T., was elected a Governor, and the following gentlemen members of the Society:—

Pugh, William Buckley, Pattrington, Hull
Orde, Charles William, Nunnykirk, Morpeth
Wakley, James, Newcastle-upon-Tyne
Day, John Woodhouse, Pelaw-house, Durham
Adams, Thomas, Albion-terrace, South-Shields
Chambers, George, High Green, Sheffield
Archbold, John, Riffington, Berwick-upon-Tweed
Parker, Samuel Walker, Newcastle-upon-Tyne
Embleton, Robert, Embleton, Alnwick
Southern, George William, Kibblesworth, Gateshead
Mellar, John, Queen-square, Newcastle-upon-Tyne
Liddell, Henry George, Eslington-house, Whittingham
Crawhall, Joseph, Newcastle-upon-Tyne
Barkus, William, sen., Coxhoe, Durham
Nicholson, John, Shotley-bridge, Durham
Wood, Nicholas, Killingworth, Newcastle-upon-Tyne
Annandale, Peter, Shotley Grove, Newcastle-upon-Tyne
Hovill, J. R., Soham, Cambridgeshire
Allhusen, Christian, Elswick House, Newcastle-upon-Tyne
Allsop, Thomas, Ridge Green, Reigate, Surrey
Houseman, John, M.D., Barras Bridge, Newcastle-upon-Tyne
Blenkensop, John, Slake House, South Shields
Morton, W. J. T., Lecturer on Chemistry, Royal Veterinary College
Cooper, Thomas H., Lecturer on Botany, Agricultural School, Hoddesden
Petre, Hon. Frederick, Writtle Park Farm, Essex
Tower, Colonel Henry, Elsmore Hall, Durham
Greenwell, Wm. Thomas, Lanchester Ford, Durham
Hutchinson, John, Low Waskerley Farm, Shotley Bridge, Durham
Taylor, John Parker, Treeton, Rotherham
Wilson, Ralph, Grey-street, Newcastle-upon-Tyne
Maynard, J. C., Harkney Hall, Northallerton, Yorkshire
Standish, W. Standish, Duxbury Park, Chorley, Lancashire.

The names of 14 Members for election at the next meeting were then read.

Hybridised Wheat.—The Hon R. H. Clive, M.P., laid before the Council a communication with which he had been favoured by Dr. Lindley, in reference to a decisive result obtained by Mr. Maund, of Bromsgrove, Worcester-shire (the well-known editor of a periodical work entitled the "Botanic Garden"), by crossing Egyptian Cone with an English Red Wheat, and thus producing a beardless Wheat; for "although," as Dr. Lindley observes, "there is not at present any proof of what the quality of this cross may be, yet it shows that corn is as open to improvement as any other plant, and that I take to be a highly important fact. All such attempts deserve encouragement; if the Royal Agricultural Society were to take up this matter in good earnest, and to offer such prizes as will induce intelligent men with the necessary leisure and opportunity, to give it their serious attention, important results might be obtained."

Mr. Clive then introduced Mr. Maund to the President and Council, when that gentleman exhibited the various specimens of Wheat connected with his experiments, and detailed the progress of his operations in effecting the cross in question between different kinds of Wheat, for the purpose of producing the artificial fertilisation required. These specimens exhibited the varieties between the Oxford Red and the Donna Maria White Wheat, as well as those between the Egyptian Cone and the Oxford Red. In the produce of the latter cross, some of the ears had awns while others were without them. Mr. Maund stated that the new varieties thus obtained in his experiments appeared to possess great luxuriance and promise of fertility. He thought it not unlikely that eventually not only any given external character intermediate between those of the Wheats selected for the occasion may be obtained, but that the chemical nature of the grain may be favourably influenced for any given purpose required.

The President on the part of the Council having then expressed to Mr. Maund the thanks which the Council, on the motion of the Duke of Richmond, seconded by Sir Robert Price, had voted to him for his attention in submitting to them his interesting and valuable results, requested that he would prepare for the Journal Committee, in the course of the autumn, a detailed statement of his experiments and their results, including not only a reference to the scientific circumstances of the fact, as connected with the laws of vegetable physiology, or the changes produced in the chemical constitution of the plant, but also to the more homely but not less important result of the practical value of his products as obtained by the miller and the baker.

Water Elevator.—Dr. Spurgin, of Guildford-street, Russell-square, presented to the Council a working model of a machine invented for the purpose of raising water out of shallow cavities in land, and applying it in a continuous stream for any required object. Dr. Spurgin, in submitting this invention to the notice of the Members, remarks—

"I have long thought it to be very desirable to have a cheap, simple, and efficient machine for raising water only a few feet, for the purposes of irrigation: it is to be expected that in those countries where irrigation has been practised from time immemorial, such contrivances would be resorted to as are most suitable; and accordingly we find the circular woollen belt among the number. A few weeks back, I heard of the plan which the model I have submitted to you is intended to represent, and which is in use in some private gardens at the Cape of Good Hope. I had this model constructed accordingly for the use of the Polytechnic Institution, and in order to make the plan more generally known, I thought by submitting it to the inspection of the members of the Royal Agricultural Society, its value for farming and other purposes might be soon ascertained. One of the objections to the revolving belt has been the necessity for its being made to travel around a wheel or cylinder at the bottom as well as at the top; whereas, it is now proved that the lower wheel can be dispensed with altogether. The velocity, also, requisite to impart sufficient momentum to the water for carrying it over the wheel, and shooting it off from thence into a trough or pipe, is by this plan greatly reduced, whilst the momentum is unnecessary, for the little wheel which rolls and presses upon the ascending side of the belt, checks the upward progress of the water, and causes it to fly off into the trough at the required height; and further, the necessary velocity may be obtained either by a multiplying wheel, or by having the belt traversing on a single wheel of a large diameter, say from 5 to 7 feet on mean, whilst the width and length of the belt may vary according to circumstances. For my own part, I am certain that large quantities of water may be raised from ponds, streams, or reservoirs, for divers agricultural processes at a very small cost by means of this simple apparatus; and that the produce of our meadow lands may be increased by the employment of this simple but effective apparatus."—Dr. Spurgin's machine consists of a woollen belt, dipping below into the liquid, and compressed or wrung out above by means of a small wheel pressing it closely to the rim of the greater wheel on which it revolves, while the water so intercepted and pressed out is received by an open conduit, and flows along in a continued stream.

The Council ordered their thanks to be given to Dr. Spurgin for his attention in presenting this model to the Society.

Miscellaneous Communications.—The following communications were also laid before the Council:—

1. A complete set of Swinborne's Farming Account Books, adapted for the use of the several grades of persons employed in agricultural affairs. Presented by Mr. Fisher Hobbs, and referred to the Farming Account Committee.
2. A statement from Mr. Saul, of Garstang, of his invention for watering Turnips.
3. A letter from Mr. Pellatt, on the subject of his further reduction in the price of glass milk-pans, and on that of the application of glass to the purposes of sky-lights, roofing, and water-pipes.
4. A suggestion from Mr. Rowlandson, of Liverpool, whether instead of an inspector of manures, the employment of a broker might not be the best mode of preventing the purchase of adulterated artificial manures.
5. Papers from Mr. Coxworthy on Ventilation, &c., addressed to the Duke of Richmond.
6. A communication from Mr. Newberry on the Cultivation of Wheat, addressed to the President.

The President having then adverted to the attention paid to the Society by the Lord Mayor of London in the communication with which his lordship had honoured Lord Portman as President of the Society, the Members of Council and Governors present, proceeded to the business of the Special Council, the President in the chair.

Mr. Handley.—The President having called the attention of the Council to the great loss the Society had sustained in the death of their trustee, Mr. Handley, the Duke of Richmond feelingly dwelt on those circumstances of Mr. Handley's connexion with the Society, from its earliest organisation to within a few days of his decease, which had gained for him the undivided respect of every member of the Society, and would connect his name with its history to the latest period of its existence. His Grace referred particularly to Mr. Handley's letter addressed to the late Earl Spencer, previously to the formation of the Society, and which had so materially prepared the way for its establishment by the simple but striking effect with which the advantages of such an association for objects so truly national were advocated by its now lamented author. He alluded to the zealous devotion with which Mr. Handley had devoted himself to the duties of the Presidency during his year of office, and that of the Bristol Meeting; and to his indefatigable exertions in the cause of the Society, both in his capacity of trustee and member of the Journal Committee, as well as on every other occasion requiring his valuable aid. "No man," said his Grace, "ever more zealously performed his duty than Mr. Handley; and his death is an irreparable loss to his family and to all of us."

On the motion of the Duke of Richmond, seconded by Colonel Challoner, the President was requested to address a letter of condolence in the name of the Council, to the Hon. Mrs Handley, on the occasion of this bereavement. The President remarked, that anything more gratifying than the manner in which their late colleague and friend had devoted himself to the interests of the Society, could not well be imagined; and he undertook, with a melancholy satisfaction, the duty of endeavouring to convey to his afflicted family an expression of that high estimate which they all there present, in common with every other member of the Society, entertained, of deep respect for his memory.

The following elections were then made.

On the motion of Mr. Raymond Barker, seconded by Colonel Challoner, Lord Portman was unanimously elected one of the Trustees of the Society.

On the motion of the Duke of Richmond, seconded by Mr. Fisher Hobbs, the Earl of Hardwicke was unanimously elected one of the Vice-Presidents of the Society.

Mr. Pym was unanimously elected one of the Stewards of the Cattle-yard at Newcastle, and the name of Mr. Fisher Hobbs added to the list of the Farming Account Committee.

The Secretary laid before the Council the contract into which he had entered in their name, and agreeably with the arrangements of the General Newcastle Committee, with Mr. Haigh, of the Assembly Rooms, Newcastle-upon-Tyne, for the supply of the Pavilion Dinner for 1200 persons.

Mr. Brandreth Gibbs, Director of the Show, reported from Newcastle the satisfactory progress of the arrangements for the Society's ensuing Country Meeting and Exhibition of Stock and Implements.

Communications were received from Mr. Merryweather of Long Acre, respecting the exhibition of the powers of his great Fire-Engine at Newcastle before the Mayor and Corporation; and from Mr. Crofton, of Holywell, respecting the sale and exhibition of his stock.—The Special Council then adjourned to the Music Hall, Newcastle-upon-Tyne, on Tuesday next at 2 o'clock.

The Weekly Council stands adjourned to the 29th instant in London.

Farmers' Clubs.

Wherry: *June 16.—The Policy of Thin Sowing.*—G. L. Fox, Esq., the proposer of the subject, was voted to the chair.

Mr. Fox said, they had heard the policy of thin sowing designated as one of the greatest humbugs that had ever been brought before the country as an agricultural scheme. Now, he must say that he disagreed entirely with that opinion, and he did so because he believed that the reason why thin sowing or dibbling had not been successful so far was that it had not been fairly tried. In discussing this subject, the first thing they ought to consider was the preparation of the land, because the effect of thin sowing was different as the state of the land varied. Now, what was the old system of ploughing, and what were the effects which it produced? Many persons ploughed their land, year after year, and had done from time immemorial, three or four inches deep, the subsoil never being touched. Well, when the corn begun to vegetate, the roots got to the bottom of the ploughing, but no further, and then that which Mr. Hannam had complained of took place. One of the consequences of their sowing was that the grain tillered; that was, it threw out a large head, with a small root, and the result was that, in the case of a high wind, it was much knocked about, the roots were torn up, and that side which was more immediately affected by the wind perished: or, if the seed happened to come to maturity, it was sure to be light and thin. The first thing, then, in his opinion, to make thin sowing or dibbling valuable, was not only to plough deep, but after the plough to use the subsoil plough, for, by that means, the subsoil became well pulverised, and the root of the seed was thus enabled to seek for food as deep as it could go, and this gave a strength to the plant which hardly any wind could affect. He had had a good instance of this upon his own farm last year, in an experiment of which Mr Garside had had the management. They had dibbled two acres, using three pecks to the acre instead of 3 bushels; and they had tried two acres in the common way with 3 bushels. The result was that the corn which was drilled thick was laid by the winds and rain, whilst the whole of that which was dibbled came up strong and was never moved, which was a strong proof that the roots had got sufficient hold to preserve them against any harm from wind or weather. This was the principal fact which he had to bring forward in favour of the policy of dibbling or thin sowing. Mr. Fox here produced a specimen of the produce of this dibbled Wheat, which he said he must tell them was sown at a time which they would think absurd; and it certainly was impossible that it could be done by farmers in general, but it might be done by gentlemen, and by those who could afford to try experiments. Now, this specimen, which had been taken at random from among many others, was the produce of a single grain of Wheat. It was sown on the 3d June, and reaped on the 9th November, and contained, in the whole, 141 ears. This Wheat was dibbled in two feet between the rows, and six inches between each grain; and it all came up and tillered as they saw in the specimen before them.

Mr. Gaunt had had a good deal of experience in his time; and, as far as his humble judgment directed him, he agreed with Mr. Fox. Sixteen years ago he had a man from Doncaster, with three boys, and during the season they dibbled for him 25 acres of land. It was the rule where this man came from to mix a sack of Rape dust with two bushels of Wheat. The implement which he used consisted of three bars, which he pressed into the soil with his foot, and thus made three rows of holes at a time. He adopted the mixture recommended by this man, adding a quarter of Rape dust. The experiment answered remarkably well, the produce being quite equal to that from land where one-third more Wheat had been sown. He found the process to be slow—about an acre a day, at 7s. an acre—and he thought he would try to invent a machine to make more holes, and to do that quicker, and his idea was that a medium-sized round table, with holes in the edge and an axle-tree through, and seven or eight holes for bars in the edge, would answer the purpose. He then made a calculation for dibbling some Beans, and he found that they would run about two bushels per acre. He resolved to apply four loads of rotten manure per acre, and the land having been well pulverised and harrowed across, the holes were made. He employed about 50 women, and girls, and boys, who were engaged, so many in putting the Beans into the holes, and so many in putting into each hole a certain quantity of manure. There not being sufficient soil to cover the Beans and manure, they experienced some little difficulty in this respect, which, however, they eventually overcame; the result was that the Beans came up with fine rosy tops, and proved to be an excellent crop; besides which, although he employed so many hands and incurred so much additional expense, he calculated that the bushel of Beans saved in each acre (by sowing two instead of three bushels) more than compensated. The efficiency of dibbling certainly depended much upon the season, that was, whether the weather was such as enabled them to proceed with the work after they had once begun. He had continued, from time to time, to dibble Wheat, Barley, and Beans; but he ought to tell them that when he found the Beans not to answer so well with manure, in consequence of the want of a proper covering of soil, he tried Rape dust, but that did not answer, for the effect was that the plants came up crippled. So he did five acres with bones, at the rate of two quarters of bones per acre. He kept going on with his Wheat as usual, and he, of course, particularly recommended dibbling, for he never had better, if so good crops as by dibbling. Last year he purchased some of Fuller's "ten-rowed" Wheat, which he dibbled at the rate of eight bushels to seven acres, having previously made a calculation which showed that to have the rows nine inches, and the holes seven inches apart, it would take four grains of Wheat to each hole. This was after the 5th of November, and it was too late, for bad weather interfered. However, he employed a good many hands to put in the Wheat and Rape-dust; the Wheat first, in this instance. By doing this they trod the soil almost level, so that there was not sufficient to cover the holes. The crop suffered from being sowed late, and from the want of soil; but it was such as to satisfy him that a bushel of seed an acre, with Rape dust, was quite sufficient. He had proved, for several years, to his own satisfaction, that a great saving might be effected by dibbling, and he thought that the practice ought to be pursued to a greater extent than it had been up to the present time. The objection that the process was slow might be urged against it; still he thought the fact, that they could employ so many hands, and that they could save one half in seed and derive greater benefit from their crops, was an ample set-off to that argument. He had derived great advantages from dibbling himself, and therefore he was certainly a great advocate of the practice.

Mr. Beilby, of Wothersome, said that this was a subject upon which farmers differed much, and he would therefore state what had been the result of his experience. He had generally sown two bushels or two bushels and a half per acre. He sowed broadcast upon seeds, and pressed it. Last year he rather exceeded his limit, but he found the corn to come too thick upon the ground, in his opinion; and he resolved not to go beyond two bushels and a half per acre in future, but he thought it was not practicable to sow much less on land similar to that which he occupied, which was of that character that it would not admit of ploughing so deep as to enable the grain to tiller after the manner of the specimen exhibited by Mr. Fox. Last year he gained more than he ever did before by sowing the least seed—about two bushels per acre. He believed that most farmers sowed more corn than was useful; but three pecks were much too little. He thought that two bushels of Beans and two of Barley would be found as near the mark as might be; but after all a great deal of course depended upon the season. Thin sowing, in his opinion, would not prove beneficial on the sort of land which he occupied. He did not call two bushels thick sowing nor thin sowing, although it was both, in comparison with the plans practised by some.

Mr. John Hannam, of North Deighton, declared himself to be a dissentient to the doctrine of thin sowing. He held different opinions from those entertained by the Chairman and by Mr. Gaunt. He would not say, and Mr. Beilby, because he did not think two bushels per acre to be thin sowing. He took that to be a medium quantity, and he should therefore take Mr. Beilby on his own side. He recommended two bushels per acre in preference to thin sowing, on the same principle as he would recommend a party to insure his house or stock, considering it policy to pay a small annual, but certain sum, to guard against an uncertain but great loss. The subject, it was said, was one of great importance, and if the conclusions which had been drawn on the other side were quite correct, they were very important, because they showed a saving of one-half the cost of seed. But then again there were experiments on all sides of the question, and in his opinion there had been as many *pro* as *con*—as many opposed to as in favour of thin sowing; and if any gentleman was inclined to dispute this assertion, he would at once turn to the volumes before him, and he would at once direct attention to the agricultural journals and volumes on the table, in which were to be found many instances of the failure of thin sowing. But his own experience was unfortunate for the advocates of thin sowing. He had pointed out two crops to a neighbour the other day—one of them sown at the rate of a bushel and a half per acre, and the other two bushels and a half, and even at present the difference between the two was very great. And this was not the only experiment; there were several others, which proved to his satisfaction that thin sowing would not answer upon land of a poorer description than that of his friends opposite, where the plants could find plenty of food and depth, and thus became those gigantic sort of things of which they had then a specimen before them. He need not tell them that it was useless to put a seventy stone bullock into a middling sort of pasture; neither need he tell them that whilst they might make up an Irish beast upon such land, they could not graze a "giant ox;" and, similarly, on such soil they could not rely upon producing, as a rule, such mammoth specimens of Wheat as the one on the table. But, looking at both sides, how did the rationale of the question stand? Mr. Davis says that one great obstacle to arriving at facts properly is that parties are too apt to attribute results to wrong causes, and to draw conclusions from partial premises and isolated facts. Now, Mr. Davis was an excellent farmer; his character did not depend upon thin sowing, because he had done a great deal by deep draining, ploughing, and manuring; and there very likely was the secret of his success. But what he thought was, that the first principle upon which he based his practice was not correct, and that in fact Mr. Davis committed the fault of generalising too much from, at best, but a limited groundwork. For instance, Mr. Davis says, "It is an extraordinary fact that whilst Wheat is naturally so prolific a plant as to yield a thousand for one, the return for the seed sown is about tenfold." And again, "Wheat yields 30 grains per ear, and as the ordinary return off every acre is at most about 30 bushels, it follows that this quantity, no matter how much has been sown, can at most have come from the growth of the ears of one bushel of Wheat, and that is allowing only one ear to grow from each grain. But," says he, "instead of one grain producing one ear of 30 grains, it will produce 10 or 12, varying from 60 to 80 grains each; so that, in fact, one bushel, had it room to tiller, would, instead of 30 to one, produce a hundred fold; so that half a bushel or less, under favourable circumstances, will produce the 30 bushels, and this is allowing sufficient for birds and incidentals." Now, this might be correct reasoning in the abstract. It was well known that they usually sowed from 2 bushels to 3 bushels, and reaped 30, which was ten or fifteen-fold; and they knew that grain on some land was capable of returning a hundred-fold the seed; but this was not proof positive that it was beneficial in practice to sow so little. There are many abstract truths which are not carried into use. Thus it would be well if we could do without laws or customs' duties; that idea was right in the abstract, as it was to sell in the dearest and to buy in the cheapest markets; but the question was, whether it would be beneficial on the whole in practice. And here he argued that the mathematical truth of Mr. Davis's calculations was no proof of the good policy of thin sowing. The great error, however, was in the last clause of his statement, not in the fact of 2 pecks producing 30 bushels, but in the assertion that 2 pecks were also sufficient, year after year, and under any circumstances, to supply plant, and to stand contingencies. Amongst other casualties with which they had to contend, there were the ravages of the wireworm, slug, grub, frost, blight, mildew, &c., and therefore he thought that they ought always, for the safety of the crop, to sow more than they expected would grow. It might be said that all systems of sowing were liable to those attacks, and this he granted, but all did not suffer alike from them. If a crop, sown on the principle that the quantity of seed sown should equal the number of plants the space will maintain, lost root or plant to the amount of 50 per cent, the crop suffered in nearly the same proportion; while another crop which was sown in the ordinary way, could afford to lose as many plants with little comparative damage. When we depend on a few roots, a loss slight in numbers is a large proportion of the whole; while, on the other hand, the loss is not felt because it is provided for; and it is provided for, because these losses are not exceptions, but in one field or other, and from one cause or other, happen in most years. They are as surely the consequence of our climate and soils as loss of life in the army is the result of an active campaign. These are some of the evils that make the practice of thin sowing dangerous. And they are common to both systems but most felt by that of thin sowing. And there were others which the system of thin sowing was especially liable to. Thus upon light soils, if the frost came (and they could not guard against it), it was liable to root out. In cold soils there was too great a loss if any roots perished, and in Clover-stubbles the plant was more liable to mildew. Then, again, the harvests were retarded, and the samples were coarser and more frequently damaged than on the ordinary system. The manner in which some of these evils arise, he had three years ago pointed out. At that time he said that to dibbling and all methods of planting or sowing Wheat very thin there was this objection. The Wheat was apt to branch so much that it was peculiarly liable to be injured at the root by winds, &c., owing to the great leverage of a number of stems. The same accounted for Wheat which was thus broken becoming toad-legged, as it is termed, and producing an uneven sample. Another evil to fear was that the free supply of the atmospheric gases, moisture, &c., arising from their being few plants, should stimulate the plant to put forth such a luxuriant foliage and such a number of stems, that granting that the weaker branches did not get broken down for want of root, the root would not be able to convey the matters essential to the perfect nutrition of each branch in the latter stages of its growth, a larger supply of nitrogen being required to perfect the grain than to maintain the straw. The consequence of which would be a large crop of straw and a deficient one of grain, both as regards quantity and quality. The case alluded to by Liebig of a vineyard being stimulated to the production of so much wood that it became in two or three years almost barren, the fact that if our fruit trees be permitted to branch much they bear little fruit, and several cases which might be mentioned, where Barley and other grain have been stimulated by manure to the too great and quick production of foliage and straw, were familiar illustrations of the evil to be feared from one root having to perform the functions of two or three, and to support mechanically and chemically several stems. And these dangers explained why the harvest, as admitted even by Mr. Mechi, should be retarded by thin sowing, and why there should be failures from uneven ripening, from mildew, &c., a loss in quality and quantity of grain, as in the trials of Mr. Barclay, M.P., where the thin sown look the most luxuriant in straw until harvest, when the grain turned out inferior, was in one plot mildewed, and produced 15 bushels per acre less than the thick sown. The thin sown grain also weighed 2¼ lbs. less per bushel, and sold for 2s. a quarter less than the other. The one making 16l. 1s. per acre, and the other 16l. 2s. This experiment was reported to the Royal Agricultural Society, and was not the only evidence of these dangers, as we were told that Mr. Davis himself occasionally suffered from them. Thus a correspondent of the *Bell's Farmers' Messenger*, who visited the farms of Mr. D. last year, said, "this view confirms my former opinion, that thin sowing is a dangerous experiment to be entered into, where diseases, or the effects of a severe winter, are to be apprehended. Mr. Davis has two large pieces seriously injured, one by wireworm, and the other by frost. They did not look like producing two quarters per acre." Then, again, there were other evils to be feared from thin sowing. In dry seasons the crop was uncertain, because it depended upon tillering in a season when tillering could not progress. The present season was proof enough that such rendered the experiment dangerous. The consequences of a wet season, too, were equally opposed to the practice of thin sowing. They could not get to hoe the plants, and they were liable to be overpowered by the growth of annual weeds. It was urged that this difficulty and some others were to be overcome by deep ploughing and frequent hoeing; but the former could not be done on such land as that of Mr. Beilby, himself, and others, for they could not go deeper than 6 inches before they came to the rock. And if they could, deep ploughing would not prevent annuals growing on any soil when it was too wet to get on the land to hoe, no more than it could prevent the attacks of grub or wireworm, the evil effects of frost, or make all the ears (of different ages and sizes) on one stem feed alike, ripen at one time, or produce a similar grain. Mr. Mechi had illustrated the principles of thin sowing with as much success as many; still he thought that some of his arguments, like his razors, sometimes cut the hand that used them. Mr. Mechi, who was no doubt a spirited, if he be in this case too sanguine an agriculturist, said "Why do not we cultivate our Wheat as we do our Turnips?" What would be the result if we treated our Turnips as we do our Wheat? Now what analogy was there between Turnips and Wheat? As much, he conceived, as between a horse and an elephant, which it was true had certain parts and habits in common, but had also others exclusively their own, and required consequently a treatment adapted to their different natures. And similarly, Turnips and Wheat were plants, each having specific properties — each their own organisation, and each requiring a method of cultivation special and peculiar to themselves. They were, indeed, plants not only of a different botanical genus, but also of a different order; and the only analogy between them was that they were both vegetables, and subject alike to the general principles of vegetable physiology;—no particular system of treatment could then be based on such an analogy. But suppose there was some analogy between the two, they cultivated them with different objects in view. They cultivated Turnips with a view to producing the root or bulb as large as possible, and by thin sowing they got their Turnips larger in proportion; but, on the other hand, Wheat was grown for its grain. It was no argument, then, that one crop would grow more grain because another produced more bulb or root under the same system. But it was also the practice to sow Turnips thick; and if there was any analogy between Turnips and Wheat,—Wheat must be sown thick also, and for the same reason, namely, to prevent the ravages of the grub and other enemies. But, it would be said, you single out your Turnips with the hoe: and so they did, but the object of that was not to grow seed, but, as he had shown, to get bulb. But if they cultivated the Turnip for its seed, they would think more of numbers than of monster specimens. Each one present, indeed, would know that they left the plants, when they grew Turnips for seed, much closer than was usual for ordinary purposes, and that by so doing they obtained a larger quantity of seed, and the crop suffered less from incidental damage than when thin planted, and so many branches were dependant on, and had to be supported against wind and rain by one stem and one root. So far then, even if it were admitted that Mr. Mechi could with propriety compare Turnip and Wheat cultivation, the comparison went against thin sowing. But if there really were no grounds for comparison between Wheat and Turnips, there was some analogy between Wheat and Grass, for Wheat was a species of Grass, and of the same order as the pasture plants. And there last we find produce the best crops of hay and seed by being closely planted; they are then said to be "well set," and the crop is highly valued. We might then much more rationally contend that this was an illustration of thick sowing Wheat than that Turnip cultivation was an evidence of the contrary. Another of Mr. Mechi's arguments is equally specious. He says "how careful we are always to plant out at wide distances any very scarce seed which may be sent to us in a small quantity, in order that we may reap more produce—and yet how is it we don't do so with our general crop?" A moment's thought will show us the fallacy of this argument. The farmer sows a small quantity of seed over a large portion of land, in order that his stock of seed may increase faster, and for this he sacrifices land, which is not so valuable as the seed. When he sows generally, however, he looks for a crop per acre, and will put in extra seed to make sure of two or three in return extra. For instance, if we have a peck of valuable seed, and it is sown over half an acre, and we reap fifty-fold, and if we sow it over half a rood we perhaps only reap thirty-fold, in one case we get 50 and the other 30 pecks. With a scarce seed the former system gains the best return, according to seed used, but we have taken four times the land to obtain it, and the other method is the best per acre. In ordinary cultivation, then, the farmer's object is to obtain a good produce per acre, and it is better for him to have an acre producing twenty-fold 2 bushels, than fifty-fold 2 pecks. Having thus pointed out some of the evils which seemed to him to render the practice of thin sowing impracticable, Mr. Hannam proceeded to contend that what the farmer wanted was not the production of a peck of Wheat at the rate of a hundred fold one year, and a complete failure the next, but a great acreage produce, and that on an average of years, which he did not think could be attained by thin sowing. He did not deny that thin sowing might produce an extraordinary crop some years, and upon some soils; but there was the objection that it was liable to suffer, and if it suffered at all from the incidental evils mentioned before, the failure was almost total, while that sown in the ordinary manner only suffered partially, and this objection to his mind was conclusive that the advocates of the new system sought to make that which ought to be the exception, the general rule. As to individual experience. He and his father had tried from 1 bushel up to 3, and they had not found the thin sowing to answer. Their land was certainly inferior to some, but it was not over-run with weeds nor was it impoverished, and they had been, so far as self was concerned, satisfied that it was not so safe and certain to use 1 bushel as to use about 2 or 2½ bushels, which they had found about the quantity requisite to insure the results from being seriously affected by the ravages which their crops were heir to. For these reasons, he for one, said "not content" to the system Mr. Fox advocated. He was aware that they all had but one object in view, and he felt that he had a great weight to contend with in opposing views supported by the prestige of its proposer's presence, and by his powers of argument, and backed by the opinion of Mr. Gaunt. He had, however, as he said

before, confidence in his cause and in his audience; he believed that they would

——"Not vanish reason
For inequality; but let their reason serve,
To make the truth appear."

Mr. Gaunt, in reference to Mr. Hannam's remarks, said that there was a great difference between dibbling and thin sowing, and contended that the weight of argument was on his side, as he and Mr. Fox were the only parties present who had made a practice of dibbling, and that their evidence could not be overthrown.

Mr. John Hannam replied that dibbling either was, or ought to be, thin sowing, as it was one method of using little seed. With regard to Mr. G.'s experience in dibbling, upon which considerable stress had been laid, he did not think it should be conclusive against other arguments, for however much he valued Mr. G.'s opinions he respected his practices still more, and he believed it was a fact beyond dispute, connected with that experience, that his practice of dibbling had grown "small by degrees and beautifully less,"—that in fact he had not, during late years, dibbled half the acres that he formerly did. He would not quote particulars, any further than this extract from a letter of Mr. Blythe to Mr. Mechi, in which he said—"I sowed 8 pecks and my neighbours 11 to 13, and I could not help noticing not only that they were more sure of a plant at spring, but also of a better yield at harvest." There was one other person which he would quote, for the benefit of those who valued opinions by their antiquity, and experience by its length—a known correspondent of *Bell's Messenger*, who said that he had farmed 500 acres of land for 30 years, and had suffered only once from his crops being sown too thick, but many times from their being sown too thin. After studying the facts he had alluded to, he hoped the thin sowing party would not plume themselves with the idea that they had all the facts on their own side, or any exclusive intelligence; for there was one agent without which experience was useless, and which, if they had had no cases of their own to refer to, would have enabled them to form correct opinions. This agent was observation, which enabled one man to avoid another's mistakes.

Mr. Thos. Hannam said he had had some experience, if it were measured by years. He was once a great advocate of thin sowing, if not of dibbling, and had adopted the practice over 200 acres. He had, however, observed upon his own land, and elsewhere, that the best crops had been realised from the sowing of from two to two and a half bushels per acre. He had once tried a greater quantity, but the observations which he then made led him in future to use only two and a half, and he found that with that quantity the crops had answered well, and withstood their various enemies. But he must say that he had seen so many thin-plant crops run away with, and so many thick-sown ones attacked by the wire-worm and other things, that it compelled him to support the plan of thick sowing. He should, on the whole, recommend two and a half bushels for Wheat and Barley.

Mr. Allen, of Compton, said he had not been in the habit of dibbling. He had drilled and sown broadcast, and he had always avoided sowing too little. It was an old adage, that "he who sows sparingly shall reap sparingly," and he had found it to be true with regard to the management of his crops. Looking at all the casualities with which they had to contend, he thought the practice of thin sowing dangerous; and he therefore did not sow less than two and a half bushels to the acre. At the same time, some soils required more seed than others. There was a difference between sowing on Clover seeds and sowing on fallow or after Turnips, so much so that he should not sow more than two bushels per acre on Turnip land, which he believed would produce as much as two and a half bushels would if sown upon seeds. He liked to see the plant come pretty well at first and to maintain its hold, and therefore he was no advocate for thin sowing. With regard to Barley, he recommended gentlemen not to sow less than two and a half bushels per acre, whether drilled or otherwise. This had been his practice, and he had always found it to answer.

Mr. Dalby, of Compton, said he was in a position to state his experience for a few years, and he might as well tell the general result in the onset, which was that thin sowing did not answer. In fallow land, in good condition, it might answer to sow two bushels, or a bushel and a half, but he very much doubted whether it was safe to sow so little as that, much less "three pecks." He preferred a medium quantity—say from two bushels to two bushels and a half per acre. But this again depended a good deal on the sort of corn that was sown, as some descriptions branched out much more than others. He admitted that a less quantity might do on fallow land, but on Clover stubble, he was of opinion that two to two and a half bushels were requisite. He had followed the plan of drilling and pressing for the last few years, and he preferred it to any other system. He believed that where Barley had been sown the rankest this year, the crops would be best; but he did not mean to say that this result would follow every year; at the same time it was one case against thin sowing. Where land was in good condition, they might sow less than when it was otherwise. He recollected once conversing with an experienced farmer upon this subject, who said that he was in the habit of sowing about two bushels and a half per acre upon Turnip land, and the reason why he did so was that he reaped a finer sample, which agreed with what Mr. Hannam had said, namely, that wherever the grain was thin it was coarser. He recommended pressing on seeds, and not very thin sowing, on account of the wireworm, grub, and so on. There was a great deal in the time at which the seed was sown: under any circumstances it was the safest to sow a fair quantity of seed.

Mr. Fox then replied. He said he was extremely glad that he had introduced this subject, because it had led to a most instructive discussion. Mr. Hannam certainly appeared to have the weight of opinion on his side, as he (Mr. Fox) and Mr. Gaunt were the only two who had stuck to what might be called thin sowing or dibbling. It was an old saying in England that an Englishman's argument was a bet. So he would lay a bet of from 1*l.* to 5*l.* that he had now two acres of Wheat dibbled which would produce a crop greater in quantity and of better quality than that of any other gentleman in the room. Now, that was a fair challenge, and he would stick to it, for he had seen the crop on the previous morning, and it struck him that it was the best he had seen this year. Thin sowers and dibblers had a great many enemies to contend with; indeed all sowers had more to contend with now than in years past; and seeing this, he had tried this experiment, with a view of benefiting them.

A discussion on general agricultural topics ensued, in the course of which it was suggested by Mr. J. Hannam that instead of the bet proposed by Mr. Fox, it would be a more appropriate way to test their respective opinions if two or three of the gentlemen present should try an experiment, by sowing half a bushel, a bushel, and two bushels respectively per acre, and report the several results to the club. This proposition was agreed to, and it will probably be carried into effect.

Miscellaneous.

The Courtrai System of Flax Culture.—This is the universal mode in the district from which the finest Flax we receive from the Continent is brought; although in this country we have not succeeded in always producing fine Flax, it is, however, now of great importance, from its being the only mode of securing good seed. As soon as pulled, the Flax is stooked, without binding it. The handfuls are set up, resting against each other, the root ends spread out, and the top ends joining like the letter A, forming stooks about 8 feet long, and a short strap keeping the ends firm. In this way, it will resist wind and rain well, and dry fast. In six or eight days, it may be stacked in the field; the seed to be taken off, at leisure, in winter; the Flax to be steeped the following May—a system which possesses the advantages of affording the farmer the best season of the year for steeping and grassing, and a time of comparative leisure, when his attention is not called off to the harvesting of other important crops. It has, in many cases, when tried in this country, proved highly successful; although, in others, it has failed, from want of experience, perhaps, in watering and grassing it. The treatment, in this way, has made the Flax, in some cases, worth 2*s.* or 3*s.* per stone more, than part of the same crop, steeped green. It is recommended, that trials of this system should be made, in the first instance, on a small scale.—*5th Report, Flax Society.*

Calendar of Operations.

JULY.

The frequent thunder-storms and heavy rains of the past fortnight or three weeks have injured and delayed the hay harvest considerably. In fact, our land is now almost as wet as it has been any time this year; and we cannot get on it to horse-hoe or drill-harrow the Turnips.

After the second hoeing of this crop it is well to use a small one-horse plough, or the common plough without its mould-board, between the rows. It should pass down each side of each row, opening up a deep but very narrow furrow, and throwing the earth *from* the plants. If two ploughs work at this they will proceed as fast as one horse-hoe, which should follow them, and as each interval is completed this hoe should be used to level the drill ridge which has been raised within it. The effect of the whole is the more thorough cultivation of the land.

If the farmer now has his work pretty forward he cannot do better than hand the superintendence of the rest of it over to his foreman for a few days, and pay a visit to the Newcastle meeting of the English Agricultural Society during the ensuing week.

Notices to Correspondents.

Books—*C E*—"Cattle: Breeds, Management, and Diseases," published by the Useful Knowledge Society.——*A Constant Reader*—Macintosh's "Practical Gardener" and Low's "Elements of Practical Agriculture."

Cabbages—*J H*—Cows never yield better than when at Grass. The economy of stall-feeding arises, we imagine, solely from its hindering that waste of food which grazing is guilty of. Cabbages are good food for milch cows if you take care not to give them any withered or spoiled leaves; and giving as you do Bean-meal along with them, your cows should give plenty of milk.

Farm Capital—*J N Cornac*—See a Leader in to-day's paper. Reduce the statement there given according to the size of the farm.——*A B*—Your farm of 250 acres "produces" 400*l.* annually. Do you mean of rent? Half of it being Grass and half of it arable, your tenant should have a capital of 2000*l.*—the landlord being willing to advance money for any drainage, &c. required.

Roofing—*T Young*—We can only speak to M.'s, which is good. We have no experience of C.'s; therefore do not be satisfied with this answer.

Steam Engine—*Fermier Anglais*—Ours is of six horse-power. We thrash 500 quarters and upwards of Wheat annually. It cost 225*l.*, was set up five years ago, and has hardly cost anything since. A ploughman manages it. It is a high-pressure engine, not a beam engine. It consumes 7 cwt. of coals per diem, and requires 1½ hours to get the steam up. It was made by Fairbairn, of Manchester. Apply to him. Will any East Lothian reader kindly give his experience?

Steep Land—*A Craven Grazier*—Mr. Banfield is unquestionably mistaken. Land lying at an angle of 60° slopes like the roof of Westminster Abbey. This is not much less than the ordinary angle at which a ladder lies when in use. You may depend upon it no "light plough" was ever used on land "sloping from 50° to 60°;" and none of your "Grass land requiring drainage" slopes 40° or anything like it. Excuse our confidence, and just get the nearest land surveyor to take the angle for you. If your Potatoes are early you may have a crop of Tares sown after them ready for mowing the first week in May, or Rye might answer your purpose, or Italian Rye-grass, only it would be a pity to plough that up after the first cutting. But if your sort be late we know of no crop which you can sow after it and cut so early. You may sow Tares on an Oat-stubble, and cut or fold them off in time next spring for a Turnip crop.

To Rear Chickens—*A Subscriber*—Give them at first steeped rice, a little bread, and a very little light Wheat; also Barley-meal as soon as they will eat it.—*J. Chapman, Upton, near Atherstone.*

Wheat—*S N*—This corn is certainly not known in a wild state. Its origin is a puzzle.

Young Ducks—*F L Horne*—Could any of our correspondents give the best method of rearing, feeding, and fattening young ducks?

Markets.

SMITHFIELD, Monday, July 6.—Per Stone of 8 lbs.

	s. d.	s. d.		s. d.	s. d.
Best Scots, Herefords, &c.	3 4 to 3 6		Best Long-wools	— to —	
Best Short Horns	3 6	3 8	Ditto (shorn)	3 6	4 0
Second quality Beasts	3 2	3 4	Ewes and second quality	—	—
Calves	4 0	4 6	Ditto (shorn)	3 4	3 8
Best Downs & Half-breds	—	—	Lambs	5 0	6 0
Ditto (shorn)	4 0	4 6	Pigs	3 8	4 6

Beasts, 3403; Sheep and Lambs, 24,370; Calves, 319; Pigs, 347.

The supply of Beasts is very large to-day, the demand is very small; except for a few choice Scots, trade is very heavy; there, in some instances, make 4*s.*, but other qualities with difficulty realise our quotations. Several remain unsold.—Sheep are also very plentiful—choice Downs make 4*s.* 6*d.*; but it is difficult to make 4*s.* of the most selling Long-wools. The epidemic being much amongst the latter, is greatly against the sale of them.—Lamb trade is steady.—Calves and Pigs are a very dull trade.

FRIDAY, July 10.

Although the number of fresh Beasts up to this day's market is not very large, the demand being small, trade is exceedingly heavy. Monday's prices are barely supported. Choice Scots hardly make 4*s.*, and Short-horns 3*s.* 6*d.* to 3*s.* 8*d.*—There is a briskness in the sheep trade, but prices cannot be quoted higher.—The best Lamb is selling freely at 6*s.*; but second rate qualities, of which there is a large proportion, are heavy on hand.—We have a great many Calves, and trade bad. Prices range from 3*s.* to 4*s.* 6*d.*—There is very little doing in the Pork trade.

Beasts, 994; Sheep and Lambs, 13,550; Calves, 332; Pigs, 260.

61, West Smithfield.

WOOL.—British, Friday, July 10.

The amount of business doing in this market is small for the season of the year. Great caution is used by the staplers in their purchases of the growers. The prices demanded by the latter are too high to allow the staplers to obtain a profit, consequently the new clip, which is reported as being in very good condition, generally comes to market but slowly.—The prices current are,—

	s. d.	s. d.	
Down Ewes and Wethers	0 11½	1 0	per lb.
" Hoggs	1 1	1 2	"
Half-bred Wethers	0 11½	1 0	"
" Hoggs	1 1	1 2½	"
Kent Fleece	1 0	1 1	"

James Preaux, Broker.

COVENT GARDEN, July 11.—Vegetables have been plentifully supplied, and Fruit has been abundant. Pine-apples have not altered in price since last week. Hothouse Grapes are abundant and cheap. Good Plums, and excellent samples of Peaches and Nectarines, have been offered. Cherries and Strawberries are plentiful; the latter are, however, becoming scarcer. Gooseberries are abundant, and a considerable quantity of Dutch Currants has been offered. Apples and Pears are sold at nominal prices. Oranges are plentiful, considering the season, and Nuts of all kinds are sufficient for the demand. Lemons are somewhat cheaper. English Melons may be obtained at last week's prices, and some good foreign ones are also in the market. Of Vegetables, Asparagus is scarce and dear. Cabbages, Cauliflowers, &c., are good and sufficient for the demand. Carrots and Turnips are cheaper. Peas have been rather scarce during the week, and good young samples have been fetching high prices. Beans remain nearly the same as last week. Celery is good in quality. Potatoes of the best quality fetch 9*l.* a ton, and in one or two cases 10*l.* and 12*l.* a ton; but inferior samples may be obtained at lower prices. Ash-leaved Kidneys have not altered since last week, nevertheless, the supply is somewhat limited. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Heaths, Jasmines, Kalosanthes, Calceolarias, Pinks, Pelargoniums, Orange flowers, Cinerarias, Gardenias, Moss and other Roses.

FRUITS.

Pine Apple, per lb.,	4*s.* to 8*s.*	Gooseberries green, per hf.-sv.,	2*s.* to 5*s.*
Grapes, Hothouse, per lb.,	2*s.* to 6*s.*	Currants, red, per hf.-sv.,	4*s.* to 8*s.*
Apples, Loos., per bush.,	7*s.* to 10*s.*	— white, do.	4*s.* to 8*s.*
— Ribston,	7*s.* to 15*s.*	Strawberries, per pottle,	6*d.* to 2*s.*
Melons, each,	4*s.* to 8*s.*	Raspberries, per pottle,	4*d.* to 6*d.*
Peaches, per doz.,	10*s.* to 24*s.*	Cherries, per lb.,	4*d.* to 10*d.*
Nectarines, per doz.,	10*s.* to 24*s.*	Almonds, per peck,	6*s.*
Oranges, per dozen,	1*s.* to 2*s.* 6*d.*	Sweet Almonds, per lb.,	2*s.* to 3*s.*
— per 100,	4*s.* to 10*s.*	Filberts, English, p. 100 lbs.,	30*s.* to 60*s.*
— Seville, per 100,	8*s.* to 16*s.*	Nuts, Cob, per 100 lbs.,	90*s.* to 90*s.*
— per dozen,	2*s.* to 3*s.* 6*d.*	— Barcelona,	90*s.*
Lemons, per dozen,	2*s.* to 3*s.* 6*d.*	— Brazil,	12*s.* to 16*s.*
— per 100,	7*s.* to 20*s.*	— Spanish,	14*s.*
		Walnuts, per bushel,	12*s.* to 16*s.*

VEGETABLES.

Cabbages, per doz.,	6*d.* to 1*s.* 3*d.*	Carrots, per bunch,	4*d.* to 10*d.*
Cauliflowers, per doz.,	2*s.* to 6*s.*	Onions, per doz. bunches,	2*s.* to 3*s.*
Artichokes, per doz.,	1*s.* to 3*s.*	Shallots, per lb.,	4*d.* to 8*d.*
French Beans, per hf.-sv.,	2*s.* 6*d.* to 4*s.*	Garlic, per lb.,	4*d.* to 8*d.*
Peas, per sieve,	2*s.* to 6*s.*	Lettuce, per score,	Cab., 1*s.* to 2*s.*
Sorrel, per hf.-sieve,	2*d.* to 1*s.*	—	Cos, 1*s.* to 2*s.* 6*d.*
Potatoes, per ton,	70*s.* to 180*s.*	Radishes, per 12 heads,	2*d.* to 4*d.*
— cwt.,	4*s.* to 9*s.*	Mushrooms, per pottle,	1*s.* 6*d.* to 2*s.*
— bushel,	2*s.* to 4*s.* 6*d.*	Small Salads, per punnet,	2*d.* to 3*d.*
— Kidney, per cwt.,	12*s.* to 18*s.*	Fennel, per bunch,	2*d.* to 3*d.*
— Prame, per lb.,	2*d.* to 3*d.*	Savory, per bunch,	4*d.* to 6*d.*
Turnips, per bunch,	4*d.* to 10*d.*	Thyme, per bunch,	4*d.*
Red Beet, per doz.,	2*s.* to 4*s.*	Watercress, p. 12 sm. bun.	6*d.* to 9*d.*
Horse Radish, per [illegible],	2*s.* to 3*s.*	Parsley, per bunch,	1*d.* to 3*d.*
Rhubarb, per bundle,	2*s.* to 3*s.*	— Roots, per bundle,	1*s.*
Asparagus, per bundle,	1*s.* to 5*s.*	Tarragon, per bunch,	6*d.*
Cucumbers, each,	4*d.* to 1*s.* 6*d.*	Mint, green, per bunch,	6*d.* to 8*d.*
Spinach, per sieve,	1*s.* 6*d.* to 3*s.*	Marjoram, per bunch,	4*d.*
Leeks, per doz. bunches,	2*d.* to 4*d.*	Chervil, per punnet,	2*d.* to 3*d.*
Celery, per bundle,	1*s.* 6*d.* to 2*s.* 6*d.*		

HAY.—Per Load of 36 Trusses.

Smithfield, July 9.

Prime Mead. Hay	75*s.* to 80*s.*	New Hay	60*s.* to 67*s.*	New Clr.	65*s.* to 68*s.*
Infr. New & Rowen	65 70	Clover	80 to 110	Straw	33 36

John Cooper, Salesman.

Cumberland Market, July 9.

Prime Mead. Hay	80*s.* to 85*s.*	Old Clover	105*s.* to 112*s.*		
Inferior	70 75	Inferior do.	90 95	Straw	34*s.* to 36*s.*
New Hay	58 72	New Clover	90 95		

Joshua Banks, Hay Salesman.

MARK-LANE, Monday, July 6.

The following quantities of Corn was released from bond in this port under the new law, between the 27th ult. and 2d inst., both inclusive:—596,077 qrs. Wheat, 362,186 cwt. Flour, 14,064 qrs. Barley, 13,880 qrs. Beans, 3602 qrs. Peas, and 67,624 qrs. Oats. During last week the trade was dull for all articles, millers refrained from purchasing beyond their immediate wants, and the amount of business was consequently limited; prices remained nominally unaltered. This morning's supply of Wheat by land carriage samples from the near counties being moderate, was sold tolerably freely at the terms of last week. A retail business was done in fine foreign at our quotations, but stale and low qualities could not be disposed of excepting at a decline of 1*s.* per qr.—Barley and Peas are unaltered in value from last Monday.—Beans must be written 1*s.* dearer.—The Oat trade is flat; fine qualities command former prices, but hot and inferior are the turn cheaper. Flour meets a retail inquiry at last week's prices.—New Caraway sold at 40*s.* to 42*s.*, and a few extra fine samples at 44*s.*—There were several parcels of new Rapeseed, but up to the present time no price has been made.

British, per Imperial Quarter.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	White 55	60	Red	50	55
—— Norfolk, Lincolnshire, and Yorkshire	50	54	Whites	50	55
Barley, Malting and distilling 32*s.* to 36*s.*	Chevalier 30	33	Grind.	25	28
Oats, Lincolnshire and Yorkshire	Polands 28	29	Feed	25	27
—— Northumberland and Scotch	Feed 26	30	Potato	28	32
—— Irish	Feed 24	27	Potato	28	30
Malt, pale, ship	54	60			
—— Hertford and Essex	60	65			
Rye	34	36			
Beans, Mazagan, old and new	32 to 40	Tick	34	46	Harrow	35	42
—— Pigeon, Heligoland	48 to 52	Winds	—	—	Longpod	—	—
Peas, White	36 to 42	Maple	33	36	Grey	34	36

FRIDAY, July 10.

There was little English Wheat on offer this morning, and its value remains unaltered. The sale of foreign is much interfered with by American Flour, and holders being indisposed to reduce the prices in proportion, a retail business only was transacted. Flour continues in good demand at fully former rates.—Barley, Beans, and Peas, remain as last quoted.—Fine Oats are quite as dear, but anything of secondary or inferior quality very unsaleable although offered at declining prices.

Imperial Averages.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
May 20 per Quarter.	55*s.* 4*d.*	32*s.* 6*d.*	22*s.* 9*d.*	35*s.* 4*d.*	35*s.* 10*d.*	36*s.* 9*d.*
Jun. 6	56 10	27 8	23 4	33 10	35 10	36 10
— 13	55 0	27 1	23 8	33 4	35 8	36 9
— 20	54 5	27 2	23 8	33 4	35 4	36 6
— 27	54 2	27 4	23 8	33 7	37 6	36 9
July 4	53 10	27 6	23 8	33 8	35 8	36 8
6 weeks' Aggreg. Aver.	53 5	27 6	23 6	33 9	35 7	36 5
Duties on Foreign Grain	5 0	4 0	1 6	4 0	4 0	4 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, July 4.

Pence.	May 30	June 6	June 13	June 20	June 27	July 4
55*s.* 5*d.*	..	..	..	..	..	..
55 1	..	..	..	..	..	..
— 4	..	..	..	..	..	..
52 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 2	..	..	..	..	..	..
— 0	..	..	..	..	..	..
51 5	..	..	..	..	..	..
— 4	..	..	..	..	..	..
— 3	..	..	..	..	..	..
— 2	..	..	..	..	..	..

SEEDS, July 10.

Canary	per qr.	56*s.* to 60*s.*	Linseed Cakes, Foreign, p. ton	7*l.* to 8*l.*	
Caraway	per cwt.	40 42	Mustard, White	p. bush.	— —
Clover, Red, English	— —	—	— Superfine	"	— —
— Foreign	— —	—	— Brown	"	— —
— White, English	— —	—	Rapeseed, English, per last	—	—
— Foreign	— —	—	Rape Cakes	per 100	— —
Coriander	— —	14 16	Saintfoin	p. bush.	— —
Hempseed	per qr.	32 36	Tares, Essex, winter	p. bush.	— —
Linseed	per qr.	48 48	— Foreign	"	2*s.* 6*d.*
— Baltic	— —	40 42	Trefoil	per cwt.	— —
— Cakes	Eng. per 1000	10*l.*	Turnip (too variable for quotation		

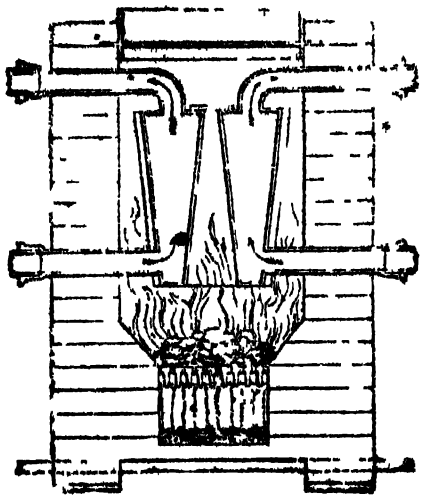
Kingsford and L

CHOICE ORCHIDS FROM CENTRAL AMERICA.

MESSRS J C & S. STEVENS will sell by Auction, at their Great Rooms, 38, King street, Covent Garden, on Wednesday next, 15th July, at 12 for 1 o'clock precisely, a Collection of ORCHIDS from Central America, just landed at Clarendon, and consisting of very fine specimens of Cattleyas, Barkerias, Epidendrums, Cyanoches, a new Lacæna, and many other favourite genera in fine health —May be viewed the day prior and morning of Sale and Catalogues had of the Auctioneers

TO BE LET, in the town of Guildford, conveniently situated for Railway communication, a GARDEN containing 1 Acre of very productive soil, enclosed by walls, with young Fruit Trees, with Conservatory 36 feet by 18 feet in which are choice Vines, promising a good crop of Grapes also a Forcing-house nearly 40 feet long —For particulars and cards to view, apply to Mr JOHN MASON, Builder, Bury fields, Guildford —A Cottage, if required

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures for the cultivation of Pines Melons Cucumbers, and other tropical plants particularly upon the plan recommended in Mr MEARS recent work on the Culture of Pines and Cucumbers many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result Their Apparatus may be seen at work at the following places — Horticultural Gardens Chiswick Royal Botanic Gardens Kew Baroness Rothschilds Gunnersbury Mr Glendinning Chiswick Nursery Messrs Henderson Pine apple Place and in more than one hundred other places — 190 Fleet street London

CONICAL BOILERS —These excellent Boilers, invented by JOHN ROGERS Esq are made of various sizes by JOHN WARD Ironmonger Sevenoaks They are applicable to all kinds of Apparatus and are in use at Messrs Loddiges Hackney Messrs Chandler Vauxhall Messrs Rollisson's Tooting Mr Duteys Plymouth Mr Henderson's Pine apple place and in the Horticultural Society's Gardens.

HOT WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS DWELLING HOUSES CHURCHES and MANUFACTORIES upon improved principles and at very moderate charges erected by DANIEL and EDWARD BAILEY 272 HOLBORN

D and E BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above mentioned purposes have by improvements suggested in their practice rendered their mode of heating not only very efficient but very simple and have combined durability in the apparatus with economy in the charge They have erected apparatus in England, Scotland and Ireland for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick

D and E BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes and invite Noblemen, Gentlemen, and the Public to the inspection of their various drawings and models at 272, Holborn where they have the opportunity of exhibiting amongst other metal works an extremely complete and convenient kitchen apparatus or range, adapted for the continued supply of hot water and an arrangement of the oven more complete than has hitherto been brought before the public

D and E BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent

D and E BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly or at intervals, required, and which may be seen at their Manufactory

HOT WATER APPARATUS.—The attention of Architects, Builders, and others is respectfully requested to BENJAMIN FOWLER's superior method of Heating Churches and Chapels, Halls, Stair cases, Conservatories, Forcing and Greenhouses Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.
BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,
ANTONY GIBBS AND SONS, LONDON,
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And by their Agents,
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To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses

LIQUID MANURE.
ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed, Garden, Ship, and Barge Pumps, also those for Distillers, Brewers, Soap Boilers and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.
The Trade supplied on advantageous terms, by BENJAMIN FOWLER Engineer, &c., 63, Dorset street Fleet-street London

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THE URATE OF THE LONDON MANURE COMPANY, Four Guineas per Ton The experience of the last five years has fully established the above as one of the best of all the light manures for the production of Turnips, for which crop it is particularly adapted, seldom failing in the driest season to secure a good plant and to produce a great weight per acre Availing themselves of the many improvements in the science of artificial manures, the Company so manufacture the Urate that the food requisite for a rotation of crops is fully maintained, therefore parties using the Urate for Turnips will find them succeeding crops of Barley and seeds materially improved Full particulars with testimonials, forwarded on application No 40, New Bridge-street Blackfriars EDWARD PURSER Secretary

THE LONDON MANURE COMPANY beg to offer Genuine PERUVIAN GUANO, delivered direct from the Importers' bonded warehouses —

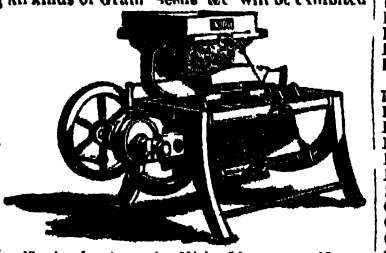
Nitrate of Soda	Fine Bone Sawdust,
Sulphate of Ammonia,	Sulphuric Acid
Superphosphate of Lime,	Sulphate of Soda
Gypsum	Petre Salt,

And every article of Artificial Manure in the most genuine state —No 40, New Bridge street Blackfriars
EDWARD PURSER Secretary

ECONOMICAL, EFFECTUAL, AND DURABLE ROOFING
BY HER MAJESTY'S ROYAL LETTERS PATENT
CROGGON'S PATENT ASPHALTE ROOFING FELT with which the Committee Rooms of the Houses of Parliament are entirely covered The above Material has been used and highly approved by the Nobility Gentry and Agriculturists generally and Patronised by many Members of the Royal Agricultural Societies of England Scotland and Ireland and by Her Majesty's Office of Woods and Forests Charles Barry Esq, R A &c &c has been used for several years at the Royal Horticultural Society's Gardens Chiswick the Swiss Gardens Shoreham Sussex on the Duke of Buccleuch's and the Marquis of Anglesey's Property &c &c and (under a like) the Royal Agricultural Society's House Hanover square its advantages are CHEAPNESS LIGHTNESS, DURABILITY and ECONOMY Being a Non Conductor, it has been proved an efficient Protective Material to Plants
PRICE ONE PENNY PER SQUARE FOOT
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SIX THOUSAND SIX HUNDRED FEET OF
CROGGON'S PATENT ASPHALTE FELT have been used to roof the Refreshment Shed the Exhibitor's Room and the Sheds immediately adjoining the two entrances intended for the Exhibition of Seeds Roots Vegetables &c at the above Society's Buildings, Newcastle upon Tyne *Price One Penny a Square Foot*
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TANNER'S PATENT INCLINED STONE MILL, for grinding all kinds of Grain Seeds &c will be exhibited at the forthcoming July Meeting of the Royal Agricultural Society at Newcastle The attention of the agriculturist is particularly requested to this novel and very useful machine



It will be exhibited by Messrs GARRETT & SON at their Stand No 28 Applications for Midsummer Licenses to Manufacture &c to be addressed to the Patentee at the Patent Inclined Stone Mill Office No 4 New Basinghall street London

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BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. M'NEILL & CO, of Lamb's Buildings, Bunhill-row London the Manufacturers and only Patentees of THE ASPHALTED FELT FOR ROOFING
Houses Farm Buildings Shedding Workshops and for Garden purposes to protect Plants from Frost
At the Great National Agricultural Shows it is this Felt which has been exhibited and obtained the Prize, and is the Felt patronized by
HER MAJESTY'S WOODS AND FORESTS
HONOURABLE BOARD OF ORDNANCE
HONOURABLE EAST INDIA COMPANY
HONOURABLE COMMISSIONERS OF CUSTOMS
HER MAJESTY'S ESTATE ISLE OF WIGHT
ROYAL BOTANIC GARDENS, REGENT'S PARK
And on the Estates of the Dukes of Sutherland Norfolk Rutland, Newcastle, Northumberland, Buccleugh (at Richmond), the late Earl Spencer, and most of the Nobility and Gentry, and *at the Royal Agricultural Society's House Hanover square*
It is half the price of any other description of Roofing and effects a great saving of Timber in the construction of Roofs, made to any length by 32 inches wide
PRICE ONE PENNY PER SQUARE FOOT
*** Samples with Directions for its Use and Testimonials of seven years' experience, with references to Noblemen, Gentlemen, Architects, and Builders, sent free to any part of the town or country and orders by post executed
☞ *The Public are respectfully cautioned* that the only Works in Great Britain where the above Roofing is made, are
F M'NEILL & CO'S
Patent Felt Manufactory Lamb's-buildings Bunhill-row, London, where Roofs covered with the Felt may be seen, as also the new Vice-Chancellor's Court, and the Passages and Offices at the entrance to Westminster Hall and their buildings at the New Houses of Parliament, done under the Surveyorship of Charles Barry, Esq R A

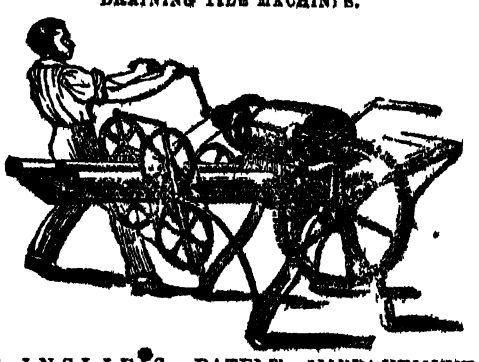
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NEW, CHOICE, AND GOOD.

R. COOPER, Sion Nursery, Croydon, has just saved new Seeds from the choicest kinds of GERANIUMS, CALCEOLARIAS, and CINERARIAS, at 2*s*. 6*d* each per packet, or a Post office remittance accompanying the order, the three for 6*s*., postage free. This is the best season for sowing the above to have strong plants to bloom in the Sprng.

CATTELL'S SUPERIOR DWARF BARNES CABBAGE.—This being the time for the principal sowing of the above, all who are desirous of having a good early Cabbage may have one ounce of the Seed sent by Post, by sending an order containing twelve penny stamps, addressed to John CATTELL, Westerham, Kent.

For description of sort see *Gardeners' Chronicle* and Gardeners and Land Stewards' Journal of June 13th and 20th, 1846.

FLORICULTURAL SEEDS.

WESTMACOTT & CO., SEEDSMEN and FLORISTS, No. 156, Cheapside (opposite St. Paul's), London, beg leave to state that they have a great variety of FLOWER SEEDS suitable for Autumn Sowing.—A List of Prices will be forwarded free, on receipt of a pre-paid application.

W. and Co. have also a large collection of Kitchen Garden and Flower Seeds, of which a Catalogue is published.

* * A Catalogue of Dutch and other Bulbs will be published in due time.—July 18.

SPLENDID NEW VERBENAS & FUCHSIAS.—Those who wish to improve their collections of these elegant flowers, have now an excellent opportunity, as the list contains every novelty of the season. The plants are strong and will make a fine display in the autumn, at 12*s*. per dozen, or 21*s*. for 24: if by post, free; or when sent by bamper, package and hamper free; *viz*. Smith's Duchess of Sutherland; Duc de Nemours, Emperor, Lovely Ann, Modesta, Miss Watson, Merry Monarch, and Queen of Beauty; Youell's Exquisite, Grandissima, Helena, Heroine, Celeste, Aurora, and Auberon; Miller's Coquette, Samve, Sunbeam, Turban, Alba purpurea, Comet, and Sappho; Girling's Blanda, Bicolor odorata, Bouquet de Flore, Rosy Morn, and Lavendula Magna; Randle's Queen of Beauties; Ivery's Wonder of Scarlets; Alexander's Blue King; Pearson's Rosetta, &c. &c.

New FUCHSIAS at 20*s*. per dozen—*viz*. Halley's Empress, Marchioness of Camden, Silver Globe, and Candidissima; Newberry's Delicata; Barkway's Duke of Norfolk, Mary Ann, and Delicata; Jackson's Mrs. Frederick Milbank; Jenning's British Queen and Giantess; Ivery's Trafalgar; Smith's Beauty of Dalston and Eximia; Epps's Lady Julia and Queen of Virgins.

All Post-office orders will receive the strictest attention.

GEO. SMITH, Tollington Park Nursery, Hornsey-road, Islington, near London.

BECK'S SEEDLING PELARGONIUMS OF 1845.—No further remittances can be received for BACCHUS and SIRIUS, the whole of the present Stock being engaged.

Worton Cottage, July 18, 1846.

NURSERYMEN AND FLORISTS TO HER MAJESTY THE QUEEN.

EXHIBITION OF CARNATIONS, PICOTEES, AND FUCHSIAS.

YOUELL & Co.'s extensive and celebrated collection of the above, comprising the finest varieties in cultivation, are now in bloom, and will continue three weeks.

3000 POTS WILL BE STAGED.

Orders are now being received at the following prices:—

25 pairs of finest first-rate show varieties of Carnations and Picotees	£5 0 0
12 pairs do. do. do.	2 10 0
25 pairs of very fine show varieties of do. do.	3 0 0
12 do. do. do.	1 10 0

FINE CAMELLIAS, WITH FLOWER BUDS.

YOUELL & Co. are now supplying very healthy plants of the above, comprising the following very handsome varieties, at 30*s*. per dozen—namely, Donklearn, Juliana Beallii, Monarch, Eclipse, Perfection, Bruceana, Corolina, Florida, Chandleri, Double Striped, Double White, Colvillii, Elegans, Grand Frederic, Fimbriata, Imbricata alba, Conspecua, Tricolor, Rosa Mundi, Ochroleuca, Noblissima, Horsfallii, Invincible, Candidissima, Emelie Grandiflora, King, Leferriana, Imbricata picturata, Minuta, Anemoneflora rosea, Kew Blush, &c.

12 first-rate new Fuchsias, including their beautiful Seedling "Sansparcil"	1 1 0
12 fine do.	0 12 0
25 pairs of first-rate show Pinks	1 1 0
12 do. do. do.	0 12 0

Trains from the Shoreditch Station 8 h. and 11 h. A M., and 5 h. and 8 h. 40 m P.M.—Great Yarmouth Nursery, July 18.

NOW READY.

BECK'S PELARGONIUMS OF 1844.—

Arabella	15*s*. 0*d*.	Mustee	15*s*. 0*d*.
Othello	15 0	Marc Antony	15 0
Rosy Circle	15 0	Isabella	15 0
Zenobia	7 6	Margaret	7 6
Favorita,	7*s*. 6*d*.		

The above will be delivered free in London, for prepayment only. Usual allowance to the trade when their card accompanies the remittance. Post-office orders are requested upon Brentford.

PINE PLANTS.—To be Sold, Fifty Fruiting and Succession PLANTS, all clean and in excellent condition. The above may be had a great bargain, in consequence of the owner giving up his Pinery.—Apply to F. H. S., 15, St. Helen's-place, London.

DRIED PLANTS FROM CHINA.—A few sets of the VALUABLE DRIED PLANTS collected in China by Mr. FORTUNE, may still be procured by applying to R. HEWARD, Esq., Young-street, Kensington, London. Among them are many new and rare species scarcely known to Europeans.

LYNE'S "FORGET-ME-NOT" GERANIUM will be sent out in November next. It is much brighter in colour than Lyne's "Duke of Cornwall," having clear and brilliant petals of rich vermillion with a large and intensely dark spot. It possesses all the good properties of "The Duke," is a bold trusser, of robust habit, and scarcely, if ever, produces an imperfect flower. *It can be recommended as one of the richest flowers of the day.*

Catalogues and description of Mr. Lyne's new Seedling Geraniums, are now ready

Plymouth, July 18 WILLIAM E. RENDLE & Co.

CHELMSTON BREEDER TULIPS. — Twelve Fine Bulbs of the above Splendid TULIPS, which are now exciting so much attention amongst Florists, may be obtained by forwarding a post-office order for 30*s*. to J. T. WOOD, F.H.S., Nurseryman & Florist, The Coppice, near Nottingham

VAN HOUTTE'S NEW VARIETIES OF CHILIAN ALSTRŒMERIAS.

LOUIS VAN HOUTTE, FLORIST to the KING, Ghent, Belgium, begs to offer his Chilian ALSTROEMERIAS at the following rates, viz.—12 varieties, 10*s*., 25 varieties, 16*s*., 50 varieties, 28*s*. Orders received by Mr. GEORGE RAIS, 52, Mark lane, London, or application may be made (post paid) to Mr. VAN HOUTTE, at Ghent. The deliveries will commence on the 1st of August next, and the plants forwarded to London free.

The Rev. Dean of Manchester, speaking of his visit to Mr. Van Houtte's establishment at Ghent (*see Gardeners' Chronicle*, 12th July, 1845), says of these plants:—"They are of every tint, from scarlet to lemon colour, and from crimson to pale green variegated with white." He further adds of their effect in masses—"I do not recollect ever having seen a bed of flowers so beautiful, and I should think Mr Van Houtte will find it difficult to supply the demand for them, when their merit shall become fully known."

In the report of the same Journal, on the meeting of the Horticultural Society of the 5th August, 1845, is the following account of this flower:—"Messrs Van Houtte sent a bouquet from Ghent, composed of Alstroemeria blooms from the open ground; they were hybrids of various colours, and although somewhat turnished by the journey and wet weather, to which they were said to have been lately exposed, yet they sufficiently showed what beautiful objects large masses of them would be in the flower-garden, and fully justified the opinion given of them on the Dean of Manchester in a late Number."

N.B. Each packet contains directions for planting and cultivating them. The usual discount to the trade.

FLOWER SEEDS FOR PRESENT AND AUTUMN SOWING.

BASS AND BROWN beg to offer the following SEEDS, free by post, at the prices affixed:—

20 vars. of fine Greenhouse Perennials	10*s*. 6*d*.
12 do. do. do.	7 6
20 vars. of fine Hardy Biennials and Perennials	5 0
20 vars. of fine Hardy Annuals	4 0

Or packets as under-named. The Perennials marked *g* are Greenhouse Seeds, and those marked * are best with a slight protection.

	s. d.
* Indian Pink, extra fine	0 6
Poppy, 16 splendid Prussian vars., separate	2 6
Viscaria oculata	0 4
Silene speciosa	0 6
Nemophila discoidalis	0 6
PERENNIALS.	
Anemone, fine mixed	0 6
Antirrhinum, from choice vars.	0 6
,, caryophylloides	0 4
g Calceolaria, fine mixed	0 6
g Chorozema spectabilis	1 0
g Cineraria, choice	1 0
g Cobæa scandens	0 6
Dianthus superbus	0 4
Foxglove, new spotted	0 4
,, lemon	0 4
g Fuchsia, choice	1 0
g Gaillardia coronata, fine	1 0
Gentiana, 3 vars., each	0 4
Geum Wieeii	0 6
g Geranium, extra fine	2 6
g Gloxinia, fine mixed	1 0
g ,, macrophylla variegata	1 0
* Gladiolus, from splendid dwarf hybrids	0 6
Heartsease, choice	1 0
g Hibiscus Manihot	0 6
Hollyhock, choice mixed	0 6
g Indigofera incana	0 6
g Lisianthus Russellianus	1 0
g Lonsa Hibbertiana	0 6
g ,, aurantiaca	0 4
g Mimulus, fine	0 4
Œnothera macrocarpa	0 4
Pentstemon Mackayana	0 4
,, gent. coccinea	0 4
g Petunia, choice	1 0
Polyanthus, very fine	0 6
Potentilla, varieties, each	0 4
g Primula sinensis, fine	0 6
Ranunculus, from choice	2 6
Stock, Brompton	0 4
g Streptocarpus rexii	0 6
Sweet William, from 20 fine double vars	0 6
GREENHOUSE AND OTHER ANNUALS FOR FLOWERING EARLY IN POTS.	
Brachycome iberidifolia	1 0
Browalia elata	0 4
Clintonia pulchella	0 6
Ipomopsis picta	0 6
Ipomœa atroviolacea	0 6
,, quamoclit	0 6
Lobelia ramosus	0 6
Megenbryanthemum tricolor	0 6
Phlox Drummondii, in 20 fine varieties, mixed	0 6
Portulaca, 2 vars., each	0 6
Rhodanthe Manglesii	0 6
Stock, choice mixed German	0 6
Salpiglossis, fine mixed	0 6
Sedum azureum	0 6
Schizanthus retusus, or Hookeri	0 6
Thunbergia alata	0 6
,, aurantiaca	0 6

A remittance is requested from unknown correspondents. Post-office orders to be made payable to WILLIAM BASS and S. BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.—July 18, 1846.

NEW AND RARE PLANTS.

	Each—*s. d.*		Each—*s. d.*
Achimenes patens	3 6	Gardenia Rothmanii	5 0
Anemone japonica	10 6	,, Stanleyana	21 0
Æschynanthus atrosanguinea	15 0	Gladiolus Bidwellii	7 6
,, Lobbiana	42 0	Gompholobium versicolor	7 6
,, pulcher	42 0	Hindsia longiflora, 30*s*. per dozen, or	3 6
,, zebrina	15 0	,, ,, alba	7 6
Balsamina latifolia	15 0	,, violacea, 60*s*. per dozen, or	7 6
Begonia albo coccinea	10 6	Ixora odorata	31 6
Calandrinia umbellata	7 6	Jasminum Dianthiflorum	10 6
Calostegia pubescens	15 0	Porphyrocoma lanceolata	7 6
Clarita sinensis	7 6	Potentilla Macnabiana	10 6
,, zeylanica	7 6	Phalænopsis amabilis	84*s*. to 147 0
Cyrtoceras multiflora	31 6	Statice macrophylla	15*s* to 30 0
,, retiena	7 6	Tremandra verticillata	21 0
Echites atrosanguinea	7 6	Tropæolum azureum	7 6
,, splendens	15 0	,, crenatiflorum	7 6
Epacris ardentissima (Story's) new and fine	21 0	Vanda insignis, 168*s*. to	210 0
,, magnifica, do. do.	21 0		
Franciscea hydrangeæformis	15 0		

The usual allowance on the above to the Trade.

Cuphea cordata .. .. 21 0 | Fuchsia macrantha .. 21 0

One over on the above two plants when three are taken.

Messrs. VEITCH & SON beg to offer the above beautiful plants, which they can recommend as being worthy of general cultivation.—N.B. A remittance expected from unknown correspondents.—Exeter, July 18.

* This plant was exhibited at Chiswick on Saturday last as Æschynanthus speciosa, and had the Knightian Medal awarded it.

FRUITS PRESERVED BY COOPER'S PATENT APPARATUS have been proved to keep perfectly sound and good for family use for FIVE YEARS. This process is well suited for the preservation of Pine-apples, Strawberries, Wall-fruit, &c., retaining and concentrating all their excellent and peculiar flavours; the Strawberries are adapted to be used with cream at all seasons of the year.



Sample hampers of the fruits generally preserved for family use, including extras, a machine corkscrew, with the whole particulars of the patent process, and testimonials, will be delivered at any part of London, for TEN SHILLINGS, by an order addressed to the Patentee, JAMES COOPER, 7, the upper part of St. John-street, Clerkenwell, London.

The Patent Apparatus and Vessels are on sale at the Manufactory as above

FOREIGN SHEET GLASS, &c.

C. JARVIS having just imported a large quantity of Foreign Sheet Glass, of the STOUTEST KIND, in substance, 16, 16, and 17 ounces to the foot superficial, and of the same at the unprecedented low price of 4*d*. per light in the case, as imported, any size in stock; a less price than he has hitherto received from large purchasers for the thinnest quality, viz., 13 ounces to the foot, at his old established Window Glass Warehouse, 34, Great Castle-street, a few doors from Regent-street. GLASS PANTILES equally low in price. English Manufactured Glass of every description, on the lowest terms for ready money only.

HORTICULTURAL SOCIETY OF LONDON.

EXHIBITION AT THE GARDEN.

July 11th, 1846.

AWARD OF THE JUDGES.

THE LARGE GOLD MEDAL.

To Mr Robertson, gr to Mrs. Lawrence, F.H.S., for a collection of 40 Stove and Greenhouse plants

2 To Mr Mylam, gr. to S. Rucker, Esq., jun., F.H.S., for 20 species of Exotic Orchids

THE GOLD KNIGHTIAN MEDAL.

1 To Mr. Frazer, of Lea-bridge-road, Leyton, for a collection of 20 Stove and Greenhouse plants

2 To Messrs. Rollisson, of Tooting, for 20 species of Exotic Orchids

3 To Mr. Don, gr. to F. G. Cox, Esq., F.H.S., for 12 species of Exotic Orchids

4 To Mr. Hunt, gr. to Miss Traill, of Hayes-place, Bromley, for 20 species of Cape Heaths

5 To Messrs. Fairbairn, of Clapham, for the same

6 To Mr. Spencer, gr. to the Marquis of Lansdowne, F.H.S., for a miscellaneous collection of Fruit

THE GOLD BANKSIAN MEDAL.

1 To Mr. Ayres, gr to James Cook, Esq , F.H.S., for a collection of 12 Stove and Greenhouse plants

2 To Mr. Robertson, gr. to Mrs. Lawrence, F.H.S., for 20 species of Exotic Orchids

3 To Mr. Plant, gr. to J. H. Schroder, Esq., F.H S., for 12 species of Exotic Orchids

4 To Mr. Carson, gr. to W F. G. Farmer, Esq., F.H.S., for 6 species of Exotic Orchids

5 To Mr. Robertson, for 20 species of Cape Heaths

6 To Messrs. Rollisson, of Tooting, for the same

7 To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for 12 species of the same

8 To Mr. Fraser, of the Lea-bridge-road, for the same

9 To Messrs. Lane, of Great Berkhamstead, for 18 varieties of Roses in pots

10 To Mr. Fleming, gr. to his Grace the Duke of Sutherland, F.H.S., at Trentham, for a miscellaneous collection of Fruit

THE SILVER GILT MEDAL.

1 To Mr. Malyon, gr. to T. Brandram, Esq., of Lee-grove, Blackheath, for a collection of 20 species of Stove and Greenhouse plants

2 To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S., for 12 species of the same

3 To Mr. Catleugh, of Hans-place, Chelsea, for 6 species of the same

4 To Mr. Redding, gr. to Mrs. Marryat, F.H.S., for 12 species of Exotic Orchids

5 To Mr Eyles, gr. to Sir George Larpent, Bart., F.H.S., for the same

6 To Mr. Ayres, gr. to J. Cook, Esq., F.H.S., for 20 species of Cape Heaths

7 To Mr. May, gr. to E. Goodheart, Esq., of Langley-park, Beckenham, for 6 species of Cape Heaths

8 To Mr. Epps, of Maidstone, F.H.S., for the same

9 To Mr. Slowe, gr. to W. R. Baker, Esq., F.H.S., for 12 varieties of Roses in pots

10 To Mr. Dobson, gr. to Mr. Beck, F.H.S., of Isleworth, for 18 varieties of the same

11 To Mr Stains, of Middlesex-place, New-road, for 12 new varieties of Pelargonium, in 8-inch pots

12 To Mr. Dobson, for the same

13 To Mr. Stains, for 12 varieties of Pelargonium, in 8-inch pots

14 To Mr. Bassett, gr to R. S. Holford, Esq., F.H.S., for Aerides odoratum

15 To Mr. Falconer, gr. to A. Palmer, Esq., of Cheam, for Renanthera coccinea

16 To Messrs Veitch, of Exeter, for a new species of Ixora

17 To Mr. Hunt, gr. to Miss Traill, of Hayes-place, Bromley, for Grapes

18 To Mr Hamp, gr. to James Thorne, Esq., of Mawbey-house, South Lambeth, for the same

19 To Mr. Mitchell, of Kemp Town, Brighton, for the same

20 To Mr Dods, gr to Col Baker, F.H.S., for Pine-apples

21 To Mr. Fleming, for a Pine-apple

THE LARGE SILVER MEDAL.

1 To Mr. Epps, of Maidstone, F.H.S., for a collection of 12 Stove and Greenhouse plants

2 To Mr. Carson, gr. to W. F. G. Farmer, Esq. F.H.S., for a collection of 6 Stove and Greenhouse plants

3 To Mr. Jack, gr. to R. G. Loraine, Esq., Wallington, for the same

4 To Mr. Hunt, gr. to Miss Traill, of Hayes-place, Bromley, for 6 species of Exotic Orchids

5 To Mr. Jack, for the same

6 To Mr Bruce, gr. to Boyd Miller, Esq., of Collier's Wood, Mitcham, for 6 species of Cape Heaths

7 To Mr. Dawson, of Brixton, for the same

8 To Mr Bruce, for a specimen Cape Heath

9 To Messrs Rollisson, for the same

10 To Messrs Lane of Great Berkhampstead, for a collection of Roses, in 50 varieties

11 To Mr. Robinson, gr. to James Simpson, Esq., of Thames Bank, Pimlico, for 12 varieties of Pelargonium, in 8-inch pots

12 To Mr. Turner, of Chalvey, near Windsor, for 24 varieties of Carnations

13 To Messrs. Norman, of Woolwich, for the same

14 To Mr. Turner, for 24 varieties of Picotees

15 To Mr. G Edmunds, of Wandsworth, for the same

16 To Mr. Waterer, of Knap-hill, Bagshot, F.H.S., for a collection of new hardy Evergreens, in pots

17 To Mr. Eyles, gr. to Sir George Larpent, Bart., F.H.S., for Stephanotis floribunda

18 To Mr. Fraser, of Leyton, for Allamanda cathartica

19 To Mr. Green, gr. to Sir E. Antrobus, Bart., for Lisianthus Russellianus

20 To F. Scheer, Esq., F.H.S., for a new species of Echinopsis from Bolivia

21 To Mr. Dods, gr. to Sir G. Warrender, Bart., F.H.S., for a miscellaneous collection of Fruit

22 To Mr. Frost, gr to Lady Grenville, F.H.S., for Grapes

23 To Mr. Davey, gr. to G. Smith, Esq., F.H.S., for the same

24 To Mr Pillery, gr. to his Grace the Duke of Portland, for the same

25 To Mr. Williamson, gr. to the Marquis of Westminster, at Eaton-Hall, for Pine-apples

26 To Mr. W Browne, gr to C. W. Packe, Esq., M.P., F.H.S., for a Providence Pine-apple

27 To Mr. Frazer, gr. to E. D. Davenport, Esq., F.H.S., for Pine-apples

THE SILVER KNIGHTIAN MEDAL.

1 To Mr. Collins, gr to E. H Chapman, Esq., of Harringay House, Hornsey, for a collection of 12 Stove and Greenhouse plants

2 To Mr. May, gr. to E Goodheart, Esq., of Langley Park, Beckenham, for a collection of 6 Stove and Greenhouse plants

3 To Mr. Bruce, gr to Boyd Miller, Esq., for the same

4 To Mr. Young, gr. to C. Barron, Esq., of Camberwell, for 6 species of Cape Heaths

5 To Mr. Jack, for the same

6 To Mr. Pamplin, of Walthamstow, for the same

7 To Mr. Green, gr. to Sir E. Antrobus, Bart., F.H.S , for a specimen Cape Heath

8 To Messrs Fairbairn, for the same

9 To Mr. Frazer, for the same

10 To Mr. L. Mousley, for 6 varieties of scarlet Pelargonium

11 To Mr. Stanly, gr. to H. Berens, Esq., F.H.S., for 6 species of Pelargonium

12 To Messrs. Lane, for Moss Roses, in 12 varieties

13 To Mr. Terry, gr. to Lady Puller, of Youngsbury, for a collection of Roses, in 50 varieties

14 To Messrs. Paul and Son, of Cheshunt, for the same

15 To Mr. Slowe, for a collection of Roses, in 25 varieties

16 To Messrs. Cobbett, of Chobham, for the same

17 To Mr. Coysh, gr. to R. Hudson, Esq., of Clapham Common, for 12 varieties of Pelargonium, in 8-inch pots

18 To Mr. Gaines, of Battersea, for the same

19 To Mr. Ward, of Woolwich, for 24 varieties of Carnations

20 To Mr. Dickson, of Acre-lane, Brixton, for the same

21 To Messrs Norman, of Woolwich, for 24 varieties of Picotees

22 To Mr. Dickson, for the same

23 To Messrs. Lane, for a collection of new hardy Evergreens, in pots

24 To Mr. Gaines, for a Fuchsia, "Duchess of Sutherland."

25 To Mr. Ayres, gr. to J. Cook, Esq , F.H.S., for Veronica salicifolia

26 To Mr. Young, gr. to C. Barron, Esq., for Stephanotis floribunda

27 To Mr. Dawson, for Erica Irbyana

28 To Mr. Stanly, gr. to H. Berens, Esq., F.H.S., for Gloriosa superba

29 To Mr. Taylor, gr. to J. Coster, Esq., for a collection of British Ferns

30 To Messrs. Veitch, for a new species of Æschynanthus

31 To Messrs Rollisson, of Tooting, for the best-named collection of Plants No error in 40 names

32 To Mr. Dodemeade, gr. to W. Leaf, Esq., F.H.S., for Grapes

33 To Mr. Wright, gr. to the Hon. Mrs. Rushout, F.H.S., for Grapes grown in pots

34 To Mr. Chapman, of South Lambeth, for Grapes

35 To Mr. Wilmot, of Isleworth, for the same

36 To Mr. T. Bolton, gr. to C. Wynne, Esq., F.H.S., for a Pine-apple

37 To Mr. W. Christie, gr. to Viscount Folkestone, for Pine-apples

38 To Mr. T. Bray, gr. to E. Lousada, Esq., of Sidmouth, for a Pine-apple

39 To Mr. J. Hewett, gr. to G. Purday, Esq., of Bayswater, for Pine-apples

40 To Mr. Wright, for Peaches and Nectarines

41 To Mr. Parker, gr. to J. H. Oughton, Esq., F.H.S., for the same

42 To Mr. Elliott, gr to J. B. Boothby, Esq., F.H.S., for Bigarreau Cherries

43 To Mr. Whiting, gr. to H. T. Hope, Esq., F.H.S., for Bigarreau and Circassian Cherries

44 To Mr. Fleming, for a Melon

THE SILVER BANKSIAN MEDAL.

1 To Mr. Stanly, gr. to H. Berens, Esq., F.H.S., for a collection of 6 Stove and Greenhouse plants

2 To Mr. Slowe, gr. to W. R. Baker, Esq., F.H.S., for the same

3 To Mr. Taylor, gr. to J. Coster, Esq., of Streatham Common, for the same

4 To Mr. Francis, of Hertford, for 18 varieties of Roses, in pots

5 To Mr. Slowe, gr. to W. R. Baker, Esq., F.H.S., for a specimen Rose

6 To Mr. Dobson, for the same

7 To Messrs Paul and Son, for a collection of Moss Roses, in 12 varieties

8 To Mr. Francis, for a collection of Roses, in 50 varieties

9 To Mr. Taylor, for 6 varieties of Cape Heaths

10 To Mr. Wood, gr. to J. G. Seager, Esq., of Poole, for a specimen Cape Heath

11 To Mr. Hunt, for the same

12 To Mr Ellis, of Woolwich, for 24 varieties of Picotees

13 To Mr. Ward, for the same

14 To Mr. Cutler, of Slough, for a collection of new hardy Evergreens, in Pots

15 To Mr Kendal, of Stoke Newington, for Fuchsia, "Erecta elegans"

16 To Mr. Robertson, gr. to Mrs. Lawrence, F.H.S., for Pavetta Borbonica

17 To Messrs Veitch, for Cuphea cordata

18 To Messrs. Henderson and Co., of Pine-apple-place, Edgeware-road, for Æschynanthus Boschianus

19 To Mr. Robertson, gr. to Mrs. Lawrence, F.H.S., for the second best named collection of Plants. One error in 20 names

20 To Mr T. Umpleby, gr. to H. Benyon, Esq., for Grapes

21 To Mr. T. Bray, for the same

22 To Mr. Gadd, of Betchworth, for the same

23 To Mr. M'Ewen, gr. to Col. Wyndham, F.H.S., for a Pine-apple

24 To Mr. Thomson, gr. to G. Byng, Esq., of Wrotham-park, Barnet, for the same

25 To Mr. R. Braid, gr. to H. Perkins, Esq., F.H.S., for the same

26 To Mr. Brewin, gr. to R. Gunter, Esq.. F.H.S., for Pine-apples

27 To Mr. Collinson, for Nectarines

28 To Mr. Mason, gr to John Kenaway, Bart., Escot House, Devon, for Peaches

29 To Mr. Collins, for the same

30 To Mr. T. Bray, for Black Eagle Cherries

31 To Mr. Kendall, gr. to H Pole Carew, Esq., Anthony House, Devonport, for Citrons

32 To Mr. M'Ewen for Melons

33 To Mr. Parker, for a Melon

34 To Mr. Braid, for the same

THE CERTIFICATE OF MERIT.

1 To Mr Francis, of Hertford, for a collection of Moss Roses, in 12 varieties

2 To Mr. Ellis, for 24 varieties of Carnations

3 To Mr. Griffin of Uxbridge, for the same

4 To Mr Edmunds, of Wandsworth, for a seedling Picotee, "Mrs Reeves"

5 To Mr. Carson, gr to W. F. G. Farmer, Esq., F.H.S., for Chironia floribunda

6 To Mr. Frost, gr. to Lady Grenville, F.H.S., for Triptilion spinosum

7 To Mr. Young, gr. to C Barron, Esq., for Clethra arborea

8 To Mr. Cole, of Bath, for cut Hollyhocks

9 To Mr. Jack, gr to R. G Loraine, Esq., for Cuphea miniata

10 To Messrs. Veitch, for Clematis glandulosa

11 To Mr. Mylam, gr. to S Rucker, Esq., jun., F.H S., for the third best named collection of Plants. Three errors in 42 names

12 To Mr Fleming, for Peaches and Nectarines

13 To Mr. Elliott, for Melons

14 To Mr. Howitt, for Circassian Cherries

15 To Mr. Meyer, of Boston-lane, Brentford, for Cherries.

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,, Alpinus, &c ..	0	6
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Gentiana acaulis ..	0	6
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,, reptans	0	6
,, grandiflora ..	0	6
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,, bicolor, &c. ..	0	6
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,, Dicksonii, &c.	0	6
Lagurus ovatus (Hare's-tail Grass)	0	6
Linum perenne	0	6
Liatris spicata	0	6
Lychnis fulgens ..	1	0
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Mimulus, from fine named sorts	1	0
Œnothera Sellowii ..	0	6
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Orobus purpureus, new	1	0
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,, Walcheren .. ,,	1	6
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RURAL CHEMISTRY: AN ELEMENTARY INTRODUCTION TO THE STUDY OF THE SCIENCE IN ITS RELATION TO AGRICULTURE.

By EDWARD SOLLY, F.R.S., F.L.S., F.G.S., HON. MEMB. ROY. AGR. SOC ENG.,
Professor of Chemistry to the Horticultural Society of London, Lecturer on Chemistry in the Hon E I Co 's Military Seminary at Addiscombe, &c &c

SECOND EDITION, REVISED AND ENLARGED.

PREFACE TO THE SECOND EDITION

In preparing a Second Edition of this little book, the opportunity has been taken of correcting several errors which the First Edition contained The whole has been carefully revised, and such additions have throughout been made, as the advanced state of knowledge rendered necessary In particular, the Tables of Analyses have been greatly extended, by the addition of the latest and most complete Analyses of almost all those plants which are cultivated as crops, as well as of the principal substances employed as manure —April 20, 1846

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5 Upper Wellington-street, Covent-garden

CURTISS BUDDING KNIFE.—"This is the neatest Budding Knife we have seen the ivory handle is shaped like the blade of a curved Penknife sharp and turned up at the point and is evidently extremely well contrived for the purpose it is intended —Opinion of Professor LINDLEY in the *Gardeners' Chronicle* July 25, 1846

GEORGE PLUM Surgical Instrument Maker and Cutler, No. 202 Strand London and at No 4, Dolphin street, Bristol, begs to call the attention of the public to the above desirable article. Sent free to any part of the kingdom, on receipt of 98 penny postage stamps or a post office order for 8s 2d

G P cautions Horticulturists and the public in general against numerous imitations of the above article, he being the only appointed Manufacturer

CURTIS'S ROSE BUDDING KNIFE.—"This is the neatest Budding-knife we have seen The ivory handle is shaped like the blad of a curved penknife sharp and turned up at the point and is evidently extremely well contrived for the purpose it is intended "—*Opinion of* Prof LINDLEY, *in the "Gardeners' Chronicle July* 29, 1843

GEORGE BARNES, Pruning and Budding knife Maker (warranted good) 68, Campo lane, Sheffield begs to call the attention of the public to the above new and desirable article manufactured by him Sent free to any part of the Kingdom on receipt of a Post-office Order for 2s 6d

The above Budding knife, improved with the sharp end of the Ivory to fold into the handle, being more compact for the pocket, and more safe and convenient to use, will be sent free on receipt of a post-office order for 3s , and for 4s 6d , one of G B 's newly invented Budding knives, with the Ivory end to slide out of or into the handle with the opening or shutting of the blade

Sold by most of the Nursery and Seedsmen in London and vicinity, at the retail price, with G B 's other Pruning, Budding, and Grafting Knives.

SEEDS.—CORNER OF HALF-MOON-STREET,
THOMAS GIBBS and CO,
(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"
Beg to remind the Members of the Society and Agriculturists in general that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.
Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FLOWER POTS AND GARDEN SEATS

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street near Hyde-park.

FOREIGN AND BRITISH SHEET AND CROWN GLASS for Horticultural and general purposes to be had in boxes as imported, from 3½d to 5½d per foot Glass Pantiles 13 6d per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours Brushes &c, of the best description, at lowest prices, at F. ELPRICK'S, 28, Castle-street East, Oxford-street

*** For Ready Money only.

BRITISH AND FOREIGN SHEET AND HORTICULTURAL GLASS.

PHILLIPS AND WELCH have to announce to the Nobility and Gentry, that they have just concluded arrangements with J WELCH, jun, PHILLIPS and Co, for the purchase of the business lately carried on by them, at 12, Panton-street, and beg to call attention to their extremely low prices for Horticultural Glass of every description.

PRICES OF HORTICULTURAL GLASS

Not above 40 in long by widths from 5 in to 18 in.

No 14	British or Foreign sheet 14 oz. to the foot	.. ..	4d per foot.
,, 16	16 ,, ,,	.. ..	5d ,,
,, 21	21 ,, ,,	.. ..	7d. ,,
,, 26	26 ,, ,,	.. ..	11d ,,
,, 32	32 ,, ,,	.. ..	1s. 2d ,,

SMALL SQUARES

Packed in 100 feet Boxes, not particular to thickness

Under 5 in by 3 in.	.. ..	1½d per foot
5 by 3 and under 6 by 4 ,,	.. ..	2d. ,,
6 by 4 ,, 9 ,, 7 ,,	.. ..	3d. ,,

FOR GLAZING

Black Cement, as used at Chatsworth 24s per cwt.
Best Linseed Oil Putty .. .. 10s ,,
White Lead, Window Lead, Solder, &c &c

Horticultural Glazing Executed in any part of the United Kingdom

The selection of Patent Plate, Sheet, and flatted Crown Glass for Pictures, &c., particularly attended to —12, Panton street, Haymarket

BRITISH AND FOREIGN SHEET GLASS, for Horticultural purposes &c, may be had at JAMES BROMLEY'S 315 Oxford street, London at the following reduced prices —In crates containing about 200 feet of coarse 18 oz, at 4½d per foot of 4th quality, 5d per foot ditto, 16 oz, coarse 5½d per foot ditto ditto, 4th quality, 6d per foot Or cut to any size not exceeding 40 inches long by 10 inches wide, at ½d per foot extra

Also Microscopical Glass French Shades, Plate and Crown Window Glass A discount to the Trade

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents —This Cooking Apparatus is believed to possess greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship, in fact, the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel without destruction to the apparatus, and B and H can safely recommend it from experience, as unquestionably superior to anything of the kind hitherto made A Prospectus can be forwarded, upon application, detailing particulars and price at 180 Fleet street

STEPHENSON AND CO., 61, Gracechurch street, London, and 17, New Park street Southwark Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses &c, by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues S & Co have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced These Boilers, which are now so well known scarcely require description, but to those who have not seen them in operation prospectuses will be forwarded, as well as reference of the highest authority, or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom

S and Co beg to inform the trade that at their Manufactory in New Park street every article requisite for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms

Conservatories, &c of Iron or Wood, erected upon the most ornamental designs Balconies, Palisading, Field and Garden Fences, Wire Work, &c &c

HOT WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS DWELLING HOUSES, CHURCHES and MANUFACTORIES, upon improved principles, and at very moderate charges erected by DANIEL and EDWARD BAILEY, 272, HOLBORN

D and E BAILEY having devoted much time to the consideration of this subject and had much experience in the erection of apparatus for the above mentioned purposes have by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge They have erected apparatus in England, Scotland and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick

D. and E BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public to the inspection of their various drawings and models at 272, Holborn where they have the opportunity of exhibiting amongst other metal works an extremely complete and convenient kitchen apparatus or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public

D. and E BAILEY were the first to introduce metallic curvilinear houses to horticulturists and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent

D and E BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery they beg to introduce to public notice a new Trough Pipe for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory

TURNIP SOWING

THE URATE OF THE LONDON MANURE COMPANY, Four Guineas per Ton The experience of the last five years has fully established the above as one of the best of all the light manures for the production of Turnips, for which crop it is particularly adapted, seldom failing in the driest season to secure a good plant, and to produce a great weight per acre Availing themselves of the many improvements in the science of artificial manures, the Company so manufacture the Urate, that the food requisite for a rotation of crops is fully maintained, therefore parties using the Urate for Turnips will find their succeeding crops of Barley and seeds materially improved Full particulars, with testimonials, forwarded on application No 40, New Bridge-street, Blackfriars. EDWARD PURSER, Secretary

ORNAMENTAL TILES for Floors, Walls, &c, of Greenhouses, Conservatories, Garden Terraces, Encaustic, Venetian, &c, in EVERY VARIETY May be seen at Messrs PARKER and WYATT'S, Surrey-street, Blackfriars, London Agents to Messrs. MINTON & CO, the Patentees, of Stoke upon-Trent Also Patentees of the PORCELAIN BUTTONS, cheaper and more durable than Mother-o'-Pearl, &c

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS, ANTONY GIBBS AND SONS, LONDON, WM. JOSEPH MYERS AND CO., LIVERPOOL; And by their Agents, GIBBS, BRIGHT, AND CO, LIVERPOOL and BRISTOL; COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above named Importers, who will supply the article in any quantity at their fixed prices, delivering it from the Import Warehouses

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed, Garden, Ship and Barge Pumps, also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

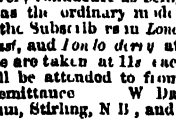
The Trade supplied on advantageous terms, by BENJAMIN FOWLER Engineer &c, 68 Dorset-street Fleet-street London.

TO OWNERS AND OCCUPIERS OF ESTATES

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton Draining Engineer to Her Majesty, at Osborne, Isle of Wight the inventor of a Patent Tile and Pipe Machine (applicable to making Bricks) also a new Machine for taking roots and stones out of clay both which are to be seen at the Royal Polytechnic Institution, Regent-street,— offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates P S —Land drained at a fixed sum per acre including every expense

PATENT VULCANIZED FLEXIBLE INDIA-RUBBER HOSE PIPE and TUBING for Gardeners Brewers Railway Companies Fire Engine Gas Fitters, Plumbers and for Agricultural and all other purposes where a perfectly flexible strong Pipe is required Sole Manufacturer, J J HANCOCK Goswell mews Goswell road London

CHEAP AND DURABLE ROOFING

BY HER  ROYAL LETTERS MAJESTY'S PATENT.

F. M'NEILL & CO, of Lamb's Buildings, Bunhill-row London the Manufacturers and only Patentees of THE ASPHALTED FELT FOR ROOFING Houses, Farm Buildings Shedding Workshops and for Garden purposes to protect Plants from Frost

At the Great National Agricultural Shows it is this Felt which has been exhibited and obtained the Prize and is the Felt patronized by

HER MAJESTY'S WOODS AND FORESTS
HONOURABLE BOARD OF ORDNANCE
HONOURABLE EAST INDIA COMPANY
HONOURABLE COMMISSIONERS OF CUSTOMS
HER MAJESTY'S ROYAL ISLE OF WIGHT
ROYAL BOTANIC GARDENS REGENTS PARK

And on the Estates of the Dukes of Sutherland Norfolk Rutland Newcastle Northumberland Buccleugh (at Richmond) the late Earl Spencer and most of the Nobility and Gentry, and *at the Royal Agricultural Society's Home Farm*

It is half the price of any other description of Roofing and effects a great saving of Timber in the construction of Roofs Made to any length by 32 inches wide

PRICE ONE PENNY PER SQUARE FOOT

*** Samples, with Directions for its Use and Testimonials of seven years experience with references to Noblemen Gentlemen Architects and Builders sent free to any part of the town or country and orders by post executed

The Public is respectfully cautioned that the only Works in Great Britain where the above Roofing is made, are F M'NEILL & CO'S Patent Felt Manufactory, Lamb's buildings Bunhill row London, where Roofs covered with the Felt may be seen, as also the new Vice Chancellor's Court and the Passages and Offices at the entrance to Westminster Hall and other buildings at the New Houses of Parliament done under the Surveyorship of Charles Barry, Esq R A

Note —Consumers sending direct to the Factory can be supplied in lengths best suited to their Roofs, so that they pay for no more than they require

ECONOMICAL, EFFECTUAL, AND DURABLE ROOFING

BY HER MAJESTY'S ROYAL LETTERS PATENT

CROGGON'S PATENT ASPHALTIC ROOFING FELT with which the Committee Rooms of the Houses of Parliament are entirely covered The above Material has been used and highly approved by the Nobility Gentry, and Agriculturists generally and Patronised by many Members of the Royal Agricultural Societies of England Scotland and Ireland and by Her Majesty's Office of Woods and Forests Charles Barry Esq R A &c &c has been used for several years at the Royal Horticultural Society's Garden at Chiswick, the Swiss Gardens, Shoreham Sussex, on the Duke of Buccleuch's and the Marquis of Anglesey's Property &c &c and (under slate) the Royal Agricultural Society's House Hanover square Its advantages are CHEAPNESS LIGHTNESS, DURABILITY and ECONOMY Being a Non Conductor, it has been proved an efficient 'Protective Material' to Plants

PRICE ONE PENNY PER SQUARE FOOT

Samples and Testimonials sent by Post on application to THOMAS JOHN CROGGON 8, Lawrence Pountney hill Cannon street London

EARLY HARVEST

DRUMMOND'S IMPROVED REAPING SCYTHES continue to give great satisfaction, and are recommended with every confidence as being cheaper, quicker and not so wasteful as the ordinary mode of mowing grain, are delivered free by the Subscribers in *London Hull Newcastle, Cork, Belfast,* and *London derry* at 11s 6d each, and when more than three are taken at 11s each

N B No order will be attended to from unknown correspondents without a remittance W DRUMMOND & SONS Agricultural Museum, Stirling, N B, and 58, Dawson-street Dublin —July, 1846

BARROWMAN'S PLOUGHS —Parties who were, owing to the great demand, disappointed in not getting these Ploughs last spring, are respectfully informed that a stock is now on hand, and orders can be executed forthwith

PHOSPHORIC RAT POISON —This preparation is offered to the Public with the greatest confidence being decidedly superior to all those poisons containing arsenic and other minerals It is most greedily eaten by rats and mice as long as it is offered to them, and invariably proves certain destruction Prepared only by EDWARD PURSER 40, Bridge street, Blackfriars, London Sold in pots, with full directions for use, at 4s, 8s, and 20s. each.

INCREASE OF PREMIUMS TO £300, which is offered this year by the YORKSHIRE AGRICULTURAL SOCIETY, at its NINTH GREAT ANNUAL MEETING at WAKEFIELD, on THURSDAY, 6th of AUGUST next.

LORD WENLOCK, *President.*

Vice-Presidents.

Earl Fitzwilliam	Earl of Harewood.
Earl of Tyrconnell	Lord Wharncliffe
Richard Bethel, Esq	Viscount Morpeth.

EIGHT HUNDRED POUNDS will be offered as prizes for Stock, Implements, Farms, Essays Poultry, &c.

The entry Closes on THURSDAY, the 23rd of JULY Prize Sheets and Forms may be had free, on application to the Secretary

No charge is made to Members of the Society for exhibiting, nor to any party for exhibiting Implements and Poultry.

For Implements 200*l* is offered in Medals and Money, to be decided after *actual trial*

Reduced charges will be made by the Railways, on the Manchester and Leeds Railway, articles for the Show will be conveyed free

For the convenience of persons who may prefer to deliver their entries personally, Mr JOHN WATSON, of 1, Clarence-street, York, and W BARRAT St John's, Wakefield, will also receive them and transmit them to the Secretary but all entries made to them must be at least one day before the 23rd of JULY

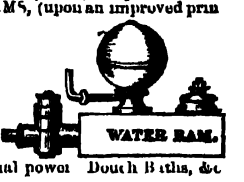
Programmes of the proceedings and particulars of the Exhibitions, Dinners Discussions, &c, will be ready by the 20th of July, and may be had on application to

MATTHEW M MILBURN, Secretary

Thorpfield Thirsk, July, 1846

ROYAL AGRICULTURAL SOCIETY OF ENGLAND

From an accidental circumstance LILLIMAN ROE is prevented from having a stand (this year) at the above Show, but he begs most respectfully to inform the nobility and gentry that he still continues to fix HYDRAULIC RAMS, (upon an improved principle) for raising Water where a a Fall can be obtained to the height of 300 feet The same Ram without the aid of a Tank or Cistern arranged to throw a Jet of Water constituting a Jet um with the head of water beneath



Also Engines for Deep Wells worked by steam horse or manual power Douch Baths, &c Buildings heated with hot water

Address, LILLIMAN ROE 70, Strand London

Estimates given for the supply of Towns &c

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DIRECTORS —JAMES SMITH Esq of Deanston, Queen-square, Westminster, *Chairman*
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JOHN CONNELL Esq 8 St James's Place
J W SUTHERLAND Esq Birdhurst Croydon
GEORGE WEBSTER Esq, Great George street Westminster.

The Directors in consequence of the numerous representations made to them by applicants for Machines and the difficulty the experience in collecting the Royalty have determined to abandon their claim for Royalty and sell the Machines at a fixed price without any Royalty

These Machines for which Prize Gold Medals were given by the Royal Irish Agricultural Society at their Meeting at Ballinasloe and by the Highland and Agricultural Society of Scotland at their Meeting at Dumfries, are of three sizes

PRICES—For Cash

1 A Hand Machine at the Office, including two moulds to make Single Tiles or Pipes 40*l*

2 A Hand Machine at the Office, to make two at once, including two moulds for Tiles or Pipes 60*l*

3 A Machine at the Office to be worked by horse or steam, including two moulds for Tiles or Pipes 100*l*

By these Machines, Draining Tiles and Pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented

A Machine may be seen at work at Alperton also at the Office 103A Piccadilly London at the Polytechnic Institution Regent street London at Mr STUART'S Curator of the Highland Society of Scotland and at Mr LAURENCE HILL'S, 141 Buchanan-street Glasgow

All Letters and Applications for further information to be made to the undersigned

JOHN PATON Secretary, at the Office 103A, Piccadilly

*** Country Agents wanted

MESSRS. NESBIT'S CLASSICAL, COMMERCIAL MATHEMATICAL & SCIENTIFIC ACADEMY AND AGRICULTURAL TRAINING SCHOOL, KENNINGTON-LANE, LAMBETH, NEAR LONDON

'For my own part I do not scruple to avow the conviction that, ere long, a knowledge of the principal truths of chemistry will be expected in every educated man, and that it will be as necessary to the statesman and political economist, and practical agriculturist as it is already indispensable to the physician and the manufacturer" *Liebig*

In this School in addition to the general routine studies, which include the Classics, Mathematics and French and German Languages every facility is afforded for the acquisition of a sound knowledge of Chemistry The pupils are practically taught in the Laboratories, which are fitted up with forges, furnaces, sand baths, and everything essential for the most extensive chemical investigations

Astronomy, Geology Botany Electricity, Optics, and the other departments of Natural Philosophy, are also sedulously cultivated, and their principles clearly elucidated and explained Eminent Professors of the Metropolis lecture regularly to the pupils on subjects of literary and scientific interest

The students have likewise access to a large and well assorted Library, comprising the most recent works on science and literature to a valuable collection of Minerals and Geological specimens from various parts of the globe, and to an extensive suite of Mathematical and Philosophical Instruments

The Terms of the School, with further particulars, may be had on application either personally or by letter

Mr NESBIT'S Works on Land Surveying, Mensuration, Gauging Arithmetic, English Parsing, Education, &c. &c, may be had of all booksellers.

REFERENCES — Dr D B REID, F R S E, &c, Author of 'Elements of Practical Chemistry" "Theory and Practice of Ventilation," &c, Houses of Parliament Westminster, G. F. RICHARDSON, Esq, F G S, Author of 'Geology for Beginners," &c, British Museum London W and J GLASS, Esqrs Civil Engineers, 1, Queen's square-place St James's-park, London and J. GARDNER, Esq, M D, Author of "The Great Physician," &c, Editor of 'Liebig's Letters," Secretary to the "College of Chemistry," Hanover-square, London.

BECK'S SEEDLING PELARGONIUMS OF 1844 AND 1845.

A Descriptive Catalogue of the above, with directions for their cultivation, may be had in exchange for 4 postage-stamps.
Worton Cottage, Isleworth.

The Gardeners' Chronicle.

SATURDAY, JULY 18, 1846.

MEETINGS FOR THE FOLLOWING WEEK.

WEDNESDAY, July 22—Royal South London . . . 1 P.M. COUNTRY SHOW.

FRIDAY, July 24—Stamford Hill Horticultural.

By us who have had such long experience of HORTICULTURAL EXHIBITIONS, that held in July, although in the Garden of the Horticultural Society of London, is always expected without a hope of its rivalling its predecessors. In general the stores of gardeners are previously exhausted, the season becomes their master, the desire of competition flags, losers will contend no longer, and winners are satisfied with their laurels. People are therefore assembled in July for the pleasure of the meeting; and the exhibition of flowers and fruit is a subordinate consideration.

But on Saturday last there was no such disappointment; on the contrary, while some parts of the show were equal to the best of their predecessors—as the Orchids, for example—others much exceeded them. If the Pelargoniums were gone, the Cacti bloomless, and the possessors of "large collections of stove and greenhouse plants" driven off by the hopelessness of contending with Mrs. LAWRENCE, the losses were replaced by most beautiful single specimens, by Heaths which become finer as they are scarcer, and by a noble display of fruit. No one could have seen without admiration the plant of Aerides odoratum, from Mr. HOLFORD'S garden, with 27 bunches of sweetest spotless flowers, or a proliferous Phænocoma from Mrs. LAWRENCE, or, most especially, two extraordinary masses covered with blossoms of the scarlet Chinese Renanthera, from Mr FALCONER, which all can grow, but none can flower save himself. Even oriental self-possession was not proof against the magnificence of these specimens when they met the eye of the PACHA of Egypt.

Several new plants of considerable interest were produced. The finest was a new Ixora, with rich salmon-coloured flowers, from Mr. VEITCH. There came a deep rose-coloured Bolivian Echinopsis or Echinocactus, looking like E. Eyriesii dipped in claret; this was furnished by Mr. SCHEER, of Kew Mr. VEITCH also exhibited a new and very distinct Æschynanthus, and a Cuphea called cordata, which promises to be a favourite greenhouse plant; its flowers each bear a pair of scarlet banners, and produce a novel as well as agreeable effect

The fruit formed a fine feature in this exhibition, as may be seen from the detailed account of the weights of the Pines, which we give in another column. And it was universally ripe. Some interest was raised early in the morning among the exhibitors by a basket of Peaches, brought about 30 miles by hand on the surface of a bed of Vine leaves, which were so much damaged as to be unfit for exhibition. Half-a-dozen of them were left for the inspection of the judges, in order to prove the impossibility of sending absolutely ripe fruit from a distance, and we have been favoured by Mr. OWEN, one of the judges, with the following memorandum concerning them:—

"The bruised Peaches which were laid before the judges at Chiswick on Saturday last, with the view of showing that when such fruit is perfectly ripe it cannot travel without injury, were examined by the whole of us present, and we were unanimously of opinion that they had been damaged solely by bad packing, and that if due care had been taken in that respect, they might have arrived uninjured. I have on many occasions sent thoroughly ripe Peaches to different parts of Scotland, and to Paris, which were always received in good condition; but perhaps the most conclusive answer will be found in the simple fact that a great part of the Peaches which had travelled and were exhibited for competition on Saturday last in a perfect state were riper than the bruised ones in question."

We have already alluded to the beauty of the single specimens. They were, indeed, admirable. We fear, however, that some of their owners will have been disappointed at the result of the award; for they were injudicious enough to show them in a wrong class. Those who did so were, of course, disqualified, and thus were several medals lost to them. Some of the persons thus deprived of what they would have otherwise gained appear to be discontented. We will only ask them whether a man would be entitled to a prize for Melons if he showed them as Carnations?

Those hypochondriacs who protest that we English are utterly unsuited to getting up out-of-doors *fêtes*, and that although our nature were better, our "detestable climate" would, in itself, render such attempts ridiculous, will, perhaps, be surprized at the following statement concerning all the meetings in the Horticultural Garden since they were converted from dear breakfasts into cheap promenades:—

STATE OF THE WEATHER IN THE HORTICULTURAL SOCIETY'S GARDEN ON THE DAYS OF EXHIBITION, WITH THE NUMBER OF VISITORS ON EACH OCCASION

Date.	Morning.	Noon.	Max Temp. in shade.	Wind.	Visitors.
			°		
1837					
Sat., May 25	Very fine.	Very fine.	82	Little, S. W	1700
Do., June 22	Fine.	Cloudy.	72	Brisk, S W	2000
Do., July 20	Fine.	Cloudy.	70	Little, W.	1200
					4900
1834					
Sat., May 10	Fine.	Fine.	78	Little, S. W	1402
Do, June 7	Very fine.	Very fine	78	Little, S E.	2870
Do., July 5	Overcast.	Very fine.	81	Little, N E.	3076
Do., Sept. 18	Fine.	Very fine.	68	Little, E.	897
					8245
1835					
Sat., May 9	Fine.	Fine.	71	Brisk, S W	1908
Do, June 6	Fine.	Fine	81	Brisk, N E	5982
Do., July 4	Very fine	Very fine.	78	Little, W.	5012
					12882
1836					
Sat., May 14	Very fine	Very fine.	72	Little, N W.	1480
Do, June 11	*Slight rain.*	Fine	78	Brisk S	7704
Do., July 9	Overcast.	Very fine.	79	Brisk, W.	6088
					17[illegible]2
1837					
Sat, May 13	Fine.	Cloudy.	58	Little, S	750
Do, June 10	Cloudy	Cldy & fine	68	Strong S.	8785
Tues, Jly 11	Very fine.	Very fine.	76	Brisk, E	6461
					15998
1838					
Sat, May 26	Overcast	Fine	64	Brisk, N E	2966
Do, June 16	*Drizzly*	Overcast, fine	70	Little S	6105
Wed, Jly 11	Very fine.	Very fine.	80	Little, S. W	6946
					15017
1839					
Sat, May 18	Very fine	Fine	64	Brisk, S W	3044
Do, June 15	Slight haze	Slight haze	68	Little, N E	8789
Do, July 6	Slight haze	Sultry	76	Little, S. W	5781
					17614
1840					
Sat, May 16	Cloudy.	*Hail,—showery*	65	Brisk, S W	2171
Do, June 13	Cldy & fine	Cloudy and very fine	77	Little, W	11594
Do, July 4	Very fine.	Fine.	72	Brisk, W.	8072
					19137
1841					
Sat, May 15	Fine	Very fine	74	Little W	5700
Do, June 12	Overcast—*slight rain*	Ovcst & fine	63	Little, N E	9080
Do., July 10	Very fine.	Very fine.	71	Little, S W	7194
					21974
1842					
Sat, May 14	Slight haze	Exceedingly fine	72	Little, W.	5500
Do., June 11	Very fine.	Sultry, hot, and dry	89	Little, N E.	13582
Do, July 9	Overcast	Cloudy and fine, *slight rain* in afternoon	72	Brisk, W	3500
					22582
1843					
Sat, May 13	Overcast,—with cold haze	Fine, with light clouds.	66	Little, W.	4818
Do., June 17	Clear early, overcast	Very fine, with light clouds	75	Brisk, N E	11061
Wed., Jly. 12	Hazy.	Lightlyovercast, but very fine.	77	Little, N W	7568
					23450
1844					
Sat, May 18	Slight frost, with cold N E wind	Boisterous with slight showers.	54	Strong N E	4203
Sat, June 15	Very fine	Very fine	78	Brisk W	11384
Sat., July 13	Very fine	Rain	71	Brisk, S W	4062
Wed., Jly. 31	Cloudy, with brisk wind.	Cloudy and fine.	72	Brisk, W.	3267
					22966
1845					
Sat, May 24	Hazy clouds	Cloudy.	61	Little, W.	3481
Sat, June 21	Very fine, with light clouds.	Exceedingly fine	80	Little, E.	12355
Sat, July 12	Fine.	Fine, partially clouded	64	Brisk, N.W	5963
					21799
1846					
Sat., May 9	Fine.	Very fine.	72	Brisk, S W	4858
Sat., June 13	Fine	Hot and dry	86	Brisk, N E	13421
Sat., July 11	Partially overcast.	Very fine, with light clouds.	70	Little, W	6083
					24362

*** In all cases exclusive of supernumeraries, who average 270 per diem.

This, we think, sufficiently shows that London is not as rainy as Fellfoot, Kendal, or Keswick; and we submit that the dampness of cloudy England is no bad exchange for the heat and dust of sunny Italy or France.

In addition to the attraction of the exhibition, and the charming condition of the Duke of DEVONSHIRE'S grounds at Chiswick, to which the throng had, by his Grace's kindness, access, the weather was delightful, the music abundant, and the visitors gay and happy. The band of the Blues, too, remained for an hour longer than usual, to the great contentment of those who lingered in this scene of pleasure.

We find from the official returns that the number of visitors and their friends who passed the gates was 6083.

We are authorised to state that IN ONE FORTNIGHT from this time the Exhibition Committee will proceed to consider what alterations should be made in the Schedule of Prizes, and that all suggestions made *in writing* to the Vice-Secretary, 21, Regent-street, will then be brought under their notice.

WHEN an ACORN is committed to the earth and grows, its first season is occupied in sending down into the earth a long tough process, or tap root, by which it feeds and fixes itself in the ground. But this centre is not well suited for feeding the young stem and leaves, and accordingly a crop of fine fibrous roots gradually appears near the surface of the ground, and assists in the operation of nutrition. Experience shows that the rate of growth is in proportion to the number of the fibres. The nurserymen knowing this, invariably shorten the tap root of their young Oaks when they transplant them, in order to secure a more abundant supply of fibres, and a corresponding increase of vigour; and they believe that they succeed. We however are not entirely prepared to admit the conclusion; for it is not clear to us that more mischief is not done by severing the tap root than is gained by the formation of fibres. What is wanted is to increase the fibres without destroying the tap root.

This object is said to have been accomplished by the Rev. Mr. VAUGHAN, who, as we learn by a letter from Dr. WINN, of Truro, has for many years paid attention to the cultivation of the Oak. This gentleman believes that he has discovered a method by which he can greatly accelerate its growth. His plan is to divide the tap root under-ground by means of a sharp spade. This is done at an early period, and when the time arrives for transplanting, the root has thrown out a number of the vigorous fibres which hasten the growth of the tree, as we have already stated. Mr VAUGHAN considers that by this plan "he gains a march of 12 years in the growth of the plant."

The essential difference between Mr. VAUGHAN'S and the ordinary method is this; Mr. VAUGHAN divides the tap root *in situ* with a sharp instrument about 7 inches below the surface, whereas the nurserymen take up the plant to divide the root, thus disturbing the fibres. About a year and a half after the division the young Oak is transplanted, when Mr. VAUGHAN states that there is an abundance of healthy fibres thrown off from the root, and that the plant when transplanted in this state grows with double energy. His calculation, that he gains a march of 12 years in the growth, is an estimate derived from a general comparison with other trees. He thinks that by this new method the Oak may be induced to grow as fast as other forest-trees.

We have no personal knowledge of the effect of this operation. But it is founded upon reason, and clearly deserves a trial. We would therefore invite those who are interested in foresting to make the experiment for themselves. This is a good time of year, and in a twelvemonth a result of some kind may be obtained.

WE have two novelties before us, which deserve to be noticed in a more formal manner than many of those which appear from time to time.

The first is BURROWS and THOMS' CHEMICAL GARDEN INK. This is a yellow fluid, with which and a common pen, writing may be indelibly fixed on zinc or other metals. The characters appear in a few moments of a jet black, and they are not liable to being affected by light or wet. It is, no doubt, the best thing of the kind that yet has been brought forward, and especially recommends itself for use in hothouses, or tropical countries where wood of all kinds perishes rapidly.

The second is a kind of BAST, lately imported from Cuba. It has a delicate and beautiful texture, of extraordinary toughness, and well suited for tying up plants, where neatness is an object. It is imported in thin strips, rends easily, like Russia matting, when torn lengthwise, and forms capital ligatures when twisted. It is the inner bark of some tree, but of what is unknown.

THE AMATEUR GARDENER.

ON PRESERVING BULBS, &c.—I have been reminded during the last week, that in a recent paper on the Ranunculus, I promised to give some directions for its safe preservation while out of the ground. The subject has been brought again under notice by my having discovered a serious loss among my own bulbs, especially Tulips. Of these, I had a very large quantity, especially a good collection of early ones, which having been left in the ground last year had increased very much. These had been dried gradually, and afterwards almost baked in the recent hot suns; they were

then put away in a dry shed, with Crocuses, &c. Having occasion to look at them a few days back, I found them a mass of mildew, and in some cases of rottenness. On having the good separated from the bad, I find I have sustained a loss of about one-third of my whole stock, which is the more vexing as I had neglected to distinguish the more valuable from the common flowers when they were in bloom. There can be little doubt that the very great moisture of the spring is the cause of this unwonted decay, and amateurs should watch their collections this season with more than ordinary care.

As far as my experience extends, bulbs generally keep well in the ground, especially Hyacinths, which when taken up manifest a strong tendency to decay, although they rarely fail of appearing again when let alone from season to season. Tulips and Crocuses are less subject to disease when dried and put away during the summer, but in the ground they never suffer at all. Why, then, is it considered indispensable to remove bulbs every year? Not for their safety, as every gardener knows, but for the maintenance of their good qualities. Tulips left in the ground for only one season, will deteriorate in their bloom the second year. But it is worthy inquiry why the flowers of bulbous plants lose their size and beauty, unless the roots are taken up every year. I cannot pretend to answer the question, which requires a physiological acquaintance with the structure and functions of bulbs, and an extensive collection of facts, but will merely throw out a suggestion, to which others may give a practical bearing. Is it not the division of the bulbs, the separation of the offsets, and the replanting into new soil which keeps up the quality of the flower? If so, and if being kept out of the ground some months has nothing to do with this effect, then the safest mode of treating bulbs will be to dig them up, divide, and replant them at once. This theory which has led to practical results in the case of the Potato may be equally applicable to Tulips and Hyacinths.

But supposing the system of harvesting is adopted, care must be taken that the foliage is fully decayed before the roots are raised, as this is the only certain proof that the bulb is at rest. Before this time the elaboration of juices is not complete, and the want of consolidation will expose its subject to premature decay. I know how much impatience is felt by persons who value neatness in their gardens, to remove the humble foliage which can no longer produce a flower, but the feeling must be checked if future success is an object. When the ground is wanted for other things, bulbs may be carefully removed with a spade to another spot, without disturbing the soil about them, and they may then mature themselves without being grudged time and opportunity for that important work. But at all events, they must be ripe. When this state is ascertained, let them be taken up and dried, first in the shade, and afterwards in the sun. The loose skins and roots should then be removed, and the collection may be stored away till the planting season. But remember the old proverb, "Out of sight, out of mind," and do not suffer it to be true of your bulbs. You may fancy the roots are fully dried, and think no further care is necessary; but some wet week in July or August you may find them exhaling moisture, and requiring diligent attention. To prevent this, let them be spread thinly in their depositories, and have plenty of air.

The Ranunculus cannot be left in the ground without injury to the root and the future bloom, and its drying is an important part of the florist's duty. The object should be to secure a plumpness of the fangs of the root, and at the same time sufficient dryness to resist mildew. If Ranunculuses are exposed to the air too much when first taken up, they shrivel and perish during the summer from atrophy. They must be dried very gradually, and then put away in drawers, each kind being enclosed in a little paper bag. Some recommend their being kept in sand, but there is danger in this; if the sand acquires moisture, the roots will soon be injured. Having tried both plans, I have found the former decidedly the best.—*H. B.*

ON THE ORGANIC COMPOUNDS WHICH CONSTITUTE THE NUTRITIVE PORTIONS OF THE POTATO.

By the Rev. Prof. Henslow.

(*Continued from p.* 461.)

Having shown you the conditions under which starch occurs in plants, I next pass to a review of its chemical composition and other characters. In composition it bears a close relation, as I have already stated, to certain other substances, from which, however, it differs very materially in sensible qualities. To prepare you for what I have to explain on this subject, I shall say a few words upon the chemical constituents which enter most largely into vegetable compounds. The three elements which enter most largely into the structure of vegetables are carbon, oxygen, and hydrogen. The delicate membrane which forms the basis of all vegetable tissues, when thoroughly cleansed of adhering matters, is a combination of these three elements. I must presume that you have a general knowledge of what chemical combination means, when I state to you that some of the most trustworthy among recent analyses of vegetable membrane show it to be composed of six equivalents of carbon, five equivalents of oxygen, and five of hydrogen. If we were to double these numbers, it would be equally correct to say that twelve equivalents of carbon were united with ten of oxygen and ten of hydrogen. Or if we trebled them, we might say that 18 equivalents of carbon were united with 15 of oxygen and 15 of hydrogen, and so on. Now, for reasons upon which I have no intention to enlarge, but which have reference to the results that may be obtained from the decomposition of organic bodies, and the recomposition of their elements into a variety of distinct substances, chemists prepare "symbols" or "formulæ" by which they often express these organic substances in higher numbers than the lowest which might be taken to express the proportions in which their elements are united. They are not accustomed to do this when they wish to express in a symbol the composition of an inorganic substance. Thus, for instance, they would say of water that it was composed of one equivalent of oxygen and one of hydrogen, and not of two equivalents of those elements, though the proportions between them would still be the same; but they do not scruple saying of an organic product, as Grape sugar, that it may be composed of 12 equivalents of carbon, oxygen, and hydrogen respectively, though it must be evident that one equivalent of each would represent the proportion in which their combination is effected. Pray do not fancy that I am at all chemically mysterious in asking your attention to this symbolical mode of representing chemical combinations. There is, in reality, no more difficulty about our understanding the composition of bodies when this is represented to us after the manner in which I have now named to you the composition of vegetable membrane, and of water, than when their composition is presented in the form of symbols, such as $C_6\ O_5\ H_5$, or $C_{12}\ O_{10}\ H_{10}$, for the membrane, and O H for the water. All we have to recollect is, that the letters in these symbols represent the elements, and the figures placed to the right hand of each letter represent the number of their equivalents which enter into combination. Where there is no figure, as in the case of the water, the equivalent is supposed to be a unit. Some chemists write these figures above, as thus, $C^{12}\ O^{10}\ H^{10}$, and others below, as thus, $C_{12}\ O_{10}\ H_{10}$. Since this method of representing the composition of all substances is universally adopted, it is absolutely necessary for those who are desirous of obtaining definite views upon these subjects, to master the use of these symbols, which any one may do by a few minutes' consideration. I shall take another example or two of substances connected with our present subject, by way of further illustration.

Carbonic acid is composed, by weight, of eight parts oxygen and three parts carbon. As the equivalents of oxygen and carbon are as eight to six, the composition of carbonic acid will be really two equivalents of oxygen and one of carbon; and this may be represented by $O_2\ C$, which is consequently the equivalent for carbonic acid. Again, alcohol consists, by weight, of twelve parts carbon, eight parts oxygen, and three parts hydrogen. But as the equivalents for those three elements are respectively as 6, 8, and 1, the composition of alcohol will really be two equivalents of carbon, one of oxygen, and three of hydrogen, represented by $C_2\ O\ H_3$. Now, carbonic acid might be stated at four times the number of equivalents, viz., at $C_4\ O_8$, and alcohol at four times the number of equivalents, or at $C_8\ O_4\ H_{12}$. If we added these last forms together the result would be $C_{12}\ O_{12}\ H_{12}$, which is the symbol for Grape sugar.

The accurate determination of these symbols requires the greatest refinements in chemical analyses, and as yet different chemists vary in the numbers they assign as equivalents to the elements in chemical union in many organic compounds. Still, they are sufficiently agreed to enable us to feel confident that they are somewhere near the truth; and as I am now only selecting examples by way of illustrating their meaning, and not for the sake of deciding their differences, I shall not pretend to inquire into their respective merits. I will merely mention that since Liebig, in his "Organic Chemistry," differs from Johnston, in his "Agricultural Chemistry," respecting the composition of the different kinds of sugar to which we shall presently have to refer, I shall not hesitate about making use of such symbols as may seem to me best suited for the purpose I have in view, without pretending to inquire which may be most likely to be nearest the truth. After this little digression concerning the method of representing the chemical compositions of bodies, I trust there will be no difficulty in your understanding the manner in which certain changes may be supposed to take place in the two organic substances contained in the Potato, to which I am chiefly desirous of directing your attention. I have said that vegetable membrane is composed of $C_{12}\ O_{10}\ H_{10}$. Some analyses seem to show us that the membrane which enters into the formation of the vascular tissue of plants differs from that which composes their cellular tissue. But really, the extreme difficulty there must be in successfully freeing such membrane from all extraneous matter, may well incline us to doubt whether chemists are sufficiently authorised, as yet, in supposing that there is more than one kind of vegetable membrane. The composition of the other kind (as it has been considered to be), has been stated at $C_{12}\ O_8\ H_8$, or of two equivalents less of oxygen and hydrogen (which we have seen to be the same thing as two equivalents of water), than in the other case. Now, botanists have observed that one kind of vegetable tissue passes into the other kind, by successive modifications in the forms assumed by the little bladders; and therefore I think that they will not hastily be inclined to believe that there is any real difference between the chemical compositions of the membranes which form various cells and tubes respectively, until such an opinion shall have been verified by far more numerous analyses than at present exist. But whether it be so or not, we see (after all) that there is very little difference in their composition, and as the point we have to consider relates to the manner in which starch may be supposed to contribute to the increase and development of the tissues of plants, so slight a difference will not affect our conclusions. Starch we find to be composed of the same three elements as vegetable membrane, and apparently in the very same proportion as they exist in it, viz., $C_{12}\ O_{10}\ H_{10}$. Hence we may suppose that starch is a substance organized expressly to supply matter for the further development of the plants which have prepared it. It is indeed a question whether it is anything else than a peculiar form of membrane, or rather of cellular tissue; but without stopping to review this notion, we will consider starch in that light in which it most prominently presents itself, viz., as a material prepared by plants to be subsequently appropriated to their own development.

(*To be continued*).

PINE-APPLES

EXHIBITED

IN THE GARDEN OF THE HORTICULTURAL SOCIETY,

July 11th, 1846.

Name of Exhibitor.	Variety of Pine.	Weight when placed on the Table. lbs.	oz.
Mr. Fleming	Queen	4	15
— Wilmot	Moscow Queen	4	14½
— Brewin	Queen	4	14
— Elphinstone	Ripley Queen	4	12
— Frazer	Queen	4	6
— Bray	Ditto	4	5½
— Hewitt	Ditto	4	3½
— Fleming	Ditto	3	15
— Death	Ditto	3	14
Braid	Ditto	3	12
— Spencer	Ripley Queen	3	10
— Bennet	Queen	3	2
— Dods	Globe	3	0
— Davies	Queen	2	15
— Ayres	Ditto	2	11
— Browne	Providence	8	13
— Collinson	Ditto	8	10½
— Bellon	Ditto	8	8
— Dods	Ditto	8	5½
— Christie	Ditto	7	10½
— Spencer	Ditto	7	6
— Thompson	Ditto	6	2½
— M'Ewen	Ditto	6	1½
Baggs	Enville	4	2½

The total number of Pine-apples exhibited was 60, of which 35 were weighed; judging from the appearance of those not weighed, as they stood side by side with those that were, the total weight may be estimated at 272 lbs; and when they were first cut the weight must have been considerably greater.—*R. T.*

Home Correspondence.

Fruit-tree Borders.—Not having noticed the query propounded for discussion, whether it is necessary to rob a pasture of its surface in order to make a good fruit-tree border, I should most likely, had it attracted my notice, answered decidedly in the negative. I will first relate what I have done, and then let your readers come to what conclusion they please; but robbing pastures is certainly a non-essential. Having a lot of worn-out trees, Peaches, Nectarines, Apricots, Cherries, &c., occupying a considerable length of wall, I some years since had the old soil removed from 20 inches to 2 ft. deep, retaining about 6 or 7 inches of the surface-soil. The bottom being stiff clay, I gave it a gentle slope toward a tile-drain along the front edge of 12 feet from the wall. I then procured a sufficiency of what I may call virgin-loam (having never been cultivated), from a heathy waste, and mixed the retained surface-mould with it in sufficient quantity to fill up my borders. I may add, the new materials were rough sods hacked up a little in mixing. The result is, my trees are now luxuriant, clean, and full of fruit. I should have said they were planted young when the borders were renewed—some 7, 6, and 5 years since, for it was too much to do at once. Though I consider robbing a pasture quite unnecessary, yet fresh soil is next to essential. It need not be so very rich, if only of a kindly nature. But after all there are other causes for trees contracting disease and death beside worn-out or ungenial borders. One is the usage they undergo in these borders, dug and cropped continually, and no root suffered within spade-reach of the surface; and then the unnatural training (however artificially neat); main branches and stems roasted against a wall, deprived of the natural shade a natural head would afford, &c, &c.; and after all this, we wonder and bawl out, "how it can be! our trees do not grow kindly and bear abundantly after all our trouble and expense." Trouble and expense, indeed!! why is it common sense to expect trees to be, and continue to be, thriving and fruitful under such circumstances? But this is not all: the poor borders, I fear, are not always justly blamed. I know an instance of a garden, otherwise a good one, where for years a Peach or Nectarine tree would not live; the walls are old. Some few years since (I think not more than four or five), the gardener had a notion that not the borders, but the walls were to blame. Consequently he took measures to have one wall plastered thickly; the result is, that these fruits grow on it now with the greatest luxuriance; and what was very remarkable, a young tree happened to have been planted where the plaster terminated. One side trained on the new plaster grew luxuriantly, while that on the old bricks made no progress whatever—in fact it would

not grow. I state this merely as a fact which has fallen under my own notice; as to the cause, I own I can form no conjecture, but would be gratified with the opinion of your readers on the subject.—*Quercus.*

The Vestiges.—A vehement private letter from a gentleman has called my attention to an article in your Paper of the 11th inst., which had not attracted it, and in which the writer has stated, that "The Dean of Manchester has created new Narcissi." Most of your readers will understand that the writer used the expression figuratively, and that you did not mean to attribute to me any real creative powers or pretensions; but the writer has introduced the words in a review of a book, which contains not only a multitude of errors, but much very objectionable doctrine; and, amongst other things, expresses a reliance on Mr. Crosse's asserted creation of new animalcula from inanimate matter; and the injudicious expression in this review has raised the indignation of a gentleman who (it seems) demonstrated the fallacy of Mr. Crosse's pretensions, and now fancies that some similar mystification is attributed to me. It certainly surprises me, that any sensible man should not have clearly seen that nothing of the sort is attributed to me. Dr. Hill asserted, that by supplying a Holly abundantly with salt and lime, its seeds would be constrained to produce plants with variegated leaves. If the assertion be true, the person who shall so compel the production of plants with variable leaves, is no more its creator, than he who by cultivation obtained double scarlet Dahlias in the process of generations, instead of the dingy single wild flower of Mexico. It is, however, necessary to be very cautious not to use loose expressions on such subjects, which may become a stumbling-block to persons who have not a clear understanding of the subject, and whose minds are clouded by prejudice. I have not read the "explanations" of the author of the "Vestiges," &c. There was much reprehensible matter, mixed with much shrewdness and truth, in the original work; but I beg to wash my hands of all connection with it. At the same time, although the asserted production of new animalcula in the course of some experiments by Mr. Crosse proved to be fallacious and untrue, I must deny that there was anything atheistical in the substance of the assertion as I understand it. It was not said that a man could create an animalcule according to his own will; but that when he blended certain substances together, animalcules previously unknown made their appearance according to God's will. The experimenter would be no more the creator of the animalcula, than the priest who married a couple of human beings would be the creator of their first-born. It is stated in an old book called the "Gentlemen's Recreations," that if you tie two sods face to face together and throw them into a pond, it will stock it with eels. This is very absurd, and about as true as Mr. Crosse's way of making animalcules; but the propagator of that foolish tale had no thought of arrogating the power of creating eels. We know nothing of the mode in which Almighty God originally created either inert, or vegetable, or animal bodies, nor of the manner in which He is at all times creating the individuals that arise by generative reproduction, and we probably never shall acquire any insight into that mystery; but of this we may all rest satisfied, that whatever insight we may acquire into the wonderful ways of Almighty God by His bountiful permission, will be granted by him for ultimate good; and that, if He should ever allow mankind to understand more than is now known of the manner in which He unites soul and body in one being, it will be good for us to know it. My own belief is, that He will never give the least glimpse of that secret to living man. A man makes wine from the juice of the Grape. He exposes it to a certain temperature, and it becomes vinegar; and thereupon he finds certain minute eels in it discoverable by a microscope, which would not have existed if he had drunk the wine and not made vinegar of it. The man who makes the vinegar does not pretend to be the creator of the minute eels. He is, I hope, like myself, a devout Christian, and acknowledges the wonderful power and wisdom of Almighty God, whose will can replenish the things which seem most unfit for habitation with an infinity of living beings too small to be discovered by the natural sight of man. With regard to the Narcissi which I am said to have created, I have created them so far only as the farmer who manures his field creates the additional grains of Wheat in each ear that it produces, and the improved varieties that spring from them; excepting that such like grains of Wheat have been seen before, and such Narcissi in some cases have not, because the same experiments had not been made. I brought together two Narcissi of different aspect, and the produce is a plant of a third aspect, and whoever does the same thing will obtain a like result; not that we are creators, but because such is the will and disposition of Almighty God, which I have brought to light to the glory of his holy name, and not in presumptuous arrogance of his might. The fact I believe to be that in vegetable and even animal life, the types originally created were very much fewer than the forms now existing, which have been called species by human wisdom; and that the variations which have branched out since the creation in the various kinds are in some cases now capable of easy intermixture, in some cases reunite with difficulty, and in others have departed so widely from each other, that they cannot be reciprocally fertilised. Many bulbous roots, that have been increased during a long succession of years by offsets, become absolutely incapable of bearing seed; and it is not more strange that plants, which in different soils and climates have diverged from the original form of the first created individual, should refuse to bear seed by the one which has departed most widely, and yet produce it readily by another, which still agrees with it in some most important points. By approaching them, we give those which God permits to intermix an opportunity of so doing, and in this we do all to the glory of the Almighty, as well as to the solace and gratification of mankind; and, by observing which can, and which cannot intermix, we obtain some clue to correct the erroneous divisions which the imperfect science of man has established, of things which were not created separate by the Allwise.—*W. Herbert, Spofforth, July* 15. [We are much concerned to find that our learned and highly valued correspondent should have become the object of attack from some wrong-headed person. But, alas! such is the inevitable fate of eminent men. No one of sound mind can have read the review in question and supposed that the expression in question can have been used in an irreverent or infidel sense.]

Large Araucaria imbricata at Dropmore.—The following is the height and dimensions of the finest specimen we have of this noble tree, which is supposed to be the largest in Europe:—height, 22 feet 6 inches; diameter of branches near the ground, 10 feet 6 inches; 4 feet from the ground, 12 feet; 10 feet from ditto, 10 feet; 14 feet from ditto, 8 feet 3 inches; girth of stem near the ground, 2 feet 10½ inches; 5 feet from ditto, 2 feet. September 1840, height, 14 feet—April 1844, 20 feet. The tree has made a rapid growth this season, and promises to get a foot higher or more before autumn; it is about 16 years old, and has never had the least protection; it stands in rather an exposed situation, on a raised mound, in which the tree delights. The soil is loam, with a small portion of very inferior peat, and the plant has never been watered even in the hottest seasons we have had. A wet subsoil is certain death to the Araucaria in very wet seasons. A plant here, from a cutting, made a leading shoot in the year 1833, and is now 19 feet 6 inches in height, and has every appearance of making a splendid tree.—*Philip Frost.*

Plant Cleaning.—Instead of smelling salts to wash flowering plants, why do you not recommend guano and quicklime, pounded together and dissolved? The mixture makes an excellent and cheap wash, and you would not know it from smelling salts. A small smelling bottle was filled with the above, freshly pounded, and presented to a lady, who pronounced it to be good Preston salts. The colour is exactly the same. The ants in the Cucumber and Melon frames do not like it, but the Cucumbers and Melons do very much. I have kept my succulents well dosed with the above mixture, and find the effect perfectly wonderful.—*A Constant Reader.*

Autumn-planting Potatoes.—The following Table shows the comparative results of autumn and spring-planted Potatoes. The variety with which the experiment was made, is the Sage-leaved Kidney—a kind much esteemed here (Isle of Thanet); the only fault being its smallness in dry summers. This objection may, however, be obviated by planting in autumn. All the three different plantings were taken up on the 24th of June:

When Planted.	Average number under a root	Average number fit for table under a root	Total number under six roots	Total number fit for table under six roots	Average weight under a root	Total weight under six roots.	Total weight under six roots fit for table.	Number of feet occupied by six roots in length.
Oct. 30, 1845..	16	11	97	65	12 oz	4 lb. 12 oz	4 lb. 4 oz	6 ft.
Jan. 30, 1846..	20	11	118	65	9 oz.	3 lb. 6 oz.	2 lb. 8 oz	6 ft.
Mar. 30, 1846..	23	9	137	51	6 oz.	2 lb. 4 oz.	1 lb. 6 oz.	6 ft.

The experiment was made with the view of ascertaining what advantage could be gained by early planting. The piece of ground being the open quarter of the garden.—*J. M.*

Gardeners.—Will you be kind enough to give the much-needed information on the following point, which will tend greatly to prevent the many disappointments with which gardeners meet who advertise for situations. If a lady or gentleman reply to an advertisement, desiring the advertiser to call at a given place on a given day and hour, it often happens that to accomplish this the advertiser is put to much expense. I know a case in which the advertiser had to go some 20 or 30 miles, and because he would not accept the place the gentleman did not consider himself obligated to pay any expenses. Now, it is very vexing to be called upon, as above, and after all to be told by the party that they are already suited. Such ungentlemanlike practices come hard, not only on real pretenders but on real gardeners; and your advice, as to whether advertisers are entitled to any remuneration for their trouble and expense, will greatly oblige many of your subscribers as well as—*An Old Reader.* [No general answer can be given to this. Each case will rest upon its own merits. We do not conceive that any law exists to enable a gardener to recover his expenses. No doubt many shabby things are done to gardeners as well as others. We should not ourselves choose to put a poor man to expense without reimbursing him.]

Bees.—My No. 3 hive swarmed on the 5th June, and the bees were hived, after they had twice changed their ground. On the 6th, the swarm returned to the stock. Supposing from this circumstance that they had lost their queen in the process of hiving, particularly as they had also been transferred from a straw hive to a box, I waited patiently for the proper interval to elapse ere a second swarm would issue, which took place on the 14th, after an interval of nine days; this confirmed me in the idea that the queen had been lost; but on the 24th June finding other means ineffectual to transfer the stock from whence these swarms issued to a box, I proceeded to stupify the bees, imagining that as the first swarm had come off on the 5th, almost if not quite all the brood left by the old queen would have left their cells. However, I was somewhat surprised to find three-fourths of the combs full of brood, and still more surprised to find two royal cells (out of six) occupied, one by a larva, and another by a princess, perfect in all her proportions, and apparently ready to leave her cell. I offered her to the parent stock in their new habitation (the box), but she was rejected, and in an hour or two found on the ground; I next offered her to the bees in my unicomb hive, fearing that in the very difficult task of locating these latter they might have lost their chief, but here, too, she was rejected, being found at the foot of the post in the morning, and she died in about an hour afterwards. A second live queen was found on the following day walking about the combs of the old hive, which had been removed to a room; as this lady had not recently come from a cell, I offered her to the parent stock, and, as I have not seen her since, imagine she has been accepted. If the first swarm (on the 5th) had not a queen with them, how came they to persist in swarming, though they were roughly treated sufficiently to induce them twice to shift their ground, and ultimately to fly nearly half a mile? And if they had the queen, how did it happen that she returned to her old hive on the following day (the 6th), and actually commenced laying eggs in the royal cells? For the young queen found on the 24th must have proceeded from an egg laid as late as the 8th June, and the larva of course later. I may mention that during the interval of nine days between the issue of the two swarms, the bees were in a state of great agitation; night or day it was difficult to approach them; particularly at night, they incessantly ran about the front of the hive and around it; and at an approaching footstep they were quite on the *qui vive*. The weather was beautiful during the whole time. Concerning the period at which queens commence laying drone eggs, I find the translation of "Huber" has a foot-note to the effect that the period of 11 months is liable to modification by the state of the atmosphere; but my No. 2, which in my letter published by you on 6th June, I calculated, according to "Huber," would produce drones about the 18th June, actually swarmed on that very day, and no drones were with it, nor did any make their appearance till the 20th, thereby remarkably verifying Huber's theory. With respect to an autumn brood of drones, Huber states that such does sometimes take place to the amount of about 60; but I cannot discover that he anywhere leads us to suppose that this is preliminary to the production of royal eggs, or of swarming.—*E. S., Wiltonshire.*

Preserving Rhubarb.—In addition to "preserving it with sugar like Raspberries," Rhubarb can be very successfully and agreeably preserved—in bottles as green Gooseberries are—peel the stalks and cut them into pieces as for a tart, and then treat them as if they were Gooseberries. Rhubarb bottled thus gives us excellent tarts and pies at Christmas. It can also be dried as Angelica, and makes a very agreeable dried preserve. Have any of your correspondents ever tried dried Strawberries? they are very good, and the abundant crop of this year will give material to experiment on.—*A House-keeper, and "one whom a garden makes happy."*

The Thomas Brown Tulip.—I am induced to offer a few remarks upon the manner in which an old variety has been palmed upon the public as a new sort, from having been duped to a certain extent. The Thomas Brown Tulip, said to be a seedling from Polyphemus, has been pronounced, by two celebrated Tulip growers from the south, who have seen it in my collection, as well as in that of every other grower in this neighbourhood, to be nothing more than Polyphemus. I did expect that the time had gone by when old varieties should be again brought forward as new ones. There wants a radical change in the system. It is very annoying to buy an old sort for a new one. Now, if it is said that it is different, and I have not got the right one, then I maintain that things have been sold not correct to name. There was a time when this would have answered well. I allude to the period when in Shakspeare, Edmund Kean, and Garrick (all one variety), there was a difference of upwards of 5*l.* per root. It is high time for growers to catalogue their aliases, and let us have a new era in florists' flowers; and if a seedling does not differ from the parent, let it not be sold out as a new variety. There are at the present time no less than 12 seedlings raised from Pearson's Alexander Polyanthus, which have merged into the parent; few at the present time having a plant that can be said to be of the genuine stock.—*John Slater, Florist, Cheetham-Hill, near Manchester.*

Arboriculture.—It would be well to call attention to the fact, that the Spruce Firs have suffered, and may now be suffering, from the recent continued drought. For many miles round this place they are as brown as they can be not to be quite dead, and I assume that the dry season has been the occasion of this appearance.

It may be otherwise, but it is certain that this description of Fir never looked generally so bad, and I think it probable that the fact may be usefully considered when plantations are being formed, for it proves that they require either a moister soil for their shallow roots, or an aspect less exposed to the sun.—*J. Bailey Denton, Gravely, Herts.*

Green-fly.—The following is an easy way of getting rid of the aphis or green-fly, and also of rearing and fattening young ducks:—Early in the spring I found, like my neighbours, all my Roses covered with the green-fly to a degree that left the buds a withered mass, without chance of expanding; all efforts to get rid of them seemed fruitless. Having at that time in my poultry yard adjoining my garden two hens, one with a brood of chicks the other of ducks, I determined one evening to let the broods into my lawn and garden during the night. The chicks took the fly off the lower leaves by thousands from daylight in the morning, and the ducks seemed to scoop them up by shoals all the night long. A week had not elapsed before the fly began to disappear. By following up this plan during "the night only," I was soon rid of the pests. The chickens were soon turned off, but the ducks continued until I had another team ready, "and so on;" up to this time there has been hardly a green-fly to be seen. We fed our ducks with scraps of bread and meal with milk, a few crushed Oats or Barley, with plenty of fresh water, but not enough to swim in: in this way they get fat soon—are very tender and mild for the table.—*R. W.* [We do not clearly see how the green-fly came within the reach of the ducklings. That requires explanation.]

New Plan of Heating.—As you have so vigorously espoused the improved system of heating, known as the Polmaise, you will probably be pleased to learn that a system founded upon the same natural laws has been steadily gaining ground in the west of England by the sole recommendation of the good effects which have followed its introduction. My plan harmonises with the Polmaise, and differs from the old school in two important points, viz., the continuous admission of fresh air previously warmed, and provision for a moist atmosphere. Enough has been said to show the necessity of the first condition, and the second is obviously advantageous and indicated to us by nature. Yet it is strange that intelligent men, aware of the benefit derived from curing houses, should have so long shut their eyes to a mode of ventilation which goes quietly on when window ventilation cannot be resorted to. There appears, then, to be a decided superiority in hot-air stoves in two particulars;—economy of fuel and better ventilation, but generally the purity of the air has been sacrificed by contact with overheated surfaces, and in this respect the hot-water systems are preferable; but I hope to show that these three desiderata (economy, ventilation, and purity) are not incompatible, and that, by my arrangement, they have been combined. I use a fire-box connected, by a series of rows of iron tubes, with the smoke-flue; and by burning under slow combustion, I am enabled to raise a large radiating surface to a temperature not exceeding 300°, which is effected at a small cost of fuel, dependent upon the slowness of combustion. These tubes are inclosed in an air-chamber, and a copious current of external air is made to pass over and between them, and then poured in a continuous stream into the house. The vapour appendage is connected with the ordinary water cistern, and at the discretion of the gardener is regulated to drop more or less water upon the heated tubes, which is either dissolved by the warm air, uniting with it to form a humid atmosphere, or, if a more decided moisture is desired, the quantity of water falling upon the tubes is increased until a cloud of vapour enters the house, depositing a dewy moisture upon all within. This contrivance gives more compass to the gardener's management than any other with which I am acquainted, and enables him to regulate the climate as well as the temperature of his house. On some other day I will give some account of the practical results of this treatment.—*Robert Hazard, Bristol.*

The Nuthatch.—Your correspondent, Mr. Gibson, has, so far from answering the objections taken against his opinion as to the power of the nuthatch to break the shells of nuts, only fallen deeper into error by his attempted refutation. Whatever opinion Sir William Hooker may have expressed as to the poisonous character of the Yew berry there can be no doubt, as I know from personal experience, they may be eaten with perfect impunity. [Yew leaves are poisonous, but not the nuts, or fleshy red cups.] I have a large Yew tree in my garden which in the autumn is filled from morning to night with blackbirds and thrushes (particularly the mussel thrush), feeding upon the berries, and I have frequently eaten them myself without any ill effects. Then with regard to Mr. G.'s scepticism of the power of the nuthatch to break a nut, I think Mr. Doubleday's evidence (who is one of the best practical naturalists of the day) ought to be quite conclusive. I have frequently seen the tomtit, which is a much smaller bird, with an infinitely more delicate beak than the nuthatch, break the stones of the Yew berry and the Haw. He carries the stone on to a convenient branch, where he fixes it with his claws, and then makes repeated and quick strokes upon it with his beak, exactly as "Sutor" has described, like the hammer of a blacksmith. But the force (and here Mr. G. has made a great mistake) is quite different from that of the blacksmith; in the latter case we have simple force exercised, in the former case we have the principle of the wedge brought into action; the bird makes, by repeated strokes, a small hole in the stone with the fine sharp point of its beak, which then acts as a wedge, and the resistance is easily overcome. Mr. G. expresses a strong objection in his first letter to "book authorities." He will not, I am sure, for all naturalists are good-natured, regret the personal testimony of credible witnesses, brought forward to set him right upon a point upon which he must admit himself to have been mistaken.—*C. R. Bree, Stowmarket.*——The bird being very common in this neighbourhood, I have had ample opportunities of studying its habits. As Mr Gibson wishes to know what constitutes its food during the spring and summer months, I may reply, various species of insects; and it probably partially subsists upon this kind of food throughout the year, but seems decidedly to prefer the kernels of nuts, &c., when they are to be obtained. We have a plantation of nuts and filberts adjoining our garden. Last autumn five or six nuthatches were almost constantly fetching the nuts away, and carrying them to a large Elm in a field, where they fixed them in a crevice of the bark, and readily broke the shell by repeated blows of the beak. Had Mr. Gibson been here, he might soon have been convinced that nuthatches can carry nuts between their mandibles, and also easily pick a hole in the shell to enable them to get at the kernel. I can also assure him that they are very fond of the kernel of the seed of the Yew, having seen them busily employed in fetching the seeds from a large Yew-tree here. The fruit of this tree is greedily devoured by thrushes and blackbirds, and the former will eat the fruit of Atropa belladonna with impunity.—*Henry Doubleday, Epping.*——It is somewhat singular that so many of our best naturalists should have been deceived. As to the nuthatch making nuts a part of its food, and its capability of breaking the shell, I have now before me Montague's Ornithological Dictionary, an authority of no small weight. In speaking of the form of the bill he calls attention to its peculiar shape, so admirably adapted for boring holes, being wedge-shaped and abrupt in its termination. Montague then adds, "the stiff tail of those birds (speaking of the woodpecker) supports them in the act of climbing and hacking, while the flexible tail of the nuthatch gives it no such advantage, nor does it seem to want it, for its most favourite position when breaking a nut is with its head downwards. When it has fixed the nut firm in a chink, it turns on all sides, in order to strike with most advantage. This, with the common Hazelnut, is a work of some labour, but it breaks a filbert with ease. In defect of such food, insects and larvæ are sought for amongst the Moss on trees and old thatched buildings." The whole of this I can corroborate from minute personal observation. Immediately opposite my study window is an Acacia-tree, which, from the roughness of the bark, is the favourite spot for the nuthatch (which abounds here) to crack his nuts. I cannot say that I have positively seen him bring the nuts, but I have watched the fixing, and there he stands above the nut on a projecting piece of bark, with the nut below him; he then strikes with the whole force of the body, the feet acting as a pivot, and by repeated blows on the same part of the nut with his particularly hard, wedge-shape beak, at length splits it. With due respect for the observations of your correspondent, Mr. Gibson, I cannot see the force of his reasoning when he says it requires pressure equal to an average of 50 lbs. to break a nut. Why, its very shape opposes a powerful resistance to pressure, which it does not to a sharp and quickly-repeated blow. Let him try what weight an egg will sustain, and by parity of reasoning it will require considerable force to crush it by pressure; yet a gentle tap procures an easy admission. The nuthatch in confinement never ceases from hammering at every part of the cage till the wood-work is actually indented, and often splintered; surely the bill which can effect this is capable of perforating a nut. We are, in fact, strangers to the mechanical force capable of being exerted by animals, and we are therefore often led to doubt the possibility of small animals producing such great effects. If Mr. Gibson has access to the "Magazine of Natural History," at p. 330 he will find a representation of the bill of the nuthatch, and of its peculiar fitness for breaking hard substances; and at page 329 an interesting communication from Swainson.—*W. H. Hall, Rectory, Pembridge.*

A hint on the propensities of the Hedgehog.—Walking in the garden this evening, I heard cries of distress in the long Grass, proceeding as I thought from a rabbit in the fangs of a weasel. I walked quietly up to the scene of trouble, and to my great surprise, I discovered a leveret struggling to release itself from the jaws of a hedgehog, which I instantly removed a few yards by a sharp kick, and picked up the leveret, which was unable to run from the injuries it had received. It is generally admitted, I believe, that the hedgehog is one of the most inoffensive creatures in existence, and some writers on its habits affirm, that he eats his roots, beetles, &c., and never troubles his head about anything more; the fact I have just stated, however, seems to place him in the position of a grave offender against the game-laws. To be sure, the chances of his often catching a hare are very much against him, considering their relative speed; but it is a proof that he does not scruple to take a little game when it happens to fall in his way.—*J. C., Stonehead, Wilts.*——A hedgehog being taken, was confined, in the evening, below a box, in an out-house where there happened to be a hen sitting on five small chickens; the hedgehog had scratched a hole in the floor, and escaped. It had, however, made free with the chickens; for in the morning there was nothing to be seen of them except a portion of their intestines—feathers, bones, and all being eaten. The hedgehog was afterwards found lying quietly, rolled up, in a corner; no doubt enjoying a nap after its chicken breakfast. I may add, the hen was untouched.—*North Briton.*

Societies.

HORTICULTURAL SOCIETY.

July 11.—The LAST EXHIBITION for the season, in the Society's garden at Chiswick, took place on Saturday last, and brought to a close the most brilliant season on record, as regards not only the splendour of the exhibition, but likewise the attendance of visitors; for these, it is gratifying to observe, were more numerous than in any former season. On this occasion the beautiful grounds at Chiswick-house were, through the liberality of the noble President of the Society, the Duke of Devonshire, thrown open to the visitors, among whom was his Highness Ibrahim Pacha, and many others of high rank. The marching and countermarching of five military bands, accompanied by the crowd of gaily dressed spectators, produced, in addition to the attractions of the exhibition, an effect truly charming, and the more so in consequence of the exceedingly favourable weather—light clouds rendering the sunbeams not oppressive.

The exhibition itself was an excellent one for July, more especially when we consider the very unfavourable weather we have had. The Heaths, of which we had lately to complain, were here brought, *as a whole*, in first-rate condition; the Orchids were a decided improvement on the June show, both as regards quantity and quality; and there was a large and magnificent exhibition of Fruit, which in July generally forms a prominent feature of attraction; we shall therefore commence our report with it. The display on this occasion was not only extensive, but contained many productions of very superior merit. The Pine apples, of which there were 60 in all, were generally large and handsomely grown. Some of the 32 Melons produced also were large and fine; the Grapes, too, were admirable on the whole, although there were some exceptions as regards colouring; we allude more particularly to the fine bunches of Black Hamburgh from the garden of the Duke of Marlborough, at Blenheim, which were fine specimens of growth, but not being well coloured were on that account disqualified. To proceed to a more detailed account, we shall first advert to the collections of Miscellaneous Fruit, of which there were three. That to which the first prize was awarded was produced by Mr. Spencer, gr. to the Marquis of Lansdowne, at Bowood. It contained fine Black Hamburgh Grapes, whose bloom was, however, somewhat rubbed off by travelling; good Violet Hâtive and Newington Nectarines, together with Royal George Peaches, finely swelled; Circassian and Bigarreau Cherries, Elton and British Queen Strawberries, Hybrid Green-fleshed, Terry's prize, and Beechwood Melons, and two Providence Pine-apples, the heaviest weighing 7 lbs. 6 oz.; also two Queens, and a well-grown Black Jamaica, the latter weighing 4 lbs. 1 oz. The next collection in point of merit was shown by Mr. Fleming, gr. to the Duke of Sutherland at Trentham. It comprised three Queen Pines, two Melons—one a hybrid, the other the Sweet Ispahan; good Elton Strawberries, and Antwerp Raspberries; also fine Royal George Peaches, and Murray and Scarlet Newington Nectarines, together with Cannon-hall Muscat Grapes, and fine bunches of Muscat of Alexandria, Chasselas Musqué and Black Hamburgh. The third collection was communicated by Mr. Dods, gr. to Sir George Warrender, Bart. It contained good Muscat and Black Hamburgh Grapes, two Housanee Melons, fine-looking Violet Hâtive Nectarines, and four handsomely-grown Pine-apples. Of Grapes some fine fruit was present; more especially famous bunches of Black Hamburgh from Mr. Hunt, gr. to Miss Traill, of Bromley; and admirable Cannon-hall Muscats from Mr. Hamp, gr. to J. Thorne, Esq., South Lambeth. Excellent bunches of Muscat of Alexandria were communicated by Mr. Frost, gr. to Lady Grenville, Dropmore; and fine bunches of the same variety, together with Black Hamburgh, were shown by Mr. Davey, gr. to G. Smith, Esq. Mr. Tillery, gr. to the Duke of Portland, at Welbeck, sent very good bunches of Black Frontignan, and Muscat of Alexandria; and good bunches of Black Hamburgh were produced by Mr. Dodemeade, gr. to W. Leaf, Esq., of Streatham. From Mr. Umpleby, of Leeds, were well coloured Black Hamburgh; and good bunches of the same variety, together with Sweetwater, came from Mr. Bray, gr. to E. Lousada, Esq., Sidmouth. Mr. Boyce, gr. to Sir L. Shadwell, Bart., Barn Elms, Surrey, sent Black Hamburgh; and Mr. Elliott, gr. to J. B. Boothby, Esq., Muscats, Black Hamburgh, and Sweetwater; Mr. Elphinstone, gr., Heckfield House, Hants, Black Hamburgh, hardly sufficiently ripened; and bunches of the same variety were also sent by Mr. Blackburn, gr. to C. T. Whittingstall, Esq. It was stated concerning these that they had been raised from eyes planted in pots on the 13th February, 1845, and placed in a pit in May of the same year; that each Vine was now producing five bunches of fruit, each bunch weighing on an average 2 lbs. Finally, from Mr. Hewitt, gr. to G. Purday, Esq., were fair bunches of Sweetwater.—In the Market Gardeners' Class, the first prize was awarded to Mr. Mitchell, of Kemptown, Brighton, for exceedingly fine, well-coloured

bunches of Black Hamburgh, and Cannon-hall Muscats. Mr. Wilmot, of Isleworth, also sent Cannon-hall Muscats, equal to the above in point of merit, together with specimens of his new Black Hamburgh, and a Muscat from Portugal; Mr. Gadd, of Betchworth Castle, Dorking, good bunches of white Frontignan and Black Hamburgh, the latter, however, hardly sufficiently coloured; and, finally, Mr. Chapman, of South Lambeth, produced Black Hamburgh, in fine condition, both as regards colour and bloom.—Of Vines producing Grapes in pots, we must not forget to mention three plants of Black Hamburgh, exhibited by Mr. Wright, gr. to the Hon. Mrs. Rushout, of Wanstead Grove. These were beautifully laden with fruit; we counted on one plant nine fine bunches, with well swelled berries.—Of Pine-apples, the first prize was awarded to Mr. Dods, for three fine specimens of Providence. A handsomely grown Queen was shown by Mr. Fleming, gr. to the Duke of Sutherland. Mr. Collinson, gr. to the Marquess of Westminster, Eaton Hall, sent two Providences, both fine specimens of cultivation; and another Providence, not well formed, and hardly ripe, was produced by Mr. Brown, gr. to C. W. Packe, Esq. M.P. Mr. Fraser, gr. to E. D. Davenport, Esq., sent two handsome Queens. A well-formed Providence was shown by Mr. Belton, gr. to C. Winn, Esq., of Nostell Priory; and six specimens of the same variety were produced by Mr. Christie, gr. to Viscount Folkestone, Langford Castle, Salisbury; the largest of which was a handsome well grown fruit. Mr. Bray sent a Queen, having no crown; and a Providence, small, but well formed; Mr. Hewitt, five Queens; Mr. McEwen, gr. to Col. Wyndham, a Providence; Mr. Thompson, gr. to G. Byng, Esq., Wrotham Park, Barnet, a Providence; Mr. Braid, Hanworth Park, a tolerably well-grown Queen; Mr. Brewin, gr. to R. Gunter, Esq., five Queens; and Mr. Elphinstone, a Ripley Queen. From Mr. Bagge, Southgate, was an Enville; and Mr. Ayres, gr. to J. Cook, Esq., sent three small but well-formed Queens; Mr. Bennett, gr. to J. Smith, Esq., two Ripley Queens with small crowns; Mr. W. Death, Netteswell, two Queens; and Mr. Davis, gr. to Lady Braidfoot, four Queens, the heaviest weighing 2 lbs. 15 oz. In the Market Gardeners' Class only one exhibitor came forward, viz., Mr. Wilmot, of Isleworth, who showed four good Moscow Queens, which were, however, barely ripe. A Table, showing the comparative weights, together with the total weight of all the Pines exhibited, will be found in another column.—Of Melons, Mr. Fleming showed a hybrid between the Ispahan and Hoosainee, which was small, ovate, but said to be excellent. Mr. McEwen, good specimens of Beechwood and Benares; Mr. Parker, gr. to J. H. Oughton, Esq., Rochampton, Hill's green-fleshed; Mr. Braid, the Ispahan, named a Cabul green-fleshed; Mr. Elliott, three specimens of Hill's green-fleshed; Mr. Bray, three Persian varieties; Mr. Barton, gr. to J. Thorp, Esq., Chippenham Park, two unnamed Melons; Mr. Slowe, gr. to W. R. Baker, Esq., a hybrid green-fleshed; Mr. Carson, gr. to W. F. G. Farmer, Esq., of Nonsuch Park, a hybrid from the Beechwood; Mr. Davey, a scarlet Egyptian; Mr. Sullivan, gr. to W. Paynter, Esq., a Cantaloupe; and the same variety was also sent by Mr. Allen, gr. to J. Davis Esq., Walthamstow, and by Mr. Gadd, Betchworth Castle, Dorking; a green-fleshed Melon also came from Mr. Martin, of Camberwell.—Of Cherries, excellent samples of Bigarreau were shown by Mr. Elliott; and not less handsome specimens of the same variety, together with Black Tartarian, were produced by Mr. Whiting, gr. to H. T. Hope, Esq., of the Deepdene, near Dorking; a beautiful dish of Black Eagle was contributed by Mr. Bray; and good Black Tartarian by Mr. Hewitt; Mr. Meyer, of Brentford, communicated dishes of Biggareau and May Duke, and Mr. Martin, of Camberwell, Morellos.—Of Plums, a dish of Black Morocco was exhibited by Mr. Bruce, gr. to B. Miller, Esq., of Tooting, who also sent specimens in good condition of Stone Pippin Apple of last year's growth. Madras Citrons were shown by Mr. Kendall, gr., Anthony House, Devonport.—Of Peaches and Nectarines some fine fruit was placed on the table, and foremost amongst them may be mentioned famous specimens of Violet Hâtive Nectarines from Mr. Wright, who also sent very fine Royal George Peaches. Mr. Parker produced excellent Elruge and Violet Hâtive Nectarines, and finely swelled Galande Peaches. Handsome Violet Hâtive Nectarines were likewise shown by Mr. Collinson, and very fine specimens of the same variety, together with the Elruge, were contributed by Mr. Mason, gr. to Sir J. Kenaway, Bart., of Escot House, Devon. Mr. Collins, gr. to E. H. Chapman, Esq., Hornsey, sent fine Royal George Peaches; and good Noblesse and Royal George Peaches and Violet Hâtive Nectarines were communicated by Mr. Fleming. Mr. Wilson, gr. to J. Tucker, Esq., of Woodford, produced Violet Hâtive Nectarines; and inferior specimens of Elruge Nectarines were exhibited by Mr. Slowe; and finally Mr. Dods sent Royal George Peaches. British Queen and Elton Pine Strawberries were produced by Mr. Cole, of Bath; and a dish of Raspberries by Mr. Cornwall, of Barnet.

We now come to the large collection of 40 Stove and Greenhouse Plants, produced by Mr. Robertson, gr. to Mrs. Lawrence, of Ealing Park, which was the only one exhibited; consequently there was no competition in this class. Although inferior, *as a whole*, to the group brought forward in June, it, nevertheless, contained many plants displaying first-rate management. At the top of the stage stood a noble Stephanotis floribunda, not less than 7 feet in height, but rather bare of blossom; and supporting it, various Clerodendrons, chiefly fallax, whose large spikes of gaudy scarlet flowers greatly improved the appearance of the group. The general effect was also much heightened by the judicious introduction of two large Statices macrophylla and arborea, the blue and white blossoms forming an agreeable variety with their more showy neighbours. Associated with these was a huge Phænocoma prolifera, in tolerably good condition; the pretty stove twiner Schubertia graveolens, with snow-white blossoms, something like those of a Stephanotis; and a large Medinilla erythrophylla, together with a fine bush of Manettia cordata, Leschenaultia formosa (about 2 feet in height and as much in diameter), Erica Irbyana, insufficiently in bloom, and a finely-grown and well-bloomed Achimenes longiflora. In the same collection was also a badly-flowered plant of the handsome red and white blossomed Epacris miniata; a small Cyrtoceras reflexum; Roella ciliata, in pretty good condition; the beautiful Tabernæmontana coronaria, with charming yellow-eyed white flowers; together with two plants of the double variety of the same lovely species, accompanied by the red-flowered Jatropha pandurifolia, a plant of no great beauty; the pretty white-blossomed Dracophyllum gracile, and a good plant of the handsome Angelonia Gardneriana. The collection, moreover, contained two small plants of Rondeletia speciosa; a large Veronica speciosa, bare of blossom; Ixora coccinea, with eight showy heads of bloom; together with a small I. rosea, a less showy species; a pretty little Gardoquia Hookeri; the red and green flowered Cuphea Melvilla; and several Heaths, including the handsome metuliflora bicolor, tricolor elegans; a large Cavendishii, nearly out of bloom; gemmifera, and obbata.—On the opposite side of this, the large "iron" tent, was a collection of Plants, from the Society's garden, including some new and rare things. At the top of the stage stood a large specimen of the well-known Xylophylla latifolia; and supporting it on either side, large plants of Fuchsia fulgens, and in front a fine Veronica speciosa, and the Maurandya Barclayana, mentioned at p. 447. In front were the lovely blue Lobelia ramosa, the new Achimenes patens, also the recently introduced Jochroma tubulosum with deep violet tubular blossoms, and Exostemma aquatica, together with the new hardy Statice eximia, an interesting species of this useful genus. Associated with these were the sweet white-blossomed Jasminum Sambac, the beautiful little Statice puberula, Cuphea pubiflora, a plant which may possibly answer well for bedding out; and various Achimenes.—In collections of 20 plants, Messrs. Fraser of the Lea-bridge-road Nursery, and Mr. Malyon, gr. to T. Brandram, Esq., Blackheath, were the only competitors, the latter group bearing no comparison, in point of merit, to the former. The collection from Lea-bridge contained, as usual, many examples of fine growth, comprising the showy Clerodendron fallax, Sollya linearis, 2½ feet in height, loaded with little blue bells; a neat Gardoquia Hookeri, a large spreading Vinca rosea in good condition, the chaste-looking white flowered Dracophyllum gracile, Statice arborea, and the neat violet-flowered Burtonia conforta. Associated with these were, Crowea saligna in luxuriant health, but somewhat bare of blooms; Leschenaultia formosa, 18 inches in height, and as much in diameter; two magnificent specimens of Kalosanthes nitida, about 3 feet in height, and as much in diameter, forming a complete mass of gaudy blossoms; the blue-flowered Roella ciliata, and Stephanotis floribunda, 5 feet in height. The collection also contained the same noble Ixora coccinea mentioned on a former occasion; a well grown Phænocoma prolifera, somewhat bare of blossom; a large Vinca alba, and several Heaths, including jasminiflora, and a fine Irbyana. Mr. Malyon's group contained too many Heaths, which were moreover not remarkable for either fine growth or bloom; of other plants it comprised Vinca rosea, Clerodendron squamatum, a good Pentas carnea, a plant of the blue and two plants of the red Leschenaultia. In the same group were also Vinca rosea alba, two plants of the useful Statice arborea, the pale-blossomed Kalosanthes versicolor, a small Roella ciliata, Achimenes grandiflora, and Gardenia radicans.

Collections of 12 Stove and Greenhouse Plants were sent by Mr. W. P. Ayres, Mr. Green, Mr. Epps, of Maidstone, and by Mr. Collins, gr. to G. H. Chapman, Esq. Mr. Ayres produced a noble Kalosanthes media, 3 feet in width and 2½ feet in height, quite a mass of blossom; a famous K. coccinea, the finest coloured, though not the best habited species of the genus. The showy Clerodendron fallax, with three handsome flower spikes; large and fine plants of Allamanda cathartica and Crowea saligna, the lovely pink-blossomed Erica Parmentieriana rosea, Ixora crocata, and a somewhat bare plant of Rondeletia speciosa; associated with these were Cyrtoceras reflexum, and a famous Phænocoma prolifera, rather scarce of bloom. The group from Mr. Green contained the same beautiful Ixora coccinea formerly exhibited; also the same fine Aphelexis humilis, but on this occasion evidently past its best; a well grown but ill-bloomed Phænocoma prolifera, and a large Rondeletia speciosa. At the back of the stage stood a tall Stephanotis floribunda, insufficiently in bloom, Clerodendron Kæmpferi and fallax, the former a good plant, Gloxinia Cartonii, a rather straggling plant of Erica metuliflora bicolor, about 3 feet in height and as much in diameter, Leschenaultia formosa, a tall Crowea saligna, and a bare Dillwynia ericifolia. In Mr. Epps's group was a large Stephanotis floribunda, trained over a circular trellis, an ill-bloomed Veronica speciosa, a neat Erica jasminiflora alba, a good plant of the comparatively new Siphocampylus coccineus, and a fine Clerodendron Kæmpferi. In Mr. Collins's group we did not remark anything worthy of notice except a neat Philibertia grandiflora, covered with its odd-looking saucer-shaped flowers.—Collections of 6 Stove and Greenhouse Plants were numerous. That to which the first prize was awarded was contributed by Mr. Catleugh, of Chelsea, who showed Sollya heterophylla, a dense pyramid of deep green leaves and bright blue bells, 7 feet in height, and, supporting it, good plants of Lantana mutabilis and Clerodendron splendens, together with the handsome Statice macrophylla, a capital specimen of the useful blue-flowered Plumbago capensis, and a good but ill-bloomed Mahernia incisa. The next group in point of merit was shown by Mr. Carson, gr. to W. F. G. Farmer, Esq., of Cheam. It contained a handsome Stephanotis floribunda, not less than 7 feet in height, trained round a cylindrical trellis, an Allamanda cathartica of nearly the same size, rather scarce of bloom, Veronica speciosa, Jatropha pandæfolia, whose red blossoms are too scantily produced to render it an object of much attraction, together with Rondeletia speciosa, and a sickly Gardoquia Hookeri. Mr. Jack, gr. to R. G. Loraine, Esq., of Wallington Lodge, was third, with a group in which were Roella ciliata, a small but handsome Phænocoma prolifera with highly coloured blossoms, Erythrina Crista-galli insufficiently in bloom, Ixora coccinea, a well-bloomed Erica Ewerana, rather bare at bottom, and an Aphelexis humilis. The next group was communicated by Mr. May, gr. to E. Goodheart, Esq. It comprised the useful Dracophyllum gracile, a miserable Roella ciliata, Clerodendron fallax, the well known Kalosanthes coccinea, Statice sinuata, and the larger variety of Erica tricolor. Mr. Bruce, gr. to B. Miller, Esq., sent Rondeletia speciosa, a pretty Leschenaultia formosa, rather past its best, Astelma eximium not open, the blue Roella ciliata, a small Clerodendron fallax, and the same pretty Æschynanthus parasiticus formerly exhibited. Mr. Stanly, gr. to H Berens, Esq., of Sidcup, Kent, produced a small Gardoquia Hookeri, Phænocoma prolifera, generally well grown but ill bloomed. Roella ciliata, Clerodendron fallax, the useful Achimenes grandiflora, and Leschenaultia formosa. Mr. Slowe, gr. to W. R. Baker, Esq., sent a good Nerium splendens, a pyramidal Mahernia incisa, 4½ feet in height; a large Crinum amabile; Erica Ewerana, insufficiently in bloom; a spreading Vinca rosea alba, and a globular Sollya linearis. From Mr. Taylor, gr. to J Costar, Esq., of Streatham, were Kalosanthes versicolor, a pale-coloured species; Erica metuliflora bicolor, a middling Leschenaultia formosa, Hoya carnosa, a lovely little globular Stephanotis floribunda, and Clerodendron fallax. A group from Mr. Griffin contained Nerium splendens; an Oncidium; Ardisia crenulata, producing both flowers and fruit; the useful Combretum purpureum, and Gloxinia Youngii.

The display of Orchids, to which we have already alluded, was large and magnificent. Three collections of 20 plants or more were placed. These were from Mr. Mylam, gr. to S. Rucker, Esq., of Wandsworth; Messrs. Rollisson, of Tooting; and Mr. Robertson, gr. to Mrs. Lawrence. In Mr. Mylam's group we remarked the rare and handsome Coryanthes macrantha, with two open blooms; the white-blossomed Aganisia pulchella, with yellow stained lip; the buff-spotted Brassia Lanceana; Cycnoches Loddigesii, with long brown recurved petals; a large mass of Miltonia spectabilis; Galeandra Baueri; a small delicate blush-flowered Dendrobium; a variety of Stanhopea tigrina, with two large blossoms; a fine Aerides odoratum, insufficiently in bloom; and the white-lipped dull green-petalled Angræcum caudatum. Associated with these were Stanhopea quadricornis, with one spike in beauty and three not open; a pale variety of S. oculata, having two large gracefully-drooping flower-spikes; a variety of insignis, with large brown-spotted blossoms; Zygopetalum crinitum; the chocolate-flowered Paphinia cristata; Brassia Wrayæ, with four flower-spikes; the delicate blush-flowered Cattleya candida; Dendrobium densiflorum, with one pendent raceme of yellow blossoms; the chaste-looking D. formosum; Cattleya labiata; the well-known Cypripedium barbatum; Epidendrum cochleatum, with five flower spikes; a fine Brassia Lawrenciana; and Oncidium papilio. The next group in point of merit was produced from the nursery of Messrs. Rollisson, of Tooting. It contained the violet-flowered Huntleya violacea, with two blossoms, looking like some bivalve shell; the neat little Cymbidium lancifolium; Lycaste cruenta; Acineta citrina, with two spikes of yellow flowers; the lovely white blossomed Burlingtonia candida; Cycnoches chlorochilon, whose large green flowers are more curious than beautiful; the lilac-blossomed Calanthe Masuca; a good Oncidium pulvinatum; a large specimen of the exceedingly handsome Sobralia macrantha, with two open flowers; Stanhopea Wardii, and its paler variety, both in fine condition; also S. venusta, with four fine flower-spikes; a good Miltonia spectabilis; and the curious green-tailed Dendrochilon filiformis. In the same collection were Cattleya Mossiæ; Oncidium nebulosum, an apparently new species in the way of crispum; Promenæa Rollissonii, the spotted variety of Oncidium luridum; also Stanhopea eburnea, with large pale blossoms; Epidendrum floribundum; Calanthe furcata; and an apparently new Houlletia, with deep brown flowers, which were, however, not open. Associated with these were the lilac-blossomed Barkeria spectabilis; the comparatively new Aerides

museulosum; the large brown and yellow flowered Odontoglossum grande; and Maxillaria tetragona. The third group came from the garden of Mrs. Lawrence, at Ealing Park. It contained three specimens of Cattleya Mossiæ; Oncidium leucochilum; Gongora maculata lutea and fusca, with long drooping spikes of brown-spotted blossoms, looking like so many insects; Stanhopea graveolens, with one fine spike of flowers, and another just bursting into beauty; the brown-flowered Paphinia cristata; Oncidium Lanceanum, the handsomest of the genus; Vanda Roxburghii; the spotted variety of Oncidium luridum, with one strong flower-spike; Stanhopea insignis, with six open flowers; the green-blossomed Catasetum Russellianum; and a Barkeria, with four spikes of deep lilac blossoms. In the same collection were Stanhopea oculata, with its paler variety, having two fine flower-spikes; Epidendrum radiatum; the useful Oncidium pulvinatum; Trichocentron fuscum; and the well-known Lycaste Deppei.—In collections of 12 plants there were four exhibitors: Mr. Don, gr. to F. G. Cox, Esq., of Stockwell; Mr. Plant, gr. to J. H. Schröder, Esq.; Mr. Redding, gr. to Mrs. Marryatt, of Wimbledon; and Mr. Eyles, gr. to Sir G. Larpent, Bart., Roehampton.—Mr. Don sent Catasetum (miscalled Mormodes) Russellianum, with three spikes of dull green flowers; Schomburgkia tibicinis, a lovely Oncidium pulvinatum, the green-flowered Cycnoches chlorochilon, Barkeria spectabilis, the white-lipped Oncidium leucochilum, the curious rather than handsome Acropera Loddigesii, Vanda Roxburghii, and Stanhopea insignis, the latter not sufficiently advanced; together with Grammatophyllum multiflorum, and Cycnoches Loddigesii.—From Mr. Plant were Aerides odoratum and maculosum, the singular Maxillaria tetragona, Peristeria pendula, a famous Oncidium Lanceanum, with nine flower spikes; together with O. flexuosum, and a fine pulvinatum; also Brassia verrucosa, Phaius albus, and a small Galeandra Baueri. Mr. Redding contributed Aerides odoratum, Cattleya Loddigesii, Oncidium leucochilum and ampliatum, Stanhopea tigrina, with two open blossoms; the purple-flowered Cattleya Harrisoniæ, Odontoglossum grande, and Epidendrum variegatum. Mr. Eyles, Miltonia spectabilis, the white-fringed Epidendrum ciliare, Calanthe plantaginea, with deep lilac flowers; Stanhopea oculata, with two fine flower spikes; the blue-lipped Vanda Roxburghii, together with the red variety (V. Roxburghii rubra), and a tall Epidendrum cinnabarinum. Associated with these were also Cattleya Forbesii, Cycnoches ventricosum, and Gongora maculata lutea.—In collections of six species there were three exhibitors, Mr. Carson, Mr. Hunt, and Mr. Jack. Mr. Carson sent Phaius albus, Epidendrum aloefolium, a fine Cattleya Mossiæ, with seven open blossoms; Peristeria elata, not open; Stanhopea tigrina, with two blooms; and Miltonia spectabilis. Mr. Hunt produced the same Cattleya Forbesii, mentioned on a former occasion; as also the Oncidium Lanceanum, together with Miltonia spectabilis, Gongora atropurpurea, and Cattleya crispa, the beauty of the latter, however, very much faded. From Mr. Jack were Oncidium altissimum; O. divaricatum; Lælia cinnabarina; Dendrobium Calceolaria, with large buff flowers tinged with pink; the charming Camarotis purpurea; and the odd-looking Maxillaria stapelioides. In conclusion, we must not forget to mention that Messrs. Veitch sent cut flowers of a new variety of Cattleya crispa, with the purple marking of the lip exceedingly highly coloured.

Among single specimen Orchids, were the two noble masses (each with five large spikes) of the scarlet Chinese Renanthera (R. coccinea), from Mr. Falconer, gr. to A. Palmer, Esq., of Cheam, mentioned in another column. They were growing on two large blocks of wood, covered with Moss and Æschynanthus, and have been treated in the manner described at p. 52 of our volume for 1845. Associated with these was also the large and fine Aerides odoratum produced by Mr. Passet, gr. to R. Holford, Esq., which was the admiration of everybody; and a less handsome plant of the same species by Mr. Green, gr. to Sir E. Antrobus, Bart.

Cape Heaths, in collections of 20 species, were shown by Mr. Hunt, Mr. Robertson, and Mr. Ayres. Mr. Hunt's collection, which obtained the first prize, was altogether composed of large plants of fine growth. Among them we remarked tricolor Lecana; Massoni, rather past its best; jasminiflora alba, a handsome species; the larger variety of retorta; procumbens, with small round pink blossoms; and a large and fine gemmifera. Associated with these were also the red-flowered Westphalingia; a large, but ill-bloomed metuliflora bicolor; retorta, just opening into beauty; the lovely small pink-flowered Savileana; a noble infundibuliformis, 3½ feet in width and 3 feet in height; and a good ampullacea, just coming into bloom. Mr. Robertson's plants were smaller than the preceding; the best of them were Parmentieriana rosea; Irbyana, just coming into bloom; the green-flowered E. viridiflora; radiata, a variety closely related to metuliflora bicolor; Cavendishii, rather past its best; and obbata, a large, delicate, pink flowered sort. In the same group were also gemmifera and metuliflora bicolor, 5 feet in height and as much in diameter. Mr. Ayres sent a small radiata; inflata rubra, a handsome variety; the useful Savileana, jasminiflora alba, Irbyana, and a variety of ventricosa.—In the Nurserymen's Class, good groups were produced by Messrs. Fairbairn, of Clapham, and Messrs. Rollisson, of Tooting. In the collection from Clapham, which was the best, we remarked a beautiful Savileana, Wilsonii, a handsome species, a large but thin inflata, a well-coloured tricolor elegans, the neat pink-flowered juliana, and a rose-coloured variety of gemmifera. In the Tooting group the more remarkable plants were Kingscotiana, a variety with large flesh-coloured tubes, infundibuliformis a complete globe of flowers, a variety of tricolor called inflata, vestita alba, and ferruginea.

Groups of 12 Heaths were sent by Mr. Green, gr. to Sir E. Antrobus, Bart., and by Messrs. Fraser, of Lea-bridge-road, the former sending jasminiflora alba in good condition, a lovely infundibuliformis, and a pretty tricolor elegans. The Lea-bridge group contained neat well-bloomed plants which were, however, not different from those already mentioned. Collections of 6 plants were numerous. The best was produced by Mr. May, gr. to E. Goodheart, Esq., who sent the green-flowered Heath (E. viridiflora) 3 feet in height, and as much in diameter; princeps in good condition, Dunbar's variety of tricolor, and a large radiata. The next group in point of merit was exhibited by Mr. Bruce, of Tooting, who sent a neat metuliflora bicolor, eximia and Parmentieriana rosea. Other groups came from Mr. Young, gr. to C. Barrow, Esq., Mr. Jack, and Mr. Taylor; Mr. Young sent among others fine plants of Ewerana and Bowieana, Mr. Jack the neat little cubica minor, and a healthy young Massoni.—In the Nurserymen's Class the exhibitors were Mr. Epps, of Maidstone, Mr. Dawson, of Brixton Hill, and Mr. Pamplin, of Walthamstow. Mr. Epps sent a fine jasminiflora alba, and a small but good Massoni; Mr. Dawson the useful mutabilis, a large ampullacea and inflata; Mr. Pamplin tricolor elegans, and a large jasminiflora alba.—Of single specimen Heaths, some good plants were exhibited: Mr. Bruce sent eximia in good condition, Mr. Green a good Shannoniana, Mr. Wood a middling obbata, Mr. Hunt eximia, Messrs. Rollisson Holfordiana, Messrs. Fairbairn inflata and ampullacea, Mr. Pamplin obbata, and Mr. Dawson Irbyana, 3 feet in height and as much in width.

Of Roses, both cut and in pots, notwithstanding the unfavourable weather we have lately experienced, there was a fine display; the pot ones being little inferior to those brought forward in June. In the Nurserymen's Class for 18 varieties, there were three exhibitors—Messrs. Lane and Son, of Great Berkhampstead, Mr. Dobson, foreman to Mr. Beck, of Isleworth, and Mr. Francis, of Hertford. Mr. Lane's group contained—*Tea:* Mimi, La Pactole, Smith's Yellow, Nisida, Caroline, Prince de Mecklenburg, Comte d'Osmont, and Alexander Rohan. *Bourbon:* Gloire de Paris, Cardinal Fesch, Thérésita, Souchet, Comte de Rambuteau, and George Cuvier. *Hybrid Perpetual*: Grande Capitaine, Lady Elphinstone, and Labedoyère. *China:* Sulphurea superba. Mr. Dobson sent—*Bourbon:* Pierre de St. Cyr, Armosa, Souvenir de la Malmaison, Latifolia, Coliméne, and Comte de Rambuteau. *Tea:* Niphetos, Goubault, Pactolus, Caroline, and General Vallais. *Hybrid Perpetual:* Louis Bonaparte. *China:* Fabvier, Henry the 5th, Cramoisie supérieure, and Beau Carmine. *Noisette:* Aimée Vibert, and Vitellina. Mr. Francis's varieties were—*China:* Bardon, light blush; Eugene Hardy, lilac lake; Triumphans, dark rosy crimson; Gabrielle, bright lilac pink; and Hymenée, yellowish white. *Noisette:* Smith's yellow; Jaune Desprez, bronzy fawn; and Elizabeth, French white. *Hybrid Perpetual:* Duchess of Sutherland, mottled. *Bourbon:* Theresa Margot, pale rose; Delices de la Guillotière, dark rose pink; Edouard Desfosses, dark pink; Enfant d'Ajaccio, bright crimson; Virgale, (?) bright rose; Comtesse de Rességuier, light blush; Pierre de St. Cyr, light pink; Queen, delicate cream; and Enfant d'Ajaccio, bright crimson. A neat collection was contributed by Mr. Slowe, gr. to W. R. Baker, Esq., being the only exhibitor in the Amateurs' Class. As Single Specimens, Mr. Slowe sent Bougère in good condition, and Mr. Dobson, Pierre de St. Cyr. In Cut Roses, the exhibitors were Messrs. Lane, Paul, Francis, Terry, Slowe, and Cobbett. A few of the best in Mr. Lane's group were—*Damask Perpetuals:* Mogadore, vivid crimson; Laurence de Montmorency, carmine; and Louise Pugeł, deep pink. *Hyb. Perpet.* Aubernon, pale crimson; Baronne Prevost, blush; Clementine Seringe, shaded blush; Comtesse Duchatel, rosy blush; Duchess of Sutherland, glossy blush; Lady Alice Peel, rosy crimson; Madame Daménie, bright rose; Marquise Boccella, pale pink; Mrs. Elliott, pale lilac pink; Prince of Wales, rosy carmine; and Queen or La Reine, brilliant rose. *Bourbon:* Charles Souchet, deep crimson; Dupetit Thouars, shaded rose; George Cuvier, bright crimson; La Grandeur, fine bright lake; Paul Joseph, shaded lake; Proserpine, crimson; Reine des Vierges, delicate blush; Souvenir de la Malmaison, white. *Tea:* Devoniensis, creamy white; Elise Sauvage, deep straw; La Pactole, pale yellow. *Noisette:* Chromatella, yellow.—In the other collections were also some of the best sorts in cultivation, and the day not being so warm as to cause them to wither they were shown to much advantage.

Of Single Specimens of superior cultivation not already enumerated, may be mentioned an immense Stephanotis floribunda, not less than 8 feet in height, and finely in bloom, from Mr. Eyles, Sir G. Larpent's gardener. This was trained to a face, and although not a handsomely formed plant, produced a striking effect. Another very handsome object, in the shape of Allamanda cathartica, was produced by Messrs. Frazer, of Lea-bridge-road. This was at least 5 feet in height, and had on it upwards of 50 of its showy yellow blossoms. Scarcely less remarkable were their fine specimens of Sollya linearis, Tristania neriifolia, and Crowea saligna, although the two latter were hardly sufficiently [illegible] quite as much in flowering, [illegible] heads of showy blossoms; and along with it a small Babingtonia camphorosma. Mr. Green sent a very fine Lisianthus Russellianus, and a small Rondeletia speciosa. Mr. W. P. Ayres, a large Veronica salicifolia, hardly sufficiently in bloom; a small Achimenes multiflora; and Leschenaultia formosa, forming a globe 2½ feet in diameter. Mr. Young, a good Stephanotis floribunda, trained over a circular trellis; and a little tree of the white-flowered Clethra arborea. Mr. Stanly produced a good Gloriosa superba, also Leschenaultia formosa and Pelargonium elatum. Mr. Carson, a lovely Chironia floribunda, and a Veronica speciosa. Triptilion spinosum came from Mr. Frost, of Dropmore; and Mr. Robertson, gr. to Mrs. Lawrence, sent Clitoria Ternatea, two Clerodendrons, Plumeria acuminata, and a noble Phænocoma prolifera, 3 feet in height, and as much in diameter, with the branches hanging over the pot, but not well in bloom. From Mr. Balston, of Poole, was an ill-bloomed Veronica speciosa. Mr. Holmes sent Kalosanthes coccinea; and we also noticed small plants of Burtonia conferta, Achimenes longiflora, Statice arborea, Clerodendron affine, Gardoquia Hookeri, and others of less moment.

Of New Plants, Messrs. Veitch and Son, of Exeter, sent a handsome, new, and, apparently, free-flowering Ixora, having large pale-green leaves, and semi-globular heads of salmon-coloured flowers, something in the way of I. crocata. From the same nursery were also Cuphea cordata, mentioned in another column; their new Æschynanthus pulcher, and another new form of that handsome genus, with purple-tinged leaves, and dark-red blossoms issuing from a downy chocolate sheath. Associated with these was the same long-spurred Balsam (B. latifolia) produced at the June show; and a Clematis, named glandulosa, with large heart-shaped leaves, and numerous long-stalked deep chocolate and white flowers. F. Scheer, Esq., of Kew, sent the new Bolivian Echinopsis, mentioned in another column; Messrs. Henderson, of Pine-apple-place, their new Æschynanthus Boschianus; Mr. Robertson, gr. to Mrs. Lawrence, the handsome Pavetta Borbonica; Mr. Jack, Cuphea miniata, a pretty species, with opposite hairy leaves, and axillary flowers, having a purplish tipped calyx, and two erect vivid scarlet petals. Along with it was also a small Mussænda macrophylla. From Messrs. Rollisson was a Hoya, with clusters of greenish-white blossoms, less handsome than carnosa. Mr. Jackson, of Kingston, sent a variety of his Seedling Heath (E. Jacksoni), a good addition to this beautiful tribe; and the Chinese Lycopodium cæsium. Mr. Fairbairn, of Wandsworth-road, Polygala Dalmaisiana; and Mr. Groom, Calystegia pubescens.

For Collections of Hardy Evergreens in pots a large Silver Medal was awarded to Mr. H. Waterer, of Knaphill, near Bagshot. In this group we remarked Juniperus flaccida, macrocarpa, occidentalis, pendula, and squamata; Arbutus Bakeri; Taxodium sempervirens; Quercus nana, glabra, Fordii, heterophylla, rugosa, and virens; Berberis trifoliata and cuneata; Cupressus Lamberti and thurifera; Ilex castaneifolia, latifolia, ciliata, and Maderensis; Podocarpus taxifolius and coriaceus; a new and handsome broad-leaved Box; Cryptomeria japonica; Pinus strobus, var. pumila, and P. Balsameafolia variegatis; a silver-striped Irish Ivy; Thuja pendula and aurea; Azalea ovata; and a silver-striped Irish Yew. Another group was sent by Messrs. Lane and Son, in which were—Aucuba japonica aurea, Cerasus colchidis, Cryptomeria japonica; Buxus myrtifolia; Cupressus torulosa viridis; a variety of Hedera canariensis with silvery marked leaves; several species of Juniperus, including Virginiana pendula and variegata; Quercus glauca, glabra, and virens; Taxodium sempervirens; Taxus procumbens, canadensis, coriacea, nucifera; and Thuja filiformis.—Mr. Francis, of Hertford, sent among others—Arbutus procera; several Abies and Pinus, including Gerardiana; Cupressus Tourneforti and flagelliformis; Ilex opaca and platyphylla; several Junipers; also Thuja articulata and filiformis.—A collection of Pinus was contributed by Mr. Cutter, of Slough; and among a fine group from the Society's Garden we remarked a plant of Berberis Fortuni, a supposed hardy evergreen variety, obtained from the North of China by Mr. Fortune. It forms a deep green smooth bush, with lanceolate leaflets about 4 ins. long, having shallow spiny serratures and veins scarcely visible on the upper side, and slightly prominent on the under.

Among Miscellaneous Objects was a neat collection of British Ferns from Mr. Taylor, gr. to J. Constar, Esq., of Streatham; Mr. Beck, various Orchids and cut flowers in handsome green slate baskets suitable for placing on drawing room tables; Mr. Davis, two luxuriant plants of Leschenaultia formosa; a collection of Achimenes from Mr. Robinson, together with Lobelia bellidifolia and erinus grandiflora; and finally large Cucumbers from Mr. Smith and Mr. Butcher; with the sample of Beet from Cuba mentioned in another column, from Mr. W. P. Ayres, of Brooklands. Mr. Fairbrother, of Brighton, exhibited a new basket Pelargonium, which suffered in appearance from the petals having been so much shaken from the trusses, nor was it shown according to the regulations of the Society. The trusses were large, and the flower of the most dazzling scarlet. A collection of 36 blooms of Hollyhocks were exhibited by Mr. Cole, of Bath; the flowers were large, fine, and varied in colour. None of the seedling Fuchsias appeared to be very striking or

royal; the best was from Mr. Kendall, of Stoke Newington, named Diana, having light tube and sepals, with rosy crimson corolla—a neat flower of superior form.

The prevalence of the sultry weather had rendered it extremely difficult to keep the PELARGONIUMS in showable condition. Though by no means equalling former exhibitions as to growth and quantity of bloom, they were as good as could be expected at this advanced season of the year. In Collections of 12 new and first-rate varieties among the amateurs, Mr. Staines was the only exhibitor. To his collection, which consisted of the following varieties, the large Silver-gilt Medal was awarded: Trafalgar, Phaeon, Camilla, Magog, Titus, Sarah Jane, Adonis, Duke of Wellington, La Polka, Sultan, British Hero, and Princess Alice.—In the same class, for Nurserymen, Mr. Dobson, foreman to Mr. Beck, received a similar reward for Margot, Desdemona, Rattler, Flora, Prairie Bird, Queen Pomare, Isabella, Mustee, Repealer, Zenobia, Marcus, and Favorita.—For Pelargoniums in collections of 12 varieties in 8-in. pots, Mr. Staines received the large Silver-gilt Medal (as 1st prize) for Vesuvius, Nameless, Sylph, Duke of Wellington, Sunbeam, Apollo, Pluto, Celestial, Matilda, Champion, Achilles, and Erectum. (2d), The Large Silver was awarded to Mr. Robinson, gr. to J. Simpson, Esq., whose varieties were Pride of Surrey, Sylph, Sir Walter Scott, Mulberry, Erectum, Madeline, Duke of Cornwall, Aurora, Mrs. Stirling, Elegans nova, Hero, and Sunrise. (3d), To Mr. Coysh was awarded the Silver Knightian Medal, for Cid, Tasso, Oberon, Comte de Paris, Albert, Prince of Wales, Psycho, White Perfection, Sir Walter Scott, Nabob, Beauty of Clapham, Sir R. Peel, and Erectum.—Mr. Gaines, in the Nurserymen's Class, received the Silver Knightian Medal, for Gazelle, Leander, Amelia, Rising Sun, Witch, Duchess of Leinster, Chieftain, Arabian, White Surrey, Pluto, and Miss Halford.

Several SPECIMEN FUCHSIAS were exhibited, some of them finely bloomed, handsome plants. Mr. Gaines, of Battersea, sent Duchess of Sutherland, in good condition; and Mr. Kendall, of Stoke Newington, a beautiful Erecta elegans, also Enchantress, Sappho, and Miss Prettyman. Fine plants of Exoniensis were produced by Mr. Wells, and Messrs. Frazer, of Lea-bridge; and a light-coloured variety, named Napoleon, was sent by Mr. Jackson, of Kingston. Specimens of F. serratifolia were exhibited by Mr. Stanly and Mr. Fairbairn.

For any deficiency in the Pelargoniums ample compensation was afforded by the beauty of the CARNATIONS and PICOTEES. There was an excellent display of these beautiful flowers; 4 trays of Carnations, containing 24 blooms each, contributed by Messrs. Turner, Norman, Ward, and Dickson, were perhaps never seen in greater perfection. The Picotees also, which are annually improving, received with the Carnations their meed of admiration from the visitors. For Carnations in pans of 24 distinct varieties, in the Amateurs' Class, a certificate was awarded to Mr. Ellis, of Woolwich.—In the Nurserymen's Class, the large Silver Medal was awarded, 1st to Mr. Turner, of Chalvey; 2d to Messrs. Norman, of Woolwich. The collection from the former contained Mansley's Shakespeare, Keller's Prince Albert, Hufton's Miss Thornton, Young's X. Y., Addenbrook's Lydia, Sealey's Princess Royal, Brooks' Flora's Garland, Hepworth's True Briton, Seedling, Puxley's Princess Royal, Barnard's Duke of Roxborough, Elliot's Rainbow, Hale's Prince Albert, Hale's Lady of the Lake, Ely's Lord Pollington, Mansley's Beauty of Woodhouse, Tomlyne's Briseis, Mansley's Bonny Bess, Ely's Duke of Bedford, Hufton's Rosea, Hogg's Epaminondas, Fletcher's Lord Anson, Puxley's Prince Albert, Brown's Duke of Gloucester. Messrs. Norman's stand showed Tomlyne's Rainbow and Briseis, Willmer's Telemachus, Conquering Hero, and Duchess of Kent, Ely's John Wright, Lord Pollington, Duke of Bedford, Lord Milton, and King of Scarlets, Puxley's Princess Royal, Sharp's Defiance, Pollard's First-rate, Rainford's Gem, Boy, Jaques' Georgiana, Mansley's Beauty of Woodhouse, Pearson's Lady London, Sealey's Princess Royal, Malpa's Mary Anne, Barnard's Duke of Roxburgh, Elliot's Duke of Sutherland, Brabin's Squire Meynell, Hale's Prince Albert, Mansley's Robert Burns, Silver Knightian: 1st, Mr. Ward, for Wilson's William IV., Fulbrook's Grenadier, Hufton's Rosa, Ely's Duke of Bedford, Lady Ely, Lord Milton, Regulator, and Prince of Nassau; Smith's Mrs. Betts, Brooks' Flora's Garland, Willmer's Conquering Hero, Cartwright's Rainbow, Ward's Lady Sarah Payne, Calcott's Brutus, Puxley's Princess Royal, Browne's Bishop of Gloster, Brabyn's Squire Meynell, Ely's Hugo Meynell, Ward's 188, Beauty of Cradley, and Roi du Capucin; Hodge's Bright Phœbus, Ely's Mango, and Ray's Prima Donna. Mr. Dickson, to whom the same award was given, showed Puxley's Queen of Roses, Ely's Lady Ely, John Wright, and Lovely Ann; Chadwick's Brilliant and Flora, Barrenger's Apollo, Jaques' Georgiana, Maud's Rowton, Franklin's Queen of Hearts, Brooks' Flora's Garland, Iron's Defiance, Tomlyne's Briseis, Strong's Esther and Duke of York, Hale's Prince Albert, Prince de Nassau, Jaques' Iris, Wood's William IV, Hodge's Bright Phœbus, Hughes' Vesta, Elliot's Duke of Sutherland, and Smith's Superb. A Certificate was awarded to Mr. Griffin, of Uxbridge, for his collection.

For PICOTEES, in the Amateurs' Class, the Large Silver Medal was awarded to G. Edmonds, Esq., of Wandsworth, for a splendid collection of 24 blooms; these consisted of Edmond's Ernest, Augusta, Eliza, Beauty, Mrs. Reeves, and Prince of Wales; Gidden's Teaser, Burroughes' Fair Ellen and Miss Jane, Jessop's Sir Wm. Middleton, Dickson's Mrs. Trahar and Bride, Barraud's Borderer, Wood's Queen Regina, Ely's Mrs. Fenton, Matthews' Enchantress, Mrs Barnard, Crask's Queen, Cook's Unique, Willmer's Princess Royal, Barraud's Borderer, Kirtland's Princess Royal. The Silver Banksian was awarded to Mr. Ellis, of Woolwich, for his collection.—In the Nurserymens' Class the large Silver Medal was taken by Mr. Turner, his tray containing the following 24 varieties: Matthews' Ne Plus Ultra and Enchantress, Burroughes's Mrs. Bevan, President, Lady Alice Peel, and Miss Jane; West's Fair Ellen, Brinkler's Purple Perfection, Crask's Victoria, Crouch's Ivanhoe, Mrs. Barnard, Coster's Matilda, Wood's Princess Alice, Gidden's Miss Desborough, Robinson's Nottingham Hero, Wildman's Isabella, Ely's Favourite, Wilson's Fanny Irby, Green's Victoria, Mansley's Nulli secundus, Tolworthy's Isabella, Sharp's Invincible, Willmer's Princess Royal, and Sharp's Duke of Wellington; 2d, the Silver Knightian Medal to Messrs. Norman, for Jessop's Sir W. Middleton, Willmer's Agnes and Princess Royal, Kirtland's Camilla, and Princess Augusta of Cambridge, Wildman's Isabella, Crask's Queen Victoria and Prince Albert, Sharp's Gem, Barnard's Mrs. Barnard, Wood's Princess Alice, Cook's President, Barraud's Cornelius, Burroughes's Emma, Miss Jane, Mrs. Bevan and President; Green's Queen Victoria, Barraud's Borderer, Morris's Madeline, Ely's Mrs. Lily, Crouch's Ivanhoe, Hudson's Emperor of Russia, Bennett's Nonpareil, and Crask's Prince Albert; 3d, to Mr Dickson, for Trahar's Matilda and Rosalind, Wilson's Fanny Irby, Dickson's Mrs. Trahar, Mr. Trahar, Ely's Favourite, and Field Marshal, West's Matilda, Edmonds' Prince of Wales, Wildman's Isabella, Burroughes's Duke of Newcastle, Cook's President, Sharp's Hector, Red Rover, and L'Elegant, Gidden's Sir R. Peel, Green's Queen Victoria, John's Prince Albert, Matthews' Enchantress, Brinkler's Lord Althorp, Mrs. Barnard, Crask's Queen Victoria, Willmer's Princess Royal, Wilson's Miss F. Irby, Jessop's Sir W. Middleton. 4th. The Silver Banksian to Mr. Ward for Burroughes' Lady Jane, President, Duke of Newcastle, Mrs. Bevan, and Miss Osborne; Garrat's Lady Dacre, Matthews' Enchantress, Green's Queen Victoria, Crask's Queen Victoria, Musson's Charlotte, Wood's Queen Victoria, Brooks' Duchess of Cambridge, Willmer's Princess Royal and Joan of Arc, Ely's Dr. Horner, Willson's Fanny Irby, Jessop's Sir W. Middleton, Barraud's Bride, and Cornelius Hudson's Emperor of Russia, Crask's Prince Albert, Hogg's Miss Campbell, Wildman's Isabella, and Burroughes' Mrs. Flower. A tray of yellow-ground Picotees was exhibited by the Messrs Norman, showing the improvements which are in progress in this class. A certificate was awarded to G. Edmonds, Esq., for a Seedling Picotee named Mrs. Reeves, a flower of good properties—a heavy-edged rosy red.

Country Shows.

Ancient Society of York Florists.—This Society (the oldest in existence, being established prior to 1740) held their second exhibition on the 28th of May; and, considering the unfavourable season, some splendid blooms were staged. Premier prize, Mr. Hepton, with Heroine. *Feathered Roses*: 1, 2, and 3, Mr. Hepton, for Heroine; 4, Mr. Stephenson, for Comte de Vergennes; 5, Mr. Bell, for Dolittle. *Feathered Byblœmens*: 1, Mr. Stephenson, for Baguet; 2, Mr. Summers, ditto; 3, Mr. Bell, ditto; 4 and 5, Mr. Hepton, for Bienfait; *Feathered Bizarres*: 1 and 2, Mr. Hepton, for Royal Sovereign, and Surpass Catafalque; 3 and 4, Mr. Hepton, for Royal Sovereign; 5, Mr. Stephenson, for Sir Sidney Smith. *Flamed Roses*: 1, Mr. Hepton, for Aglaia; 2, Mr. Summers, for Triomphe Royal; 3, Mr. Stephenson, Walworth; 4, Mr. Steward, for Triomphe Royal; 5, Mr. Bell, for ditto. *Flamed Byblœmens*: 1, 2, and 3, Mr Hepton, for Reine de Sheba, Violet Sovereign, and European; 4, Mr. Bell, for Incomparable, Amatu; 5, Mr. Hepton, for La Pucelle. *Flamed Bizarres*: 1 and 2, Mr. Hepton, for Polyphemus, and Grand Cairo; 3 and 4, Mr. Stephenson, for Sir Sidney Smith; 5, Mr. Hepton, for Polyphemus. *Self or Breeders*: 1, Mr. Hepton, for Gibbin's Rose Breeder; 2, Mr Merryweather, for Mine d'Or; 3, Mr. Hepton, for Gibbon's Byblœmen Breeder; 4, Mr. Merryweather, for Mme d'Or; 5, Mr. Hepton, for Gibbin's Rose Breeder.

Dorking Horticultural Society, May 1.—At this, the first meeting for the season, the following prizes were awarded. *Cinerarias*, 4 *plants*: 1, Mr. Whiting, gr. to H. T. Hope, Esq., for Henderson's Eclipse, Johnson's Red Rover, Beauty of Woodcote, and Boyecana; 2, Mr. Rowland, gr. to D. Barclay, Esq. *Collection of* 6 *plants*: 1, Mr. Whiting, for Podolobium trilobatum, Euphorbia splendens, Aphelexis humilis, Azalea ledifolia, A. variegata, and double red; 2, Mr. Heritage, gr to the Right Hon. H. Goulburn, for double red Azalea, A. variegata, A. ledifolia, A. indica magnifica, Erica suaveolens, and E. Hartnelli; 3, Mr. Sanders, gr. to W. Strachan, Esq., for Erica propendens, Siphocampylus betulifolius, and four Azaleas. *Collection of* 3 *plants*: 1, Mr. Reid, gr. to J. Smallpiece, Esq., for Abutilon striatum, Polygala cordifolia, and Azalea variegata; 2d, Mr. Gadd, for Erica tubiflora, Tropæolum tricolor, and Gloxinia rubra. *Specimen plant*: 1, Mr. Scott, gr. to C. Barclay, Esq., for Epacris grandiflora, 2, Mr. Whiting, for Azalea variegata; 3, Mr. Mitchell, for Leschenaultia formosa; 4, Mr. Porter, gr. to Mrs. Wood, for Azalea ledifolia; 5, Mr. Rowland, for A. ledifolia; 6, Mr. Heritage, for Tropæolum tricolor; 7, Mr. Ivery, for Leschenaultia formosa; 8, Mr. Reid, for Euphorbia splendens; 9, Mr. Gadd, for Erica persoluta alba. *A brace of Cucumbers*: 1, Mr. Heritage, for Windsor prize; 2, Mr. Ivery, for ditto; 3, Mr. Truelove, for ditto. *Three heads of Broccoli*: 1, Mr. Truelove, for Smith's Late White; 2, Mr. Ivery, for ditto; 3, Mr. Whiting, for ditto. *Extra prizes*: To Mr. Scott, for a Seedling Azalea; to Mr. Ivery, for a collection of Cinerarias; to Mr. Robertson, Nurseryman, Dorking, for Broccoli.

June 23.—At this, the second Exhibition, the following prizes were awarded:—*Specimen Plants*: 1, Mr. Mitchell, for Leschenaultia formosa; 2, Mr Scott, for Allamanda cathartica; 3, Mr. Rowland, for an Aphelexis; 4, Mr. Whiting, for Euthales macrophylla; 5, Mr. Ivery; 6, Mr. Ansell, for Lilium longiflorum. *Collection of* 6 *Plants*: 1, Mr. Mitchell, for Leschenaultia formosa, L. biloba, L. grandiflora, Polygala cordifolia, Erica ventricosa superba, Epiphyllum speciosum; 2, Mr. Whiting, for Oncidium flexuosum, Sollya linearis, Aphelexis humilis, Erica tricolor, E. ventricosa, E. ventricosa superba. *Collection of* 3 *Plants*: 1, Mr. Rowland, for three varieties of Erica ventricosa. *Strawberries*, 36 berries: 1, Mr. Ivery, for British Queen; 2, Mr. Mitchell, for Deptford Pine; 3, Mr. Rowland, for British Queen; 4, Mr. Truelove; 5, Mr. Heritage for Keens' Seedling. Several other prizes were awarded for Calceolarias, Pelargoniums, Roses, &c., but we have only been furnished with a list of awards without the names of the flowers for which they were given.

The Scottish Pansy Society.—The second annual exhibition took place in the Calton Convening Rooms, Edinburgh. Although the weather had for a considerable time been too dry for bringing the Pansy to perfection, the blooms shown reflected much credit on the florists' skill. The following prizes were awarded:—24 *Blooms*: 1, Mr. Nielson, Falkirk, with Rollo, Cloth of Gold, Brilliant Perfection, Princess Royal, Oliver Moonshine, Purity, Pitho, Pizarro, Grotius, Mary Jane, Dido, Trafalgar, Success, Optimus, Prince of Wales, Captivation, Jewess Superb, Actæon, Dulcifer, Juno, Cotherstone, Hannibal, Black Bess, and Prince Albert; 2, Mr. M'Intosh, Parkhill Garden, with British Queen, Sulphurea elegans, Rolla, Pizarro, Curion, Cloth of Gold, Jewess Superb, Rob Roy, Ondine, Brilliant, Mulberry Superb, Prince Albert, Mrs Harcourt, Prince of Wales, Cotherstone, Cook's Brilliant, Azurea, Coronation Superb, Vivid Superb, Vivid, Regulator, Peter Dick, William Tell, and a Seedling; 3, Mr. Downie, gr. to J. Russell, Esq., of South Bank. 12 *Blooms*: 1, Mr. Meldrum, Dunfermline, with Pizarro, Othello, Robert Ferguson, Highland Mary, Lawsonii, Black Prince, Mrs. T. N. Paton, Virgil, Daniel Defoe, Shepherdess, William Tell, and Timothy Trotter: 2, Mr. Miller, gr, Kennet Pans, with Jewess Superb, Prior, Daniel Defoe, William Tell, Vivid, Robin Hood, Pizarro, Brilliant, Prince of Wales, Vandyke, Prince Albert, and Purple Perfection; 3, Mr. Kerr, gr. to R. Brown, Esq., of Forth. 6 *Blooms*: 1, Mr Michie, Hawick, with Gem, Pre-eminent, President, Excellent, Clio, and Arabella. *Seedlings, &c.*: Mr. M'Intosh exhibited 12, No. 1, a dark purple, self, of good form and substance, but apparently rather small, having a singular eye, shaded with mazarine blue No. 2, dark maroon, self, also good form, &c., and both are recommended by the judges for farther trial. Messrs. Dickson and Co, also exhibited 6 promising Seedlings, No. 1, sulphur coloured, of good form and substance, with a fine eye, named Mrs. Richardson. Several other prizes were awarded; but we have only been furnished with a list of awards without the names of the flowers for which they were given.

Reviews.

E. Beck's descriptive Catalogue of Seedling Pelargoniums of 1844 *and* 1845, *with directions for their cultivation, blooming, &c.*

THIS little pamphlet is a step in the right direction. It is what it professes to be, and may serve as an example that may be followed with advantage by florists generally. The directions for the cultivation are the results of experience, and may be safely recommended to those who cultivate this favourite flower, as containing many useful hints. The seedlings described are those raised by Mr. Beck and sent out last year, with those to be sent out at the termination of the present season The descriptions are derived from an impartial source. The flowers having appeared so recently and so frequently during the present season in the winning collections, comment upon them is unnecessary.

Miscellaneous.

Sale of Orchids.—On Wednesday last a fresh importation from Guatemala was brought to the hammer by Messrs. Stevens. As was to be expected from the numbers previously sold having been very large, the present opportunity enabled buyers to procure them on more moderate terms than formerly. The highest sum realised was 7*l* for a new Cattleya; a Mormodes, probably not different from M. Buccinatum, fetched 5*l*, as did a fine Barkeria spectabilis. One Epidendrum Stamfordianum produced 2*l*. 10*s*., but 5 small plants only 15*s*. Other prices were as follows:—Cattleya Skinneri from 12*s* to 1*l*. Oncidium leucochilum, 10*s*. A large Epidendrum laccrtinum, 1*l*. 10*s*; smaller specimens as

little as 3*s.* Lycaste Skinneri from 1*l.* 8*s.* to 2*l.* 2*s.* Cycnoches Egertonianum, 2*l.* 12*s.* 6*d.* Laelia superbiens from 12*s.* to 1*l.* 2*s.* Epidendrum bicornutum roseum, 2*l.* Lacæna bicolor, 2*l.* Altogether the sum produced was 170*l.* for 182 lots.

Extraordinary Flight of Butterflies.—One of the largest flight of butterflies ever seen in this country, crossed the Channel from France to England, on Sunday last. Such was the density and extent of the cloud formed by the living mass, that it completely obscured the sun from the people on board our continental steamers, on their passage, for many hundreds of yards, while the insects strewed the decks in all directions. The flight reached England about 12 o'clock at noon, and dispersed themselves inland and along shore, darkening the air as they went. During the sea passage of the butterflies the weather was calm and sunny, with scarce a puff of wind stirring; but an hour or so after they reached *terra firma*, it came on to blow great guns from S.W., the direction whence the insects came.—*Canterbury Journal.*

Commercial value of Insects.—The importance of insects, commercially speaking, is scarcely ever thought of. Great Britain does not pay less than a million of dollars annually for the dried carcases of the tiny insect, the cochineal; and another Indian insect, gum shellac, is scarcely less valuable. More than a million and a half of human beings derive their sole support from the culture and manufacture of silk; and the silkworm alone creates an annual circulating medium of nearly 200 millions of dollars. Half a million of dollars is annually spent in England alone for foreign honey; at least 10,000 cwt. of wax is imported into that country every year. Then there are the gall nuts of commerce, used for dyeing and making ink, &c.; while the cantharides or Spanish fly is an absolute indispensable in materia medica.—*Boston Transcript.*

The Death's-Head Moth.—Twenty specimens of full-grown larvæ of this scarce moth have been taken from the plant Lycium Europæum, or Tea-tree, in Terrace-lane, at the back of Downing-terrace, growing over the top of the house on the slate. They were first discovered on Saturday, the 4th inst., by four or five falling from the roof on to the pavement. The occupiers of the house killed them as monsters unknown. Mr. Denny, of Downing-terrace, was fortunate enough to obtain about a dozen of them. A ladder was obtained, and 12 fine full-grown specimens are now gone to earth for their transformation. Mr. Denny states that he never found the caterpillar before, except on the Potato, Jasmine, Woody Nightshade, Thorn-apple, and Elder, but never recollects any being taken upon the Lycium.—*Cambridge Chronicle.*

Calendar of Operations.

(*For the ensuing Week.*)

Propagation of Flowers for Masses.—This is a most important matter, and much depends on its being performed in due time. If store plants for the ensuing year are propagated and potted off too late, they will not be easily preserved during the winter; the sooner this matter is proceeded with therefore the better. A raised bed should be prepared in a situation where constant attention can be given. The soil should be free and rather sandy, and should be made somewhat fine, as is usual for cuttings, and a canvas screen should be always at hand to ward off continued sunshine. After the bed is made particularly level, in order to equalise the moisture by watering or otherwise, a lot of striking-glasses should be placed ready to cover the cuttings as they come to hand; for after all it must be a progressive work. Choice Verbenas, Calceolarias, Pelargoniums, Anagallis, Petunias, Heliotropes, Fuchsias, Nierembergias, Perpetual Roses, Pentstemons, Mule Pinks, Picotees, Double Wallflowers, Jacobæas, with numerous other mass or border-flowers, may be successively put out, as cuttings of a proper character can be obtained. They should be slightly watered when put out, and should receive a slight shading in sunshine for the first month, after which they may be gradually inured both to sunlight and air.

CONSERVATORIES, STOVE, &c.

Conservatory.—Follow up shifting with such of the hard-wooded tribes as require it. A turfy compost of three parts sandy heath soil, of a fibrous and rather lumpy character, and one part sound loam of a similar texture, will suit the majority. The more tender kinds will require lumps of charcoal, stone, or crocks, introduced occasionally until near the surface of the pot. Let every attention possible be paid to the most thorough drainage; this cannot be too complete, taking care especially to use very hollow crocks at the bottom, for if these lay too flatly, and become closed up in consequence, it matters little how much depth of draining material rests upon them—all will be stagnation. *Mixed Greenhouse.*—Shifting will be the order of the day here also. Attend to the principles of thorough drainage as explained in the Conservatory section. Keep a sharp eye on the winter flowers. Now is the time to lay the foundation of a good late display. Cinerarias, Chinese Primroses, the Anne Boleyn Pink, Heliotropes, Fuchsias, in succession; Chrysanthemums, and above all, the Perpetual, Tea, and other Roses, must be well attended to in regard to watering, shifting, &c. Remember that the final shift should be given betimes to those intended to flower in the autumn.

KITCHEN GARDEN FORCING.

Pines of all ages will now be making very great progress, attend to shifting in due course; water with liquid manure rather frequently, except where heavy syringing is practised, which, with high temperatures and occasionally a lively circulation of air, will supersede, in some degree, the necessity of much watering. Be sure to give abundance of air to all rapid-growing young stock in dung pits. *Vineries.*—Continue to remove, in a progressive way, the laterals of ripening Grapes, provided they shade the main leaves; otherwise they are of benefit, in my opinion. Give abundance of air as soon as Grapes begin to colour, and do not, by any means, hurry that part of the process, more especially if heavily cropped. *Figs* as before. *Peaches.*—The early crop, if gathered, may have the lights taken off; it will tend to keep the young wood in a healthy state for a longer period: however, there is no absolute necessity for this. Those intended for very early forcing may have any late rambling growths stopped, in order to stay the action of the root and induce an early rest. Syringe, however, heavily morning and evening, using a thin decoction of soap-suds occasionally. *Late Melons.*—As soon as a crop is set and swelling, give the exterior of the hills a soaking of warm liquid manure, depending on light syringings afterwards and shutting up early on all bright days. Do not abandon linings through the circumstance of a sunny day or two occurring. Endeavour to keep the bottom heat from 5° to 10° in advance of the average atmospheric heat.

KITCHEN GARDEN AND ORCHARD.

See that newly planted crops of Greens, Broccolies, &c, receive a good watering or two to give them a start, provided the weather is bright and dry. Sow another bed of Endive forthwith; this will come in very useful. Follow up planting Celery as spare ground and suitable weather occurs, and be sure to water most thoroughly that already planted. People sometimes complain of their Celery plants "running;" Celery plants removed in a gross state need little more than drought to bring on the flowering habit. Get a good breadth of ground ready for a crop of Winter Coleworts; do not be afraid of manure for them. *Orchard.*—Persevere in pruning back or eradicating all superfluous broastwood, more especially in trained trees. Get all summer nailing completed as soon as you are able, remembering that the wood of Peaches, Nectarines, and Apricots is seldom over ripe in this climate, frequently, indeed, the reverse. Disbud the gross wood from Figs, reserving the moderate wood, but, above all, the short-jointed.

FLOWER-GARDEN AND SHRUBBERIES.

Trimming, staking, and pegging down must be well followed up at this period, provided high dress is required. See that extra strong stalks are afforded to plants of heavy foliage and gross habits, as the Dahlias, Delphiniums, Asters, Phloxes, &c., &c. Continue to fill up blanks as they occur, from the reserve ground, and attend to the layering of Carnations.

COTTAGERS' GARDENS.

As in last Calendar. If the Potato disease returns, I would advise that the haulm be cut off immediately and burnt; quicklime should be tried, slaked on the spot, to prevent its ravages in the earlier stage.

State of the Weather near London, for the week ending July 16, 1846, as observed at the Horticultural Garden, Chiswick.

July	Moon's Age.	Barometer. Max.	Min.	Thermometer. Max.	Min.	Mean.	Wind.	Rain
Frid. 10	16	29 997	29.734	78	48	59 0	S.	.39
Sat. 11	17	30 140	30 013	73	49	61.0	W.	
Sun. 12	18	30.142	30.070	76	49	62 5	W.	
Mon. 13	19	30.068	29.717	87	58	72.5	S.	
Tues. 14	20	29 771	29 664	84	54	69.0	S.	
Wed. 15	(	29.907	29 812	76	55	65.5	S.W.	
Thurs. 16	22	29.764	29.504	70	55	62.5	S.W.	.02
Average		29 987	29.797	77.3	52.1	64.7		.41

July 10—Rain; heavy showers; clear
11—Partially overcast; light clouds and very fine throughout
12—Clear and very fine
13—Cloudless and hot; clear and fine at night
14—Cloudless, with hot breeze; very fine at night
15—Overcast; very fine throughout
16—Slight rain; very fine; cloudy
Mean temperature of the week 2 deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending July 22, 1846.

July	Aver. Highest Temp.	Aver. Lowest Temp	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds 9 A.M.	3 P.M.	9 P.M.
Sun. 19	7	51.4	61.8	11	0.60 in.	1 —	1 1	6 3
Mon. 20	70 7	51.4	61.0	13	1.47	1 —	1 —	1 3
Tues. 21	71.7	51.3	61.5	7	0.84	2 —	1 —	3 6
Wed. 22	71.3	52.0	61.7	13	1.37	2 3	1 —	2 6
Thur. 23	71.4	52.9	62.1	8	0.40	1 3	3 —	1 3
Fri. 24	72.5	52.7	62.6	4	1.02	— 6	3 1	2 4
Sat. 25	74.7	52.3	63.4	4	0.22	2 4	2 —	1 3

The highest temperature during the above period occurred on the 25th, 1844—therm. 92° ; and the lowest on the 20th, 1838, and 22d, 1836—therm. 40°.

Notices to Correspondents.

POST-OFFICE ORDERS.—In order to obviate the inconveniences which are now constantly being experienced by parties who wish to remit small sums to the office of the GARDENERS' CHRONICLE for Advertising, we have to request that all Post-office orders may in future be addressed to Mr. JAMES MATTHEWS, 5, Upper Wellington-street, Covent Garden, and made payable at the Post-office, 180, Strand, London. Post-office orders, remitted by Subscribers for the Paper, should be sent to the respective Agents who supply them.

FRIED CORK.—*A Subscriber* inquires with reference to the recommendation of cork cut into slices and fried as a good mode of destroying rats and mice, whether poultry, pigs, and dogs would not be liable to eat them and be injured by it? Of course, should this be the case, the advantage of the plan would be much diminished, as the haunts of the rats are often accessible to other animals, especially to poultry. Will "Anon." be so good as say what his experience is in this matter?

HARD WATER—*E H*—Try to soften it by dissolving in it a little carbonate of ammonia. It must be made the subject of *experiment.*

HEATING—*Amateur*—If your boiler has power enough, we see no reason why you should want tan at all, if you have no other object than what you mention. A couple of 4-inch pipes will give you ample heat. If you wish for tan in order to get a little bottom-heat for striking cuttings, you can use it so, but it is not required for heating the house.—If you have lost your first crop of Grapes, destroy the second; but there must have been bad management somewhere.

INSECTS—*R W S*—You are right. It is the Altica nemorum, called Turnip-fly, which is devouring the leaves. *R.*——*P A*—Please to send us the caterpillars, and we will advise you what is to be done. *R.*——*A Constant Reader*—If you will turn up the earth and find the nests of the ants, and pour *boiling* water into them, the insects must be destroyed; or you can water with gas-water along the base of the wall. *R.*——*G B*—The slug-caterpillars, which feed upon the leaves of the Pear-tree, change to a saw-fly, called Selandria cerasi. Cannot you syringe the tree with Tobacco water, and afterwards dust the leaves with soot and wood ashes? *R.*——*A Constant Reader*—No. 1 is Julus pulchellus; 2, the true Wireworm; 3, Scolopendra longicornis; 4, Julus terrestris. *R.*

LAURELS—*Alpha*—Prune them in April; this is not so good a time; for if we have a wet autumn they will not ripen their wood. We know of no work on Figs separately; neither do we dare answer your law question. You should consult some ecclesiastical lawyer.

LAWS—*I O N*—We really cannot venture to give you a legal *opinion;* we presume that you have no remedy, but you should consult your solicitor.

NAMES OF PLANTS—*D L*—2, Escallonia rubra, and 1 must be the same.——*E S*—Chenopodium Bonus Henricus.——*W W*—Clitoria Ternatea.——*R B*—Tecoma jasminoides.——*Ghent*—No. 567 is a new Stanhopea, and a very curious one. We never saw it before; it is near saccata.——*Broughton*—Epidendrum radiatum and Brassia pumila.

PARAFETTICOAT—*Gulielmus*—We did not expect that a jest would have met with learned criticism. Of course the word is absurd—but what then? it does well enough; and if it had been better people would have been less likely to read what is said about it. The main point is the contrivance, and that is capital.

PINES—*J W*—Under your circumstances it would have been impossible to prevent some of the plants from starting; we only wonder that it has not happened to more. You have done all that you or any one else could do. They must take their chance now.

POLMAISE—*P*—You shall hear about this very soon.

POTATOES—*Tizy*—Your suggestion respecting the paper is not practicable. We dare not advise you what to do with the Potato field. Some which were looking deplorably a fortnight since have rallied wonderfully under the present hot weather, and seem to be getting the better. All depends on the state of your crop, of course, if it is gone past hope, the sooner you get it off the land for something else the better. Accounts are as conflicting as ever, in some places the mischief seems to be already serious, as will be found by the following extract from the *Daily News*:—"It is with extreme regret we, says the *Ulster Gazette*, have learnt from various quarters that the Potato disease has made its appearance in a most destructive and extensive form in several localities in this and some of the surrounding counties. At the Diamond; at Charlemont; at Corr and Derravalley it has set in, and is rapidly making its devastations; and we have been informed by Mr. Legatt, the intelligent steward of the Earl of Roden, at Dundalk, that it has manifested itself in the fields under tillage on his lordship's farms in that neighbourhood. At Castle-Bellingham county Louth, the disease is so bad, and is so rapidly spreading, that Sir Allan Bellingham has ordered a large field of diseased Potatoes to be dug up and given to the peasantry and the poor about the neighbourhood, and the field is now in progress of being sown with Turnips." It has appeared already in Perthshire, and about Cardiff, as we learn from our own correspondents. In a month we shall know our fate.—As to seeds, they have not been generally good this year. We have no idea that Oaks from cuttings (they *may* be struck) will make good trees; they are more likely, in this climate, to become bushes.

ROSES—*One whom a Garden makes happy*—All Roses *may* be struck from cuttings, with due care; but the old French and Provins sorts are slow in making good plants, and are much better budded. Nine of the seeds have grown, but we fear that they are not of any value; we shall see when they flower.

TUBEROSES—*A Constant Reader*—We will reprint the article by and by; this is not the season.

WATERING—*A B*—If you can loosen the surface of the ground and soak it with water in the evening, the garden will be much benefited, but a slight sprinkling is of little service; the reason why gardeners object to watering in hot weather, is that the ground is apt to become baked.

MISC.—*J U Y*—Your enquiry has no relation to the purposes of this Journal, nor have we any knowledge of the subject you ask about. You should enquire of some one in the Royal Navy.——*Henry*—Your Seagull needs little feeding in summer. It is in winter when it can get no worms or other picking that it requires to be fed. He is fondest of fish; but when hungry will eat boiled Potatoes, porridge, &c. It will, however, be cruel to attempt to keep him unless you have a pond for him to swim in.‡——Full price for No. 2, 1846.

SEEDLING FLOWERS.

CALCEOLARIAS—*M M R D*—Compared with the Calceolarias raised in this part of the country, your specimens appear remarkably small; all varieties with impure grounds should be rejected; as 1, 5, 24, 28, 32, 34. The best of your flowers are, 3, 7, 10, 13, 18, 19, 21, 22, 27, 30, and 36; the rest are small, or too much like some of the others.*——*J W*—There is nothing remarkable in your flowers; they are small and similar in marking to many varieties we have seen.*

FUCHSIAS—*G N I*—An improvement on Smith's Queen Victoria in form, colour, and size, with a lighter tube, and having the corolla more exposed: a fine showy variety.*——*W C*—Your seedling is pretty in colour, but there are several varieties in cultivation larger and very superior to it.*

GLOXINIAS—*Drysdale*—Your seedling appears to be no improvement on the kinds already in cultivation.‡

PELARGONIUMS—*W H W*—Your seedling is stout and well formed, but not a flower of first-rate quality; the top petals are not sufficiently even, and the centre wants whiteness: it will be a useful flower.*

PETUNIAS—*Z Z*—Nos. 1 and 2 are the best varieties among your seedlings; 3 is good, but common in colour; 4, though pretty, is inclined to be coarse; and 5 is decidedly too coarse.*——*H Z*—No. 1 is very pretty, and, provided the marking is permanent, a desirable variety; 2 also is pretty, but the variegation is not sufficiently distinct.*——*T D*—King and Queen are both coarse varieties, and the former an ill-formed flower. Eclipse, Surmise, Gipsy, Picta, and Splendens are not equal to similar sorts we have seen; Bursetii and Alaria are pretty veined varieties; Caroline, mottled crimson, good; Atrorubens, ditto; and Nigricans, a rich velvety purple, the best of its colour we have seen.*——*W A C*—Your seedling Petunia is very large and showy, but there is a degree of coarseness in the texture of the flower; as a showy border variety, it will have a striking effect from the size of the flowers.*

VERBENAS—*Z Z*—Your seedling is novel and very pretty; rosy purple ground with a margin of violet purple round the division of the corolla. This is one of the best variegated varieties we have seen.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

THE LONDON MANURE COMPANY beg to offer Genuine PERUVIAN GUANO, delivered direct from the Importers' bonded warehouses:—

Nitrate of Soda,	Fine Bone Sawdust,
Sulphate of Ammonia,	Sulphuric Acid,
Superphosphate of Lime,	Sulphate of Soda,
Gypsum,	Petre Salt,

And every article of Artificial Manure in the most genuine state.—No. 40, New Bridge-street, Blackfriars.

EDWARD PURSER, Secretary.

The Agricultural Gazette.

SATURDAY, JULY 18, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, July 22—Agricultural Society of England.
THURSDAY, — 23—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, — 29—Agricultural Society of England.
THURSDAY, — 30—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.—Ross—E. Lothian—Wiltshire.

FARMERS' CLUBS.

July 21—Bromsgrove
— 28—Plymton St. Mary
— 27—Wellington
July 29—Newton
— 30—Otterу St Mary
— 31—Hadleigh—Wakefield

THE MEETING OF THE ENGLISH AGRICULTURAL SOCIETY AT NEWCASTLE has been, in some respects, inferior even to that of the meeting at Shrewsbury—particularly as regards the exhibition of implements, to which we have alluded in another column—but in others it has been vastly superior to any that has yet taken place. We refer to the adoption of discussions on topics selected by the Society—discussions led by gentlemen named by the Council, and afterwards carried on by the farmers present. These have been eminently successful. They have been admirable developments of the Society's motto—"practice with science."

The lecture by Prof. JOHNSTON on the *principles* of manuring, as a commencement, followed up by the *practical remarks* of Mr. THOMSON, on the management of dung-heaps; of Mr. CROMPTON, on the use of liquid manure; of a gentleman from Aberdeen, on the proper size of tanks for collecting it; of Mr. SMITH, of Deanston, on a method of applying it; and of other gentlemen on various points of practical interest, formed altogether a body of information of the most satisfactory character. Professor JOHNSTON made some useful observations on the importance of education to the farmer; and these were corroborated by Lord PORTMAN at the close of the lecture. *This* is the sort of education which the farmer wants—one combining the mental exercise of ordinary schools with the professional instruction which experience alone can convey—one whose teachings shall be such as we in common with some hundreds of others, have this week had the pleasure of listening to in the lecture-room at Nelson-street, Newcastle-upon-Tyne.

We overheard on our way thither that "every farmer with a chemical head is well known to have a lean pocket." Could we have gathered up the sentiments of the majority as they *left* the place, we are persuaded that it would have more fully echoed the motto of the Society than this; that while practice would have been acknowledged as the only true test of ability, the scientific acquirements of "a chemical head" would also be valued as of use in the guidance of the farmer.

The discussions on drainage, too, under the able leadership of Mr. PARKES, were most instructive, and enchained the attention of an audience quite as large as the room could comfortably accommodate for nearly three hours.

Mr. THOMSON, and those who assisted him in establishing these lectures, must be highly gratified at the success of their undertaking; and we hope that they will succeed in inducing the Council next year still further to develop the principle involved in them—that of sectional discussions before and amongst limited numbers.

IN further pursuing our remarks on the conversion of PASTURE-LAND, we come now to consider the interests of those whose capital and skill are spent in its cultivation. Where the tenant of a Grass farm has his means already fully engaged in its management, then, as we have already said, it is not the interest of the landowner to permit the conversion of his fields. But there are many grazing farmers who have the extra capital necessary for the cultivation of arable land; and the question for their consideration is—"Shall I not find it profitable to invest it thus, my landlord giving me permission?" And there are many young farmers about to enter into business, and the question for their consideration is—"How can I invest my capital in agriculture so as to derive from it the largest annual return? By taking a large Grass farm, and turning dairyman or grazier, or by taking an arable farm of perhaps half the size, as it will require double the acreable capital, and turning *cultivator* in the true sense of the word?" Now this latter question includes the former, and we shall endeavour to answer it.

We are well aware of the general fate of agricultural estimates; their results depend upon such fickle and unforeseeable circumstances that they are rarely realised. But we shall adopt such circumstances as will be acknowledged by common and average experience for our data, and we hope that the following statement may be depended upon.

The case is this—"I have about 2500*l.*, and am possessed of sufficient skill to take either a dairy farm or an arable farm; and the following offer is made to me—'Here is a dairy farm of 370 acres, at a rental of 30*s.* per acre; you may take this; or if you prefer it, you may take 200 acres of it, with permission to break it up; only, as I shall build upon it a suitable farmery; and as I shall have to drain considerable portions of it, I shall add 20*s.* an acre to the rent?' This is the alternative for my decision. The rent is the total annual payment to landlord, clergyman, and parish; and I am satisfied that in either case it is on a pretty fair valuation. I find that the capital required is, in either case, about the same, and the question for my decision is in which position am I likely to make the most money." This question let us endeavour to answer. But first let us consider what capital is needed in the two cases?

1. The Pasture-farm of 370 acres.

Now as a sort of guarantee for the accuracy of the following statement, we shall transcribe from the note book of a practical farmer and valuer the following memorandum (date 1828), being the result of an investigation into the stock kept on the seven farms in a certain parish in Gloucestershire, consisting almost wholly of Pasture-land, or, to speak accurately, of 913 acres of pasture, and 20 acres of arable land.

No.	Acres	No. of Cows.	Yearlings and 2-year-old heifers.	Rent.	Rent per Acre.
1	117	31	8	£220 0 0	£2 0 0
2	73	20	6	140 0 0	2 0 0
3	130	35	8	200 0 0	1 10 0
4	160	40	13	240 0 0	1 10 0
5	153	45	10	290 0 0	1 18 0
6	145	40	8	260 0 0	1 17 0
7	155	40	10	240 0 0	1 18 0
	933	251	63	1590 0 0	1 14 1

Now we shall stock our farm as those in the above Table are stocked, whose rent is 30*s.* per acre, and we shall probably be at the following expense:—

1.—*Stock.*

4 horses at 30*l.*	£ 120 0 0	
90 cows at 12*l.*	1080 0 0	
10 calves at 2*l.*	20 0 0	
10 yearlings at 5*l.*	50 0 0	
10 2-year old at 8*l.*	80 0 0	
15 sows and pigs at 2*l.*	30 0 0	
		£1380 0 0

2.—*Implements.*

3 waggons at 20*l.* (or 2 waggons and 2 carts)	60 0 0	
Dairy implements	20 0 0	
Sundries, as troughs, hurdles, &c.	20 0 0	
		100 0 0

3.—*One year's Expenses.*

This we shall justify when considering the labourer's interest in this subject—about 17*s.* per acre		315 0 0

4.—*One year's Rent.*

360 acres at 30*s.*		540 0 0
Total capital needed		2355 0 0
But from this may be deducted half a year's rent		270 0 0
Leaving		£2065 0 0

Or about 5*l.* 8*s.* 6*d.* as the capital needed per acre on this pasture farm.

2. The arable farm of 200 acres.

1.—*Stock.*

3 pair of horses at 30*l.* each horse	£180 0 0	
To consume 25 acres of Clover—8 sheep per acre—or 200 sheep bought in May at 25*s.*	250 0 0	
these kept on during winter with 150 sheep bought in October at 30*s.*	225 0 0	
and 20 head of oxen bought in Nov. at 12*l.* each, will suffice for the consumption of 65 acres of roots and 10 acres of Beans or Peas	240 0 0	
4 breeding sows	15 0 0	
		£910 0 0

2.—*Implements.*

6 carts, or 2 carts and 2 waggons	60 0 0	
3 ploughs at 5*l.*, 3 pair harrows at 3*l.*, 1 scarifier at 10*l.*	34 0 0	
1 roller 5*l.*, 2 horse-hoes at 4*l.*, 1 Turnip drill, 6*l.*	19 0 0	
1 corn-drill	30 0 0	
Troughs, hurdles, &c.	27 0 0	
		170 0 0

(3). *One Year's Expenses.*

This we shall justify when discussing the labourer's interest in the subject—about 38*s.* per acre	380 0 0	
1 year's horse keep, 6 horses at 20*l.*	120 0 0	500 0 0

(4).—*One Year's Rent.*

200 acres at 50*s.*	500 0 0

(5.)—*Conversion of Grass.*

We must add expense of breaking up Grass lands. We will suppose one-half to be pared and burnt, 100 acres at 30*s.*	150 0 0
Total capital needed	2230 0 0
From this might be deducted half a year's rent, or	250 0 0
Leaving	£1980 0 0

Or about 9*l.* 18*s.* 0*d.* per acre.

And now let us consider which mode of farming will yield the largest income from the investment of this capital.

I. PASTURE FARM.

Annual Income.

1. 90 cows, at 3¼ cwt. of cheese annually, or 315 cwt. of cheese, at 50*s.*	£787 10 0	
And for whey butter, at 2*l.* per cow	180 0 0	
2. 10 cows with their calves, sold off at 14*l.*	140 0 0	
3. 70 calves, at 2*l.*	140 0 0	
4. Pigs: 1 fat pig to every 4 cows, at 4*l.* per pig. Deduct 1*l.* for meal, &c.; 22 pigs, at 3*l.*	66 0 0	
		£1313 10 0

Annual Outgoings.

1. One year's expenses of labour, at 17*s.* per acre	315 0 0	
2. Rent	540 0 0	
3. Interest on capital, 5 per cent. on 2000*l.*	100 0 0	
		955 0 0
Leaving		£358 10 0

as the farmer's income from which his household expenses, &c. &c., will be paid.

This income will also have to keep the implements good, and to bear risk of loss by death among the stock. It will thus be reduced on an average by

10 per cent. on 100*l.*, value of Implements, or	£10 0 0
And 5 per cent. on 1380*l.*, value of stock, or	69 0 0
This will bring it to, per year	£279 10 0

And, lastly, consider the income derivable from the capital invested in arable culture.

II. ARABLE FARM.

Annual Income.

60 acres of Wheat, at 36 bush. (a large average, but remember the land is worth 50*s.* an acre), 270 qrs. at 50*s.*	£675 0 0	
20 acres of Barley, at 40 bush.; 100 qrs., at 30*s.*	150 0 0	
10 acres of Oats (the other 10 acres will go to feed the horses and for fatting stock, &c.), at 7 qrs. per acre; 70 qrs., at 20*s.*	70 0 0	
10 acres of Beans* are sown, and their produce or the value of their produce spent on Peas, cake, &c., will help forward the fatting stock. 200 sheep, bought in May and sold after 12 months should pay 8*d.* per week at least; 200, at 34*s.* 6*d.*	345 0 0	
150 sheep, bought at 30*s.* each in Oct., and sold in May, should pay 9*d.* per week; 150, at 19*s.* 6*d.*	146 5 0	
20 oxen, bought in Nov. and sold in May—say 20 weeks, at 5*s.* a week; 20 oxen, at 5*l.*	100 0 0	
40 store pigs, at 1*l.*	40 0 0	
		£1526 5 0
Gross annual income		£1526 5 0

Annual Outgoings.

One year's labour, as per former account, deducting 120*l.* for horse-keep, which is supplied by 10 acres of Oats, and Carrots, &c., and some Beans also grown on the farm	£380 0 0	
Seed.		
60 acres of Wheat, at 2 bush.; 120 at 7*s.*	42 0 0	
20 acres of Barley, at 3 bush.; 60 at 4*s.*	12 0 0	
20 acres of Oats, at 4 bush.; 80 at 3*s.*	12 0 0	
25 acres of Clover-seed and Rye-grass, at 1*l.* per acre	25 0 0	
20 acres of Swedes, 5 lbs. per acre; 100 at 1*s.*	5 0 0	
5 acres of Carrots, 5 lbs. per acre; 25 at 1*s.* 6*d.*	1 17 6	
20 acres of Mangold Wurzel, 5 lbs. per acre; 100 at 1*s.*	5 0 0	
20 acres of common Turnip; 100 at 9*d.*	3 15 0	
Rent	500 0 0	
Interest on capital, 5 per cent. on 2000*l.*	100 0 0	
		£1086 12 6
Leaving		£439 12 6

This income will also have to keep the implements good, and it will have to bear the risk of losses by death among the stock. It will thus be reduced on an average by

10 per cent. on implements (170*l.*)	£17 0 0
And 5 per cent. on live stock (910*l.*)	45 10 0
	62 10 0

Which will reduce it to £377 2*s.* 6*d.*

According to this calculation, and we believe it to be a pretty fair one (although it, perhaps, represents the case too favourably for the farmer in both cases), a tenant farmer may make about 280*l.* a-year off a capital of 2060*l.* in dairy farming, and he may make an income of 380*l.* (?) off a capital of 1980*l.* in arable farming. Whether or not the actual sums here stated be *quantitatively* correct, we believe that they are *relatively* accurate, and that from a given capital more money is to be made in arable farming than in pasture, especially when the farm is not entered on out of condition, but in the state of fertility which always belongs to newly broken up land.

After having thus illustrated this branch of the subject, we might here leave it, and commence on the interest of the labourers in the matter; but we wish to say one word further on that connection between landlord and tenant which will most conduce to the interests of both.

Why is it of importance that the farmer should possess both sufficient capital and sufficient intelligence before it is advisable for his landlord to permit him to break up his pastures? Simply that in the first case it may *be* his interest to treat the land well, and that in the second *he may see it* to be so.

* It will be observed that on this farm of 200 acres we grow 60 acres of Wheat, 20 of Barley, 20 of Oats, 20 of Beans, 20 of Swedes, 20 of Mangold Wurzel, 20 of common Turnips, 5 of Carrots, and 25 of Clover. A rotation to bring about this produce is easily arranged.

Now, nothing is so likely to induce a farmer to treat the land well as to assure him of his tenancy for a term of years, and we would draw from the case of newly broken up land an *à fortiori* argument for the advantage of "the lease." But there is this additional benefit derivable from it for the landlord that, give the tenant a lease of 14 years at the present value of this wet pasture farm, with permission to break it up, and he will execute the drainage himself, according to a plan agreed upon between him and his landlord; or give him a 21 years' lease, and he will also erect the buildings himself, according to specifications agreed upon between the parties. There are few landlords who possess the means of taking all their estates in hand at once, and improving them in accordance with the present state of agriculture. Well, here is a method by which they may put a share of the burden upon others, who will be ready to bear it upon those conditions of lengthened tenancy to which we have alluded.

FEEDING SHEEP.

(From a Cornish Paper.)

It will be in the recollection of our readers that a resolution was passed several months since by the members of the Probus Farmers' Club, to undertake a series of experiments on the feeding of Sheep, on Barteliver farm, under the management of Mr. R. Doble, in order to test the experiments of Professor Playfair and Mr. Morton, conducted on Whitfield farm, on the same subject. The results on Whitfield farm showed that five sheep fed under a dark warm shed, consumed less than one-half the quantity of food consumed by five fed in the open field; with an increase at the same time of 4 lbs. more mutton during six weeks. The argument drawn from this was, that warmth was an equivalent for food, that the protection afforded was equal to a certain amount of Turnips, and that, therefore, food may be economised by protecting the farmer's live stock from cold and wet, during the winter. The experiments on Barteliver farm, during 12 weeks, from the 5th December, 1845, to the 28th February, 1846, show a different result from those on Whitfield farm. Three lots of Leicester sheep were selected from one flock, of nearly equal weight, each lot consisting of five sheep.

No. 1 was fed in an open field, exposed to the vicissitudes of the weather, on an unlimited quantity of Swedes and Grass.

No. 2. Fed in an open house, having a yard attached, and therefore less exposed to the influence of atmospheric changes than No. 1.

No. 3. Fed in the dark, in a close warm shed.

The two last lots had an unlimited supply of Hay and Swedes, and the weight of each consumed was accurately determined daily. The weight of each lot of sheep was ascertained before the commencement of the experiments, and the results are as follows:-

Lots.	Average live weight, Dec 5, 1846.	Average live weight, Jan 17, 1846.	Average live weight, Feb 28, 1846.	Average weight of Roots for 12 weeks.			Hay for 12 weeks.		Increase.
				cwts.	qr.	lbs	qr.	lbs	
1	103	117	122	10	0	0	..	..	19
2	109	116	120	11	1	22	3	5	11
3	108	112	119	11	1	4	3	22	11

In reviewing these two series of experiments, and when such different results have been obtained on Whitfield and Barteliver farms, the difference in the temperature of the two seasons must be taken into consideration; for during the period when the experiments were conducted at Whitfield, the thermometer, we understand, was frequently below zero,— that it was a period of intense cold and stormy weather. Whilst the three months of December, 1845, and January and February, 1846, in Cornwall were comparatively mild weather, as the following account kept at the time will show—

1845.	Max.	Min.	Mean.	Range.	Absolute highest.	Absolute lowest.	Greatest daily Range.
Dec. 1846	50·3	40·2	45·0	9·1	54	28	24
January.	50·5	46·5	48·5	4·0	55	40	10
February	49·4	45·4	47·4	4·0	55	29	13

The difference in temperature when the two experiments were instituted will in some measure account for the difference of the results, and it must be taken into consideration; but as far as the experiments at Barteliver are concerned, they evidently show that the feeding of sheep in confinement or the open air, during the winter, in Cornwall, even under the most favourable circumstances, is far from being a profitable business. The field in which the sheep, No. 1, were kept, was exceedingly good, and it may be observed that a less quantity of Turnips was consumed by this lot, *owing to the excellent bite of Grass.* [! !]

ON MEASURE WORK.

Seed Operations.—A large proportion of the work which comes under this head is properly performed at day's wages, because the farm horses and men are for the most part engaged in them; the following I would pay for at day's wages:—

1. *Broadcast Sowing*—Wheat, Oats, Barley, &c. A man may sow from 12 to 18 acres in a day, and his wages, with that of a person to supply him with grain, will amount to from 2½*d.* to 3½*d.* per acre.

2. *Drilling*—Corn of all kinds, Carrot seed, Turnip seed, &c. A machine (Suffolk drill) of ordinary breadth, drawn by three horses, and attended by two men and a boy, will sow from 10 to 15 acres a day—the kind of seed sown, and the width of interval between the rows of corn, of course, makes no difference. The day's work will cost 14*s.*, and the expense of the operation will thus amount to from 1*s.* to 1*s.* 3*d.* per acre. In drilling Carrots it is necessary first to mingle 4 or 5 lbs. of the seed with the number of bushels of sand or of ashes which the machine is set to drill per acre. Dibbling-machines are not yet made to get over the ground so fast as this. Newberry's excellent dibble is perhaps too heavy to admit of more than four or five rows being done at a time with it, and the cost of the operation thus amounts to from 2*s.* to 2*s.* 6*d.* per acre. Mangold Wurzel seed is generally dibbled. We have done it hitherto by hand; the drills being first marked across at equivalent intervals of the necessary length by a ribbed roller. Two women, whose wages are 1*s.* 8*d.*, will dibble an acre per day. Turnip seed is sown by a two-furrowed drill drawn by one horse and a man. These cost, say 5*s.*; and will get over 5 acres per diem.

3. *Setting Potatoes.*—This is done at day's wages by women, who walk backwards in the drills, each with a basket full of sets, and place them as they proceed at intervals of a foot. They are kept from idling by two ploughs, which continually circling the party, open fresh drills on one side and close them on the other, so that the number of setters being proportioned to the work, the whole operation proceeds together without hindrance in any of its parts. Three women will set an acre of Potatoes in a day, so that the operation of mere setting costs 2*s.* 6*d.* per acre. The following operations again may be paid for by measure:—

1. *Hoeing in and Dibbling Wheat.* The one costing 6*s.* or 7*s.*, and the other about 8*s.* per acre. The one being done by men, and the other by men and two children to each, following with the Wheat. Bentall's seed-dropper, I can assert from experience, is a very excellent instrument for the children to use; it saves much seed.

2. *Dibbling Beans*, which costs from 4*s.* up to 8*s.* per acre, according to the intervals between the rows.

3. *Dibbling Plants* of Swedish Turnips and Mangold Wurzel. A practice which answers very well to the extent to which I have tried it; *i. e.* merely in filling up blanks in the regular machine-sown field; and it is doubtless a fit subject for payment by the piece, though my experience does not enable me to name a suitable price with any confidence. It would probably cost about 5*s.* an acre, the rows being two feet apart, and the plants one foot apart in the rows.

4. *Cutting Potato Sets*, and planting Potatoes. The first can be done at from 2*d.* to 3*d.* a sack, according to the size of the Potato, and the number of pieces into which they have to be divided; and the second, if wholly done by spade in land already prepared for it, will cost from 8*s.* to 10*s.* per acre, the distance between the rows being 30 inches—*M. S.*

ON THE DRILL HUSBANDRY OF TURNIPS.

(Continued from p. 465.)

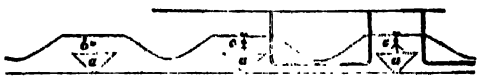
Process of Hoeing, Thinning, and ultimate completion of Culture.—As the methods of hoeing and cleaning vary considerably for the two modes of sowing which I adopt, I shall first describe the plans pursued where the ridge system is applied.

In rather moist and warm weather the plants appear in the space of a week or nine days, but if very dry and cold I have known it from two to three weeks ere the row can be traced. Common Turnips generally make their appearance a day or two earlier than Swedes. This is now the critical period with all the Turnip tribe for the regularity of the future plant; in fact, a crop or no crop is decided in the succeeding 10 or 15 days. It is an anxious, important, and exciting time with the great flock masters of this kingdom daily to watch their Turnip fields and notice at this period how the young plants struggle for existence against the attacks of the beetle, &c., and the vicissitudes of climate; the insects actively sucking the sap from the seed leaves, and the scorching sun as rapidly drying up the wounded leaflet into a black withered speck; first one seed leaf may be seen to fail, next the other shrivels up, and when this is the case the destruction of the plant is complete, as the stump withers and disappears in another day or two. It is surprising with what rapidity this work of devastation proceeds; one day blanks will be noticed in the rows of plants of 2 or 3 inches in length; in another day or two these blanks will have extended to a foot; in a few days more the openings will have increased to 3 or 4 feet; and thus in 10 or 12 days the farmer's prospect for plenty of winter food for his flocks is partially or completely blasted. But when the brairding season is favoured occasionally with a mild wet day, the withering effect of the sun and wind on the wounded plant is not so severe, for in such a season the seed leaves may be seen pierced in numerous places by the proboscis of the beetle; but the occasional moisture, keeping the ground cool, enables the tiny plant to survive, and at last, when the second or rough leaves become perceptible, pushing out like the head of a pin between the ragged and much damaged seed leaves, the cultivator perceives to his great relief that the struggle in a few days more will end in the discomfiture of his almost imperceptible but very formidable enemy.

As soon as the rough leaves increase to the size of a shilling or a little larger, I commence operations with a single horse hoe, which is armed with a sharp double-flanged share in front and two scythe-like cutters behind, which effectually cut off all the weeds to the width of 17 to 20 inches, and move the land 2 to 3 inches deep. The hoe is set to go as near the rows of plants as possible, but so as not to disturb them or the manure below; generally speaking the two scythe-like cutters come within 4 or 5 inches of the centre of the row. The following diagrams will exhibit the appearance of the ridges after the horse hoe has proceeded with its work, and also their appearance after the sowing is finished.

Transverse Section of Ridges.

fig. 1.



a a a, position of manure.
b, position of seed
c c, the progress of plant when the seed leaves fairly expand at the surface.

The double lines exhibit the working position of the double-flanged share and scythe-like cutters of the horse hoe.

fig. 2.

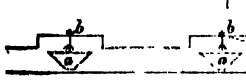


Fig. 2 exhibits the appearance of the ridges after the horse hoe has passed through the first time.

fig. 3.



Fig. 3 exhibits the line of surface after the first hoeing has been given previous to commencement of thinning process.

a a a, position of manure; *b b b*, position of young plant; *c c c*, shows by dotted lines the part cut off by the first process of the hand hoe.

I would here state that considerable damage is often done to the crop with this implement at the end of the ridges if there is an intractable horse, or a lazy fellow managing it; for if the horse is not driven straight forward to the outside of the headland, and the implement lifted aside by the handles as the horse turns in, many plants are trodden down or knocked out of the rows altogether; and it is often to be seen that whole fields are not above half planted for two or three yards at the ends of the ridges from this very circumstance. I have frequently, therefore, sent two lads to this work, one to lead the horse and the other to guide the hoe. I never sow Swedes on the headlands; these are trodden so hard that we always plough them up the first rain which follows the sowing of the ridges, and after being reduced by harrowing and rolling are sown by the Suffolk drill with common Turnips; and although the further treading and abusing of these sidelands are unavoidable, while the horse-hoe is required, we always have more than half a crop on them.

It often happens that we are anxious to set the horse-hoe to work as soon as the rows are readily distinguishable, in order to cut down the numerous weeds which crowd and often successfully strive with the young Turnips for the ascendancy. However, I have seen an error arising from this in very dry weather, when applied at too early a stage in the growth of the plant. If the rough or second leaves have not expanded to the size of a shilling, the roots are correspondingly small and weak, and as the operation of the horse hoe cuts the mould perpendicularly away 2 or 3 inches deep and within 3 to 5 inches (for it is impossible to have it constantly equidistant) of each side of the row, it lays that part which remains very much exposed to the inroads of a severe drought; consequently I have seen the rows of young plants in two or three days after this operation shut up their leaves, look sickly, assume a blueish-red appearance, and exhibit symptoms of dwindling off altogether. Now, I do not think such a shock to the young plant can take place without the finer portion of the fibrous roots becoming withered, and cut back with the drought; and therefore when moisture comes, the check thus given must necessarily require several days' exertion from the plant to replace the loss and re-commence its onward progress. Dreading this evil, therefore, I do not begin the process of horse-hoeing (unless compelled by the rapid growth of weeds) until the plants are large enough to bear being hand-hoed close up to their roots immediately after.

Having found that the old broadcast hoers perform drill hoeing very indifferently (being bigoted, and too much wedded to their own modes of executing the work, to be taught a different way—true types unquestionably of their antiquated masters of the broadcast school), I therefore soon gave up employing these, and put on several steady people, chiefly females with any children they had to assist, and when tolerably acquainted with hoeing Potatoes, I found little difficulty in soon making them manage Turnips very well; in fact, the hoeing of drilled Turnips is not men's work. My first process therefore by manual labour is, to cut off the surface of the ground not touched by the horse-hoe with a sharp hand-hoe, and this is done by holding it in a slanting position, and making one corner of the cutting part, or edge thereof, come to the surface close by the root of the plants; this process is easiest and best performed by the operator going down one side of the row 30 or 40 yards, and then turn back the other side; it is easily done with great precision and rapidity. This work being effected, the edge will then exhibit the appearance, as shown in diagram No. 3. A few days after, or at most a week, the thinning process commences; the

…ing, or drawing out of the soil, the…
…It is 14 inches by 14 inches, and…
…healthy ones some 14; and in doing this, they bring…
…away the mould, about 1 or 1½ inches in depth. In…
…proceeding onward in making these openings, one, two,…
…three, or it may be four plants are left in a tuft between…
…each blank or opening, and a boy or girl of 12 or 14…
…years of age follows immediately, and with the fingers,…
…where more than one plant is left, selects the best, and…
…with one hand holds this steady, while pulling the…
…superfluous ones with the other. This I have found to…
…be a very superior plan to the usual mode of the hoers…
…singling the plants with the corner of their hoes as they…
…proceed; for, in this way, the plants are often left…
…double, or pulled out altogether in attempting to com-…
…plete the process; besides, the hoer does not require to…
…study so much precision in making the blow or cut, and…
…in stony land it is impossible to keep the hoe always…
…true, consequently the openings are made with increased…
…rapidity, and an active boy or girl can single the plants…
…as fast as a female can make the blanks; thus the two…
…get over an additional quantity of ground equivalent to…
…make wages for both. And I am convinced of this, that…
…if the grower who adopts this process allow 1*s.* or 1*s.* 6*d.*…
…per acre extra, for having his Turnips and Swedes…
…thinned by this mode, he will save five times the amount…
…by the regularity of plant, and consequent increase of…
…crop. This part of the operation requires sharp looking…
…into, in order to have only one plant at a place. Every…
…farmer knows how difficult it is to get two plants sepa-…
…rated by the time the second hoeing comes on; indeed,…
…it cannot be done without the application of the fingers,…
…and even then breaking the leaves, and tearing the…
…plant to be left all to pieces.

There is great difference of opinion as to the mode of leaving the plant when the thinning is effected. The Scotch say, "Oh, take the mould well away from them, so that they fall and lie flat on their sides, and look as if they were almost without a hold in the soil." This plan, to a moderate extent, I approve of with common Turnips; but I have found from repeated trials that Swedes do better if left firm and upright in the ground, securing a more regular plant, and less likely to die off in severe droughts.

There is one thing which requires to be carefully guarded against on this farm, and the same difficulty will be felt on all dry thin lands, viz., in preventing the hoer, when making the blanks in the rows, from putting in the hoe too deep, and thereby laying bare the manure at every blow, thus exposing it to the sun and doing incalculable damage. If the hoers, therefore, in performance of this work, go more than 1½ inches deep, they begin to do mischief in two ways, first in letting the young Swede fall too much out of the ground, and secondly by uncovering the manure. After observing those evils for a year or two, and guarding against them as much as possible, all the while wishing to find a remedy, I began a 17-acre field in 1840, in the usual way, the field being mostly light, gravelly, and well pulverised, and not much overrun with weeds, and finding from the softness of the land that the plants were left too much out of the ground, and the dung being to a great extent laid bare at every cut of draw made by the operators, I immediately ordered the hoes to be laid aside, and had the thinning done by hand; the work was executed rapidly and with great precision, to my complete satisfaction, the plants being left erect, and no manure laid bare, and eventually this field (with the exception of 3 acres in the most forward part of it, on which the rooks pulled up more than half the plants in two days after the work-people left for another field, and principally on that part thinned by the hoe) proved the best, heaviest, and most regular plant of any crop of Swedes ever grown by me on this farm, and 1*s.* 6*d.* per acre additional to the work-people enabled them to make as good wages by this process as obtained by the usual mode. These depredations by the rooks showed me the necessity and value of having a herd to keep them off Swedes or Turnips for three or four weeks after thinning; for if even 500 plants should be saved, it would amply pay for all expenses. In this instance there was a loss of not less than 30 tons.

In the course of a week or 10 days after the thinning process, the horse-hoe again proceeds between the rows, armed as before, or with straight tines, or stirrers, as the clean or weedy state of the land may indicate. After this, in a few more days, the work-people proceed to hoe the ground between the parts worked by the horse implement, taking care to humour the hoe nicely around each plant; special notice must now be taken that the entire surface is regularly hoed, whether weeds appear or not, because if there are none just then, very likely there are plenty beginning to vegetate; therefore, the little disturbance may kill them; at all events it is very offensive to the growth of the Turnip. In performing this part of the work, if any plants have been left double, these are now singled, and at treble the expense to the hoer than if it had been perfectly done at thinning time.

After this hoeing, I consider the work is nearly over. However, the horse-hoe, or light drill harrow, proceeds again in another 10 or 12 days, and while it destroys all weeds drawing a ridge of light earth up to the plants, it stirs up and pulverises the soil between the rows of plants for the reception and nourishment of the thousands of fibrous roots which now begin to push forth in search of nutriment. I have frequently used the horse-hoe armed with straight tines a fourth time, on foul land, when there …
…were not plants enough to justify the expense of hand-…
…hoeing, and in doing …
…the Swedes were torn out …
…and thrown to the horses, appearing like the finest …
…weed mixed with the soil; but I never found such an …
…operation check the growth of the plants; on the con-…
…trary, it rather appeared to do good, the bulbs having …
…now got firm hold of the manure under them are full …
…of vigorous and sturdy growth, and they instantly push …
…forth double the quantity of fibre out off. When the …
…leaves are fully met, and at their maximum size, it will …
…be found that the fine roots from the adjoining rows of …
…plants begin to intermingle even at 28 inches distance …
…in this quality of land. The work-people go over the …
…ground once more, after the third horse-hoeing, and …
…cut out such weeds as may have appeared. One shilling …
…per acre is kept back until September for pulling out any …
…weeds likely to perfect seed which may have sprung up; …
…these, on this farm, are generally Mustard, Charlock, …
…or Groundsel, and some few places Chickweed. The …
…payments made by me for this mode of hoeing and …
…weeding, for the last three years, average from 11*s.* to …
…14*s.* per acre for Swedes, and 10*s.* to 12*s.* for Turnips, …
…and each time the horse-hoe proceeds it will cost 1*s.* …
…per acre. These expenses are considerable, but the …
…work is effectually performed; no need remains for lambs …
…to eat down Charlock, &c., in order to let passers-by …
…know that it is a field of Swedes or Turnips.

When Swedes or Turnips are sown on the flat at 17½ inches wide, I never attempt to horse-hoe, being satisfied that on this stony land much more loss would be sustained by the crop than any saving which could be effected. As soon, therefore, as the rows of plants are distinguishable, and showing the rough leaf, the work-people proceed to hoe between the rows, and stir the land as near the plants as possible, not to cover them. Generally, when this operation is finished, the thinning is ready to commence; this is done by standing across the rows, taking care to keep the feet off the plants, and as the rows are so much narrower than in the ridge system, I make the blanks, or openings between each plant, from 15 to 16 inches; each hoer has a boy or girl following him, to single the plants with their fingers, as before. The principal thing in this process to guard against is to prevent the hoers drawing the mould and superfluous plants too far back, and in so doing bury those left for growing in the row next their feet. As the ground is level, there is little danger in going too deep in performing this thinning process, neither are the plants thrown down overmuch.

In 12 or 16 days the whole surface is fairly hoed over, and to get this done completely requires more watching than any of the other processes, as the hoers are so fond of missing those parts which appear free from weeds. When this hoeing is well executed for Turnips, the land requires nothing more except hand-weeding in September, which 1*s.* per acre will cover; but Swedes being earlier sown, there is a longer period to keep weeds down, therefore the land must have an additional hoeing; for the whole expenses attending these I pay from 13*s.* to 15*s.* per acre, and from 11*s.* to 12*s.* for Turnips.

When Turnips or Swedes are sown thick, plenty of hoers should be put on, for the plants get nursed up rapidly by each other, and soon become so matted together that it is difficult to separate them, and when very long necked they do not take their upright position so quickly, neither look so healthy for a time; therefore the hoers should be waiting for the work, instead of the work waiting for them.

I may here observe, that the crops of Turnips, and Swedes more particularly, on this farm, and on all dry thin lands in the south of England, are every year, in August or September, more or less affected by the blight or mildew, and in some very dry years, to an extent which entirely stops their growth, and sometimes brings on immediate decay: this first appears like a mist on the leaves, then it increases to a perceptible light grey dust, and by and by, numerous small insects lie concealed among this powder, which is thickest around the stalks of the young or crown leaves, and on these the living fry feed. I am of opinion, that the cause of this appearance and disease in the leaves, is brought on by the severe droughts, first inducing disease in the roots; for I have always found, that Swedes much mildewed never keep well in store; and if the tap root is cut off an inch or so up in the flesh, it will very often be found to exhibit a dark decaying-like appearance in the centre; as the winter advances, this decayed part increases, and towards spring many bulbs are either half or completely rotten. The mildew is a great obstacle to the growth of a heavy crop of Swedes on these thin lands, and also on the very best soils in the south; the dryness of the climate, and the weak nature of the light soils being the predisposing causes. The frequency and severity of this disease in southern situations, therefore, compared with its less frequent and milder ravages on these crops on the cooler and deeper lands of northern counties, and of Scotland, are convincing proofs that the more humid climate of the north is better calculated to produce heavier and more certain crops of those valuable bulbs.—*W. Fernie, Manchester.*

(To be continued.)

EXPERIMENTS WITH LINSEED CAKE AND OTHER SUBSTANCES, IN FATTENING SHEEP AND CATTLE.

By Mr. Bauer, Waughton, East Lothian.

Having made use of a large quantity of Linseed-cake for the last two or three years in fattening live stock, and being a little doubtful of its use giving a profitable …
…return, I was induced, last winter, to make a few experiments with the view of understanding the value, not of cake of food, and of, as a manure, when consumed upon the farm.

EXPERIMENT 1.—For these ends 37 small polled heifers were divided into three lots and weighed; one lot being put on a liberal allowance of home-made cake, and another on foreign (to determine which of the two was the more profitable for use), and the other upon Turnips alone. The experiment, which was carried on for nine weeks, was fully completed, both as regarded the improvement made by the animals, and the saving effected in the consumption of food; but, unfortunately, some of the heifers having turned out in calf, the results connected with them were rendered much less satisfactory, and are therefore precluded; though, such as they were, they yielded a greatly inferior return to that made by sheep in a similar experiment.

With regard to the second part of the experiment, viz., the value of Linseed-cake as a manure when consumed in the court-yard, the following are its results:—The dung made from the animals receiving the cake, being kept in a heap by itself, was tested with a similar quantity, made at the same time, by another lot of cattle in a different yard, all of them receiving a full supply of stored Swedish Turnips; attention being paid both to the preparation and decomposition of the manures, in order to have them as nearly as possible alike. The dung-heap from the cake contained 144 cubic yards, to produce which had been consumed 3744 lbs. of cake (equal weights of home and foreign), thus giving 26 lbs. of cake to the cubic yard. The dung so prepared was then applied to three different fields of Swedish Turnips, at the rate of 16 cart-loads per acre, each cart containing 1½ cubic yards, without the addition of any other manure. Shortly after the plants were singled, those from the cake manure showed themselves more in advance than others in the same fields, and kept a decided superiority over them during the early part of the season, thereby giving hopes of a larger return than was ultimately realised. On the 27th December, an equal quantity of land in each field, consisting of the eighth part of an acre, was taken up and weighed, the roots and tops being taken off, when the average of the three fields was found to be as follows:—

Quantity of land in parts of an acre.	Weight from cake manure.	Weight from common manure.	Increase from cake.	Weight of cake consumed.	Cost of production per cwt.
·125	5090* lbs	4650 lbs.	440 lbs	78 lbs.	19½ lbs.

* It would be wrong, however, to confine the value of this manure, so rich in the phosphates, to its effect upon an alkaline plant.

To test the value of Linseed-cake still further, but by a different method, two lots of sheep, of 60 each, were taken from two flocks that were feeding upon the farm, and each lot was then separated into three divisions and weighed; 20 being put on home-cake, 20 on foreign, and 20 on Turnips alone. A part of two fields of Swedish Turnips was next selected, where they presented a uniformity of soil and crop, one-half of the crop, in both fields, having been carried home. The two parts thus selected were then each divided into three equal portions with a chain, and 20 sheep put into each portion. Lot 1st consisted of 60 half-bred Dinmonts of good quality, which, to simplify details, may be distinguished by A, B, and C: division A consuming the home-cake, B the foreign, and C Turnips alone. The respective weights of the sheep on the 1st of January, 1844, when the experiment commenced, were—of division A 2768, of B 2739, of C 2803 lbs.; on the 7th of February, C, having consumed its portion of Turnips, was then re-weighed, and found to be 2860 lbs., and on the 1st March, A and B having also consumed theirs, were found to be, A 3054, B 2966 lbs. The quantity of cake consumed by each division was 1182 lbs., being nearly 16 oz. per day to each. Lot 2d consisted of 60 Cheviot Dinmonts of inferior quality, whose respective divisions may be designated by D, E, and F; D getting home-cake, E foreign, and F Turnips alone. The management pursued in this case was in every respect similar to that for lot 1st, with the exception of the quantity of cake consumed, which amounted to 44 lbs. per sheep, being at the rate of fully 13 oz. per day to each, an allowance which it was found they would not exceed. On the 9th of January, when the experiment commenced, their respective weights were—D 2082, E 2001, and F 2031 lbs. On the 15th February, F, having finished its portion, weighed 2097 lbs., and on the 2d March, D and E, having also finished theirs, weighed D 2315, and E 2274 lbs. The two cake divisions in each lot consuming the same quantity of Turnips.

Tabular View of the Improvement made by the different divisions.

		Weight at first.	Weight at last.	Increase.	Increase from cake.	Weight of cake consumed.	Cost of production per lb.
		lbs.	lbs.	lbs.	lbs.	lbs.	oz.
Lot 1st	A	2768	3054	286	309	1182	66
	B	2739	2966	227	150	1182	83½
	C	2803	2880	77	..	..	..
Lot 2d	D	2082*	2315	233	187	880	66½
	E	2001	2274	273	227	880	54½
	F	2031	2097	66	..	..	..

* With regard to the increased live weight of the sheep, it is quite clear that however much the animal is improved, its waste or refuse remains unaltered; consequently whatever is gained must be of real value.

It will be observed from the foregoing Table that the improvement made by C and F is below an average; this, however, would have been anticipated by any person having the least experience in the management of sheep, from the peculiar manner it was necessary to confine them, for the purpose of ascertaining the value of the cake as a manure upon the future crop. Indeed, the treatment altogether was necessarily unfavourable to sheep; but as each division laboured under the same disadvantage, the management does not therefore detract in the least from the value of the experiment. It will be noticed also that the improvement made by A and D on the home-cake, and B and E on the foreign, is exactly reversed in the different fields, a circumstance which cannot in any way be accounted for.

The last part of this experiment now falls to be considered, viz., the value of Linseed-cake as a manure, when consumed upon the ground by sheep—the produce of one field only being given, though the effect produced upon the two cake divisions in the other, presented an equally marked and favourable appearance.

Early in March the land was sown with Wheat, reaped by the 20th of September, and thrashed on the 21st December, when the produce of the different divisions was found to be as follows, the grain being all properly cleaned of refuse, but not separated into first and second quality:—

Tabular View of the Produce of the different Lots.

Lots.	Quantity of land, in acres.	Weight of grain.	Weight per bushel.	Increase of grain from cake.	Weight of straw.	Increase of straw from cake.	Weight of cake consumed.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
A	1.041	2248	61½	283	3723	817	1182
B	1.041	2223	61½	263	3506	600	1182
C	1.041	1960	62½	..	2906	..	.. *

* In addition to the above return, a further allowance ought to be made for unexhausted manure.

Experiment II.—This was an experiment carried on during the latter part of 1844, for the purpose of ascertaining the relative value of the following articles in the fattening of sheep, viz., Linseed, Linseed-cake, Poppy-cake, Beans, and a mixture of Beans and Linseed. The sheep selected for this purpose consisted of 95 Cheviot ewes taken from a flock of 250, which had reared their lambs during the summer, and were of fair quality when the experiment commenced, but from the greater part of them wanting teeth, and consequently unable to break the Turnips, they were supplied instead with a full allowance of Turnip-tops (except for a few days afterwards specified), in addition to the different articles used, a circumstance which tends to enhance the value of the experiment, as from the worthless nature of Turnip-tops in fattening, any improvement made by the animals must be almost entirely attributed to the qualities of the foreign substances used.

The different lots, which consisted of four of 20, and one of 15, sheep, may be classed as A, B, C, D, and E. Lot A, containing the 15, were put upon the Linseed, having reduced the number as much as was consistent with accuracy for the experiment, from an apprehension that Linseed would not tend to improve the animals, on account of the large quantity of oil it contains* acting too powerfully upon their systems; a fear, however, which had no foundation, as they kept throughout in as healthy and natural a state as if feeding upon Grass. Lot B was put upon the Linseed-cake, and received the same quantity as D upon the Beans; C was put upon a mixture of Beans and Linseed for the first three weeks, and afterwards upon the Poppy-cake, and E upon a mixture of Beans and Linseed. All the several lots being inclosed upon small portions of Grass land equally sheltered, had as impartial justice done them in the management as it was possible to effect. The quantity given at first of the different articles, was smaller than indicated by the average consumption, and was gradually increased to as much as each division would freely consume. The time, also, when this experiment was carried on, was limited to what was considered the most proper for getting the greatest return from the articles used. The results are as follow:—

Lots.	Weighed 21st Oct.	Weighed 12th Nov.	Increase.	Weighed 23d Dec.	Increase.	Average consumption by each sheep, per week.	Average improvement of each sheep, per week.	Cost of production, per lb.	Total Consumption.
	lbs.	lbs.	lbs.	lbs.	lbs.	oz.	oz.	oz.	lbs.
A	1839	..	..	2008	169	56½ Linseed.	20	46½ Linseed.*	477 Linseed.
..	..	..	..	..	..	4½ Beans.	..	.. .. ..	36 Beans.
B	2461	..	..	2663	202	113½ Linseed cake.	18	101 Linseed cake.	1275 Linseed cake.
C	2382	2479	97	..	..	95½ Beans and Linseed.	25½	59 Beans and Linseed.	310 Beans.
..	..	..	..	..	..	.. .. ..	..	.. .. ..	48 Linseed.
..	..	..	..	2657	178	157½ Poppy-cake.	23½	106 Poppy-cake.	1180 Poppy-cake.
D	2404	..	..	2537	163	113½ Beans.	18½	133½ Beans.	1275 Beans.
E	2417	..	..	2736	319	100 Beans and Linseed.	28½	56½ Beans and Linseed.	702 Beans.
									422 Linseed.

In calculating the cost of production per lb. of division A, 5 lbs. have been deducted for the 36 lbs. Beans consumed, these having been given to the sheep to induce them to eat the Linseed, which had acquired a musty smell from lying in a ground state.

The Linseed used in the experiment was ground, but from the great difficulty in doing so, several trials were made after it was completed, to ascertain the loss attending its use in a whole state—by supplying a lot of the sheep with unground seed, confining them to clean spots of ground—carefully collecting their droppings,—subjecting it to a series of washings,—evaporating the residue to dryness, and then weighing it, when the loss was found to be under one per cent.

The following figures will represent the quality of the Linseed-cake used, assuming the number 8 as the average quality of that made at Hull:—

Home used in No. 1	8½
Foreign in ditto	7½
Ditto in No. 2	7½
Poppy-cake of good quality.	

Experiment III.—The following experiment was carried on during the progress of that of No. II. The Turnip tops upon the farm having been all consumed by the 15th November previous to commencing storing the Swedish Turnips, the opportunity was taken for making a trial to ascertain the saving effected by the use of the different articles—an important consideration with the farmer. For this purpose 20 additional ewes were taken from the same flock, and inclosed separately for eight days; during which time the six divisions were supplied with a full allowance of white Turnips, which were duly weighed (without roots and tops) and cut upon the Grass; the refuse was afterwards carefully collected, re-weighed, and deducted, so that the actual consumption is only given. The results of this trial are thus shown:—

	Consumption of Turnips.	Consumption of foreign keep.	Consumption of each sheep per day.		Saving of Turnips.	Amounting to per cent.
			Turnips.	Foreign Keep.		
Div.	lbs.	lbs.	lbs.	lbs.	lbs.	
A	1782	52 Linseed. } 3 Beans. }	14½	7 Linseed. } ½ Beans. }	859	32½
B	1781	200 Linseed-cake.	11½	20 Linseed-cake.	1741	49½
C	2402	280 Poppy-cake.	15	28 Poppy-cake.	1120	31½
D	2312	200 Beans.	14½	20 Beans.	1210	34½
E	2699	100 Beans. } 60 Linseed. }	16½	10 Beans. } 6 Linseed. }	823	23½
F	3522	.. ..	22	.. ..	..	..

It will be observed from this Table that the saving of Turnips effected in division B is great, and seems a larger proportion for the 20 ounces of Linseed-cake, than Experiment I. gave in its quantities; but much, no doubt, will depend upon the size and condition of the sheep, as the lower the condition the greater will be the quantity of food consumed. It may be held as a safe calculation, that 16 ounces of good Linseed-cake per day to sheep of 9 stone weight, will effect a saving in the consumption of Turnips equal to 33 per cent., and at the same time so far improve the health of the animals as to diminish the number of deaths by upwards of 50 per cent.

Experiment IV.—In order to ascertain if the use of the different articles in Experiment II. produced any difference as to tallow, five average ewes were selected from each division and weighed; two days afterwards they were killed and weighed under the inspection of the reporter, having been driven, in the interval, 23 miles. The following Table exhibits the results:—

Lots.	Live Weight, Dec. 23.	Weight of Carcass, Dec. 25.	Weight of Tallow.	Weight of Skins.
	lbs.	lbs.	lbs.	lbs.
A	666	344	55	52
B	647	335	57	57
C	654	338	57	57
D	641	327	49	52
E	688	347	61	50

These experiments having been conducted with a view to personal information, a strict regard to accuracy was observed in every detail, and though conducted upon rather a limited scale, they clearly establish the fact, that mutton can be produced at a lower rate per lb., upon a liberal use of foreign keep along with Turnips, than upon Turnips alone, taking of course the increased value of the manure into account; and that of the different articles used in Experiment II., Linseed is the most valuable, and Beans the least so, but that a mixture of both forms a useful and nutritious article of food. —*Transactions of the Highland and Agricultural Society of Scotland.*

* Linseed of fine quality, weighing 52 lbs. per bushel, such as was used in this experiment, readily yields from 11 to 12 gallons of oil per quarter, weighing 9 lbs. per gallon, or about 25 per cent. of its weight.

Home Correspondence.

Farming Profits.—In your Paper of June 27, "W. S., Woodford," gives his balance sheet from Michaelmas, 1844, to Michaelmas, 1845, and desires correspondents to give him information for its improvement by a different management. It struck me in glancing my eyes over it, that he gives no data by which any one can judge of his management, unless it be this, that he has not a perfect system of book-keeping. A balance is valuable only when it shows the real state of a man's affairs. Now, this balance shows a defalcation of 18*l.*, but it is stated immediately before, as a redeeming feature, that the stock in 1845 was 538*l.* better than in 1844; now, if this means any thing, it means that the 520*l.* which the gentleman has made, has been expended in stock. The money is surely thus better employed than lying in his banker's hands. There is no arrangement in the items at all by which any one can judge of the sources of either loss or profit. The poultry alone has an appearance of distinctness, but it is only an appearance. They are put down as having cost 9*l.* and sold at 24*l.*, but here even no one can tell whether there is a loss or a profit. If a tradesman in difficulty were to put in such a balance sheet, no creditor could sustain it. The first improvement "W. S." can and ought to make, is the adoption of a set of simple books for keeping his accounts in an intelligible manner; and if he is indisposed for keeping them himself, let him hire a young man as clerk, and he will very soon see what pays him and what does not, and then he knows how to act. It would be out of place just now to say what books he might advantageously use, but almost any plain systems will do to show what a given product has really cost. A small farmer may "lump" things together, and from deficiency of education be excused, but certainly an "amateur" with 600 acres, and a floating capital of 4000*l.* or 5000*l.*, is surely inexcusable. An hour at the books every morning, with a proper system, will show a much more satisfactory balance without doubt.—*D. W., Aberdeen, July* 1.

Mangold Wurzel and Salt.—On looking over the Volume of the *Agricultural Gazette* for 1845, I read an account of a very large crop of Mangold Wurzel which was manured with salt (page 123.) The paragraph says, "I ordered common salt to be strewed over the Groundsel and between the drills, following the hoes which were at work upon this weed. The result was their total destruction." Am I to understand that the Groundsel was undisturbed by the hoes and removed by the salt being applied upon it, or that the Groundsel was detached by the hoes, and the salt then applied, which turned this weed into a manure. With respect to salt, would your correspondent advise an application of it to Mangold Wurzel where 8 cwt. of guano per Irish acre has been used broadcast before forming the drills. With guano my Mangold Wurzel grows very well till the latter part of the season, when it seems to stop short, and I would be glad to know whether salt from a bacon store would tend to increase its growth, and if so at what time and in what manner could it be best applied. I am now just hand weeding and thinning the rows of my earliest crop, which is 4 or 5 inches high. My principal crop is about 2 to 3 inches high, and has had nothing done to it as yet, so that I shall be anxious to have his opinion.—*A Subscriber.*

Rooks.—I see in your *Gazette* of June 27th, a communication about establishing a rookery. I have often heard it suggested, though I never knew it tried, that by placing the eggs of the rook in the nest of the carrion crow, a rookery might be established. As the young rook would be bred and fed in a more natural way than that mentioned by your correspondent, Mr. Carr, I take the liberty to mention it, as it may possibly suit the fancy of some of your readers to try the experiment. I reside where there are thousands, and am their sincere friend.—*Craven Grazier.*

How the Labourer Lives.—I have somewhere read of a master manufacturer who had a very clever man employed in his works, who in fact for his skill was more valuable than any of his brother workmen; but he was a sad drunkard. As a matter of course this man's cottage was always in disorder; his wife a poor hard working creature, and his children always in rags and almost starving; and this notwithstanding the man had very good wages and was in constant employment. In vain his master pointed out to him the evils of his conduct, lectured and threatened him. The man promised fair; and though for a short time he might go on pretty soberly, he soon relapsed into his old habits, and was just as bad and miserable as ever. At last his master wearied out with his constant mal-practices, determined to try one more chance ere he discharged him from his service. He therefore told him he had determined, as his warnings had been disregarded, that he would keep him only on one condition, which was, that "he should no longer pay him his wages in money, but that he should weekly lay them out in such necessaries as the family required, and lay the surplus by for rent and to put in the savings' bank." The man after some hesitation agreed to this, as dismissal was the alternative. The story proceeds to state how the master laid out the wages every week, enumerating each article as to quantity and price; for bacon, tea, sugar, shoes, &c. &c., and at the end of the year, the man being compelled to abstain from drinking, from being without money, adds soberness to his industry, becomes foreman of the works, and himself and his neat comfortable home and family become the models for the factory. Now, sir, the upshot of this long story is to say that you would confer, I believe, a very great benefit upon

us who live in the country if you could draw out a scale of the necessaries of life for a cottager's family, so that we may be ready with a list to show him how he may, by good management, make his weekly earnings support himself and family, and how he may sometimes lay by a little for the rent and savings' bank. Besides, wages we know vary considerably in different counties, but I know some people have brought up families upon 10*s.* and 12*s.* per week, and 14*s.* is considered good pay. How this is done I won't pretend to say; but this I know, that in the neighbourhood of London a labourer has told me he cannot support his family upon 18*s.* per week. I tell him he is a bad manager, and ask him how others with much less wages do? He asks me to tell him how he can lay out his money better? That's just what I wish you to help me in. How shall I answer him. Pray do your best to sketch out a list of articles, with their fair prices, wanted by a cottager and family; and about what the consumption would be per week. Of course in some things, such as a piece of bacon, Potatoes, &c., he had better lay in half a side or a sack if possible at a time, as it would cost so much less and be always at hand. I feel sure you will think mine a good hint; pray give me the benefit of your assistance.—*Northwood.*

Bones dissolved in Caustic Ley.—I have seen much in your Paper of bones being dissolved in sulphuric acid as a manure. Are you aware that bones may be dissolved in the alkaline ley of the soap-boiler? and will form a paste of the consistence of butter, which may be reduced to any thinness of fluid required for application as a liquid manure. Am I wrong in believing that, as the solvent power consists solely of soda-ash and lime, it would be a more powerful manure than the bones with acid? There was a patent some years ago for making soap in this manner; whether the patent is in force now I do not know, but that can easily be discovered if thought worth while.—*M. D. P.*

Thin Sowing.—As there are such discordant opinions about thick or thin sowing, deep or shallow draining, &c., I beg to state that my farm is open to the inspection, at all times, of my brother agriculturists, for the purpose of comparing some experiments I have made as above; also, they will see the effects of Newberry's dibbling machine, Bentall's dropper, Garrett's horse-hoe, and Crosskill's clod crusher; they will also be able to judge of the effects generally of my agricultural improvements. I think it our duty to stimulate inquiry and comparison, with a view to perfection, or an approach to it.—*J. J. Mechi, Tiptree-hall, Kelvedon, Essex.*

Abortion.—Referring to an observation on abortion in cows by "G. D." in your Number for June 20, I do not agree with him that the blame rests with the bull; in the spring of 1845 I had many cows cast calf which had been bulled by different bulls in different parts of the kingdom, nor did all the cows to any particular bull cast calf. If it is infectious from the bull, one would expect that the cow would be likely to cast calf at three, four, or six months, instead of carrying the infection about with her for seven or eight months, which is frequently the case before making use of it. I am more inclined to think that some seasons are more favourable to it than others, and also some situations more so than others, having this spring had most of a lot of Galloway heifers on one farm cast calf, while in another farm I had not one which did produce a live and healthy calf, and these two lots were in calf to the same bulls, and were divided after the bull was taken from them the previous summer. Casting calf at six to eight months has gone on more or less among my herd of short-horned cows from different herds, of different breeds, and in calf to different bulls for two years, and on a farm where before that time no person remembered a cow casting calf. I have tried bleeding, and keeping such cows quite separate from the remaining in-calf cows, &c. &c., but as yet with no success, and I should feel much obliged to "G. D." if he would favour me, and at the same time many others similarly situated, with his mode of prevention.—*Q.*

To Cure the Gapes in Poultry.—My servants have tried the following experiment, and have always hitherto succeeded in curing my chickens of that destructive disease, the "gapes." "Let some one take the chicken, holding it in one hand, and placing the other over its back, so as to hold it firm, and then let the operator take a small but firm feather from a hen or pigeon, and strip it from the stem, excepting about an inch and a half from the tip end, according to the size of the chicken, wetting it a little except at the extreme point. The operator should then take the head of the chicken in the left hand, placing his thumb and forefinger on each side of the bill, in such a manner as to hold the mouth open, the neck being gently but firmly drawn out in a straight line. Then observe the opening back in the tongue, place the feather as near to it as possible, and when the chicken breathes, the windpipe will be open, at which moment enter the feather quickly, and push it down gently, but not in a hurry, from two to three inches, then draw it out, and in doing so, turn the feather round, by which means some of the worms will adhere to the feather, and others will be so loosened that the chicken will sneeze them up, and throw them from its mouth. It is not advisable to do it more than twice at the same time, but if the chicken gapes the day after, you may be sure there are some still remaining, and the operation must be repeated." You will perceive that this is an extract from a publication, but as the work may not be in the hands of many to whom the information may be as acceptable as it was to myself, I am induced to forward it to you.—*D. O.*

Potatoes.—In the beginning of November I planted a portion of new land (well trenched) with Potatoes which had been selected as diseased and unfit for cooking. Two rows of whole Potatoes were planted by the side of two rows of sets or single eyes. Both were put into fresh muck from the farm-yard, about 6 inches deep, and covered over. The sets altogether failed, not one of them having appeared to grow. The whole Potatoes all grew, and have been, and still are looking in perfect health to this day. I have taken up some of the plants, and find that they have made abundance of tubers; and these latter all seem in a growing and thriving state; but those which are of full size are all covered with the tubercles of incipient disease, which, in their present tender state, rub off with skin of the Potato. From these facts I derive these inferences: That Potatoes planted in November in fresh muck answer perfectly well; that if diseased seed be planted you will have diseased produce; and, that to insure a crop it is better to plant whole Potatoes than sets.—*A Subscriber, Holbrook, Suffolk.*

Potato Disease.—The destructive Potato disease of last season has been observed during the past fortnight to have attacked the roots and haulm of early Potatoes in this neighbourhood, but I did not until to-day find the tubers affected. I send you specimens of the latter. —*Cymro.* [The specimens sent were far advanced in disease.]

Societies.

GREAT MEETING OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND AT NEWCASTLE-ON-TYNE.

EXHIBITION OF IMPLEMENTS.

Tuesday, July 14.—The reporter has this year by no means such a laborious task as he has had on former occasions. Many well-known valuable agricultural implements—many improvements upon machines formerly exhibited, and several entire novelties, have been exhibited at Newcastle; but taken as a whole, and considering the neighbourhood of Scotland, and the expectations which that has excited, the exhibition must, we think, be considered to have fallen considerably short of those of former years. Very much fewer Implements were shown, and the space of ground allotted to them was unnecessarily large.

THE FOLLOWING IS THE AWARD OF THE JUDGES.

Prize.	Exhibitor.	Implement.
10*l.*	Mr. John Howard	Best Plough adapted to heavy land.
10*l.*	Mr. John Howard	Best Plough adapted to light land.
5*l.*	Mr. Hornsby	Best Drill for general purposes, and also for distributing compost in a moist or dry state.
10*l.*	Mr. Hunter	Best Turnip Drill on the flat, and also for distributing compost in a moist or dry state.
10*l.*	Mr. Teasdale	Best Turnip Drill on the ridge, and also for distributing compost in a moist or dry state.
10*l.*	Mr. Crosskill	Best Scarifier.
10*l.*	Mr. Cornes	Best Chaff Cutter.
20*l.*	Mr. Scragg	Best Machine for making Draining Tiles or Pipes.
5*l.*	Mr. Coleman	Best Harrow.
10*l.*	Mr. Hornsby	Best Drill Presser, depositing Manure & Seed.
5*l.*	Mr. Robinson	Best Churn.
10*l.*	Mr. James	Best Weighing Machine for Farm Produce and live Cattle
5*l.*	Mr. Robinson	Best Steaming Apparatus for Roots.
5*l.*	(Not sufficient merit) ..	Best Skim, or Paring Plough.
10*l.*	Mr. Read	Best Subsoil Pulverizer.
15*l.*	(Not sufficient merit) ..	Best Horse Seed Dibbler.
5*l.*	Mr. Crawford	Best Hand Seed Dibbler.
5*l.*	Mr. Crosskill	Best Linseed Crusher.
5*l.*	Mr. Crosskill	Best one Horse Cart.
25*l.*	Mr. Garrett	Best Thrashing Machine.
10*l.*	(Not sufficient merit) ..	Best Set of Draining Tools and Instruments.
25*l.*	(Not sufficient merit) ..	Best Steam Power, applicable to Thrashing and other Agricultural purposes.
25*l.*	(Not sufficient merit) ..	Best Horse Power, do. do

MISCELLANEOUS ARTICLES.

2*l.*	Mr. Pierce	Hayband Maker.
3*l.*	Mr. Zachariah Parkes..	Corn Crusher.
3*l*	Mr. Hornsby	Winnowing Machine.
5*l.*	Mr. Robinson	Rowan's Patent Axle.
3*l.*	Mr. Grant	Hay Rake.
5*l.*	Messrs. H. Smith ..	Hay-making Machine.
5*l.*	Mr. Stratton	Norwegian Harrow.
5*l.*	Mr. Garrett	Tile Machine.
Silver Medal	Messrs. Smith	Grubber.
Silver Medal	Messrs. Barrett & Ashton	Spike Roller.
Silver Medal	Mr. Crosskill	Wheels and Axle.
Silver Medal	Mr. Garrett	Kent Drill.
Silver Medal	Mr. Richmond	Root Washer.
Silver Medal	Mr. Harding	Whipple Trees.

B. T. Brandreth Gibbs, *Director of the Show.*

From this it will be seen that Mr. Howard has again carried off the premium for the *best Plough*; and looking at the work in the field, no one, we think, could doubt that it was his due. There was considerable competition amongst exhibitors under this head; many wheel-ploughs and many swing-ploughs tried for the Society's prize, and the work of the former, it must be admitted, was generally superior to that of the latter.

The best part of the exhibition unquestionably was that of Sowing Machines. It will be seen that Mr. Hornsby, of Spittlegate, near Grantham, has again carried off the prize for Drill and Drill-presser. Mr. Vingoe, of Penzance, again exhibited his Seed Planter, which he has greatly and most ingeniously improved; the work of this implement on the trial ground was most satisfactory, and how the judges came to overlook its claim for a premium, in acknowledgment both of its mechanical and agricultural merit, we cannot think. The bottom of the seed-box consists of a metallic plate, with holes pierced in it at intervals suitable for the rows of corn; these holes are guarded by brushes, which hinder the exit of seed. Metallic slides, to which an oscillating motion is given, also cover these holes, and they are themselves pierced; the holes in *these* become filled with the seed resting on them, and according to their thickness, so is their capacity. As the slides are drawn back the seed is drawn under the brushes, where it immediately drops through the holes below them, and is conveyed by a funnel to the ground. The regular delivery of seed thus depends upon a regular intermittent coincidence between holes in the fixed and holes in the moveable disc, which, together, form the bottom of the seed-box. Last year this intermittence—this oscillatory movement was given by a set of cranks on a spindle, made to revolve from the carriage wheels; each slide was independent of the other, and had its own crank to work it. This year Mr. Vingoe has greatly improved upon this. All his moveable and feeding holes are in *one* slide extending along the bottom of the seed-box, and motion is given to it by a wheel (moved by the carriage wheels), which has a zig-zag edge: this edge acts on knobs or tappets attached to the slide, and as it revolves it pushes the slide first a few inches to the right and then a few inches to the left in regular and rapid succession—which is just the motion wanted. It is obvious that upon the form of the edge of this wheel depends the nature of the motion of the slide; and that it may be made rapid at one part, as when its hole is amongst the corn; and slower at another, as when it is under the brush and delivering its corn just as may be wanted.

The machine has a manure-box of the usual construction and a delivery attached to it, and it has coulters for covering the seed; all of which, together with the whole machine, appear to act admirably. We add the following from a printed statement:—"The present machine (on two wheels) is admirably adapted for the depositing of grain, seed, pulse, and artificial manure, on any kind of land or soil, and warranted to work with great dispatch, equally well over ridge and furrow as on the flat; also up and down or on the side of hills, thus possessing greater qualities and capabilities than the former. It can be constructed of any number of rows, with an adjustment for shifting the width of the same to any number of inches apart. It does not make holes as a dibbler, but forms grooves in the soil, by means of pressing wheels, and in the grooves or beds the seed is deposited at intervals, as dibbling, or in a train, as drilling, by the action of slides, with great accuracy, at any quantity to the acre. The seed is seen to drop with great regularity in the grooves made in the soil, and is covered effectually by hoes from behind. Any uniform depth is attained by the application of weight to the pressure-box, and the entire apparatus is readily raised out of the ground at headlands, or when turning.—Price 38*l.*—six rows, with manure and double shafts."

But the greatest competition under the head of sowing machines, and decidedly the most interesting in the yard, was that amongst hand sowing machines. We called attention last year to the contrivance of Mr. Bentall, of Maldon, Essex, as one in which the oscillating movement of one pierced disc over another was obtained in a very elegant method, and we have after trial found but little reason to alter our opinion of its merits. It is one in which, as we thought at the time, the attempt was wisely abandoned to unite the operation of dibbling and seed depositing in the same instrument. The former operation is done by an ordinary dibber in advance of the boy with the seed depositer. But Mr. Crawford, of Moseley-road, Birmingham, has made a most skilful attempt this year to unite the two, and though we have not yet tried the instrument, it appears so well adapted to its purpose that we have ordered one for use, and advise others to do the same. The lower part is a flat disc of some 3 or 4 inches in diameter, which rests upon the land. In the centre is a circular bore, through which, when the instrument is used, a cylindrical dibber with a flat end is protruded. This forms the hole, and, as it is lifted, a couple of seeds, which in the act of passing downwards have been released from the seed box, and have since been waiting at the lower part of the instrument, drop through the hole which the dibber traverses into that which it has formed in the ground. These seeds are released at each movement by means of discs, oscillating, as we have described, but by a different method, and doubled so as ensure regularity. The movement is, in this case, effected by slides affixed to the handle of the instrument, not *parallel* to its length (for then they would obviously have no effect at all), but obliquely, so that first the one side and then the other acting first on the one edge and then on the other of the transverse sliding disc, causes it to move first to the one hand and then to the other, as each hole is made and each seed required. —Another attempt to supply the desideratum was that by Messrs. Gillett and Co., of Stratford on-Avon. In this a dibber was connected with a seed-depositor at an interval of some 7 or 8 inches, so that while one hole should be making another should be being filled. The principle of the latter part of the instrument was that of Dingle's, to which we have before alluded in this Paper.

It is more complicated and less efficient in the rough jerking work of dibbling than that of the slide movement we have been describing.

A simple Hand Seed Depositor, for use by one hand only, somewhat on the principle of the powder-flask, was exhibited by Mr. Grant, of Stamford. While on seed machines we must not omit to mention that Mr. Newberry has succeeded in much lightening his admirable Dibbling Machine. Each wheel is one cwt. lighter. A Hand Dibble on the same principle was also exhibited. It consists of 22-inch dibbling wheel, with 12 dibbles; receives the feed similar to the other machines; is in a wooden frame with two handles, like a round barrow. The workman has merely to fill his hopper, and urge the machine forward, as a barrow, the implement making the holes and planting at the same time. In turning, the machine is lifted up on the small wheel in front, which stops the dibble-wheel from working. Two rings are attached, whereby a lad may help by pulling, if necessary.—Price 6*l*.

The prizes for the best Turnip Drill were awarded to Mr. Hunter, of Ulceby, near Barrow-on-Humber, and Mr. Teasdale, of Barneston, near Bedale, Yorkshire. But if we may be allowed the expression of a sentiment which people say farmers are generally too apt to hold, neither of them equals the one we use ourselves, and which we were surprised not to see exhibited, for the maker is a Scotchman; we will give his address next week. But, indeed, the way in which the Scotch implement makers have almost wholly declined competition with their English brethren at this the only possible scene of such a contest for many years to come has been noticed by every one. We must say that we had hoped to have witnessed here a contest equal in spirit to any of the many in olden time on neighbouring ground. A friend writing some weeks ago, ventured to prophesy "success to the southerns," but no one anticipated "no competition." All this, however, is written on Wednesday, before the cattle yards are open.

The prize for the best Scarifier has again been carried off by Lord Ducie's "Cultivator," exhibited by Mr. Crosskill; and the prize for the Chaff-cutter has been again awarded to the (at all events) simple, and doubtless efficient machine of Mr. Cornes, of Barbridge, near Nantwich, Mr. Scragg, of Calvely, near Tarporley, Chester, has again carried off the first prize for a Tile-making Machine. It consists of two parts, one for preparing the clay by forcing it through an iron grating, which retains stones, &c.; and the other for forming the tiles. In both cases the material is emitted at the *end* of the box containing the clay, and in which the piston moves—not at the *side* towards the end—the plan, unwisely, as we think, adopted by some makers. There was not much competition under this head. Ainslie's Machine was exhibited—in which the clay is forced out by means of rollers in a continuous stream, and cut across by a wire revolving in a path, inclined so as that while by its vertical motion it cuts the tube, it may have a forward motion equal to that of the tube—the cut being thus made square. It would be well in some cases if the public could witness a competition between rival machines, and not altogether depend upon the award of the Society's judges. This opportunity was given in the case of many of the implements; but not in the case of the tile-machines. Whatever be their relative merits in practice we cannot help thinking the principle on which Ainslie's tile-machine acts to be superior to that of the others we have seen.

A prize of 5*l*. was awarded to Mr. Coleman, of Colchester, for his excellent Harrows. They have not before been exhibited in England—though at the Dumfries Meeting of the Highland Society they were rewarded by a premium. They are jointed so that any fineness of comb (so to speak) may be obtained, and this is retained in a very simple manner by attaching the draught chains to different points on the draught bar; but they possess another merit, that of being easily regulated in depth, and even in weight. This is effected by means of supporting wheels, which may be placed at any height, or even lifted off the land and above the frame when their weight adds to the efficiency of the instrument. The following is the printed description of it:—"The tines are so arranged, that they must all cut the land in different lines; and no matter in what position or form the harrow is placed, the bars are always preserved parallel with each other, in the several alterations of the cut, and all the tines preserve their relative distances and positions. The bars, which stretch across to the beams, move on joints: this enables the tines to be altered, for cutting at wide or narrow distances, according to the state of the land, and the nature of the work; consequently, if the harrow be stretched out to its greatest width, there is ample space between the tines to prevent the possibility of its being clogged up. As the land becomes finer, the harrow is gradually compressed in width, until it can be made to finish off the finest work, after sowing corn or small seeds. The coarseness or fineness of the cut is regulated by simply making the chains, which connect the harrow with the wood-horse pole, longer or shorter; that is, by taking up, or letting out, a few links of the chain, which can most readily be done by any boy; And it will be seen that when once the chains are fixed, the pole always keeps the harrow in the right position; although, at the same time, ordinary care should be observed that the horses, in drawing, are kept abreast of each other. When the lands in a farm are laid out in different widths, this contrivance for altering the width of the harrow will be found very convenient, when the horses are required to walk in the furrow. This principle of construction enabling the implement to be used either as a coarse or a fine harrow, the next point to be accomplished, to make it perfect, is, to render it either a heavy or a light harrow; and this object is attained, in a very simple manner, by the levers and wheels. When the harrow is wanted to be light, if the lever be pulled down, and secured to the bow by the pin, the weight is taken off the tines, and thrown on the wheels revolving on the land; a tine following to obliterate the mark of the wheels. When weight is required, if the lever be raised to its highest place, in order to bring the wheel above the beam, the whole weight of the harrow is thrown on the land; and the wheels then act as an additional weight, to press the tines to their work. If the harrow, when compressed into a narrow space, requires cleaning, the man driving, by shaking the lever (which is closely within his reach, when driving), may easily liberate it from any rubbish which may have accumulated. When the implement has to be removed, by pulling down the levers, which raise the tines 4 or 5 inches above the ground, it is very readily shifted on its own wheels, and compressed sufficiently narrow to go through a gateway. There is sufficient pliability in the joints, which connect the bars with the beams; so that, on uneven or high-ridged land, the harrow will fall into, and adapt itself to, the form of the surface. The tines are all screwed through the bar of the harrow, as well as the nut, to do away with the inconvenience of their coming loose.—Price, with horse pole, 7*l*. 12*s*."

Among other points which we may at present name as worthy of notice (and being hurried for time we shall be excused for delaying mention of some till next week), were implements exhibited by Mr. Stratton, of Bristol. The Norwegian Harrow, a drawing and description of which we hope soon to present to our readers, appears to be an efficient clod-crusher, as well as stirrer of the land. It consists of a heavy frame-work on wheels, which enable it to be lifted from the land. And across this frame-work are spiked axles, so to speak, the teeth of each of which, while they sink into and work up the land, clean those of its neighbour; and thus the instrument is always kept in a state of efficiency. Mr. Stratton also exhibited a pair of wrought-iron wheels, which deservedly attracted considerable notice.

We may also mention the exhibition of an instrument—a Seed-sowing Machine, sent all the way from Finland by Count Gripenberg. It was simply a large barrel with holes pierced in it, through which the seed dropped upon an inclined surface, down which it slid, guided by raised edges, into funnels which led it to the ground in rows, at any intervals that might be selected. The principle of the barrel delivery is obviously imperfect in any case excepting that of *small* and *spherical* seeds, like those of the Turnip.

A machine for twisting straw ropes, exhibited by Mr. Pierce, a working man of Llanasa, near Holywell, Flintshire, and put out of hand in a very rough way, exhibited as much mechanical ingenuity as anything that was shown in the yard. It was worked by the foot, and was used to wind up the manufactured rope as it was made. One side of the machine was for platting and the other for twisting. One man does the whole of it. It is a most ingenious and efficient instrument. We shall have a few words to say on other points next week. At present we would make only one remark. It is a very serious thing that in this—so favourable a station for drawing together and exhibiting the mechanical ability both of England and Scotland—agricultural machine makers should have failed to respond with any spirit to the call of the Society. This is decidedly the most important portion of the Society's Exhibition—so much so that should it drop off, and ultimately fail, we hesitate not to say that we should not consider it worth while to be either at trouble or expense to report the proceedings. For what matters it whether this man's bull or the other's wins a prize. Any one wanting to improve his stock knows pretty well already what to do and where to go: and, even admitting the importance of the point, the progress of improvement in this department being slower than in the other, because it has already gone so far, there is the less necessity to record it. What our agriculture wants, undoubtedly, is an improved stock for the consumption of its produce; but the means of improving this have been, and are now, as efficient as they will be in all probability for many years to come. *What it also and more particularly wants*, is improved and cheaper methods of cultivation—and these it will find, among other places, in simpler, more efficient, and cheaper machinery. This is the field which the Society has hitherto been distinguished for patronising—and this it must continue to patronise if its usefulness is to grow and increase. Looking over the prize-list, we find that of the sum (small, considering the income of the Society) offered as rewards for implements, nearly 30 per cent. has been withheld "for want of sufficient merit." The 300*l*. given by the Society as rewards for implements out of the 7000*l*. or 8000*l*. which it annually receives from its members has this year been reduced to little more than 200*l*., for want of sufficient merit in the articles exhibited. We do not wish that to be rewarded which does not deserve it, but, at all events, the sum given should not be lessened; the 80*l*. withheld should have gone to increase the value of the prizes which were awarded; and there are articles now in the yard at Newcastle, as we certainly think, deserving notice, which have been passed over without being distinguished in any way by the Society. Vingoe's Seed Planter, for instance, Newberry's Dibble (we do not know what special reason there may have been for neglecting this valuable implement), the Drill Machine of Mr. John Geddes, of Cargen Bridge, near Dumfries, and others.

We ought to have stated before this that the award of the judges was made after a private trial of the implements on the Friday and Saturday of last week—the former day being devoted to the trial of the thrashing machines and winnowers—the latter to the trial of implements of cultivation. On the Friday a fatal occurrence took place when trying a peg drum thrashing machine—a part of the instrument breaking was thrown off with great violence, and striking the man who was removing the straw, killed him on the spot.

The public exhibition of the working of the machines and implements took place to-day, and as usual was productive of but little instruction to those who witnessed it. The crowd looking on, trod down the surface of the furrow-slices as they were successively turned over, so that the ploughing could hardly be judged of, and the action of harrows, rollers, drills, &c., was rendered incapable of being ascertained in an almost equal degree. The land on which the trials took place was in capital order for all implements excepting clod-crushers; there was not sufficient difference between the light and the heavy land to test the implements suitable for use on the different kinds of soil

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DISCUSSION ON MANURES, AND THE BEST METHOD OF APPLYING THEM.—We now come to an exceedingly pleasant part of our task, that of reporting the proceedings in the lecture-room at Nelson-street, when, before a full meeting of farmers, Lord PORTMAN in the chair,

Professor JOHNSTON delivered an introductory address on the principles of manuring, which was followed by a most interesting discussion on various practical points connected with the subject. The lecturer stated that the great problem for solution by farmers now-a-days was how to grow *more* food and *cheaper* food for the people; the one that they might keep pace with the growing demands of an increasing population, and the other that they might be enabled to meet foreign competition, to which they are now exposed. The one was to be done by bringing more land into cultivation, and by increasing the fertility of that already under culture, the other by diminishing the expence of cultivation, and by increasing the produce without, in the same degree, increasing the expence attending it. With regard to the first point, he believed that the productiveness of 9-10ths of this island might be greatly increased. Every one would acknowledge that lands naturally of similar quality might fairly be compared Now he had instances in which lands, naturally the representative of large districts of similar quality had, with profit, been made to yield immense produce. The late Mr. Aitcheson, of Dromore, had records of the produce of his farm since 1800, and those records exhibited an enormous produce compared with that yielded by large districts of land of a similar quality. Well! these districts may be compared with the estate of Dromore, and it may be safely asserted, that if similar means be used all over them, similar results will be obtained. These results were obtained from the use of artificial causes, from the proper application and use of larger quantities of manure.

But the scientific man asserts, that even *unlike* sorts may be compared, and that the produce of naturally infertile soils may be increased to a level with that of naturally fertile soils, by the artificial application of those substances to the natural presence or absence of which natural fertility or barrenness is attributable. He did not know of a limit to the productiveness to land. Mr. Vernon Harcourt had published a statement from which he draws the inference that he had reached the limit of high cultivation; he found that one cause put in action produced a certain effect on the crop, and that another cause put in action happened to produce a similar effect: while the application of both the causes together was not followed by an increased effect. The experiments were interesting contributions to our stock of information, but did not justify the inference which had been drawn from them; for, though the second cause had failed to add to the influence of the first, a third or a fourth might have succeeded.

The means employed to increase the fertility of soils were of two kinds—those tending to their mechanical improvement, and to the improvement of their texture; and those tending to their chemical improvement, to the improvement of their composition. Plants were composed of certain substances, some of which *might* be obtained wholly from the air, and others comprising those of which the ash consisted, which can be obtained only from the soil. The lecturer then went on to explain the nature of the substances found in plants, which were divisible into three classes—those found in the ash and termed inorganic substances, and two others comprising the organic portion, which will burn away in common air, viz., the one represented by gluten, a stringy elastic substance found in Wheat flour, and the other represented by starch, sugar, &c. The principle upon which manuring depends must be to supply to the plant the substances which it requires as food, and this can only be done economically by those who know not only what the plants want, but also what a given soil can afford them. And the lecturer stated his belief that *we* should see the day when the farmer, knowing the wants of his soil, would be able to write a prescription for the manufacturing chemist to make up, which

should act just and economically as a remedy for the difficulty now in the way of its productiveness. In the meantime the practical method of increasing the productiveness of soils was to manure more highly, and our stock of manure could be increased—First, by saving what we now lose a great portion of—the urine of our cattle, &c., and the gaseous and soluble parts of our dunghills. Secondly, by the application of what is now notoriously wasted—the sewage manures of towns and the refuse of many manufactures. Thirdly, by the use of imported manures, as bones, guano, &c.

On this last point, Professor Johnston stated that lately there were actually imported into Berwick-upon-Tweed above three or four thousand tons of bones, while last year there were imported six or eight hundred tons only. They had, in fact, on some soils lost their value as manures, proving that the supply of no one substance, in whatever quantity, would meet the wants of plants. As a balance to this great diminution in the quantity of bones used, there were imported during last year into Berwick about 5000 tons of guano.

Professor Johnston then spoke on the importance of education to the farmers. It was of the utmost importance that they should educate their sons—not their bodies but their minds. In every town you will see manufacturers that are bringing up one and two of a family as farmers; and how are they fitting them to hold this station? not by sending them to drudge at farm *work*, but by educating them in the *principles* on which all good farming depends; and if ever the time should come when these or uneducated farmers' sons shall be tenants of the land, it is easy to foresee on whom the choice will be. The very maintenance of their station in society thus depends on the farmer educating his family.

After the conclusion of the lecture, Mr. THOMSON spoke on the proper method of managing the dung-heap. It consisted in due attention to the supply of air and water. The best plan was to prepare a hollow surface with a tank in the centre, and on this to place the manure; it should be compressed and covered if intended to be long before use or left loose and lightly covered, and occasionally wetted in order to draw the air through the heap if intended to be used soon. In fact, vegetable decomposition was a true though slow and imperfect combustion. Keep the air from it, and you render it impossible to be rotted; supply air abundantly, and you rot it rapidly.

Mr. CROMERON was then called upon to state his experience in liquid manure tanks. He had had many years experience, and had used the liquid on all sorts of crops. Almost any form of tank or mode of construction answered *if it were made large enough*. The material used in making it soon became impervious from the infiltration of matter. He applied about 25 cubic yards of the manure per acre by means of a water-cart and short hose, by which the man walking behind spread the liquid as he walked—no pierced spout had answered with him. He had for 14 years on one field applied no other manure than this; each year he had cut two great crops of Grass the first for hay; the next for green food.

A gentleman from Aberdeen spoke next, saying as regarded the needful size of the tank, that he had a yard, covered over and containing 50 head of cattle—that these cattle were well littered, and that in seven months they had yielded 19,000 gallons of urine over and above the quantity required thoroughly to moisten the straw. This was collected in a tank of 20,000 gallons contents below the yard—the size which he had been advised by Professor Shier to construct.

Mr. SMITH, of Deanston, then rose, and in reference to the subject of town sewerage spoke of the plan to which we have already alluded in this paper for collecting the sewage-water of London and distributing it in the adjacent country. He said that it could be delivered, in fact spread, at a distance of 11 miles from London for 3*d.* per ton. He mentioned a farm near Glasgow of 300 acres, on which 500 cows were kept. The urine from these cows was collected in a tank, and pumped up, and thence through pipes into the fields, each of which was watered by hose from these pipes. The laying of these pipes had cost 30*s* per acre, and the crops thus treated were very fine indeed. Mr. Smith also spoke of the propriety of thorough draining dung-heaps, collecting the liquid oozing out of them and spreading it over the heap again. He said it was of great importance in an economical point of view that farmers should prepare their manure not in one body and all at once, but in different sections, each for its own crop, and to be got ready for application at its proper period.

Lord PORTMAN then made a few remarks on the value of education to the farmer, and on the capital result of this the first attempt at annual discussion on practical points at the Society's meetings; and the assembly then dispersed.

Wednesday, July 15.—The town is becoming very full. There has been a considerable attendance in the Implement yard all day. A public trial of Thrashing and Winnowing Machines took place at 12 o'clock. Mr. Hornsby's Corn-dressing Machine appeared to act admirably; the feed-roller of it was capable of delivering, and the fans and riddles of cleaning, the work of the very worst of thrashing-machines—full of broken straw and all sorts of rubbish.

The day closed with an admirable lecture by Mr. Parkes on the subject of Drainage, followed by a discussion, in which Mr. Smith, of Deanston, took a part. We have not time to give a full report of this lecture, on which, however, the following notes will be read with interest:—

DISCUSSION ON DRAINAGE.—Mr. Parkes commenced by saying that everybody knew that land was injured by excess of water. This had the effect of increasing the difficulties attending the mechanical working of the soil; it lowered the temperature of the soil; it hindered air from entering it, and rain from descending through it.

These injurious effects are by no means confined to our naturally wet clayey soils; they are apparent over large districts of siliceous sandy soil. The effect of wetness is apparent when we compare our naturally wet with our naturally dry soils. The difference is enormous, as every farmer knows, both in the expense of, and in the returns from their cultivation. Well, the object of drainage is to assimilate the naturally wet to the naturally dry soils, to confer on the former artificially all those valuable qualities which are possessed by the latter naturally. Drainage has hitherto been too shallow; speaking practically, instances are numerous in which land drained shallow has not been drained at all, while when afterwards drained deeper, the evil has been cured. The attention which the Society has, during the few past years, directed to the subject, has resulted both in the collection of a vast mass of facts bearing upon this and other points, and in the improvement of the machinery required. A few years ago, 1000 feet per diem was the utmost which any tile machine was capable of making, but now we have machines with the "faculty" of emitting 20,000 feet of tile pipe in the same period. [Mr. Parkes did not refer here to the power required to work these machines, but of course we suppose he means that in both cases the power used was the same. If this be so, the difference appears enormous, considering that the application of the power is as simple as can be imagined, and almost, we should have conceived, incapable of admitting contrivance for increasing its efficiency. Its effect is simply the compulsion of a semi-fluid or plastic material through an aperture.] The theory of deep drainage was first and almost perfectly enunciated so long ago as the year 1652. A work, "The English Improver Improved, &c., &c., by Captain Walter Blith, a Lover of Ingenuity," which then went through three editions, states the principles and the facts of this subject as clearly as they could be stated now, and to that work may be attributed much of the isolated truth existing here and there on the subject all over the country. [Mr. Parkes then read several most apposite and instructive extracts from this work, which we shall hereafter take the opportunity of laying before our readers.]

The condition of the soil with regard to water will be ascertained by considering the effects relatively of evaporation from the surface, and capillary action from below. The one tending to dry the active soil, the other to keep it wet; the one not in most soils capable of neutralizing the other, and in some incapable even of keeping pace with it; for this reason, among others, that it acts only during 12 hours of the day, while the other acts day and night.

The object of drainage is to render the soil pervious to air and rain—the atmosphere, as proved by its influence in the operation of fallowing, is a boundless storehouse of manure; then, why not let it deeply into the land?

Mr. PARKES then gave us the history of his operation at Strathfieldsaye, stating that in his opinion they exhibited the whole theory and effect of true land drainage. The land was a stiff clay, 5, 6, and 7 feet thick. It had been shallow drained, *i.e.* at depths of 18, 24, 30, and even 12 inches, but ineffectually. He dug a pit 4 feet 10 inches deep without getting any water in it. Made, notwithstanding *that*, he could absolutely squeeze the water out of the top soil. No sooner, however, had he sunk 6 or 7 inches deeper than the water rapidly filled in. He had made a drain 350 yards long at that depth through the field, and that drain for 76 days had run about a gallon a minute, while a drain placed in the same ditch, but only 3 feet 6 inches deep, had hardly delivered any water at all. The deep drain had delivered about 5 tons of water daily. In fact, the quantity of water that had flowed out of it constituted a bed 5½ inches thick over the 4200 square yards which the drain represented. The soil in this case lay on a bed of free water, and, considering the enormous powers of capillary action which that stiff soil possessed, no wonder that it was continually wet. His success at Strathfield saye had occasioned a perfect revolution of opinion in that neighbourhood, so that men who laughed at the idea of a deep drain before he came there were now draining their land by drains 5 feet deep and 4 poles asunder.

Mr. PARKES then called attention to some causes of stoppage to which drains were liable. There are certain deposits of an unctuous and sometimes of a ferruginous character liable to accumulate in pipes. These he avoids by using a small and a cylindrical pipe: the current of water is thus made smaller and more rapid, and therefore better able to remove deposit. In one case he had obtained an analysis of this deposit; and Mr. Philipps had informed him that it consisted of 27 per cent. of the peroxide of iron, 49 per cent. of silica and alumina, and 23 per cent. of organic matter; and it was suggested that it was a chemical deposit rather than a mechanical infiltration—that in fact the carbonic acid derived from the decomposition of the organic matter in the soil had dissolved out a portion of the protoxide of iron in the soil, carried it down in solution in the water, in which, as soon as it reached the air in the drain, the protoxide became a peroxide—the carbonic acid left it, and it was deposited. Now in the case of slow precipitates of this kind, the solid particles as they form are the finest known particles of matter in existence, and it requires but little force of water in an open tube to carry them wholly away. In fact, a bog containing much ferruginous matter had been drained by him with perfect success, and the pipe had remained open during the *months* they had been in action.

Another liability to stoppage arose from the roots of trees inserting themselves. A single fibre would enter; but it would (running up against the stream) divide itself out into a perfect brush of fibres. It was of the utmost importance to keep away from hedge-rows; and when they *must* be crossed, use very long pipes, socketing into one another.

Mr. PARKES then directed attention to certain natural aids to drainage, independently of what might be called the porosity of the soil. Amongst these were water-seams, unclosed cracks, worm-holes, &c., all of which continually occurred in the very stiffest clays. The lecturer then recommended the use of the subsoil plough, the position of drains up and down the hill, the abolition of all surface water furrows. He then explained why a deep drain runs before a neighbouring shallow one, after a heavy rain, using the well-known simile of a cask once emptied running at the lowest tap first, when water is poured in; and he attempted to explain, what he stated to be a fact, that rain-water will run off quicker on deep-drained than on shallow-drained land of the same texture.

He then spoke of the policy of having air-drains to *ventilate* the soil—a term which he said was absurd. Air find its entrance to the land, not up pipes—he had never been able to find a current up pipes—but by the surface, dissolved or mixed in the rain-water. It was removed from the soil by the action of changes of temperature, and by absorption into the roots of plants; and other took its place. Air-drains tended to dry the soil; but it was not dryness, but dampness, that was the proper object of drainage.

The remaining part of the lecture was devoted to the consideration of the practical operation of drainage. Cylindrical tubes were best because they were complete, requiring no sole, because they were more easily made and of less substance than any other form.

Mr. PARKES then spoke of the difficulty of draining running sands; he had overcome it by making the one long pipe constituting the drain rigid from end to end; so that if supported at each end it would preserve its position; and he had effected this by using short pieces, one within another.

He then directed his remarks to the importance of drainage to irrigation, saying that in very many cases irrigation, as at present done, was simply swamp-making.

He stated the advantage of using cesspools at the junctions of drains for the purpose of examining the action of each drain, and also in water meadows, for the purpose of pouring water in at these openings to be distributed through the subsoil by means of the drains stopped at their wider ends for the time. He concluded by calling attention to various tools manufactured by London of Birmingham; and to a very simple metallic exit-valve for use where drains empty below the surface of water; and he recommended all water tight junctions as, *e.g.*, the junction of this valve to the terminal pipe, to be made with marine glue.

Mr. MARSH next addressed the meeting, calling attention to the practical advantage of having our workpeople instructed by example in the best methods of executing drainage.

Mr. SMITH, of Deanston, then rose. He said that, while he acknowledged the ability displayed in the lecture, he dissented from Mr. Parkes on many of the opinions which had been brought forward; but that it was impossible—that it would not be justice to the subject, the audience, or himself, to discuss each point separately on that occasion—that he would take an opportunity hereafter of putting his views in a published form. He would, nevertheless, state that he had perfect confidence in the policy of the plans he had all along recommended for the last 20 or 30 years; the longer his experience, the more convinced was he of the accuracy of the principles on which those plans were founded. Gentlemen need not, therefore, be afraid that in following the recommendations he had given them, they had thrown their money away. He was still confident that the mode of drainage he had recommended many years ago on the subject was one which would prove successful on all soils, and in all circumstances. Mr. Parkes' experience had extended over but a few years, and those, years of peculiar meteorological character, 1844 was a very dry year, the effect of which would be to render soils so open as to make drainage both then and in the following years more easy and capable of being done deeper than had been hitherto. His own experience had exceeded a quarter of a century; and he had tried all plans on all soils. When he first commenced draining 20 or 30 years ago, he had drained deeply, 4 feet deep, and others by his advice, in Surlingshare, had done the same, but after a few years all that drainage proving inefficient, was replaced by other drains on the plan recommended in his pamphlet, and the success had been perfect.

Mr. SMITH concluded by saying that while he maintained the accuracy of his views, in contra distinction to those of Mr. Parkes, he had expressed himself without the least acrimonious feeling; that he had known and respected Mr. Parkes for many years, and that he respected every man who exerted himself for the true

interests of his country. A discussion then followed, chiefly on the point broached by the lecturer regarding the greater quickness of a deep than of a shallow drain. This was at length closed by Lord Portman, who, after remarks on the nature of the subject which had been discussed, proceeded to read over the Prize List, which we now lay before our readers.

LIST OF PRIZES FOR CATTLE, &c.

AWARDED AT THE MEETING OF THE ROYAL AGRICULTURAL SOCIETY, HELD AT NEWCASTLE-ON-TYNE, ON THE 16TH JULY, 1846.

SHORT HORNS.

JUDGES: Mr. William Smith, of West Rasen, near Spital; Mr. Robert Cattley, of Brandsby, near York; Mr. Sober Watkin, of Plumpton, near Penrith.

CLASS I.

The 1st prize of 40*l.* for the best Bull, calved previously to the 1st of Jan., 1844, is adjudged to No. 16, viz., to Mr. Hopper, of Newham Grange, Stockton-on-Tees.

The 2d prize of 15*l.* in class 1, is adjudged to No. 22, viz., to Mr. Raine, of Morton, Tinmouth, Darlington.

CLASS II.

The prize of 20*l.*, for the best Bull, calved since the 1st of Jan., 1844, is adjudged to No. 55, viz., to Mr. Thomas Wetherell, of Durham.

CLASS III.

The prize of 15*l.*, for the best Cow in milk or in calf, is adjudged to No. 61, viz., to Mr. Richard Booth, of Walaby, near Northallerton.

CLASS IV.

The prize of 15*l.* for the best in-calf Heifer, not exceeding 3 years old, is adjudged to No. 87, viz., to Mr. John Booth, of Killerby, near Catterick.

CLASS V.

The prize of 10*l.*, for the best yearling Heifer, is adjudged to No. 104, viz., to Mr. J. Banks Stanhope, of Revesby Abbey, near Boston.

CLASS VI.

The prize of 10*l.* for the best Bull Calf, not exceeding 1 year old, is adjudged to No. 117, viz., to Mr. James Banks Stanhope, of Revesby Abbey, near Boston.

Commendations—The Judges highly commend No. 7, Mr. Thomas Crofton's Bull, No. 12, Mr. Harvey's Bull; No. 60, the Duke of Buccleugh's Cow; No. 69, Mr. Fawkes's Cow; No. 71, Mr. Forrest's Cow; No. 80, Mr. R. Booth's Heifer; No. 85, Lord Feversham's Heifer; No. 92, Mr. Wetherell's Heifer; No. 45, Mr. Forrest's Bull; No. 107, Mr. Trotter's Heifer.

HEREFORDS.

JUDGES: Mr. Henry Chamberlain, of Desford, near Leicester; Mr. William Trinder, of Wantage: Rev. J. R. Smythies, of Grey Friars, Colchester.

CLASS I.

The 1st prize of 40*l.* for the best Bull, calved previously to the 1st Jan., 1844, is adjudged to No. 119, viz., to Mr. Edward Gough, of Gravel Hill, near Shrewsbury.

The 2d prize of 15*l.* in class 1, is adjudged to No. 121, viz., to Mr. Edward Williams, of Lowes Court, near Hay.

CLASS II.

The prize of 20*l.* for the best Bull, calved since the 1st Jan., 1844, is adjudged to No. 122, viz., to Mr. Carpenter, of Eardisland, Leominster.

CLASS III.

The prize of 15*l.* for the best cow in milk, or in calf, is adjudged to No. 126, viz., to Mr. Charles Walker, of Sutton, Tenbury.

CLASS IV.

[No competition for the prize of 15*l.*, for the best in-calf Heifer, not exceeding 3 years old.]

CLASS V.

The prize of 10*l.*, for the best yearling Heifer, is adjudged to No. 131, viz., to Mr. Carpenter, of Eardisland, near Leominster.

CLASS VI.

The prize of 10*l.*, for the best Bull Calf, not exceeding 1 year old, is adjudged to No. 137, viz., to Mr. Carpenter, of Eardisland, near Leominster.

DEVONS.

JUDGES: Mr. William Gillett, of Southleigh, near Witney; Mr. Edw. L. Franklin, of Ascott, near Wallingford, Mr. William Torr, of Riby, near Caistor.

CLASS I.

The 1st prize of 40*l.*, for the best Bull, calved previously to the 1st of January, 1844, is adjudged to No. 144, viz., to Mr. George Turner, of Barton, near Exeter.

The 2d prize of 15*l.*, in class 1, is adjudged to No. 142, viz., to Mr. Fouracre, of Durston, near Taunton.

CLASS II.

The prize of 20*l.*, for the best Bull, calved since the 1st of Jan., 1844, and more than 1 year old, is adjudged to No. 145, viz., to Mr. Thomas Bond, of Bishops Lydeard, Taunton.

CLASS III.

The prize of 15*l.*, for the best Cow in milk or in calf, is adjudged to No. 148, viz., to Mr. Fouracre, of Durston, near Taunton.

CLASS IV.

The prize of 50*l*, for the best in-calf Heifer, not exceeding 3 years old, is adjudged to No. 152, viz., to Mr. George Turner, of Barton near Exeter.

CLASS V.

The prize of 10*l.*, for the best yearling Heifer, is adjudged to No. 153, viz., to Mr. Fouracre, of Durston, near Taunton.

CLASS VI.

The prize of 10*l.*, for the best Bull Calf, not exceeding 1 year old, is adjudged to No. 155, viz., to Mr Thomas Bond, of Bishops Lydeard, near Taunton.

CATTLE OF ANY BREED. Not being Short Horns, Herefords, or Devons.

JUDGES: Mr. Joseph Druce, of Ensham, Oxon; Mr. William Ladds, of Ellington, near Huntingdon; Mr. John Elliott, of Chapel Brampton, near Northampton.

CLASS I.

The 1st prize of 25*l.* for the best Bull, calved previously to the 1st of Jan., 1844, is adjudged to No. 159, viz., to the Hon. M. W. B. Nugent, of Higham Grange, Hinckley.

The 2d prize of 10*l.* in class 1 is adjudged to No. 157, viz., to Mr. John Marshall, of Long-park, Scalcby.

CLASS II.

The prize of 15*l.* for the best Bull, calved since the 1st Jan., 1844, and more than one year old, is adjudged to No. 164, viz., to the Hon. M. W. B. Nugent, Higham Grange, Hinckley.

CLASS III.

The prize of 15*l* for the best Cow in milk, or in calf, is adjudged to 169, viz., to the Hon. M. W. B. Nugent, of Higham Grange, Hinckley.

CLASS IV.

The prize of 10*l* for the best in-calf Heifer, not exceeding three years old, is adjudged to No. 176, viz., to the Hon. M. W. B. Nugent, of Higham Grange, Hinckley.

CLASS V.

The prize of 10*l.* for the best yearling Heifer, is adjudged to No. 182, viz., to the Hon. M. W. B. Nugent, of Higham Grange, Hinckley.

HORSES.

JUDGES: Mr. William Dobson, of West Auckland, Durham; Mr. Thos. Crisp, of Gedgrave, near Woodbridge; Mr. William Day, of Ensham, Oxon.

CLASS I.

The 1st prize of 40*l.*, for the best Stallion for agricultural purposes, of any age, is adjudged to No. 184, viz., to Mr. Jno. Bartropp, of Crotingham Rookery, Woodbridge.

The 2d prize of 15*l.*, in class 1, is adjudged to No. 196, viz., to Mr. Thos. Richardson, of Solemain, Brampton.

CLASS II.

The prize of 15*l.* for the best 3-years-old Stallion for agricultural purposes, is adjudged to No. 206, viz., to Mr. Frederick Thomas, Bryan, Knossington, Leicestershire.

CLASS III.

The prize of 15*l.*, for the best 2-years-old Stallion for agricultural purposes, is adjudged to No. 217, viz., to Mr. Edward Mills, Molesworth, Morpeth.

CLASS IV.

The prize of 20*l.*, for the best Mare and Foal, is adjudged to No. 224, viz., to the Right. Hon. Lord St. John, of Melchbourne, Higham Ferrers.

The 2d prize of 10*l.*, in class 4, is withheld.

CLASS V.

The prize of 10*l.*, for the best 2-years-old Filly, is adjudged to No. 226, viz., to Mr. Thos. Foster, of Scramwood, Rothbury.

CLASS VI.

The prize of 30*l.*, for the best Thorough bred Stallion, is adjudged to No. 233, viz., to Mr. George Holmes, of Thirsk.

Commendations.—The Judges commend No. 211, Lord St. John's Stallion. The Judges highly commend No. 231, Mr. Furguson's Stallion; No. 232, Mr. Foxton's Stallion.

LEICESTERS.

JUDGES: Mr. Thomas P. Stone, of Barrow, near Loughborough; Mr. John M. Ashdown, of Uppington, near Wellington, Salop; Mr. John Wright, of Romley, near Chesterfield.

CLASS I.

The 1st prize of 40*l.* for the best Shearling Ram, is adjudged to No. 298, viz., to Mr. George Turner, of Barton, near Exeter.

The 2d prize of 15*l.* in class 1, is adjudged to No. 285, viz., to Mr. Robert Smith, of Burley-on-the Hill, Oakham.

CLASS II.

The 1st prize of 30*l.* for the best Ram of any other age, is adjudged to No. 313, viz., to Mr. Robert Burgess, of Cotgrave-place, near Nottingham.

The 2d prize of 15*l.* in class 2, is adjuged to No. 327, viz., to Mr. Pawlett, of Beeston, near Biggleswade, Beds.

CLASS III.

The 1st prize of 10*l.* for the best pen of 5 Shearling Ewes, is adjudged to No. 343, viz., to Mr. George Angas, of Neswick, Driffield.

Not sufficient merit for the 2d prize of 5*l.*, in class 3.

Commendations.—The Judges highly commend No. 312, Mr. R. Burgess's Ram; No. 314, Mr. R. Burgess's Ram; No. 315, Mr. R. Burgess's Ram. They commend—No. 331, Mr. Pawlett's Ram; No. 332, Mr. Pawlett's Ram.

SOUTHDOWNS.

JUDGES: Mr. Henry Overman, of Weasenham, near Rougham; Mr. Edward Pope, of Mapperton, near Beaminster; Mr. Edwd. Trumper, of Nuncham Park, near Oxford.

CLASS I.

The 1st prize of 40*l.*, for the best Shearling Ram, is adjudged to No. 390, viz., to Mr. Jonas Webb, of Babraham, near Cambridge.

The 2d prize of 15*l.*, in class 1, is adjudged to No. 392, viz., to Mr. Jonas Webb, of Babraham, near Cambridge.

CLASS II.

The 1st prize of 30*l.*, for the best Ram, is adjudged to No. 402, viz., to Mr. Jonas Webb, of Babraham, near Cambridge.

The 2d prize of 15*l.*, in class 2, is adjudged to No. 399, viz., to his Grace the Duke of Richmond, of Goodwood, near Chichester.

CLASS III.

The 1st prize of 10*l.*, for the best pen of 5 Shearling Ewes, is adjudged to No. 407, viz., to his Grace the Duke of Richmond, of Goodwood, near Chichester.

The 2d prize of 5*l.*, in class 3, is adjudged to No. 404, to Mr. Barnard, M.P., of Gosfield Hall, Halstead, Essex.

Commendations.—The Judges highly commend No. 388, Mr. Jonas Webb's Ram. They commend No. 377, Mr. Goodlake's Ram; No. 389, Mr. Jonas Webb's Ram; No. 400, the Duke of Richmond's Ram; No. 403, Mr. Barclay, M.P.'s Ewes.

LONG WOOLLED SHEEP.—Not qualified to compete as Leicesters.

JUDGES: Mr. Henry Bateman, of Asthally, near Witney, Oxon; Mr. Charles Stokes, of Kingston, near Derby; Mr. Charles Clarke, of Aisthorpe, near Lincoln.

CLASS I.

The 1st prize of 40*l.*, for the best Shearling Ram, is adjudged to No. 416, viz., to Mr. Charles Large, of Broadwell, near Lechlade.

The 2d prize of 15*l.*, in class 1, is adjudged to No. 414, viz., to Mr. Edward Handy, of Sevenhampton, near Andoverford.

CLASS II.

The 1st prize of 30*l.*, for the best Ram, is adjudged to No. 421, viz., to Mr. Handy, of Sevenhampton, Andoverford.

The 2d prize of 15*l.* in class 2, is adjudged to No. 423, viz., to Mr. Charles Large, of Broadwell, near Lechlade.

CLASS III.

The 1st prize of 10*l.*, for the best pen of 5 Shearling Ewes, is adjudged to No. 426, viz., to Mr. Edward Smith, of Charlbury, near Enstone, Oxfordshire.

[No competition for the 2d prize of 5*l.*, in class 3.]

Commendations. The Judges highly commend No. 425, Mr. Edward Smith's Ram. They commend No. 424, Mr. Large's Ram.

SHEEP BEST ADAPTED TO A MOUNTAIN DISTRICT.—Not qualified to compete as Southdowns.

JUDGES: Mr. Hugh Watson, of Kellior, near Coupar Angus, N.B.; Mr. Joseph Currah, of Unthank, Stanhope, Durham; Mr. Richard Henderson, of Langlerford, Wooler.

CLASS I.

The 1st prize of 20*l.* for the best Ram, of any age, is adjudged to No. 428, viz., to Mr. Bolam, of Fawdon, Whittingham.

The 2d prize of 10*l.*, in class 1, is adjudged to No. 440, viz., to Mr. Wm. Foster, of Burradon, Rothbury.

CLASS II.

The prize of 10*l.* for the best pen of 5 Shearling Ewes, is adjudged to No. 456, viz., to Mr. Elliott, of Hindthorpe, Jedburgh.

CLASS III.

The prize of 10*l.* for the best pen of Ewes, of any age, is adjudged to No. 462, viz., to Mr Elliott, of Hindthorpe, Jedburgh.

PIGS.

JUDGES: Mr. Samuel Wiley, of Brandsby, near York; Mr. John Clayden, of Littlebury near Saffron Waldon; Mr. Jesse Kemp, of Thurlby Grange, near Alford.

CLASS I.

The 1st prize of 15*l.* for the best Boar of a large breed, is adjudged to No. 495, viz., to Mr. Richard Hobson, of Park House, Leeds.

The 2d prize of 5*l.*, in class 1 is adjudged to No. 502, viz., to Mr. Mayleverer, of Arncliff Hall, Cleveland, Thirsk.

CLASS II.

The 1st prize of 15*l.* for the best Boar of a small breed, is adjudged to No. 528, viz., to Mr A. Wilson, of the Abbey, Wigton.

The 2d prize of 5*l.*, in class 2, a adjudged to No. 519, viz., to Mr. Robert James, of Chalkside, Wigton.

CLASS III.

The prize of 10*l.*, for the best Breeding Sow of a large breed, is adjudged to No. 537, viz., to Mr. Charles Jackson, of Fossgate, York.

CLASS IV.

The prize of 10*l.* for the best Breeding Sow of a small breed, is adjudged to No. 556, viz., to Mr. Richard Hobson, of Park House, Leeds.

CLASS V.

The prize of 10*l.*, for the best pen of three Breeding-sow Pigs of the same litter, above four and under ten months old, is adjudged to No. 576, viz., to Mr. Wm. Fisher Hobbs, of Marks-hall, Kelvedon.

Commendations. — The Judges very highly commend—No. 494, Mr. Graham's Boar; No. 567, Mr. Robson's Sow. They highly commend—No. 517, Mr. Hobson's Boar; No. 518, Mr. Hopper's Boar; No. 527, Rev. C. Thompson's Boar; No. 541, The Duke of Northumberland's Sow; No. 544, Mr. Trotter's Sow; No. 558, Mr. Hobb's Sow; No. 568, Mr. Russell's Sow; No. 574, Mr. Wilson's Sow; No. 582, Earl of Radnor's Sow; No. 515, Mr. Hobb's Boar. They commend—No. 506, Mr. Ridley's Boar; No. 510, Mr. Ellison's Boar; No. 516, Mr. Hobb's Boar; No. 542, Mr. Nutt's Sow; No. 5[illegible] the Rev. J. Higginson's Sow; No. 560, Mr. Hunt's Sow; No. 564, Mr. March's Sow; No. 565, Mr. March's Sow; No. 569, Mr. Timothy Smith's Sow; No. 571, The Rev. C. Thompson's Sow; No. 572, The Rev. C. Thompson's Sow; No. 577, Mr. Ellison's Sow; No. 581, The Duke of Northumberland's Sow.

WOOL.

JUDGES: Mr. Hillyard, of Thorpelands, near Northampton; Mr. Matthew Pedley, of Smith-street, Warwick; Mr. Thomas Rowland Legg, of 230, Bermondsey-street, London.

LONG WOOL.

The prize of 10*l.* for the best sample of 10 fleeces of Long Wool, is adjudged to No. 6, viz., to Mr. Thomas Maddison, of Wandon, near Belford.

SHORT WOOL.

The prize of 10*l.* for the best sample of 10 fleeces of Short Wool, is adjudged to No. 12, viz., to Mr. Thomas Elliott, of Hindthorpe, Jedburgh.

MIXED BREED.

The prize of 10*l.* for the best sample of 10 fleeces of Wool, of mixed breed, is adjudged to No. 19, viz., to Mr. Ellison, of Sizergh Castle, Kendal.

PRIZES OFFERED BY THE LOCAL COMMITTEE.

BLACK-FACED SHEEP.—CLASS I.

The 1st prize of 10*l.* for the best Ram of any age, is adjudged to No. 472, viz., to Mr. Charles Summers, of Park Head, Whitfield.

The 2d prize of 5*l.* for the second best Ram, in class 1, is adjudged to No. 469, viz., to Mr. H. Philipson, of Allenheads, Allendale.

CLASS II.

The 1st prize of 10*l.* for the best Shearling Ram is adjudged to No. 477, viz., to Mr. Henry Philipson, of Allenheads, Allendale.

The 2d prize of 5*l.* for the second best Ram, is adjudged to No. 480, viz., to Mr. Charles Summers, of Park Head, Whitfield.

CLASS III.

The prize of 5*l.* for the best pen of Gimmers, is adjudged to No. 483, viz., to Mr. William Dodd, of Paddaburn, Bellingham.

PRIZES OFFERED BY THE NORTH TYNE AND REDESDALE AGRICULTURAL SOCIETY.

The 1st prize of 10*l.* for the best pen of pure Cheviot shearling Rams, is adjudged to No. 490, viz., to Mr. Robson, of East Keildor, near Bellingham.

The 2d prize of 5*l.*, for the second best pen of pure Cheviot shearling Rams, is adjudged to No. 487, viz., to Mr. Henry Thompson, of Ramshope, near Newcastle.

EXTRA STOCK.

BEASTS.—4*l.* is awarded to No. 584, viz., to Mr. Booth, of Killerby, near Catterick, for Short Horn Cow.

2*l.* is awarded to No. 585, viz., to Mr. Booth, for Short Horn Cow.

1*l.* is awarded to No. 586, viz., to Mr. Crofton, of Holywell, Durham, for Short Horn Cow.

1*l.* is awarded to No. 590, viz., to Mr. Thomas Wetherell, of Durham, for Short-Horned Heifer Calf.

2*l.* is awarded to No. 591, viz., to Mr. Thomas Wilson, of Shortley Hall, Newcastle, for Short-Horned Heifer.

HORSES.—5*l.* is awarded to No. 597, viz., Mr. George Trotter, of Bishop's Middleham, for a Colt.

SHEEP.—3*l.* is awarded to No. 606, viz., to Mr. John Clarke, of Long Sutton, Wisbeach, for an improved Long-Woolled Ewe.

5*l.* is awarded to No. 612, viz., to Mr. Thomas Maddison, Wandon, Belford, for five Leicester Ewes.

B. T. BRANDRETH GIBBS, *Director of the Show.*

Thursday, July 16.—The yard rapidly filled this morning, and after noon was densely crowded by large numbers, who continued to arrive by the trains from the Northern, Southern, and Western Railroads, which centre in the city. The exhibition of Shorthorn Stock was first-rate, as indeed, we might expect from the nature of the district. The show of Herefords and Devons was poor in numbers. This was also to be expected. The show of Horses was not so good as might have been anticipated, considering the neighbourhood of the Cleveland district: and the first prize was awarded to an animal of a Southern breed—a Suffolk Punch. There was an immense number of entries under the class of Leicester Sheep; but comparatively few were placed. This practice, adopted by certain breeders, of *advertising* their stock, for it is nothing else, is much to be reprehended, and ought not to be allowed by the Society. There was a fair show of the Southdown breed, Mr. Jonas Webb, as usual, carrying off all the head prizes. The Coltswold breed was fairly represented, and there was a numerous display of black-faced Cheviot, and other mountain breeds of Sheep. A large number of Pigs, of all sorts and sizes, and colours, were exhibited, and there were numerous entries under the head *Extra Stock*. This is all that our limited time and space will at present permit us to say under this head.

At 4 P.M., a numerous body assembled at dinner in the Pavilion, under the Presidency of Lord Portman, and honoured by the presence of his Royal Highness the Duke of Cambridge.

Most excellent speeches were delivered; indeed, this annual dinner was distinguished amongst the similar meetings of this sort for the amount of instruction communicated. Lord Portman's speeches were admirable, and his lordship retires from the Presidency of the Society, followed, we are sure, by the esteem and gratitude of all its members—especially of those who have had the pleasure of witnessing his most successful exertions in the execution of his duties as President at Newcastle. The Mayor of the city, Lord Morpeth, Dr. Buckland, and others, delivered excellent addresses, but the great speech of the evening was that of Mr. Grey, of Dilston, which we hope to be able to give entire hereafter; it was well followed and supported by Mr. Torr, of Riley, in responding to the Toast of the Judges.

Mr. GREY had charge of the toast—"The Labourers." He stated that their condition was dependent ultimately

on the system of agriculture prevalent; that where good farming prevailed, the labourer was well-off, and *vice versâ*; and that as good or bad farming depended mainly on the connection between landlord and tenant, it was to this point that we must come, as the true source of the difficulty in the way of the improvement so desirable. Tenancy at will was incompatible with a comfortable state of the labourer. Mr. Grey enlarged on this most eloquently, and with great force of argument. We were delighted to hear so much truth so forcibly set forth on this important subject, in the presence of men by whom, if it should have the influence on them which belongs to the arguments used, and to the high standing of the gentleman urging them, it will be made so influentially and so extensively useful. We shall endeavour to find room for Mr. Grey's remarks next week.

We think the members of the English Agricultural Society may congratulate themselves on the occurrence of one of the most successful meetings it has yet had.

Farmers' Clubs.

ECCLESFIELD.—*Economy of Making Farm-yard Manure.*—An essay on this subject was read by Mr. Jeffcock, at a late meeting of the Ecclesfield Farmers' Club. He said, in considering the expenses incurred by the agriculturist, I find manures comprise a serious item. Land cannot be cultivated to advantage unless it be supplied with manure of proper quality and in sufficient quantity. Good farm-yard manure contains nearly all the ingredients required by the plant in the process of its growth, from almost the first stage of vegetation, until it arrives at maturity. In the process of vegetation, the grain committed to the ground contains within itself sufficient nutriment, in the form of starch and gluten, to enable it, in the first stage, to push a small stem upwards, and to thrust a root downwards, which root throws out small fibrous shoots in every direction into the soil. This root, immediately on leaving the stem, gradually tapers away into fine tendrils, the extremities of which consist of a colourless spongy mass, full of pores, and it is by means of these spongy fibres that the plant is enabled to take in, and send forward, the liquid food, with the sap, to the upper parts of the plant, and to supply it incessantly with that nutriment which it requires. The leaves have also an important function to perform, by extracting from the atmosphere a large supply of carbon. The food of plants is supplied in a liquid or gaseous form. Professor Johnstone informs us that the organic (or living) part of plants constitutes 85 to 99 per cent. of their whole weight, the remainder being inorganic. This organic part consists of carbon, nearly one-half; oxygen rather more than one-third; hydrogen, a little more than 5 per cent.; and nitrogen, 2 to 4 per cent. The whole of the carbon and hydrogen, and the greater part of the oxygen and nitrogen, enter into plants in a state of chemical combination with other substances—the carbon chiefly in the state of carbonic acid, and of certain other soluble compounds which exist in the soil; the hydrogen and oxygen in the form of water, and the nitrogen chiefly, it is supposed, in that of ammonia and nitric acid. The inorganic matters are obtained by the roots directly from the soil. The quality of dung depends, in a great measure, on that of the food consumed by the animal, and also on the peculiar construction of the digestive organs of that animal. The same kind of food given to animals of a different genus will produce excrements of very different quality. Thus the horse, the hog, the ox, or cow, although they may be fed nearly on the same kind of food, the excrementitious matter will vary very much in composition and quality. The dung of the horse affords ammonia in much greater quantity than that of oxen. The dung of swine is of a colder nature, and of a soapy mass, and forms a manure of great power and duration. The dung of oxen contains matter soluble in water, and produces, in fermentation, nearly the same products as vegetables. The principal substances found in the animal secretions are gelatine, fibrin, mucus, fatty or oily matter, albumen, urea, and different saline, acid, and earthy matters. Most of these substances will easily undergo decomposition, liberating in the form of gaseous fluids, carbon, oxygen, hydrogen, and nitrogen, which, as we have noticed before, constitute the organic part of plants. Horse's dung is of a hot nature, fermenting much more rapidly than that of cattle or hogs; and when allowed to remain in large heaps, near the entrance to the stable or sheds in the farmyard, and the violent fermentation allowed to go on unchecked, great loss by evaporation takes place, and the fertilizing properties are greatly impaired; and this loss arises wholly from negligence or mismanagement; for if it were spread regularly and evenly over the farmyard, and properly mixed with the feces of the cattle and swine, which are of a much colder nature, no such injury would take place, and the one would correct the other, and the general quality of the manure be improved. Straw from Wheat, Oats, Barley, Peas, Beans, &c., or any other vegetable matter, being mixed with the animal feces, very much augment and materially affect the quality of farmyard manure, the constituent parts of these substances being principally earth and earthy soluble salts, and in different proportions, which by entering into combination with the animal and more soluble matters in the dung, retard the too rapid putrefaction of them, and when in a proper state of preparation and amalgamation form the most efficacious and durable manures that we have. Notwithstanding the great advantage that accrues to the farmer in having a large stock of good manure upon his premises, how often do we witness the very essence of it, in the form of liquid manure, allowed to escape either into an adjoining ditch, or purposely drained away into his pond, where it remains unapplied to any useful purpose, and where his cattle are daily compelled to wash down their food with a strong solution of it. There exists at the present time in our own village of Ecclesfield, similar instances of mismanagement; where the drainage from several farmyards is purposely allowed—first, to run for a considerable distance along the side of the public street, entirely exposed to the atmosphere; and afterwards to empty itself into the two ponds in the centre of the village, and which are two public watering places for cattle, there to undergo putrefaction, and by that means to become injurious in the highest degree to the health of the inhabitants. Individuals of the highest scientific attainments, as well as the most intelligent practical men, all agree that the liquid animal excretions are much superior to the dung of cattle. Liebig says, "Liquid animal excretions, if suffered to undergo the process of putrefaction, contain the greatest quantity of ammonia; and in that form which has lost its volatility, and when presented in this condition they are the most valuable of all manures, and not the smallest portion is lost to the plants. It is all dissolved by water, and imbibed by the roots." The loss of manure in a liquid state in the sewerage drainage of the large towns in England is enormous, and appears to be almost entirely overlooked; whilst in Paris and the principal towns on the Continent, the drainage from the sewers is applied to the land, and considered of the greatest importance in furnishing a large supply of the best tillages for agricultural purposes. Hannam, in his treatise on waste manures, informs us that "by applying a portion of the sewerage of Edinburgh to 300 acres of Grass-land belonging to Earls Moray and Haddington and others, which was formerly let at 40*s.* to 50*s.* per acre, now lets at 20*l.* to 30*l.* per acre; and they produce crops of the richest Grass, not to be equalled, and are cut from four to six times a year, and the Grass given to milch cows." —Dr. Granville, in his report to the Thames Committee says—"that the sewerage waste of Strasburgh produces 12,000*l.* sterling annually," and could the sewerage drainage of Leeds be applied to agricultural purposes, it is calculated that it would amount in value to 50,000*l.* per annum, and that of London to the immense sum of 900,000*l.* per annum.—We next proceed to consider the method of preparing the manure in the farmyard. Let all the buildings and sheds around it be spouted; and the delivering-spouts so arranged that the water may be made to flow into the yard, or not, at the option of the owner. In situations where it is practicable, let the floor or bottom of the yard be a little concave, in order that the straw, &c., may be well saturated with the liquid. Make drains from all the stables, cowsheds, piggeries, the dairy, and the kitchens, into the manure-yard. Make a spacious tank, in the most convenient part of the yard, to receive all the surplus liquid which is not required for absorption by the litter in the yard. Having thus prepared the yard, proceed to cover the bottom with any vegetable refuse that requires the longest time to decompose, such as stubble, tops of Potatoes, &c., and cover these with the litter from the stables and cow-houses, and in so doing take care that the dung of the different animals be spread in equal layers and well mixed. When cattle are fed in the yard, occasionally remove the cribs that the dung may be more equally spread and trodden. In order to keep it in an equal state of moisture, occasionally return to it the surplus liquid manure from the tank, or apply water the first opportunity that may occur from the delivering spouts around the yard. When the manure has accumulated in the yard as high as is convenient, it may then be removed and formed into a manure heap in the field where it is intended to be applied. The site may be covered with a layer of earth or road-scrapings, if they can be obtained, which will imbibe the moisture at the bottom. The heap may be square or oblong, with sloping sides, and should not exceed six feet in height; and care should be taken that the litter be of an equal moisture, and spread regularly, thinly, and lightly over the heap, that an equal putrefaction may ensue; and care must be used that no lumps remain unbroken, but be well shaken out and mixed. A manure heap, treated in this manner, will be ready to apply to the land in about two months, without turning. Should it be desirable to postpone the decomposition of the manure for a longer period, it may be done by making the heap as hard as possible by treading and carting over it, and adding a layer or two of earth five or six inches in thickness, at equal distances, in forming the heap, and covering the whole over again with earth on the outside so as to exclude the air, and in this state it may be kept uninjured for nearly 12 months, but requiring to be turned over and lightened up a month or so before it is applied to the land. When a manure heap is thrown up, regularly and lightly, as observed above, it is then that the violent fermentation takes place, which causes the decomposition of the animal and vegetable matter which it contains, by which process the ingredients so necessary to vegetation are liberated, and enter into a chemical combination with each other, and will pass off (if not prevented) in large quantities, in the form of carbonic acid and ammonia; and if neglected, and thus allowed to escape, the farmer sustains great loss both in the quantity and the quality of his manure. This will appear pretty clearly, by the following statement of an experiment that I made some time ago—proving the loss in quantity. In November I placed 4 tons of long fresh litter (lately thrown from the stables) into a manure heap, by itself on a separate part of the premises; it was thrown up in the usual manner, and turned over once, and in the beginning of May following it was used for the growing of Swede Turnips, being then in that state which farmers would pronounce to be excellent rotten manure. In this state it was again put over the weighing machine, and found to weigh only 58¼ cwt., having lost 21¾ cwt., or more than one-fourth of its original weight. Had there been 40 or 50 tons together in the heap, instead of only 4, the fermentation would have been carried on much more violently, and the evaporation more rapidly; consequently, I think it reasonable to suppose, the proportionate loss would have been greater, and probably nearer one-third, instead of one-fourth, would have been abstracted from the original weight of the fresh litter, as no means were applied to prevent evaporation. The loss in weight is attended also by the loss of a very valuable portion of the manure by evaporation. In order to prevent the loss of gaseous fluids during the process of fermentation, the manure heap should be lightly covered over with a coating of ashes, peat, charcoal, or saw-dust, or other absorbents; and this coating should be well saturated with a mixture of sulphuric acid and water; about ten gallons of water to one of the acid. When enough of this acid mixture has been applied, there will be little smell, a great part of the ammonia being absorbed by the acid and the charcoal, and the charcoal absorbing also a considerable quantity of the carbonic acid from the heap. I do not approve of the decomposition of the manure being carried on to too great an extent: a certain state of fermentation is necessary to liberate its various properties more rapidly; but it is in the soil to which the manure is to be applied that its strength should be developed, and not in the heap; a medium state of decomposition is, therefore, to be preferred. During the dressing and cleaning of fallows, I would abolish the custom of burning the twitch, stubble, &c., as being an extravagant practice; for although the ashes and inorganic matter which remain after burning contain valuable properties, yet these are obtained by too great a sacrifice of vegetable matter. Let every farmer consider how he can, by every possible means, accumulate the largest mass of vegetable and animal matter from around his farm and about his premises during the year; let him collect the stubble and twitch of the fields, the refuse of his garden, orchards, and stack-yards, the scourings of his ditches, ponds, and watercourses, and weeds of every description before their seeds are ripe, and form the mass into a heap, well mixed together, and saturate this occasionally with liquid manure from the tank, or should that not be at hand, with some diluted acid: turn the heap once or twice, and this will form an additional quantity of excellent compost for his Grass land. I have endeavoured to show that the profits of the agriculturist in a great measure depend upon the proper management of his manures. He ought therefore to display the same care and anxiety to procure large heaps of manure in his fields, that he does to obtain large stacks of hay and corn, in and around the buildings upon his premises; for unless he possess the former, he will fail in producing the latter. Manure manufactured on the farmer's own premises, if well managed, possesses this great advantage—it is genuine—and (perhaps with the exception of bones) stands pre-eminent above all the rest for efficacy and durability. If the energies which England possesses were put forth vigorously and effectively in the thorough draining of the wet lands of this country, and only one-half of the waste manures of our large towns and villages were applied usefully to the soil, an important source of additional employment to our labouring population would be opened, and instead of having to pay 500,000*l.* to foreigners annually for bones and rape-dust alone, I think it is reasonable to suppose, that in a short time she would be able not only to furnish her own tillages, but also to produce corn sufficient for her population, independent of a foreign supply." On the conclusion of the paper, Mr. T. Turner, of Eastwood, observed that he had listened to the excellent paper that had just been read with pleasure, and was sure it was calculated to do a deal of good, if his plans were carried out. He had pursued the same plan with regard to the spouting of his buildings and creating tanks last autumn, and was well repaid for the outlay. He had made many experiments with artificial manures, but he found that the advantages of the application of liquid manure were fully borne out, and even exceeded; and that if farmers would only attend properly to the making of good farm-yard manure, and prevent the liquid manure and drainings from the farmyard from running away in the manner described in Mr. Jeffcock's paper, they would have better crops, and less need of artificial manure, for, in his opinion, no artificial manure was equal to home-made manure.

Miscellaneous.

Hoddesden Agricultural Training School.—At the late public distribution of prizes at the half-yearly closing of this flourishing seminary, Sir Charles Napier, R.N., in the course of a characteristic speech, urging the importance of Education to the Farmers, made the following statement of his agricultural experience:—"The land which he farmed had formerly produced only 4 or 5 quarters of Oats to the acre, an amount of produce with which the farmers of the district were contented; but by means of a proper system of cultivation he had last year got 11 quarters to the acre. No other land in the neighbourhood had produced so much;

and his Wheat now was, he believed, among the finest in the country. When told that the farmers of this country could not compete with those of foreign countries, his answer had been 'plough deep; clear out your weeds, and your produce will be as fine and abundant as that of any country in the world.' But there was a disinclination amongst many farmers to improve; they went on in the old way, and said, 'My father did well this way, and I shall do the same.' But they must go on improving now, if they would compete with others; and if they did go on improving, he, for one, had no doubt that the result would be—that in a few years, instead of being as now, an importing country, we should be an exporting one."

Modes of Using Flax-seed for Feeding Cattle, &c.—The seed given by itself is too strong and oily to be very wholesome food; and, besides this, the mucilaginous matter prevents the seed from being bruised by the animal's teeth, or dissolved by the gastric juice. It is much better to take the bolls to a *mill*, where there are edge stones, without thrashing out the seed, and to have them ground under the stones, set very close, or have the seed cracked in an oat bruiser; or, the small farmer, when no other means are within his reach, may use a metal pot, bedded in clay, and pound the bolls in it, with a hard wood pestle, made to fit the bottom of the pot.* About a dozen of strokes are sufficient to make the bolls into a fine meal. The chaff and seed, mixed together, afford most excellent nourishing food. It may be given steamed or boiled; but it is best to steep the mixture from 12 to 24 hours in cold water, and then mix it up with lukewarm water, to the consistence of a gruel. It will have formed a rich, finely-dissolved jelly, easily digested, and of the most wholesome and nutritive quality, excellent to be given to cows for producing plenty of milk and butter, for horses, for young cattle, or for pigs; a pint of linseed, and half-a-bushel of the chaff, may be given at a feed.† A farmer who has once experienced the advantages of saving the seed bolls of his Flax crop, will never neglect it again, as they can be turned to much advantage in one way or other.—*5th Report, Flax Society.*

Average Prices of Agricultural Produce in State of New York, U. S.—In giving the Tables of prices asked for in your sixth question I have thought it not expedient to rely simply on farm books. These, though correct as far as they go, could not indicate average prices. I have, therefore, resorted to the books of extensive dealers in the several products, giving in all cases the average prices paid to the producer. For the following Table of prices of the cereal grains, pulse, &c., I am indebted to Mr. Abraham Mudge, a miller of standing in this place, (30 miles south of the Erie canal.

Year.	Wheat.	Indian Corn.	Barley.	Oats.	Buck-wheat.	Peas.
	dls. cts.	dls. cts.	cts.	cts.	cts.	cts.
1832	1 12	0 56	65	35	44	60
1833	1 12	0 56	65	38	44	62
1834	1 6	0 62	60	37	40	62
1835	1 25	0 69	75	38	56	75
1836	1 38	0 87	75	40	50	75
1837	2 00	1 00	75	44	62	80
1838	1 60	0 88	70	42	50	75
1839	1 50	0 80	62	38	50	62
1840	1 25	0 62	50	30	38	50
1841	1 7	0 62	50	28	38	50
1842	1 6	0 60	45	25	38	50
1843	0 88	0 44	40	20	31	40
1844	0 85	0 44	40	20	30	44
1845	0 90	0 50	40	25	31	40

(The prices of 1845 estimated up to the 15th of October.)

To enable you to compare the prices of the southern counties with those of the markets on the Erie canal, (which are supposed to correspond with those of New York, bating the price of transportation,) I append the following Table. I am indebted for it to George Geddes, Esq., of Tyler, (one of the most intelligent and correct of our New York agriculturists,) who collected it for me from the books of the most extensive grain merchants in Syracuse. The averages are taken between the 1st of April for each year, except 1845, which only extends to August.

Year.	Wheat.	Indian Corn	Barley.	Oats.
	dls. cts.	cts.	cts.	cts.
1840	0 86	44	43.1	25
1841	0 98.7	52.1	46	31.5
1842	1 06.7	44.2	38	26
1843	0 87.5	47.7	36	29
1844	0 90	43.1	53	22
1845	0 91			

For the prices of pork, eggs, and feathers, I am indebted to Messrs. J. Barber and Son, extensive dealers of Homer; for those of butter and cheese, to James Van Valen and Co., of this place, who purchase those articles to the value of 100,000 dollars annually; for those of beef, to Rufus Boies and Sons, of this town, extensive drovers and packers; for those of wages, to my own recollections, aided by those of various agriculturists with whom I have conferred on the subject. I have found it impossible to ascertain the average prices of tallow, lard, and several other products, there being little commerce here in those articles. Hay and Potatoes I have omitted, as the prices, as before stated, would be merely nominal.

Year.	Wages per month.	Pork per cwt.	Beef per cwt.	Butter.	Cheese.	Feathers.	Eggs per dozen.
	dls. cts.	dls. cts.	dls. cts.	cts.	cts.	cts.	cts.
182	10 50	4 00	..	10	5	37½	6
1833	10 50	5 00	..	12½	6	37½	6
1834	10 25	5 00	..	12½	6	44	6
1835	11 50	6 00	7 00	14	7	50	6
1836	12 50	8 00	9 00	18	8	50	6
1837	13 50	6 00	10 00	15	7½	62½	6
1838	14 00	8 00	10 50	18	8	62½	6
1839	14 00	4 50	7 50	15	5½	62½	6
1840	12 00	4 50	6 00	12½	5½	56	6
1841	11 00	3 50	5 50	13	6	37½	6
1842	10 50	3 00	4 00	11½	5½	37½	6
1843	10 00	3 75	4 50	10	4½	37½	6
1844	10 00	3 50	4 50	11½	4½	37½	6½
1845	10 00	..	4 50	14	5½	37½	7½

For the following Table of prices, I am indebted to Messrs. Rufus Boies and Sons, the drovers above mentioned.

Year.	Oxen in yoke.	Three-yr.-old steers.	Two year-old steers.	Dairy Cows.	Wethers.
	dls.	dls.	dls.	dls.	dls. cts.
1835	70	24	14	27	2 25
1836	85	28	20	35	2 75
1837	100	30	22	38	2 75
1838	105	32	24	35	2 00
1839	85	28	20	25	1 75
1840	70	24	14	20	1 50
1841	65	20	13	18	1 25
1842	55	14	9	13	1 06
1843	60	16	10	14	1 25
1844	65	17	12	17	2 12½
1845	70	20	14	18	1 25

In the above Table each animal is priced separately, with the exception of oxen in yoke, where the price of a pair or yoke is given. I have not included wool in any of the above products, as you make it a separate subject of inquiry in your 27th interrogatory.—*Reply of Colonel H. S. Randall to a Treasury Circular. Published in the "Cortland Democrat."*

Calendar of Operations.

JULY.

We shall devote a paragraph here to the detail of a few experiments chiefly by Mr. Hannam, of North Deighton, near Wetherby, whose results exhibit the policy of cutting Wheat before it is dead ripe. It will be remembered that the object of the farmer generally is to supply the miller, not the seedsman; and thus he may reasonably depart from the course indicated by nature, whose object being to *prepare* the grain as seed, is best effected by permitting it thoroughly to ripen before it sheds itself. There is thus nothing which can at the outset be objected to the course which these experiments indicate as the best to follow—there is no *a priori* ground on which any fears that they are inaccurate can rest.

Mr. Hannam's first experiment was executed in 1840. Three samples were cut, *viz.* respectively:—

No. I. Green — cut . . . Aug. 4, 1840
II. Raw „ . . . Aug. 18
III. Ripe „ . . . Sept. 1

These were thrashed and carried to market, when the following prices were put upon them:—

No. I. . . . . 61*s.* per quarter
II. . . . . 64*s.* „
III. . . . . 62*s.* „

In 1841, a more extensive experiment was instituted; 5 samples of half-a-rood each were cut, *viz* —

No. I. Very green . . . . Aug. 12
II. Green . . . . Aug. 19
III. Raw . . . . Aug. 26
IV. Raw . . . . Aug. 30
V. Ripe . . . . Sept. 9.

These samples were thrashed, and the samples were as follow:—No. 5 (ripe) was "bold, but coarse;" Nos. 1 and 2 (green), "fine in the skin, but small;" and Nos. 3 and 4 "equal in boldness of grain to No. 5, and superior in cleanness of skin," being "unexceptionable as a sample." This desiccation, or drying in of Nos. 1 and 2 proved that it was taken too early. The whole of the samples were shown at the Annual Show of the Wetherby Agricultural Society, Sept. 22, 1841, when the superiority of the raw-cut grain was confirmed by the Judges, who awarded to it "an extra premium, with a high commendation of the sample No. 5, cut a fortnight before ripe."—*Yorkshire Gazette, Sept.* 25, 1841.

Having in one trial ascertained the value by market, and afterwards by the opinion of a public meeting, in order to leave no loophole for doubt, Mr. Hannam determined to test their qualities at the mill. The gross quantity of each was ground and dressed by Mr. John Hardcastle, of Hunseryore Mills, near Wetherby; and from the results we compile the annexed tables:—

No.	Grain. Quantity.	Grain. Weight.	Flour.	Pollard.	Bran.	Waste.	Cut.
	bush.	st. lbs.	st. lbs.	st. lbs.	st. lbs.	lbs.	
III.	3¼	15 10	12 6	0 12	2 1	5	Raw.
IV.	3 1/16	16 6	12 3	1 3	2 5	9	Do.
V.	3½	14 13	10 11	1 9	2 5	2	Ripe.

Weight per bushel of

No.	Grain.	Flour.	Pollard.	Bran.
	lbs.	lbs.	lbs.	lbs.
III.	62 9/13	49 7/13	3¼	8 9/13
IV.	62 8/16	46 8/16	4 3/16	8 5/16
V.	59½	43¼	6 4/7	9 3/7

Weight per cent. of

No.	Grain.	Flour.	Pollard.	Bran.
	lbs.	lbs.	lbs.	lbs.
III.	100	80 10/13	5 5/13	13 11/13
IV.	100	77 5/16	7 1/16	14 10/16
V.	100	72 12/20	11 3/20	15 15/20

"From this we see," says Mr. Hannam, "that the bushel No. 3, Wheat raw, gives more flour than the bushel of No. 5 by 6 1/7 lbs., showing a gain of 15 1/7 *per cent.* in weight of flour upon *equal measures* of grain."

Again, we find also that there is an advantage of "nearly 6 per cent. of flour in favour of No. 3 *upon equal weights of Wheat.*"

The theory upon which Mr. Hannam explains these astonishing results is, that as the sugar in the green plant becomes changed into the starch of the Wheat, so if permitted to remain till fully ripe another change will take place, the starch becoming gradually converted into *woody fibre*; for it is a well-known chemical fact, that sugar, starch, and fibre, are composed of the same constituent elements united in the same proportions, and are one and the same substance in various forms—in some such way as water, ice, and snow are different forms of one combination of oxygen and hydrogen.

This gradual change to woody fibre takes place in many vegetables, and it is by taking it into account that we can explain the curious fact shown in the Tables that the ripe Wheat contains 50 *per cent. more* "*flinty* particles"—"pollard," or "sharps,"—than the "raw cut grain." Hence it is no wonder that the flour of the ripe should be less *free* in the grain.

Mr. Hannam also claims a "better quality of flour," for the raw cut grain, and quotes the analysis of Professor Johnston, to whom samples were sent, from which it appears (see "Lectures," p. 734) that the

Raw Wheat contained 9·9 per cent. of gluten.
Ripe do. do. 9·6 do. do.

The other advantages claimed for cutting early, are a better quality and greater quantity of straw, a better chance of securing the crop, &c.

The quantity, *i. e.* the weight of straw must, it is evident, be increased, and it is equally true that its quality is improved, owing to there being more soluble matter in the *fresh* than the *dry* straw. In fact, the additional weight of straw is nearly all an additional weight of nutritive matter, starch, sugar, &c., which would when dead ripe have become fibre; and therefore is of great consequence to the value of the straw either as an article of food or as a manure. We have not space to allude to the other indirect advantages which Mr. Hannam claims for early reaping Wheat, nor can we follow his arguments or facts so fully as we would wish on the points alluded to; if, however, we have been able to give our readers an idea of the case as it now stands, or to draw their attention to the further investigation of the subject, we shall have done them good service.

In conclusion, we give Mr. Hannam's estimate, based on his experiments of the money value of an acre of the same Wheat cut *raw* and *ripe*.

No. III. Cut a fortnight before ripe . . £14 18 0
V. Fully ripe 13 11 8

Notices to Correspondents.

Apoplexy—*Inquirer*—The disease you speak of is apoplexy. The blood-vessels being in a full state, and the blood suddenly determined to one part. If there were any time for treatment, bleeding and purgatives are indicated; and by way of prevention, change to pasture of a less nutritious quality.—*W. C. S.*

Box-feeding—*Inquirer*—We prefer it; our cattle did better on that plan last winter than when fed in stalls. The compound is profitable to consume; more so than oilcake at 8*l.* or 9*l.* a ton. The last price we paid for Linseed was 64*s.* per quarter; we do not know what its price in Bristol is now. About erecting boxes, see page 110, col. *c*, "Sundries." We do not sink the floor.

Drains—*Embrun*—The water *does* get into these pipes. There is no doubt of that. The *mode* in which it enters the tube is, undoubtedly, through the joints between the pieces of which it is composed, and it arrives there after a passage through the clay, the difficulties of which it has been forced through by its own weight and by the weight of water pressing above it.

Farm Capital—*J. N. Carnac*—*To-day's* Leader will assist you.

Harvest—*A Novice* asks for the experience of our readers on the relative merits of mowing or reaping Wheats. Bagging is done with a heavy sickle in one hand and a wooden hook in the other. The corn is hewed down and gathered into sheaves by the same man.

Lime—*W. Suffolk*—Your land is poor from over-cropping. Then do not lime it—that would but the more effectually exhaust its fertility. And it is not economical to sow oil-cake—give it to your stock, and use their manure on the land. Or apply guano; sow 3 cwt. of Peruvian guano broadcast in wet weather.

Roofing—*T. Yonge*—We beg to state more expressly than we did last week, that we have no personal knowledge of the *relative* merits of M.'s and C.'s manufactures; for we have had no experience of the efficiency of the latter. Both we know to be highly spoken of by those who have tried them. Make further inquiry before you choose for yourself.

Small Farm—*Capstick*—The meeting at Newcastle has interfered with our intended article on this subject. Excuse the further delay of a week.

Wheat-growing in Wales—*Homo* being exceedingly desirous of correctly ascertaining whether, upon an average of seasons, Wheat can be successfully or, in other words, profitably grown upon an upland farm in Wales, which averages 700 feet in height above the sea, situated in latitude 53°—perhaps some of our practical readers, who may occupy a farm in a similar situation, will kindly state their experience as to their success in obtaining fair crops of this grain, and likewise their time of sowing, in order to obtain a successful result.

*** Any communications reaching town after Wednesday cannot be answered the same week.

Markets.

SMITHFIELD, Monday, July 13.—Per Stone of 8 lbs.

Best Scots, Herefords, &c.	3s 10 to 4s 0	Best Long-wools	—s to —s
Best Short Horns	3 6 3 8	Ditto (shorn)	3 8 4 0
Second quality Beasts	3 10 3 4	Ewes and second quality	— —
Calves	4 0 4 6	Ditto (shorn)	3 4 3 8
Best Downs & Half-breds	— —	Lambs	5 0 5 8
Ditto (shorn)	4 0 4 —	Pigs	3 4 4 6

Beasts, 3110; Sheep and Lambs, 23,780; Calves, 285; Pigs, 180.

The supply of Beasts is good, and there is a considerable demand; 4*s* is made of some of the best Scots, but not currently.—Sheep are still plentiful, but the demand has increased; best qualities are readily disposed of at our top quotations.—Lamb trade remains about the same.—The trade for Calves continues heavy; and for Pigs very dull indeed.

Friday, July 17.

We have rather a brisk trade amongst the Beasts; Monday's prices are fully supported and in some instances a little more is realised.—The trade for Sheep is rather dull, but prices remain the same. Lamb is not quite so much in demand; the choicest qualities make about 5*s* 8*d*, but second-rate are rather lower.—Calf trade is heavy; it is difficult to make over 4*s* 6*d* of a good one.—Pork trade is a little better.

Beasts, 708; Sheep and Lambs, 11,810; Calves, 407; Pigs, 260.

41, West Smithfield.

WOOL.—British, Friday, July 17.

Our market continues much in the same state as we reported last week. Prices remain firm. The demand is still limited.

	s. d.	s. d.
Down Ewes and Wethers	0 11½ to 1 0	per lb.
„ Hoggits	1 1 1 2	„
Half-bred Wethers	0 11½ 1 0	„
„ Hoggits	1 1 1 2½	„
Kent Fleeces	1 0 1 1	„

James Perrin, Broker.

HAY.—Per Load of 36 Trusses.

Smithfield, July 16.

Prime Mead. Hay	75s to 85s	New Hay	60s to 75s	New Clr.	65s to 85s
Infr. New & Rowen	54 60	Clover	85 s. 112	Straw	30 36

John Cooper, Salesman.

Cumberland Market, July 16.

Prime Mead. Hay	76s to 84s	Old Clover	105s to 115s		
Inferior	52 70	Inferior do.	84 95	Straw	32s to 36s
New Hay	60 70	New Clover	80 90		

Joshua Barns, Hay Salesman.

Whitechapel, July 17.

Fine Old Hay	72s to 84s	Old Clover	105s to 115s		
Inferior Hay	— —	Infr. „	— —	Straw	32s to 36s
New Hay	60 70	New Clover	75 95		

* For large farmers, a machine, made by Mr. Dean, of Birmingham, consisting of rollers for crushing the seed, is highly recommended.

† Four quarts of unbruised bolls contain, on an average, a pint of pure seed.

COVENT GARDEN, JULY 18.—Most kinds of Vegetables have been plentifully supplied, and Fruit has been abundant. Pine-apples, both English and Foreign, are plentiful; and, although the demand for them is but limited, prices have not altered since last week. Hothouse Grapes are abundant; and good Plums, and excellent samples of Peaches and Nectarines, have been offered. The supply of Cherries and Strawberries has been well kept up; the latter are, however, becoming scarcer, and of course dearer. Gooseberries are abundant, and a considerable quantity of Dutch Currants has been offered. Apples and Pears are sold at nominal prices. Oranges are plentiful, considering the season, and Nuts of all kinds are sufficient for the demand. Lemons are somewhat cheaper. English Melons may be obtained at last week's prices, and some good foreign ones are also in the market. Of Vegetables, Asparagus is scarce and dear. Cabbages, Cauliflowers, &c., are good and sufficient for the demand. Carrots and Turnips have not altered in price since last week. Peas continue to be rather scarce, and good young samples fetch high prices. Beans remain nearly the same as last week. Celery is good in quality. Potatoes of the best quality fetch 9l. a ton, but inferior samples may be obtained at lower prices. Ash-leaved Kidneys have not altered since last week; nevertheless, the supply is somewhat limited. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Heaths, Jasmines, Kalosanthes, Calceolarias, Pinks, Pelargoniums, Orange flowers, Cinerarias, Gardenias, Moss and other Roses.

FRUITS.

Pine Apple, per lb., 4s to 8s		Gooseberries green, per hf.-sv., 3s to 5s	
Grapes, Hothouse, per lb., 2s to 6s		Currants, red, per hf.-sv., 4s to 5s	
Apples, Dess., per bush., 7s to 20s		— white, do. 4s to 5s	
— Kitchen, 7s to 15s		Strawberries, per pottle, 1s to 2s	
Melons, each, 4s to 8s		Raspberries, per pottle, 1s to 1s 3d	
Peaches, per doz., 10s to 24s		Cherries, per lb., 4d to 10d	
Nectarines, per doz., 10s to 24s		Almonds, per peck, 6s	
Oranges, per dozen, Seville 2s 6d		Sweet Almonds, per lb., 2s to 3s	
— per 100, 4s to 16s		Filberts, English, p. 100 lbs., 50s to 60s	
— Seville, per 100, 8s to 16s		Nuts, Cob, per 100 lbs., 80s to 90s	
— per dozen, 2s to 3s 6d		— Barcelona, 20s	
Lemons, per dozen, 1s to 2s		— Brazil, 12s to 16s	
— per 100, 7s to 16s		— Spanish, 14s	
		Walnuts, per bushel, 12s to 16s	

VEGETABLES.

Cabbages, per doz., 6d to 1s 3d	Carrots, per bunch, 4d to 10d
Cauliflowers, per doz., 2s to 6s	Onions, per doz. bunches, 2s to 3s
Artichokes, per doz., 1s to 3s	Shallots, per lb., 6d to 8d
French Beans, per hf.-sv., 2s 6d to 4s	Garlic, per lb., 6d to 8d
Peas, per sieve, 2s to 6s	Lettuce, per score, Cab., 1s to 2s
Sorrel, per hf.-sieve, 2d to 1s	— Cos, 1s to 2s 6d
Potatoes, per ton, 70s to 100s	Radishes, per 12 bands, 2d to 1s
— cwt., 4s to 5s	Mushrooms, per pottle, 1s 6d to 3s
— bushel, 3s to 4s 6d	Small Salads, per punnet, 2d to 3d
— Kidney, per cwt., 12s to 18s	Fennel, per bunch, 2d to 3d
— Frame, per lb., 3d to 6d	Savory, per bunch, 4d to 6d
Turnips, per bunch, 4d to 10d	Thyme, per bunch, 6d
Red Beet, per doz., 6d to 1s 6d	Watercress, p. 12 sm. bun. 6d to 8d
Horse Radish, per bundle, 2s to 3s	Parsley, per bunch, 1d to 3d
Rhubarb, per bundle, 4d to 8d	— Roots, per bundle, 1s
Asparagus, per bundle, 1s to 3s	Tarragon, per bunch, 6d
Cucumbers, each, 4d to 1s 6d	Mint, green, per bunch, 6d to 8d
Spinach, per sieve, 1s 6d to 3s	Marjoram, per bunch, 6d
Leeks, per doz. bunches, 3d to 4d	Chervil, per punnet, 3d to 3d
Celery, per bundle, 1s 6d to 2s 6d	

HOPS, FRIDAY, July 17.

We continue to have a good demand for fine coloured Sussex and Weald of Kent Hops, which are very scarce; inferior sorts are difficult to sell. Duty £145,000. PATTENDEN & SMITH, Hop-Factors.

MARK-LANE, MONDAY, July 13.

The supply of English Wheat by land carriage samples this morning was moderate; the best parcels were disposed of in the early part of the day at a decline of about 2s. per qr., but some quantity remained unsold towards the close, upon which a greater reduction would have been accepted; in foreign, notwithstanding a good attendance, scarcely any business was transacted, prices are therefore entirely nominal.—The value of Barley, Beans, and Peas, is unaltered from last Monday, with little doing in either article.—Best Oats maintain our former quotations, but inferior are fully 1s. cheaper than on this day se'nnight.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk . . White	55	60	Red .	48	55
—— Norfolk, Lincolnshire, and Yorkshire .	50	54	White	50	56
Barley, Malting and distilling 30s to 30s Chevalier	30	32	Grind.	25	29
Oats, Lincolnshire and Yorkshire . . Polands	25	29	Feed	23	26
—— Northumberland and Scotch . . Feed	24	29	Potato	28	30
—— Irish . . . . . Feed	22	26	Potato	25	28
Malt, pale, ship	54	60			
—— Hertford and Essex	60	65			
Rye	34	36			
Beans, Mazagan, old and new 32 to 40	Tick	34	46	Marrow	35	48
—— Pigeon, Heligoland . 38 to 50	Winds	—	—	Longpod	—	—
Peas, White . . . 36 to 42	Maple	33	36	Grey	33	34

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.		Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	2033 Sks.	— Brls.	3662	268	6291	1660	—	214	29
Irish . .	—	,, — ,,	—	—	—	75	4461	—	—	—
Foreign . .	—	,, 14570 ,,	13870	9070	—	21915	—	2814	—

FRIDAY, July 17.

The little English Wheat fresh up for this morning's market, and that left over from last day, could not be disposed of without submitting to somewhat reduced rates. In foreign scarcely any business has been transacted, and quotations consequently remain quite nominal.—The demand for American Flour is less active than it has been, but prices being low in proportion to Wheat or English Flour, holders are not disposed to sell cheaper.—In Barley, Beans, and Peas, there is no alteration.—The Oat trade is very dull, and 1s. lower.

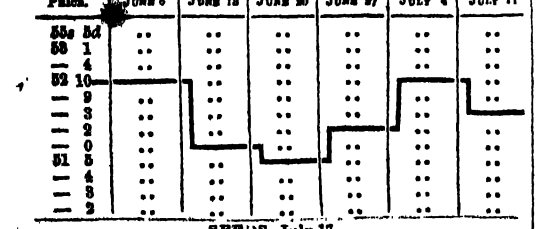
ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English . .	2320	1070	1240	1780 Sks
Irish . .	—	—	1530	—
Foreign . .	3070	2580	15870	—

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Jun. 6 per Quarter.	55s10d	27s 8d	23s 4d	33 4	35 0	34 9
— 13 . . .	53 0	27 1	23 3	33 4	36 4	33 6
— 20 . . .	51 5	27 3	23 3	33 4	36 4	33 6
— 27 . . .	53 2	27 4	23 6	33 7	37 6	35 0
July 4 . . .	53 10	27 6	23 3	33 5	36 5	35 5
— 11 . . .	53 3	27 7	24 3	33 11	37 11	35 3
6 weeks' Aggreg. Aver.	53 3	27 5	23 7	33 1	36 11	34 7
Duties on Foreign Grain	5 0	4 0	1 6	4 0	4 0	4 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, July 11.



SEEDS, July 17.

Canary . .	per qr	52s to 44s	Linseed Cakes, Foreign, p. ton	7l	to	8l
Caraway . .	per cwt	40	42	Mustard, White . p. bush.	—	to	—
Clover, Red, English .	—	—	—	— Superfine ,, .	—	to	—
— Foreign .	—	—	—	— Brown ,, .	—	to	—
— White, English .	—	—	—	Rapeseed, English, per last	20l	to	22l
— Foreign .	—	—	—	Rape Cakes . per ton	—	to	—
Coriander . .	—	14	16	Safflower . .	—	to	—
Hempseed . .	per qr.	36	38	Tares, Reg. winter p. bush.	—	to	—
Linseed . .	per qr	45	48	— Foreign .	3s6d	to	4s
— Baltic . .	—	40	42	Treefoil . per cwt	—	to	—
— Cakes Reg. per 1000, 10l		11l	Thrashy free variable for quotation			

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MR. RAINY respectfully begs leave, on the occasion of the conclusion of the legislative proceedings on the CORN-LAWS, again to advert to the subject of—

THE TRANSFER OF PROPERTY BY PUBLIC AUCTION AND PRIVATE CONTRACT,

and on which he has circulated a pamphlet containing an explanation of the alteration and reduction he has made in his scale of commission, and an exposition of the secret and irregular compacts which are entered into by many Auctioneers, for allowances, in the shape of bribery to intermediates; and Mr. RAINY wishes to embrace this opportunity of stating his intention to confine his attention, for the future, exclusively to the sale and purchase, and to the other various matters of business relative to real property.

During the political excitement which has existed this season, and from the conflicting opinions promulgated upon the consequences of Sir Robert Peel's measures affecting landed estates, Mr. RAINY considered it to be his duty to those who did him the honour to consult him, rather to discourage their incurring those expenses which are unavoidable in attempts to effect sales by auction; but as the discussion is now at an end, it may reasonably be anticipated that confidence will be restored, and that vendors will have improved chances of success. It is also to be recollected, that the auction duty of three per cent. has been abandoned.

With regard to the effect of the abolition of protection upon the value of landed property, Mr. RAINY is free to confess that he has not participated in those feelings of alarm which have been manifested in many quarters that are entitled to the highest respect; and he trusts that the apprehensions which have been entertained will soon be dispelled. At the same time he could have desired, in common with many others, that some modification should have been introduced in the settlement of so great and important a question, which, without being prejudicial to other interests, might have tended to conciliate the views of the agricultural body at large, and which not only previous circumstances, but those of the time, appeared to render advisable. As, however, the power of an increasing population to acquire the means to purchase articles of consumption may, doubtless, be materially increased by a more active, judicious, and efficient employment of labour than has hitherto been the case,—and particularly in Ireland, where such an ample field is presented for improvements,—the natural result must be an enlarged and growing demand for the products of the soil, accompanied with the accumulation, and more rapid circulation, of wealth, and consequently the maintenance of fair and remunerating prices, whilst prosperity, comfort and contentment, may be more generally diffused among the industrious working classes, and to the attainment of which objects the public mind, and the powerful exertions of the independent press of the country, are now so energetically directed. But much still remains to be done in respect to the manifold arrangements and ramifications connected with landed property. An equitable adjustment of the public burdens is especially demanded, rendering other sources of income liable to a fair and equalised contribution, greater facilities to the conveyance of estates after they have been sold, and to the exchange and enfranchisement of copyhold, church, and college lands. On this head Mr. RAINY would suggest the adoption of less complicated forms, and that the remuneration to all legal practitioners, whether counsel or solicitors, should be correspondently increased in proportion to the promptitude and dispatch exercised by them in these transactions. Thus would the public and the profession become mutual gainers, and the great inconvenience, dissatisfaction, and frequent loss, arising from delays, would be progressively obviated. It has been charged against Mr. RAINY that he is inimical to solicitors and attorneys. This he emphatically denies. What he has aimed at is the independence of his own profession, without any infringement whatever upon their legitimate ground, for in recommending years ago a different system as to Conveyances, and which he still continues to urge and recommend—but to overcome jealousies and prejudices is no easy task—he is confident that they (the legal profession) would, as a body, obtain some hundred thousands per annum increase of income, with infinitely greater satisfaction to the nobility, gentry, and the public, than under the present system, and command higher respect and credit for themselves.

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NEW BRIDGE-STREET, LONDON.
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ADVANTAGES.

PERFECT SECURITY, arising from a large Capital, totally independent of the Premium Fund.

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By Augmentation of the Sum Insured; or,
By Reduction of the Future Annual Premium.

Low Premiums, without Profits, particularly for limited terms of years. Increasing, Decreasing, and other Rates of Premium. Claims paid in 30 days after proof of Death. Prospectuses, Proposals, &c., may be obtained at the Office. Parties resident in the country are not required to appear personally in London. EDWIN CHARLTON, Secretary.

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No. 18, KING WILLIAM STREET, CITY.

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Benjamin Hawes, Esq., Deputy Chairman.

Benjamin Barnard, Esq.	Thomas Nesbitt, Esq.
Charles Baldwin, Esq.	John Nolloth, Esq.
B. Donkin, Esq., F.R.S.	Charles Phillips, Esq.
Aaron Goldsmid, Esq.	Major-General Robertson.
James Law Jones, Esq.	Daniel Sutton, Esq.
John Knill, Esq.	O'B. B. Woolsey, Esq.

Life Assurances are effected by this Company on every description of risk, on a *profit or non-profit* scale. *Credit* of half the Premiums for the first five years allowed on Policies effected for the whole term of life. *Payment of Premiums* so arranged as to meet the convenience or wishes of the Assured. A Policy may be made an *absolute security*. *Advances* continue to be made to Assurers on real or undoubted personal security, for terms of years repayable by instalments. Particular attention is requested to the detailed Prospectuses of the Company.

WILLIAM RATRAY, Actuary and Secretary.

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	For the whole Life, at an Annual Payment of			For the whole Life, at an Annual Payment of	
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
20	1 14 10	2 3 7	40	2 14 5	3 7 11
25	1 18 6	2 8 1	45	3 2 5	3 17 11
30	2 2 9	2 13 5	50	3 17 0	4 10 8
35	2 8 0	2 19 10	55	4 10 4	5 6 4

BONUSES *Paid upon Policies which have become* CLAIMS.

No. of Policy.	Sum Insured.	Sum Paid.	No. of Policy.	Sum Insured.	Sum Paid.
	£.	£ s. d.		£.	£ s. d.
425	3000	4509 1 1	3707	2000	3411 1 3
1973	5000	7652 13 3	3617	1000	1862 4 11
3085	5000	7706 6 0	4024	1000	1622 9 7
3478	5000	7500 5 9	4888	1000	1654 13 6

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PARR'S LIFE PILLS.—A mild, safe and most effectual cure of Indigestion, Bilious, Liver, and Stomach Complaints, Sick Head-ache, Costiveness, &c. &c. Their composition is truly excellent; they are compounded entirely of vegetable products, freed from all irritating and deleterious matters, which renders their operation mild and agreeable; they do not require the least confinement or alteration of diet, and may be taken by the invalid with perfect safety; as an occasional dose in all nervous and debilitated cases, recoveries from protracted diseases, &c., they will be found highly valuable, imparting vigour and tone to the system when emaciated by disease.

Their value as a general tonic and restorative of the impaired stomach and biliary system, is daily manifested to the Proprietors, by their increasing rapid sale, and the numerous Testimonials forwarded by those who have proved their efficacy. The following has just been communicated by Mr. G. BATTERS, Agent for the sale of PARR'S LIFE PILLS, Nottingham.

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BEWARE OF SPURIOUS IMITATIONS.

None are genuine unless the words, "PARR'S LIFE PILLS" are in WHITE LETTERS on a RED GROUND, on the Government Stamp, pasted round each box; also the fac-simile of the signature of the Proprietors, "T. ROBERTS & Co., Crane court, Fleet-street, London," on the Directions.

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BY JOSEPH PAXTON,

GARDENER TO HIS GRACE THE DUKE OF DEVONSHIRE, *&c. &c.*

Reprinted from the *Gardeners' Chronicle*. Above 22,000 have already been sold.

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Price 2*s.* 9*d.* per box.

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Sold by them, and by Chemists and Perfumers.

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	Per lb.		Per lb.
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Grey Goose ..	1 4	Best Irish White Goose	2 6
Foreign Ditto	1 8	Best Dantzic	3 0

Warranted sweet and free from dust.

A List of every description of Bedding, containing Weights, Sizes, and Prices, sent free by post on application to HEAL and SON, Feather Dressers and Bedding Manufacturers, 196, Tottenham-court-road, opposite the Chapel.

METCALFE'S NEW PATTERN TOOTH-BRUSH and SMYRNA SPONGES.—The Tooth-Brush has the important advantage of searching thoroughly into the divisions of the teeth, and cleaning them in the most effectual and extraordinary manner, and is famous for the hairs not coming loose. Its An improved Clothes Brush, that cleans in a third part of the usual time, and incapable of injuring the finest nap. Penetrating Hair-brushes, with the durable unbleached Russian bristles, which do not soften like common hair. Flesh Brushes of improved graduated and powerful friction. Velvet Brushes which act in the most surprising and successful manner. The genuine Smyrna Sponge, with its preserved valuable properties of absorption, vitality, and durability, by means of direct importations, dispensing with all intermediate parties' profits and destructive bleaching, and securing the luxury of a genuine Smyrna Sponge. Only at METCALFE'S Sole Establishment, 130 B, Oxford-street, one door from Holles-street.

Caution.—Beware of the words "From Metcalfe's," adopted by some houses.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 30—1846.] SATURDAY, JULY 25. [Price 6d.

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BECK'S SEEDLING PELARGONIUMS OF 1845.—No further remittances can be received for BACCHUS and SIRIUS, the whole of the present Stock being engaged.
Worton Cottage, July 25, 1846.

BECK informs the Public that the various Articles manufactured by him in Slate for Horticultural purposes, may be seen in use at Worton Cottage, Isleworth, upon application to the gardener (*Sundays excepted*)

BECK'S SEEDLING GERANIUMS OF 1845.—The whole Set of Ten for 4l 4s
LYNE'S SEEDLING GERANIUMS OF 1845.
The whole set of Ten for 50s
Priced Catalogues of Geraniums now ready, and will be forwarded *gratis* on application to
Plymouth, July 25 William E Randle and Co.

FLORICULTURAL SEEDS
WESTMACOTT & CO., Seedsmen and Florists, No 150, Cheapside (opposite St Paul's), London, beg leave to state that they have a great variety of FLOWER SEEDS suitable for Autumn Sowing —A List of Prices will be forwarded free, on receipt of a pre-paid application
W and Co have also a large collection of Kitchen Garden and Flower Seeds, of which a Catalogue is published
*** A Catalogue of Dutch and other Bulbs will be published in due time —July 25

VAN HOUTTE'S NEW VARIETIES OF CHILIAN ALSTRŒMERIAS
LOUIS VAN HOUTTE, Florist to the King, Ghent, Belgium begs to offer his Chilian ALSTRŒMERIAS at the following rates, viz 12 varieties, 10s 25 varieties, 16s, 50 varieties, 28s Orders received by Mr George Rahn, 52, Mark lane, London, or application may be made (post paid) to M Van Houtte, at Ghent The deliveries will commence on the 1st of August next, and the plants forwarded to London free
The Rev Dean of Manchester, speaking of his visit to Mr Van Houtte's establishment at Ghent (see *Gardeners' Chronicle*, 12th July, 1845), says of these plants — 'They are of every tint, from scarlet to lemon colour, and from crimson to pale green variegated with white." He further adds of their effect in masses—" I do not recollect ever having seen a bed of flowers so beautiful, and I should think Mr Van Houtte will find it difficult to supply the demand for them, when their merit shall become fully known'
In the report of the same Journal, on the meeting of the Horticultural Society of the 5th August 1845, is the following account of this flower — Messrs Van Houtte sent a bouquet from Ghent composed of Alstræmeria blooms from the open ground, they were hybrids of various colours, and although somewhat tarnished by the journey and wet weather, to which they were said to have been lately exposed, yet they sufficiently showed what beautiful objects large masses of them would be in the flower garden, and fully justified the opinion given of them by the Dean of Manchester in a late Number "
N B Each packet contains directions for planting and cultivating them The usual discount to the trade

SEEDS.—CORNER OF HALF-MOON-STREET, THOMAS GIBBS and CO,
(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"
Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years
Priced Lists of Agricultural Seeds are always ready, and may be had on application

FRUITS PRESERVED BY COOPER'S PATENT APPARATUS have been proved to keep perfectly sound and good for family use for FIVE YEARS This process is well suited for the preservation of Pine-apples, Strawberries, Wall-fruit, &c, retaining and concentrating all their excellent and peculiar flavours, the Strawberries are adapted to be used with cream at all seasons of the year.



Sample hampers of the fruits generally preserved for family use, including extras, a machine corkscrew, with the whole particulars of the patent process, and testimonials, will be delivered at any part of London, for TEN SHILLINGS, by an order addressed to the Patentee, James Cooper, 7, the upper part of St. John-street, Clerkenwell, London.
The Patent Apparatus and Vessels are on sale at the Manufactory as above.

E BECK'S CATALOGUE is out of Print. A Second Impression will be ready in a few days.
Worton Cottage, Isleworth.

JNO STANDISH, Nurseryman, Bagshot, begs to inform his Friends and the Public, that he has now ready some CALCEOLARIA SEEDS from his fine new Spotted varieties, at 5s per packet, which cannot fail to bring some fine sorts

NURSERYMEN AND FLORISTS TO HER MAJESTY THE QUEEN.

EXHIBITION OF CARNATIONS, PICOTEES, AND FUCHSIAS
YOUELL & Co's extensive and celebrated collection of the above, comprising the finest varieties in cultivation, are now in bloom, and will continue three weeks
3 000 POTS WILL BE STAGED
Orders are now being received at the following prices —

25 pairs of finest first-rate show varieties of Carnations and Picotees	£5	0	0
12 pairs do do do	2	10	0
25 pairs of very fine show varieties of do do	3	0	0
12 do do do do	1	10	0

FINE CAMELLIAS
YOUELL & Co are now supplying very healthy plants of the above, comprising the following very handsome varieties, at 30s per dozen —namely, Donklearii Juliana Bealii Monarch, Eclipse Perfection, Bruceana Carolina Florida, Chandleri, Double Striped, Double White Colvillii Elegans Grand Frederic, Fimbriata, Imbricata alba, Conspicua, Tricolor Rosa Mundi, Ochroleuca, Nobilissima, Hortsfallii, Invincible Candidissima, Emelie Grandiflora, King, Lafevriana, Imbricata, Picturata, Minuta, Anemoneflora rosea New Blush, &c
12 first-rate new Fuchsias, including their beautiful Seedling "Sanspareil"

	1	1	0
12 fine do	0	12	0
25 pairs of first-rate show Pinks	1	4	0
12 do do do	0	12	0

Trains from the Shoreditch Station 8 h and 11 h A M, and 5 h and 8 h 40 m P M.—Great Yarmouth Nursery, July 25

FLOWER SEEDS FOR PRESENT AND AUTUMN SOWING.
BASS AND BROWN beg to offer the following SEEDS, free by post, at the prices affixed —

20 vars of fine Greenhouse Perennials	10s 6d
12 do do	7 6
20 vars of fine Hardy Biennials and Perennials	5 0
20 vars of fine Hardy Annuals	4 0

Or packets as under named The Perennials marked *g* are Greenhouse Seeds, and those marked are best with a slight protection

	s	d
Indian Pink, extra fine	0	6
Poppy, 16 splendid Prussian vars separate	2	6
Viscaria oculata	0	4
Silene speciosa	0	6
Nemophila discoidalis	0	6
PERENNIALS.		
Anemone fine mixed	0	6
Antirrhinum, from choice vars	0	6
,, caryophylloides	0	4
g Calceolaria, fine mixed	0	6
g Chorozema spectabilis	1	0
g Cineraria, choice	1	0
g Cobæa scandens	0	6
Dianthus superbus	0	4
Foxglove, new spotted	0	4
,, lemon	0	4
g Fuchsia choice	1	0
g Gaillardia coronata, fine	1	0
Gentiana 3 vars, each	0	4
Geum Wiesi	0	6
g Geranium, extra fine	2	6
g Gloxinia, fine mixed	1	0
g ,, macrophylla variegata	1	0
* Gladiolus, from splendid dwart hybrids	0	6
Heartsease, choice	1	0
g Hibiscus Manihot	0	6
Hollyhock, choice mixed	0	6
g Indigofera incana	0	6
g Lisianthus Russelliana	1	0
g Loasa Hibbertiana	0	6
g ,, aurantiaca	0	4
g Mimulus, fine	0	4
Œnotheras macrocarpa	0	4
Pentstemon Mackayana	0	4
* ,, gent coccinea	0	4
g Petunia choice	1	0
Polyanthus, very fine	0	6
Potentilla, varieties each	0	4
g Primula sinensis, fine	0	6
* Ranunculus, from choice	2	6
Stock Brompton	0	4
g Streptocarpus rexii	0	6
Sweet William from 20 fine double vars	0	6
GREENHOUSE AND OTHER ANNUALS FOR FLOWERING EARLY IN POTS		
Brachycome iberidifolia	1	0
Browalia elata	0	4
Clintonia pulchella	0	6
Ipomopsis picta	0	6
Ipomœa atroviolacea	0	6
quamoclit	0	6
Lobelia ramosus	0	6
Mesembryanthemum tricolor	0	6
Phlox Drummondii in 20 fine varieties, mixed	0	6
Portulaca 2 vars, each	0	6
Rhodanthe Manglesii	0	6
Stock, choice mixed German	0	6
Salpiglossis, fine mixed	0	6
Sedum azureum	0	6
Schizanthus retusus, or Hookeri	0	6
Thunbergia elata	0	6
,, aurantiaca	0	6

A remittance is requested from unknown correspondents Post-office orders to be made payable to William Bass and S Brown, Seed and Horticultural Establishment, Sudbury, Suffolk —July 18, 1846

GLASS FOR CONSERVATORIES.
APSLEY PELLATT and CO., Falcon Glass Works, Holland-street, Blackfriars, are prepared to supply (in quantities not less than 100 square feet), SHEET AND CROWN GLASS OF BEST QUALITY, at the following *Net Cash Prices* —

Any size under 40 ins. long.	Per square foot.
13 oz weight per foot	4d.
16 oz. ,, ,,	5
21 oz. ,, ,,	7
26 oz ,, ,,	11

Small Squares up to 10 ins. by 8 ins., from 1½d. to 3d. per square foot.
N.B —The 16 oz. is full strength for Greenhouses.

BRITISH AND FOREIGN SHEET GLASS, for Horticultural purposes, &c, may be had at James Bromley's 315, Oxford-street, London, at the following reduced prices —In crates containing about 250 feet of coarse 18 oz., at 4½d per foot, or 4th quality, 5d per foot ditto, 16 oz, coarse, 5½d per foot, ditto ditto, 4th quality, 6d per foot Or cut to any size not exceeding 40 inches long by 10 inches wide, at ½d per foot extra
Also Microscopical Glass, French Shades, Plate and Crown Window Glass. A discount to the Trade.

BRITISH AND FOREIGN SHEET AND HORTICULTURAL GLASS
PHILLIPS and WELCH have to announce to the Nobility and Gentry, that they have just concluded arrangements with J. Welch, Jun., Phillips and Co., for the purchase of the business lately carried on by them, at 12, Panton-street, and beg to call attention to their extremely low prices for Horticultural Glass of every description.
PRICES OF HORTICULTURAL GLASS
Not above 40 in. long by widths from 5 in to 18 in.

No. 13	British or Foreign sheet 13 oz. to the foot	4d.	per foot.
,, 16	16 ,, ,,	5d	,,
,, 21	21 ,, ,,	7d	,,
,, 26	26 ,, ,,	11d	,,
,, 32	32 ,, ,,	1s. 2d.	,,

SMALL SQUARES.
Packed in 100 feet Boxes, not particular to thickness.

Under 5 in by 3 in.	1½d per foot.
5 by 3 and under 6 by 4 ,,	2d. ,,
6 by 4 ,, 9 ,, 7 ,,	3d. ,,

FOR GLAZING.

Black Cement, as used at Chatsworth.	24s per cwt.
Best Linseed Oil Putty	10s. ,,
White Lead, Window Lead, Solder, &c &c.	

Horticultural Glazing Executed in any part of the United Kingdom
The selection of Patent Plate, Sheet, and flatted Crown Glass for Pictures &c, particularly attended to.—12, Panton-street, Haymarket.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, from 8½d to 5½d per foot Glass Pantiles, 12s 6d. per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c, of the best description, at lowest prices, at F. Elphick's, 28, Castle-street East, Oxford-street.
*** For Ready Money only.

ORNAMENTAL WIREWORK FOR THE GARDEN.
G. B. THOMPSON and CO. beg respectfully to announce that they continue to prepare at their Manufactory, 390, Oxford-street, London, all kinds of Fancy Ornamental Wirework suited for the Garden, Greenhouse, or Conservatory, consisting of Flower Trainers, Stands and Borders, Garden Arches Seats, and Vases, Improved Garden and Hothouse Engines Syringes, Fumigating Bellows, and other Floricultural Implements
Also G B Thompson's Improved Waterpot, which possesses considerable advantages over all others, the smaller sizes being suitable for Ladies' use They have now on sale a novel folding portable Wooden Garden Chair, at 3s 6d each, or 36s. per doz., which quantity is packed in a small space

DUTY OFF GLASS
GREEN and HOTHOUSES, CONSERVATORIES, &c made and fixed Complete in all parts of the Kingdom, at a considerable reduction One two, and three light Cucumber and Melon Boxes, and Lights of all sizes, kept ready for use, packed and sent to all parts of the Kingdom warranted best material Two light Boxes and Lights complete, from 11 5s Garden-lights of every description, at James Watts, Hothouse Builder, Claremont place, Old Kent-road
Reference may be had to the Nobility, Gentry, and the Trade in most of the Counties in England

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea (by appointment to Her Majesty and H.R H Prince Albert)—ORNAMENTAL WATERFOWL, consisting of Black and White Swans Egyptian, Canada, China, Barnacle, Brent and Laughing Geese, Shelldrakes, Pintail, Widgeon, Summer and Winter Teal, Gadwall, Labrador, Shovellers, Gold eyed and Dun Diver, Carolina Ducks, &c, domesticated and pinioned also Spanish Cochin China, Malay, Poland, Bolton Gray, Surrey and Dorking Fowls, and at 3 Half moon-passage, Gracechurch street
White, Japan, Pied, and Common Peafowl Eggs of the above, and pure China Pigs

CURTIS'S BUDDING KNIFE.—"This is the neatest Budding Knife we have seen the ivory handle is shaped like the blade of a curved Penknife, sharp and turned up at the point, and is evidently extremely well contrived for the purpose it is intended '—Opinion of Professor Lindley in the *Gardeners' Chronicle*, July 29, 1843.
George Plom, Surgical Instrument Maker and Cutler, No. 262, Strand, London, and at No 3, Dolphin-street, Bristol, begs to call the attention of the public to the above desirable article. Sent free to any part of the kingdom, on receipt of 38 penny postage stamps, or a post office order for 3s 2d
G. P cautions Floriculturists and the public in general against numerous imitations of the above article, he being the only appointed Manufacturer.

FLOWER-POTS AND GARDEN SEATS.
JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

WILLIAM MILLER'S DESCRIPTIVE CATALOGUE OF SEEDLING GERANIUMS FOR THE SEASON OF 1846-7.—W. M. has much pleasure in presenting this list to the Nobility, Gentry, and Trade, and feels confidently assured that the sorts will give satisfaction. There is one point, however, to which he particularly calls their attention, that is the low price of the two first-named varieties, such valuable sorts being generally sent out at two, three, or five guineas each, but possessing a moderate stock, and being fully convinced they deserve and must have, sooner or later, a place in every collection of this beautiful tribe of plants, they are offered at such prices as will accommodate every grower; for Cash only, priority of payment securing priority of selection.

MOUNT ETNA (Hoyle's).—This extraordinary flower, without exception, is the brightest and most striking Geranium ever offered. It has obtained four prizes—two at Chiswick, one at the Royal Botanic, and one at the Royal South London Exhibition, the only times it has been exhibited for competition, when it was always admired by gazing thousands. The following description is taken from the report in the *Gardeners' Chronicle*, May 31, 1845. "Mount Etna, a flower of extraordinary brilliancy and richness of colour, the lower petals are of a deep rosy red; the top petals, which are velvety in texture, have the black spot surrounded by a broad margin of crimson scarlet; the flower is well formed and of considerable substance." Free bloomer, and the habit excellent.—Plants 1*l.* 1*s.*

ISABELLA (Hoyle's). This flower also obtained a prize at the Horticultural Exhibition at Chiswick, when in the same report the following description will be found. "Isabella has remarkable fine top petals of deep velvety maroon, with a narrow margin of pink centre light, with the remaining portion of the lower petals of a rosy purple." Habit first rate, an extraordinary free bloomer, and well suited for exhibiting.—Plants 10*s.* 6*d* each. The two taken together 1*l.* 10*s.*

W. M possesses a few strong plants of last year (that his present stock has been cut from), which will make good plants for stock, or fine specimens for exhibition. Mount Etna 2*l.* 2*s.*, Isabella 1*l.* 1*s.* The Trade will be allowed 25 per cent when three of each sort are taken at once.

☞ A correct and well-finished coloured Engraving of Mount Etna and Isabella, executed by Mr. Holden, artist to "Paxton's Magazine" from the flowers exhibited at Chiswick, sent in return for twelve postage stamps, which will be allowed to purchasers.

W. M. having selected the following from several hundreds of Seedlings raised by himself this season, can recommend them as possessing first rate properties—as the most desirable form and shape—smooth and clear texture—even on the edges—broad shoulders—bright colours—trusses standing well above the foliage—

AVALANCHE (Miller's). Flower round and very full, retains its form well, colour clear white; upper petals covered with black, except a narrow marginal band of white. A very splendid Geranium, in the way of Wilson's Enchantress, but much superior in every respect. Free bloomer, dark green foliage, and habit good.—1*l.* 1*s.*

TIPPOO SAIB (Miller's).—This is a very extraordinary dark novel flower, in the way of Beck's Cleopatra, but larger, brighter, and covered with a red cast, blooming free, habit dwarf and good. 1*l.* 1*s.*

SNOWBALL (Miller's). Large bold flower, of delicate white, with large crimson spot in the upper petals, leaving off abruptly, and surrounded by a smooth white edge. Very constant. Habit good and free bloomer. 1*l.* 1*s.*

LEADER (Miller's). A large round flower, good form, smooth and clear in texture, colour bright rosy crimson, quite a black blotch in the upper petals; the trussing is good and the habit excellent.—Plants 15*s.*

PICKWICK (Miller's).—A very early and free blooming dark pink variety, good substance, a good forcing as well as exhibiting flower, retaining an immense cluster of bloom.—Price 10*s.* 6*d* per plant.

The set of five for 4*l.* The seven, including Mount Etna, for 5*l.*, cash.

The last five are Seedlings of the present year, the stock is therefore very limited.

The following new varieties, all sent out for the first time last season by their respective raisers, may be had correct to name at the following prices. The entire selection left to Mr. Miller, who will carefully send a distinct variety, 2*l.* per doz. The selection left to the purchaser, 3*l.* per doz.

MILLER'S.—Egyptian Prince, Vesta, Veritas, Pilluda, Aurantia, Miss Sebright, Paragon, Sanye, Turk, Phœnix, Turban, Alba Rosea, Olympia, Turchicenna, Alba Superb, Fairy, Sunbeam

BECK'S.—Marc Antony, Juno, Desdemona, Rosy Circle, Sunset, Isabella Margaret, Othello, Zenobia, Master, Bellona, Arabella, Favourita, Bella.

HOYLE'S.—Augusta, Lord Morpeth, Josephus, Duke of Orleans, Alec, Revenge, Cid

R. CATLEUGH'S.—Merry Monarch, Clio, Duke of Wellington, Sunbeam, La Polka

DRURY'S.—Pearl. FOSTER'S. Orion

N.B. Good plants of all the above will be in request on and after the 15th of October next.

All the other new varieties that have been sent out the last two or three years, can be had at W. M. per dozen—such as Pompey, Titus, Cheapside, Sarah Jane, Rosetta, Cid, Naboth, Duchess of Leonora, &c.

Hybridized Geranium Seeds, 100 10*s.*; 50, 5*s.*; 25 3*s.*

Providence Nursery, Ramsgate, July 25

PROPAGATING GLASSES, White, 1*s.* per lb., or from 2*s.* 6*d.* to 24*s.* per dozen. CUCUMBER GLASSES from 6*d.* to 4*s.* each. GRAPE SHADES, with holes, 1*s.* 9*d.* to 2*s.* 6*d.* each. FISH BOWLS, from 1*s.* 6*d.* each. ASPLIN PELLATT & Co., Falcon Glass Works, Holland street, Blackfriars.

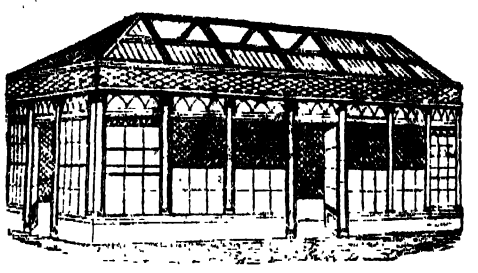
SHOOTING.—WANTED, the Right of SHOOTING over a Manor of not less than 2000 Acres, chiefly Cover, well stocked with Pheasants, &c., with a small Furnished House, within 100 miles of London, and near a Rail way Station. Address particulars to POOLE & MACGILLIVRAY, Upholsterers, 25, Princes-street, Cavendish-square

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority, or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.

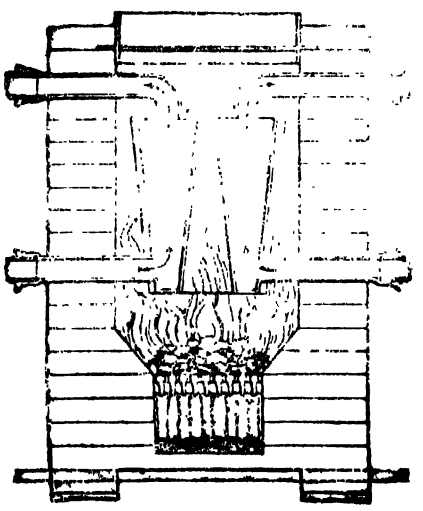


J. WEEKS & DAY, ARCHITECTS, &c., Gloucester-place, King's-road, Chelsea, HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, most respectfully begs to inform the Nobility, Gentry, and Horticultural tarists, that they have erected on their premises, for the purpose of inspection, a variety of Hothouses, Greenhouses, Conservatories, Pits, &c., where all the various known improvements of the day can be seen. Their Hot-water Apparatus is also erected, and kept in constant action in various Hothouses, Greenhouses, Pits, &c., where the whole principle of Top and Bottom Heating can be seen.

J. WEEKS & DAY warrant their Hot-water Apparatus to be efficient for every purpose to which heat is applicable. Boilers of all sizes; the largest is warranted to heat a range of Forcing-houses 600 feet in length, with a small quantity of fuel, and only to require attention once in 12 hours.

Models, Plans, &c., in great variety.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places.—Horticultural Gardens, Chiswick, Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

BENJAMIN FOWLER, 62, Dorset-street, Fleet-street.

CONICAL BOILERS.—These excellent Boilers, invented by JOHN ROGERS, Esq., are made of various sizes by JOHN SAWYER, Ironmonger, Sevenoaks. They are applicable to all kinds of apparatus, and are in use at Messrs. Loddiges', Hackney; Messrs. Chandler's, Vauxhall; Messrs. Rollisson's, Tooting; Mr. Pontey's, Plymouth; Mr. Henderson's Pine-apple-place; and in the Horticultural Society's Gardens.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 62, Dorset-street, Fleet-street, London.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
WM. JOSEPH MYERS AND CO., LIVERPOOL;
And by their Agents,
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL;
COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

TURNIP SOWING,

THE URATE OF THE LONDON MANURE COMPANY, Four Guineas per Ton. The experience of the last five years has fully established the above as one of the best of all the light manures for the production of Turnips, for which crop it is particularly adapted, seldom failing in the driest season to secure a good plant, and to produce a great weight per acre. Availing themselves of the many improvements in the science of artificial manures, the Company so manufacture the Urate, that the food requisite for a rotation of crops is fully maintained, therefore parties using the Urate for Turnips will find their succeeding crops of Barley and seeds materially improved. Full particulars, with testimonials, forwarded on application. No. 40, New Bridge-street, Blackfriars. EDWARD PURSER, Secretary.

THE LONDON MANURE COMPANY beg to offer Genuine PERUVIAN GUANO, delivered direct from the Importers' bonded warehouses:—

Nitrate of Soda,	Fine Bone Sawdust,
Sulphate of Ammonia,	Sulphuric Acid,
Superphosphate of Lime,	Sulphate of Soda,
Gypsum,	Petre Salt,

And every article of Artificial Manure in the most genuine state.—No. 40, New Bridge-street, Blackfriars.

EDWARD PURSER, Secretary.

BORING FOR WATER AND BORING TOOLS. The Nobility, Gentry, Agriculturists, Brewers, Distillers, Manufacturers, and others requiring Water, may be supplied with any quantity by DAVID GREENLEY, Civil Engineer and Patentee of Boring Tools, 10, Gunmang-street, Pentonville, London. Mr. GREENLEY'S long experience and practical knowledge in the above enables him to give the most satisfactory and highly respectable references. Wells that are dry, however deep, may be abundantly supplied. Pumps and Machinery of every description for raising water from deep wells. Specifications and Estimates prepared for supplying Water Companies, Towns, &c. Men and Tools sent to any part of the World to Bore for Railroads, Minerals, &c. Boring Tools and suitable Pipes for Exportation, with instructions.

CHEAP AND DURABLE ROOFING.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, the Manufacturers and only Patentees of THE ASPHALTED FELT FOR ROOFING

Houses, Farm Buildings, Sheddings, Workshops, and for Garden purposes, to protect Plants from Frost.

At the Great National Agricultural Shows, it is this Felt which has been exhibited and obtained the Prize, and is the Felt patronized by

HER MAJESTY'S WOODS AND FORESTS,
HONOURABLE BOARD OF ORDNANCE,
HONOURABLE EAST INDIA COMPANY,
HONOURABLE COMMISSIONERS OF CUSTOMS,
HER MAJESTY'S ESTATE, ISLE OF WIGHT,
ROYAL BOTANIC GARDENS, REGENT'S PARK,

And on the Estates of the Dukes of Sutherland, Norfolk, Rutland, Newcastle, Northumberland, Buccleugh (at Richmond), the late Earl Spencer, and most of the Nobility and Gentry; and *at the Royal Agricultural Society's House, Hanover-square.*

It is half the price of any other description of Roofing, and effects a great saving of Timber in the construction of Roofs. Made to any length by 32 inches wide.

PRICE ONE PENNY PER SQUARE FOOT.

**** Samples, with Directions for its Use, and Testimonials of seven years' experience, with references to Noblemen, Gentlemen, Architects, and Builders, sent free to any part of the town or country, and orders by post executed.

☞ *The Public is respectfully cautioned* that the only Works in Great Britain where the above Roofing is made, are

F. M'NEILL & CO.'S

Patent Felt Manufactory, Lamb's-buildings, Bunhill-row, London, where Roofs covered with the Felt may be seen, as also the new Vice-Chancellor's Court, and the Passages and Offices at the entrance to Westminster Hall, and other buildings at the New Houses of Parliament, done under the Surveyorship of Charles Barry, Esq., R.A.

Note.—Consumers sending direct to the Factory can be supplied in lengths best suited to their Roofs, so that they pay for no more than they require.

ORNAMENTAL TILES for Floors, Walls, &c., of Greenhouses, Conservatories, Garden Terraces; Encaustic, Venetian, &c., in EVERY VARIETY. May be seen at Messrs. PARKER and WYATT'S, Surrey-street, Blackfriars, London. Agents to Messrs. MINTON & CO., the Patentees, of Stoke-upon-Trent. Also Patentees of the PORCELAIN BUTTONS, cheaper and more durable than Mother-o'-Pearl, &c.

PHOSPHORIC RAT POISON.—This preparation is offered to the Public with the greatest confidence, being decidedly superior to all those poisons containing arsenic and other minerals. It is most greedily eaten by rats and mice as long as it is offered to them, and invariably proves certain destruction. Prepared only by EDWARD PURSER, 40, Bridge-street, Blackfriars, London. Sold in pots, with full directions for use, at 4*s.*, 8*s.*, and 20*s.* each.

DRIED PLANTS FROM CHINA.—A few sets of the VALUABLE DRIED PLANTS collected in China by Mr. FORTUNE, may still be procured by applying to R. HOWARD, Esq., Young-street, Kensington, London. Among them are many new and rare species scarcely known to Europeans.

NOW READY, IN FOUR-INCH POTS.

BECK'S PELARGONIUMS OF 1844.—

Arabella ..	15s. 0d.	Mustoe	15s. 0d.
Othello	15 0	Mare Antony ..	15 0
Rosy Circle ..	15 0	Isabella	15 0
Zenobia	7 6	Margaret	7 6

Favorita, .. 7s. 6d.

The above will be delivered free in London, for prepayment only. Usual allowance to the trade when their card accompanies the remittance. Post-office orders are requested upon Brentford.

The Gardeners' Chronicle.

SATURDAY, JULY 25, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY,	Aug. 3	—Entomological	8 P.M.
TUESDAY,	— 4	—Horticultural	3 P.M.
FRIDAY,	— 7	—Botanical	8 P.M.

UNWILLING as we are to revive the painful discussions of last year as to the POTATO DISEASE, yet our duty to the public prevents our concealing what is known of its progress. We are therefore bound to say without reserve that the new crop is in great danger; that the disease is reappearing in all directions in its old form, and that Ireland is threatened with a calamity far beyond anything yet experienced; for we cannot in reason hope for another winter unexampled for mildness. The reports in the daily papers are true, and no man's crop is certainly safe. We select a few cases from our own correspondence:

One of our faithful Irish friends writes thus:—"I am very sorry to tell you, and that without fear of contradiction from newspaper editors on this side, that most of the Potatoes in this neighbourhood have, within a few days, exhibited marks of *serious disease*. In some parts of the county of Meath, the report is as bad. If this should be general through Ireland, then, indeed, famine will stare us in the face, for in many places even where the stalks have withered, there are not any tubers as yet formed in this late country. The loss of Potatoes here will leave you well-fed English without our Irish bacon or pigs." We know that at a meeting of the Grand Jury of Westmeath the other day, every person present agreed in opinion that a *total failure* of the crop will shortly take place.——An "East Lothian Farmer" at Waughton, by Prestonkirk, states that about a week ago the shaws in several of the cottagers' gardens appeared as if "they had been subjected to a severe frost, and the tubers are already so tainted that they have commenced feeding their pigs with them. Most of those dug on Saturday evening for the Sabbath dinner (yesterday), had to be thrown out, so offensive was the smell from them. This state of things exists with my knowledge in six different gardens within a circuit of two miles."——At Waterford, another correspondent writes that all hopes are gone, as beyond a doubt the Potato-crop will be a complete failure this year. He does not know a field, or even a plant, which on close inspection is not diseased. He has heard from all quarters of the appearance of the disease during the last fortnight, till when the Potato-fields never looked better, and even to speak of disease was thought madness. The disease will have much worse effects now than it had last year, as then the Potatoes were nearly perfect, and many not diseased at all; but now it has attacked the entire crop, the greater part of which has not yet formed tubers, as in that part of Ireland men plant the main crop very late.——Our advices from Cork are if possible more deplorable.——At Barnstaple, Devon, Mr. GILBERT COTTON states that the Potato disease has appeared within the last ten days in at least a dozen parishes within ten miles of that town, mostly to the east and south-east. The tops of the stalks appear to be burnt off as with lightning; and however luxuriant a field of Potatoes may look to day, to-morrow the blight (or call it what you may) appears in spots; and in many instances a strong smell is given off, as from decayed Potato haulms.——At Worthing, we learn from Mr. GADD that the disease has again shown itself in that part of the county of Sussex. "In the garden of D. LEVON, Esq., they were going off very fast on Monday last, which I saw. R. MARTIN, of Coate, has a large piece in nearly as bad state as last year. In the parishes of Salvington, Durrington, Worthing, Lancing, and Goring, they are likewise infected."

In a letter received from Scotland yesterday, there is the following important passage from the pen of a practised observer:—"The Potato parasite began its ravages here about 10 days ago (Aberdeen, July 16); the Early Kidneys and Prolifics are affected, and I believe also it has begun amongst the late kinds. Some of our market gardeners will be subjected to very serious loss in consequence. I was in two gardens last night where it has already done much damage; in neither of these was there the slightest trace of disease last year."

The same story is told in Wales, Shropshire, Warwickshire, Middlesex, Essex, Nottingham, Cheshire, and Yorkshire; and many Irish counties; in fact our table is covered with letters on the subject, and no doubt can be entertained that our apprehensions are realised, and that heavy losses must fall on some people. Let us hope that this renewal of a great calamity will teach gentlemen to be in future more sparing of their censure of those who venture to point out dangers which the uninformed are unable to perceive.*

Nor is it in Great Britain only that the scourge prevails. The Rev. Mr. BERKELEY has favoured us with the following memoranda gleaned from his correspondence:—

"The attention of the Academy at Paris has again been directed to the subject by M. PAYEN, who reports the existence of the disease at the present time in France. On the other hand I received by the preceding post from a scientific *Proprietaire* in the north of France, the following intelligence:—'The Potatoes here are in full luxuriance, and have a very healthy look. The Professor of Ghent (M. Kickx) tells me that his gardener has planted diseased tubers in ground manured with Potato stalks strongly affected with Botrytis, and that since their appearance above ground a part of the diseased culms has been placed in contact with the young shoots, so as to give every opportunity for the propagation of the parasite, but that up to the present time the plants are healthy and luxuriant.' It is obvious that it would be premature to draw any conclusions as yet from this statement. Of the existence of the disease at the present moment in widely distant localities there is not the slightest doubt."

Now, as last year, the crops look beautifully, and no one could anticipate a failure, yet we see them going off in the same mysterious way, and under quite new conditions of weather. What, then, is to be done? There was but one thing which last year stopped the progress of disease, and that was mowing off or pulling up the tops. That *did* answer where the operation was performed soon enough; that is to say, the Potatoes did not decay. But then the crop was *greatly diminished*, for the growth of the Potatoes left in the ground was unable to proceed any further. Those already formed ripened, however, and that was something.

Mr. ERRINGTON, one of our most intelligent correspondents, puts his faith in *lime*. We do not; but we gladly give his opinion, in the hope that he may be right:—"I would strongly advise all who are troubled with its ravages to try quicklime. This was very favourably spoken of last year by some clever practical men, and would, at the least, benefit the land for succeeding crops. I would slake it very shortly before using it, and apply it during a dry state of the atmosphere so thickly as to thoroughly whiten the whole plant. If a shower of rain supervened, I would seize the first opportunity of repeating it. Next to lime as a practicable and useful application, I would char all the refuse sawdust, old tan, and vegetable refuse, and apply it with an unsparing hand. Sulphur might also be tried, and, to economise it, some other ordinary matter in a dry state might be mixed with it: these, however, are but experiments."

We will not pretend to advise the public what to do; everybody must judge for himself as to what may be most conducive to his own interest. We can only state that if the tops are to be pulled up, it should be when the black spots and scorched appearance of the foliage are *distinctly visible*. It need not be done earlier, nor would it be advisable to defer it to a later period.

If however it should be found that the mischief is past all remedy, then indeed the question of re-cropping the land becomes a most important one; and in that point of view we would strongly advise such counsel as that of Mr. ERRINGTON to be followed.

"It must be remembered," he observes, "that this disaster is commencing much earlier than last year. This, although a serious matter, serves at least to put people on their guard. Provision should be made forthwith to secure plants of the various useful greens. Gardeners of course are well provided with these to fill all blanks; others may be taken by surprize. It may be useful to such to know, that the early York Cabbage, or in fact any good early Cabbage, may be yet sown, to come in through the autumn and winter. It is, however, past the proper time; but by preparing the soil with extra manuring, and hastening germination by soaking the seed for six or eight hours, in water warm as new milk, much—very much, may be yet accomplished. Cabbages, however, for this purpose, must not be sown in small and crowded seed-beds; they should, if gaining time is an object, be allowed abundance of room. Indeed the very best plan would be to sow them in drills, and thin them out to remain; transplanting the surplus plants. Green-kale, Savoys, the Pomeranian Cabbage (the tenderest of Cabbages when boiled), with the various Broccolies, will of course be thought of; and the cottager should see to his Thousand-headed Cabbage, which is too little known. The common white Turnips, also, with the Dale's hybrid, almost as rich as a Swede, keep as well, and may be sown later, and should have every attention." (See also the Calendar of Operations of to-day).

* See pp. 116 and 131 of our Journal for this year.

WE have so many complaints of the inefficiency of the PHOSPHORIC RAT POISON, which we formerly recommended, that we must again advert to the subject. Some correspondents say that the rats will not touch it; others that they eat it and are attracted by it, and then neglect it; and both agree that it has no effect.

We do not pretend to reconcile these statements with each other, or to explain our correspondents' failure to produce effects which we have obtained without difficulty. Our attention was originally drawn to the preparation by Dr. URE's paper in the "Journal of the Royal Agricultural Society;" we made some, applied it to the runs of water-rats, and it answered perfectly: that is to say, the rats disappeared.

But we found it both troublesome and expensive to make the mixture ourselves, and therefore when it was advertised, we purchased a pot, and used it to drive a host of rats out of an old stable and cottage, which they had so far attacked as to have eaten the flooring and skirting-boards into large holes. The rats again disappeared.

As we said before, we do not know whether they are killed or not. We were satisfied to be rid of them; and we cannot but suppose that some misapplication of the poison, or mismanagement of the mixture, must have been the cause of the failures complained of. The "pills" which we employ are as large as hens' eggs.

WE are charged with having committed an injustice; let us hasten to correct it. We said, it seems, that Mr. FALCONER, whose magnificent RENANTHERAS were the object of so much admiration the other day at Chiswick, was the only man who could flower that plant; and this being read literally has produced grave evidence to the contrary. It reminds us of the poor clergyman who got into a scrape with his congregation for saying that he had a hundred reasons for what he did, when it was proved that he had only nineteen.

We, however, stand corrected; and we rejoice to make the avowal, because it enables us to do justice to the merits of Mr. P. BASSETT, an excellent gardener and worthy man, who has the care of the gardens at Westonbirt. We have before us proof of his skill, in the shape of a Renanthera branch, 18 inches long, 17 inches wide, with six arms, and 117 scarlet blossoms (we have counted them), each of which is 2¼ in. in diameter. We learn, too, that the same plant has four other branches nearly equal to the one that has been sent us. What a pity that Mr. BASSETT did not perplex the judges by showing his plant against Mr. FALCONER'S.

Mr. BASSETT adds, that he finds no difficulty whatever in flowering this charming plant. Let us express on our own part, and that of others, a hope that he will favour the public with the details of his mode of treatment.

FRUIT-TREE BORDERS

As discussion is invited on the question as to whether turf may or may not be dispensed with in the formation of fruit-tree borders, and as a practical experience of some years would lead me to differ from your opinion, perhaps I may be allowed to state the grounds on which my opinion is based:—

Your assertion in regard to the superiority plain food possesses over peacocks' hearts on the ground of economy, is indisputable; yet, though a "Bristol stone" may in appearance equal the diamond, no argument is needed to prove the infinite superiority of the latter over the former; and so in gardening statistics, I hold it but poor economy to run a risk for the sake of what may at first appear cheaper, but may ultimately prove much dearer. A job once well done, is better than twice half done; but first let us consider the extravagance of "turf-paring," as compared with the expence of forming the border by other methods. In using turf the first outlay is certainly the only one in-

carted—the turf is cut, carted home, chopped in pieces, put into the border, the trees planted, and all is completed; but in making use of an artificial soil, though you go to work most carefully, who shall say where the expense will end! The labour consumed in the mixings, turnings, &c., that are requisite, besides the expenditure for such components as I conceive would be required to place it on an equality with turf. If it be objected that the plan of paring a pasture is detrimental, I reply that a man's labour for a day with a plough or spade (according to the quantity), and a few good Grass seeds, will speedily make up for the turf, and is not unfrequently the means of reinvigorating and improving the pasture. And now a few words as to the advantages I believe turf to possess over mixed material.

I do not mean to assert that fruit trees will not grow in other material than turf; I have tried various soils and compounds, and some with fair success; but I never by such methods produced crops equal to those grown from turfy matter, either in quantity, size, or flavour. I believe turf procured from a pasture to contain properties adapted to the wants of trees, which artificial substitutes do not possess; and I have always found that in turf the trees "fibre" more, ramifying through in all directions. More moderate-sized and fruitful wood is also formed. But in borders formed of different materials, the roots are found to be much stronger, but fewer; pushing farther from home, and very often downwards, though perhaps into a cold clay. Trees in this state will be seen to make tremendously strong wood, and to be very unwilling to bear fruit.

The durability of a turf border should also, I think, be a weighty argument in its favour: if properly formed, it will not need renewal for 20 or 30 years. I am aware that many are of opinion that injury is done to a pasture by paring off the turf, but I am of belief that it is mostly to the eye, and that only temporarily; and, surely, nobody who takes a delight in a garden would (even admitting that some slight harm was done) consider it worthy of notice, or think anything too good which was essential; more especially when counterbalanced by the production of good flavoured fruit, which, whether growing or placed on the table, is a source of pride and pleasure to all parties; but reverse the picture, and, with fruit not fit to be eaten or looked at, observe the painful feelings of all—the gardener the great sufferer, although the fault lies beyond his control. To produce good fruit, good means and good materials must be employed; and for fruit borders, my conviction is, that nothing is better than green turf. —*J. L. Snow, Swinton-park.*

BOTANICAL AMENITIES.

THE exact sciences have obtained unrivalled praise as a means of disciplining the mind into habits of self-control and systematic regularity. Their effect, doubtless, in a well-regulated mind, will be to induce that facility in investigating natural phenomena, so much sought after; and so far alone, the result of their study would amply repay the labours of the learner. Though it may appear injudicious to impart much prominence to the consideration of mere mental gratification, it will be readily conceded that some of the highest emotions the human mind is capable of receiving are elicited in experiencing the fine power of unravelling mysteries, possessed by the systems of the greater mathematicians. To trace to a single cause phenomena infinitely varying in grandeur and in loveliness; to lay open to view laws of unlimited dominion, and to discover the hidden links which bind in an uninterrupted connexion the apparently dissimilar operations of nature—these are privileges worthy the enjoyment of a being "a little lower than the angels."

But it has occurred to me with the more force perhaps, because I do not recollect having seen the remark elsewhere, that there is not a branch of the study of nature more strikingly illustrative of the marvellous order and system prevailing in creation than botany. Mathematical discoveries are liable to error, and much remains veiled or undiscoverable in the deep crypts of nature. But an admirable system of organisation, comprehensible to perfection by the most ordinary capacities, obtains in the construction of plants. To one who has never devoted a student's attention to botany, it may seem that amongst the myriads of vegetable productions around us, there exists no more than a partial chain of resemblances; and that to divide the whole kingdom, comprising about 80,000 known and named species, into distinct families and relationships, would be an impossible task; in a word, that it would be a vain attempt to assign to every known plant such a place in a general flora; that after a little attentive research through his manual, the botanist should arrive at certain approximations to the name of a plant unknown to him, and proceeding by safe and studied steps, gradually be enabled, with unerring certainty, to place his finger on the name of the plant, and thence be enabled to tell its natural history, properties, and every circumstance of interest connected with it; yet, this may with ease be done for every plant out of a thousand, nor is a bright genius necessary for this almost mechanical process.

No surer example than this is needed to illustrate the argument that God made the world for man as an intellectual being. Had the Creator issued the universe from his Almighty hand, without a view of providing exercise for the mental powers of the prime object of creation, the vegetable kingdom need have exhibited no traces of systematic arrangement; a plant would have possessed no characteristics beyond those which should inform the eye at a cursory glance that it was a vegetable; for, had there been no intellect, such exquisite organisation would have been utterly useless. The nutritive and medicinal uses of plants are destined to serve the physical wants of the human and the irrational animal; the systematic arrangement to exercise his intellectual capacities. I feel so conscious at this moment that it would be a mere act of condescension to bestow more than a passing allusion in the argument still clung to by the diminished ranks of the sceptic, concerning "the fortuitous concurrence of atoms" that I can but protest my belief that six months' botanizing, with a cheerful, open spirit, ready to embrace every favourable, and stifle every inauspicious impression, would prove a certain cure.

Perhaps to a person uninitiated in botanical systems, these remarks may prove unintelligible. If, however, they should induce but a few to consecrate some of their leisure hours to the most agreeable and accessible pursuit in the range of natural history—a pursuit which carries with it its own reward of health, bodily activity, and chaste mental gratification, the writer may congratulate himself in having been an instrument of alluring into a field profusely scattered with the fairer gifts of nature, some whom he is anxious to introduce to amenities he has deeply enjoyed himself. A new and most expanded sheet of the book of nature has opened itself to the gaze of the botanical student. The flowers which before attracted his notice with but silent beauty, have become the eloquent companions of his walks. Every bank, nay, every dry and desert spot has become instinct with life, and animated with intelligence. No longer a mere wonderer, he learns that "wondering is not the way to grow wise;" he becomes conversant with the loveliness of every blooming flower that gems the rejoicing land, and has learnt to perceive marks of constructive wisdom, and evidences of riches of benevolence in many of the meanest of those weeds which before were but uninteresting appendages to the green garb of the earth. Such are a few of the pleasures the botanist loves to acknowledge; may many more taste them, and the science prosper in the multitude of its disciples.—*F. A. Malleson, Pulborough.*

ON THE ORGANIC COMPOUNDS WHICH CONSTITUTE THE NUTRITIVE PORTIONS OF THE POTATO.

By the Rev. Prof. HENSLOW.

(*Continued from p. 478.*)

ALTHOUGH we believe all vegetable membrane to be composed of the three elements only which we have named (always excepting the minute portions of inorganic matters which are to be found here and there united with them), yet we are not to conclude that these three elements are alone essential to the development of vegetable tissue. There is a fourth element, nitrogen, everywhere present in plants, though it forms a very small per centage of their entire structure, and does not appear to be a component part of any of their tissues. It occurs in certain organic compounds which have been prepared by the vital energy of plants within the little bladders we have so often referred to. This class of compounds consists of four elements, viz., the same three we have already noticed in membrane and starch, and this fourth one, nitrogen. The compounds containing nitrogen will presently be discussed, but I defer their consideration until I have concluded what I wish to say respecting starch and other allied compounds made up of three elements only. In order that we may be prepared to identify starch, and to separate it from any other white powdery substance with which an unpractised eye might otherwise confound it, I shall show you a test by which it is readily to be detected, even without our having recourse to the microscope. The shining steel-grey crystals in this bottle are iodine, an element that is readily fusible, and which, when heated over a candle, as you see, rapidly rises in the form of a violet coloured vapour. I have here a tincture of this iodine prepared by dissolving it in alcohol. In this wine-glass full of water, I place a little starch; and after stirring it up, I add a single drop of the tincture of iodine, and you see the grains of starch immediately assume a dark purple tinge. In order that iodine should be able to tinge starch of this purple or bluish-purple colour, it must itself be in a free or uncombined state. As the chemical reactions between various compounds are always interesting, I will show you an experiment or two illustrative of what I have just stated. This bottle contains a solution of iodide of potassium, a substance which, to the eye, looks much like common rock salt. And just as common salt is composed of two elements, chlorine and sodium, so is this substance composed of the two elements, iodine and potassium. I mix a little starch, as before, in a wine-glass full of water, and drop in some of the iodide of potassium; but no effect is produced, the starch remaining uncoloured. I next add a drop or two of sulphuric acid and stir up the whole, and you see the starch gradually becomes tinged of a purple colour. This shows us that the iodine has been set free from its combination with the potassium, by the sulphuric acid. We have now in the glass the iodine united with the starch, and the sulphuric acid with the potassium, in the form of a salt named sulphate of potass. I will next drop in a little ammonia, and you see the colour again leaves the starch, showing us that the iodine has returned to its former state of combination with the potassium, which the sulphuric acid has left to unite with the ammonia. Let us then suppose that we have shown this white powder to be starch, by the action which iodine has produced upon it. We know also from the report of chemists, that it is composed of the same three elements, combined in the same proportions as they are combined in the tissues of plants. The next question is how can starch be rendered subservient to the development of these tissues, seeing it consists of insoluble grains shut up within the little bladders of which the cellular tissue is composed?

One great characteristic of organic compounds appears to consist in their being essentially combinations which cannot be formed without calling in the direct agency of "vegetable life." Vegetables may be viewed as the alembics in nature's great laboratory, appointed for originating all organic matter. When an organic compound shall once have been formed by the instrumentality of a plant, it may afterwards be modified and changed into another organic compound by the skill of the chemist: but I believe it has not yet been proved that the chemist can originate a truly organic combination between the three or four elements which compose the tissues of animals and vegetables. But, even if art should ever be able to imitate nature in this step, still, how accurately does the very letter of Genesis agree with the fact, that all animals derive the materials of which their flesh is composed from matter previously organised by vegetable life! "To every beast of the earth, and to every fowl of the air, and to everything that creepeth upon the earth wherein there is life, I have given every green herb for meat." *

(*To be continued.*)

THE AMATEUR GARDENER.

ON BUDDING ROSES.—As all floriculturists love Roses, it is a work of supererogation to recommend them to the attention of amateurs. How imperfect would their gardens, however small, be without them! and how anxious they all are to secure varieties of this beautiful flower! But if nothing need be said to make the culture of Roses a common and favourite pursuit, every contribution in aid of its successful and perfect development must be regarded with interest. The propagation and growth of the Rose have engaged the efforts of the highest floricultural skill, and the methods of procedure have been understood by comparatively few. In a publication like the *Gardeners' Chronicle*, novices expect to be assisted in their pursuits, and it is for them, and not for the more advanced, that the following hints are thrown out. Much has already been written in this work on Rose culture, and the volume of collected papers, called "the Tree Rose," almost exhausts the subject of budding. All that will now be attempted is, to assist the amateur who may be anxious to perform the operation of budding for himself; a task the writer undertakes with the more confidence, as he has been tolerably successful in this department of gardening.

The objects contemplated by budding Roses should be well understood before the work is begun. If it is intended only to make the performance subservient to the production of standards, then I would suggest the inquiry, whether in the given locality standards are desirable or not. A blind passion for a Rose tree with a tall stem and a heavy head has been very prevalent of late years, and has often been indulged without regard to good taste or appropriateness. Now it appears to the writer that in itself a standard Rose is not so elegant as a common wall-trained bush, or one grown in the pillar fashion. A leafless stem, requiring a strong stake for its support, as all standard Roses do, has certainly nothing of beauty or ornament in it; while a Rose growing on its own root, and trained pyramidally to the height of 5 or 6 feet, is a magnificent object when in bloom. We commonly see in small gardens a lanky briar or two springing up from a lawn, and making us wonder what such wild, unsightly things can do there, till, on inquiry, we are informed that the proprietor intends budding on them at the proper season. Now, in such cases, there are ten chances to one that the budding does not succeed; if it succeeds, it will take two or three years to form a head; and when a head of first-rate character is produced, the whole affair does not embellish the garden half as much as a pillar Rose would have done, in some cases, in the course of one season.

If the rule of literary criticism has any truth in it,—

"In every work regard the writer's end,"

the same principle fully applies to floriculture, and especially in the instance now under consideration. What is the end or purpose to be answered by standard Roses? I reply, they are only useful or desirable when a display is required above the heads of more lowly plants, and in such cases they may be introduced with fine effect. An avenue of standard Roses may be made a fine object, when there is a good undergrowth of smaller productions; or single standards may be introduced with advantage when space is limited, since they allow of flowers being grown underneath. But even when standards are clearly desirable, the ama-

* I have observed some of the correspondents of the *Gardeners' Chronicle* have referred to the disputed point whether the antediluvians ate flesh or not. Commentators are divided in opinion why Abel kept sheep. Perhaps he had sufficient to enable him to understand from the word and faith sufficient, that he had just as good title to exercise the like dominion over his sheep, as he saw many of the works of the Creator God's care, such as tigers, eagles, and pikes, permitted to do over their prey. He may not have perceived anything in the letter of the passage quoted above that implied any express command to restrict himself to a vegetable diet; but merely a simple announcement of the great truth that God was not only the Creator of all things, but that he also constantly presided over all things, and had expressly created the vegetable kingdom as the unfailing source from whence all animals should derive their sustenance. This view would make Cain's offering to be only the third sacrifice of the Man of Works, attended by the letter; whilst Abel's would be that of the could of Faith, accepting freely of whatever liberty he lat[illegible] not see to be forbidden him by the spirits of such a revelation as God had vouchsafed to him.

tour should remember they ought to be placed in a finished state in the spots they are intended to occupy. Budding is the work of a nursery, and the briars should not be seen until the finer production gives a softened character to their wildness. It will be proper, therefore, to consider which course is to be preferred—the purchasing a few standard Roses at once, so that their beauty may adorn the garden the first season; or the dilatory and uncertain process of budding for one's self.

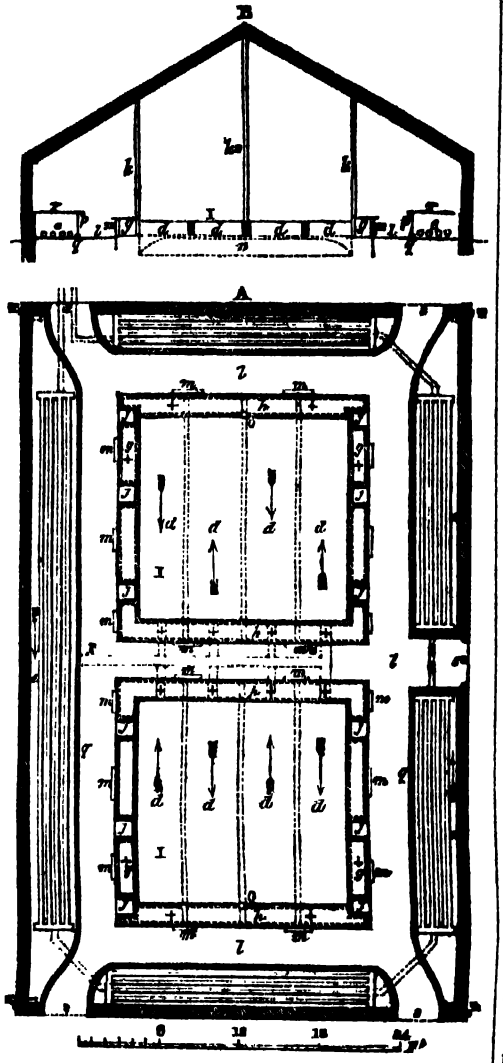
So much in reference to standards. But budding has other objects, and higher claims upon our notice. It confers a hardiness upon Roses otherwise tender, so that many which would not endure our winters on their own roots, become acclimatised, when receiving into their structure the more vigorous juices of the Briar. Then a more rapid attainment of the flowering state is in this way secured. For example, a friend gave me a small cutting of the beautiful Bourbon Rose, Paul Joseph, in the month of August last year. I had only a choice of two courses to pursue with regard to it; one was, to endeavour to make it produce roots as a cutting, the other to bud it upon a stock. Had I taken the first course, it probably would have perished, as cuttings of fine Roses demand much skill for successful striking; or if it had lived, it would scarcely have been strong enough to produce flowers in 12 months. I adopted the second course, and inserted the only two buds I had into a climbing Rose which I cut down for the purpose. In June, these buds were half a yard high, have produced flowers, and supplied me with buds enough to insert in about a dozen Briars. Expedition and certainty are, therefore, attained by budding, and on these accounts the art is highly important to all amateur gardeners.—*H. B.*

Home Correspondence.

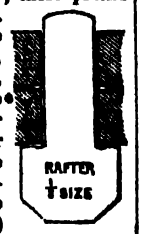
Fruit-tree Borders.—Although we know that the top spit of an old pasture duly pulverised and prepared is by far the best material with which we are acquainted for fruit-tree borders, yet to obtain that is sometimes almost impossible. Now, under such circumstances, I adopted the following plan:—Having to form a Vine border, about 70 feet in length and of proportionate width, on ground in cultivation as a part of the outskirts of a kitchen garden, I directed the soil to be removed as far down as any traces of cultivation could be discovered, and placed in long ridges on a spare piece of ground during the past winter; to this I added a liberal portion of rotten dung, a sprinkling of old mortar, and bricklayer's rubbish. In another ridge I had a portion of the "top spit of an old pasture," about one-third of what I should require for the whole border when finished, to which was added some rotten manure, and the whole frequently turned over and broken to pieces with a spade. When the Vineries are finished and the bottom of the border well drained, I shall have the whole carted to the border, and the Vines planted next season, previously giving the whole several successive turnings, and I have no fear of success. I should have said, however, that the subsoil to the requisite depth was entirely removed and carted away. With Peach-borders I should deal in a similar way, retaining all the old soil I considered worthy in long narrow ridges, giving it frequent turnings, till next planting season. Then I should add a portion of new soil, never mind about its being the top spit, introducing some fibrous matter to obviate it, together with a liberal quantity of well rotted dung, old bones, pieces of soft broken brick or free stone, old mortar rubbish or similar material, amalgamating the whole, and effectually draining the border. I should next plant the trees, planting them well, and the result I will guarantee to be all that could be wished.—*G. L.*

Autumn Planting Potatoes.—Potatoes to be taken up early should undoubtedly be planted early; and, if what are called in the Isle of Thanet "Sage-leaf Kidneys," are planted in October, and escape the frosts of winter, it is probable they will nearly attain their maturity by the 24th of the following June. Those planted in January will of course be later; and those planted in March will not have had, by that period, sufficient time to produce anything like a crop. "J. M." has published a table at p. 479, purporting to show the comparative results of autumn and spring planted Potatoes; but he will, I hope, forgive me if I say that, for general practical purposes, it is totally valueless. I have had 20 years' experience both in early and late planting. When my object is to obtain Potatoes for the early market, and to secure the first prices, I plant early. When I have been growing them for winter consumption, and quantity and bulk have been desired, I have always found the latter end of March and the beginning of April the best time for planting; and then prefer sorts that are likely to live and receive the full benefit of autumnal showers. It may be no wonder, after what happened last year, that many have expressed opinions favourable to early planting: as then, the early Potatoes escaped almost unhurt in many localities; but, as it has been (and still is) my opinion that the premature death of the plants, and the consequent decay of the tubers last year, was entirely owing to the sudden change of the weather, I planted this year in April and March: had I procured six roots on the 24th June, in comparison with those of "J. M.," they would have cut a sorry figure; still, nothing more than this is proved (and who ever had a doubt on this point?) that if Potatoes are to be dug on the 24th of June, they should be planted earlier than either April or March. If "J. M." will repeat his experiment with the remainder of his crop on the 24th October next, and communicate the results, I shall be obliged. By that time I hope to have many single roots that will weigh more than the six heaviest recorded in his table; nor shall I be surprised if his report turns the tables in favour of those planted in March.—*J. Smeed, Bromston, St. Peter's, Thanet.*

Tropical House at Kew.—The following will give some idea of the way in which this house is constructed:



—A represents the ground plan and B the section; *c* are walls; *e* hot-water pipes, which are united into one at the corners of the house, and pass under the paths *l*; F is a pipe to supply the tanks (*d*); this and the return-pipe are entirely out of sight; the latter being underneath the flow-pipe is not shown in the plan; *g* are heated air chambers, which have a communication with the tanks by means of an aperture in the walls; the chambers *h h* at the ends of the pits have a communication with the bottom, as well as the top of the tanks, the water passing through them. The chambers are contained in the walls surrounding the pits *i*: *j* represents spaces at the foot of the iron pillars *k*. The following climbers are planted in these spaces, and trained up the pillars to cover the roof, viz.:—Passiflora alata and edulis, Allamanda cathartica, Echites hirsuta, Poivrea coccinea and Roxburghii, Jolliffia africana, Petrœa volubilis, Beaumontia grandiflora, and Ipomœa Horsfalliæ. At *m* are iron gratings, through which heated air escapes from a space underneath the tanks; underneath the grating *m* 2, is an opening into the cistern *n*; and by means of a leather pipe being inserted into this opening the cistern is filled in very dry weather from a pump at a distance from the house; at *o* is shown the situations of two small brass pumps, by which water is drawn out of the cistern *n*; this cistern extends the length of both pits, and receives the water from the roof of the house, through pipes, *T*. The pumps are kept firm by brass rods attached to the pillars *k* (2), in the centre of the house; there are four of these pillars, three sashes intervening between them; at *r* are stone benches, supported by the iron pillars *p*; these pillars are 2 inches in diameter, and 3 feet 3 ins. apart. The tanks are covered with large slates; the pit above is filled with tan, and the plants are placed upon the tan, not plunged in it; the walls round the pits are covered with blue slates. Over the chambers ventilators are placed for the escape of heated air at pleasure, the situations of the ventilators being represented in the plan by the mark +; the entrances are at *s*, and at the entrance *s* (2) the roof is raised 1 foot in front, to make room for the door: scrapers are placed in small recesses in the wall *i*.—*C. Walton.*



Fried Cork to Kill Rats and Mice.—Your query in last Number I reply to with pleasure. As to the injury to poultry (ducks I should fancy is meant), pigs, and dogs, by eating the savoury slices of cork, there can be no doubt. I have known a dog killed by gnawing and eating a cork in play with it. But in this, as well as any other poison for destroying rats or mice, the same precautions must be used. With arsenic mixed in Barley-meal, a neighbour of mine killed all his fowls a few weeks since; and another neighbour last year did the same by applying it carelessly. In all such applications, caution must be used. The simple remedy of old corks sliced as thin as possible, and then fried in the fat, butter, or gravy left in the pan after meat has been cooked in it, was recommended to me by an able chemist, who assured me that when he was infested with numerous rats once, he tried all the poisons he could think of without getting rid of these pests, when the fried cork did it effectually, and he saw no more of them. I am applying the corks at this moment in my farm-buildings to destroy mice, and they diminish daily. I discovered the other day a curious instance of the liking these vermin have for them. Observing that all I planted had disappeared, I resorted to a plate full of them, which I had placed in reserve, and in security I fancied, on two iron rods, supported upon four others 14 inches high, which are at the head of a desk for accompt books, when to my surprise I found all the corks gone and the plate empty. There was a large paper bag with some Swede seed in it on the same rods, and observing a hole in it, I opened the bag, when a great portion of the corks were there found deposited. The mice had managed to ascend the iron rods, had taken the corks from the plate along the horizontal ones, more than 18 inches, to the paper bag. The bag had never been touched by them before.—*Delta.*

——"A Subscriber" may fry coarse brown paper instead of cork, and neither pigs, pet dogs, or poultry, will suffer.—*Probatum.*

Old Pastures.—I have made many mixtures of soils, but none which are so good as that taken from old pastures. It is known to many that if an old pasture is made into a garden, everything will grow in it so as to surprise any one not acquainted with the fact of what old pastures will do in this way. When worn out, no manure will afterwards restore the ground, that I know of, to its former state. I have been very successful on a small scale with liquid manure on Grass. I mowed some Grass ground this year three times before the 1st of May, to give as green food to my horses. I would propose that a portion of every garden be laid down to Grass, and then liberally supplied from time to time with liquid manure, mowing the Grass as often as required. It must be known by experiment how long a portion should remain in Grass before it be broken up. The process of making Grass ground would be hastened by this plan, as much more liquid manure would be given than what falls on grazing pastures, and more evenly. All soils ought to be found to have in them, on analysis, 16 of the simple substances. Those are best supplied to Grass land by liquid manure.—*C. A. A. L., Whittington.*

Potato Disease.—At Genoa I was informed that in the season of 1845, nearly all the crop raised from English and American sets was affected by the disease but none of their own old waxy sorts; at Naples, the crop was sound (thanks, perhaps, to the warmth and dryness of the climate); at Munich (the country around being generally a very poor sand) the crop was uninjured. The Potatoes I ate there were excellent.—*H. E. B.*

Young Oaks.—The method of cutting *in situ* the tap roots of young Oaks, noticed in the leading article last week, is in constant use in nurseries, and may be found (and perhaps elsewhere) fully described in Nicol's "Planters' Kalendar," pp. 134—5. Your doubt, incidentally mentioned, of the propriety of cutting the tap root at all, is well founded, but the practice of using large Oaks of 4, 5, or 6 years in forming plantations, renders it necessary for convenience in ordinary soils. There is little doubt that, in similar circumstances, an Oak plantation raised (as is sometimes done) by sowing the Acorns in pits at once in the fields, will outstrip one formed in the usual way, especially when large plants are used.—*W. S.*

Hedgehogs.—In the beginning of June I procured a hedgehog, which I placed in my garden, with a view to its destroying insects, &c., which abounded there; it proved with young, and about a month ago produced three, having made itself a very snug nest amongst the Artichokes. Last week I observed the young ones in different parts of the garden in a very weak state, and one morning I found the skin of one in the nest, the mother having eaten the body. In two days, I found another nearly eaten up, and two mornings ago the third was found dead, but untouched, except one hind leg, which had been bitten off a day or two before. Since this, it has eaten a kitten every night, which I had placed for its repast. It has eaten three of these. It also eats a good lump of bullock's lights, and I have several times put 20 or 30 shell snails near its abode; these are devoured, as I find the shells left strewed about. I offered one of the young ones both snails and lights, both which it attacked eagerly; and I have repeatedly seen a half-grown hedgehog crack the shell of a large snail, and devour the body with great relish. Though the hedgehog eats flesh when it can get it, it is too sluggish in its motion to be able to procure a subsistence by hunting. I believe it to subsist chiefly on snails and insects, and perhaps earth-worms.—*Lusor.*

Ink for Labels.—In the report of the meeting of the Horticultural Society (p. 239), mention is made of a newly invented ink for writing on zinc labels, sold by

Messrs. Burrows and Thoms, with an observation that "hitherto we have had no good ink for the purpose," and it is mentioned again in last Number as a "novelty." Have you tried ink made by a receipt given in page 189, March, 1842? which appears fully sufficient for every practical purpose, in proof of which I enclose a label written with this ink more than two years ago. As some of your readers may not have seen the receipt I annex it:—Verdigris in powder, 1 drachm; sal ammoniac in powder, 1 drachm; lamp black, half a drachm; water, 10 drachms. It should be shaken before using.—*Lusor.*

Fixing Botanical Specimens.—For this purpose I find nothing more convenient than the margins of the sheets of postage stamps (which may be had from the sellers of stamps), cut into narrow strips, and placed across the stems and branches of the specimen intended to be fixed.—*Lusor.*

Extract from Correspondence with Sir G. S. Mackenzie, Bart.—Strawberries: There is an object in the cultivation of this, and indeed, in that of every other fruit, universally acknowledged to be worthy of attention, but seldom attended to, and that is to have it in succession during a considerable time. It is a remarkable fact, that since cultivators began to search for improved varieties by sowing seeds, not one earlier than the old scarlet has been obtained, while of fine late varieties we have abundance. I believe the earliest now in cultivation is the Grove-end; next to that comes Keens' Seedling, and some other good sorts, and among them the delicious, but neglected Carolina; and lastly, the Elton, which lasts a long time. The Alpine is both an early and late sort, and carries on the succession till frost commences. What is wanted is an early variety, and to this object cultivators should lend their attention. We have, as yet, no good pale or white variety, and one should be sought for. I have raised a considerable number, and one remarkably prolific, and lasting a long time; but they all wanted firmness and flavour. By perseverance, and many pursuing this object, a fine variety may at last be obtained. Although it has been stated in the *Chronicle* that Strawberry plants would continue to yield good crops during many years with a little care, I am still of opinion, that what I recommended many years ago is of use, viz., to make new plantations every second year. My reason for this recommendation was, that when the plants are left longer, new sorts rise amongst them from the seeds of berries that drop or are left, and thus the crops are, for the most part, deteriorated by mixture, and it may become difficult to recover the original variety. My practice was to plant in February, not to reckon a crop the same year, and to take two crops afterwards; so that when I dug down the plants, I had another set ready to produce. The public would be better served with this, and other fruits, if they were not exposed to the sun in shop windows, and at the doors, but kept in a cool shady place. The Strawberries brought to the Edinburgh market, once famous, are now for the most part very inferior; and the effects of careless handling are so conspicuous as to be rather disgusting. *Vanack Cabbage:* Of all the numerous sorts that have been offered to the public, this Cabbage has no rival. By a little care, it may come to the table young almost the whole year round. It is many years since I obtained some seeds from the Garden of the Horticultural Society, and I have never tasted any sort to be compared with it. It is now difficult to obtain it pure. It is easily known by its tendency to burst when it attains a considerable size. The long lists in nurserymen's catalogues might well be curtailed, and the Vanack placed at the head. Whatever single sort one may purchase by name is sure to turn out mixed, so careless have seedsmen become. I got some seeds under the name Vanack in Edinburgh, and while almost every plant differed from another, there is not a true Vanack amongst them. It is a pity that the London Society does not give prizes for specimens of pure varieties of culinary vegetables, that the best may be kept up. It is right to place the *dulce* in the first rank, but the *utile* should not be forgotten. *Pelargoniums:* The flower of the variety General Tom Thumb is so like one raised in my garden in the north, many years ago, that I should have called it identical in flower and leaf, were it not that the northern variety (without a name but that of the gardener, McGrigor, who raised it) affects the eye with a glow which gives it a preference. Beside McGrigor's Scarlet all others I have compared with it fail in brilliancy of colour.

Wasps.—As the season when these are most destructive is at hand, I think it right to mention that I have tried gas tar, and believe it will prove the simplest, cheapest and most effectual remedy, with which I am acquainted: I tried it on some nests in the woods here, where, from the roots of trees, &c., it was impossible to dig them out. Just pour a little gas tar from a small water-can or other convenient vessel, into the hole: stop it up with moss dipped in the tar, and the work of destruction is completed.—*J. L. Snow, Striuton Park.*

Miscellaneous.—The Death's Head Moth &c.—Your columns lately contained an account of the capture of some death's-head moths at Cambridge on the Lycium Europæum, or Tea-plant. On referring to Withering's "Botany," however, I cannot discover the plant named. Is it found wild? We have it on the cliffs here, and I captured a death's-head moth on it last year, in September, while residing here; and I understand a chrysalis has been found and exposed for sale here this year, but unfortunately I cannot find out anything of the whereabouts.—Your entomological friends may be glad to learn that the beautiful Colias edusa, a fly of which we know nothing in our neighbourhood at Croydon, is this year in full bloom here on the cliffs near Beechy Head. Perhaps some of your correspondents may be able to tell what butterflies those were which paid a visit to Dover from the Continent, the week before last. No one seems to have noticed to what genus they belong.—*A Croydon Subscriber, at present at East-Bourne.* [The plant called Lycium Europæum in the paragraph alluded to is, of course, a garden plant. We did not understand that it was pretended to be wild.]

Foreign Correspondence.

Copenhagen, July 6. 1846.—From Hamburgh to Kiel we came by the Altona and Kiel railway, nearly 70 miles, constructed on a single line without bridges or viaducts, and, except near Kiel, scarcely anything of a cutting or embankment, therefore very easily made, and very well appointed, going at the rate of about 20 miles an hour, or rather faster, with less of noise and motion than in most of ours. Holstein, which we thus crossed, is generally flat and sandy; a great deal of peat Moss, intermixed with meadows and arable land—the latter generally covered with rich Rye crops, nearly ripe; a good many Potatoes, as yet very young; some poor looking Oats; a very little Barley, white Clover, and (Buckwheat?) and I only saw two small Wheat-fields the whole way. Indeed, cattle (producing excellent beef) and Rye seems to be the staple produce, the bread of the country being pure Rye. At Kiel, we admired especially the public gardens, and the walk to the Tivoli garden, and the baths of Düsterbrog, a couple of miles from the town, which may almost be called garden the whole way. Beds of Roses and flowers ornament the promenade, and are as open as at Hamburgh; and the Tivoli gardens are prettily laid out, and very neatly kept—all the benches, tables, and other wood-work, as well as the stakes for the Dahlias and other flowers, being kept fresh painted and clean, and the walks and beds quite free of weeds. The lawns are also, here, greener and better kept than most of the Hamburgh ones. The botanic garden is small, and for want of sufficient means not so well kept. Professor Nolte, who is at the head of it, has a good collection in it of Holstein plants, and especially of natural hybrids, such as Stachys ambigua, Hypericum, Potentilla, &c., in all which cases he says he can never either find good seeds in the wild state, or make the plants produce them when cultivated. He shows amongst the curiosities of the little museum at the garden, a remarkably good specimen of the formation of wood outside a bit of bark where circulation had been stopped. An old Beech was cut down at Düsterbrog in 1837, and the logs sold to a baker, when, on splitting one, there was found, about 6 inches from the rim, a square piece of the old bark cut through all round with these letters cut into it. This bit of bark still had some remains of lichens on the outside, but the wood had formed perfectly sound over it, and was continuous with the inner wood both above and below, with the exception of a slight derangement in the longitudinal vessels, and the outside bark showed a slight irregular scar a little bigger than the enclosed bit of bark. Professor Nolte says that he very carefully counted the concentric rings between that with which the enclosed bark was connected and the outer bark, and found them to be exactly 110, the number of years from the date of the inscription to the date of felling. It is the neatest specimen of a well-known physiological fact which I have seen. Here, in Copenhagen, the Botanic garden is in the town, of small extent, and of little importance; there has, however, been lately built a hothouse for Palms, and a portion of the old ones has been arranged as an Orchidaceous house; these contain several good specimens, chiefly Mexican, brought over by Professor Liebmann; of Cycads, more especially, there is a good collection and several new ones: many of them have already flowered. The Rosenberg Castle gardens are also in the town; the public part of them laid out something in the style of the Tuileries gardens, has no particular beauty, and looks old; but a large portion is reserved for forcing fruits and vegetables for the king's table, under the management of Mr. Peterson. The forcing houses are very extensive, covering altogether nearly an English acre of ground. Many of them are heated with hot water, the apparatus generally of a simple construction; the pipes and boilers all cast here, and apparently very well done, but at so great a cost, that in many of the houses brick flues with open troughs are used, and the difference in effect between the flues and the pipes is not nearly so great here, where wood alone is burnt. The Grapes forced are chiefly our common kinds. The king's table is supplied from the end of May till late in the autumn; the crops generally seemed very fair; the early Peaches had been good, but there were only a few remaining; the late ones were not full of fruit; only one Nectarine seemed to be bearing really well. The Pine-apples, of which there were a great quantity, were very healthy and clean; and some of the Providences very fine; but they cannot succeed in giving them the same weight that we do. The Figs were very fine and full of fruit. Strawberries are a very favourite fruit here; they like the soil and are very good flavoured. Mr. Petersen forces and grows them in great quantities for the king's table, which must be supplied from April till Christmas. Most of our new varieties are grown. Keens' Seedling acquires an enormous size. Myatt's does not succeed at all. Vegetable forcing is of course over for the season, but much the same is done as with us, excepting Sea-kale and Rhubarb, of which none are grown but a plant or two out of curiosity. In the open air the fruit garden is being replanted; it is extensive, but nothing remarkable. Against a long wall Vines are planted at intervals, between which are low lean-to frames, into which one-half of the main branches of each Vine are brought down for forcing every alternate year; the other half, forced the previous year, being trained on the wall above, and between the frames, to ripen for the following year's forcing—a process by which, it is said, very large crops are produced, and some of those now in forcing certainly made a very good show. The cold here is far from being so intense as in Hamburgh, yet Bays, Laurels, and other such evergreens, are only cultivated in tubs, like Orange-trees, and brought in in winter, whilst Orange-trees are kept in the greenhouse all the summer (except for about a month to ripen their wood), and this, it is insisted, is necessary to prevent their turning yellow from the intensity of the summer sun. They certainly are of a dark green, but do not to me look healthy in other respects, being rather drawn and thin of wood. In the neighbourhood of Copenhagen, we much miss the gardens of Hamburgh; the best I have seen are a few of those on the road to the Thiergarten, to the north of the town, a beautiful situation on the shores of the Sound, with the Swedish Coast opposite; but these contain little but lawns, shrubberries, groups of trees, and winding walks, very few Roses, and scarcely any flower-beds; as a necessary consequence of this little taste shown for gardens, the nursery gardens are but few, and of small importance. The varieties of Fuchsias, Calceolarias, Gloxinias, Achimenes, &c., in the royal houses at Rosenberg, &c., were all obtained through Booths, of Flotbeck. Fruit does not seem so plentiful here as at Hamburgh, excepting Strawberries, with which, as well as with vegetables, the town is chiefly supplied from the isle of Amaga to the south of Copenhagen. The pleasure-grounds attached to the royal palaces, and, as usual on the Continent, open to the public, are generally thick plantations of wood, intersected by broad winding walks, and interspersed with open glades of Grass and pieces of water, and in hot weather they are very agreeable cool walks, but with a great want of flowers. The Thiergarten is a very fine park, full of beautiful Beeches, in many parts very well grouped, and on undulating ground, instead of the dead flat of a great part of Denmark; all it wants is a good road to it, and easy drives through it, but the former is either a bad pavement or mud-holes, and the drives heavy sand. Of the country, all I have seen is what lies between this and Friedricksborg, about 18 miles to the north-west. The road, which is very good, crosses an open and undulating country, generally richly cultivated, though intersected with peat-bogs, small lakes, and a few woods; one extensive inclosed wood contains a great many very fine Beeches. The crops are everywhere very good; the hay is a great part of it got in; the Rye, which is the principal crop, is everywhere turning colour, and in some places just ready to cut. The Barley and Oats, just coming into flower, are very much finer than in Holstein; so are generally the Potatoes. I cannot learn that any disease has shown itself yet this year, though it was as bad here as anywhere last year. The peasants complain (as I am told) that the early-planted Potatoes rotted a good deal in the ground, but they say that all the late-planted fields come up as well, and look as promising as ever they saw them. Besides the crops I have mentioned, I have seen a few fields of Vetches, and of red or white Clover, but not a single field of Wheat.

Societies.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

July 22.—This, the FOURTH EXHIBITION for the season, took place in the Surrey Zoological Gardens, and was numerously attended. The Show itself was a fair one for July. There were five collections of 18 Miscellaneous plants, many of them not at all remarkable for either fine growth or bloom. That to which the first prize was awarded was contributed by Mr. W. P. Ayres, gr. to J. Cook, Esq., of Brooklands, Blackheath. The most conspicuous plants in this group were Allamanda cathartica, a large plant finely in bloom; Clerodendron fallax, with numerous gaudy flower-spikes, and the same plants formerly exhibited of Phænocoma prolifera, Kalosanthes media and coccinea, still in good condition; together with a Statice arborea; a large and fine Crowea saligna; and several Cape Heaths. The next group in point of merit was produced by Mr. Bruce, gr. to B. Miller, Esq., of Collier's Wood, Tooting. It contained, among other things, a good Russelia juncea; Clerodendron infortunatum; a neat Lantana mutabilis; and a fine little Hoya carnosa, together with the same Astelma eximium exhibited at the last Chiswick gathering, but, this time, in better condition; Euphorbia splendens; and other smaller plants. Mr. Young, of Camberwell, was third. In this group the most remarkable plants were the sweet-smelling Stephanotis floribunda, finely in bloom, trained over a circular trellis fully 3 feet in diameter; Euphorbia splendens; and a fine Erica Ewerana.—The fourth collection was produced by Mr. Kay, gr. to B. D. Colvine, Esq., of Norwood. This group contained an immense bush of Achimenes pedunculata, not sufficiently in bloom, and other species of the same lovely genus: together with Plumbago capensis, the same fine Mahernia incisa formerly exhibited, also Myoporum parvifolium, a neat Begonia parviflora, and Malva capensis, a plant now not often seen in collections.—The fifth group, from Mr. Fairbairn, of Wandsworth-road, contained Fuchsias, Petunias, Heaths, and Calceolarias.

Two collections of 10 MISCELLANEOUS PLANTS were produced, but among them there was nothing worthy of especial notice.—Of the lovely genus Erica there was a large and fine display, the best groups being contributed by Mr. W. P. Ayres and Messrs. Fairbairn, of Clapham. Mr. Dawson, of Brixton-hill, also sent good plants, and so did Mr. Bruce, of Tooting, as well as several others. Among Messrs. Fairbairn's plants were amplubaceæ; the larger variety of retorta, tricolor, inc-

flata, eximia, Irbyana, Altoniana, and ollula, the latter a neat small pink-blossomed variety.

Among SINGLE SPECIMENS of superior cultivation was a most beautiful Erica Irbyana, 3½ feet in height and as much wide, from Mr. Dawson, of Brixton-hill; Messrs. Fairbairn also sent a good variety of E. inflata; Mr. Bruce, E. eximia; and Mr. Ayres, a pretty Ixora crocata.—Collections of FUCHSIAS were numerous. The 1st prize for 8 plants in the Amateurs' Class was awarded to Mr. Jenkins, who sent Queen, Paragon, Nymph, Unique, Colossus, Sir Henry Pottinger, Cassandra, and British Queen. In the Nurserymen's Class the best 12 were sent by Mr. Jennings, South Lambeth; the varieties were Vulcan, Phenomenon, Coronet, Lowryi, Nymph, Queen of Beauty, Cassandra, Colossus, Sir H. Pottinger, and Gigantea. Mr. Jenkins contributed a good plant of Eppsii. Mr. Robinson, of Pimlico, sent a collection of Achimenes.

The only exhibition of PELARGONIUMS was furnished by Mr. Foster, gr. to Mr. Staines. The flowers composing this collection were in good condition, and covered with bloom. The sorts were—Champion, Celestial, Sultana, Trafalgar, Erectum, Sarah Jane, Apollo, Princess Alice, Camilla, Nameless, Phaon, and Duke of Wellington; to these the Large Silver Adelaide Medal was awarded.

The season for PICOTEES and CARNATIONS being near its close, the collections of those beautiful flowers were not in such fine condition as we have generally seen them. In the Amateur's Class, the 1st prize, the Gold Adelaide Medal, was awarded for 12 white-ground Picotees, to the Rev. A. W. Matthews, for West's Ellen Matthews, Enchantress, and Ne plus ultra, Green's Victoria, Sharp's Elegant, Henrietta, Willmer's Princess Royal, Ward's Victoria, Brankler's Perfection, Wildman's Isabella, West's Matilda, and Mrs. Barnard. 2d, to G. Edmonds, Esq., with Edmond's Prince of Wales, Ernest, and Seedling, Ely's Grace Darling, Burroughes's Mrs. Bevan and Unique, Lee's Mary, Cook's Unique, Green's Queen, Edmonds' Regina, Kirtland's Princess Royal, and Burroughes's Mary Jane, a 3d prize was awarded to W. Sandilands, Esq., and a 4th to G. Leach, Esq. In the Nurserymen's Class for Picotees, the 1st prize was awarded to Mr. Kirtland, 2d, Mr. John Dickson, Acre-lane; 3d, to Mr. Henbrey, of Croydon. In Class 2 for Carnations, Mr. Kirtland obtained the Large Silver Linnean Medal, for Hale's Prince Albert, Puxley's Lord J. Russell, Turner's Princess Charlotte, Unknown, Twitchett's Don John, Ely's John Wright, Willmer's Hero of Middlesex, Dr. Frank Im, Chadwick's Brilliant, Willmer's Conquering Hero, Lady Broughton, and Flora's Garland, 2d, to Mr. Franklin, Islington; 3d, to Mr. J. Dickson, Acre-lane, Brixton. The Silver Cup, value 5 guineas, presented by Mr. John Dickson, for the best 12 white-ground Picotees, for competition among Amateurs, was awarded to the Rev. A. W. Matthews the stand contained the following varieties:—Burroughes's Mrs. Bevan, President, Sharp's Elegant and Lady de Grey, Mrs. Barnard, Matthews' Enchantress and Pyrrhus, Willmer's Princess Royal, Edmonds' Prince of Wales, Wildman's Isabella, Green's Victoria, and Crask's Prince Albert.—Verbenas were exhibited by Mr Smith, of Hornsey, Messrs. Paul and Son, and by Mr. Fowle, of Brixton. A tray of Dahlias and another of Pansies, from Mr. Turner, of Chalvey, were exhibited, not for competition. Pansies were also contributed by Mr. Henbrey. A large collection of Hollyhocks came from Mr. Kitley, of Bath, beautiful and varied in colour. Smaller collections were contributed also by Messrs. Fowle, of Sudbury; Henbrey, of Croydon; and by Mr. Jennings. Collections of Seedling Antirrhinums were exhibited, but the varieties did not appear superior to those long since in cultivation. Two extra prizes were presented by Mr. Trahar; 1st, to Mr Kirtland, for a heavy-edged Picotee, of a rosy vermilion colour, 2d, to the Rev. A. W. Matthews, for a light edged purple. A seedling Dahlia of the present season, named the Queen of Dahlias, from Messrs. Smith, of Hackney, very good, with cherry tip, promises to be a good and useful flower.

Beautiful boxes of CUT FLOWERS came from Mr. Bruce and others, and Messrs. Paul and Son showed cut Roses in fine condition. There were also cut specimens of indigenous plants, and three designs for flower gardens.

FRUIT was scarce and inferior, and so were vegetables. Among the former were Queen Pine-apples, Black Hamburgh and Muscat Grapes, from Mr Hamp, gr. to J. Thorne Esq.; the former insufficiently coloured; and small, but well-coloured bunches of Black Hamburgh came from Mr Mitchell, of South Lambeth. Plums, Apricots, Cherries, Gooseberries, &c., were also exhibited—the Apricots small and poor. There were also some Peaches and Nectarines of inferior quality, and fair specimens of Beechwood and Cantaloupe Melons. Mr Cuthill, of Camberwell, sent fine specimens of his Black Spine Cucumber.

New Garden Plants.

40. CAMPANULA NOBILIS. Noble Bellflower. *Hardy Herbaceous plant.* (Bellworts*) Chusan and Shanghae.

The root leaves of this fine herbaceous plant are deeply heart-shaped, of a bright pale green, and placed on footstalks from 6 to 9 inches long, forming a large tuft. From among them, and to rather more than twice their height, rises the flowering stem, which branches a little at the bottom, and bears upon its divisions several fine nodding flowers, which seem to be the largest yet seen among the genus Campanula. They are something like those of Canarina, nearly 3 inches long, and 1½ in diameter. The corolla is pale purple on the outside, and nearly smooth, but paler within, abundantly sprinkled with bright purple dots, and closely covered with long delicate horizontal hairs. It is allied to the Canterbury Bell (Campanula medium), and like it has a calyx furnished with reflexed appendages; but its stigma is trifid, on which account it more nearly approaches the Sarmatian and Dotted Bellworts (C. sarmatica and punctata.) It is, however, perfectly distinct, and a grand addition to handsome hardy herbaceous plants. Hitherto it has been treated as a greenhouse plant, but Mr. Fortune is of opinion that it will prove hardy. It grows freely in rough sandy peat, and, like most of the species of Campanula, requires an ample supply of water during the spring months. It may be abundantly multiplied by dividing its roots, and possibly from seeds also.—*Journal of Hort. Soc.*

41. *FORTUNÆA CHINENSIS. Chinese Fortunæa. *Greenhouse Shrub.* (Juglands.*)—From the hills of Chusan and Ningpo; Mr. Fortune. "The Chinese use the fruit of this to dye the black colour of their clothes." An empty cone of this singular plant was received some years ago from Dr. Cantor, by favour of Lord Auckland, then Governor-General of India; and it was at that time supposed to belong to some unknown Conifer. Mr. Fortune rediscovered it, and sent home good seeds and dried specimens, and it now proves to be a plant like a Rhus in aspect, but in reality a most curious genus of the natural order of Juglands. If, indeed, we could suppose a Walnut to be pressed flat, reduced to the size and texture of a seed of the Alder tree, and then many such to be collected into a small cone, composed of hard, brittle, sharp-pointed scales, we should form artificially what Nature has produced in this plant. The annexed figure will explain more particularly these facts, if it is borne in mind that fig. 1 is a cone; 2, one of the ripe nuts taken out and much magnified; and 3, an inside view of the same; for it will be obvious that the latter might almost be taken for a Walnut viewed through a diminishing glass. This shrub or tree, for it is uncertain which it is, is perfectly distinct from all the other genera of Juglands in having its male flowers in catkins, like those of a Willow, composed of narrow scales, hairy, and apparently white inside, with four small stamens at their base. (Fig. 5.) The young nuts are small lenticular bodies with a wing on each side, a minute superior four-toothed calyx, and a pair of short-spreading stigmas. (Fig. 4.) As the most remarkable genus found by Mr. Fortune during his Chinese expedition, it is proposed to give it the name of its indefatigable discoverer. Whether or not it will be hardy is uncertain; at present the seedlings have been kept in the greenhouse; but the climate of Chusan Hills and Ningpo leads to the hope that it may prove an arboretum plant, at least in the South of England.—*Journal of the Hort. Soc.*

** See Lindley's "Vegetable Kingdom" for an explanation of these terms.*

Garden Memoranda.

Messrs. Loddiges, Hackney.—The magnificent sweet scented Cattleya superba is now flowering in one of the Orchid houses here. The purple blossoms of this fine species, if not so large as those of C. Mossiæ, are, for, the richness of their colour, inferior to none in beauty, and as they last for several weeks in perfection, no collection, however small, should be without it. Associated with it was the comparatively new Oncidium spilopterum, which is perhaps the handsomest species of its class, appearing to be nearly related to O. reflexum and the Mexican species allied to it. The flowers are large and yellow, with small brownish purple sepals and petals, the base of the lip being of the same colour, while the wings of the column are clear yellow, spotted with crimson. The flowers are produced in an erect raceme, much longer than the leaves. In the same house was likewise the new Acanthophippium Javanicum in bloom. It proves to be a valuable addition to the genus. The buff coloured purple striped flowers having considerable resemblance to those of A. sylhetense, but darker coloured and handsomer. The comparatively new Aerides maculosum was just opening into beauty, in company with Vanda peduncularis, a species of no interest, save for the resemblance the small dark brown dingy-looking blossoms bear to a fly. The violet flowered Calanthe Masuca was also in bloom, together with the larger variety of Oncidium Lanceanum, the handsomest of all the Oncids. An immense mass of Peristeria elata was just coming into bloom, and near it the pretty Epidendrum phœnceum, one of the few Orchids yet imported from Cuba; it approaches very nearly to the E. papillosum of Mr. Bateman. Associated with these was Cattleya atropurpurea, whose numerous green brown-spotted flowers clustering round the pot look like so many insects. In the same collection was also the orange-variety of Gongora maculata, producing long pendent flower chains, 3 feet in length, and at the farther end of the house were four species of Nepenthes—distillatoria, Loddigesii, and ampullacea, with another in the way of the latter, but with the pitcher-like appendages having a longer neck, the elevated lid bending over the mouth of the pitcher instead of standing nearly erect, as in the last named species. It is also deeper coloured, being closely marked with deep brown. In a cooler house, and exhibiting, by the richness of their colours, the desirableness of retarding the floral development of these plants, as well as the necessity of keeping them back for succession, were several things in bloom, but more especially a very beautiful variety of Barkeria spectabilis, differing in several respects from the original species, but more especially in having a flat nearly oval lip with a purple stain at the extremity, and without the contraction or undulation in the middle. Placed in a corner of this house is a gigantic specimen of Tamus elephantipes or the Elephant's foot; its singular trunk or stem about two feet in height and fully as much in diameter. It is now throwing out shoots from its summit. The small purple-flowered Bletia verecunda and various Oncids, together with the exceedingly handsome Sobralia macrantha, are blooming in the same house, and in an adjoining erection were several of the beautiful Japan Lilies coming fast into beauty. Although it is not at all improbable that the Polmaise system of heating may ultimately drive hot-water tanks out of the field; yet for the benefit of those who still adhere to the latter we may mention in passing that slate forms a bad material for the purpose, being liable to split. A slate tank put up here in 1843, of which a description appeared at p. 879 of our volume for that year, has long since given way at the warm end, even at a time when the water was much below a boiling heat. Wood tanks have also been tried here, but though cheap in the first instance, they are dear in the long run, from want of durability. The one here has been in use about two years.

Miscellaneous.

Spontaneous Combustion of Willows.—This summer the banks of the Cam exhibit an unusual multitude of these singular phenomena—cases of spontaneous ignition and combustion in growing Willows. About a week ago we observed in one instance, at a point of the river not far from Granchester, the process rapidly going on. It was really astonishing to look upon a fine Willow in full vigour and health pouring forth clouds of smoke from its half-burned stem, and doomed speedily to expire—itself its own funeral pile. The tree which we observed last week, as stated above, is now prostrate—its very foliage charred—a vegetable ruin—as if stripped, shattered, blasted, and half-consumed by the electric fluid.—*Cambridge Advertiser.*

A New Mode of Entering Premises.—On Friday week an unusually large swarm of bees, either from accident or design, alighted on the top of a chimney at Mr. Paskins's, Royal Oak Inn, at Brierly-hill, and appeared to make an attempt to settle. However, in a few seconds the bulk of this living mass went, "*mirabile dictu*," down the chimney into a bed-room, where two females were busily engaged at their toilette, who, as might be supposed, were dreadfully terrified by the formidable appearance of their unbidden guests, one of whom, we are sorry to say, was much injured from the stings of the intruders as she attempted to escape. The house was deserted in a few seconds, and the landlord in vain offered various sums of money to any one who could rid the premises of his unprofitable customers.—*Worcestershire Chronicle.* [How, then, did he regain possession of his house?]

Black Swan.—A beautiful specimen of this bird was lately shot by Mr Philip Kincaple, on the river Eden, in a creek near Niddry Mill. We believe this to be the first black swan shot in a wild state in Great Britain, if not in Europe. The bird in question is a female, and weighed 9 lbs. 3 oz.; measured 3 feet 9 inches in length, and 6 feet in extent of wing.—*Scotsman.*

Calendar of Operations.

(*For the ensuing Week.*)

Rose Culture.—No flower is more popular or more useful than the Rose; whether as standards by the side of promenades, in beds or masses, festooning about pillars, or enlivening the conservatory in the depth of winter. With regard to all these purposes, they demand a considerable share of attention, especially at this period. Budding, cutting striking, final potting, &c., are processes of paramount importance at the present moment. The Hybrid Perpetuals, Teas, Bourbons, and the Chinas, are the most eligible classes from which to select kinds for pot culture. The following should be in every winter collection, on account of their general utility:—Devoniensis, Cramoisie superieure, La Pactole, Caroline, Elise Sauvage, Comte d'Eu, Coupe d'Hebe, Prince d'Esterhazy, William Jesse, Princess Maria, Cara Sylvan, Aubernon, La Reine, Madame Laffay, Duchess of Sutherland, Earl Talbot, Belle de Florence, Phœnix, Bourbon Queen, Crimson Perpetual; the Persian Yellow and Harrisoni have also been found to force tolerably well.

CONSERVATORIES, STOVE, &c.

Conservatory.—The pot Roses intended to flower in this structure, late in the autumn, should now receive whatever pruning is necessary. All those which require a shift should have it forthwith, in order that they may have a pot full of healthy roots by the flowering period; thus, and the application of liquid manure together with a sweet and mild atmosphere, will perform wonders. After these operations, they should be placed in some open and airy spot; and if plunged in ashes, they should be frequently turned, or the interior of the pot will become deserted of fibres. Give them regular waterings, and persist in picking off all blossom buds as they appear from those required to blossom in November and December. Let the Camellia buds have a thinning as soon as possible. *Stove and Orchids.*—Stove plants in general having made a good growth; the next point is to get such growth matured. To this end, give a still freer circulation of air, and avoid shading as much as possible. *Orchids.*—The propriety of a second house, at least, for this wonderful tribe of plants, will be more readily seen at this period than perhaps any other. The early-growing kinds, several of which are winter or early spring bloomers, will now require the withdrawal of a portion of the atmospheric moisture still necessary to many others; several of them, such as the Cattleyas, &c., might be removed to a Vinery were it not for the attack of snails and slugs. To those who are compelled to grow the whole stock in one house I would offer the following advice:—Keep a free circulation of air by day at this period, and even all night if possible; endeavour to have a good source of atmospheric moisture the latter half of the day, and dispense with shading as much as possible. *Mixed Greenh. use.*—Look out and encourage a lot of good things for a late autumn display. Fuchsias and Achimenes in succession, and even choice Verbenas, in somewhat thick masses in wide-mouthed pots, will add to the general effect. The remarks on Roses in the earlier part of to-day's Calendar, will be in full force here. Remember that all those things required to blossom in mid-winter must have their final shift betimes. There is no success in forcing, or even retarding, without a pot full of roots.

KITCHEN GARDEN FORCING

Pines.—I am truly glad to hear from Mr. Hamilton that his excellent system of Pine growing, which is, I suppose, too simple to be appreciated, is about receiving a fresh corroboration at Worsley Hall, the seat of the Earl of Ellesmere. Mr. Mitchell, the very clever gar-

dener there, has ventured on this mode, and has a splendid lot planted in the open bed. He says—"They are as easily managed as a crop of Turnips." His largest fruit of all is on an old stool, from a sucker only a few months old. Mr. M. says—"Those on the old stools are progressing towards their third crop, whilst the maiden plants of the same age have not fruited at all." A general earthing-up should take place in the early part of the summer, but more especially after the fruit is cut. *Vines, Peaches, Figs, Melons*, &c., as in last Calendar.

KITCHEN GARDEN AND ORCHARD.

A considerable breadth of Endive should be planted without delay; in fact, one half of the crop. High manuring is absolutely necessary to produce this valuable salad in perfection. In planting succeeding crops, keep raising the beds higher as the season declines. Keep the succession beds of Horn Carrots thinned in due time. Let a good breadth of ground be duly prepared for Winter Spinach forthwith, by thoroughly trenching, and burying a good coat of half-rotten manure in the bottom. It generally succeeds best in highly raised beds, stagnation being its chief enemy. Continue getting out Cape and other Broccoli, and also some late Cauliflowers. An autumn Mushroom bed should now be made; throw the dung together to ferment for a few days; when half dry, mix one-third of loamy soil with it to keep in check any further fermentation, and tread or beat hard whilst building the bed, making the spawn holes immediately the bed is finished, to assist in keeping down the heat. Strawberry runners should be procured for new plantations without delay. Those who cannot spare ground for a new plantation may prick them out in prepared beds about 6 inches apart, and remove them with balls in October, or the early part of February. As main crops I would recommend the Keens' seedling as earliest, the British Queen for the second, and the Elton for the last; the latter is invaluable.

FLOWER-GARDEN AND SHRUBBERIES.

Proceed with Rose budding without delay, some hints may be derived as to good Perpetuals, Bourbons, Chinas, and Teas, from the commencement of this day's Calendar. Keep down all suckers, and clear the stems of wild shoots. See that all hips are cut away from those which blossomed early; these exhaust the plant much. Strong shoots of Chrysanthemums may now be layered in pots to produce dwarf and compact bushes. Those in pots may soon receive their final shift.

FLORISTS' FLOWERS.

Carnations and Picotees.—Layering must now be proceeded with as rapidly as possible, it being a point of great importance to get the plants well rooted and established before placing them in their winter quarters. More of the next year's success, as to fine healthy growth, &c., &c, depends on attention to this matter than many people are aware of. All seedling plants should be marked and layered, noting their various properties, as to form, colour, texture, pod, &c, &c.; should any seedling, otherwise fine, have serrated petals, it will be advisable to propagate it, as growing it in another situation may to a certain degree remedy this defect; for some of our best varieties will come occasionally (when poorly grown) very rough on the edge. As the blooms decay, extract the faded petals from the calyxes. Amongst the best new flowers we have seen this year, are Matthews's Enchantress, purple Picotee; Fletcher's Ne plus Ultra, light purple ditto; Barronger's unique red Picotee, Gatliff's Proconsul, a very fine heavy-edged Rose Picotee, of extra form and substance; and Exsom's Admiral Curzon, scarlet bizarre. *Pinks*—Continue to plant out rooted pipings on beds of well prepared soil, but not too rich. A second crop of pipings may also be inserted where an increase of stock is required. Seed may also be gathered, retaining rather long stalks; tie half a dozen together, and allow them to get well dry, after which the heads or pods of seed may be put in small paper bags, which may be fastened round the stems, and then hung up in a dry airy situation till wanted. *Seedling Auriculas* which had been put out in pans or boxes in the spring, will now have attained considerable size; they may now be potted in pint pots (singly) in good sound loam and leaf-mould, equal parts, and placed in the shade.

COTTAGERS' GARDENS.

As observed in former Calendars, let all spare ground from Potatoes or otherwise, be followed up with winter crops of some kind. Amongst the most valuable stands the old Green-kale. The Savoy also is very useful, provided it is got in sufficiently early, and on well-manured ground A sloping bank should be sown with Winter Spinach in the course of a week. If any spare ground remain uncropped after the middle of August it is an excellent plan to sow it with Rye and winter Vetches; they will leave a sort of turf when cut over in April, which is exceedingly beneficial to succeeding crops.

State of the Weather near London, for the week ending July 23, 1846, as observed at the Horticultural Garden, Chiswick.

July	Moon's Age	Barometer		Thermometer.			Wind.	Rain.
		Max.	Min.	Max.	Min.	Mean.		
Wed. 15	23	29.511	29.407	71	52	61.5	S.W.	.02
Thur. 16	24	29.480	29.304	72	50	61.0	S.W.	.28
Fri. 17	25	29.638	29.574	74	52	63.0	S.W.	.08
Sat. 18	26	29.698	29.698	76	51	63.5	S.W.	
Sun. 19	27	29.805	29.673	75	51	63.0	S.W.	.04
Mon. 20	28	29.923	29.873	76	54	65.0	S.W.	
Tues. 21	●	29.888	29.823	80	58	69.0	S.W.	
Average		29.744	29.668	74.7	53.4	64.0		.57

July 17—Fine; cloudy and fine; slightly overcast
18—Rain; white clouds with very clear intervals; cloudy at night
19—Fine; showery, cloudy
20—Fine; very fine, with white clouds
21—Fine; showery; cloudy; equally in afternoon, showery
22—Fine; hot and dry; partially overcast at night
23—Cloudy and fine; hot and dry; very fine.
Mean temperature of the week 1½ deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Aug 1, 1846.

July	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds.							
						M.	M.	M.	M.	M.	M.	M.	M.
Sun 26	78.6	53.5	65.0	5	0.70 in	1	1	2	2	2	6	2	2
Mon. 27	76.0	51.2	63.1	6	0.56	1	2	2	1	2	4	4	4
Tues. 28	77.3	53.4	65.4	10	0.32	1	1	2	2	1	7	3	3
Wed 29	75.8	51.0	63.4	10	1.81	1	1	4	1	2	6	2	3
Thur 30	79.5	50.4	64.6	13	0.58	3	2	3	—	1	4	6	1
Fri 31	73 1	49 7	61.4	8	0.66	2	3	1	—	3	6	5	2
Aug. 1													
Sat.	70.9	51.7	61 3	8	0 43	1	2	3	3	2	5	5	—

The highest temperature during the above period occurred on the 28th, 1826—therm. 91°; and the lowest on the 27th, 1839—therm. 42°.

Notices to Correspondents.

ANNUALS *A Y S*—You may sow the following, placing them on a shelf near the glass, and keeping them rather dry than otherwise through winter, as they are apt to damp off, viz. Clintonia pulchella, Lobelia ramosa, Viscaria oculata, Nemophila insignis, Collinsia bicolor, and Schizanthus retusus. For Roses we would refer you to the reports of the Chiswick exhibition, in all of which lists of names with the colours have been given.†

BOOKS—*W D*—"Hoare on the Vine."

BROCCOLI—*Trytolemus*—Surely your Broccoli sown in May, 1845, and now upwards of 4½ ft. in height, without heading, cannot be the true Walcheren.‖

CARNATIONS—*X Y Z*—We can hold out no hope of success by any future management. Procure seed from double or semi-double varieties which have been cross fertilised. Occasional first-rate double flowers are thus obtained. The cultivator may thank himself fortunate if he gets one in a hundred. Many good double border varieties and second-rate flowers will, however, be produced. *W.*

CONIFERS—*J H*—Shake the young Pines out of the pots and fresh pot them in a light sandy loam. Water freely after potting and place them in a frame facing the north. Keep them close and shade them during bright days, entirely removing the lights by night, but replacing them early in the morning, and keeping them close all day. Water about once in ten days with clear soot water (that is, water in which fresh soot has been allowed to precipitate). It is a very bad time to turn out young Pines, as they soon become burnt up with the dry weather; the best time is about the end of April. The Silver Fir from Mexico is Abies religiosa, the cones of which, when fully grown, measure from 4 to 5 inches in length. Cuttings of Abies Deodara, put in about the end of August, strike freely, and make in due time as good leaders as seedling plants, but require a longer time. ¶

CUCUMBERS—*B M*—Bitterness is their nature; they are only a remove from Colocynth gourds. But that nature is subdued by art, that is to say, by growing them *very fast* and *in shade*. If they are too much exposed to light, and grow slowly, they are certain to fall back into their primitive condition. The bright light and hot dry weather are causing it now in unskilful hands.

FIGS—*Anon.*—It is only the very small embryo fruit, formed on the upper part of the summer shoots, that will keep fresh, and ripen in the following summer, provided they are not injured by frost, from which they should be protected, more especially the first sharp frost. Cold, and their situation on immature wood, renders figs liable to drop in this climate. You may now commence occasionally to pinch some of the point buds.‖

FLUES *H C*—You are not likely to succeed in making the joints of your flues smoke tight The best cement for the flue itself is made with stone lime fresh burnt and sharp well-washed river sand. For the fire-place use the cement named at p. 150. After all, the best security for strong safe joints is good masonry, and allowing the work to become thoroughly dry before fire is applied.

FRUIT-TREE BORDERS.—This subject is by no means asleep. Wait a little.

GLASS LABELS—*W Darke*—Our objection to your labels is not that they do not answer the purpose, for no doubt they will do that, nor to their appearance (though we cannot compliment your neatness), but to their brittleness. Those who do not think that an objection will find them useful.

HEATING *B W*—Your house is so very small that the difficulty will be to keep the heat down. As we have already stated we are about to publish practical details of Polmaise, if you do not like them then use a small boiler, and 3-inch iron water-pipes. We should use Polmaise.—*Surrey, P, R D, &c.*—Plans of applying Polmaise heating are in progress, and will be published forthwith.

INSECTS—*V T N*—Dust the Dahlias over with powdered Tobacco when the leaves are damp with dew; but the lady-birds and other insects will greatly assist in freeing the plants from the aphides. *R.*—*E S N*—Thanks for the ears of Barley and pupæ. It is a little fly called Chlorops which causes the mischief. You will find its history and the best remedies recorded in the 5th vol. of the "Royal Agricultural Journal," p. 489. *R.*—*A Subscriber*—The slug caterpillars infesting your Pear-trees are the offspring of a saw fly named Selandria cerasi. They will soon bury themselves in the ground to become pupæ. We know of no better mode of destruction than dusting the leaves with powdered lime, soot, or wood ashes. *R.*—*A Constant Reader*—It is not in our power to tell you with certainty the name of the uncourteous intruder. It may be, and in all probability is, the harvest-bug which infests Grass and corn-fields. Relief may be obtained by moistening the inflamed parts with ammonia. *R.*

MELONS—*J M*—Your cross between the Egyptian green-fleshed Melon and Fish's Cantaloupe is a good one, well flavoured for a hardy sort. If, as you say, it is a good bearer, it is an evident improvement. Melons split because the outside grows slower than the inside; they have probably been overwatered, and at the same time exposed to the hot drying sun that we have had.—*J L, Aurum* Vegetable mould, road drift, and rotten dung have proved a compost too loose for the roots of your Melons, the latter have probably got too dry, and perished accordingly.‖

NAMES OF PLANTS—*J H*—Pinon is a name applied in Europe to the Pinus Pinea, whose seeds are large and eatable. It has been transferred in America to any other Pine having the same quality, perhaps the species you mean is P. cembroides; and it *may be* hardy, some Mexican Pines are. We are unacquainted with the Mexican Pepper-tree, or at least do not recognise it by that name.—*J A*—Oncidium triquetrum certainly. No. 1 requires examination. We will tell you next week.—*A E N*—A beautiful double variety of Rubus fruticosus. Have you a sucker to give away?—*Sussex*—1, Anagallis tenella; 2, Euthales macrophylla.§—*J P*—1, Milium effusum in a young state, 2, Aira caryophyllea.§—*S J J*—1, Lobelia Erinus, 2, Gnaphalium congestum; 3, Lavandula dentata; 4, Aster aculeatus; 5, Mesembryanthemum deltoides; 6, Cineraria maritima; 7, Hermannia, too much dried up to ascertain what species; 8, Gazania uniflora.§—*J C S*—Clematis cylindrica. It may be increased by cuttings of the young wood, when 2 or 3 inches long, treated as Dahlia cuttings usually are.¶—*C M*—Salvia Grahami. —*J W K*—Cuscuta epithymum, the smaller Dodder.—*Nick*—Campanula fragilis.

NUTHATCH—*J W*—This subject is exhausted. Can Mr. Gibson account for the name given to the Nuthatch?

PELARGONIUMS—*H H*—These may be preserved over winter in a box if packed with alternate layers of dry soil, sand, or peat, and placed in a situation free from frost or damp. The plants must be cut back freely and divested of all their leaves before they are packed, and they should not remain longer than the beginning of March in the box before they are again potted. Your other question next week.‡

PINE-APPLES—*J C*—One of your Providence Pine-apples weighed exactly 8 lbs. 10½ oz., as stated at p. 478; the other, 7 lbs. avoirdupois.‖

POTATOES—There are hundreds of cases of large crops of Potato *stems* having been obtained from tubers left in the soil all winter, but will they remain healthy, and what will their produce be? We must not halloo before we are out of the wood. See a Leading Article of to-day.—Every post brings us the most distressing intelligence, for which we heartily thank our kind correspondents—Irish, Welsh, Scotch, and English.

ROSES—*C*—Yes; there is no objection to transplanting newly-budded Roses next *autumn*.

VINES—*D D W*—The circumstance of the sun's rays being cut off from the soil in which your Vines have been planted inside the house is of little importance, but as the soil has been much trodden, and appears crude, you would best remove all you can of it, without injuring the roots, and replace with fresh. Treading is bad; but you can easily obtain such paving slabs in your neighbourhood as will make excellent gang-ways, if placed level on the top of the fresh made soil, and beaten just as much as will render them steady. The failure of the crop this season must have been owing to some imperfection in the growth of the wood in the preceding year. All you can do is to keep the shoots sufficiently thin; grow them not too rapidly at any time, and endeavour to keep the foliage of a dark green colour.‖—*Clericus*—Vines in the open air can be successfully inarched or grafted, as well as under glass.‖

WATER-PIPES *A Subscriber*—Lead is wholly unfit for this purpose; for the purer your water the more will it act upon them. We have no experience of galvanised iron; why not get glass ones cast? They ought to be cheaper than lead, and would be *perfect*; the commonest green bottle glass would be good enough.

MISC.—If *One of the Old School* will do us the favour to reperuse the article in question, he will see that the remarks do not bear the interpretation he puts upon them. So far as an expression of opinion goes, quite the contrary. What the reviewer says is—Here are *facts*, how do you interpret them? Are they *not* facts?—*Old School* We, or rather our printer, stand corrected. It was very wrong of him to use "sow" for "sew;" but you see that he is better acquainted with gardening than dressmaking. Thanks.—*A B*. A man may learn to spell correctly by studying a book of authority, such as the *last* edition of Donn's Catalogue. But to speak correctly he must have a teacher.—*H I*—We cannot advise you to turn gardener. You must serve a long and formidable apprenticeship, for which a person, whose habits are formed, is unsuited.—*Y Z*—Give your lawn a good top-dressing of fresh soot in September or March. Lime was a bad material to apply.¶—*C M*—The Lily of the Valley needs no protection. The covering of leaf-mould probably caused the over luxuriance you mention, which is always unfavourable to a fine display of bloom. They do best in a shady place where they are not often disturbed. Plant Cyclamen europæum in rich light soil, in a rather dry and warm situation.‡ —*C*—The Pelargoniums you mention being naturally rather dwarf bushy kinds, should be induced to make wood freely. Do not stop them or they will not flower well.‡—*Alpha*—Eccremocarpus scaber and Clematis Flammula are rapid growing climbers, and may possibly answer your purpose‡—*Jack*—If you stint your over luxuriant Veronica speciosa and salicifolia by withholding water, it may possibly have the effect of throwing them into bloom.‡—*H W*—Your double variety of Indian Pink is no novelty; it was so much withered when it reached us that no opinion could be formed of it. In budding Peaches, &c., only a small portion of a leaf should be left attached to the bud.‡—Full price will be given for No. 2, 1846—*Quercus*—Jurinea alata is a Thistle-like plant, from Nepal; perennial, or with us biennial; it is neither ornamental nor useful; half-hardy, and has purple flowers. What can make you so curious about a weed?

SEEDLING FLOWERS.

ANTIRRHINUMS—*A Sub*. No. 1 is the most novel among your seedlings; the others too much resemble the common garden varieties.*

CALCEOLARIAS—*O P Q*—Your flowers did not reach us in very good condition. Nos. 1 and 2 are very good specimens, rather small compared with those we have been in the habit of seeing during the past season; 1 is the better form; 2 the most attractive in colour; 3 and 4 are not equal to the former.*

DAHLIAS—*A A, S M*—Your seedling Dahlia is a well-proportioned and good flower, deep, circular, and with the crown well up, the petals are stout and well formed, and velvety in texture, of rich crimson maroon colour; the centre we are not able to form an opinion upon, as the flower was damaged by pressure on the top of the box. It wants novelty of colour: there are many fine varieties very like it.*

FUCHSIAS—*A A*—The general form of your Fuchsia is good, and the rosy purple corolla is extremely pretty; the tube and sepals appear to possess too much colour, but the flower being rather stale when it arrived, may probably increase the appearance.*—*W A O* No. 2 is a most prolific bloomer, but we still think the corolla is too little seen.*—*A N*—The corolla of No. 2, though small, is very pretty in colour, and the contrast is good; it is rather small, and will not appear striking unless the sepals expand very much. No. 3, good in form, but the corolla appears to unfold: it wants novelty.*—*E J L*—No. 1 is a stout and pretty-coloured variety; the small red with dark corolla is surpassed by formosa elegans; No. 4 wants contrast between the tube and corolla; another of the varieties, but smaller, has the same defect; the large dark red is also defective in this respect. The flower with a short tube and long sepals has a good contrast in the colours, but the sepals are too long and narrow; compare this part of the flower with the small dark, and you will immediately see the superiority of the latter. All your flowers are fine in texture; the numbers were off most of the flowers.*

GLOXINIAS—*A N*—Your seedling is a large bold flower; but is is no improvement on kinds already in cultivation.‡

PETUNIAS—*T D*—Your seedlings are vigorous and strong-coloured flowers, well adapted for border cultivation; variety of colour is, however, desirable. The Beauty of Suffolk is too coarse, and the outline of the flower too indented. The Sylph and Ibrahim Pacha are too much alike; the latter is the most attractive, on account of the dark eye and superior texture of the flower. Flash, Imogene, and Nymph, are good flowers. Conductor is good, but too much like the last mentioned variety. The same may be said of Gigantea. Thunder forms a good contrast between the new and old flowers; they want variety in the tints; damp moss is better to pack them in than cotton wool, which adheres too much to the flowers, which are of a gummy nature.* —*E J L*—Both 20 and 21 are good veined varieties; 22 is good and rather uncommon in colour; a well formed and pretty flower. Of 23, 24, and 25, the first is the best, on account of the greater darkness of the eye; 21 is not more veined than than some of Girling's varieties.*

VERBENAS—*J F*—Your seedling resembles too nearly a variety already in cultivation.*

ERRATA—In Mr. Beck's advertisement, at page 474, for "Aurora, unequalled in *any* collection," read "unequalled in *my* collection."—In the number of visitors to the Horticultural Gardens in 1844, page 477, the figures "22,966" should be "28,966."

ECONOMICAL, EFFECTUAL, AND DURABLE ROOFING.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

CROGGON'S PATENT ASPHALTE ROOFING FELT, with which the Committee Rooms of the Houses of Parliament are entirely covered. The above Material has been used and highly approved by the Nobility, Gentry, and Agriculturists generally, and Patronised by many Members of the Royal Agricultural Societies of England, Scotland, and Ireland, and by Her Majesty's Office of Woods and Forests, Charles Barry, Esq., R.A., &c. &c.; has been used for several years at the Royal Horticultural Society's Gardens, Chiswick; the Swiss Gardens, Shoreham, Sussex; on the Duke of Buccleuch's, and the Marquis of Anglesey's Property, &c. &c. and (under slate) the Royal Agricultural Society's House, Hanover-square; its advantages are—CHEAPNESS, LIGHTNESS, DURABILITY, and ECONOMY. Being a Non-Conductor, it has been proved an efficient "Protective Material" to Plants.

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THOMAS JOHN CROGGON.

8, Lawrence Pountney-hill, Cannon-street, London.

The Agricultural Gazette.

SATURDAY, JULY 25, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, July 29—Agricultural Society of England.
Thursday, — 30—Agricultural Imp. Soc. of Ireland.
Thursday, Aug. 6—Agricultural Imp. Soc. of Ireland.

FARMERS' CLUBS.

July 27—Wellington	Aug 3—Exminster
— 29—Hereford—Newton	— 4—St. Peter's—Abergavenny
— 30—Otley St Mary	— Nairnshire — Rochford
— 31—Rhins of Galloway—Hadleigh—Lichfield—Wakefield	Hundred — Framlingham — Wingerworth
Aug. 1—Northampton — Melrose — Durham — Cardiff — Callington	— 6—Grove Ferry — Richmondshire—Hawick
— 3—St. Columb — Newark — Wenlock — Cirencester — Selby—Markethill	— 7—Northallerton — Tavistock — Chelmsford — Wadebridge — Claydon
	— 8—Banbury

WHATEVER may be the feelings with which a future change may be regarded by those who are distrustful of the policy which directs it, there are few minds unwilling to listen to what may tend to reconcile them with the terms of a struck bargain, with an event that is past praying against or for; and it is with no spirit of triumphant self-vindication that we should, even under more highly-warranting circumstances, again approach the practical, and so to speak, *agricultural* consideration of those financial measures, which during the past half year have received so immense a share of thought and discussion from nearly every branch of the community, and have recently received a consummation at once so much less protracted and imposing than their long agitation had created, as it were, *the habit* of expecting. If the progress of opinion amongst some sections of the public is a little a-head, like an advanced guard, of the moving column of legislative action, the interval which divides off the rear-guard of wary dissentients on the other hand, is seldom disproportionately great for any long period—example wins over more converts than argument—or, to pursue our metaphor, daily dissension will break up an array that no front attack could turn.

Few will be disposed to deny that the progress of the Corn-law question, in and out of Parliament, during the last six months, has afforded some illustration of these remarks:—to "come in like a lion and go out like a lamb," is the proverbial character of the most important month of the agricultural year; and it would almost have seemed to lend its *prestige* to this great question—vital in its nature to all men; but to the agricultural body, vital in a double sense. And if it was our natural task and duty at the opening of the year to state, apart, if possible, from class-like or contracted views, the nevertheless purely *agricultural* aspect which the question presented to our minds; so would we desire, in the same spirit, and with the same single and circumscribed object, to review it now, placed as it is under the fuller light of more matured experience and advanced reasoning. In this regard we cannot help referring to the words of a respected and practical agricultural contemporary:—"We entertained," he writes, "a very decided opinion that the reduction of duty upon foreign cattle and meat made in 1842 would so soon as sufficient time had elapsed to enable foreigners to rear cattle and produce meat for the English market, cause large imports, *and we naturally inferred* that increased quantities would reduce prices. The number of cattle imported has continued to increase steadily, and we have no doubt will continue so to do; *but prices as yet have not been reduced.* During the discussion upon the Corn Bill in the House of Peers, many noble lords expressed most serious apprehensions that the sudden introduction into the market of nearly two million quarters of foreign corn on the eve of one of the earliest harvests ever experienced in this country would have a most serious effect in depressing prices. Lord ASHBURTON who from his commercial knowledge and experience must be presumed capable of forming a more correct opinion upon the subject than almost any member of the Upper House, felt so strongly upon the point, as *to urge the necessity of some arrangement to regulate the release of the foreign corn* from the bonded warehouses, and thus *prevent the great reduction of price* which was anticipated. The whole of this large stock is now in the market, and what is the result? Why, that the averages are actually higher than they were before the bill permitting its release at the low duty was passed. Now, we do not mean to infer," continues our contemporary, "that the alteration in the law may not produce lower prices; we only invite attention to the fact that *both as regards cattle and corn, hitherto the result has been different to what was anticipated.* If, then, experience thus sets opinions at nought, is it not useless, nay is it not unwise, to maintain the strife of opinion, to foment discord, to indulge in acrimonious feeling, and thus waste those valuable opportunities for mutual improvement which an intercommunication of ideas and practical information afford, and which will at all events assist us in meeting the evil consequences anticipated, should they hereafter unfortunately arise."*

To an exhortation equally congenial and unexpected, arising upon views however belated in their expression, we would without the ungracious pause of start or question, offer our ready subscription. The approach of Truth is too dearly-prized an arrival, not to merit a joyful recognition even "while yet afar off," and be welcomed with the fatted calf. It is not in us to ask, nor if it were should we have time to wait for an answer to the vainly teazing question, in what part of Pluto's dominions may be assigned a repository for exploded opinions, and event-disproved assumptions, analogous to that which is said to await unaccomplished good intentions. We gladly leave in the hands of the proper superintendent of the "unclaimed luggage department" the enlargement and extra accommodation that seems daily more and more required, in the catacombs and charnel-houses of dead errors. Our business is with the living; for never yet did a falsehood die without leaving a truth for its executor. For 30 years that falsehood lived and flourished like the green bay-tree, and now its place is nowhere to be found. Peace to its ashes. For 30 years we tried hard to assure ourselves that by making laws restrictive of God-intended commerce, we could *insure the profit by bolstering up the home price* of the first and foremost article of human produce and consumption; that if free-trade were proved true of everything besides, it was false in agriculture—that however "positive" to the loom, the mine, the smelting-house, or the shop-counter, it was for some inherent cause of variation, "negative" to the plough. The distress-sales of farming stock that have crammed the columns of our country-newspapers in years of cheapness and plenty like 1834, and anon in years of scarcity and dearness like 1839, have furnished the unheeded commentary upon the text, and have tried the truth of the assumption and the success of the experiment. Whilst the manufacturer of everything else has been *trying to reduce his prices*, and has looked to the increase and economy of production for his profit, the manufacturer of corn alone has clung drowning to the floating straw of law-protected *price* for his safety and assurance; and while his more skilful and intelligent neighbour and brother-farmer was laughing at the fluctuations of the corn-market by raising 40 bushels to the acre where *he* was raising 25, he has swallowed the camel that was quietly stalking on the other side of his boundary-fence, while straining at the gnat of "foreign competition." Put the case in its smallest compass. You and I cultivate adjoining acres of equal quality; you raise 30 bushels on your acre by better management and skill and knowledge than that which enables me to grow but 25 on mine. At 6*s.* a bushel you will make more money than I shall by selling mine at 7*s.* Teach me but your mode of farming, skilful neighbour, and with an odd mark of 40 acres I shall jog home from the market, where Wheat is selling at 48*s.* a quarter, a "better man" by 10*l.* than I now do after selling at 56*s.* Sure never was paradox more susceptible of arithmetic! Let the grower of 20 bushels an acre add but 4 bushels to his produce by a small accession of skill and knowledge, and he will make more money at 6*s.* a bushel than he made before at 7*s.* Let us view it how we may to this complexion the matter must come. *Must* come! Nay it *has come* years and years ago; else, let any one explain how with a population increasing by a thousand fresh mouths a-day to feed, we have, without a corresponding increase of foreign importation, overtaken the advancing demand, and are, *from the same fields*, supplying greater numbers at a lower rate.

But Time is more powerful than arguments; and when three more years shall have explained to us the parable of "the fox who smelled a smell," we shall, perhaps, begin to discern on which side of the sea that washes our coasts the real competition lies, and shall recognise our true profit not in "the price we can obtain for a given quantity, but the amount we can grow upon a given space."—*C. W. H.*

* *Mark Lane Express*, July 14.

IF the benefits arising from a system of AGRICULTURAL STATISTICS are so palpable, and so important to the general interests of the country as we have attempted to prove—if they afford a necessary adjunct to legislation, and a valuable auxiliary to practical agriculture, the question—Why have the attempts of Government to obtain them failed? forces itself upon our consideration.

One answer which has been given, and indeed is usually given, by apologists for ministerial mistakes, is that the farmer is too jealous to afford the required information. It is this excuse which Mr. PORTER gives for the neglect which as we have shown in a previous quotation, he so seriously regrets. "There is reason to believe," says he "that if any comprehensive measure were adopted by Government with a view to ascertain the actual condition of the country as regards its agriculture, so much jealousy and so many groundless fears would be excited in the minds of the persons from whom information must be sought, that the returns obtained would be so incomplete as to be of little value." And this assertion has been with cuckoo-like constancy reiterated until it has become the doctrine of many who have never inquired into the matter for themselves. The only reason which this opinion can claim as a title to our belief, is that it has hitherto had undisputed possession of the public ear—a title, however, which though it may be good in law is bad in logic.

But this is not the only counterfeit which has passed current for a length of time at the expense of the farmer. It was the fashion while giving just praise to the manufacturing and commercial enterprise of the kingdom—enterprise which no Englishman can fail to be proud of—to lament the want of energy on the part of the farmer, and the slow progress of agricultural improvement. Yet, it is a fact clearly demonstrable, barren as we are of modern statistics, that agriculture is in a much higher position in this than any other country—that its progress has been greater at this than at any other time—and that it has been excelled by no one branch of physical industry in its efforts to keep pace with the growing wants and requirements of the age. And the farmer is libelled when it is asserted that he is himself the only hindrance to the collection of Agricultural Statistics. Do we find that the intelligent cultivator is in the habit of keeping his light under a bushel? Do not the proceedings of our clubs show the merits of various systems of cultivation? Does the farmer hesitate to declare the extent, cost, and results of his improvements? Do our pages show the particulars of no experiments in the application of capital and science to practical agriculture? Can it then be said that the farmer will refuse to Government what he does not deny to individuals?

If the farmer does not shrink from avowing the *peculiarities* of his practice, and the *particulars* of his improvements, which are the main items we require—is it *the ordinary routine* of his business and the gross acreage and amount of his several crops, which he will not give an account of? This is not likely to be the case. A man of intelligence cannot wish to hide matters so open to every eye in his village, as his course of cropping and acreage of occupation; and as to his average produce any intelligent resident in the village could estimate it pretty closely. It is not a journal of his business transactions that is required, a detail of the crop of each field which is to be published; but general results, without that particularization that would make the inquiry inquisitorial, except in cases where great improvements and peculiar results have been obtained, and of these no man is ashamed.

It was once urged that it would be opposed, because it would promote the knowledge of the landlords, whom the farmers wished not to know too much. There was a time when this argument might have applied. This was when farming was conducted with less capital and less skill, and had to face less competition than at present. At that time, too, the *duties* of property were not so generally recognised as its *rights*. Since then, however, a change has taken place. The relative position of owner and occupier is now better known. The farmer is now recognised as a manufacturer of food, and the landlord as the owner of the "power" or mill. Prices are reduced, and quantity has been augmented to meet competition; and this has been accomplished by throwing into use an additional amount of capital and skill. The tenant has therefore now established a claim to be considered as a trader, obtaining a living upon the exercise of his *own* capital of money and labour; and the success of his exertions

is now known to tell most favourably upon the landowner; because, doing well for himself, he increases the fee-simple of the property he occupies. So far, therefore, from the farmer being an obstacle to the collection of statistical returns because they would instruct landlords, we hesitate not to say that that very reason would induce him to promote their collection to the best of his ability; for they would tend to give the landlord that knowledge which is necessary to promote a proper relation between owner and occupier. Another obstacle to the collection of these statistics, say some, is their inquisitorial character. Without fearing any adverse results from affording such items of information, there are many men of independent means, or secure in their position, who would oppose or at least not assist, on the principle that private affairs ought not to be intermeddled with. But this is not the independent spirit which claims our praise—this is mere selfishness. Great good to the community would arise from this enquiry; and we are persuaded that there are not many who, on the ground of mere personal feeling, would oppose it. But even were the charge well grounded, if the enquiry be determined on, we cannot talk of the inquisitorial tendency of the enquiry being fatal to its execution; for have we not evidence to the contrary in the successful working of an income and property tax, not to speak of that more direct evidence which continental and other countries afford us, for in France and Belgium these returns are procured annually, and in America every 10 years.

The reason why the attempts made to collect the statistics of agriculture have failed, is not in the nature of the labour, it is in the inefficiency of the means that have been adopted. Our Government has attempted to work with unpaid agents, and this is the cause of the failure. How can it be expected that parties having no personal feelings in the matter will gratuitously perform a labour requiring so much assiduity as this?

The grand motive of personal and individual fame which may actuate one person to accomplish an unpaid labour is not felt by the multitude, and they cannot be expected to work together unless they have an object in view, which is as welcome to the multitude as honour to the individual—and *self-interest* is the object which all men listen to. It is true that benevolent feeling will often induce individuals to execute much where self-interest has no influence. But in a work like this of many parts, each required to be correct and complete, if one agent grew careless owing to want of a stimulating motive, and another failed to give time to an enquiry so unprofitable, the whole enquiry would be injured because it would be imperfect. One weak link destroys the use of the chain.

This, then, exhibits the true cause of the failure of all previous efforts to collect agricultural statistics; paid agents must be employed. We can then select our workmen and hold them responsible for their reports.

We have Commissioners for countless objects,—for carrying out the poor-laws; tithe commutation; income tax, &c., for executing various public works; and for numerous other civil and ecclesiastical purposes. And we would add to these a board of commissioners of statistics. The public is no gainer from parsimony in the execution of its business; and all that we have to regard in the appointment of this commission, is the selection of men who are competent to execute the work, and willing to devote their talents entirely to the question.

We have no space to enter upon the mode of action which the board should adopt to render the inquiry so useful as we expect it to be. It will, however, be clear, that three or five active men, versed in political economy, would be able to organize a body of intelligent sub-commissioners acquainted with agricultural practices, and to place before them a *method* of inquiry which would enable them to make parallel and contemporary observations throughout the country.

From the detailed reports of these sub-commissioners, each of whom might take a special district, the board would be able to condense the information acquired, and to tabulate the results in a manner that would, as we have previously exhibited, throw light on the relations of the various interests of the country; simplify the study of political economy; direct future legislation, and at the same time foster the spirit of agricultural improvement, and direct the capital and energy of the country into the most profitable channels.

For these reasons we hope that the casual admission of the importance of this subject in the House of Commons will not be forgotten; and at the same time we protest against the failures which have taken place in executing the work being any argument against the possibility of its accomplishment.

THE LABOURER.

[We are happy in being able to lay before our readers, from the *Newcastle Advertiser*, a corrected report of the valuable speech by Mr. Grey, of Dilston, in connection with the above toast.]

After a few preliminary remarks, he said:—It has been my lot, at some times and at distant intervals, to speak to small sections of my fellow-countrymen on subjects connected with their common interests—the agricultural interest of the land; but I have not anticipated being called upon to address a meeting so distinguished for rank, so imposing in numbers, and so important in character, as that which I now have the honour to survey around me. The toast which has been unhappily committed to my hands, is that of the labouring classes; a subject to which none could feel indifferent, whether regarded as involving the welfare of so large a portion of our fellow subjects, or exercising, as it does, so powerful an influence on the general well-being of society, and on the whole moral atmosphere in which we live. I should have satisfied myself with making these remarks and announcing the toast which has been entrusted to my care, had not that toast been committed to me with a request, that as I am considered somewhat more conversant with the circumstances of the labouring classes than some other gentlemen, I should accompany it with a few remarks, which I should not have made, had I consulted my own feelings on the present occasion. Those whose lot in life compels them to labour for their daily bread, although by good management and good conduct they may do much to increase their comfort and respectability, cannot greatly alter their condition or improve their circumstances, by their individual exertions. The employment on which they depend for the support of themselves and their families, must come from sources over which they can exercise no control. We must, then, look to others than the peasantry themselves for any material improvement in their condition. The tenant farmers are the parties generally by whom the peasantry are employed, and much might be done by their consideration and kindness. But then, again, the means which the farmer employs, and the spirit with which he cultivates, depend greatly on the terms on which he holds and the encouragement which he receives from his landlord, and thus the various classes of society are dependent one upon another and a direct chain of communication is established between the owner and the tiller of the soil. It was admitted on all hands to be the duty of the landlord to supply suitable dwellings for the labourers on his estates, and it is his duty as well as his interest to let his land to such tenants, and on such terms as are likely to insure its good and liberal treatment; and just in proportion as a liberal system of cultivation prevails will the welfare of the labourers be. No one can have travelled through the different provinces of this land with much observation, without having discovered that the condition of the peasantry is generally a sure index of the state of cultivation in any district. If they be found well housed, well clothed, and of cheerful aspect, then be assured they are well employed and well paid; but, on the contrary, if we see them with comfortless and ill-furnished dwellings, themselves ill-clothed and their children ill educated and of squalid appearance, then as surely shall we find that district ill-cultivated and unimproved; so certainly and so sympathetically do they act and react the one upon the other. Much of the land in England, I regret to say, is still held by tenants-at-will, or on an annual tenure; and no system I believe is more calculated than this to put a check upon extensive and spirited improvement. Two things are indispensable to the good cultivation of the soil. The one is, adequate capital in the hands of the occupier; and the other, the knowledge which is necessary to apply that capital to profitable and beneficial use. But the uncertainty of annual tenure, and the consequent absence of good cultivation, deprives the occupier of the means of obtaining capital, and of the inducement to acquire knowledge; it leaves the soil in a state of comparative sterility, and the tenantry in a state of stationary ignorance. I know it is alleged in favour of this system that such a good understanding prevails between landlords and tenants, that changes of tenancy rarely occur, and that the confidence so engendered makes up for the want of more ample security; and I am willing to admit, in its fullest extent, the existence of kindness on the part of the landlord and of gratitude on that of the tenant. I am willing to recognise the feeling of mutual regard and of reciprocal obligation and attachment, so existing, as one of the sweetest ingredients in our cup of social intercourse; but is that feeling, of necessity, stronger and more genuine in the case of tenants-at-will than in that of the more independent and more spiritedly-improving tenants, who hold upon lease and do not grudge the improvements they make, knowing that they have time on hand to reap the benefit, and also that they have landlords capable of appreciating the value of good tenants, and willing to give them a fair preference at another letting. I could tell, were this a time to particularise, of farms which have descended from father to son by renewed leases for very many years, and which have advanced under them from a rental of 200*l.* or 300*l.* a year to one of 800*l.*, 900*l.*, and 1000*l.*, without outlay by the landlord beyond the erection of needful buildings, but which under yearly tenancy would never, I am satisfied, have reached more than half that amount. It is, nevertheless, a pleasing sentiment to entertain, and it has been sweetly said and sung, that "the farm I now hold on your honour's estate, is the same which my forefathers tilled." This, my lord, is pretty in language—it is poetical in sentiment, but let us see how it bears in the case of tenants'-at-will, not only on the income of the landlord and the condition of the labourer, but on the interests of the community at large. Let us see what it is when reduced to the matter of fact prose which experience teaches. It would tell, I imagine, something in this way. "My forefathers occupied your lordship's farm, and I occupy it now. My grandfather farmed this land 60 years ago, an industrious but ignorant man, he made a living and brought up a family. My father succeeded him and did likewise, and here am I now treading in their footsteps. It is true no improvements have been made, but then the rent has been little advanced. It is true that where rushes grew 50 years ago, rushes grow now, but then we have incurred no expense. It is true that the same wasteful, crooked, and inefficient fences that my grandfather patched and mended, I patch and mend still. That the same undrained land which he ploughed I plough now. And that I reap at this day crops as scanty as those which he reaped." I have been told by a gentleman in this room that tenants-at-will with whom he is connected don't desire to have leases. That, however, is not the universal sentiment, for there are tenants-at-will, and I regret to say, in this county and in my own neighbourhood, who see the improvements beneficially carried on in other estates and would anxiously imitate them if they could have leases, but they can't. There are, however, some who don't desire leases, I am told. It is so. And as I know something of that class of people, of their opinions and sentiments, I shall tell you why. They argue, my lord, in this way. "If we should take leases and improve the land, higher rents will be exacted, and perhaps others seeing our improvements may covet our farms and come into competition with us at our next taking. So long then as we are left undisturbed and allowed to go on in our own way, let us be content as we are. It is not for us to trouble ourselves about Mr. Parkes, and Mr. Smith, of Deanston, about drain tiles and drain pipes, guano, nitrate of soda, and such new-fangled affairs." And so, my lord, it is, that they come to the philosophic conclusion that "'tis better to bear the ills they have, than flee to others that they know not of." We have been told by the noble duke on the right (Cleveland), that, unlike machinery and manufactures, there is a limit to the improvement and productiveness of land. I am not at all nervous on that point—that limit will not be arrived at in our days. So long as any land in the country remains undrained and unimproved—so long as annual tenure prevails in any district, we shall not have reached that period. No, my lords and gentlemen, you may rest assured that annual tenure is incompatible with large improvements; generally speaking, both the capital and the knowledge to carry them out are wanting; but if those existed—what man would be so foolish as to lay out his money in improvements, when, by some change of circumstances, another might step in to reap the benefit? How can he tell how soon some cause of disagreement may arise between himself and his landlord—or how soon in the mutability that attaches to all human affairs, another Pharoah may arise who knows not Joseph? No man of sense will sow where he has not the certainty of reaping, or invest capital in improving land which he has not a pretty sure prospect of recovering. It is, my lord, on lands ill-tenanted and ill-cultivated that the labourers are least employed and worst paid. But, my lord, the duties which we owe to the labouring classes, whether as landlords or tenants or British subjects, are not all fulfilled by giving them employment at adequate wages and supplying them with dwellings conducive to the comforts, conveniences, and decencies of life—no; they have still higher claims on our help and guidance, for they have minds to cultivate and souls to care for, as well as bodies to feed and to clothe. And if we would elevate them in character and in feeling—if we would lay open to them those fair fields of intellectual enjoyment, from which by reason of ignorance they are too generally excluded: and if above all we would teach them to live and to act under an abiding sense of the high obligations which as moral agents and accountable beings are imposed upon them, we must provide for the rising generation a better system of education than their fathers have enjoyed, and that education must be blended with moral and religious instruction. This, my lord, opens to my mind so wide and attractive a field of discussion, that I must not at this hour venture to enter upon it—but it is easy to advert to the circumstances of our sister land, where by a widely diffused and easily accessible system of education for the lower classes, many men have arisen from their ranks who have been distinguished in the highest walks of literature and science—men who like Leslie fathomed the depths of philosophical truths—or like Leyden, climbed to the topmost heights of human learning. But, my lord, the value of such an establishment is to be estimated far less by the occasional development of extraordinary genius and talent, than by the general diffusion of knowledge over the great mass of the people. I feel that I have detained you too long, allow me to thank you for the indulgent hearing with which you have favoured me, and in proposing the labouring classes, to express the wish that the hamlets of our peasantry may long send forth the shout of health and joy. Long may the golden harvests that robe our fertile plains be gathered by them in peace and in plenty—and very long may all classes in this favoured land, combining

their efforts for the general good, present to the world the spectacle of a powerful and prosperous—a happy and a loyal people.

ON MEASURE WORK.

We now come to operations connected with the cultivation of the different crops. Most of them are suitable for payment by measure, though it is often as economical when a number of women are at work with the hoe, to pay them day's wages if you can get a steady working man to head the party, and keep them all moving steadily at their work.

1. *Hoeing Grain Crops.*—This will cost from 3*s.* to 5*s.* by hand, according to the texture of the soil, and the width between the drills, the larger interval admitting of a larger hoe; and thus the land being hoed more rapidly. Horse-hoeing, with a machine taking as many rows as the drills did, will cost about the same as the drilling, say 1*s.* 3*d.* per acre.

2. *Hoeing Green Crops.*—Turnips sown broadcast may be singled and hoed, and hoed again, and a third time, at the proper periods, for 10*s.* an acre upon the whole. Turnips or Mangold Wurzel, sown in drills 2 feet apart, may be singled for 3*s.* 6*d.* per acre, and hoed a second time for 2*s.*, costing 5*s.* 6*d.* per acre. The horse-hoeing which the crop should receive before being hoed, requires a man and a horse to about three acres per diem, or about 1*s.* 6*d.* per acre. It is, however, generally as well to have the singling and hoeing of the Turnip crop done at day's wages. To be sure if the plants be singled at the proper intervals, and the weeds all cut off, it hardly matters how roughly the plants that are left be treated (for they are the better for a little rough usage), but still the master ought to be able to keep a close superintendence over this important operation; and if a band of, say 12, women be set to work, each taking a row next the other, and a little behind her, and the whole party be headed by a steady working man, who keeps them up to him by helping on the laggers, they will get over nearly four acres in a day, and do the work as cheaply and well as if it were let to them by measure. Carrots cost more to single and clean than Turnips; they are of very slow growth in the first stages of it, and weeds thus grow up because we dare not cut them off till the young plants show themselves. It is well to sow a few Oats or Barley seeds along with the Carrots, in order that these growing up we may see where the drills will appear, and thus hoe easily in safety. The plants are also left nearer one another in the rows than are the Turnip plants, and this of course adds to the expense of singling.

There are several operations connected with the culture of Potatoes, as hacking between the rows, and afterwards moulding them up. These when done by hand, may be let at from 6*s.* to 8*s.* per acre for the former, and from 4*s.* to 6*s.* for the latter, according to the texture of the soil, and its freedom from weeds. When done by horse they may cost from 1*s.* 6*d.* to 2*s.* for the one, and about 2*s.* 3*d.* per acre for the other. Under the head of tillage operations digging and forking the land must be enumerated. Of course they will cost every variety of price according to the texture of the soil, and the depth to which it is to be turned; from 2*d.* to 3*d.* per perch, of 5½ yards square, may be considered the average cost, but it very often exceeds this, as for instance we have had 20 acres dug this year 10 inches deep with the grafting tool, and it cost us 4½*d.* per perch.

I find I have placed under the head of operations of cultivation paring and liming (the annual paring and liming which in some districts is given to stubbles); and the management of fences. The latter has been already fully described in this journal. I may just mention that the expense of the ditch and bank work, may be fairly estimated at 2*d.* per cubic yard if paid for by measure, and that all the other operations requiring skill for their performance, should be done by the day. The paring of stubbles costs from 5*s.* to 9*s.* per acre, according to the texture of the land, and the burning will cost according to the quantity of material to be burnt. The latter operation may be done by a lot of women and children at day's wages. In some districts the operation of stifle burning obtains. A bunch of the stubble, or a bunch of straw is lighted at one end, and piled round with a few heaps of the half dry clayey soil, and then covered slightly with the rubbish, earth, and weeds, &c. gathered together; and a small heap is thus made, so that the combustion going on within it shall smoulder and char the vegetable matter it contains. The practice is much approved of, and is spreading. I have no experience in the matter myself, but I take the liberty here of transcribing a letter received from a gentleman who annually adopts the practice on some extent of land:—"The usual price given in this neighbourhood for stifle burning varies from 11*s.* to 14*s.* per acre, according to the nature of the soil, the time of year, or whether beer is given, &c. About one ton of Wheat straw or strong stubble is required to burn an acre; for paring and burning old Sainfoin, about 18*s.* an acre is the average, or from 15*s.* to 20*s.*, but no beer. It is now customary here to rafter (*i.e.* to rib or half plough) first with the plough, which assists the paring and makes more ashes, but increases the labour for the burner, being on the whole about equal to paring and burning without being raftered for him previously.

"For paring Wheat or other stubble, or after Turnips fed off in the spring, 4*s.* 6*d.* to 6*s.* per acre is given (without beer), but for the latter work we now generally use the Uley cultivator when the land is hard, the men being unable to pare it.

"I may observe, stifle burning is much approved of, many depending almost entirely on it (on farms where much manure cannot be made), for their best Turnips. Though my father and self have not done it to a large extent, but such has answered well; in fact, paring and burning is generally acknowledged amongst us to be part of the best husbandry we can adopt."—*M. S.*

MANAGEMENT OF FARM-YARD MANURE.

I have long been of opinion that it was very possible to construct receptacles for holding fold-yard and other manure in such a manner as to render them very important adjuncts in the economy of that part of farm management which depends upon collecting and preparing manures.

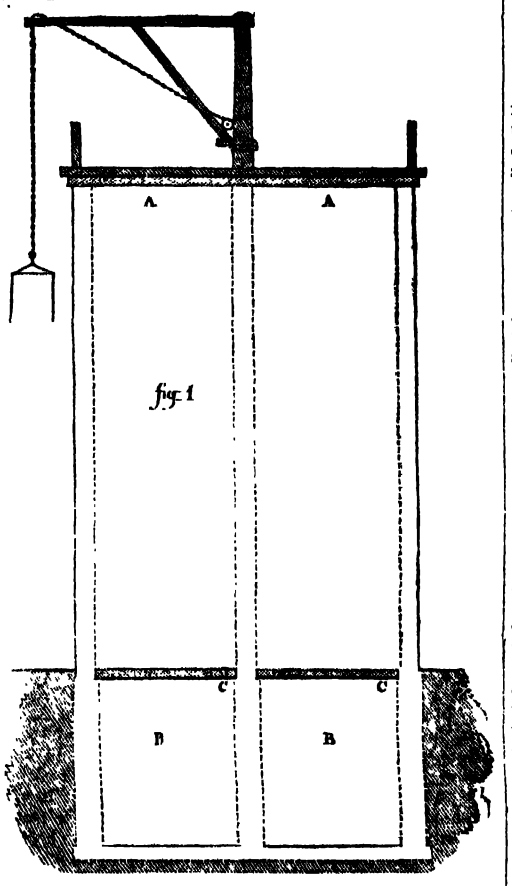


fig 1

I will first describe the plan accompanying this communication, and then proceed to show the use of it. The plan consists of what may be called a square tower, the walls of which are supposed to be of brick, 9 inches thick; the exterior dimensions of each side of the tower is 14 feet 3 inches, and the height 25 feet; the inside is divided into four compartments, each 6 feet square.

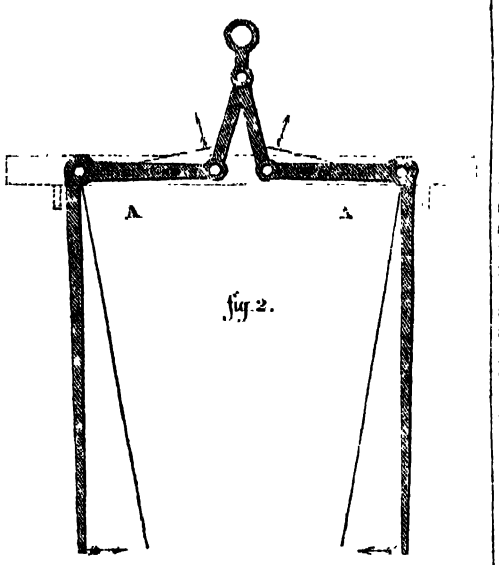
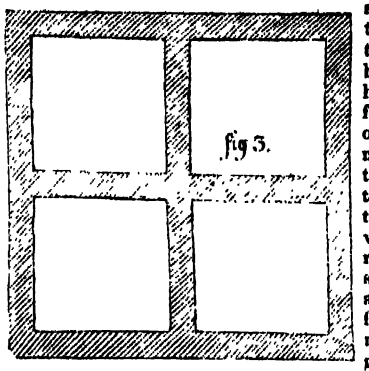


fig 2.

In the centre of the tower, at the intersection of the four cross walls, there is an upright post, securely built into and otherwise secured to the walls; to this post is attached a light crane, with a barrel and winch to lift the manure into the bins; at the end of the crane-rope, or chain, is a wrought iron grab, which will grasp and take up about a barrowful (say the eighth part of a cubic yard) of manure at one hoist. The crane would enable two men to fill the bins with great ease and expedition; it would take less time and labour to raise a cartload of manure into the bin than to fill the cart in the fold-yard, and the contents of the bins might be taken out of them and placed in carts alongside of the tower with equal facility. If the tower was built on one side of the fold-yard and near the stables the manure might, in such case, be hoisted immediately out of the fold-yard into the bins. The floor of each compartment of the bins should be laid with a fall towards one corner, and a hole made through the wall to communicate with a drain leading to a manure tank. It would be necessary to have a pump for the purpose of raising liquid manure into the bins. The top of the tower is provided with a roof so constructed that any one of the four compartments can be got at separately. The following table will show the capacity of the bins in the tower, as shown upon the plan; also the capability of greatly increasing them by enlarging the area of each.


fig 3.

	ft.	in.		feet		cubic yards	
A bin	6	0	square and	21	deep, will contain	28	of manure.
,,	6	8	,,	21	,,	35	,,
,,	7	4	,,	21	,,	42	,,
,,	7	11	,,	21	,,	49	,,
,,	8	6	,,	21	,,	56	,,

It will be seen by this table that by increasing the area of the bins to 8 feet 6 inches, double the capacity will be obtained without very materially increasing the area of the site upon which they may be built; the exterior dimensions of the first is 14 feet 3 inches, of the last, 19 feet 3 inches; each tower contains four bins; therefore, the smallest will hold 112 cubic yards, and the largest 224 cubic yards. When the whole contents of a bin are decomposed and consolidated by pressure, it is more than probable that it will contain materials that originally occupied more than double this space.

By means of bins constructed as I have here described, vast quantities of manure could be stored in a building occupying no more space than a two-stall stable; indeed, it might, in some cases, be desirable to place the towers over a tank, divided into compartments of the same dimensions as those in the tower; the tank might then be said to occupy the basement story, and the bins the upper floors or part above ground; each compartment of such a tank (6 feet square) would contain for every yard of depth 684 imperial gallons, or the four compartments, 2736 gallons, which is, I believe, somewhere about the quantity of liquid manure made by four cows in six months.

When the straw, &c, in a fold-yard or elsewhere has lain long enough to answer the purpose of litter, it ought, I should say, to be taken up and stored in the bins, because in this state but a very slight and partial decomposition can have taken place in the materials intended to be converted into manure. Now, when it is put into bins in this state, it is certain that fermentation will take place and heat be evolved in the same manner as in hotbeds made of similar materials, every fresh addition of litter will ferment as in the first instance, and so on till the bins are full; the mass in the lower part of the bin will of course cool in time, and keep cooling upwards as the process of decomposition goes on; considerable subsidence and reduction in the original bulk of the litter, will also take place. The ammoniacal gas generated during the process of decomposition, would have to pass upwards through the mass of litter, &c., and its escape might be prevented by sprinkling the surface with diluted sulphuric acid, or by covering it with gypsum, &c., which would convert the ammoniacal gas into a sulphate of ammonia; liquid manure would have to be added to the fresh litter in such quantities as might be necessary to excite gentle and regular fermentation; if the heat became too strong it could be checked by an extra dose of the liquid manure.

The advantages of such a plan as I have described, are, in my humble judgment, of immense importance, and well deserving the most serious consideration of practical men. By it vast quantities of manure may be collected in a comparatively small space; decomposition will go on without waste of the gases generated during the process, and a much greater quantity of manure produced from a given quantity of litter or other materials, than is now done by the present general wasteful practice of making open dung-heaps. It would have this further advantage, namely, that of being reduced to a proper state for application to the land, and would keep in this state for a long period without deterioration or loss of its fertilizing properties; and I am inclined to believe, that it would be a long stride towards perfecting an old and favourite project of mine for converting farm-yard manure into a state fit to be drilled in with seed. If this can be accomplished as I believe it will be, and ere long too, a very important step will be gained towards economising the application of farm-yard manure. As I am on the subject of converting manure into a state suitable for this purpose, I may as well explain how I think it might be done. Suppose a manure bin tower to be constructed as I have described, and that one or more bins are filled with manure in a rotten and compressed state, this manure should be taken out and placed under cover, say in sheds, or against the sides of the tower, and protected by an awning in bad weather, there to remain till partially dried, or until it was in a condition to be reduced to a very coarse powder, suitable for drilling in with seed by itself, or mixed with other fer-

tilizers; a mill for reducing the manure and mixing it with other ingredients, would be very simple and easy of construction.

Fold-yard manure reduced to a coarse powder, has one property not common to any other fertilising substance, and that is its capability of holding moisture in a state of mechanical mixture, and in consequence of its open texture, of keeping the earth imbedding the seed in a moist friable condition, for a longer period than any other description of fertilizer. Guano, or any mineral fertilizer when mixed with it, would not so immediately be washed below the roots of the plant.

I shall be much gratified if anything I have said should direct the attention of practical men to the subject of manufacturing and storing up manures by some such plan as I have described. I would suggest for their consideration the desirableness of ascertaining the effect of pressure on manure when placed under circumstances similar to that in the bins, and what period of time would be required to render it a tolerably dry mass by such pressure; also, when it is taken out of the bins, whether the elements of the manure are so completely combined as to lose nothing by exposure when subjected to a further drying in the air. I am inclined to believe that no material loss would be sustained by such exposure, and that manure so prepared, that is, on this process from first to last, would save an immense amount of labour, cartage, &c., in all probability the saving in one, or at most two years, would be equal to the expense of erecting the towers, &c.—*Henry Liddell, Beverly Road, Hull.*

Home Correspondence.

The Garden Farm.—I have, within the last two years, taken in hand 20 acres of land with the object in view of uniting a profitable occupation with a large outlay in labour. For this purpose I cultivate it wholly by the spade. It has been drained during the past winter and dug over about 10 or 11 inches deep; and, in the course of this operation, upwards of 1100 cubic yards of stones have been removed. These I am now selling off the land at a price which will pay the expense of digging them; but still the cost of culture hitherto has been very great. To repay this, and to justify a continuance of the spade-husbandry system, I must adopt a mode of cultivation calculated to yield large returns. The system on which my plan is based is that described by Mr. Morton as adopted by Mr. Dimmery, of Stinchcomb, Gloucester. His rotation was—1, Wheat; 2, Turnips; 3, Potatoes: and this I propose to adopt with this alteration, that between Turnips and Potatoes, and between Wheat and Turnips, crops of Cabbages, Tares, Rye, &c., might be taken, useful in early spring for the cattle in the stalls. I propose also, in case Potatoes should prove a hazardous crop, to substitute Beans, Peas, Flax, Chicory, or any other crop for which I can obtain a ready sale. To maintain the fertility of the land under this heavy cropping, it will be necessary not only to buy guano or bonedust, soot, &c., but also to purchase considerable quantities of oilcake, Linseed and Bean-meal, &c., for the cattle fed on the farm, on whose manure the permanence of the system will much depend. These cattle I intend to purchase in autumn, stall-feed during winter, and sell in spring. This will, I think, answer the purpose better than attempting to keep them on throughout the year. Where the plan of breeding is to be adopted, or where a dairy is kept, a different mode of cropping will be required. Portions of Lucerne or Sainfoin, successions of Rye, Vetches, Rye-grass, &c., will be required throughout the summer; early Turnips and Swedes will be wanted in autumn, &c. I should be very glad if you could induce some of your readers who have had experience in the spade cultivation of land for dairy purposes, to give me some of it through your columns.—*M. S.*

Kohl Rabbi.—Some time ago I saw in your Paper some account of Kohl Rabbi. I recollect, many years ago, planting about 1-10th part of an acre in a Turnip field of 15 acres, consisting both of Swedes and white kinds, but the hares eat all the Kohl Rabbi. In April, 1845, I sowed about a pound of seed in the corner of a field which was very poor. I transplanted them in Turnip drills 28 inches apart, and about 2 feet distant in the rows. One part of them I planted in two drills where the Swede Turnip had missed, but unfortunately the cows got into the field and eat nearly the whole of them in preference to the Turnips. Those that were left I think yielded more weight than the Swedes, and were eaten at the same time. Some of them I planted on the 7th July, in very cloddy land, but still they came to a very good crop. All animals seem amazingly fond of the plant, and prefer it, I think, to Swedes. Large quantities of it are grown in the gardens in Germany, and I saw them about 4 lbs. weight in June; and I apprehend these must have been sown in the autumn, like the Scotch Cabbage. They seem with the Germans to be largely consumed as a vegetable. On the whole, I think the plant as good or better than Swede Turnips, and possesses the advantage of transplanting with safety. Can any of your readers give me any account of its cultivation?—*A Farmer.*

Tolls.—I perceive you avoid answering legal inquiries, but as the following is purely relating to agriculture, and solely affecting the interest of the farmer, I trust this will elicit a reply. Last year I paid toll for different loads of guano, which I very reluctantly submitted to. Now, has the toll collector a right to demand pay for admitting a load of guano to pass his gate? I understand there is an Act which expressly says that all fertilisers are toll-free, which he appears to know; but he persists in charging for the bags containing it, observing that if it were shot into the body of the cart like farm-yard manure, there would be no charge, or if I will swear that the bags are used for manure themselves. Now, this I cannot do, for the bags are never buried in the soil, perhaps they come into my kitchen, or sometimes the hind's wives get them. Now I should not purchase the bags, it is the guano alone, and if it was not for the sake of the latter the former would never be sought after; besides, I pay the same price for bags as guano, and consider that he has no claim upon them for toll, because they are a means by which the guano is rendered moveable, as a cart composed of wood, iron, &c., is of manure; and can he refuse to admit a cart-load of manure free of toll because the farmer will not swear that the iron, &c., about his cart will be worn entirely for agricultural purposes. Some of that very iron may afterwards be made into articles of convenience for household purposes, as the guano bags, for aught I know, are. Would you try to remove us this imposition, for it is a general thing in this quarter, and considered too bad? If the above is illegal, could I compel him to refund his charges?—*Inkhorn.* [We imagine the toll-man is wrong. Can any of our readers furnish experience bearing upon the point?]

Savings' Banks v. *Odd Fellowship.*—"J. H." (see page 437), with respect to Savings' Banks says—"They must be made to supersede money clubs, sick clubs, odd fellowship, and the building society. That savings' banks are excellent institutions, no one, I suppose, will deny, and one would think the time they have been in operation that no market town throughout England was without one. Let us compare the mechanic depositing his sixpence per week in a savings' bank with one paying that sum to an odd fellowship institution. In the first place he will have at the end of the year 1*l.* 6*s.*, and depend upon it if sickness lays him up, that sum is soon exhausted; in the other, if unable to follow his daily avocations, 10*s.* a week, and a doctor found until recovered. If death ensue. 10*l.* to bury him, and 5*l* for his wife, besides assisting the widow and orphan. With regard to wasteful expenditure much has been curtailed, and what remains cannot well be avoided at present. That the directors are alive to it, as manifested by their exertions, all must admit who know anything about odd fellowship; and as for "promoting evil for good," I deny it *in toto*, or why should so many clergymen join the body. "J. H." may depend upon it that they know its principles and understand them as well as he does. Its exact principle is to benefit our fellow creatures, our fellow labourers, should ill-health prevent them from gaining a livelihood; and it is to such institutions that hundreds have had cause to feel thankful. That the poor-rates in many parishes have been considerably lessened by their existence is well known. I hope our friend "J. H." will possess a better feeling towards an institution which has a benevolent object in view; for in comparing savings' banks to sick societies, they are well adapted for two classes of people who are nearly as different in circumstance and character as "chalk from cheese."—*W. Brown, Merevale.*

Potatoes.—Last October I planted a piece of ground with Potatoes, good and bad together. They have produced a good crop, with no disease in it whatever. I think it worth while to mention this, because I believe many persons have incurred serious losses by throwing away partially-diseased Potatoes.—*C. M.*

Burnt Clay.—In your Gazette a fortnight since, you have given an extract of a communication of Mr. Pusey's to another Journal, and the subject is one requiring elucidation. Burning the surface of the cultivated arable land is practised to a considerable extent in this country with very varied effects, its benefit being highly lauded by some, and doubted by others. I confine the question entirely to burning the surface soil, and not to hedgerows and banks, which are commonly full of vegetable fibre, producing on that account different results. I have enclosed with this note two samples of precisely the same soil (mild brick earth), which has undergone the action of fire by burning several clamps of bricks upon it. The soil directly below and in contact with the burning bricks is, as you will perceive in No. 1, red, and is of the depth from 12 to 24 inches; immediately beneath this, and to the depth of 12 inches or more, the same soil is black (No. 2). I have applied several hundred yards of both these burnt earths to arable and pasture land, and to several vegetables in my garden. The red has no apparent effect in stimulating vegetation. I believe that it has an effect upon the grain. I wish this, however, to be considered a speculative opinion, requiring further proofs. The black, which from its distance from the fire undergoes less heat, and has no direct contact with the atmosphere, is undoubtedly an active and potent manure. If applied to old pastures, it brings out white Clover. It adds largely to the quantity and quality of Potatoes, and seems beneficial especially to the leguminous family, and in ploughing last autumn through the bottom of a brick clamp, some Wheat was put into soil almost entirely composed of the black mould. The blade of these plants has been throughout the spring and summer of a dark green, and so extremely luxuriant that the crop will fail. It seems, therefore, probable that we burn too fiercely the soil for agricultural purposes, and, as far as the fact above narrated goes, it is also probable that only as much air as is necessary to keep up very slow combustion should be allowed to enter the heaps of soil. To accomplish this in the safest manner, I suggest that instead of the fires being upon the surface, they should be in excavations of a moderate depth. The chemical difference between the red and black I have no means here of ascertaining. I must leave that matter for your attention. I am in the practice of covering all my farm-yard mixings with these burnt earths to the depth of 5 or 6 inches, which preserves the compost from the action of the sun, and keeps the mass moist for any necessary length of time, and very much facilitates the mixing of the manure in the soil to which it is applied. I am sorry to add, that my Potatoes planted last October show decided evidences of the disease of last year. Since Friday the 22nd of May till Friday the 10th inst. (seven weeks), we have had scarcely any rain—a few slight showers only—no storms.—*Henry Dixon, Witham, July* 13.

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MEETING AT NEWCASTLE.—We have but one or two remarks in addition to our last week's report. These refer to certain implements which we omitted mentioning. And first, we ought to have noticed the self-clearing roller, or harrow and clod crusher, as it is termed, exhibited by Messrs. Barrett and Ashton, of Hull, which consists of two cast-iron hollow cylinders placed one before the other; in these cylinders are fixed wrought-iron tines at certain intervals, and spaces the most convenient, to give the whole length of the rollers an uniform pressure on the clods. As the cylinders revolve in working, the tines pass between each other, and are continually cleaning themselves, which contrivance prevents the implement clogging up, even if the land be wet. The clod crusher works on two wheels of large diameter, which are, by simply turning a handle, raised or lowered, to regulate the pressure of the rollers on the land, and also for use in removing the machine from one place to another. This implement evidently acts on the same principle as the Norwegian harrow of Messrs. Stratton, of Bristol. We have no doubt of its efficiency.

And we must also mention a drill machine, exhibited by Mr. J. Geddes, of Cargen Bridge, near Dumfries, N.B. It acts on the same principle as that of Mr. Vingoe, of Penzance. The same idea, though somewhat differently developed, has occurred, nearly at the same time, to two gentlemen at opposite ends of the island. In this machine the motion of the sliding disc (see page 489, col. c) is obtained in a way similar to that which Mr. Vingoe has adopted. An ingenious method for allowing the coulters to rise and fall with the unevenness of the land was exhibited in the flexibility of the coulter funnels—a method, however, which we do not prefer to the plan more generally in use.

Messrs. Smith, of Stamford, Lincolnshire, exhibited a hay making machine, capable of being easily lifted out of work at any moment.

We have only to add that a full and corrected report of Mr. Grey's speech at the Pavilion dinner will be found in another column, and that a list of *errata* in last week's report will be found under the head of "Notices to Correspondents."

HIGHLAND AND AGRICULTURAL SOCIETY.

At the late general meeting of this Society, the Right Hon. Viscount Melville in the chair, the Secretary laid before the meeting the premiums offered for 1846. By referring to the Report it would be observed that under the Class A, premiums in money or gold medals were offered for reports on subjects connected with the science and practice of agriculture—with woods and plantations—with the improvement of waste lands—and with the illustration, improvement, or invention of agricultural implements and machines. Class B, which was entitled "Crops and Culture," included premiums for new varieties of plants adapted to field culture, seeds for corn and other crops, Turnips, green crops on hill farms and small possessions, and ploughing competitions. Class C embraced those districts of the country in which the Society's premiums for live stock were this year in operation. These districts were 19 in number, and, in addition to what might be raised within their own bounds, they would collectively receive a sum from the Society amounting to above 500*l.* The cottage premiums would be found in Class E, while the list closed with those to be awarded at the Inverness Show. The whole sum offered amounted, with the auxiliary local contributions, to 2250*l.* The Directors were anxious to impress on the public the utility and importance of some of the premiums referred to, but of which proper advantage, as appeared to them, has not been taken. This might have arisen from the smallness of the sums, compared with what was offered with other subjects of competition; but they were not on that account the less important. They would allude particularly to the medals offered for seed for corn and other crops, which were given, when applied for, in six different districts; they had been found to produce most beneficial results, but only two districts had this year made application for them. The Directors would also notice the premiums offered for green crops on hill farms, and on small possessions, the advantages of both of which had been experienced. For the first, however, there were but two applications this year, and for the latter four. The Secretary proceeded to report that medals to successful competitors in ploughing competitions had been awarded to about 60 persons. This continued to be a most popular premium, and was well worthy of the approbation and continuance of the society, as being the only one, with the exception of that for cottages, which directly connected the Society with the agricul-

tural labourer. The list of premiums was then unanimously confirmed and approved of by the meeting.

The Secretary next laid on the table an abstract of the accounts of the Society for 1845, which was approved of.

Mr. TURNBULL of Abbey St. Bathan's, said as Chairman of the Finance Committee of the Society, it was his duty to bring before the meeting the next subject to be taken up, viz., to obtain authority for the appropriation of 2000*l.* of the capital of the Society. After the introduction of the present Secretary to the duties of his office, the Directors considered it necessary to make particular inquiry into the state of the funds of the Society. In the course of doing so, they found that the debts amounted to much more than they had anticipated, which arose from different causes. For some years past there had been an accumulation going on, so that probably one-half of the whole amount arose from this source. But another cause was, the large amount of the expenditure at the Society's show at Dumfries last year. He believed the fact was, that after applying the funds which came to the Society from other sources, as the subscriptions from the district, and the collections at the doors of the show-yard, the Society had sustained a loss of nearly 1000*l.* He trusted that the Committees in charge of future shows, namely, of that this year at Inverness, and the one at Aberdeen next year, would look particularly after this matter, and be as economical as possible in their proceedings; for it was quite clear, that if the Society incurred such an expenditure as that of last year, it would be impossible to carry on its important operations. The amount of debt, as ascertained by the Committee, was 2497*l.* 10*s.* 7*d.*; the available funds arising from income amounted to 493*l.* 1*s.* 7*d.*, leaving a balance to be provided of 2004*l.* 9*s.* The only way in which this sum could be provided was by an application of the capital of the Society; but it appeared from the charter, that no part of the capital could be applied except by the authority of a general meeting, and it was also necessary that intimation of the intended application should be made to two meetings of the Board of Directors, previous to such general meeting. Now, these intimations had been already made to the Directors, who had unanimously concurred in the propriety of the appropriation, and it now became his duty to move that the meeting approve of what the Directors recommended, namely, the appropriation of 2000*l.* of the capital of the Society for the payment of the debts due by the Society. —The resolution was unanimously approved of.

Mr. MACKENZIE, of Muirton, as Chairman of the Deputation of the Directors appointed to attend the Show to be held at Inverness, reported the state of the arrangements in progress for the Show, embracing the following details:—Since the last general meeting, the amount of the different premiums had been fixed, and repeatedly advertised. The whole sum offered for competition at the Show, exclusive of medals, was 1037*l.* 10*s.*; being 227*l.* more than on last occasion in 1839, and was divided among the various departments of cattle, horses, sheep, dairy produce, poultry, implements, &c., predominance being given to the breeds to which, locally, most importance was attached.

The following resolution, altering the time of the annual meeting, was then passed; in order to avoid the crowding likely to be occasioned by collision with another society which had appointed the same time and place: "That the General Meeting approve of the resolutions of the Directors of 12th June, and appoint the Show to be held at Inverness in the first week of September; and remit to the deputation of directors to make the necessary arrangements."

Mr. GRAHAM, of Balgowan, in reference to the Museum, said—that in the department of Models, the collection was very incomplete, only one had been added since last general meeting, and the want of many others, illustrative of the more recent improvements in agricultural machinery, had been the subject of frequent complaint on the part of visitors. Steps were being taken to supply deficiencies in Grains, Grasses, Grass Specimens, and Tree Seeds, and to polish and arrange the specimens of Timber, while the Entomological collection had undergone a thorough repair. The prize samples of grain received from the local Societies, and lodged in terms of the Society's premium list, have fully sustained the character of former years, both with regard to weight and quality of the grain, and in some instances have even surpassed any which have been previously received. The advantage of the premiums awarded for competitions in seeds had been fully proved, and in particular, reference might be made to the great improvement in the grain sent from the county of Nairn. The Museum had received an addition to its pictures, in the painting of the Coaching Stallion "Splendour," executed by Mr. Gourlay Steell, and which has met with the unqualified approbation of all who had as yet seen it. The number of persons who had visited the Museum since last general meeting of 13th January, was 3600, being upwards of 900 individuals more than in the corresponding months of the preceding year, which shows that the interest taken by the public in this institution is steadily on the increase. The directors have to express their high approbation of the whole management under Mr. Lawson, the conservator.

Mr. HORNE, of Langwell, said that he had placed in the hands of the secretary a proof of the report, which would next day be made to the Agricultural Chemistry Association; the report was divided into different heads. 1. What has been done, in terms of the constitution of the Association, to enlarge our knowledge, by investigations in the laboratory and elsewhere, and to diffuse that knowledge throughout the country. 2. On the present state of the Association, as regards its efficiency as an institution to promote these objects. 3. On the benefits rendered by the Association, and its prospects of continued usefulness. A vacancy had taken place in the committee of management by the death of one of the representatives of the Highland Society, Mr. Aitchison, of Drumore, and he had to propose that Dr. Balfour, professor of botany, be nominated in his place.—The motion was unanimously agreed to.

Mr. BAILLIE, of Coulterallers, stated that the Directors still continue to take a great interest in the class of cottage premiums; they have endeavoured, both by inserting them in the annual premium list, and by advertising in the newspapers, to call the attention of the public to the subject, but partly from the novelty having ceased, and perhaps from the circumstance that a great many parishes have already competed, few districts now ask for these premiums, and even when they do ask for them, they do not always send in reports of competition. He farther observed, that while the Society had for many years been anxious to promote the comforts of the married peasantry, it had neglected to do anything for unmarried farm-servants. Every one knows that 50 years ago the greater part of the farm-steadings of Scotland were much inferior to what they now are; and that when a better class of houses was built for the tenantry, no provision was made for the accommodation of the unmarried ploughmen, who had generally the loft over the stable assigned for their sleeping apartment, which neither promoted their health nor their comfort. He trusted that when the list of premiums came under consideration next year, the Directors would offer a premium to the proprietor who should, within a limited period, build the most approved farm-steading, affording proper accommodation for farm-servants. He was happy that the Secretary had alluded to the subject of ploughing matches. Medals to ploughmen was a very old and popular premium of the Society, and while the cost of them was small, and the intrinsic value trifling, like the medal given to the successful soldier, their acquisition afforded a high qualification to the winner, and he hoped that the Society would continue to give them, and that while the great proprietor or the wealthy tenant was able to exhibit his gold medal or piece of plate for some useful improvement in agriculture, the industrious ploughman would have it in his power to show to his friends the medal which his skill in his art had procured for him.—*From the Edinburgh Evening Courant of July* 9, 1846.

Reviews.

WE have to apologise for the neglect which several valuable works lately sent us have *apparently* received at our hands. Press of business connected with the other sections of the Paper has hitherto hindered us from giving the requisite attention to them; but we shall endeavour within the next fortnight to overtake our arrears in this matter.

Farmers' Clubs.

HARLESTON, *July* 8.—*The Advantages of Low Fences and the Expence of Clipping them.*—Resolution: As clipped fences are generally accompanied by what are equally necessary, clean cut borders and ditches, the Club has taken both subjects into consideration, and is of opinion that the advantages of the practice may be best shown by pointing out some of the evils of high hedges and uncut borders. These are, the obstruction of sunshine and air from the headlands and sides of fields, rendering them difficult to cultivate, and the crops on them bad in proportion, notwithstanding that more manure is frequently deposited on them than on any other part of the field by stock seeking shade or shelter—the latter, however, during cold winds, not being equal to that from a good clipped fence. They afford also greater harbour to birds and other animals, injurious to the crops, and greatly encourage the growth of weeds. Low and neatly-clipped fences, on the contrary, are as useful as they are ornamental, admitting light and air equally to every part of the field, so necessary to the perfect growth and ripening of corn; whilst early and careful cutting of ditch and border Grass prevents the spreading of weeds, keeps the ditches in good order at less expense, and affords better feed after the corn crops are removed. When the Club considers the trifling expense at which these advantages are obtained, it would be surprised that the clipping of fences should be so seldom practised, but for the knowledge that the covenants in almost every lease prevent its adoption. It believes also that there is a prevailing idea amongst many farmers that it is an expensive operation. Those entertaining such an opinion will be surprised to learn that the Club has satisfactory evidence, that on an average of farms in this district (noted for its small inclosures), low fences may be cut once a year for the small sum of 2*d.* per acre! and that the border and ditch Grass may be cut once, and the fences twice, for double that charge. It is recommended that the borders and ditches should be first cleaned, taking care to complete that part of the work before the seeds of the Grasses or weeds are ripe; the produce either to be given to store stock in yards, or made into a stack of coarse hay. The fences to be cut immediately after; and again, if thought necessary, at Michaelmas; the clippings to be carried into yards for manure. The second cutting, removing those shoots which would otherwise harden in the winter, renders the first clipping so much easier, as not materially to increase the expense. The Club cannot conclude this resolution without expressing a hope that, amongst other alterations in the covenants in leases which it has previously recommended, the restrictions on the clipping of fences may be removed.

Farm Memoranda.

SPRING PARK, NEAR CROYDON.—You were kind enough, some time ago, to make room in your columns for a few observations of mine, on the system of thin sowing, and for an account of a considerable failure in my Wheat crop last year, which might appear to some as having arisen from that practice; I, therefore, think it but fair to lay before you the result of an excursion I this spring made to the farms of Mr. Howitt Davis (the great advocate of the system), for the special purpose of satisfying myself, as far as might be done by a single visit, upon the spot, of the real effects of his practice. My visit was made upon the 28th of April last, without any previous appointment. Mr. Davis was not at home; but I was very civilly received by his bailiff, or grieve, who accompanied me over almost every field of the two farms. These are near each other, and embrace, as I understood, about 260 acres of arable, besides some 40 acres of wood. The soil for the greater part is exceedingly poor, being chiefly a sort of red gravel in a tenacious ochry cement, often consolidating into a concrete rock, which comes close to the surface in large masses; and in other parts forms a hard till, which it is very difficult to break up. In the better spots there is found a covering of dark loam, and here and there a considerable portion of sand. The whole is of a wet springy nature, and required thorough draining throughout—which has been performed over most of it with tiles. Few subjects can be imagined more discouraging to a farmer; and yet, on reaching the principal farm of Spring Park, I was struck at once with the superior appearance of its cultivation, as contrasted with that of other lands which I had passed on the way from London to Croydon and in its vicinity. The first field I entered was sown with Peas in wide drills, which were being horse-hoed. They were 10 inches high or more, and of the most healthy hue. Here I was met by the bailiff, who took me to the next field, which was under Wheat. This was also in drills 12 inches asunder. He asked me to say whether I thought the plant sufficiently thick, and I could not but admit that it was so; it was fully and even luxuriantly grown, and gave every promise of a heavy crop. From thence we went over other fields under Wheat and Barley, all of which, though not equally advanced, exhibited the same appearance of health. There were some poor spots on which the plant was thin, as if it had misgiven; but such were rare, and over the whole there was ample promise of a luxuriant crop. Over the whole Wheat, the bailiff assured me that the seed was at the rate of not more than three pecks per acre; but, then, all had been sown in the preceding October. Barley was sown at the rate of six pecks to the acre, and some sown in January was as tall and luxuriant as the Wheat. The Oats were less advanced, but promised well, though sown with only seven pecks to the acre. But the most remarkable thing was the crops of Beans, which though planted in several fields, not of the best soil, were regular and luxuriant, and already full a foot high, exhibiting that rich dark succulent blade which is the best warrant of a vigorous and healthy growth. These were planted in drills of 27 to 28 inches, and, as I understood, in the month of October. Other fields were covered with a dense and rich carpet of Red Clover (without admixture of any other Grasses), which had already attained considerable height. Over the whole there reigned a very remarkable aspect of thriving health; but a still more remarkable feature was the total absence of all weeds: not a Dock or Thistle or Rag-weed was to be seen. Some young annuals had sprung up between the drills, but these were fast yielding to the horse-hoe, which was making its progress through the Pulse crops, and to the hand-hoes, which were performing the same duty between the drills of the corn crops. I must say I never saw so clean a farm. "We can't afford to grow weeds here," said the bailiff, when I remarked to him the absence of these nuisances. There were several things which I saw, which induced me to make inquiries as to the rotation observed on these farms. I had mentioned my own loss by the worm, particularly in ley land, and was informed that they never took Wheat or any corn crop after ley; they break it up with Beans and Peas, without any manure, which they find give a very paying crop, and which not only do not suffer from wireworm themselves, but, by the tilth they require, clean the land from these destructive reptiles, and insure a good crop of Wheat afterwards. Another peculiarity of Mr. Davis's system is, that he never sows Rye-grass seeds, but Red Clover alone, which is mowed twice for hay, and then ploughed down for Beans and Peas, as aforesaid. A third point of practice seems highly deserving of imitation. The Beans are sown so early as September and October, and the ground being constantly stirred and kept clean by horse-hoeing, it is fit about May or June to receive a crop of Turnip, which is sown between the rows, and which, after the Beans have been cut, come into feed sheep, as Mr. Davis says, in September or October. His rotation is as follows:—

1st year—Rye and Tares, after the Wheat, eat off by sheep in in April, May, and June; followed by Mangold Wurzel, Swedes, and Turnips, with a liberal dressing of farm-yard dung.

2d year—Oats or Barley sown with Clover.
3d year—Clover, twice cut, or mown for hay.
4th year—Beans and Peas, Turnips between the Bean drills, eat off by sheep.
5th year—Wheat.

Thus, as Mr. Davis observes, he gets three green and three corn crops in five years, besides a vast quantity of fine keep for stock. His returns are great: 5 qrs. of the best Wheat, up to 13 qrs. of Oats, and above 8 of Barley, to the imperial acre; and, though it may be presumptuous to judge from one cursory inspection, I do think the Wheat and Barley promised no less. The quantity of seed allowed to an acre has already been mentioned; but those who may desire further particulars on this, or other parts of Mr. Davis's management, would do well to send for his pamphlets on "the Injury and Waste of Corn from Thick Sowing," and also on "the Resources Farmers Possess," which will amply repay the cost and time of perusal. I inquired, too, what establishment of men and horses was required to maintain the farms in their present clean and productive state. I was informed that they had five pair of horses, which, beside the farm work, drag to market the wood of the coppice: that, in addition to the five ploughmen, there were either two or three permanent labourers, besides "an odd man" to look after the cows and buildings. There was a dairy woman of course. The hand-hoeing was done by men at 4*s.* per acre, and one hoeing was generally found sufficient for the corn crops, which after that covered the ground and smothered any weed that might spring up. Strange to say, all the corn was flail-thrashed, there being no thrashing-mill on the farms. I am aware that doubts are entertained by some as to the fact of the small quantity of seed used by Mr. Davis. It has been asserted, indeed, that he sows little less than other people But, independently of the impropriety of such an allegation against any gentleman, unless fully supported by proof, what could possibly be Mr. Davis's object in putting forth such a misrepresentation, or in advocating a system which he himself does not pursue? The sneers of the surrounding farmers, indeed, and their obstinate antipathy to his practice, seem to vouch at least for its being very different from theirs; while the superiority of his crops over those sown broadcast, and with full seed, by his neighbours, convincingly prove its advantages. Why, then, doubt what Mr. Davis asserts? Look even at the facts. Is not the quantity of seed he mentions, if carefully distributed, sufficient for an acre drilled at 12 inches? No doubt, if that seed be exposed to the ravages of birds—to the rotting influence of moisture in undrained lands—to being choked by an abundant crop of weeds, which are suffered to grow with its growth, and smother it at their will—the plant which will reach maturity from that said quantity may fail of being sufficient; but if three pecks of good seed be properly distributed in drills 12 in. wide, made in land, clean, well drained, and in good condition, and kept clean by the hand-hoe until beyond the reach of weeds, we may, I do apprehend, safely look for a large crop from it—such, for instance, as Mr. Davis reaps. But much will depend upon early sowing; clean, dry, and well-conditioned ground; and careful and sufficient weeding afterwards: and, until this system shall have been fully and honestly pursued from first to last, and found to fail, we have no right to condemn Mr. Davis's views or assertions as to thin sowing. Doubtless, failures may, and will, take place occasionally, even when everything has been duly performed to insure success; but this is no argument against the system. In reply to a letter I wrote to Mr. Davis on that subject, and in which I adduced my own failure (from worms) as a circumstance which might shake belief in the prudence of thin sowing, he remarks, that he could not see the good sense of providing for a casualty (which, if it does occur, is apt to do so wholesale, extirpating the whole plant, or leaving it in patches, some too thick, and some too thin), by giving an overplus of seed—an injudicious measure in itself, and certain to do injury, whether the plant comes up thick, or is eaten into patches by the worm. However the matter stands, I can at least vouch for this, that Mr. Davis's system, whatever it is, does actually serve to produce an ample plant, and excellent crops upon very inferior land—crops immeasurably surpassing any I observed in their neighbourhood, and unsurpassed themselves by the best I have this season observed in any part of England or Scotland. Surely such a system is worthy of being known and studied. For my own part, I feel perfectly convinced that Mr. Davis is correct in asserting that his proportion of seed is sufficient; nay, that less would possibly do; but then the tilth and general management must correspond with this mode of sowing. We have all seen what a few seeds well-tended in a garden may produce, and there is no reason, save that of cost in labour, against a whole farm being similarly managed. In the same way, dibbling is by far the most economical mode of sowing in respect to seed; but the most perfect fair play must be given to the plants, that they tiller out freely and receive the whole nutriment of the soil. Drilling is the next best measure to reconcile economy of seed and labour; but then the ground must be kept clean, in order to give the system fair play. Perhaps the best way, where extreme care cannot be relied on, would be to use the ribbing plough of six to nine coulters, 9 inches apart, to make the seed furrows, after due tilth from the ordinary ploughs, harrows, and rollers; and then to sow with the broadcast machine. The harrows drag all the seed into the furrows, giving the full effect of drilling, and hand-hoeing can be performed as well as if really drilled. No Grass seeds should be sown till after the spring hoeing, and thus the seeds will have the start of the weeds as well as the corn. Mr. Davis purchases in ewes to give a crop of lambs and wedders to eat off his tares, roots, &c.; and these he sells at prices which would make our farmers' mouths water. I saw the last of the lambs with their mothers; the earliest had been sold, as the bailiff informed me, at 35*s.* each, and he hoped to realise 30*s.* a-head, or more, for the whole. The mothers, which had cost 22*s.* to 25*s.*, from being early relieved of their lambs, fatten fast on the Rye and Tares, and sell, he said, at 40*s.* to 45*s.* This is the consequence of vicinity to good markets; and a railroad would enable us to participate in such good things, as the railroads of the south have already done to the farmers there, reducing thereby the exorbitant monopoly prices of the London market. His wedders, after consuming Turnip, Cabbage, &c., with oilcake in folds on the ground, sell at equally remunerating rates to the London butchers. Not a pound of guano, nor a bushel of bones, or other foreign manure, is ever used on these farms, nor is there such a thing as a bare fallow known. The manure made on the farm, together with eating off green food, is found sufficient for keeping the ground in heart; while the horse and hand hoes—where everything save Clover seed is drilled—keeps the land clean, securing all its substance to maintain the crops, instead of permitting it to be exhausted by nourishing weeds. Since writing the above, I have found that Mr. Davis's system has been made the subject of remark by others as well as me; for in No. 23, 1846, of the *Gardeners' Chronicle and Agricultural Gazette* (for June 6), I observe a pretty copious notice on that system, given by G. H. Ramsay, Esq., at Newcastle, to a club of which he is chairman, and who had himself repaired to Spring Park, to see and judge of its effects. He appears to have been equally struck with everything he witnessed there, and makes it known for the benefit of his neighbours. It is with this view, and in the hope of being of some use in publishing a system which succeeds so well at Spring Park, that I venture to trouble you with this long communication—if it even tends to stimulate to the extirpation of weeds and cleaning the land, it will not have been made in vain. *J. B. Fraser, Easter Moniack, June* 17, 1846, *in the Inverness Agriculturist.*

Miscellaneous.

Mr. Mechi's Drainage.—My friend Mr. Mechi has favoured the farmers of Essex with some advice in your paper, the former part of which, describing his method of making surface drains, they will probably deem somewhat unnecessary, considering, I think justly so, that the draining work of this county is as well understood and executed as any under his management at Tiptree Hall. My principal object, however, in this letter is to direct the attention of your farming readers to his remarks respecting the deep draining of our strong tenacious clay soils, and Mr. Mechi will excuse me for remarking that his authority in this matter is not quite infallible, for this is the second time within a short period in which he has come before the public recommending very opposite systems for the same purpose, the last hobby being, of course, the best. The former plan he admits has failed—the latter may. At present the question is not a settled one, that clays of the description before referred to will be improved by draining. The facts, however, already before the public show that in many instances this has been done successfully, and also, that deep surface work, say from 4 or 5 feet, is better than the usual plan of 24 or 30 inches. Now I maintain that Mr. Mechi's inch pipe in this particular case must ultimately fail, as it probably will in all others, and that it is necessary to use pipes or tiles of a sufficient calibre to admit of a free circulation of air as well as a free exit for the water. These close-textured clays will not open or crack so as to admit of the percolation of the water to the drains, unless the water which they contain is evaporated by the combined action of the air passing over the surface, as well as through the body of the soil, and this process is not immediate; probably several years will elapse before the full effect of such drainage shows itself. Notwithstanding the authority of Messrs. Pusey, Mechi, and Parkes, I pronounce these small pipes to be great absurdities. These gentlemen seem to think more of cheapness than of safety and durability. Draining is done very much in the winter months when the workmen have to contend with frost, snow, and rain, and when it is often impossible to keep the bottom of the drain free from thick water. And I ask any practical farmer or workman whether he can place these inch pipes at the bottom of a narrow, 5 feet cutting, with any pretension to accuracy, upon which success entirely depends. No tile or pipe should be put into any drain unless it is so substantially made that it will bear force and pressure so as to give it firmness and position; and it is no bad practice for a boy to walk along the pipes and press them down with his feet, placing and replacing such as require it. Draining will last for an indefinite time if executed properly, but it is hopeless to expect this with Mr. Mechi's one-inch pencil cases! I am not sure that Mr. M.'s former plan of filling in the drain to the depth of some inches with stone, and then placing the pipe upon the top, is not preferable to his present scheme. He further states that his drainage of last year, 33 feet apart on his new plan, has already proved itself perfect; and with his usual courtesy, he invites parties who may be interested to inspect these fields. Of course with corn growing, and during the summer, this could not be tested. But I have yet to learn how rain-water can find its way 16 feet, and if across the incline 30 feet in so short a time through stiff clay to the depth of 5 feet; even if these drains continue open, which I think is very problematical. Mr. Mechi closes his letter with some advice to pipe and tile makers. I proffer him the use of my establishment to carry out any scheme of manufacture that he may deem advisable and beneficial to the community. Or I will have made for him, or for any gentleman, as many one-inch pipes, weighing from 1000 to 1500 lbs. per thousand, as he or they may order (not less than 50,000) at 12*s.* per thousand, credit price. I only stipulate that they must be ordered, for such things are not kept in my yard, because I have no reason to believe that any man in this country except Mr. Mechi would use them. Mr. Mechi infers in his letter a criterion of value from weight and size. Some time since he sent me an inch pipe, 12 inches long, as a specimen of what he wanted for his work. I find this pipe weighs 1 lb. ½ oz. The common drain pipe delivered from my yard weighs 3 lbs; for these I charge 27*s.* per thousand; and the tile which is much used in this neighbourhood, either single or doubled upon each other, for the mains to catch the water from the parallel pipe work, as well as for draining, weighs 5 lbs.; for this my charge is 35*s.* per thousand. It does not seem, therefore, that I can be charged with selling at extravagant prices. I wish to give as much information as I can on a subject so important to this country. I have had gentlemen here from various parts of the kingdom who have already, or are about to establish works for manufacturing cylindrical pipes. For with the exception of Essex, Suffolk, and Kent, till within the last three or four years, but little was known of this method of draining. One gentleman from Shropshire certainly advocated the inch pipe, but I found that his only reason was, that it was recommended by Mr. Parkes. I cannot but regret that the Royal Agricultural Society should have given its sanction to such a system without at least some pretension to inquiry.—*Henry Dixon, Witham, May* 20. (*Essex Herald.*)

Notices to Correspondents.

ARTIFICIAL INCUBATION—*C S I*—We have no personal experience. "The mean temperature of incubation is 100° Fahr.; it may vary from 95° to 105°, and towards the close of the process may be suspended for one or two hours, or for a longer period, according to the degree of extraneous heat which the eggs may derive from their situation, without fatal consequences to the embryo." See Johnson's "Farmers' Encyclopædia."

BOOKS—*Constant Subscriber*—About Leases, &c., "Low on Landed Property," and, for the other, next week.

DRILL HUSBANDRY *Young Farmer*—Next week.

FLAX—*A Sub* wants a cheap and good machine for breaking and scutching Flax. Can any one tell him where such a machine is to be had?

GARDEN FARM—*Capstick*—In the meantime just look at the paragraph in the Home Correspondence.

LINSEED *Oven Gladower*—In the proportion of 1 to 4 of other meal, if given as a jelly along with plenty of straw or hay chaff, on the plan recommended by Mr. Warnes, it will not scour. See also Mr. Bruce's experience, p. 188. We have no experience of steamed hay as food for cattle.

MANGOLD WURZEL—*Constant Reader*—Do not recommend Mangold Wurzel seed to be steeped again. In England we have usually moisture enough to wet any seed; but a drought coming on, as it did this year, is perfect destruction to steeped seed. Gibbs recommended steeping for a day, which is a bad plan.

MILDEW—*A Tyro* Berberis vulgaris is no cause of it. You should harden the land by folding sheep or using a clod-crusher when the young plant is up. You may also, according to some experience, use common salt, 2 or 3 cwt. per acre, advantageously, sown in spring during wet weather: and perhaps sow a little thicker.

PERMANENT GRASS—*Gallensis* We prefer sowing in spring if "unaccompanied by a crop of corn." If you sow in autumn you must at least sow a bushel of Rye as a shelter against frost.

RECEIVED a curiously chaffy ear of Barley, without any accompanying reference to it. The specimen is the customary state of a naked Barley from Nepal, called Hordeum Ægiceras. It is a plant in a very anomalous state, but has never been examined critically by any competent person.

REFERENCES—*H G Bishop*—We *always* take care to act on the plan you suggest. That paragraph is wholly an extract, as is every paragraph under the "Notices" heading. The reference is, as you will perceive, to a past volume of the Journal from which the extract is taken.

RICK CLOTHS—*A Booth*—Sorry we cannot give you an answer till next week.

VETCHES—*Very Ignorant*—Spring and winter Vetches have no differences recognised by botanists; but they are very different in the eye of the farmer. You dare not sow spring Vetches in autumn, unless you can bargain for such another winter as the last we had. Plants acquire habits by a long and same experience; and thus winter Vetches have acquired the useful quality of hardiness, while spring Vetches possess that of rapid growth from the moment of germination, with, however, a liability to injury by frost.

ERRATA—For "sentiments" in the 45th line from the bottom of col. *a*, p. 485, read "sentiment." For "actually" in the 13th line from the top of col. *a*, p. 491 read "annually." For "blackfaced Cheviot" in the 27th line from the bottom of col. *c*, p. 492, read "Blackfaced, Cheviot." For "wider" in the 50th line from the bottom of col. *c*, p. 491, read "lower."

Markets.

SMITHFIELD, MONDAY, July 20.—Per Stone of 8 lbs.

Best Scots, Herefords, &c.	4s	0	to 4s	2	Best Long-wools	—	—2 to —2
Best Short Horns	3	8	4	0	Ditto (shorn)	3	10 4 0
Second quality Beasts	3	0	3	6	Ewes and second quality	—	—
Calves	4	0	4	6	Ditto (shorn)	3	6 3 8
Best Downs & Half-breds	—		—		Lambs	4	8 5 2
Ditto (shorn)	4	0	4	4	Pigs	3	8 4 6

Beasts, 2858; Sheep and Lambs, 23,190; Calves, 184; Pigs, 160.

The supply of Beasts is considerably less, and trade brisk at our quotations; a few of the choicest Scots have made 4s 4d.—The supply of Sheep continues about the same; there are more buyers to-day, several are taken for keeping. Trade is a little better for selling qualities.—Lamb trade is hardly so good.—Veal and Pork trades are exceedingly heavy.

FRIDAY, July 24.

Our trade for Beef is hardly so good as on Monday; 4s 2d is the top price of choicest Scots, and 4s of the most selling Short-horns; and many are sold rather under these prices.—Sheep trade is heavy. Best Downs, 4s to 4s 2d; Long-wools, 3s 8d to 4s; Ewes, &c., 3s 6d to 3s 8d.—Lamb is not so much in demand; some of the choicest make nearly 5s 6d, but other qualities are lower.—Calves are a little dearer; a choice one makes nearly 4s 8d.—Pork trade continues heavy.

Beasts, 875; Sheep and Lambs, 11,880; Calves, 209; Pigs, 200.

41, West Smithfield.

COVENT GARDEN, July 25.—The supply of Vegetables this week has been somewhat limited, but fruit has been pretty abundant. Pine-apples, both English and Foreign, are plentiful, but trade for them is heavy. There is abundance of good Grapes in the market; and Plums, both English and Foreign, are plentiful. Peaches and Nectarines have also been unusually abundant. The supply of Cherries and Strawberries has been well kept up; the latter are, however, becoming very scarce. Gooseberries are abundant, and a considerable quantity of Dutch Currants has been offered. Apples and Pears are sold at nominal prices. Oranges are plentiful, considering the season, and Nuts of all kinds are sufficient for the demand. Lemons are much cheaper. English Melons may be obtained at last week's prices, and some good foreign ones are also in the market. Of Vegetables, Asparagus is scarce and dear. Cabbages, Cauliflowers, &c., are good, but the latter hardly sufficient for the demand. Carrots and Turnips have not altered in price since last week. Peas are rather scarce, and good young samples fetch high prices. Beans remain nearly the same as last week. Celery is good in quality. Potatoes fetch from 5s. to 12s. per cwt. The supply of Ash-leaved Kidneys is somewhat limited. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Heaths, Jasmines, Kalosanthes, Calceolarias, Pinks, Pelargoniums, Tuberoses, Cinerarias, Gardenias, Moss and other Roses.

FRUITS.

Pine Apple, per lb., 4s to 6s	Gooseberries, green, per hf.-sv., 3s to 4s
Grapes, Hothouse, per lb., 3s to 6s	Currants, red, per hf. sv., 4s to 5s
Apples, Dess., per bush., 3s to 6s	— white, do. 4s to 5s
— Kitchen, 2s 6d to 4s	Strawberries, per pottle, 1s to 2s
Pears, per hf.-sieve, 2s to 7s	Raspberries, per pottle, 1s to 1s 3d
Melons, each, 6s to 8s	Cherries, per lb., 9d to 8d
Peaches, per doz., 6s to 18s	Almonds, per peck, 6s
Nectarines, per doz., 6s to 15s	Sweet Almonds, per lb., 2s to 3s
Oranges, per dozen, 1s to 2s 6d	Filberts, English, p. 100 lbs., 50s to 60s
— per 100, 4s to 16s	Nuts, Cob, per 100 lbs., 80s to 90s
— Seville, per 100, 8s to 16s	— Barcelona, 80s
— per dozen, 2s to 2s 6d	— Brasil, 12s to 16s
Lemons, per dozen, 1s to 2s	— Spanish, 14s
— per 100, 7s to 16s	Walnuts, per bushel, 6s to 8s

VEGETABLES.

Cabbages, per doz., 6d to 1s 3d	Carrots, per bunch, 4d to 10d
Cauliflowers, per doz., 6s to 10s	Onions, per doz bunches, 2s to 5s
Artichokes, per doz., 1s to 3s	Shallots, per lb., 6d to 8d
French Beans, per hf.-sv., 2s 6d to 4s	Garlic, per lb., 6d to 8d
Peas, per sieve, 2s to 6s	Lettuces, per score, Cab., 1s to 2s
Sorrel, per hf.-sieve, 9d to 1s	— — Cos, 1s to 2s 6d
Potatoes, per cwt., 5s to 12s	Radishes, per 12 bunds, 3d to 1s
— bushel, 2s 6d to 6s	Mushrooms, per pottle, 1s 6d to 3s
— Kidney, per cwt., 6s to 8s	Small Salads, per punnet, 3d to 6d
— Frame, per lb., 3d to 6d	Fennel, per bunch, 2d to 3d
Turnips, per bunch, 4d to 10d	Savory, per bunch, 3d to 6d
Red Beet, per doz., 6d to 1s 6d	Thyme, per bunch, 4d
Horse Radish, per bundle, 2s to 6s	Watercress, p. 12 sm. bun. 6d to 8d
Rhubarb, per bundle, 4d to 8d	Parsley, per bunch, 1d to 2d
Asparagus, per bundle, 1s to 5s	— Roots, per bundle, 1s
Cucumbers, each, 4d to 1s 6d	Tarragon, per bunch, 6d
Spinach, per sieve, 1s 6d to 2s	Mint, green, per bunch, 6d to 8d
Leeks, per doz. bunches, 2d to 4d	Marjoram, per bunch, 4d
Celery, per bundle, 1s to 1s 6d	Chervil, per punnet, 2d to 3d

HAY.—Per Load of 36 Trusses.

SMITHFIELD, July 23.

Prime Mead. Hay	78s to 84s	New Hay	66s to 72s	New Clr.	—s to —s
Infr. New & Rowen	60 70	Clover	76 to 110	Straw	28 32

JOHN COOPER, Salesman.

CUMBERLAND MARKET, July 23.

Prime Mead. Hay	66s to 80s	Old Clover	100s to 112s		
Inferior	— —	Inferior do	80 90	Straw	24s to 36s
New Hay	54 65	New Clover	78 86		

JAMES BARR, Hay Salesman.

WHITECHAPEL, July 24.

Fine Old Hay	70s to 80s	Old Clover	105s to 110s		
Inferior Hay	— —	Infr.	— —	Straw	26s to 32s
New Hay	60 68	New Clover	80 96		

HOPS, FRIDAY, July 24.

We have no alteration to notice in the Hop market. The demand for consumption continues on the increase, at fully last week's prices. The accounts from the plantations received this morning are not so favourable on the whole; and the duty by many is thought to be much overrated at £16,000.

PATTENDEN & SMITH, Hop Factors.

MARK-LANE, MONDAY, July 20.

The supply of Wheat from Essex, Kent, and Suffolk, this morning, was much larger than we have received for some months past, and before any progress could be made with the sale a reduction of 5s. per qr. was submitted to, at which decline the whole was pretty well cleared. In Foreign business was exceedingly limited, holders not being inclined to take more than 1s. or 2s. per qr. less than last week, and that only on such parcels as were pressed for sale.—Grinding Barley is 1s. per qr. lower. Beans are the turn cheaper. There were a few samples of new White Peas at market, the quality of which was variable; they realised 40s. to 44s. per qr. Oats are dull, and 1s. to 1s. 6d. per qr. cheaper.—The top price of Flour is reduced to 46s. per sack.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk . . White	42	50	Red .	44	50
—— Norfolk, Lincolnshire, and Yorkshire .	40	50	White	40	52
Barley, Malting and distilling 28s to 30s Chevalier	30	33	Grind.	25	28
Oats, Lincolnshire and Yorkshire . Polands	25	28	Feed	19	23
—— Northumberland and Scotch . . Feed	24	29	Potato	27	30
—— Irish . . . . . Feed	22	25	Potato	24	27
Malt, pale, ship	—	—			
—— Hertford and Essex	—	—			
Rye	30	34			
Beans, Masagan, old and new 32 to 35	Tick	34	40	Harrow	36	48
—— Pigeon, Heligoland . 36 to 42	Winds	—	—	Longpod	—	—
Peas, White . . . . 36 to 40	Maple	34	36	Grey	32	34

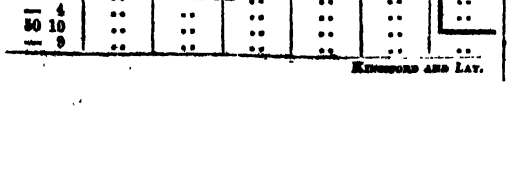
FRIDAY, July 20.

The arrivals of Corn of all kinds, either English or Foreign, during the week have been small, and the business transacted since Monday was on a most limited scale. Sales of Wheat could not be made without submitting to a further decline; bonded was inquired after for Belgium and Holland, where prices now exceed those of this market for Red Wheat, the Rye crop there, as also in the Rhine provinces, is very badly spoken of.—Barrel Flour is less in demand, and in some instances has been much pressed for sale at 25s. to 26s.—The reports from Ireland and the Continent speak very badly of Potatoes; Indian Corn, in consequence, continues inquired after for the former country at 27s. to 27s. 6d. per qr. for floating cargoes.—Barley, Beans, and Peas, are unaltered in value.—Sales of Oats are confined to needy purchasers, who are compelled to pay former prices.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas
Jun. 13 per Quarter.	38s 0d	27s 1d	22s 8d	33s 4d	36s 8d	34s 9d
— 20 . . .	51 5	27 3	22 3	33 4	36 4	33 6
— 27 . . .	53 2	27 4	23 6	33 7	37 6	35 0
July 4 . . .	52 10	27 6	23 2	32 2	38 5	35 5
— 11 . . .	52 5	27 7	24 3	33 11	37 11	35 3
— 18 . . .	50 10	27 10	23 0	30 5	38 4	36 4
6 weeks' Aggreg. Aver.	51 11	27 5	23 7	33 3	37 4	34 10
Duties on Foreign Grain	6 0	4 0	1 6	4 0	4 0	4 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, July 18.



KNIGHT AND LAY.

IMPORTANT SALE OF GREENHOUSE PLANTS AND CAMELLIAS.

MESSRS. PROTHEROE & MORRIS have received instructions from the Proprietor of the Edmonton Nursery to offer for Public competition, on the premises, on TUESDAY the 25th of AUGUST next, the Stock of valuable GREENHOUSE PLANTS, including the finest collection of choice Banksias and Dryandras ever offered to the Public. Besides the Banksias and Dryandras, which number nearly 1000 plants of 32 choice and rare species, the collection contains a large quantity of Hovea, Gompholobiums, Pimeleas, Chorozemas, Kennedyas, &c.; among which are several new and valuable species. There is also a fine collection of Camellias, set with bloom at every point, and consisting chiefly of Double Whites, Stripes, Fimbriata, Hume's-blush, Donkelarii, Tricolor, Candidissima, and Imbricata. A few of the plants are large, bushy, and handsome, and the remainder small, saleable stuff. The Sale will commence at 12 o'clock precisely. Catalogues will be ready in a week or two.

Leytonstone, July 25.

MEXICAN ORCHIDS.

MESSRS. J. C. & S. STEVENS will SELL by AUCTION, at their Great Room, 38, King street, Covent-garden, on TUESDAY, 28th JULY, at 12 for 1 precisely, AN IMPORTATION OF ORCHIDS, just received from Vera Cruz, collected in a district 800 miles distant from the last parcel received from Mexico, it comprises many plants of Odontoglossum citrosmum, and other varieties: also favourite species of Lælias, Oncidiums, Epidendrums, &c. &c., and a few Ferns. On view the day prior and morning of Sale, and Catalogues had of the Auctioneers.

EDMONTON NURSERY TO LET—The present Proprietor, being anxious to dispose of the above NURSERY, and with a view to render the terms of entrance more moderate, has directed Messrs. PROTHEROE & MORRIS to dispose of the entire Stock of GREENHOUSE PLANTS BY AUCTION; and is now ready to offer the Lease, the Glass erections (amounting to about four thousand feet), and the Stock of Evergreens and Shrubs in the ground, upon very advantageous terms. Should any one prefer taking the Lease and Glass only, arrangements will be made to effect a Sale of the out-of-door Stock in October.

A very desirable opening is here presented to any one possessed of a small capital, the Nursery being well situated, with excellent Dwelling-house, and moderate Rent.—Particulars may be obtained by application personally, or by letter, to Mr. HENCHMAN, at the Nursery, Edmonton, Middlesex.—July 25, 1846.

LOWER CLAPTON. TO MARKET GARDENERS & Others. TO BE LET ON LEASE, with Early Possession, THIRTY ACRES OF LAND in full cultivation as a MARKET GARDEN, within three miles of Shoreditch Church, or the Ground would be let on Building Leases.—For further particulars apply to Messrs. W. and S. COTTON, Solicitors, No. 7, Lothbury, London.

NORFOLK.

TO BE LET ON LEASE, AT MICHAELMAS, AT SNARE HILL, within One Mile of the Thetford station, on the Norfolk Railway, and Three Miles from the Duke of Grafton's, at Euston. The property comprises the Mansion, furnished—Manor, with Bakery—Gardens and Farm, 480 acres. Extra Parochial and Tithe free; no path through the grounds, and the country abounds with game. The House, Gardens, and Manor to be let separately, if required. Apply to the Bailiff, at Snare Hill.

SURREY

FARMS TO BE LET, at Kingswood, within three miles of Reigate Railway Station.

KINGSWOOD FARM to be LET on LEASE for 21 years or less, at Michaelmas next, comprising a Farm-house and suitable Out buildings, and 600 acres Arable (good Turnip) Land, at a money rent of 20s. an acre which includes tithes and rates, or at a corn rent if preferred. Two smaller Farms may be had adjoining, if required, so that a capitalist, wishing to embark 10,000l. in farming 1000 acres may do so within 1¼ hour of London. The shooting may be had if required. For particulars, apply to Messrs. Parke, 6, Lincoln's inn-Fields, Messrs. Nash, Surveyors, Reigate; or Mr. Kirk, Kingswood, Epsom. The tenant, Mr. Crowe, will show the principal farm.

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TO BE DISPOSED OF.—A well-known Establishment in the above line to be sold, doing for many years a most excellent trade. The situation is decidedly one of the very best in London, being in the centre of a most fashionable and bustling neighbourhood. The above is well worthy the attention of any young Nurseryman and Florist having ground within a mile or two of this Establishment, as the situation being so commanding, a most extensive business might be done in each department. As the Proprietor is obliged to dispose of the above in consequence of a death in his family, the entire Stock, Fixtures, and everything belonging to the Business, may be had a decided bargain.—Full particulars, with Inventory of Stock, Fixtures, &c., may be had on application to Mr. C. DAVIS, Importer of Leeches, Frederick place Newington.

WANTED to purchase a small SPAN-ROOFED GREENHOUSE, not less than 15 feet by 12. It must be in good condition, and the terms moderate. Letters, stating lowest price for Cash and where it can be seen, to be addressed (prepaid) to R. R. R., Post-office, East Sheen, Surrey.

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton, Draining Engineer to Her Majesty, at Osborne, Isle of Wight; the inventor of a Patent Tile and Pipe Machine applicable to making Bricks); also a new Machine for taking roots and stones out of clay, both which are to be seen at the Royal Polytechnic Institution, Regent-street, offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P.S.—Land drained at a fixed sum per acre, including every expense.

TO ARTISTS, &c

CALIGRAPHIC BLACK-LEAD PENCILS.—These Pencils are perfectly free from grit, and for richness of tone, depth of colour, delicacy of tint, and evenness of texture, are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use. They will also recommend themselves to all who use the Black-lead Pencil as an instrument of professional importance or recreation, by their being little more than half the price of other Pencils.

H, HH, HHH, HB, B, BB, F, FF, W*. .	4s. per dozen.
BBB, EBB	8s. ,,
BBBB	12s. ,,

W*—This Pencil is particularly recommended for writing and counting-house use.

May be had of all Artists' Colourmen, Stationers, Booksellers, &c.; and at the Manufacturers', E. WOLFE & SON, 23, Church-street, Spitalfields, London.

A single Pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

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Of Saturday, JULY 18, contains articles on

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REPORTS OF MEETINGS.—Great Luxembourg, Directors' Report. Cologne and Minden. Meeting of Shareholders. Meetings to Approve Bills before Parliament.—Meetings of Shareholders to Affirm or Dissolve.

OFFICIAL PAPERS.—Twenty-third Report of the Classification Committee.—Report to Admiralty on Holyhead Railway and Harbour.

PLEASURE EXCURSIONS.—On the South-Eastern; Chiddingstone and Lever, *with numerous Engravings.*

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PARLIAMENTARY PROCEEDINGS.—Programme of Parliamentary Business.—Progress of Bills.—Committees on Opposed Bills.

Progress of Works.—Accidents.—The Act to facilitate the Dissolution of Railway Companies.—Iron Trade.—Patents.—Meetings.—Tenders for Loans, Contracts.—Dividend.—Calls.—Deposits returned.—Transfer Books closed.—Correspondents.—Traffic Table.—Share List.—Foreign Do.—Money Market.—Paris Letter.—Accident on the Great North of France Railway.—Hallette's Atmospheric Railway.—Speed on the Great Western.—Narrow Gauge Engine Performance.—Railways in India.—Railways in Europe. Great Western and South Wales.—Gossip of the Week.—Law Intelligence.—Miscellanea.

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Our Weekly Gossip.—Annual Meeting of Archæological Institute.—Death of Sir Aubrey de Vere.—Booksellers' Provident Retreat at Abbott's Langley.—Copyright Treaty with Prussia.—Pension to Bernard Barton.—M. Raynouard's Catalogue of Supplement of Arabian MSS.—Chinese objects at Ministry of Commerce, France.—Works on Lavoisier.—Eruption of Mount Vesuvius.—Death of H. J. Michael, at Hamburg.—Foreign Gossip.—Genealogy of Bohemian Nobles.—Honours to Memory of Leibnitz.

Societies.—ASTRONOMICAL (Astronomer Royal, on Measurement of Arc of Longitude between Greenwich and Island of Valentia).—HORTICULTURAL.

Fine Arts.—Lectures on Painting and Design.—By B. R. Haydon.—Art-Union Prize Sculpture.—Drawings by Ancient Masters.—An Institute going a-begging.

Fine Art Gossip.—Mr. Wyatt's Statue of Duke of Wellington.—French Gossip.—Monument to William the Conqueror at Falaise.—French Society for Preservation of Historical Monuments.—Monuments to Leibnitz and late King of Sweden.—Model for Statue of Emperor Charles IV., at Nürnberg.

Music and the Drama.—Her Majesty's Theatre.—Drury Lane.—Haymarket.—Lyceum (Above and Below).—Princess.—Queen's Theatre.—St. James's (French Plays).

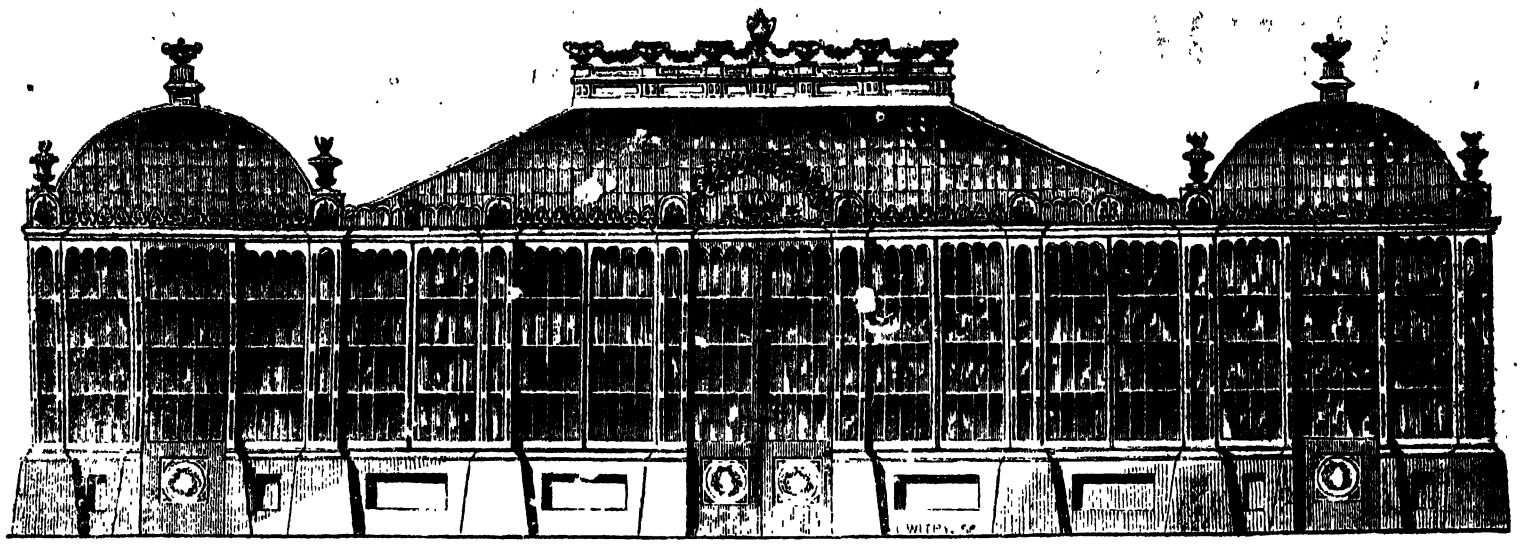
Musical Gossip.—Belgian Singers and French Operas.—Native Talent at home.—Birmingham Festival.—Philharmonic Directors.—Artists and Critics.—Retirement of Signor Mario.—Rossini's Return to Active Life.—M. Ambroise Thomas at the Paris Académie.—Copyright Decision in Germany.—Duke of Brunswick and Court Theatre.—Foreign Gossip.—M. Leopold de Meyer.

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PART I. The Elementary Structure.
PART II. The Organs of Vegetation.
PART III. The Organs of Reproduction, and General Physiology, in about a month.

JOHN VAN VOORST, Paternoster-row.

SCOTTISH UNION FIRE AND LIFE INSURANCE COMPANY, 37, Cornhill, London.

London Board of Directors.

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Life Department.

The Directors beg to intimate that the SECOND INVESTIGATION into the affairs of this Company takes place on the 1st of August next. Parties who effect insurances on the profit scheme previous to that date will participate in the division.

37, Cornhill, London. F. G. SMITH, Secretary.

GREAT BRITAIN MUTUAL LIFE ASSURANCE SOCIETY,
14, Waterloo-place, and 79, King William-street, City, London

CLAIMS on Policies not subject to be litigated or disputed except with the sanction, in each case, of a General Meeting of the Members, to be specially convened on the occasion.

This Society is established upon the most approved principles of the mutual system, the whole of the profits being divided among the Members, combining security with profit, and affording the facility of credit for half the premium for the first five years, and an extremely low rate of premium to parties who may prefer assuring at first upon the non-participating scale, with the option of becoming Members any time afterwards by paying the difference between the two rates.

Extract from the Tables for an Assurance of £100 for the whole term of life:—

MUTUAL RATES.						NON-PARTICIPATING RATES.					
Age.	Annual Premium.			Half Credit.		Age.	Annual Premium.			Half Credit.	
	£	s.	d.	£	s. d.		£	s.	d.	£	s. d.
16	1	18	10	0	19 5	16	1	11	5	0	15 9
26	2	6	11	1	3 6	26	1	18	4	0	19 2
36	3	0	0	1	10 0	36	2	9	7	1	4 10
46	4	3	8	2	1 10	46	3	9	10	1	14 11

Thus, for example, 1000*l.* may be assured at the age of 26, by the annual payment of 9*l.* 11*s.* 8*d.* for the first five years.

Endowments and Annuities granted, and assurances effected with parties residing in any part of the Kingdom, without expense.

A. R. IRVINE, Managing Director, 14, Waterloo-place, London

VICTORIA LIFE ASSURANCE COMPANY,
No. 18, KING WILLIAM STREET, CITY.

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Aaron Goldsmid, Esq.	Major-General Robertson.
James Law Jones, Esq.	Daniel Sutton, Esq.
John Knill, Esq.	O'B. B. Woolsey, Esq.

Life Assurances are effected by this Company on every description of risk, on a *profit* or *non-profit* scale. *Credit* of half the Premiums for the first five years allowed on Policies effected for the whole term of life. *Payment of Premiums* so arranged as to meet the convenience or wishes of the Assured. A Policy may be made an *absolute security*. *Advances* continue to be made to Assurers on real or undoubted personal security, for terms of years repayable by instalments. Particular attention is requested to the detailed Prospectuses of the Company.

WILLIAM RATRAY, Actuary and Secretary.

PROVIDENT LIFE OFFICE, 50, Regent-street, London.—ESTABLISHED 1806.

INVESTED CAPITAL, 1,200,000*l.*
ANNUAL INCOME 140,000*l.* BONUSES DECLARED 520,000*l.*
CLAIMS paid since the establishment of the Office, 1,520,000*l.*

President.—THE RIGHT HONOURABLE EARL GREY.

Directors.

The Earl of Macclesfield.	Frederick Squire, Esq.
Sir John Osborn, Bart.	Rev. James Sherman.
John Leering, Esq.	Alfred Beaumont, Esq.
Alexander Henderson, M.D.	Richard Sharwood, Esq.

Table of Rates for assuring 100l. on a Healthy Life.

Age.	Without Bonus. For the whole Life, at an Annual Payment of			With Bonus. For the whole Life, at an Annual Payment of		
	£	s.	d.	£	s.	d.
20	1	14	10	2	3	7
25	1	18	6	2	8	1
30	2	2	9	2	13	5
35	2	8	0	2	19	10
40	2	14	6	3	7	11
45	3	2	5	3	17	11
50	3	17	0	4	10	8
55	4	10	4	5	6	4

BONUSES *Paid upon Policies which have become* CLAIMS.

No. of Policy.	Sum Insured.	Sum Paid.			No. of Policy.	Sum Insured.	Sum Paid.		
	£.	£	s.	d.		£.	£	s.	d.
425	2000	4509	1	1	3307	2000	3411	1	3
1973	5000	7652	13	3	3617	1000	1802	4	11
3085	5000	7706	6	0	4024	1000	1622	9	7
3378	5000	7500	5	9	4883	1000	1654	13	6

Prospectuses and full particulars may be obtained upon application to the Agents of the Office in all the principal towns of the United Kingdom; and at the head Office, No. 50, Regent-street. JOHN A. BEAUMONT, *Managing Director.*

ALBION LIFE INSURANCE COMPANY,
NEW BRIDGE-STREET, LONDON,
Instituted in 1805.—*Empowered by Act of Parliament.*

ADVANTAGES.

PERFECT SECURITY, arising from a large Capital, totally independent of the Premium Fund.

A BONUS amounting to Four-fifths, or 80 per Cent. of the ENTIRE PROFITS, arising from all Policies issued upon the Participating Scales of Premium, will be apportioned among the Policy-holders on the 29th September, 1849, and thenceforward at the end of every three years, either

By Payment in Cash;
By Augmentation of the Sum Insured; or,
By Reduction of the Future Annual Premium.

Low Premiums, without Profits, particularly for limited terms of years. Increasing, Decreasing, and other Rates of Premium. Claims paid in 30 days after proof of Death. Prospectuses, Proposals, &c., may be obtained at the Office. Parties resident in the country are not required to appear personally in London. EDWIN CHARLTON, Secretary.

DRESS COATS, superfine cloth, made to measure, 30*s.* to 42*s.*; extra Saxony, 50*s.*; frock coats, silk facing, 35*s.* to 45*s.*; extra Saxony, 50*s.* and 55*s.*; fashionable trousers, 7*s.* to 12*s.* 6*d.*; doeskin, new patterns, 12*s.*, 16*s.*, and 21*s.*; waistcoats, of the newest patterns, 6*s.* 6*d.* to 10*s.* 6*d.*; rich satin and cloth, 7*s.* 6*d.* to 12*s.* 6*d.*; overcoats of the newest style, in paletots, Alberts, and Codringtons, of llama cloth and cashmerettes (waterproof), 21*s.* to 35*s.*; travelling wrappers 8*s.* 6*d.* to 18*s.* Boys' and youths' clothing of every description. Tunic and hussar suits, 21*s.* to 30*s.*; office, garden, and shooting coats, 8*s.* 6*d.* to 15*s.*; a suit of superfine black cloth, 3*l.* 3*s.*; extra Saxony ditto, 3*l.* 10*s.* to 4*l.*—FISHER & Co., Tailors, 31, King William-street, City, 10 doors from London-bridge.

Printed by WILLIAM BRADBURY, of No. 5, York-place, Stoke Newington, and FREDERICK MANSFIELD EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their office in Lombard-street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—Saturday, JULY 25, 1846.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 37—1846.] SATURDAY, SEPTEMBER 12. [Price 6*d*.

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GRAND DAHLIA AND MISCELLANEOUS FLOWER SHOW.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY, under the Patronage of Her Most Gracious Majesty the QUEEN. The Fifth and last Exhibition for the season will be held in the ROYAL SURREY ZOOLOGICAL GARDENS, on WEDNESDAY, Sept. 16, 1846. Open to all Exhibitors, when 4 Gold and 45 Silver Medals will be awarded for the following Collections:—Miscellaneous Plants, Fuchsias, Roses, Dahlias, Cut Flowers, and Fruit. In addition to which BENJAMIN HAWES, Esq., M.P., offers a 5*l*. prize for the best Collection of Miscellaneous Plants; Mr. CHARLES TURNER, of Chalvey, a Large Silver Linnæan Medal, for the best 6 Blooms of New Dahlias sent out in the spring of 1846; and J. BUSSELL, Esq., four Prizes for Seedling Dahlias of 1845 and 1846. List of Prizes and the Rules of the Society may be obtained from JOHN T. NEVILLE, Secretary.—Ebenezer-house, Peckham.

THE GRAND ANNUAL DAHLIA SHOW OF THE METROPOLITAN SOCIETY will take place in the splendid grounds of the Grecian Saloon, City-road, London, on Monday, September 14th, 1846. Prizes 10 in a Class. Schedules and Tickets 1*s*. each, entitling the holders to remain for the whole of the evening, may be had at the Gardeners' Gazette Office, 420, Strand; and the friends of Horticulture will dine the same Evening. Tickets, 5*s*. 6*d*.

CHICHESTER HORTICULTURAL SOCIETY.—The Autumn Exhibition will be held in the CORN EXCHANGE, on FRIDAY, SEPT. 18th, when numerous Premiums are offered for FRUIT, PLANTS, and DAHLIAS, &c., with Prizes for COTTAGERS. Open to the Public from two till half past five. Admission One Shilling. A Band of Music will attend. Particulars may be obtained of the Secretary,
Chichester, Sept. 12. Mr. R. SILVERLOCK, Jun.

R.A. SOCIETY—The THIRD ANNIVERSARY will be held on TUESDAY, Sept. 15, during the meeting of the British Association for the Advancement of Science, at the Victoria Rooms, Southampton, at 10 o'clock, A.M., Professor BELL, F.R.S., President, in the chair.
EDWIN LANKESTER, Secretary.

DRIED PLANTS FROM CHINA.—A few sets of the VALUABLE DRIED PLANTS collected in China by Mr. FORTUNE, may still be procured by applying to R. HEWARD, Esq., Young-street, Kensington, London. Among them are many new and rare species scarcely known to Europeans.

BECK'S SEEDLING PELARGONIUMS OF 1844 AND 1845.
A Descriptive Catalogue of the above, with directions for their cultivation, may be had in exchange for 4 postage-stamps.
Worton Cottage, Isleworth.

GARDENIA WHITFIELDII.
LOUIS VAN HOUTTE'S NURSERY, GHENT, BELGIUM.
Strong Plants ..... £1 1*s*.
With one over on every three taken by the trade.

GLADIOLUS GANDAVENSIS.
LOUIS VAN HOUTTE'S NURSERY, GHENT, BELGIUM.
Very strong Bulbs.

Per dozen	£0	15	0
25	1	10	6
100	4	10	0

The usual discount to the trade.

NEW SEEDLING STRAWBERRIES.
J. MYATT & SONS have selected from their stock of seedlings the following varieties, which are now ready for sending out:—
MYATT'S GLOBE, large and fine flavour, per 100 30*s*.
" MAMMOTH, very large .. .. " 30*s*.
" PROLIFIC, early and great bearer " 21*s*.
HOOPER'S SEEDLING, early .. .. " 21*s*.
The above selection are quite distinct, and well worth the attention of growers.
Early orders will ensure strong plants for fruiting next season.—Manor Farm, Deptford, Sept. 12.

BEAUTIFUL ORCHID.
A. BALSTON has to offer a few plants at 5 guineas each, of GALEANDRA BICARII, blooms of which have been submitted to Dr. LINDLEY, who pronounces it the true variety of this extremely rare and beautiful plant.
Poole Nursery Dorset.

PINE PLANTS of various sorts, perfectly clean, healthy, and well rooted, may be had on application to WILLIAM DAVIS, Green-street, Marlboro'-road, Chelsea.

GLADIOLUS "REX RUBRORUM," &c.
F. C. BALL is prepared to execute immediate orders for the above in Flowering Bulbs, at 10*s*. 6*d*. each, with one over on every three ordered by the Trade, and can recommend it as the darkest and best of its class. Dr. Lindley's opinion, see *Gardeners' Chronicle*, 1845.—"Your Gladiolus is a very fine variety, and the darkest we have seen."
It was also awarded a Certificate at the June show of the Horticultural Society.
The following New and desirable Plants can be strongly recommended:—

	s.	*d*.		*s*.	*d*.
Chirita sinensis	3	6	Jasminum, sp. China ..		6
Pterostigma grandiflora	2	6	Platycodon grandiflorum	2	6
Welgelia rosea	1	6	Statice monopetala ..	2	6
Silene Schafta	5	0	Ditto, per doz. ..	20	0
Piederia fœtada ..	2	6	Taxodium sempervirens, 15 to 18 inches ..	10	6
Ditto, per doz. ..	18	0	Hydrangea spinosa ..	3	6
Veronica salicifolia ..		6	Siphocampylus coccineus	2	6
" Lindleyana ..	2	6	Pentstemon antianoides alba	2	6
Ditto, per doz. ..	20	0	Fuchsia arborescens (Mellez)	3	0
Cuphea cordata ..	1	0	" Lesmeraldia (do.)	3	0
Lyperia pinnatifida, 12	2		" Sanspareil (Conch)	3	0
Ditto, per doz. ..	18	0	Tropæolum tricolorum (Hitch)	3	6
Alonsa calcotus	1	6	Ditto, per doz. ..	24	0
Ditto, per doz. ..	12	0			
Bouvardia flava ..	1	6			
Anemone japonica ..	10	6			
Tropæolum Lobbianum ..	1				
Ditto, per doz. ..	12	0			

Taunton Nurseries Sept. 1.

TO THE PLANTERS OF ENGLAND.
TRUE HIGHLAND OR MOUNTAIN PINE, AT REDUCED PRICES
JAMES GRIGOR, NURSERYMAN, Norwich, begs to state that he is now selling young plants of the above valuable Timber Tree at the undermentioned prices. The present is an excellent time to transplant all the sizes, except the smallest which have not yet completed their growth. When planted now, they furnish themselves with new roots, and are thus firmly established before the winter comes on.

Plants 1 to 2 inches	per 1000	2*s*.	6*d*.
" 3 to 4 "	"	5	0
" 4 to 6 " (transplanted)	"	10	0
" 6 to 8 "	"	15	0
" 8 to 10 "	"	20	0
" 10 to 12 "	"	25	0
" 15 " (very strong)	per 100	4	0

Finest picked plants, 18 to 24 feet .. per doz.—3 .

"I very particularly admire the Highland Pine, and am much obliged to you for calling my attention to trees of such value." *Duke of Newcastle &c.*
Norwich, Sept. 12, 1846

DUTCH HYACINTHS FOR FORCING, Single and Double at 4*s*. per dozen; also Narcissus, Crocus, Tulips, Irises, Jonquils, Anemones, and Ranunculus; priced Catalogues of which will be forwarded per post, from ARTHUR CORBETT'S Italian and Foreign Warehouse, 18, Pall-mall.

ROSES.
WILLIAM WOOD and SON have now published a new and enlarged edition of their ROSE CATALOGUE for the Autumn of 1846, and Spring of 1847, which they will be proud to furnish *gratis* on application.
N.B.—The Autumnal flowering ROSES are now in fine bloom.
Woodlands Nursery, Manningfield, near Uckfield, Sussex, Sept. 12.

HOLLYHOCKS.
JAMES KITLEY, NURSERYMAN, Lyncombe Vale, Bath, begs to inform his friends and the public that he has an immense Stock of FINE DOUBLE SEEDLING HOLLYHOCKS of every shade of colour, which have all bloomed, and from which every single flower has been thrown out, and which he will send out at the following prices, viz
100 plants, 2*l*.; 50 ditto, 21*s*., 25 ditto, 12*s*. 6*d* including basket and packing.
J. K. has no objection to take goods for half the amount ordered by tradesmen. N.B. Seen of the above 2*s*. 6*d*. per plant, or, to seedsmen, 7*s*. 6*d*. per lb.
Bath, Sept. 9th, 1846.

CHARLES TURNER begs to offer the following beautiful new PINKS, viz.—

	s.	*d*.	
Bragg's George Glenny	7	6	per pair.
Kirtland's Lord Valentia	5	0	"
Harris's Dauntless	5	0	"
Maher's Berkshire Hero	3	6	"
PICOTEES.			
Matthews' Enchantress, light purple edge	10	6	"
" Ne Plus Ultra, light red edge	7	0	"
Or one pair of each for 15*s*.			
PANSIES.			
Hall's Rainbow, extra fine	5	0	per plant.
Turner's Othello	5	0	"
" Chalvey Rival	5	0	"
" Optimus	3	0	"
Gossett's Lord Hardinge	5	0	"
Hooper's Duke of Wellington	5	0	"

Strong plants of the above are now ready.
Descriptive Catalogues may be had on application.
Pansy seed at 2*s*. 6*d*. and 5*s*. per packet.
Chalvey, near Windsor, Sept. 12

GENERAL PRICE-CURRENT (Nos. 26 and 27).
LOUIS VAN HOUTTE'S GENERAL PRICE-CURRENT (Nos. 26 and 27), are to be had on pre-paid application to Mr. GEORGE RANN, 52, Mark-lane, London.

NEVILLE'S ENCHANTRESS AND OTLEY'S DR. EDWARDS.
EDWARD FREDERICK FAIRBAIRN respectfully informs Amateurs, he has a few pairs of the above splendid Pinks to dispose of, at 5*s*. per pair, postage free, on receipt of a Post-office order on Clapham. Catalogues, containing some new and scarce varieties, can be had on application, inclosing a stamp.—Wandsworth-road, Sept. 12.

THE FINEST CARNATIONS, PICOTEES, AND PINKS.
YOUELL & CO.'s Extensive and celebrated Collection of the above are this season unusually strong and healthy, and will be ready for sending out, in fine well rooted plants, to any part of the United Kingdom, or for exportation, at the following prices:—

25 pairs of finest first-rate show varieties of Carnations and Picotees	£5	0	0
12 pairs do. do.	2	10	0
25 pairs of very fine show varieties of do. do. ..	3	0	0
12 do. do. do.	1	10	0
25 do. of finest first-rate show varieties of Pinks ..	1	4	0

FINE CAMELLIAS.
YOUELL & Co. are now supplying very healthy plants of the above, comprising the following very handsome varieties, at 30*s*. per dozen—namely, Donkleerii, Juliana Bealii, Monarch, Eclipse, Perfection, Bruceana, Corolina, Florida, Chandlerii, Double Striped, Double White, Colvillii, Elegans, Grand Frederic, Fimbriata, Imbricata alba, Conspicua, Tricolor, Rosa Mundi, Ochroleuca, Nobilissima, Horsfallii Invincible, Candidissima, Emelie Grandiflora, King, Leeriana, Imbricata, Picturata, Minuta, Anemoneflora rosea, Kew Blush, &c.

THE FINEST DUTCH HYACINTHS, &c.
YOUELL and CO. have just received their importation of the above in the finest condition, and are enabled to offer very superior HYACINTHS by name, comprising double and Single Red, Blue, White, and Yellow, at 6*s*., 9*s*., and 12*s*. per dozen.

CEDRUS DEODARA.
YOUELL and CO. beg to inform Planters and the Trade, they are enabled to supply fine one-year Seedling Plants of the above, well established in Pots, upon reasonable terms.

ARAUCARIA IMBRICATA, or CHILIAN PINE.

3 years old	12*s*.	per doz.
4 "	18*s*.	"
5 "	30*s*.	"
6 " 1 foot, very fine and bushy, measuring from 12 to 15 ins. across	60*s*.	"

A few fine specimen plants 18 inches to 2 feet in height, and from 2 feet to 2 feet 6 inches across, 21*s* each.

Cedrus Deodara, 2 years	18*s*.	per doz.
Ditto ditto 1 foot, worked ..	30*s*.	"
Picea Webbiana, 1 year, ...	18*s*.	"
Abies morinda, 2 years, in pots, fine ..	12*s*.	"

12 first-rate new Fuchsias, including their beautiful Seedling "Sanspareil" £1 1 0
12 fine do. 0 12 0

YOUELL & CO. having a fine stock of the following STRAWBERRIES, beg to offer them at 3*s*. 6*d*. per 100:—Princess Alice Maude, Myatt's British Queen, Keens' Seedling, Carolina, Myatt's Pine, Elton, Roseberry, Black ditto, Turner's Pine, Swainston's Seedling, Myatt's Eliza, Coul's Late Scarlet, Downton, and Grove-end Scarlet. "Dickson's Royal Pine," 15*s*. per 100.
Extra new Pansy Seed, from newest and best varieties, per packet .. .. 2*s*. 6*d*.
Alstroemeria Seed, from Mr. Van Houtte's varieties, per packet 2 6
Antirrhinum Brightii, lutea, and venosa, p. packet 1 0
" finest mixed 12 varieties, per packet 1 0
Steamers direct to Rotterdam weekly, and to Hull twice a week, and to London daily.
Great Yarmouth Nursery, Sept. 12.

BEAUTIFUL SEEDLING PANSY "BLUE FRINGE."
HENRY MAJOR, Knosthorpe, near Leeds, begs to inform those of his friends who have already ordered the above strikingly beautiful Pansy, that he will commence sending it out on the 21st of September. A few plants still remain, and may be had at 6*s*. each, or six plants for 30*s*., post free. Description—white ground, deep blue eye, with a distinct blue belt, about the eighth of an inch broad, round all the five petals; good form, and average size, quite a novelty. Very favourable opinions have been obtained upon it; see *Gardeners' Chronicle*, May 30, "Z. Y. X.;" Gardeners' Gazette, May 9, "H. M.;" Gardeners and Land Stewards' Journal, July 25.
Also may now be had for 40*s*., post free, 20 fine show Pansies, selected from the new varieties of this spring. Select Pansy seed, 2*s*. 6*d*. per packet.
Twelve of H. M.'s best shrubby Calceolarias sent out for the first time this spring, price 30*s*.
Orders executed in rotation, as they are received. From unknown Correspondents a remittance is particularly requested with the order.

DRIED PLANTS FROM VENEZUELA.—A few Sets of the VALUABLE DRIED PLANTS, collected in Venezuela and other neighbouring provinces, by Mr. J. LINDEN, may still be procured by applying to Mr. PAMPLIN, Botanical Bookseller, Frith-street, Soho, London. Among them are many rare species scarcely known to European Botanists.

ROSES.
THOS. RIVERS has the pleasure of announcing to his Friends and the Public, that his DESCRIPTIVE CATALOGUE OF ROSES for 1846, with a Supplement, will be ready in a few days. It will, as usual, be forwarded to his friends, and applications from fresh correspondents, enclosing three penny stamps, will be promptly attended to. The Catalogue contains a choice selection only from his large collection—he has been careful not to crowd its pages with the names of varieties of secondary interest. The new varieties described have been fully proved; this has now become necessary, more particularly with the Hybrid Perpetuals, as many varieties are annually raised in France, the flowers of which will not open when cultivated in this country. The Supplement contains Lists of Roses cultivated in 6-inch pots for forcing and greenhouse culture, and Lists of choice Bourbon, Tea-scented, and China Roses, on 18-inch stems, for beds, lawns, &c. &c.
Sawbridgeworth, Herts, Sept. 12.

POLMAISE HEATING.

J. DAVIES having proved the above mode of heating Horticultural Buildings to be far superior to hot water in every respect, being less expense erecting, and more safe in working the apparatus, he is now prepared to undertake the fitting up of Polmaise stoves in any description of building, at little more than half the cost of hot water. By the plans he now adopts, the stove can be placed in any part of the house, and the heat will be equally diffused.—Larkfield Nursery, Wavertree, Liverpool, Sept. 12.

THE LARGEST BREED OF RABBITS IN THE KINGDOM.

THE GENUINE HARE RABBIT.—This singularly large variety has great width and substance of loin, fattens expeditiously to the extraordinary weight of from 17 to 20 lbs., and flesh finer flavour than the other species. A few pairs to be disposed of three to four months old, 18*s.* per pair; older, 20*s.* per pair.—Apply to Mr. JOHN BRETT, Market-place, Great Yarmouth.

A pair of Black Squirrels to be disposed of, price 2*l.* 10*s.*

VAN HOUTTE'S NEW VARIETIES OF CHILIAN ALSTRŒMERIAS.

LOUIS VAN HOUTTE, Florist to the King, Ghent, Belgium, begs to offer his Chilian ALSTRŒMERIAS at the following rates, viz.—12 varieties, 10*s.*; 25 varieties, 1*l.*; 50 varieties, 2*l.* 8*s.* Orders received by Mr GEORGE RANN, 52, Mark-lane, London; or application may be made (post paid) to Mr. VAN HOUTTE, at Ghent. The deliveries will commence on the 1st of August, and the plants forwarded to London free.

The Rev. Dean of Manchester, on his recent visit to Mr. Van Houtte's establishment at Ghent (see *Gardeners' Chronicle*, 12th July, 1845), says of these plants:—"They are of every shade, from scarlet to lemon colour, and from crimson to pale green variegated with white." He further adds of their effect in masses—"I do not recollect ever having seen a bed of flowers so beautiful, and I should think Mr Van Houtte will find it difficult to supply the demand for them, when their merit shall become fully known."

In the report of the same Journal, on the meeting of the Horticultural Society of the 5th August, 1845, is the following account of this flower:—"Messrs. Van Houtte sent a bouquet from Ghent, composed of Alstrœmeria blooms from the open ground; they were hybrids of various colours, and although somewhat tarnished by the journey and wet weather, to which they were said to have been lately exposed, yet they sufficiently showed what beautiful objects large masses of them would be in the flower-garden, and fully justified the opinion given of them by the Dean of Manchester in a late Number."

N.B. Each packet contains directions for planting and cultivating them. The usual discount to the trade.

SEEDLING PETUNIAS.

ARTHUR MACKIE begs to offer to the Public three seedling PETUNIAS, which he trusts will be found not to disappoint the purchaser. They have been chosen out of six selected from a large number of seedlings, and subjected to Dr. Lindley's inspection, who says of them, in the *Chronicle* of August the 1st, "They are fine and rich in the veining, and two or three of them would make desirable additions to a collection." The set 7*s.* 6*d.*, or free by post, including box, 8*s.* 6*d.*

A. M. has also a collection of nine very fine seedling ANTIRRHINUMS, selected from a large number of seedlings they are very distinct in their colours, and remarkably showy. The set 7*s.* 6*d.*, or free by post, including box, 8*s.* 6*d.* Also the following plants:

	s. d.		*s. d.*
Achimenes patens	10 6	Gesnera elliptica	2 6
Abutilon venustum	2 6	Gloxinia pallidiflora	2 6
Abelia rupestris	5 0	,, discolor	2 6
Cuphea cordata	5 0	Æschynanthus patchery	10 6
Chirita sinensis	2 6	Pleurostigma grandiflora	2 6
,, zeylanica	3 6	Torenia asiatica	5 0
Evolvulus purpureo cæruleo	7 6	Ribes sanguinea plena	5 0
		Weigelia rosea	10 6

One to every Three will be given in to the Trade.

A remittance requested from unknown correspondents.

The Norwich Nursery Sept. 12.

CHOICE NEW PLANTS.

LUCOMBE, PINCE, & Co. have now for Sale the following very choice and beautiful *New Plants*, all of which they can confidently recommend:—

	Price.
LESCHENAULTIA SPLENDENS, rare*	21*s.*
LESCHENAULTIA SPLENDENS, var. *Stricta*	21*s.*

* A figure of L. splendens is published in the present month's number of the "Botanical Magazine," by Sir William Hooker, part of whose description is here quoted. L. P. and Co. beg leave to say that *their* plant is the only one which has been identified by Sir Wm. Hooker, as the true "*L. splendens*," and that there are spurious varieties of it.

"*The splendid colour of this plant is only to be compared with Verbena Melindres. Handsome as is the var. Stricta, it is far exceeded by the True Splendens, which is of a far more bushy character, and the whole surface is literally covered with its brilliant blossoms, continuing a long time in perfection. There is a tenderness and delicacy too in the foliage, which contrast admirably with the rich colour of the blossoms, of which there were more than* 300 *expanded on one plant.*"

L., P., & Co., however, beg leave to refer cultivators to the figure and description alluded to.

LESCHENAULTIA ARCUATA	21*s.*

Very large flowers, canary colour, tipped with red. A figure will appear in next month's number of the "Botanical Magazine." A most distinct and beautiful plant.

CLERODENDRON SINCATUM	42*s.*

A figure of this plant is published also in the present month's number of the "Botanical Magazine," describing which Sir William Hooker says—

"*It is one of those plants to which a drawing cannot do justice, and whose charm depends on the gracefulness of the entire plant, flowering at an early period, and bearing dense many-flowered heads from the extremity of every branch; and these blossoms too are highly fragrant and of the tenderest and purest white. It deserves a place in every stove-collection.*"

CLERODENDRON VOLUBILE	42*s.*

A very fine new climbing species, with large panicles 9 inches long, of pure white flowers, very distinct from any other species.

GARDENIA STANLEYANA	15*s.*
STROPHANTHUS STANLEYANA	42*s.*
COMPTOLOBIUM NOVA SPECIES	21*s.*

With fine large scarlet-crimson flowers, forming an extremely elegant Greenhouse Plant; a small plant of this was exhibited at the Royal Botanic Society's Exhibition in May last, and obtained a Medal.

AZALEA INDICA, "DUKE OF DEVONSHIRE" (a Seedling raised by Lucombe, Pince, & Co.)	21*s.*

This plant obtained a Seedling Prize at the Royal Botanic Society's Exhibition in May, 1845. It flowered again, and was proved, in 1846; and was allowed by all who saw it to be a first-rate flower. Rich scarlet, fine form, good substance, large size.

CHOROZEMA PILOSA	21*s.*
FUCHSIA CORALLINA	10*s.* 6*d.*

Exeter Nursery, Exeter

NEW GERANIUMS.

WILLIAM E. RENDLE & Co. beg to return their sincere thanks to their numerous customers for the liberal orders received for GERANIUMS during the past season, and respectfully solicit a renewal of their kind patronage. They have this season devoted much time and attention to the cultivation of this favourite flower, and have spared no expence in procuring all the richest and most valuable flowers of the day. Three large houses have been expressly set apart for their culture, and they have every confidence in believing that in the autumn they will have such a superior stock of established young plants as will be inferior to no other collection in the United Kingdom.

LYNE'S SEEDLINGS OF 1845.

The following set of Ten for 5*os.*:—

MARMION.	PRINCESS.
MERRY MONARCH.	KING OF SAXONY.
ROSEBUD.	CHAPLET.
VAMPIRE.	ALADDIN.
PICTA.	MOONBEAM.

BECK'S SEEDLING GERANIUMS SENT OUT IN 1845.

The following set of Ten for 4*l.* 4*s.* with a strong plant of LYNE'S ROSEBUD and PRINCESS over:—

ARABELLA.	DESDEMONA.
MARC ANTONY.	ISABELLA.
MINTER.	ROSY CIRCLE.
PAVONIFFA.	SUNSET.
MARGUERITE.	ZENOBIA.

Customers can be accommodated with any sorts separate, but if a whole set is not taken, a higher price must necessarily be charged.

FIRST CLASS.—*Customer's Selection of* 12 *from the following list for* 50*s., or one Select on One-third less.* The Pearl, Standard of Perfection, Edith, Lady Bulkeley, Miss Halford, Prince Alfred, Vesta, Bertha, Unrispen'able, King of the French, Optima, Trafalgar, Camilla, Charles X., Gipsy Queen, Duchess of Sutherland, Confidence, Zanzummum, Cleopatra, Theresa, Imogene, Leonora, Redwoodii, Sappho, Apollo, Meteor, Pluto, Celestial, Exquisite, Beauty of Saltaill, Black Dwarf, Rosetta, Selina, Shield of Achilles, Sultana or Perpetual, Cock's Hector, King of Saxony (Lane's), Titus, Champion, Mrs. Jephson, Magog, Juliet, Queen, Repeal, Chacon, Francis Bullin, Cornubiensis (Hoskins), Albion (Hoskins), Princess Alice, White Perfection, Sarah Jane, Queen Philippa, Queen Victoria (Shepherd), Princeps, Robustum, and Duke of Devonshire.

As many of the new sorts of Geraniums will be scarce, early orders are desired, to ensure a supply.

SECOND CLASS.—*Customer's Selection of* 12 *from the following list for* 15*s., or* 20 *for* 20*s., or one Selection One-third less.*—Magicienne, King of the Belgians (Guines), Duchess of Leinster, Unique, Queen of England, Claude, General Pollock, Flora, Rosalia, Diomede, Coronet, Duke of Cornwall (Lane), Sunrise (Lane), Madeline, Mulberry, Beauty of Walthamstow, Hebe, Lord Chancellor, Othello, Rainbow, Regulator, Fascination, Gude, Hybla, Horatio Nel on, Pulchellum, Conflagration, Symmetry, Jersey Maid, Thunderer, Phœbe, Dido, Hermione, Cordelia, Oberon, Sir Robert Peel, Modesty, Lord Ebrington, Hewlett, Constellation, Fanny, Cornish Gem, Rising Sun, Witch, Glory, Count D'Orsay, Formosum, Fair Maid of Devon, Wonder of the West, Queen of the Fairies, Enchantress, Ivanhoe, Glory of the West, Consort, Princess Royal, Circassian, Sylph, Conservative, King, and Sarah.

SCARLET GERANIUMS.—*Customer's Selection of* 6 *from the following list for* 8*s.*—Eclipse, General Tom Thumb, Fireball, King, Firebrand, Delight, Ruby, Vivid, Britannia, Monarch, Coronet.

N.B. Established Plants of all the above will be ready on and after the 2nd of November next.

☞ *All orders above* 3*l. will be delivered (in paper, package, and carriage free) to London, Bristol, Exeter, Barnstaple, or Falmouth; or above* 6*l. to Liverpool, Dublin, or Cork.*

A remittance is not required from known Correspondents, or those who give reference in London.

Steamers from this Port three times a week to London, Cork, Dublin, Liverpool, and Falmouth.

Orders will be executed in strict rotation.—Great attention is paid to careful packing.—All plants forwarded to long distances are packed in Fir Boxes, and firmly secured.

WILLIAM E. RENDLE & Co.

Office, Union-road, Plymouth, Sept 12.

GUERNSEY AND BELLADONNA LILIES.—

Just arrived, in good condition for distant carriage, a large importation of these beautiful Flowering Bulbs, 5*os.* per 100, or 8*s.* per dozen, for the Guernsey; and 9*s.* per dozen for the Belladonna. Also their annual importation of FLOWER ROOTS from Holland, which, in consequence of the hot summer are exceedingly fine and sound. Catalogues may be had on application to WM. ROGERS and SON, Nurserymen, Southampton.

NEW PINKS.

S. WALTERS, Florist, Hilperton, Trowbridge, Wilts, offers the annexed as being superb Show Flowers:

MRS. FRY.—Rose leaf, pure white, purple lacing, constant, large, and exquisite shape. Per pair, 5*s.*

MOZART.—Rose leaf, pure white, rosy-red lacing, constant, large, and superior shape. 2*s.*

Post free to any part of the United Kingdom.

GEO. MILLS offers to the Public, by permission

of the raiser, Seeds of the BROWSTON HYBRID CUCUMBER, a well known excellent kind. Its length 20 to 27 inches, black-spined, and of beautiful shape. One of its parents, "Champion," a white spined variety, 33 to 36 inches long, and Browston Hybrid will occasionally bring a white-spined fruit. It is very prolific and of excellent quality. Three Seeds will be sent on the receipt of a Post-office order for 5*s.*, payable at Brentford.—Gunnersbury-park, Sept. 12th, 1846.

NEW STRAWBERRIES.

JOHN SALTER, of Versailles, France, can furnish the following new varieties (French and Belgian), which will be sent out for the first time this autumn:—

"LA LEIGEOISE" (Haquin).—Hybrid from Roseberry, but in every respect far superior. The fruit is about 1½ inches long by 1¼ in diameter, colour dark red; abundant bearer and very early, ripening in the open air from 10 to 15 days before "Alice Maud," or Keens' Seedling. M. Morren, the celebrated professor of botany at Liege, speaks of it with unqualified approbation, and recommends it as the earliest known. Price 2*l.* 10*s.* per hundred.

"PRINCESSE ROYALE" (Pelvilain).—Hybrid from Elton and Keens' Seedling. The fruit is long and very handsome; colour light ash-red, most abundant bearer, early, and for forcing one of the best ever raised. The saleable stock is very limited, the two principal forcers for the Paris market having already retained the greater portion. Plants 2*s.* 6*d.* each, or 12 for 20*s.*

"COMTE DE PARIS" (Pelvilain).—Hybrid also from Elton and Keens' Seedling, but totally different from the preceding. The fruit is round, large, and handsome; colour reddish-saffron; abundant bearer, and a very desirable late variety. Stock very limited. Plants 2*s.* 6*d.* each, or 12 for 20*s.*

J. S. will remain in England until Saturday the 10th inst., and all letters addressed to him (post paid) at Mr. W. D. SALTER'S, Waterloo-street, Hammersmith, will meet with due attention. All orders above 2*l.* 10*s.* will be delivered carriage free to London. Remittances, or Post-office orders payable at Hammersmith, will be expected from unknown correspondents.

DUTCH FLOWER ROOTS, &c.

JAMES DICKSON & SONS, 32, South Hanover-Street, have just received their First Annual Importation of DUTCH FLOWER ROOTS in excellent condition. They have been selected with the greatest care from the best cultivators in Holland, and consist of the most choice varieties of HYACINTHS, and of all the other sorts usually imported. Early orders are respectfully solicited, which shall meet with immediate and most careful attention.

They would also remind their friends, that for many years the best specimens of Hyacinths, which gained the Nurseryman's Prize at the Horticultural Society's Exhibition were imported by them.

J. D. & SONS will in a short time have completed their full supply of NATURAL GRASS SEEDS, now so much in request, and proved to be so advantageous for laying down permanent pasture.

At their Nurseries at Inverleith and Broughton-park, J. D. & SONS have always a large Stock of EVERGREENS and FLOWERING SHRUBS, FRUIT and FOREST TREES, Seedling and Transplanted. Their Evergreens they would particularly recommend to the notice of their Friends and the Public, being persuaded that in point of extent and quality they are not to be equalled by any Nursery in the Kingdom. Hollies, Portugal Laurels, Laurel Bays, Laurustinus, and the leading kinds, being all twice and three times Transplanted; the fine sorts first raised in pots and then planted out, can be lifted with the ball entire, and transported with safety to any distance; also, an extensive collection of DAHLIAS, PANSIES, GREENHOUSE, STOVE, and HERBACEOUS PLANTS, &c., to which they regularly add such new sorts as are considered worthy of cultivation.

☞ Farm Overseers, Gardeners, Foresters, and Hedgers recommended.—Edinburgh, September 12.

KENSINGTON AND READING NURSERIES.

MESSRS. RICHARD FORREST and Co. beg most respectfully to direct attention to their extensive collection of BULBOUS ROOTS just imported from Holland, which have just arrived in excellent order. Catalogues may be obtained by application to Kensington, or 20 Market-place, Reading, Berkshire, where orders will meet every attention, and carriage paid to any station on the Great Western Railway, between London and Bristol.

Messrs. R. F. and Co., beg also to direct attention to their Forest tree Stock in both Establishments, which is particularly fine this year. Their general Nursery Stock is also very fine. Camellias well set with bloom-buds from 2*s.* 6*d.* Flowering Plants of Stuticæ macrophylla, from 1*s.* Magnolia grandiflora, fine healthy Plants, from 2*s.* 6*d.* A fine collection of Pinus and other Coniferous Plants in pots.

DOUBLE ROMAN NARCISSUS, 3*s.* per dozen.

R. HALL begs to advise the early arrival of his Annual importation of the above-named Bulbs, at his Foreign Warehouse, 63, South Audley street, Grosvenor-square, facing the Chapel. The DOUBLE ROMAN is the most fragrant of all the Narcissus, and if planted immediately, will flower at Christmas. Printed list, with prices, names, and description of the flowering of Hyacinths, may be had, postage free, on application.

NEW PINK.

NORMAN'S "HENRY STEERS," purple laced, extra fine form; fine long pod; well laced as I can assure, 5*s.* per pair, sent post free on receipt of a Post-office order on Woolwich.

Messrs. Norman feel great confidence in offering the above, feeling assured it will give satisfaction.

Catalogues of their select Show Carnations, Picotees, Pinks, Tulips, &c., will be forwarded on prepaid application enclosing one stamp.—Bull Fields, Woolwich.

GERANIUMS, CAMELLIAS, CHRYSANTHEMUMS, CINERARIAS, CARNATIONS, AND PICOTEES.

JOHN BELL begs to inform the Public that he has a very Extensive and Healthy Stock of the above named Plants, which he offers at the following prices:—

GERANIUMS.

Good established Plants of any of the following sorts, at 20*s.* per dozen: Beauty of Walthamstow, Clarice, Cleopatra, Confidence, Cynthia, Duke of Devonshire, Dr. Lindley's Hector, Josephus, Moonbeam, Modesty, Naboh, Phason, Cid, Robustum, Rosalia, Sarah Jane, Lady Howitt, Unique, &c.

A selection from any of the following sorts—all new last season, at 2*l.* 10*s.* per dozen:—Orion (Foster's), Sappho (Ditto), Milo (Cock's), Pearl (Denny's), Augusta (Hoyle's), Duke of Orleans (Ditto), Gipsy Maid (Ditto), Lord Morpeth (Ditto), Hesperias (Lyne's), King of Saxony (Ditto), Chaplet (Ditto), Mercy Monarch (Ditto), Rosebud (Ditto), Princess Alice (Ditto), and Emperor of Russia.

Strong cut-down Plants now ready, in 6-inch pots, that will make fine specimens for exhibition, of the following good varieties, from 12*s.* to 20*s.* per dozen:—Achilles, Constellation, Conflagration, Comte d'Orsay, Duchess of Sutherland, Duke of Cornwall, Dido, Emma, Emperor of Russia, Flame, Nestor, Rising Sun, Sapphire, Sir Robert Peel, Symmetry, Sunrise, Queen of Fairies, Unit, &c.

CINERARIAS.

Good established Plants, including Conspicua, and several of last year's new sorts, at 18*s.* per dozen.

CHRYSANTHEMUMS.

Large Show Plants, in 8-inch pots, including all the new sorts sent out last season, at 12*s.* to 15*s.* per dozen.

Salter's new set of ten, sent out for the first time this season, in 6-inch pots, 20*s.* the set.

CAMELLIAS.

Good strong Plants with flower-buds	£1 10 0 per doz.
Next size ditto	2 2 0 ,,
Fine bushy ditto	3 0 0 ,,

Including the following sorts:—Double White, Double Striped, Eclipse, Fimbriata, Hume's Blush, Chandlerii, Colvillii, Imbricata Rubra, Coronata, Reticulata, Leeana Superb, Candidissima, Althæflora Florida, Donklaerii, King, Beali, Fraserii, Tricolor, Punctata Major, Descra, Ochroleuca, and many others.

PICOTEES AND CARNATIONS.

Fine healthy well rooted Plants now ready at the following prices, including Burroughes's Duke, of Newcastle, Mrs. Bevan, Cook's President, or Unique, and three fine yellow Picotees:—

25 pairs of very fine show varieties	£2 0 0
12 ditto	1 0 0

Horticultural Establishment, Bracondale, Norwich.

Seed Warehouse, 3, Exchange-street.

SEEDS.—CORNER OF HALF-MOON-STREET, PICCADILLY.

THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FOREIGN AND BRITISH SHEET AND CROWN

GLASS, for Horticultural and general purposes, to be had in boxes as imported, from 3½*d.* to 5½*d.* per foot. Glass Pantiles, 18*s.* 6*d.* per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at P. ELLIOT'S, 28, Castle-street East, Oxford-street. ☞ For Ready Money only.

GROOM, Clapham Road, near London (removed from Walworth), by Appointment Florist to Her Majesty the Queen, and to His Majesty the King of Saxony, begs to call the attention of the Nobility, Gentry, and Amateurs to the following new and rare Plants :—

	Each—s. d.		Each—s. d.
Calystegia pubescens 5s. to	7 6	Epacris lævigata.. ..	5 0
Weigelia rosea	10 6	— elegans ..	5 0
Abelia rupestris	5 0	Lelanthus nigrescens ..	1 6
Anemone japonica 7s. 6d. to	10 6	— longiflora ..	5 0
Indigofera decora ..	7 6	Dichorisandra ovalifolia	10 6
Hydrolea spinosa ..	2 6	Achimenes argyrostigma	2 6
Phlox Drummondii alba .	2 6	— patens ..	15 0
Siphocamphylus coccinea	2 6	Columnea crassifolia ..	3 6
Stylidium androsaceu ..	3 6	Corokia buddleioides ..	10 6
Chirita sinensis	2 6	Bouvardia flava	2 6
— zeylanica ..	5 0	Platycodon grandiflorum	2 6
Tetratheca hirsuta ..	3 6	Gardenia Sherbournii ..	5 0
Angelonia floribunda ..	2 6	Garrya laurifolia	3 6
Tacsonia mollissima ..	3 6	Ruellia montana ..	3 6
— manicata ..	3 6	Mussænda frondosa ..	5 0
Rondeletia speciosa ..	3 6	— macrophylla ..	21 0
Clematis smilaxifolia ..	7 6	Geranium Duke of Hamilton	3 6
Epacris miniata	5 0		

Foreign orders executed, and the Trade supplied on the usual terms. A remittance will be expected with orders from unknown correspondents.

BECK'S SEEDLING PELARGONIUMS. 1845.

E. BECK having now sent out the Plants, secured by pre-payment, informs the Public the following varieties only can be had, well established in 4-inch Pots. The usual allowance to the Trade.

Aurora ..	..	£2	2	0	Bacchus ..	.. £1	11 6
Hebe's Lip ..	..	1	11	6	Resplendent ..	1	1 0
Competitor ..	..	1	11	6	Gigantic ..	.. 0	10 6

For Prepayment only. Post Office orders are requested on Brentford.

N.B. A few sets of strong Plants remain of the seedlings of 1844.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 12, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, Sept. 16—Royal South London . . . . 1 P.M.

COUNTRY SHOWS.

Wednesday, Sept. 16—Norfolk and Norwich Horticultural.

Friday, — 18 { Perthshire Horticultural. Chichester Horticultural.

Some causes were tried at Liverpool the other day, which, on many accounts, and especially because their object was one intimately connected with the purposes of this Paper, deserve more than a passing notice; for they involved facts and opinions which may any day concern everybody who has a plantation, garden, or farm.

The plaintiff in this case was Sir John Gerard, Bart., the representative of one of the oldest families in Lancashire, and the possessor of large estates in that county. He claimed compensation of the defendants, who are proprietors of certain alkali works, established in his neighbourhood, for extensive damage alleged to have been done to his timber by the vapour proceeding from their chimneys. The defendants denied the existence of any such vapour as could produce injury to trees at the distance of one or two miles; they denied that any injury had in fact been done to the timber except by the plaintiff's own acts, or by game, rabbits or insects, or by natural causes; and they asserted that if any damage had been done it was not caused by themselves more than by the chimneys of collieries, copper works, and glass works, also in the neighbourhood.

It is needless to refer to that evidence which went to show that no damage had been done, for it was proved by witness after witness that the injury sustained by the timber had been enormous; that for years past all formal thinning had become needless, in consequence of the extensive death of the trees, and two witnesses, timber valuers, one of whom was Mr. Whalley, the nurseryman, of Liverpool, gave evidence that the injury done to the trees amounted in value to nearly 6000*l.*, and that it took them four weeks to make the valuation.

Injury of the most extensive kind was proved then to have been committed. But how? The plaintiff said by the alkali works; and he rested his case upon the fact that the trees most exposed to the works were most injured; that they had been healthy until the alkali works were put in action; that they had continued to decline ever since; that the destruction of the trees consisted in their leaves being scorched or browned; that they then became "stag-headed," and that there was no apparent cause for this sudden change from a state of vigour to one of rapid decay, except the presence of noxious acrid vapour in the air. That such vapour was discharged from the defendants' chimney into the plaintiff's park and grounds was proved by persons who had watched it; that it was of a very acrid nature was proved by those whose eyes had smarted from it, and who had coughed when it entered their lungs, although two miles off. That these symptoms indicate the presence of muriatic acid gas; that muriatic acid gas is largely thrown off by the chimneys of alkali works, and that it produces noxious effects on plants similar to those which are observed in the plaintiff's woods was also conclusively established.

Many of the arguments adduced by the defendants to shew that they were not guilty would be unworthy of notice if it were not that hereafter similar cases may arise, and ignorant men again be put into a witness box who may have more weight with a jury, or may be brought before a less intelligent judge than Mr. Justice Cresswell. One opinion was that a great storm, which took place on the 6th January, 1839, and did much injury to shipping on the Lancashire coast, might have been the remote cause. In support of this, one Dick was produced, who swore that he was a gardener in the neighbourhood; that in his judgment the frosty wind of January 6th did all the mischief, and that severe frost between November and March injures forest trees! It happened, however, that it rained pouring all that night; and as for the action of frost during winter on Oaks and Ashes, Mr. Dick's opinion did not weigh with the jury.

A more favourite ground was bad drainage, and unsuitable soil. But it was proved that the greatest mischief was on hill sides and on slopes, where no water could lodge; that the least injury was in hollows, where only the drainage could be insufficient; and that there was not anywhere the slightest sign of "mossiness," which is an invariable accompaniment of disease in wet land. As to the soil, it was proved to be good stiff loam, perfectly suited to the growth of trees. Nothing has more surprised us than to find men, called respectable, exposing their credit or their judgment to peril, by such testimony as was given on the part of the defendants as to these two points. We happen to know the country, and to have seen these trees, and we can say that we never heard of statements more totally destitute of foundation than some of those made for the defence. In some places the trees are on the slopes of rich meadows, in others on the sides of gulleys or steep hollows; as for the soil, much of it is capital Wheat land, which would let for 3*l.* per Cheshire acre; and, moreover, the whole question of bad land or bad drainage is settled by the fact that uninjured trees in high vigour are intermingled with the dying, and that the latter were in the greatest luxuriance until they were destroyed by the decay that has lately attacked them, in the manner already described.

Of course the jury found for the plaintiff.

But although no possible doubt exists that the mischief was caused by the acrid vapour proceeding from the chimneys of the alkali works, there were some curious circumstances that required explanation, independently of some apocryphal statements to which we need not allude.

It was a great fact that the injury was chiefly done to Oaks and Ashes and Larches. Not that other trees escaped; on the contrary, Limes, Beech, Spanish Chesnuts, and Elms furnished their quota, but to an inconsiderable amount. Hazel we believe escaped altogether, and Alders, Sycamores, and *young* Scotch Firs suffered little, if at all. Old Scotch Firs were, however, greatly damaged. This is no doubt connected with the powers which different trees possess of resisting external poisons. The Oak, Larch, and Ash, are the most tender leaved of our forest-trees when the leaves are young, and it might be expected that they should be most easily injured by muriatic acid gas. The Sycamore, on the contrary, is naturally able to resist the sea-spray, which has an analogous action to that of muriatic acid gas; Hazels and Beech are guarded by their copious hairs; Alders by their glutinous varnish. Besides which, plants certainly have, like animals, specific powers of resisting poisons; and therefore it does not follow that because A and C are killed by *x*, that therefore B D and E shall also die. A dog is not killed by dropping hydrocyanic acid, perhaps the most subtle of all poisons, upon its skin; a horse will take a pint of castor-oil without danger; rhubarb will not act upon him at all, though it produces its usual effects on a cat; and opium, which so readily stupifies man, will hardly operate in that way on a dog.

We have before us the result of some little experiments which prove this conclusively. A dose of chlorine which killed all the foliage of Escallonia rubra, hardly touched a Cineraria guarded by its natural wool, and did not in any way affect the young tender expanded leaves of Berberis aquifolium, although the old leaves were destroyed! In another case, when a strong dose of muriatic acid gas was thrown into a box containing various branches newly cut in the autumn from the trees, the following was found to be their condition 12 hours after the experiment:—

Scotch Fir.—Little affected.
Larch.—Nearly every leaf killed.
Ash.—Every leaf killed.
Oak.—Youngest leaves only injured—old leaves not.
Whitethorn.—Youngest leaves killed—old, browned at the edges in various degrees, or not affected.
Sycamore.—Some leaves quite uninjured—others half killed—others quite. The leaves were only affected where the corrosive vapour had been condensed upon them in considerable quantity.
Alder.—Old leaves safe—younger leaves variously affected and curled.
Hazel.—Ditto ditto.
Elm.—Ditto ditto.
Grass.—Variously but not much affected—a good deal quite green. Some quite brown.

Another curious circumstance on which the defendants' counsel much relied was the presence of single dying trees among others that appeared uninjured. For example, a "stag-headed" Oak might be found among healthy Oaks, a dead Spanish Chesnut tree in a wood near where another escaped, and so on. This was true; and it was argued that such cases completely overset the opinion that injury to the trees was caused by noxious matter brought to them through the air from a distance; for, said counsel, "if the cause were referable to vapour, clumps of trees and not isolated trees would have been withered and destroyed." But these cases admit of an easy and satisfactory explanation, independently of the fact that they formed a great exception to the rule, which was that the trees did die in long lines or large patches. There can be no doubt that individuals of the same species have different vital powers; that what physiologists call *idiosyncrasy*, occurs among plants as well as animals, and that one individual is susceptible of a dose of poison which would be disregarded by another. In all epidemics the weakest persons perish first; if vermin attack animals the unhealthy are first seized upon; one man is intoxicated by a glass of wine, another will drink his bottle; one lady faints when violets are presented to her, another wears them on her person; one man is killed by four grains of opium, and another habitually indulges in nine ounces of laudanum daily. Here it is evident that there are great differences in the vital power of the same species; for there *is* a vital power which overrules all other forces, whatever materialists may say to the contrary. And so it is with plants, which are much like animals in many curious respects, not the least remarkable of which is the way in which they are influenced by poisons of whatever kind. This, then, is the undoubted explanation of what would at first appear an inexplicable mystery. A tree is naturally of a weak constitution; a stream of muriatic gas plays for an hour or two on its leaves, and it falls a victim. Another near it, in full vigour, resists the action so far as not immediately to die; but it is injured and becomes unhealthy, and when again exposed to a sufficient dose is advanced another stage in its downward road; and this action going on at various times, under various circumstances, will of itself produce a complicated result. The end of it, however, will be the destruction of all the trees capable of being affected at all, and the result in Sir John Gerard's case must be the total destruction of all his timber, unless he can put a stop to the operations of his alkaline enemies. We need not add that what has been the fate of this gentleman's property will be the fate of everybody's who permits such works to be established in his neighbourhood.

As the season wears on new facts slowly accumulate, and add to the puzzles of the Potato Question, without assisting in its solution. We may briefly advert to a few of them.

There is no doubt that diseased Potatoes left in the ground all winter have produced as good, and in many cases a better crop, than sound Potatoes planted in spring. Of this we have many examples.

A very curious fact has been pointed out by Mr. C. Ewing, gr. to O. F. Meyrick, Esq., at Bodorgan, in Anglesey. He had a frame of forced Potatoes, early in the present year, which were attacked by disease, as we ourselves can testify. Nevertheless the crop was matured, and placed in a dry shed, and "strange as it may appear," we quote Mr. Ewing's words, "every one of them are to the present hour as sound as Potatoes can be, even the very smallest of them, and not a trace of the prevailing disease to be seen, and the Potatoes are now beginning to shoot, and have showed no signs of premature growth. It appears extraordinary that forced Potatoes should have kept all these months after being attacked early by their growth by the disease. As for myself I cannot in any way account for the singularity further than supposing that the constitution of the plant has been regenerated by an early habit of growth."

A second peculiarity is the indestructibility of the old set. We have ourselves found, in heavy land, that certain of the old sets of last year, the tops of which are blighted, remain perfectly sound, and are changed to a firm waxy mass. Sir Charles Lemon has remarked the same thing in Cornwall. In a field of 5½ acres, belonging to a friend, from

10 to 20 per cent. of the sets planted have not decayed at all; and were fresh sound Potatoes when taken up. Some of them were whole and some cut, and the living plants were still attached to them. In this instance the disease would appear not to have proceeded from the set, and an inference might be drawn that the evil *must* be traced to some other source. But these old sets, apparently so sound to the eye, in about ten days decayed entirely, and in a very unusual way. There was no appearance of fungus. Sir CHARLES LEMON examined them with a strong microscope, and could not see a trace of mould; but the substance of the Potato seemed to have melted into a viscous black fluid like treacle. The outer skin still showed organisation, in the shape of grains of sand, but the pulp was quite disorganised. It is, therefore, to be presumed that Potatoes thus apparently sound, nevertheless possess some peculiar property which prevents their keeping, and may be communicable to their offspring.

A still more curious fact of the same nature has been brought to our notice by F. J. GRAHAM, Esq., of Cranford. This gentleman furnished us with some Potato plants raised in a vinery last December, and placed in the spring in a partially shaded border, where they have remained ever since, without being turned out of their pots. Their tops were blotched by the 1st of August; nevertheless, we found the old sets, whole Potatoes, still attached to them, not only perfectly sound, but containing a considerable quantity of starch. These sets have not run into decay like Sir CHARLES LEMON's, but are still quite sound and safe. Was the starch deposited for a second time in the cells of these Potatoes? or had it never been consumed?

Mr. GRAHAM has also enabled us to strike out of our list one of the supposed facts given at p. 548. We had assumed, as an invariable rule, that blighted Potato stems are attacked by a brown decay below ground, long before any disease appears in the leaves. And our observations had failed to produce any instance to the contrary. We must, however, now modify that statement; for Mr. GRAHAM's Potatoes, above alluded to, with sound starchy old sets, although blighted, presented no sign of the brown underground spotting.

We had proposed to add some remarks upon the supposed effect of the smoke of copper furnaces in averting the disease. But although, owing to the kindness of correspondents, we already possess some positive information upon this point, we prefer delaying its communication for a week or two.

FAMILIAR BOTANY.

THE DEADLY NIGHTSHADE.

"Were such things here as we do speak about?
Or have we eaten on the insane root
That takes the reason prisoner?"

IN ruined and desolate places, in the skirts of woods, among the offal of a garden, there grows a "wicked weed" which our ancestors called Dwale. Its very name is portentous of misery and woe. Unlike some of those plants which conceal their venom under a fair aspect, or disguise it by a fragrant odour, this is fetid in its leaves, and repulsive in its flowers, which are dull pale chocolate coloured bells with a lurid yellow bottom. There is not a point of beauty about the thing till it bears its fruit, but then it becomes only too attractive. No cattle will touch it; not a fly or grub finds a resting place or a pasture among its leaves, and it may even be said to be shunned by its own species, for it usually grows year after year singly, in the same place, without a companion near it.

The root of this plant is a thick tap, deeply plunged in the earth. Its stems grow about two or three feet high, and produce from their forks the solitary nodding blossoms. The leaves are dull green, and pretty constantly in pairs on one side of the stem, as if they had been half torn from their sockets, and misplaced in the setting. They are unequal in size, have a soft almost greasy feel, and are in form not unlike an egg cut through lengthwise, but sharper. In each of the bell-shaped flowers are 5 stamens adhering to the sides, and a roundish 2-celled ovary, with one style, many ovules, and a kidney-shaped hairy stigma, with a pair of blubber lips. The border of the corolla is regularly cut into 5 divisions. As soon as the flower drops off, it is succeeded by a green ball, filled with small seeds; this as it swells becomes distended with deep purple juice, till at last it grows into a fruit, succulent, sweetish to the taste, tempting to the eye, and not unlike a black Cherry.

In Latin it is called Belladonna, a word signifying fair lady, and first applied by the Italians. The learned Bodæus a Stapel says it obtained this name, because people took a potion prepared from it in order to procure pleasant dreams, of which handsome women invariably formed a part. But its true history is that a cosmetic was once prepared from it. Distilled Dwale-water was said to remove freckles, and to render the complexion fair and white. But it has long been forgotten, the gentle sex having discovered that "le meilleur de tous les cosmétiques est une vie sobre et régulière; il conserve la santé, et la fraicheur qui en est l'expression." We now call it the Deadly Nightshade, but the Germans term it Wolf's-cherry and Devil's-berry, and thereby point out how much it is to be shunned.

These names reveal its nature. It is a fatal poison in every part—berries, leaves, stem, and root; and the first are a fruitful source of fatal accidents. Half a berry is said to have caused death. Hence the fruit has been occasionally used as an intentional poison. The old chroniclers tell of a legion of Danes having been feasted by the Scotch, who finished them off by a mess of Dwale, from which they never woke; a German case is recorded of death having been caused by crushing the berries in wine, and an old woman is said to have killed a person by a potion prepared by boiling the flower-buds in water.

Accident, however, is more commonly the cause of injury from these berries. They are gathered in wild places by ignorant people, who think no ill of a fruit so fair. A French writer mentions an instance of 150 soldiers having been poisoned near Dresden; and less extensive instances occur frequently, of which we have at this time an example, in the case of a man now lying in prison to take his trial for poisoning persons in London by selling the berries for tarts.



Of these cases phrenzy is a symptom; persons eating them become maniacs in a few hours; and this quality is characteristic of the whole plant; for when Shakspere called the Deadly Nightshade the "insane root" he only expressed poetically its well known properties. "Even the dried root produces insanity," are the very words of Haller. Hence the names of the old herbalists, who called it the mortiferous, somniferous, or furious Solanum.

It is, however, certain that some constitutions are able to resist this poison much better than others. It seems doubtful, indeed, whether any effect at all is produced by small quantities upon some people. Haller lays it down as a rule, that three or four may be eaten without danger; and he asserts that he has seen a larger number swallowed with impunity by a medical student of Cologne, named Simon. A Danish gardener once employed near London, is said to have habitually swallowed a berry when annoyed by the impertinencies of his companions; and a case is quoted by Dr. Christian of a French lad who ate a pound of the berries before going to bed, and nevertheless recovered, although he was not subjected to medical treatment till the next morning. These facts give some colour to the assertion of the man now awaiting his trial, that he did not know the berries to be poisonous, because he had eaten them himself.

But how deplorable it is that the population of a city like London should be so profoundly ignorant as not to know these berries when offered for sale. We hear of no policeman stopping Hillard's trade; indeed, it was at first supposed that they were Sloes that he was selling; even the reporters in the police-courts seem to have known no better. Would it not be as well if as much botany were introduced into our national schools as would prevent such fatal consequences as these? A very little instruction would render such instances impossible.—*R. E.*

ON THE ORGANIC COMPOUNDS WHICH CONSTITUTE THE NUTRITIVE PORTIONS OF THE POTATO.

By the Rev. Prof. HENSLOW.

(*Concluded from p. 549.*)

According to Prof. Johnston, 1¾ lbs. bread contain 18 oz. starch and 3 oz. gluten. If we consider the remaining 7 oz. to be water, we shall be far within his own estimate in his larger work, where he states bread may contain as much as 46 per cent. of water. In our case we are not now allowing for more than 25 per cent. Now it would require 2 lbs. 14 oz. bread to supply 5 oz. gluten; but this quantity would also supply 30 oz. starch, which would yield 13 oz. carbon; that is to say 5 oz. more carbon than we are now supposing to be daily necessary for respiration. This superfluous 5 oz. starch, together with the oxygen and hydrogen of the other 8 oz., would furnish the whole of the superfluous elementary matter (exclusive of that in the water), which will have been introduced, beyond the quantity that was needful. In the same way, we may calculate for the other two substances (Potatoes and raw meat) named in the Table. I may observe that there is no superfluous nitrogen where bread alone, or Potatoes alone, may be the diet established on these principles; and that there is no superfluous carbon where meat alone is employed. In order to avoid any superfluity of both carbon and nitrogen, we might make our estimate for a diet which shall consist partly of animal and partly of vegetable substances; or else entirely of animal matter, by admitting fat or oil (which contain no nitrogen) to replace the starch or other vegetable materials in such estimate. In the lower compartment of Table C, I have given a calculation of this sort for bread and meat together. Although it is impossible to avoid a superfluity of oxygen and hydrogen, it will be seen that these elements are here liberated in the proportion in which they combine to form water. Since milk may contain a superfluity of nitrogen in comparison with the carbon (in the same way as we find to be the case in lean meat), a combination between milk and starch might be so adjusted as to secure no excess of either. Such a combination may be made with about 8 oz. starch and 3 quarts of milk, and consequently a very nutritious and economical diet would be the result.

I trust I have said enough to show you the general bearing of those principles upon which chemists found their calculations, when estimating the nutritive properties of animal and vegetable substances. I have also given you examples, in the case of the Potato, and two or three other substances, which, I hope, will be quite sufficient to convince you of the great importance of such calculations in the hands of chemists and physiologists better acquainted with the details of those sciences than I have any pretensions to be. It must, however, be borne in mind that such calculations may be worse than useless when they are considered all-sufficient guides to our judgment in the choice of food. They may be extremely valuable in pointing out to us the relative properties of different descriptions of food which have already been acknowledged sufficiently grateful to the taste, and approved for the nourishment they have been known to afford. They may also serve to show us how extremely cautious we ought to be in maintaining a good quality in the various articles admitted in the dietaries of our workhouses and prisons. Otherwise, we may inadvertently be guilty of extreme injustice to the unhappy persons subjected to those trials which the discipline of such places makes it necessary they should submit to there. Different varieties of Wheat, of Potato, or other food admitted into those dietaries, may vary very considerably in the relative proportions between the carbon and nitrogen they are calculated to supply. There are certain varieties of Wheat which are expressly cultivated for their starch alone, on account of the superabundance of that ingredient compared with the gluten. The same is true of the Potato. The very general dislike which our poor manifest to the use of Rice, may have arisen from the practical experience they have obtained how little gluten it contains in comparison with good Wheat flour. Now, I have no wish to join in any outcry against the poor laws, much less to lay upon them any consequences which may have resulted from their mal-administration; but it seems to me to be one of the chief conditions under which public relief should be administered to paupers, that no one should be able to complain with justice that the food allowed him in the workhouse was insufficient to appease the cravings of nature. I am no judge whether the dietaries with which our unions are furnished, by an authority from which the guardians cannot appeal, are always calculated for securing the object which they do. Certainly, I know that able-bodied men constantly complain that they lose their strength, and feel continued craving whilst they are in the workhouse. May not such complaints be sometimes (at least) owing to the very causes to which I have referred? Where a dietary has been calculated for something very like a minimum supply necessary for securing a sufficiency of the two elements essential to respiration and nutrition, very slight differences in the quality of the food provided may so far alter the relations between the nitrogen and carbon as to subject the able-bodied inmates (in particular) to that constant craving of which they complain so commonly, that I have no doubt they are speaking the truth. The necessary restraints to

which the inmates of a workhouse are subjected, will generally be found quite sufficient check against their having frequent recourse to it, except in cases of absolute destitution. Surely the utmost caution should be taken against making it a place of positive punishment, rather than a necessarily disagreeable retreat from selfish oppression, or a necessarily unpleasant asylum against positive want.

Home Correspondence.

Polmaise Heating.—While I congratulate Mr. Herbert in finding that the principles of Polmaise are available in practice, I cannot allow him, however unintentionally, to mislead your readers, as to the necessity of combining Polmaise with any other plans of heating, such as boilers or flues. The Air-king is fully able in his own person to provide for the necessities of his subjects, to guard even the tenderest of them from the Ice-king, and his rule in the gardening world will extend from the Orchidaceous house and Pine stove to the simple, cool greenhouse. I hope your correspondent will forgive me for saying, that of all the company in which I shall least wish to see Polmaise, it is side by side with the smoke flue, and I beg your readers to pause before they attempt any combination of the kind. Let the past experience in smoke flues be sufficient; they might have been combined with the hot-water system, but its patrons knew and avoided the evils; let the admirers of Polmaise be equally wise. They are quite as unsightly as Mr. Murray's wet blanket; and if the Polmaise stove is properly constructed and managed, far more useless. Mr. Herbert states, that the heat that issues from his air-chamber is inconsiderable, while his flue is quite hot; in my arrangement, the air is quite hot, 84°, 90°, 96° Fahrenheit, while the chimney is nearly cold, the iron damper not being in any way unpleasantly hot to the hand; and I do not hesitate to assert, that if Sylvester's doors are employed for the fire and ash-pit, if any quantity of heat worth considering is lost up the chimney, it is the fault of the operator, who, by allowing more air to pass than is requisite to supply oxygen for the consumption of the fuel, causes a needless waste. Chimneys and flues become heated far less by the products of combustion than by the quantity of hot-air which is allowed to pass through them altogether undecomposed, and therefore unnecessary; and the true mode of economising fuel is by permitting only so much air to pass to it as is requisite for its gradual combustion, and this (thanks to Mr. Sylvester) we can now accomplish. I also think that iron forms a better top to the stove than a brick arch, for the simple reason, that being a better conductor, it absorbs the heat more rapidly from the ignited fuel, imparting it to the air that blows over its upper surface, while the sides of the furnace being formed of 9-inch brick work a sufficient store of heat is absorbed to retain a high temperature long after the fire is extinguished. I should not approve of iron alone, that would be too good a conductor; the heat would be subject to sudden variations, unless great care was observed to maintain an even fire, and there are other objections; but the exact proportion of brick and iron best fitted for the work must be determined by experiment, and doubtless, it will be found advantageous to adapt the proportions according as the heat is required for a forcing house or conservatory. Your correspondent must be in error respecting the size of my tank; it is 5 feet long by 3 ft. 6 in. wide, with a division; surely as evaporation takes place only from the surface, this is sufficient—my streaming windows seem to prove it so. Lastly, as to the hot chamber being without the house, and "losing half the heat it could supply," the apparatus at Nutfield loses no heat except that which radiates from the furnace doors, and the work surrounding them; the stove is otherwise so insulated that all the heat it gives off is carried by the currents into the house. I shall be extremely glad to see improvements upon my own plan; I do not doubt that they will shortly be effected, but I must express an opinion, that Mr. Herbert's is not an improvement; I have given my reasons for such opinion, and I especially call the attention of your readers to the fact, that as far as the principles of Polmaise have been carried out in his apparatus, they have proved successful.—*D. B. Meek, Holmsdale House.*

The Camberwell Beauty.—I took a fine specimen of Papilio Antiopa, or Camberwell Beauty, this week, so intent upon discussing the remains of a Peach lying on the ground, that I threw a piece of muslin over and secured it.—*A. B., Leatherhead, Sept. 7.*——I was about to send a notice of my having captured a specimen of Vanessa Antiopa (the Camberwell Beauty) in my garden last Saturday, Sept. 5; when I find in the *Bury Post* to-day an account of two having been taken at Stowmarket Vicarage, and one by Dr. Probart, at Bury. I have also heard of another having been seen at Somer, three miles from hence, about a fortnight ago. As a period of 40 years has sometimes elapsed without any specimens of this butterfly having occurred in England this notice will be interesting to entomologists. The periodic appearances of certain insects in peculiar abundance are difficult to account for, and there may be cases where the eggs have lain dormant, as some have suggested, until their hatching has been favoured by some peculiarity in the season; but I am rather inclined to believe that in such cases as the present, our visitors have migrated. Dense clouds of butterflies have often been witnessed in the act of migrating, and I have seen a memorandum in the possession of the Rev. L. Jenyns, which stated that vast numbers of this very V. antiopa had many years back been observed dead upon the shores of Suffolk. These had very probably perished in their attempt to cross the German Ocean.—*J. S. Henslow, Hitcham, Suffolk.* [The Rev. Mr. Lloyd, of Gosfield, Essex, has also captured one specimen, and heard of another.]

The Hamiltonian System of Pine Growing.—Mr. Stothard (p. 597) appears to be of opinion that in a Pine plant, having four or more suckers attached, the latter are so many distinct plants. Now by the same mode of reasoning, every branch in all plants attached to the parent stem is a distinct plant. Mr. S. has, however, a mistaken notion of my system. I can prove that I will cut 4 fruit in 1846; 3 fruit in 1847; 4 fruit in 1848, and all from one plant; and which shall occupy no more room than is generally allowed for a maiden plant. But to clear up the point, I cannot do better than call in question the testimony of Mr. Ellis, lately come to be gardener at Ultra Cottage, Eccles, who accidentally called this morning to look through the hothouses. He is a stranger to me; but told me he knew Mr. Stothard perfectly well; and he appeared to take much interest in investigating the subject of controversy. Mr. E. counted the old stools, which proved to be 62 in a bed 24 feet in length, by 7 ft. 4 ins. in width. On each plant are from two to four suckers, say three on an average; now if 62 be multiplied by 3, the product will be 186; therefore, supposing Mr. Stothard's calculations to be correct, *i.e.* that every sucker is a perfect plant, then I have 186 Pine plants growing in about 170 superficial feet. Can anything be more absurd. With respect to the age of the suckers when fruited, I contend that both sucker and fruit may be perfected in summer in about seven months. I may further state, that I have several plants from which I shall cut four fruit during the ensuing twelvemonths. One plant has ripened a fruit this year, a second is half swelled, a third and fourth are also in different stages of growth, and which are now on the plant. The four fruit will not weigh less than 16 or 17 lbs. I may also perhaps mention another plant of the same sort (black Jamaica) from which I cut a fruit in February (this year), a second early in August; a third is now ripe, and a fourth sucker is making rapid progress.—*J. Hamilton, Thornfield.*

Thunbergia chrysops.—I have been endeavouring all this summer to persuade a plant of the Thunbergia chrysops to flower, but I cannot succeed. I have resorted to all the ordinary means of effecting this object, but in vain. I have tried bottom heat, confining the roots, stopping the shoots, &c., but to no purpose. I have plenty of leaves on the plant

Luxuriâ foliorum exuberat umbrâ

but I never have had a blossom, and I fear the season will go out and I shall be disappointed of my hopes. Will any of your correspondents tell me what I can do in such a case, and whether this infecundity is to be attributed to unskilful treatment on my part, or to an obstinacy of character on the part of this truly beautiful species of plants?—*Derwent.* [Some practical information as to this plant is much wanted. It is a charming species, but one which few succeed in making flower abundantly.]

Vine Growing (see p. 597).—Watering the roots in an outside border, where fermenting material is employed, would be the last thing I should think of doing, more especially if the border has been properly made. After top-dressing in autumn the border will very soon receive a greater amount of moisture than is required to perfect the wood and fruit. When the fermenting material is applied a week or two previous to the starting of the Vines (which it ought to be, to put the roots in motion), the border, I presume, is surcharged with moisture, which will be sufficient during the forcing season. When the fruit has changed colour, remove the fermenting material by degrees; but should the season prove dry or hot, leave an inch or two of leaf-mould or rotten dung, to prevent too excessive evaporation. By the heat of July, August, and September, the roots, having been stimulated to give a generous support to the top in time of need, as well as induced to keep near the surface, will, by the powerful influence of the sun and dews during those three months, have become perfectly ripened; at the same time the wood will have become consolidated, and at pruning time the canes will resemble, when cut, the appearance of a Hazel-shoot of two years' growth. Top-dress in October or November; proceed as before, and despair not.—*James Roberts, Raby Castle.*

A safe and effectual way of taking Wasps' nests.—Tie a penny squib to a stick, or put the squib into a piece of an old gun-barrel, about 6 inches long, fastened to a stick or handle; the squibs are about 5 inches long, and the gun-barrel may be left open from 4 to 5 inches, for receiving the squib, to be fastened in with a bit of stick, or something about the size of a goose-quill. As soon as the squib is ignited, and forced into the hole of the nest, stop the hole up with your foot or a tuft of Grass, or both; the wasps will be instantly suffocated, but gradually recover in the open air. In the mean time, take two or three spade grafts round the hole, and on reaching the nest it may be removed with the naked hands, and put into a bag of coarse linen and drowned, and the grubs, &c., are very acceptable in the poultry-yard, particularly for young turkeys; then insert a bottle and funnel in the hole, leave it for 24 hours, and take it up at night, when the wasps are principally at home, and you will capture about 400 or 500 wasps. Bait the bottle with a small bit of the comb. This is supposing the nest to be about the size of a man's head, and the nest taken in the day-time. I prefer taking them in the day-time, and in seeing some dozens of nests so taken, I do not recollect any person having been stung; but care must be taken to avoid noise and bustle. In the year 1845 about 112 nests were taken within the range of a quarter or half a mile of my garden, for which I allowed *2d.* for each nest. When the nests are taken in the dark, or by candle-light, there are fewer wasps away from the nests than in the day-time, when so many are on the wing; but they are apt to be taken in a more slovenly manner at night than in the day time. I have hitherto described a good way of taking nests under favourable circumstances; and I will now mention some precautions necessary under reverses. At night you may lose all trace of the hole to the nest, until the wasps recover from their suffocation; and the safest way is to give such a nest a respite; but if the nest is amongst the roots of a tree, a pick-axe will be required, and may be better reserved for another opportunity. Nests by the side of a highway, which are continually pelted with stones, and struck with boughs, are dangerous to passengers and horses. If there is more than one hole to a nest, the squib cannot have the proper effect, for when put into one hole, the wasps fly out at another in great fury. I once met with a nest of this description in 1845, and immediately upon using the squib, two wasps stung me on one hand, upon which I made the best of my way out of their reach, and deferred taking the nest; but the second hole was then stopped. This nest was taken after working hours, before dark, by my workmen, and it being in a situation exposed to passengers, some common bottle and funnel was put into the place where the nest had been, and 2002 wasps were so entrapped, the usual numbers taken in the glass traps seldom exceeding half that quantity. I never had so many nests taken as in the year 1845, and very few wasps infested my garden; and particularly the Greengage and Orleans Plums, on a wall with a western aspect, were entirely untouched by them this season, although they are generally much injured by wasps. The glass bottle and funnel is very efficient in being handed from fruit to fruit, when the wasps fall into it. On the 19th of August, one of these glasses was placed on a shelf near some ripe Grapes, baited with treacle and water, in a greenhouse, with the view of taking some wasps; but there were very few wasps to be dealt with. However, three slugs got into it in the night, two small ones, but one very large one, 5 inches long; another got in the next night, and it appeared to be of the same size and weight as the former one (6 drachms). My people declared that they measured the latter at 7¼ inches, on the move, inside the glass. The slugs were of a brown colour, and white breasted, exactly like the large black and white slugs which are frequently met with; these slugs must have travelled about 4 yards from the root of the Vine, not as an accidental circumstance, but from an instinctive search for food, as a similar occurrence took place in two successive nights, to the only Grapes which were ripe. These glass traps are retailed in Oswestry, at *2s. 4d.* each; but cheaper articles may be easily contrived for ordinary purposes. The Grapes were growing under the glass roof, on the wall of the Vinery facing the east, at the extremity of the plant, and I conclude that the slugs were attracted thither by the fruit, and not by the bait; but, if the glass funnel had not entrapped them, they would never have been seen, and the damage to the fruit would have been unjustly laid to the charge of the wasps. I further think, that they would not have found their way into the glass bottle, if they had not got upon a bunch of grapes alongside of the opening. It is scarcely credible, that a glass trap should have caught 1002 wasps on the wing from one nest, and two large slugs, 7¾ inches long, in a Vinery; one each night for two successive nights, and 4 yards from their hiding place. I have had about three scores of wasps' nests taken this year, but the wasps damaged my plums to some extent.—*North Shropshire, August 25.*

Legg's Hydraulic Machine.—Having seen this machine advertised, my curiosity was excited, as I imagined a working machine could not be manufactured at so small a cost. However, I have been agreeably surprised to find (on inspecting the machine), that its simplicity, durability, and usefulness, cannot be for a moment doubted. The one I looked at supplies the house, garden, and a fountain. In my opinion the great advantage it possesses over other engines is the small quantity of water it requires to keep it in motion, and its not being liable to get out of order; oiling two or three joints once a week is all that is necessary. I shall be much astonished if, in the course of a few months, when the public fully understands the merits of the hydraulic engine, it does not become a general favourite. Who would be without a good supply of water on their premises when it can be procured from the distance of half a mile as easily as a man can pump it out of a well? Easier indeed; for no manual labour is called for.—*Piston.*

Elder Rob or Jelly.—Pick the berries when quite dry, and free them from their stalks. Put the berries into large jars, and fill them rather more than three-parts full. Set the jars in a baker's oven after the bread is drawn, and let them remain all night, or put them into saucepans two-thirds filled with water, and let them simmer gently about two or three hours. Place a coarse cloth or muslin over a cullender, pour the contents of the jars into it, and then squeeze the pulp till not any juice is left. To the juice from a gallon of fruit put 1¼lb. of fine moist sugar, or common loaf sugar. When

dissolved, put the juice into a stewpan, or clean saucepan, and boil it till quite thick. The proof that it is thick enough is to put a little on a plate, and if, on gently inclining it, the juice adheres, and does not run, it is boiled enough. Put it in preserving pots. Moisten some very thin paper with good salad oil, the smallest quantity possible, then tie them down and keep them in a place which is airy and light, but not damp. The above rob is excellent in colds, coughs, sore throats, fevers, and is said to be a specific for the erysipelas.—*A. B.*

Immediate Remedy for the Stings of Wasps, after extracting the Sting.—Put two or three drops of laudanum into a spoon, and scrape washerwoman's stone-blue into it till it is as thick as cream; apply this with the finger to the part stung, and the pain will instantly cease, and the swelling soon go down. The writer has tried this and has found it effectual.—*Anon.*

Lawns.—To destroy Plantain and other weeds, I have found that a common stake, cut wedge-like to a sharp edge, about 1-inch wide, is more effectual than a spud. The spud cuts through the root; the stake, with a smart thrust, breaks off a considerable portion of it, and with less injury to the lawn.—*Experto crede.*

Chickens hatched by a Partridge.—On an estate in the parish of Baddingham, in Suffolk, in June of this year, a French Partridge's nest was found with 14 partridge's eggs and 4 hen's eggs in it, and the broken shell of a fifth hen's egg. The following day the nest was again visited, the 14 partridges and the 4 hen's eggs were still there. This day the eggs were found to be cold, and it was supposed, therefore, that the eggs were forsaken. They were visited again on the third day and still found to be cold; the hen's eggs were then broken. They were on the point of being hatched, as the beaks of the little chickens had all pierced through the shells. They were, however, then all dead. The partridge's eggs were then tried, and were within a few days of being hatched, but without life. The pair of old birds have frequently been seen about since with the chicken, the latter endeavouring to follow the old birds as well as it could, but making a very poor attempt at a long flight, something between a run and a fly, but still considering the old birds its natural parents, and looking to them for protection as well as maintenance. Is this a sufficiently curious occurrence to justify the expense of stuffing the chicken when full grown, if it can be got at then? it is at present wild. This occurred near a farmhouse, where hens are kept. It is supposed the partridges must have left the nest the day it was first noticed.—*Anonymous, Woodbridge.*

Weights of fine Specimens of Peaches and Grapes.—I can vouch for the size and flavour of the undermentioned, and have no doubt whatever that the weights sent are correct, though I did not see them weighed. Mr. James, gardener to Lloyd Hesketh Bamford Hesketh, Esq., of Gwrych Castle, Abergele, produced 12 Peaches out of the Peach house, that weighed 6 lb. 4 oz. avoirdupois. One of the 12 weighed 11 oz., another 9 oz.; one bunch of black Hamburgh Grapes weighed 4 lbs., another 4½ lbs., another 4 lbs., another 3½ lbs., and the least of eight 2¾ lbs. The berries fine, not too thick or too thin, with a splendid prospect next year for both Vines and Wall trees—*J. B. H., Abergele, Sept.* 3

Effect of Slacked Lime on Potatoes.—Enquiry having been made as to the result of the experiments made at Chatsworth with slacked lime in staying the Potato disease, Mr. Paxton has been kind enough to favour us with the following reply:—Dipping in hot slacked lime completely stops the disease. I planted the diseased tubers with the coating of lime upon them in the usual way, and they have produced as fine a crop as the sound seed near which they were grown; they showed no signs whatever of disease until it became universal, when they were affected like the rest. That hot slacked lime at once stops the disease in the tubers is certain, and also that these diseased tubers will produce a good crop; but their produce is alike under the influence of the mysterious causes of the disease. I intend performing the same operation as before, with my sets this year, hoping a season may come when we shall have no occasion for such practices, but really the aspect of affairs at present is not very flattering to its consummation.—*Joseph Paxton, Chatsworth, Sept.* 9.

Preservation of Potatoes.—When some of these were raised the latter end of last month, a portion of those in which decay had commenced were steeped for 24 hours in chloride of lime and water, one pint of the former to 5 gallons of water: this plan I tried with several successive lots for four or five days; they have since been spread out on a dry floor. The decay has not been arrested, and they remain mouldy, and become worse. Another lot, which were in the same condition when got up, viz., partly decayed, I plunged into lime wash, using 28 lbs. of lime to 12 gallons of water, placing the Potatoes in a riddle, and dipping them in the wash, so as to immerse them: they have since, about 10 days, been spread also on a dry floor; this treatment has proved successful; the decay has been arrested, apparently dried up, and some have been cooked, cutting out the original decay, perfectly well. Both the above plans were suggested by your pages, though not in the same proportion. The crop of Potatoes here has not been so deficient in quality as in quantity; the Potatoes also being very small. Those which I have, I doubt not, I shall preserve by the system I adopted with perfect success last year, viz., drying them thoroughly on a floor, then packing them with dry sand, so as not to touch each other. I may add, that last November I planted some diseased sets, which produced a good crop, which were raised during the summer; another lot from eyes, which were cut out of Potatoes by scoops, such as recommended by Dr. Playfair, and planted in this spring, did not at all succeed.—*G. Rushout, Burford.*

Effect of Pulling up Potato Haulm.—My late planted early Potatoes have been so much affected by the disease that every one is rotten and gone. I pulled the tops of part of them with the view of arresting the murrain, but it had no good effect whatever. The disease is very bad in Anglesey, and the prevailing opinion among farmers is that in a few months not a Potato will be in the county, and judging from the state of the crop I should say they are right.—*C. Ewing, Bodorgan.*

The Chellaston Seedling Tulips.—From the prominent manner in which these seedlings have been brought before the public, it may not be out of place to say a few words upon them, and having seen them in bloom twice last season, I am the better able to offer an opinion. What constitutes a good Tulip? I answer shape and bottom. Now I ask anybody who is a judge of the flower, if one whose shape is thus at the bottom is first-rate? Now nearly all these seedlings are of this shape, and upon referring to my notes made on the spot, I find that there is few above a dozen that I have selected as worthy of notice; but some being in the breeder, and some broken flowers, probably some of these may have two names, as for example, Princess Royal when feathered is called Maid of Orleans by Gibbons, and Princess Royal is entered in his book as follows: No. 43 breaks into No. 18, and No. 18 is Princess Royal. It is said the raiser gave over numbering when he got to upwards of 350. It was high time, for three-fourths of the seedlings had bad bottoms, as well as shape, and no first-rate grower would have tolerated them at all. No florist has caused greater mischief than the raiser of these seedlings. The few that are good have been numbered and named by him at least three times, and I cannot tell for what purpose, unless it is to prevent early purchasers from selling. Last year I know that five individuals were the principal holders of his breeders in numbers, and if he had any desire in him to set them right, how easy would it have been for him to have written or got printed a list of those which were good that he had named from the numbers. I know parties who have applied twice for the names of various numbers, which application has been treated with silence. I can only say that I possess about 500 roots, in 10 or 12 varieties, and will give them a name next year, if I cannot obtain the names from the raiser. There is also another fault in these Tulips, the pericarpium of nearly all rises from half an inch to three quarters of an inch above the filaments or stamens, which is a great fault in a Tulip. The filaments or stamens ought to rise above the pericarpium for a Tulip to be perfect in the inside, and I consider the inside ought to be looked at as well as the outside. What does a florist say when he sees a pin-eyed Polyanthus?—Whatever its other properties may be, it is good for nothing; and is it not a great fault for the pericarpium to stand out from the other parts? The two of the best of these seedlings are Britannia and Grace Darling; they will probably retain their places when the others will be forgotten and discarded.—*John Slater, Florist, Cheetham-hill, near Manchester, Aug.* 19.

Form of a good Tulip.

The general form of the Chellaston Seedlings.

Climate of the Undercliff.—In a late tour round the Isle of Wight, I was much struck at Ventnor with a proof of the comparative mildness of the climate. Under the verandah of the Ventnor hotel, which projects about 5 feet, with a sloped roof, is nailed against the wall of the hotel a plant of the Ivy-leaved Polargonium (peltatum), covering a space of about 5 feet high, by 4 feet broad, or 20 square feet, of most luxuriant growth, crowded with large dark-green leaves, without an aphis upon them, and which, when in flower, as it shortly will be, must present a superb display. This plant, Mr. Ryles, the landlord, informed me has been planted four or five years, and has never received any injury from the frost in winter, from which its only protection has been the roof of the open verandah. But another fact with respect to this plant, and perhaps as remarkable, is that Mr. Ryles also assured me that it has never had a drop of water given to it since it was planted; so that as the wall of the house against which it is nailed, goes deep into the ground on account of the cellar, and as the 5 feet wide floor of the verandah, besides being paved with flagstones, leaving only a very small space for its stem, is protected from all rain by the slated roof, the roots of the Pelargonium must either extend more than 5 feet, or beyond the edge of this floor, in order to obtain the necessary supply of moisture, or must be content with what may be supposed to find its way to them, during heavy rains, from the adjoining lawn, which as this rather declines from the verandah must be small, unless, as is no doubt possible, its quantity be influenced by some peculiar sponginess of the sandstone rock below. In any case, the perfect security of this plant from frost seems to furnish one more to the many proofs of the great importance to this end of as little moisture being allowed the roots as possible, and in this view the fact may be worth recording.—*W. Spence, Southampton, Sept.* 7.

Foreign Correspondence.

St. Petersburgh, August 11.—Much as I had heard of the Peterhoff gardens and waterworks, I have certainly not been disappointed in their beauty, though the situation and arrangement are so different from what I expected. Peterhoff and Oranienboum, at the distance of four or five miles from each other, lie upon the only rising ground on the south shore of that portion of the Gulf of Finland which lies between Cronstadt and St. Petersburgh—a broad inland lake as it were, which as seen from Peterhoff is almost as much closed in to the west by the long island and dense mass of shipping at Cronstadt, as by the distant spires and larger buildings of Petersburgh to the east, and the long, low, dark line of the Finland coast to the north. As you land from any of the numerous steamers which ply from the capital to Peterhoff, you immediately enter the lower garden where the waterworks are, and soon ascend to a terrace road open to the public, on the edge of the hill or bank, and running along the long front of the palace. Immediately behind the palace is the enclosed upper garden, where a band of music plays in the evening, and which is then the great resort of the public; behind that again are detached buildings, and streets containing either crown houses, inhabited by the officers of the court, or private houses constituting the town itself, and almost in the midst of them is the upper lake, with two islands laid out as Italian gardens. To the westward of the whole extend to a great distance the grounds belonging to the palace, the Park and the *Jardin Anglais*, in which is a handsome building destined for the diplomatic corps. This mixture of palace and out-buildings with the town and private residences, and with formal Louis XIV. gardens, grounds in the English style, and Italian villas, and (at present) with the white tents of the Circassian regiment's camp, does not sound well, but in fact we thought it beautiful. The houses all neat, and painted white or yellowish, with here and there a green or red roof, or green or silver domes to the churches, the drives beautifully kept, the trees and shrubs in all the luxuriance of their summer verdure, a bright sun and brilliant sky, and numerous holiday folks enjoying their Sunday afternoons in the cool shade, or amongst the numerous fountains close around the Palace, where every now and then some of the imperial family might be seen at the open windows, is a sight I shall not soon forget. Whatever may be the strictness of etiquette on formal occasions, there certainly is no appearance of guarding the reigning family against the intrusion of the public, nor anything like rude intrusion of the public upon their Sovereign or his family, for the purpose of staring at them.

The lower garden, where the water-works are, is laid out very much in the French style with formal *allées*, circles, canals, basins, fountains, grottoes, &c., but with a great deal of taste, and good advantage taken of the accidents of the ground. There are no such large basins full of fountains, as one or two of the *grandes eaux* at Versailles, but on the whole the waterworks appear finer, the high fountains (as far as I recollect) are more numerous, and one can see a far greater number playing at the same time, and continuing much longer than at Versailles, the supply of water, so essential an item, being so much more considerable; and I think the distribution of the water generally shows more taste. The palace is a low one, but looks well from its position. The upper garden also, in the French style, is a good public promenade amongst shady *allées*; but the ornamental grounds and Park, in which every advantage is taken of the undulations of the ground and of the water are really beautiful. The extensive drives, chiefly staked out by the Emperor himself, show great taste, taking advantage of many fine vistas, and all are kept in beautiful order. But what we admired perhaps the most of any was the Italian island in the upper lake. A small island in a small lake, with a bright white Italian villa and small shrubs and young trees did not promise so well when we first saw it at a distance, but when we came into it, we could not but be struck with the very great taste shown in the arrangement of the statues, vases, &c., all of real value, with the admixture of greenhouse plants and creepers, the large formal parterre underneath of one of the best patterns I have seen, and above all the splendid view from the building itself. In the other island an imitation of a Palermo villa and garden has just been made, and is scarcely yet finished enough to judge, but promises to be little inferior to the Italian one. All that is wanting to the whole place is here and there the exclusion of some structure rather trumpery, and some of the drives are,

perhaps, a little too winding. The whole of the gardens are under the management of Mr. Ealer, whose son (who was lately in England) shewed us over. The glass-houses are of considerable extent, but looked old and old-fashioned; we had not time to go through them. There are besides those above-mentioned several other buildings on the grounds, amongst which the most interesting is the Dutch Palace built by Peter the Great, with many relics of that extraordinary man.

The garden of the Tauride Palace is one of the best within the town; it is under the care of Mr. Gray, son of one of the most celebrated English gardeners here, the late Mr. Gray, of the Ropscha Gardens. The ornamental grounds of the Tauride are well laid out and neatly kept, the vegetation vigorous, and the whole out of the reach of the inundations. Besides these grounds there is an extensive tract cultivated partly as a nursery garden, partly as a fruit garden, with (as we were told) nearly a mile in length of houses and pits chiefly for fruit for the Court. In some of the Peach houses the trees were large, trained nearly upright, with the glass at a very steep slope, and some of them had a very fine crop. There was also a fair crop of Grapes in one of the houses, but most of the houses were not in bearing at present, early fruit being as much in request here as with us; the finest Pine-apples were also over, those now in fruit were numerous but small, with large crowns, and very much crowded in the pits; and in general these gardens did not show that care which is necessary even during the time of rest of the trees. The houses contain also a large stock of plants for the ornamenting rooms—one large one nearly full of Marantas, Calatheas, and other Scitaminee. Out of doors I observed two or three rows of Potentilla alba, a shrub nearly as tall as the P. fruticosa, so common in shrubberies here, but with a pure white flower.

Reviews.

The Potato Murrain and its Remedy. By George W. Johnson, Esq. 8vo. 1846. Baldwin.

The man who shall find a remedy for the Potato disease will have conferred some benefit upon, and conduced more to the convenience of this country; for, although the extinction of the Potato would in many respects be a great blessing, yet, under wise management, it will always be a plant upon which man has a right to count for food.

Mr. Johnson does not pretend that he has discovered that remedy; but he thinks that he can point it out; and he strongly recommends the system of autumn planting, first we believe, seriously advocated by Mr. Grey, of Dalton, in the columns of this Paper. His mode of proceeding is to adopt the plan described in the 12th No. of this volume, and much recommended, as having been for many years pursued by Mr. Shepherd, an intelligent farmer in the Calf of Man. We believe this practice to be the right one; we believe it to be, as we have over and over again stated it to be, the most rational plan of management yet promulgated. But we must not deceive ourselves; we must not give it an exaggerated importance; nor will Mr. Johnson find it suggested in this theory. It is, no doubt, an excellent system, and let us give all honour to Mr. Shepherd, who first proposed it: but it will not keep off the late rain. That is quite a separate question. The following letter to a friend from Mr. Shepherd is conclusive, and requires no comment.

"*Calf Island, August* 31, 1846.

"In answer to yours of the 26th inst., I am sorry to have to inform you that the haulm of our Potatoes is entirely decayed by the prevailing disease, although we cannot yet complain of disease in the root. Should the roots, however, remain sound, they will be a very poor crop. The Potatoes on the mainland, in the south of the island, are entirely lost. Many farmers are allowing the poor to dig them without any payment; and, indeed, the labour amounts to as much, or more than their worth.

"Up to the end of July, I must say that I never recollect the growing crops of Potatoes to have looked better, particularly those that were planted with diseased Potatoes.

"I will, please God, let you know how our crops are affected, as the season advances; but, at present, I have no very favourable opinion of them. Although those we are at present digging have been affected in the haulm since the 2d of August, yet the Potatoes are sound, with the exception of a solitary one or two in boiling; and the crop would have been a great one had the roots been matured previously to the disease taking effect in the haulm. When I say that the Potatoes will be a poor crop, I mean that they will be very small in size. Our Potatoes all came up as well as usual.—Robert Shepherd."

We fear we shall lose the favour of our friends, who are so anxious to rush into print upon this extremely difficult subject; but what *can* we do?

New Garden Plants.

47. Ansellia africana. African Ansellia. *Stove Epiphyte.* (Orchids.*) Fernando Po.

The noble plant now figured was spoken of by us in 1844 in the following terms: "While we are writing on this subject, we would also mention another most noble plant, specimens of which might certainly be procured by any of our African merchants. When Mr. Ansell was ill from the effects of the Niger expedition, at Fernando Po, he found in Clarence Cove, growing on the stems of the Oil Palm (Elais guineensis), an epiphyte with a slender jointed stem about 2 feet long, having at the upper end many stiff, plaited, lanceolate, 5-ribbed leaves, and a terminal panicle of flowers as large as those of Vanda Roxburghii, with dark purple spots on a pale ground. Of that plant we possess a dried specimen, with one of the lower branches of the panicle in good preservation, and as it proves to be a new genus we take this opportunity of naming it after its discoverer." This notice produced the desired effect, living specimens having been received by the Rev. John Clowes, and by Messrs. Loddiges, from the latter of whom the specimen which supplied the accompanying drawing was exhibited to the Horticultural Society, in Regent-street, in February last. The plant was about 2 feet high, and bore 24 flowers. We understand that Mr. Clowes's specimen was much finer. It is indeed a noble thing; for although its flowers have somewhat the colour and appearance of a large Cymbid, yet their panicled disposition, and the entirely different habit of the plant, render it much more showy than any Cymbid known to us. Its nearest affinity is perhaps with Bromheadia, with which it corresponds in having a lengthened stem and terminal inflorescence; and thus it may serve as a connecting link between the Brassid forms of Indian and African Orchids, and as a transition to the Indian Sarcanthids by way of Eulophia or Galeandra. It is very near Cymbidium in technical characters, though so extremely different in its manner of growth. The auricles at the base of the column, the four pollen-masses, and the very narrow gland lining away to each side, sufficiently distinguish it. Although it is stated that this plant was found growing on the stems of the Oil Palm, yet under cultivation it will in all probability succeed best in a pot if treated in a similar way to Peristeria elata. It roots freely in turfy heath-mould, and requires an ample supply of water during the growing season. In winter it may be supposed that a season of rest is necessary, when little or no water should be given; a damp atmosphere being sufficient for all the requirements of the plant.—*Bot. Reg.*

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

Garden Memoranda.

United Nursery, King's-road, Chelsea.—There is now in bloom here a fine plant of Agnostis sumata, one of the Proteads; few of which are handsomer. It forms a little tree 7 feet high, with a bare stem, 3 or 4 feet in height, branching out into a head, clothed with hard shining leaves, from whose axils spring short branches armed with clusters of bright orange blossoms. In an early stage of their development the flowers, each about an inch in length, radiate horizontally from a common centre in a regular manner; but, as maturity is advanced, they gradually bend upwards, forming a cup, ornamented round the top with little round balls, which are the ends of the calyxes. When full blown, the latter are set free, and the red straps of the calyx fall backwards in the opposite direction, presenting a very singular, but truly noble appearance. The plant has been cultivated at Chatsworth as well as at other places for many years; but we believe, until now, it has never blossomed in this country. It is growing in a pot, and about two months ago every branch was topped—not for the purpose of inducing it to bloom, but in order to obtain cuttings which strike rather reluctantly—in a gentle heat under a handglass. The result has been, however, as above described, a profusion of handsome flowers on the old wood, even down on the bare stem. The roots appeared to be rather cramped for want of room, and the wood seemed to have been well ripened, which, no doubt, had much to do in causing it to flower; but the topping is believed to have been the prime mover in the matter. It has been standing in an airy part of an intermediate house.

Miscellaneous.

Anecdote for Naturalists.—A few days ago as the gardener of R. Potter, Esq., of Darley Hall was mowing the Grass-plot, he cut open, lengthwise, an adder of large dimensions, out of which ran a mouse, no doubt recently swallowed. The same person, on entering the stable, heard the croaking of a frog in distress, and on proceeding to its rescue, he discovered the little animal with its hind legs in an adder's mouth, and on killing the venomous reptile, the frog leaped away, and escaped uninjured.—*Derby Mercury.*

A Large Flight of Locusts lately passed over the town of Sunderland. They hovered over the neighbourhood of Hendon, and numbers alighted on the hedges there, till, on a crowd beginning to collect, they took flight towards the south. They appeared to conduct their migration in close company. Several of them were caught.—*Newcastle Journal.* [Mr. Curtis would be obliged by a specimen being sent to him at Hayes, Middlesex, to determine the species.]

Calendar of Operations.

(*For the ensuing Week.*)

Potting Bulbs for Forcing.—The sooner this is accomplished the better, more especially with regard to the imported roots. The chief business is to get the root well established before growth commences, otherwise it is impossible to produce an early and strong bloom. Most of the failures we meet with are chargeable to the omission of this most important point; and the fault has not unfrequently been charged, most unjustly, on the roots. A soil composed principally of a mellow loam, with the addition of old cow manure and leaf soil, and a sprinkling of sharp sand and fine charcoal dust, will be found excellent material. Secure good drainage, and pot the bulb high—three parts above the level of the rim, taking care that the soil is in a mellow state, neither wet nor dry. Shake the pot slightly, in order to prevent the bulb settling too low, but do not by any means press the soil. They succeed by far the best in a cold frame, and it is most desirable that they should receive no moisture, beyond what the soil contains, until the pot is somewhat filled with roots: Those who have not the convenience of a frame may plunge them in cinder ashes in some sheltered spot, taking care to raise them above the ground level, for fear of water lodging. Take care that there is a free passage for the rain, and let them be covered with 6 inches of some mellow material, such as old tan, old leaf soil, sawdust (if not too new), or ashes. This depth is necessary to keep out intense frosts. Those put in water glasses should be kept in a somewhat dark place until pretty well rooted, suffering the bulb to barely touch the water at first.

CONSERVATORIES, STOVE, &c.

Conservatory.—Follow former directions, and pay constant attention to all matters which may aid in keeping up gaiety through the winter. Be sure that all flues are perfectly clean, so as to be ready when severe weather sets in. Give a thorough circulation of air, and shut up with a little solar heat, in order to encourage some of the large specimens of a tenderer character than the ordinary stock. *Orchids.*—Give regular attention to these, in order to ascertain which have completed their season's growth; such should be instantly removed (more especially if any yellowness occur in the leaf) to a moderate house. Several of the Bletias, as well as the old Phaius grandifolius, are very useful for producing winter or early spring flowers. The Maxillaria aromatica, also, is an excellent early thing, provided the growth is early made and well matured. This principle, indeed, applies to all forcing matters. *Mixed Greenhouse.*—Heliotropes, to flower through the winter, and the scarlet Pelargoniums, should now be introduced here on a light and cool shelf. Autumn frosts may shortly be expected, and if such could be warded off by some means, most of these things would be better out of doors for another fortnight. Pot early Cinerarias; those taken in hand in due time will now be showing bloom, and will be very useful in prolonging the autumn display. Those who desire Violets in pots, should now pot their Neapolitans, and early Russians, which were cultivated early for this purpose. This is the period also for planting a frame or pit of Violets, and if required to bloom through November and December, continuing until April, a little bottom-heat is a desirable thing. It must, however, be of a moderate character, not exceeding by any means 75°. The plants must be planted with good balls of earth, and must receive a slight shading for a week after planting; after which they must have abundance of air day and night, but no rain. Pelargoniums cut down a few weeks since may now be disrooted, the soil shook entirely away, the roots slightly pruned, and repotted in clean pots, thoroughly drained. The Anne Boleyn Pinks for early forcing, if not potted, must be done forthwith. All these things, for very early forcing, should at this period be strong and well established in their pots. Let all propagation matters concerning such flowers as Verbenas, Fuchsias, Calceolarias, &c. &c., for next year's display in pots, be brought to a close.

KITCHEN GARDEN FORCING.

Pines.—Those who are commencing the Hamiltonian plan may, on cutting any given fruit, displace two or three leaves, and soil up the stem with a little fibrous or turfy loam; this is not, however, an absolute rule. The plant will, in general, dictate by its appearance when these things are necessary. If the roots at the bottom of the stem near the surface are protruding through the axils of the leaves, it may be taken as a sure sign that help may be rendered in this respect. Earthing up in the late autumn months and through the winter can, however, do little good; for, unless great heat be kept up, and that aided by more solar light than we can possibly expect at that period, very little assistance can be rendered. Mr. Hamilton jocosely observes in one of his letters, in reference to the comparative value of the old and the stem roots, "it is well to prove our new friends before we let go the old." Perhaps this maxim may be applied to the Vine, which is apt to produce stem roots.

FLOWER-GARDEN AND SHRUBBERIES.

Now is an excellent time to collect a nice lot of Verbena plants, with roots, from early planted masses. Let all propagation matters, having reference to next year's display, be wound up forthwith. See to the staking of late Asters, Phloxes, &c., of a tall character; the autumn storms will otherwise destroy them prematurely. Prime Hollyhocks for seed should have the decaying corolla plucked out; this helps the seeding much. Make observations on the colour and general character of the flower-garden before the season closes, in order to improve next year. After studying the individual effect of flowers, let collective effect receive a thorough consideration; and the important principles of proportion and outline, as well as combination of colours, have their full weight.

FLORISTS' FLOWERS.

Auriculas.—If not already potted for the winter should be done without delay. Remove suckers or offsets, and place them round the sides of the pots, which should be 6 inches across. Auriculas are impatient of rich compost during winter, turfy loam, river sand, and very rotten horse-dung; a small portion of the two

Lisbon will make a suitable compost.—It is far better to give them a strong top-dressing in the spring than to have it of too forcing a nature for their winter food. *Tulips.*—In consequence of the general weakness of the bulbs, it will be advisable to put a small portion of decayed manure and leaf soil, about 2 or 3 inches beneath the offsets. It is argued that manure fouls the cups, and with some show of propriety. But as there are always exceptions to every rule, we would recommend a stronger diet, at all events, for the offsets in the coming season. *Carnations and Picotees.*—The layers may be taken off and potted without delay, using the compost as directed last week. Many seedlings have missed blooming, and if not convenient to let them stand over the winter in their present situation, in consequence of the large spaces on the beds from whence the single ones have been removed, it will be advisable to prepare another bed of suitable compost, and carefully remove them, with balls of soil, into regular rows. Here they may stand the winter, and will bloom profusely next season. Look well to your composts, especially that for the blooming bed of Tulips, frequently turning it and picking out wire-worms and other noxious insects.

KITCHEN GARDEN AND ORCHARD.

All herbs, if not gathered, should be cut immediately. Quick drying is proved to be the best mode, for the same reasons that quick haymaking exceeds a lingering process. The Sweet Basil should be bunched and hung in a hot kitchen; also the Sweet Marjoram. When thoroughly dry, let them be immediately packed close in boxes, so as to exclude all air; indeed, bottled herbs, sealed up after such a course of treatment, are very superior. If any of the Asparagus beds are withering, and ground is scarce, cut them over if quite yellow, and plant a row or two of Endive and Lettuce for late work. Young Cabbages just through the ground should have a little soil thrown through their stems, if intended to remain where sown. Stop all Figs directly, and persevere in rubbing off all late made breast-wood from trained trees in general.

COTTAGERS' GARDENS.

I can only repeat this week the substance of former Calendars, viz., to follow up cleanly and high cultivation in all growing crops. If any leisure time, employ it in collecting materials for manure; remembering that all decaying vegetable refuse is valuable in this respect, especially after laying a while amongst the fluids of the dung-heap.

State of the Weather near London, for the week ending Sept. 10, 1846, as observed at the Horticultural Garden, Chiswick.

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain
Frid. 4	13	30.233	30.163	74	54	64.0	E.	
Sat. 5	0	30.126	30.044	79	58	68.5	E.	
Sun. 6	15	29.944	29.898	82	59	66.0	E.	.04
Mon. 7	16	29.909	29.840	83	58	70.5	E.	.03
Tues. 8	17	29.935	29.901	74	51	62.0	S. W.	
Wed. 9	18	30.072	29.980	80	51	67.0	S.W.	
Thurs. 10	19	30.206	30.082	77	60	68 5	N.W.	
Average		30.084	30.010	78.4	55.1	66.7		.07

Sept. 4—Foggy; fine; clear at night
5—Very fine; slight dry haze; clear and fine
6—Dry haze; wind, higher current west, lower directly opposite; cloudy and hot; thunder and rain, 2 P.M.; fine
7—Foggy; hot sun; dusky haze; clear and fine
8—Uniformly overcast; fine; clear and fine at night
9—Foggy; very fine; clear and fine at night
10—Overcast, with slight haze; very fine; slightly clouded.
Mean temperature of the week 7 deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Sept 19, 1846.

Sept.	Aver. Highest Temp.	Aver. Lowest Temp	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 13	67.1	44 5	55.8	9	0.49 in.	1	1	4	1	2	5	5	1
Mon. 14	67.8	46.3	57.0	11	0.84	1	1	5	2	2	4	5	—
Tues. 15	66.7	46.5	56.6	11	0.68	—	2	2	2	4	1	3	5
Wed. 16	67.3	48.5	58.2	9	0.80	1	3	3	1	2	1	2	1
Thur. 17	66.8	48.5	58.6	9	0.80	1	1	2	2	2	6	4	2
Fri. 18	66 4	46.1	56.2	11	0.76	—	5	1	1	2	6	3	3
Sat. 19	66.9	46.2	56.5	9	0.60	3	2	2	—	4	5	1	2

The highest temperature during the above period occurred on the 17th, 1843—therm. 84°; and the lowest on the 17th, 1840—therm. 29°.

Notices to Correspondents.

Post-office Orders.—In order to obviate the inconveniences which are now constantly being experienced by parties who wish to remit small sums to the office of the Gardeners' Chronicle for Advertising, we have to request that all Post-office orders may in future be addressed to Mr. James Matthews, 5, Upper Wellington-street, Covent Garden, and made payable at the Post-office, 180, Strand, London. Post-office orders, remitted by Subscribers for the Paper, should be sent to the respective Agents who supply them.

Aeration—*W E*—On no account admit cold air into your forcing-house without previously warming it in the first instance. Any plan which will do that will be advantageous. See some remarks at p. 341 of this volume.

Asparagus Beds—*X*—In preparing ground for Asparagus, you may allow at the rate of 20 lbs. of salt for a bed 20 feet by 3½ feet, taking care to diffuse it properly throughout.‖

Bees—*M A*—Commence bee keeping about Michaelmas or early in spring; the latter is, perhaps, preferable, as there is less risk of the bees dying. Obtain a strong stock—a first swarm of the past season—and have a bar-hive or two in readiness to house the fresh swarms at the proper season. Directions for obtaining honey have been given at p. 104 of last year's volume. "Bevan on the Honey-bee" will give you excellent advice. *W.*

Belladonna—*D T E*—Your first letter came last, and your last first. An Article on "Familiar Botany" will give you the information you seek.

Books—*H C*—No one can *understand* the "Vegetable Kingdom" without a previous acquaintance with botany. The contents of the numbers are exactly the same as that of the volume. The publishers of the work will not undertake to get them bound. The article on the Drainage of Flower Pots appeared on the 13th and 27th of June, 1846.——*Dido*—There is no such book; nor is it likely that there will be. Plants are too numerous. The only single work that we know of, at all like what you seek for, is Sweet's "Hothouse and Greenhouse Cultivator," a very useful work.——*F. Montague*—Supplements to Loudon's "Hortus Britannicus" have been published since 1832.

Cacti—*Harrow Weald*—Your plants are attacked by a singular disease, quite analogous to that of the Potato; that is to say, the cells of the succulent tissue perish, grown, the lining of the cell-walls acquiring that colour. There are no fungi. The skin is attacked first, in small circular patches. We still think that it may possibly arise from damp and want of due sunning and ventilation.

Double Convolvulus—*T D R*—We never remember to have before seen a double Convolvulus major. Yours certainly is so: but it is a poor variety, not to be compared with the beautiful double Calystegia pubescens

Figs—*A Lover of them*—We have no book on Italian Figs at hand, on which we can rely, but will make inquiries and let you know hereafter. What the Italians call the King of Figs is the Brogietto bianco or B. genouse.

Forcing Grapes and Peaches in one Compartment—*An Old Subscriber*—In a house or large pit, 40 feet by 10 feet, and height 4 feet in front and 10 feet at back, you might grow either Peaches or Grapes to good perfection. But having determined to try both together, you must plant the Peach-trees so as their roots may feed in a border in front, and train the shoots on a trellis, extending from the front about 4 feet, and near the glass. Plant the Vines inside, train them up the back wall, and then downwards and horizontally under the glass as far as not to shade the Peaches. If the footpath along the middle be formed of paving tiles laid on the made border, the roots of the Vines will thrive as well under them as elsewhere.‖

Fruit Tree Borders—*Peach Blossom*—No; you are not right. Why do anything to entice the roots of your trees away from the warm sunny border you have provided for them?——*X*—For Peach and other trees you may well mix a little dung with the fresh loam, unless the latter be very rich.‖

Fuchsias—*C Stuart*—Remove your Fuchsias now to a dry warm situation, where they will be fully exposed to the sun, and suspend watering gradually, in order to harden the wood. Afterwards, when the plants are likely to be injured by frost, remove them to a cool cellar, or similar situation, where they will be free from damp or drying winds (both of which are injurious). In this situation they may remain until February. You had better, however, examine the plants once or twice during winter, and if they appear to get dry, sprinkle them slightly with water; if too damp remove them into the open air some fine dry day for a few hours. If you have no cellar or other place, tie them up tightly in Wheat-straw (separately), and pit them like Potatoes. ¶

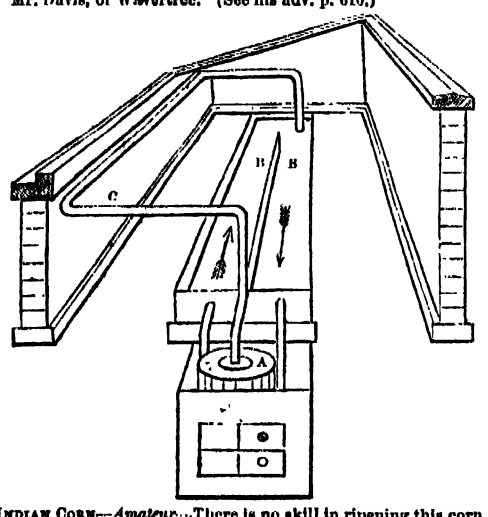
Grapes—*G C*—Your oval, greenish, thin-skinned seedling Grape, stated to be earlier than the Royal Muscadine, seems worthy of further trial.‖

Glazing—*C B H*—Squares are broken by frost in consequence of the expansion of water drawn into the laps by capillary attraction; it is therefore better to putty laps when a greenhouse is to be used in winter. But if the squares are wide enough (12 inches), sheet glass will not easily break from frost, because of its elasticity.

Heating—*An Old Sub*—In a bed for Pines the heating apparatus, whether tanks or pipes, the latter indeed preferable to the former, should be under the slate which supports the soil.‖

Hollyhock—*Florist*—Your specimen was too much damaged to allow of the points you mention being seen to advantage. Your suggestion shall be attended to.*

Pits—*C H E*—You will find an excellent and cheap pit given at p. 116, 1845, and as you may not have the number we reproduce the perspective view of it. As to heating, Polmaise would be quite applicable; on this head you might consult Mr. Davis, of Wavertree. (See his adv. p. 610.)



Indian Corn—*Amateur*—There is no skill in ripening this corn in such a season as this. If a prize should be given for it at all, it would be due to the sun. Neither is there any object in offering prizes for the crop, for *cui bono?* It cannot be cultivated profitably in this country, and to offer prizes for it would only have the effect of misleading ignorant people. The Mammoth Gourd has enough to do to feed one of its monstrous brood; more could not be maintained by its roots and leaves.

Insects—*Shropshire*—The larva supposed to be injuring the Beans lives upon the aphides which infest them, and changes to a fly called Scæva. Your beetle is a little bug named Hylophila, which also feeds upon smaller insects. *R.*——*J F G*—We fear there is no remedy. You might destroy vast numbers by covering the trunks of the trees with canvass or matting, and tarring it over. By brushing or shaking the foliage the Eupteryx would be disturbed, and alight upon the adhesive tar. *R.*——*Ullswater*—Many thanks for the migratory locust. It was described by the Locusta Christii, figured in Curtis's "Brit. Ent." pl. 608, of which I had only a single specimen. *R.*

Mangoes—*M Mangosteen*—We know of no work that will give you the information you seek—nor can it be done. Mangoes will never thrive in the society of Pines and Melons, unless the latter are spoiled. Either may be grown by a small curate, without a gardener, but not both descriptions together. The management of the Mango is described by Mr. Scott in the "Journal of the Horticultural Society," vol. i., part 1.

Names of Fruits—*Z Z*—One of your Apples appears to be the Summer Oillville; the other Apple, shaped exactly like a small Windsor Pear, is unknown; is this the general form of all on the tree?‖——*P B*—2, Autumn Bergamot.‖

Names of Plants—*Enbdale*—Linaria vulgaris, a common wild plant, in the state of "Peloria," or of change from irregularity to regularity.——*J P L P*—Plantago major, in a monstrous state; the bracts all developed as leaves, at the expense of the flowers, which are shrivelled up.——*C M*—Convolvulus farinosus. We do not recognise the Lupine seeds; perhaps pubescens—*F W C*—Your Spinach is a variety of the Garden Orach, Atriplex hortensis.——*J Yarmouth*—1, Trifolium striatum; 2, Sedum populifolium; 3, Malcolmia maritima; 4, Cineraria maritima, now called Senecio Cineraria.——*An Old Subscriber*—It is not in any one's power to name seedling plants which are not in flower. We can form no opinion upon the beauty of those you have sent. They are both, apparently, Leguminous plants.——*Flora*—Veronica prænita.——*F S*—Calceolaria scabiosæfolia.——*T. G*—Setaria italica.——*J L*—1, Lycium barbarum; 2, Eucalyptus europæus; 3, Ulmus campestris.——*P K W*—1, 2, and 4 are all varieties of Filago gallica; 3 is Gnaphalium sylvaticum, var. rectum. These things are subject to much diversity of appearance.——*Tomos*—We really must beg you to send examinable specimens if you wish a plant to be named. Botanists cannot commit themselves to opinions founded upon miserable fragments; you send a few leaves and one withered wretched flower of a supposed new species of Æschynanthus, a very difficult genus, and ask us to name it; we can do nothing with such materials.——*W Cumming*—Pinus halepensis. ¶——*A Walton*—The shrub is Rhamnus catharticus. The fruit is not poisonous, but a powerful purgative.

Pears—*W M*—Three late bearing Pears for a west wall may be the Glout Morceau, Beurré Rance, and Easter Beurré. Late Pears for a north aspect cannot be recommended, unless such as are adapted for stewing. Better plant Marie Louise, Hacon's Incomparable, and Thompson's.‖.

Polmaise—*R Hazard, W F G F*, next week. You both take the same view.

Potatoes—We by no means dispute the possibility of aphides doing as much mischief as is now experienced from the Potato rot; we only deny the fact. If insects did the mischief they must be visible; but who has seen them? Not we, most certainly. Our Spruce Fir trees are this year suffering enormously from some disease, accompanied by swarms of Aphides—but what of that?——*G R*—Dr. Kemp has some account in preparation of the preservative quality of chlorine *gas*. We could not make it succeed.

Sea Kale—*X*—Salt as above recommended for Asparagus.‖

Seedling Flowers—*J P S*—Your Clarkia flowers are so shrivelled that it is impossible to form any opinion about them.‡

Tomatoes—*J B D and J L*—The fruit of the Tomatoes is universally attacked by a rottenness analogous to, if not identical with, the rot of the Potato "apple." It is unconnected with fungi; at least we can find none in it. Of this more hereafter.

Trailers for Rockwork—*A G*—Verbenas, the smaller and finer sorts; Sedum oppositifolium; White Jasmine; Cotoneaster microphylla; Coronilla glauca; Linaria Cymbalaria; Thymes of various sorts; the small-growing varieties of Ivy; Campanula fragilis; Mignonette.

Trees—*M*—We fully believe that you believe that what you say is true. But we also believe that your belief is founded upon observations ill made, and false reasoning dependant upon them.

Vines—*A Country Subscriber*—It is impossible to say what has caused the scorched appearance of some of your Vine leaves. If you employ flues, it may be owing to the escape of sulphurous acid gas.‖

Misc—*J P*—We have no experience of the burnt loam of the iron-foundries; but if it really is loam or clay, and nothing else, it is invaluable as a material for soaking with urine, or the drainage of dung-hills, or the contents of cesspools. It then forms a compost as good as guano, especially if gypsum, in powder, is added from time to time.——*G O H*—The two last Numbers mentioned in your letter are out of print.——*Coryclus*—Want of colour in your Black Hamburgh Grapes may proceed from various causes. It seldom occurs where a healthy well-exposed foliage is maintained.‡——*Constant Sub*—We do not understand your question.——*Cucumis*—Your leaf is covered with the common Cucumber mildew; but from what cause it springs we cannot say. Your other question is sent to the Agricultural Editor.‡——*Quercus*—Of the plants you mention, none are hardy, except Delphinium grandiflorum. The others will, however, succeed well bedded out in summer.‡——*A Staffordshire Curate*—Plain recipes for cooking Indian corn have been given at p. 253 of the current volume.‡

SEEDLING FLOWERS.

Antirrhinum—*C M G*—Many of your specimens are repetitions of the fine old garden varieties, with slight differences of shades of colour, and the crimson and yellow predominate too much amongst them; for instance, the resemblance between 2 and 14 is too slight; again, between 24 and 30; and too slight also between 4, 8, 10, and 20; amongst the best, 7 is a fine dark; 5 is a fine lively flower; 27 is a clear and good variety; 6 and 14 are delicate and pretty; 16 is good, and forms a fine spike of bloom; 17 is bold and attractive. The intermediate tints are not worth keeping.*

Calceolarias—*W H M*—Your seedlings contain a most pleasing selection of colours, and the marking is varied and pretty. We should reject No. 17 on account of its blurred and indistinct ground colour. 2, 12, 14, and 20, are bold and fine varieties. 15 is beautiful in form, and the colour is novel and desirable.*

Fuchsias—*H B*—Your seedlings are inferior to the flowers at present cultivated in size and distinctness of colour.*——*G A*—Your flower makes a handsome variety—white tube and sepals with vermilion corolla; the flower is clean, rather large, and a very profuse bloomer.*——*M D*—Your dark varieties are superior to the lighter sorts. No. 3 is a bright looking flower, but there appears rather too much colour in the tube and sepals; 4 is similar in colour to 3. Your dark varieties are all good flowers, with no particular novelty excepting in the foliage, which is of a peculiar and rich green, well adapted for showing the bright colours of the flowers off to the best advantage; 5 and 6 are the best, but they are all stout, smooth in texture, and bright in colour.*——*A S*—Bonnie Dundee appears to be a very pretty flower, and from your description of its habit, an ornamental border variety; we think the flower inferior to Riccartonii, as it wants the deep purple corolla of that variety, nor do the sepals expand so perfectly. No. 1 is small and pretty, but the sepals in small flowers should expand to a horizontal position; 2, wants contrast of colour; 3 and 4, are somewhat alike, and as 4 is the superior flower the former is of no use, the sepals are too drooping; 5 is too weak in colour; 7, too short, and wanting contrast; 6, bright and good; 8, 9, 10, 11, want contrast of colour; 12, coarse.*——*D P*—Beeswing is a good variety; there are others similar to it, and the foliage of your flower is rather large.*——*G C*—Your seedling is a large, clear, and handsome variety, light tube and sepals, with scarlet corolla; the sepals droop rather too much.*——*Cecil*—Your seedling is a pretty flower, but there is nothing to distinguish it from any other similar coloured varieties.*——*R E H*—No. 2 is a pretty flower, but there is too much colour in the tube, and the sepals do not appear to expand sufficiently; 1 is inferior to 2.*

Pansies—*W A P*—The smaller flower is the better of the two, but neither of them are equal in form and substance to the flowers of the present time.*

Petunias—*S B*—No. 1, a richly veined and handsome variety. No. 2, very similar in colour, but inferior to No. 1. No. 3, mottled and veined of a peculiar and rich blue colour, very novel in appearance.*——*A J*—No. 1, with veined throat, is a very pleasing variety. 7 and 8 are too much alike; of the two, we prefer No. 7.*

Verbenas—*W*—Your seedling is of no use in the present day; it wants brilliancy.*——*G S*—Harlequin forms a bright and lively pink variety. Delight, a sweet-scented variety, is not superior in its flowers to many we have seen; No. 10, approaching a white, is a large and handsome border flower.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those correspondents, the insertion of whose contributions is still delayed.

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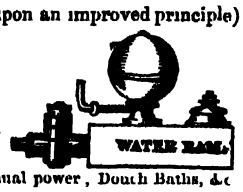
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The Agricultural Gazette.

SATURDAY, SEPTEMBER 12, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

THURSDAY, Sept 17—Agricultural Imp Soc of Ireland

LOCAL SOCIETIES

Cowfold—Llandovery—Pars nstown Penrith—Newton St Ewart Royal E. Berks—Dalkeith—Nithsdale—Arran—h Cumberland—Wells (Ireland) Northampton Grazing

FARMERS CLUBS.

Sept. 14—Darlington
— 15—Bromsgrove—Plymouth St. Mary
Sept 24 Ottery St Mary
— 8 —Rhins of Galloway

AGRICULTURE is at length beginning to assert its true position in the commercial history of the civilised world. The newspapers of the last fortnight have furnished an array of reports and incidents in relation to the corn-trade of Europe, unconnected with each other in fact, but uniting in inference This is the best of evidence. No commentary is so good as that which one fact makes upon another. If it do not save the trouble of thought, it at least abridges the toil of demonstration. Like the celebrated vase whose fragments were discovered and exhumed a thousand miles apart, it is only necessary to "pick up the bits and put them together," and the WHOLE with all its beauty and harmony of proportion, is at once developed, displaying the most compendious of arguments, that which addresses the eye of every beholder, willing or reluctant. To the latter class our words seem mysterious. We proceed to explain them.

Whoever has taken the weekly trouble of consulting the little enigmatical looking diagram which furnishes a tabular display of the practical operation of the mode in which the duties upon foreign corn are levied, will have perceived that *upon the last six weeks' average* the duty is now standing *at the highest point*. The "remnant of *protection*" is at its utmost; and *must* in obedience to this perfect specimen of the orderings *of human providence*, remain so for at least a month longer. No matter though France be in a state of commotion and riot from present scarcity and apprehended famine; though Belgium be present at Mark-lane bidding top prices for corn bonded originally for British consumption: no matter though the Potato murrain has ravaged all England and Ireland, and the report of a general deficiency in the yield of articles of food reaches us from all quarters of the continent of Europe, like a living body tied to a dead carcase, so are we tied to the *average of the last six weeks*—with the evidence of the present and the foresight of the future glaring around us, we must gnaw in vain the tether which clogs and binds down Perception and Foresight, man's distinguishing attributes, to the by-gone almanac of past '*prices*,' and display to the eyes of the world the suicidal spectacle of a country with half its food destroyed by a blight, levying the *highest amount of duty* upon foreign importation, and exporting its own produce to aid the necessities of the foreigner still more pressing than our own. An unusually early harvest, and the concentrated effusion of a year's garnering of foreign stores released from bond almost in a single day had caused a momentary and delusive flush in the market; down went the prices all over the kingdom, like the mercury in a shaken barometer This was natural enough; under such a combination of causes, the one financial, the other physical, the only wonder was that the temporary depression was not greater. But Commerce has a quick eye; leave it alone, give it room to act, and it will soon recover from an error, however unavoidable or great; a few days, nay a few hours will suffice to place the market *au courant du jour*, a single fine day will have its due influence upon the sensitive pulses of Mark-lane. What then must be the effect of a clog upon its keen prescience, which drags it back with the weight of six weeks of past ignorance! In vain come the mercantile despatches from Hamburgh, Dantzic, Stettin, and Konigsburg; in vain come the provincial papers with their one-voiced elegiac over the Potato prospects, they may quicken the pulse of the Present, they may electrify the always over-strung nerves of the Future, but they cannot reanimate the dead bones of the past, yet there it lies, the SIX WEEKS' AVERAGE stifling with its dead weight, like an incubus, the heaving breath of commercial activity and foresight, and shutting the locks of the bonded warehouses of England not against the French, not against the Belgians, not against any 'foreigner' but only against the Englishman! by a high-pitched duty—Why? Because corn was cheap and prospects looked different, when? *A month or six weeks ago!*

We would entreat any one whose mind is imbued with a liberal and unbiassed wish for the true interests of the British agriculturist, to afford a few minutes of careful and sincere attention to the weekly-published diagram of average prices and duties above referred to; and mark well the operation which it exhibits, in the collection of that average during the past six weeks which regulates the duty at present levied. A more instructive moment could hardly be selected to judge retrospectively what must always have been the influence of such a system upon the corn-trade, and the consumer *directly*, and upon the producer *indirectly*—and what is now of far more importance, to judge prospectively how much healthier and firmer will be the footing upon which the agriculture of the country will stand when it is no longer tampered with by an artificial interference which contradicts one of the most important of commercial principles, and obstructs the most valuable of commercial operations, namely, the regulation of demand and supply by the *exercise of foresight*. If corn be cheap—but there are appearances in the horizon of the future that indicate the likelihood of its becoming dearer—the importer, the dealer, the miller, increase their stocks: if corn be dear—but there are evidences of increasing supplies—the market is eased by their slackened demand. Were it possible in fact, as in imagination, to "look into the seeds of time," and catch a glimpse of the prices of the *coming* six weeks, that would, indeed, be an average worth striking! But to *go back six weeks*, this is a different affair! It is to recede further and further from the true point where the landscape of the future is most visible, namely the Present. What have we to do *now* with the price of corn six weeks ago, when the Potato disease had not developed its frightful universality? What is there in an average drawn from a period *the three first weeks of which present declining prices*, that can do anything but confound the judgment and thwart the wholesome prescience of unfettered commerce? What would be thought of a holder of Spanish or Mexican securities who should conduct his operations in the share-market, by a calculation drawn *from periods preceding* the war with the United States in the latter case, or the betrothal of the Queen in the former? Yet this is the principle upon which, *for thirty years past*, we have attempted to regulate our operations in the corn-market of the world; by making our national purchases upon a calculation formed six weeks *behind* the point of view from whence the future is most cognizable. And here is the proof of our elaborate ingenuity of self-delusion, in the fact that at the present moment, with the system mitigated as it is, we are imposing a prohibition of 10*s.* a quarter, because the biography of six weeks gone and past will have it so, at a moment when far-sighted commerce would have been laying up full stores with a provident eye for the *thirteen months'* scramble for food which the present state of the granary of Europe seems to threaten. For four weeks longer must this absurdity continue; until the lagging weeks of the past shall have died off gradually from the Corn-law diagram, and our bonded warehouses have emptied themselves meantime into the markets of Belgium, Holland, and France. It is true the present case is an extreme one, but it is by extreme cases that principles are tested and evils rendered more glaring, whose silent operation has escaped notice in more ordinary seasons.

Can it be believed that the British agriculturist has ever derived benefit from a system which has virtually shut him out from the market of the world; which has "kept the word of promise to the ear, but broke it to the sense," inflicting upon him those sudden expansions and contractions of price always incidental to *a limited area of demand and supply*, and of which the only true antidote is to be found in the free operations of commerce, and the most unlimited area which the globe can furnish, with all its providential and blessed variety of soil, season, and climate

We have spoken of the past, but it is with an eye of hope, of well founded hope, we most devoutly believe, to the future Let the British farmer only see how he really stands in relation to the agriculture of any other country in the world, and the sight which he has been taught to shrink hitherto from beholding, will fill him with encouragement and confidence. He will see that the market of *the world* is the best market IN *the world*, and that all the legislative enactments that Parliament can make, can never give him so firm a position or so safe a prospect as when the prices at Mark-lane, as at the present moment, *cannot be under-quoted at any port in Europe*. This fact which now startles him with its novelty, and which he hardly knows how to receive or credit, is followed by the report of cargoes of Lincolnshire-grown corn being exported to France. These announcements are the best Corn-law that ever was passed for the "Protection" of the British farmer. It is true that a combination of causes extraordinary as well as ordinary have tended together to the production of these results; but it will be strange, indeed, if they do not prove to be the commencement of an era in which British agriculture shall know its own dignity and assert its independent place in the commerce of nations.—*C. W. H.*

"BY an improved agriculture the farmer may withstand, uninjured, a fall of 5*s.* per bushel in the price of Wheat" Or, which is the same thing, he may thus realise profits, during a stationary market, such as he would (without effort) obtain were the price of the produce to rise in an equal degree. This is the statement which our correspondent "G. R. W." has assailed. He asserts that the skill and capital required to produce and maintain the increased fertility cannot be had, except at an annual cost which equals their annual produce

Now, right notions on this subject are of the greatest importance. Upon their prevalence depends the course of agricultural improvement, and to assist in establishing them we shall now lay before our readers some references which will enable them to form a safe and satisfactory judgment upon the subject.

We shall confine ourselves to the pages of one work—"*The Journal of the English Agricultural Society.*"

See Vol. I., p. 32, where, in Sir JAMES GRAHAM'S experience of "Deanstonising," it will be found that an expenditure of 6*l.* 15*s.* per acre yielded an annual return of 15*s.* 6*d.*; and p. 38, where E. S. LEFEVRE, Esq., states that by subsoiling his land at a cost of 30*s* per acre, he had obtained an increase of 6 tons per acre of Turnips, and 24 bushels per acre of Barley.

See Vol. II., p. 277, where Mr. F. BURKE, de-

scribing Lord HATHERTON's improvements by draining, &c., at Teddesley Hall, states that by an expenditure of about 1500*l.* an annual increase of about 430*l.* in the rent has been produced.

See Vol. III., p. 163, where experiments in the application of "blue shale" to the surface of the land, at a cost of 30*s.* per acre, are described as resulting in an increased produce of 17 bushels per acre of Wheat, and of 27 bushels per acre of Barley; page 233, where Mr. C. BURNESS states his experience in marling light lands; his Wheat promised to yield one-third more on what had been clayed than on what had not been clayed, although managed in every other way the same; the quantity applied per acre is generally 50 loads, which is applied at a cost of less than 50*s.* per acre; and p. 235, where Mr. F. W. OVERMAN testifies to the value of the same method of permanent improvement.

See Vol. IV., p. 343, where Mr. HAYTER, M.P., states the profitable result of the improvements he had effected on Linslade farm, Buckinghamshire.

See Vol. V., p. 113, &c., where Mr. RANDELL describes his practice of burning clay soils, and the large and *profitable* increase of fertility consequent upon it; and p. 311, where Mr. ALMACK asserts the experience of Norfolk farmers as to the *profitableness* of marling their light lands.

See also Vol. VI., p. 478, where Mr. PUSEY bears witness to the enormous returns from drainage and the use of burnt clay as manure in the case of a very poor stiff clay soil.

These are a few instances selected from the pages of only one out of the many periodical works with which our agricultural literature now teems, and they are conclusive, we think, as to the large profits derivable from a prudent investment of capital in the permanent improvement of the land.

But it is certain that even in the case of land already perfect as regards its "permanent" qualities, perfect as regards its texture, drainage, freedom from hedgerow timber, accessibility by road, convenience as regards buildings, &c., it will still generally, if not universally, pay well for the better though more expensive methods of cultivation, which in the course of time working men shall hit upon or educated men suggest. We shall not refer here to published cases in which corroborative experience on this head is detailed. Numbers of them may be found in every agricultural journal, magazine, or gazette. Cases where the application of some new fertilizer; the cultivation of some new crop; a change in the rotation of crops; the use of some new implement; the selection of more profitable stock—all requiring an extra investment of capital; or, it may be, where the more economical application of manual labour, or the more skilful management of market transactions—matters requiring on the other hand only an extra display of energy, have proved eminently *profitable*. And to all these improvements, it must be observed, over and above their immediate returns, there is an encouraging degree of permanence attached; for no increase can occur in the saleable produce of the farmer without a corresponding increase in that which goes to the manufacture of manure. We have no doubt which can arise either from our observation, reading, or experience, of the *profitableness* of a "higher" degree of cultivation than that which is generally prevalent.

SINGULAR DISEASE IN CATTLE.

I AM desirous of calling the attention of your readers to a singular disease in cattle, which shows itself occasionally in certain fields at Thropp, a hamlet in the parish of Kidlington, Oxfordshire.

The pasture land, in which the distemper alluded to prevails, is situated close to the Cherwell, being bounded on one side by that river, and on another by the Oxford Canal, whilst a stagnant ditch, connecting the two, forms the third side of the triangle. It is, therefore, low, and cannot but be damp, although at the same time being on gravel, it is not swampy, and produces a good quality of herbage. It would, therefore, be a valuable addition to a dairy farm, were it not for the deleterious influence it seems to exert upon the cattle turned into it, and as this seems to be confined to certain seasons or states of the atmosphere, the farmer has frequently been tempted to his cost to risk the consequences of allowing his cows and horses to graze on the land.

The disorder with which these animals are so often attacked soon after they are introduced into the fields, appears to consist in an inflammation of a very acute description in the chest, followed by effusions into the cavities of the pleura and pericardium. Death often supervenes in less than 24 hours, if prompt measures are not taken, and the spleen is in general discovered, upon dissection, gorged with blood.

Mr. Hall, veterinary surgeon in Oxford, informs me that the most successful mode of treatment is, internally by purgatives, followed by oil of turpentine, and other stimulants, and externally, by blisters and setons applied to the chest.

The disease is most apt to come on in the spring and autumn, after sultry weather preceded by rain, but it is very capricious in its inroads, sometimes not appearing at the accustomed seasons, and at other times attacking animals at unusual periods of the year. Thus the farmer is subjected to heavy losses, owing to the impossibility of determining when it is safe to allow his cattle to graze in the fields, and at what seasons it is necessary to avoid doing so. The existence of the disorder is by no means of recent observation, for the farm has been in the occupation of the same family for nearly a century, and the grandfather, father, and son, have all in succession lost much stock from this cause. It is remarkable that, whilst horned cattle and horses are attacked, sheep appear to escape.

I believe I may state, from a careful examination of the ground, that there is nothing in the character of the herbage which can account for so remarkable a peculiarity—no plant, at least of a poisonous quality, could be detected, in it, though I visited the spot at a time when several cows were suffering under the disease, from having been left in the field.* I am more disposed, therefore, to attribute it to a peculiar miasma emanating from the soil; and I am confirmed in this conjecture by understanding that the inhabitants of the surrounding hamlet are very subject to liver complaints, which may arise from the same cause. The only advice I could give the farmer was not to turn in his cattle before sunrise, and to remove them half an hour before sunset; but perhaps some of your correspondents may be able to throw more light than I can pretend to do, both upon the causes of the disorder and the means of its prevention.—*C. Daubeny, Botanic Gardens, Oxford, Aug.* 31, 1846.

* Mr. Baxton, also of the Botanic Garden, Oxford, whose accurate acquaintance with British plants is well known, twice visited the locality, in hopes of finding some nauseous herb which might explain the phenomena, but in neither instance was able to detect anything unusual. Hay made from the Grass is perfectly wholesome.

ON THE STATE OF HUSBANDRY IN LOWER BRITTANY.

WITH INCIDENTAL OBSERVATIONS ON THE CONDITION OF THE FARMING POPULATION THERE, COMPARED WITH THE SOCIAL STATE OF THE ANALOGOUS CLASSES IN IRELAND.

By MARTIN DOYLE.

(*Continued from p.* 416.)

IN the different countries at which we have glanced in respect to the reclaiming of wastes, it appears that the most generally successful results have been worked out by the peasantry themselves. In Flanders the cultivators of the wastes were small farmers, who did not exceed their means. "These admirable cultivators not only added generally to the extent of the soil which they tilled; every year the plough was made to go deeper; half an inch or an inch was thus gradually added to the depth of the land already in tillage; hence a fertile loam, 18 inches or 2 feet deep, is now seen where the farmer originally found a soil not exceeding 3 or 4 inches in depth. 'To do a little constantly, and that little well,' has been the profitable maxim of the Fleming, by acting steadily on this invaluable principle, that industrious race have converted the most barren tract in Europe into the most productive land in the world."

It is unwise for any individuals to undertake the improvement of large tracts when they have not first proved the advantages of reclaiming on small allotments, and senseless to attempt great undertakings with disproportionate means. The Bretons are never guilty of this imprudence, and therefore no injury is done to the community by the disheartening examples of failures. Whatever opinions may exist as to the wisdom of inclosing the British wastes on a large scale by companies or individual speculators, the reclamation of such lands by cottagers is unquestionably remunerative; their industry costs them little or nothing of money capital; the labour which they expend is often but the surplus of their time which otherwise would be lost altogether or spent in dangerous idleness, and the produce obtained from these wastes is so much of positive gain to the country in various respects.

The government act wisely when they encourage the colonisation of wastes by the labouring classes, by removing the barriers which keep such property out of the market, in allotments small enough to admit of their being purchased or rented by the peasantry. There are cases of private property, however, in which the advantages enjoyed by landowners (for example, in many parts of South Wales), whose estates adjoin a common belonging to a lord of the manor, who may not himself possess an acre of inclosed land, would be lost by the inclosing of such commons, in consequence of the reduction in rent which their tenants would demand when precluded from the privilege of turning sheep and cattle on them.

To resume the notice of agricultural life in Britanny, the appearance of the rural parts is that of a country nearly deserted by its population; so secluded are the habitations of the peasantry, who are, however, of a social temper when they meet; each family has its isolated farm, or, at the most, three or four families are combined to constitute a village, in some secluded hollow, only accessible through narrow lanes concealed by foliage.

The houses near Lannion and other parts of the *Côte du Nord* are slated, and present a respectable appearance; but in some parts of Finistère and all the mountain districts, they are thatched—mostly with Heath—without chimney or window, except a single pane imbedded in a wall, as if ventilation were dangerous, and smoke necessary to comfort: half naked and squalid children are brought up under the same roof with the cattle, and not always better fed or educated; but, except with the poorest class of labourers, there is more furniture in the Breton than in the Irish farm-house of the same class, and always a good supply of linen, and with some an Oak chest, and press of Walnut or Oak, containing earthenware and glasses for extraordinary occasions. Even farmers paying 20*l.* a-year rent (for the proprietary class is more comfortable) have their cattle frequently in the same room with themselves; the better grades have, of course, sheds or houses for the cattle: but the whole family, however numerous, sleep in the general room, on beds ranged over each other, with curtains, perhaps, to afford some privacy, and the only rule of separation respecting the sexes is, that the girls sleep immediately above the bed in which the man and wife repose, and that the boys mount to the uppermost tier, which they reach by ladders. The servants eat, drink, and sleep with the family, and without any distinctions.

They have no proper apprehensions of the proprieties of life, and though the cattle may be in their proper places outside the domestic roof, and the hearth bright with blazing logs, and the family assembled cheerily on their stone benches beneath the majestic chimney, relating tales and plying the needle or the distaff, there is a real want of many domestic comforts which an English labourer would consider indispensible to his self respect.

A dog always chained near the house, lives like Diogenes in a tub, or rather an old cider cask on its side, and his confinement is the more pitiable from his uselessness; for there is no occasion whatever for vigilance against thieves in a country where they are unknown: yet the dog, true to its nature, seems to think it is its bounden duty not to dream away existence in the sloth of a sinecurist, and barks incessantly.

A kitchen-garden, with Apple and Pear trees, which the Bretons are learning to graft and cultivate more generally, behind the house, or at one end, gives an air of comfort, which in some measure counteracts the disagreeable look of the yard, which is always in filth up to the very threshold.

The cart-shed serves for a threshing floor, though this is more frequently on an open space adjoining the house, like the Irish "*barn*," and the want of a properly prepared floor necessarily renders the grain extremely foul; indeed, Oats are universally intermixed with stones throughout the whole of this province, and of Normandy also: the want of accommodation for storing and threshing corn is one of the most obvious. The Buck-wheat (sarragin) is threshed as soon as possible after it has been cut; but as the straw is only fit for litter, at any time, it sustains little comparative injury; the grain is stored with the other kinds in lofts and outhouses, and not rarely on the once beautiful Oak floors of the fine old chateaus which have fallen into the hands of the peasantry.

The operation of threshing is curious. When the sheaves are laid down in a large circle and opened, and the sign of the cross made by the principal workman, a dozen or more men perhaps set-to with their short, heavy flails, advancing from the outer part of the ring to the centre, without ever missing time in the stroke, or interfering with each other however close they may be. The blows are very frequent, and given with great energy. If they slacken from fatigue a reanimating voice sets them going again, until the time has arrived for turning and shaking the straw. Another mode which I have seen practised is this: two or three men moving in line backwards, thresh the breadth of sheaves spread, from the centre to the circumference; these are followed by a woman or old man who turns the sheaves, which again are threshed by the succeeding file of men; and so on until the grain is completely beaten out, and a new layer of sheaves laid down.

Though the labourers are habitually sluggish and apathetic, they are capable of great exertions on emergencies; in harvest time particularly, when they put forth all their energies to save the fruits of the earth. A friendly interchange of manual assistance then takes place between families, and social intercourse of the most generous and pleasurable nature rewards the unbought labour.

M. Sousvestre relates a beautiful trait of Christian benevolence which he witnessed in harvest. A proprietor farmer was perplexed, from the insufficiency of reapers at a critical moment. A neighbouring peasant, against whom he had taken some law proceedings, came to him one morning with 14 men. When the other expressed his surprize and thankfulness, and offered apologies for recent differences, the humbler farmer alluded, as his reply, to some of the Christian precepts respecting charity, and on the necessity of bearing each others burdens; and declared that no man could be a real Christian who would willingly allow the corn which Providence in his bounteousness sends us, to be lost. He refused all recompense beyond the ordinary hospitalities, and seemed quite unconscious of having done anything unusual or meritorious.

The women work in the fields and stables, &c., and go to market. They spin, knit, and manufacture every article of clothing beneath the domestic roof that can be made without mill machinery, and thus provide for themselves constant occupation, which renders them in some degree independent of shops and markets.

(*To be continued.*)

AGRICULTURAL STATISTICS.

In furtherance of the object of your Article of the 15th of August upon the "Statistics of Agriculture," and of your inquiry—What is our growth, and what is our consumption of Corn? I send for your perusal, and, if you think well of it, for insertion in your Paper, an Analysis which has been made by a very able statist, Mr. John Lesson, of Calne (late of Hallifoed, Chertsey), as an example well worthy being followed by the several Unions of the Kingdom. The result would furnish the public with intelligence of general utility, and especially tend to elucidate the important consideration as to what is the ratio in which population and production have respectively progressed.—*Josiah Castree, Gloucester, August 24.*

MARLBOROUGH UNION.

ANALYSIS OF THE AREA, CULTIVATION, WHEAT, PRODUCE, AND POPULATION.—1846.

PARISHES.	Roads, Water, &c.	Towns, Villages, and Homesteads.	Woods and Plantations.	Commons.	Downs.	Dry Meadows.	Water Meadows.	Arable.	Total.	Corree in Fields.	Acres in Wheat.	Produce in Bushels.	Wheat produce in Quarters.	Population, Number.
	A. r. p.	A. r. p.	A. r. p.	A. r. p.	A. r. p.	A. r. p.	A. r. p.	A. r. p.	A. r. p.					
AVEBURY	1 1 11	58 0 16	8 0 0	..	1,646 2 19	272 1 0	148 1 26	2,410 2 14	4,545 1 6	3&4	642	30	2,407	751
BERWICK BASSET	11 0 10	12 1 5	7 1 12	..	156 0 28	467 2 29	..	733 2 8	1,388 0 12	3	244	32	976	175
BROAD HINTON	59 2 12	24 0 0	48 0 35	..	268 2 4	1828 2 18	..	2,072 1 4	4,299 0 33	3	690	32	2,760	670
FYFIELD	10 0 0	5 0 0	120 0 0	..	568 0 0	39 0 0	20 0 0	560 0 0	1,322 0 0	1	140	26	280	156
KENNET	13 2 0	8 1 23	2 0 0	..	293 2 1	44 2 29	..	416 1 39	778 2 12	4	104	30	390	78
MARLBOROUGH, St. Mary	10 0 39	35 2 4	0 2 0	20 0 21	..	43 1 18	6 0 13	..	115 3 15	..	..	..	..	1871
Do. St. Peter	10 0 0	32 0 33	0 1 0	..	..	37 0 4	..	..	79 3 37	..	..	..	..	1473
MILDENHALL	20 0 0	15 0 0	680 1 10	..	524 3 8	196 2 32	112 1 11	2,465 3 38	4,025 0 19	4	616	24	1,848	437
OGBORN, St. Andrew	39 0 2	22 2 35	66 0 19	..	2,696 0 0	246 0 0	40 0 0	2,223 0 0	5,332 3 16	4	568	28	1,946	510
Do. St. George	56 1 5	56 1 0	129 3 19	..	1,005 1 16	405 3 20	10 0 0	1,920 1 14	3,564 0 0	3&4	585	30	2,194	522
OVERTON	15 0 0	40 0 0	304 0 0	..	850 0 0	270 0 0	96 0 0	1,953 0 0	3,528 0 0	4	490	26	1,605	795
PEWSUTE	69 2 37	59 1 23	167 0 35	92 1 20	1,352 2 32	572 2 33	214 0 9	2,796 2 32	5,324 3 30	4	700	26	2,275	791
WINTERBOURN BASSET	10 0 0	22 0 0	21 0 0	..	168 0 0	428 0 0	..	1,402 0 0	2,051 0 0	3	467	32	1,868	273
Do. MONKTON	12 2 20	12 2 0	12 2 1	..	494 3 36	144 3 2	..	1,195 3 31	1,873 1 10	3	490	32	1,600	251
	348 3 16	403 1 25	1567 1 11	112 2 10	10,022 2 24	4996 2 25	646 3 19	20,149 3 20	38,248 0 30	..	5634	20	20,149	8744

RESULT.

	A.	r.	p.
Roads, Water, &c.	348	3	16
Towns, Villages, Homesteads, &c.	403	1	25
Woods and Plantations	1,567	1	11
Commons	112	2	10
Downs	10,022	2	24
Dry Meadows	4,996	2	25
Water Meadows	646	3	19
Arable	20,149	3	20
	38,248	0	30

Area in Wheat	5,634 acres.
Produce per Acre	29 bushels.
Total Wheat Produce	20,149 quarters.
Population	8,744 ,,

Allowing 6 bushels per head per annum, or 1 lb. of Wheat per day, the produce gives Bread Corn for 26,865 people.

Home Correspondence.

Russian Bean.—The Bean respecting which your correspondent "Norfolk Subscriber" makes inquiry, I believe originally came from Russia; it greatly resembles the Heligoland, and is becoming generally known as the Russian or Winter Bean. Its capabilities to stand our winters in the south, when sown in September and early in October, I have fully tested, having grown it every year the last 16 or 17 years, and never saw it hurt except on springy land, or when it has been later sown. I think it a most valuable introduction for loamy soils; the advantages from growing it are that it does well on soils unsuited for spring Beans, affords an excellent alterative crop and seed-bed for Turnips; it harvests early (mine this year were cut early in July) and admirably, and at little cost, enables the ground to be prepared for Wheat, and when well sown, that is to say, drilled wide and kept perfectly clean by the frequent use of the scarifier and hand hoe, admits of foul land being cleaned at little cost, and without the loss of a crop of corn. I have finer crops of Turnips upon 25 acres that were sown among my Beans, at a cost of only 7*s.* or 8*s.* per acre, than are generally to be seen this year with high manuring and a fallow. I shall this week put nearly 600 sheep on them, and they will last them nearly two months; and yet, after crops giving 4 to 5 quarters of Beans per acre or more—and one of the fields was a piece of old Sainfoin, that had lain as waste for many years, full of weeds, and in every respect appeared unsuited to the growth of other corn; this piece, which lies on the Haling farm, adjoining Croydon, was broken up last September, and sown with Beans in October, is now covered with a good crop of Turnips, and will be sown with Wheat this autumn. This Bean, for its early flowering and setting, appears never to suffer from the dolphin, or, indeed, from spring drought, of which the crop this year is a remarkable instance. They have proved fine crops without exception, yet generally spring Beans have been almost a total failure.—*Hewitt Davis, 3, Frederick's-place, Old Jewry, London.*

Odd Fellowship versus Savings-banks.—I find the following all bearing the cognomen of odd fellows:—Independent Order of Odd Fellows, Manchester Unity; Grand United Order of Odd Fellows, Sheffield Unity; Ancient Noble Order of Odd Fellows, Bolton Unity; Imperial Order of Odd Fellows, Nottingham Unity; United Order of Odd Fellows, Leeds Unity; Independent Order of Odd Fellows, Paddock Unity; Independent Reformed Order of Odd Fellows; and the National Independent Order of Odd Fellows. Now, as all the foregoing "Orders" exist perfectly distinct from each other, it will be seen that your correspondents in passing their strictures upon "Odd Fellowship" would render their articles more intelligible, were they to distinctly state to which of them their remarks refer, as what may be true of one might possibly be totally false of another. I have been induced more especially to make this observation, by the remarks of your correspondent at p. 572, who (incognito) has taken considerable pains to point out what he is pleased to designate "the extras of odd fellowship." Now, if the remarks of "An Operative Spinner" be meant to apply to the "Manchester Unity," (which I can hardly believe them to be) a comparison of a few of his charges, with the laws of the order, will at once prove him to be ignorant indeed of its constitution. Before entering upon an examination of those "extras" it may not be out of place to give a brief account of the "necessaries," and in doing so, I shall confine myself to what they are in the lodge to which I belong. First, there is 21*s.* entrance fee, if the person entering be under 36 years of age, 2*s.* 3*d.* for an apron, 6*d.* per week contribution, entitling him to 10*s.* per week during sickness, to medical attendance and medicine, to 10*l.* at a member's death, and 5*l.* at the death of his wife, and to the benefits of the widow and orphans' fund; and over and above all this, relief is afforded to those who are compelled to travel in search of employment. There is also a contribution of about 1*d.* a week to meet the incidental expences of the lodge and district; so much for the "necessaries," now for the "extras." "An Operative Spinner" says, "there is 20*s.* entrance fee." The 29th general law of the order says, "That the entrance fee shall not be less than 1*l.* 1*s.*, and that it shall be discretionary with lodges how much they charge above that sum." Again, he says there is the expense of beer and tobacco. Law 14 distinctly states that no member shall be charged with liquor-money as part of his contributions; and as to "footings on change nights," I am entirely ignorant of what is meant by the phrase, but can safely aver that such usage has no existence in the laws of the order, nor in any lodge or district with which I am at all acquainted. Again he says there is the expense of "lectures;" law 122 says, "That no member shall be required to pay for taking degrees" (lectures); "any district or lodge violating this law shall be fined one guinea." Then there is the expense of collections for presentations of snuff-boxes, &c., &c. I readily admit that the order has no law to forbid members from making presentations to whom they please, so long as they pay for the same out of their own pockets; nor is there any law by which any member can be compelled to contribute a single farthing for such purposes. He considers the benefits of savings'-banks far superior to the supposed advantages of odd fellowship. May I call his attention to the following, not supposed, but real facts, which I copy from a periodical I have now before me.* "Died, Nov. 4, 1844, brother H. Holland, of the Cochrane Lodge, Bury District. He was initiated in the above lodge, on the 13th Dec., 1828, at the age of 24. On the 1st of August, 1837, whilst at work in a coal-pit, a serious accident befell him, whereby he lost the entire use of his limbs, and from that day to the date of his death, a period of six years and three months, he was confined to his bed. The following is the amount of pecuniary assistance he received from sources connected with the order:—

	£	s.	d.
Received from his own lodge in sick allowance	137	5	0
Donations from various lodges in the district	10	0	0
Donations from the A. M. C.'s, at York, Isle of Man, Wigan, and Bradford	40	0	0
	187	5	0"

Now, supposing this person, Holland, had, instead of becoming an odd fellow, placed his guinea in the savings'-bank, and added to it fourpence per week up to the time he received the accident, a period of about eight years and seven months, he would have had, including interest, about 9*l.* 6*s.*, which at the rate of 10*s.* per week, he would entirely have withdrawn in little more than 18 weeks, and then he would have been reduced to want. Place the two cases in juxta-position, and it will at once, I think, be decided in favour of odd fellowship. In conclusion I would entreat every agricultural labourer throughout the length and breadth of this land, who possesses a sufficiency of manly self-respect to cause them to view with abhorrence the probability of having, in the hour of sickness and distress, to throw themselves upon the "tender mercies of the parish beadle," to at once enrol themselves under the banners of odd fellowship.—*John Cheyne, Member of the Loyal Old Abbey Lodge, North London District.* [The above is a mere selection of extracts from a long paper on this subject, with which we have been favoured by Mr. Cheyne, but which we have been unable to insert entire.]

* Odd Fellows' Magazine.

Odd Fellowship.—An "Operative Spinner," at page 572, has pointed out the evil effects of odd fellowship, which I beg to concur in the smoking and drinking part of the subject, and that it would be better conducted in a school-room, or a coffee-house. Such, I fear, is impossible at present. Lectures or meetings on the Sabbath have been prohibited years past; and, no doubt, the time has arrived when all that ridiculous nonsense of presentations and regalia will be abolished. That such money should go to support the afflicted needs no argument to prove; that the society is right in principle, there can be no mistake; and details such as those pointed out by your correspondent (which are optional with members) will be stopped by enlisting honour and respectability. No doubt the thinking portion of odd fellows will be grateful for your "Operative's" remarks. Physically considered, it has not been supported (excepting isolated districts) to that extent by hard-working mechanics, without which acts of benevolence have not their due influence. To convince your correspondent it is not only ministers of the Gospel who support it, there are in this neighbourhood lords and baronets, viscounts, and members of Parliament, &c. &c., who have placed their shoulders to this wheel of beneficence; and it is unreasonable to suppose they would sanction anything leading to vice and intemperance: quite the contrary.—*W. Brown, Merevale, Aug.* 25. [This appears to us to represent about the truth of the matter; and we hope our correspondents will consider that this subject has now received sufficient discussion in these columns.]

Benefit Societies.—Your correspondent "J. H." does not seem to be aware of the character of the only description of benefit society to which my remarks alluded. I dislike, as much as he can do, all those benefit clubs which meet at public-houses, and whose rules are inconsistent with their being secure and permanently solvent. The benefit societies to which I allude are just as secure as any life assurance companies, and they grant annuities to old members. Hereabouts, it would be very rarely possible for a labourer to lay by 2*s.* weekly. If a lad enters the society before 15 years of age, he has to pay less than 6*d.* weekly for the rest of his life, for the benefit of 10*s.* weekly and medical attendance in sickness, with an annuity of 5*s.* weekly (without further payments) after he is 65, and 5*l.* for funeral expences. If he wishes for an annuity alone after 60, without being in the sickness table, he has to contribute only 1¼*d.* monthly for enrolment in the pension table. If "J. H." wishes for further information, he may consult No. 28 of the "Labourers' Friend," price 3*d.*, of which I this day received a copy; and have observed it has some remarks upon "Money matters of the Working Classes." It is published at Saville's, No. 4, Chandos-street, and appears monthly.—*J. S. Henslow, Hitcham, September* 8.

Bokhara Clover.—I inclose a head or spike of what is, in my neighbourhood, called Bokhara Clover. The plant is strong and shrubby, and, if it spring up well after cutting, promises to be a good forage plant. Can any of your readers give any information on the subject of Bokhara Clover? I sent a head of it to a friend at a distance, with a similar query, and the answer was, that it was grown by a friend of his three years ago, but that neither horses, cattle, nor pigs would look at it; and another, that the portion of the field in which it

grew was avoided by cattle, and that it did not appear the second year. This would imply that it is an annual, which it does not appear to be; so that, probably, two different plants are alluded to.—*G. J.*

Horizontal Windmill.—I have looked with some interest for a promised communication from one of your correspondents, respecting an horizontal windmill. Whatever Mr. Grey's opinion may be, the power of wind is very cheap; and for many purposes, when time is not an object, a well-constructed windmill will answer all the purposes of a more expensive steam-engine.—*G. G.*

Disease in Turnips.—I farm about 60 acres of arable land for my own amusement. I put in, some seven weeks since (with a new patent drill from the maker's, at Spittlegate), 10 acres of Turnips, manuring the land in equal portions with half-inch bones, Peruvian and Potter's guano, and superphosphate of lime. There is a very fine plant; the Turnips cover the ground, and have been hoed a second time. I was struck yesterday, in walking through my Turnips, with an appearance on the leaves not very dissimilar to the Potato disease. This day I walked again through my Turnips. The disease has certainly spread; I pulled up several which had decayed just below the crown; but all which had the leaves touched (some of which I pulled up), were clearly decaying at the bulb, looking very similar to the ulcerated appearance of the Potato tuber.—*Reading.*

Potatoes in Nottinghamshire.—Since I wrote to you respecting the probable yield of grain, &c., this harvest, the Potatoes have been attacked with a similar disease to the one they had last year. Their leaves have turned black and have died, and the tubers when dug from the ground have been found to be more or less decayed.—*E. J. Lowe, Highfield House, Notts.*

Sandy Oats.—Observing a strong recommendation in your *Gazette* in favour of the Sandy Oats, I ordered a sack through my seedsman here. On arrival I was disappointed in the light description of grain, and am more so now in its produce. It is not yet thrashed out, but it appears to be a poor light unproductive grain. Whether any mistake has occurred in forwarding the corn, I cannot tell; but if any other of your correspondents have tried the same, I shall be obliged for the results, which may also be useful to others. Last autumn I sowed about half an acre of Italian Rye-Grass, which I am now cutting the fourth time; but I observe in your *Gazette* mention made of a small piece cut nine or ten times. This is a wonderful growth. If we could have the date of each cutting, and the weight of a perch of each, it might be very useful in determining its value. The dates, I suppose, may yet be obtained. I wish I had more early thought of weighing. I yesterday tried the fourth cutting, and give the result at foot. Each cutting has been over 2 feet high, but I do not think it was sowed thick enough. I also give the weight of the second cutting of common Grass from my lawn, and of Red Clover.

One Perch.	stone.
Second cutting of Red Clover	8
Second cutting common Grass	6
Fourth cutting Italian Rye-Grass	4

—*Abraham Fisher, Youghal, Aug.* 27, 1846.

Societies.

HIGHLAND AND AGRICULTURAL SOCIETY'S GREAT SHOW AT INVERNESS.

THE following particulars in reference to the late meeting of this Society at Inverness are from the interesting report of it in the *Inverness Courier*.

As regards the general character of the exhibition, in numbers and in quality the stock was greatly superior to that exhibited here in 1839. The show of native Highland cattle was the largest and best that has ever been witnessed at any of the Society's exhibitions. From the West Highlands there was an extensive display, and we were glad to find that the second premium was awarded to a bull from the island of Harris. The show of short horn cattle was limited in number, but very excellent, and even remarkable, considering the distance of Inverness from the southern plains where the cattle abound. The prize bull of this stock was a noble animal, belonging to Mr. Hopper, a Yorkshire agriculturist; and it may now be considered the champion bull of the United Kingdom, for it has carried off the first prize at national shows in England, Ireland, and Scotland, besides various local premiums. We regret that this bull does not remain in this country, being engaged for Ireland. In Ayrshire cattle, the show was limited, but there was one bull which had obtained premiums in the low country and was much admired. The Aberdeenshire breed is gradually wearing out, being supplanted by the Angus and Galloway. Of the former we had a few good specimens. There was but an indifferent show of polled cattle, but a few good bulls and one or two superior three-year old stots. The show of sheep was admirable in quality, but far from being so numerous as might have been anticipated in this district. Some of our most extensive hill farmers did not compete, and the first premium for Cheviot tups was gained by a Haddington farmer. Both in Cheviot and blackfaced breeds the number shown was comparatively small, though some were first-rate animals. The prize blackfaced tups, bred in Peeblesshire, were remarkable for fleece and symmetry, and for their immense curling horns. There were also some fine half-bred sheep, natives of the north, which convinced the judges that our low-lying fields, where the climate is not severe, are not unsuited to this more delicate description of stock. Of horses we had a good display—much superior to that at the Society's Show at Dumfries last year. For active strength and muscular power there has rarely been a better exhibition of horses, and this seemed to surprise some of our visitors. Our hardy Highland ponies were also greatly admired. The following is an abstract of the show:—Cattle, 219 entries or lots; horses, 74; sheep, 123; goats, 2; swine, 22; poultry, 36; extra stock (some admirable animals in this class, but too late to be entered), 52; dairy produce, 21; seeds, roots, and plants, 40; implements, 59; total, 648 lots. It is gratifying to know that most of the prizes were carried by practical farmers.

AGRICULTURAL CHEMISTRY ASSOCIATION.

Tuesday, Sept. 1st.—The proceedings connected with the meeting commenced this morning with a public breakfast in the Northern Meeting Rooms, under the direction of the Agricultural Chemistry Association, when the topic of conversation was, "ON THE USE OF PREPARED FOOD IN FEEDING CATTLE." The Chairman, J. B. FRASER, Esq., of Reelig, called on Professor Johnston to address the meeting, and said that he trusted those gentlemen present who had experience in these matters, would afterwards state the results of their experience.

Professor JOHNSTON said that in the feeding of cattle no district was more interested than this. As a cattle-exporting district the extension of sound information in regard to the economical use of food must be of the very greatest importance. This he was prepared to show was to be effected by the use of certain mixed food and prepared food. An individual going from one end of the country to another to observe the state of agriculture will look, not merely at the kind of stock, but he will more particularly observe the implements of husbandry in use throughout the various districts. In order, therefore, to form an estimate of the degree of attention paid to this matter of prepared food in England, on his visit to Newcastle at the great cattle show recently held there, he turned his attention particularly to the examination of the implements exhibited having a bearing upon this point. Amongst these he found chaff-cutters, a peculiar machine for crushing corn and other seeds, and other instruments—all showing how much regard was being paid to this subject by practical men. There was no doubt but that the subject of the quantity of food which cattle required to produce a certain weight of beef was beginning to attract general attention; and before he entered upon the few points which he meant to notice in connection with this question, perhaps it would be necessary to explain shortly the general composition of food. In all kinds of bread there were contained three different kinds of matter. First of all there was a certain quantity of fat, which the butter they ate represented. Secondly there was a certain amount of sugar; and then there was besides the third constituent, which was represented by the white of an egg. Now it was of the very greatest importance what description of food was used, and what proportion it contained of those three kinds of matter, as bearing upon the purpose it was intended to serve. Cattle had in their bodies different forms of matter also, but particularly flesh and fat, and the farmer should be sufficiently acquainted with the nature of food to be able to distinguish what he should use when he wished to produce fat, or when he wished to produce fat and lean both together; and the food which was given would effect the one or the other of those purposes according to its composition. The white of an egg, or albumen, would supply nothing, or nearly so, to the animal but muscle. Then the fat went directly to form fat. The starch in food kept the body warm, and when fat was wanted served the purpose of making the oily matter more readily become fat in the body of the animal. Now in fattening cattle, as in everything else, using the proper means produced the proper effects; and after the explanation which he had given, they would see at once that a mixture of food was better than the use of one kind alone. If they wanted to lay on muscle they would feed with food containing the largest amount of gluten; and if they wanted to lay on fat, they would give starch and oily substances, and only a small proportion of the other ingredient. Selecting food in any other way would not serve the purpose they had in view in the most economical way. He had a table representing the different proportions of fat in the food which they were in the habit of using; but he would illustrate what he had to say by a few simple illustrations. Wheat contained two per cent of fat, and sometimes a little more; but Oats contained sometimes from four to five per cent., or about double the amount which was to be found in Wheat. Oats was next to Indian corn in this respect, for it contained a large amount of fat. Gluten was the matter out of which the muscle was produced, and there were more of that substance in the Bean and the Pea than in the Oat; but the Oat was better than Wheat. But there was another kind of food used for fattening cattle, namely, oil-cake, which contained a greater amount of fat than the same weight of any other kind of grain. Linseed, from which oil-cake was made, differed from other descriptions of grain, in containing a greater amount of fat, and a larger amount of gluten likewise, with the exception of the Bean. Now practical men had derived great advantage from feeding their cattle on oil-seeds; that food, from the peculiarity of its composition, laying on fat and muscle at the same time. Oil-cake, however, was the best food only when the greatest amount of fat was required, and according to the purpose which they had in view, farmers would give to their cattle other descriptions of food. It was a remarkable circumstance that the Bean and Pea contained very little fat, and as the wheels of the animal system required to be greased, these kinds of grain would not serve for that purpose, although they contained what made muscle. Although Bean and Pea were good food, therefore, they were not good as the sole food of animals. Besides, they would observe that from their different constituents plenty of oil-seeds and plenty of Beans and Peas would be far more profitable than if they were to give either of them singly. That was the principle upon which the use of mixed food was founded—to give all the substances the animal required, and to give them at the cheapest rate; and the researches of the scientific man were directed to discovering the means by which these objects could be best accomplished. He had selected oil-seeds, but he might have taken Potatoes or Turnips for his illustration. He had taken the oil-seeds, however, because very great attention had been recently directed to the value of those seeds in the feeding of stock, and to the culture of Flax, which they knew was advancing with great rapidity in the neighbouring country of Ireland, and which was even progressing in England at a great rate. He might mention a remarkable fact connected with the improvement of the Flax cultivation in Ireland, that a society which was established for the encouragement of that cultivation, and which had its seat in Belfast, had an annual revenue of between 2000*l.* and 3000*l.*; while the income of the Royal Agricultural Association of Ireland was less than one-half of that sum. From the progress the cultivation of Flax was making in Ireland, it was very deserving of attention by those who thought a change in the rotation of the crops would be useful in other parts of the country. The person who had most directed his attention, practically, to the effects of feeding stock with mixed food, and to feeding on Linseed, was Mr Warnes, of Trimingham, Norfolk, and he (Professor J.) would point out to them the principles on which he proceeded; and they were sound scientific principles. He commenced by boiling the Linseed in water until it formed a kind of jelly; then he stirred in a certain quantity of cut straw and chaff, and crushed corn. The mixture was then poured into moulds, and afterwards served to the cattle warm, which they liked remarkably well. With this food the cattle throve, and acquired beef in an extraordinary manner. By this system of feeding Mr. Warnes said he could compete with any man, whether foreigner or not, as he could send cattle to Smithfield at 4½*d.* per lb., and pay him an ample return; and in illustration of this, he gives the results of two experiments, which he would read to the meeting, and which were as follows:—

"Since he followed out box feeding, he knew not a single instance where he had not realized 8*l.* for every head of cattle he had kept for six months. At the farm where he now resided, he had reared for market the following cattle, after only six months' box feeding:—

	£	s.	d.
7 Durham steers cost 8*l.* 10*s.* each, sold for 19*l.* 10*s.* each	77	0	0
6 Scotch steers cost 10*l.* each, sold for 22*l.* 10*s.* each	75	0	0
1 Cow cost 5*l.* 5*s.*, sold for 15*l.*	9	15	0
4 Scotch steers cost 10*l.* each, sold for 20*l.* each ..	40	0	0
	201	15	0

"The above cattle were bought in and disposed of within six months. They consumed, with the following now in herd, 19 acres of Turnips, about 14 quarters of Linseed, and a few bushels of Barleymeal, with several acres of Pea-straw:—

	£	s.	d.
3 Durham heifers, estimated value above the cost price	22	10	0
2 Irish steers	13	0	0
5 Small steers and heifers	30	0	0
3 Calves, and butter from two cows	11	0	0
	76	10	0
Deduct for 14 quarters of Linseed, mostly grown upon the farm, 35*l.*, also for Barley 4*l.*	39	0	0
Profit	37	10	0

In reference to Mr. Warnes's experiments, too, it was to be observed that the value of the manure was very much increased in comparison with that derived from the ordinary method of feeding. But, besides this, there was another method of feeding of which he would speak from personal observation, and which he had witnessed in the neighbourhood of Northallerton. He went to that place because he had heard that Mr. Marshall was keeping double the amount of stock, with the same quantity of Turnips, which he had been in the habit of doing only two years ago; the other food used being ground Oats, Barley, Rye, and old Beans, and chopped hay, instead of straw at times; but the cattle did best with the straw. Hearing, as he had stated, that Mr. Marshall kept double the stock upon the same amount of Turnips, by his system of feeding, he (Professor Johnston) was very anxious to see the mode of carrying his system into operation, and went down to Yorkshire for that purpose. There he saw about 200 head of cattle feeding—a portion of which was sold off every week and their places supplied by others. What struck him as very remarkable, was the state of absolute rest in which he found the cattle. There was not a single beast upon its legs; no motion was observed, which, they were aware, was a circumstance favourable for fattening. In connection with this subject he got the following information, and in order that they might fully understand it, he would present it in a tabular form. It was as follows:—

Linseed, 2 lbs., boiled for 3 hours in 4 gallons water.
Cut straw, 10 lbs.; Growing corn, 5 lbs. } mixed with jelly.
To be given in two messes, alternately with two feeds of Swedes.

Now, the mode in which the Linseed was boiled was of considerable consequence. In the first place, it was boiled for three hours. The jelly was then poured upon crushed grain and cut straw, much in the same manner in which a man made mortar, being mixed together with a shovel, and allowed to stand for an hour. It was then stirred again, and after the lapse of two hours it was given to the cattle in a hot state, and the result was, that if the animals are fed regularly on this kind of food, and Turnips alternately, they remain in a state of extraordinary quiet. They become exceedingly fond of it, and commenced bellowing whenever they hear their neighbours being served before themselves. The practice was to give them a meal of the Linseed mixture at six in the morning; Turnips at ten; another mess of the Linseed in the after noon; and Turnips again in the evening. When he saw them first in the morning, it was after they had got their mess, and he was much astonished to see them on visiting them on the second occasion, when they were all on the *qui vive* for their meal. Two things were to be observed in regard to this system of feeding—first, that it consisted, in addition to Turnips, of a mixture of grain, straw, and Linseed, in certain quantities; that it was prepared in a particular way, and given hot; and that the result was double the amount of stock kept on the same amount of land. The proportion of Turnips which would be grown upon a farm usually determined the quantity of stock a man might keep; and if, by an improvement in the system of feeding, the quantity of cattle could be doubled, by turning the money twice instead of once within a year, the farmer would obtain double the profit. But this was not the only advantage. He would double the manure which he made at the same time, which would contribute very much to the fertility of his land; he being enabled, by the use of this Linseed, to return more than he took out of it. The proportion of the food had other important consequences in regard to manuring the soil. The crushing of the grain and seeds, by reducing them to the minutest particles, made the substances of which they were composed more easily assimilated as the food of plants, and made it better manure, because of the extreme division which it had undergone. Now, they would observe that, by having this large additional amount of manure, they would get larger crops, and introduce a system which would go on annually increasing the amount of their produce, and consequently the amount of their profits.

Mr. GREY, of Dilston, agreed very much with what was said by Professor Johnston, more particularly in reference to the great improvement in manure by the use of prepared food. He had seen instances where an acre of Turnips was worth other three acres differently manured. It was well known that in Surrey farmers could be found who would give their fields to be consumed by sheep for nothing, if the parties became bound to supply them with a certain quantity of oil-cake and hay. He knew a place in Croydon himself, where, on condition that a large quantity of that kind of food was given to the sheep, that the Turnips were allowed to be consumed on the field without charge. This showed the extraordinary effect which it was believed manure produced from that kind of food had in raising crops, more particularly as in the case to which he referred, on that description of land which required to be trodden out to make it produce good crops.

Mr. WATSON, of Keillor, said there was one article of food much talked of in Scotland, which he thought was deserving of attention. The article he referred to was Malt; and he thought if they were allowed to convert their light Barleys into that form, it would be one of the very greatest improvements, and a most economical food for their cattle. He spoke partly from experience on this subject. Some years ago, a late field of Barley of his began to malt before he could get it thrashed, and he continued the malting process, and afterwards gave the grain, in a state of malt, to his stock, with more profit than he ever derived from cattle before. He would like Professor Johnston, therefore, to turn his attention to that subject, as he (Mr. W.) was of opinion, that permission to use malt for food to cattle would be of great value to farmers in this part of the country.

Mr. BLACK, of Dalkeith, could speak from experience of the benefit of salted feeding, as he was in the habit of putting a piece of rock salt in his stalls, and of putting pieces likewise amongst his pastures, so covered that water could not meet them. He found this to be of great use.

Captain ELPHINSTONE, of Dalrymple, said, Professor Johnston having alluded to the application of Flax seed to the feeding of cattle, he would state the result of an experiment which he had made in the growing of that crop. He had put an acre of land under that crop, and it produced 27½ cwt. of Flax. He had tried in this experiment various kinds of manure, and six different kinds of seed. By this means he had discovered the most advantageous description of seed to use, and he was quite satisfied that they could grow Flax as well as foreigners. The importance of this subject would be apparent, when he informed them that this country paid from 8,000,000*l.* to 9,000,000*l.* a-year for Flax, and would it not be better if they could grow a quantity of that produce for themselves? He did not find that Flax was an exhausting crop, as was supposed. Within his recollection Turnips were considered an exhausting crop; and by the application of liquid manures, and the practice of a judicious system of rotation, he believed Flax would not be found more exhausting to the ground than some other crops. He was determined, therefore, to try the experiment further

acre each, by mowing 10 acres of Flax. He was therefore going to Ireland for the purpose of ascertaining the best methods in use for riddling and cleaning it, as he believed that in the district in which he lived they could grow as good Flax as anywhere.

Mr. Horne remarked, that if the farmers in this country were to raise Flax seed for themselves, he thought it would be of great advantage; for when they looked at the immense expense of the refuse of Flax seed in the shape of oil-cake, and the value which was put upon it for the feeding of cattle, surely Flax seed itself was much more valuable. If they directed their attention to the growing of Flax seed, and could get a good machine which would freely discharge the crushed material, he thought every farmer might be enabled to grow that valuable food for his own cattle.

Mr. Smith, late of Deanston, said, he was lately at a show of implements, where a very perfect machine was exhibited, which was not only capable of bruising Linseed and separating it from the rollers, but was most effective for crushing Oats and Beans, or any other description of seed. It consisted of two fluted rollers, with simple machinery to drive it; and the price, he thought, was 10*l*. The maker of the machine was a Mr. Richmond, of Manchester. 10*l*. was, perhaps, a large sum, but the advantage to be derived from the use of the machine on a farm of any extent, would very soon repay the outlay. They had heard a great deal of the advantages of a mixture of food in producing lean, fat, and muscle, and in the same way it was of importance that farmers should vary their crops, so that they might extract from the soil all the substances it contained which went to the composition of food. With regard to the use of Linseed, he had to remark that it was a subject to which he had paid considerable attention, and he could assure them that the graziers in England found very great advantages to result from giving it to their cattle; and he was of opinion nothing would tend to improve the mountainous districts so much as feeding their stock partly upon Linseed, and by that means enriching the soil. By conveying Linseed into the mountainous districts, they would carry a greater quantity of manure to enrich the country than they could do in any other shape whatever, while they would be feeding their cattle better, and getting a better price for them.

Professor Johnston then stated that with regard to the use of malted Barley referred to by Mr. Watson, he did not think it would be so advantageous as that gentleman thought. If it was given as a part of the food of cattle, he thought there could be nothing better, but if it was given as the great staple of the food, he did not think it would pay. From the failure of the Potato crop it would be necessary to substitute some other crop to supply its place in the system of rotation, and for this purpose Flax was deserving of their attention. As to the question whether Flax was exhausting or not, there was this to be observed that it was different from other crops, in so far as they took away both the straw and the grain, and to keep the soil fertile, it would be necessary to return in the shape of manure not only what was taken away by the seed, but likewise what was taken away by the straw. It was not an exhausting crop if they took care to manure the soil.

A vote of thanks was then given to the chairman and the company separated.

The Exhibition of Implements Seeds, &c., was opened this day. Some disappointment was felt as to this exhibition, which was undoubtedly inferior to similar shows in the south. It should be recollected however, that the northern counties are far removed from the seats of mechanical skill where such implements are manufactured, and that this may be considered a pastoral rather than an arable district. We were glad to observe various specimens of crops from the island of Lewis, indicating the progress of the improvements going on there, under the superintendence of Mr. Smith, of Deanston. First, we had an original turf, with poor Heath and Bent, upon a very spongy peat moss. Beside it were two turfs from the improved land, one bearing rich and luxuriant white Clover, the other Rye-Grass, the latter having carried an excellent crop of Barley. There was also exhibited Oats grown in the Lews, of great length of straw and Timothy Grass 4 feet long, with excellent Turnips and Potatoes. The whole of this improvement has been effected by simple means worthy of record. The land is first inclosed in fields of 20 acres each, with turf fences costing about 1*l*. per acre. It is next thoroughly drained by means of parallel drains 9 feet apart and 3½ feet deep, executed at a cost of only 1*l*. per acre. The land is then dug or ploughed, and about one quarter of an inch of clay is applied to the surface, with a dressing of 10 cwts. of shell sand and 3 cwt. of guano, or for Turnips, bone dust. In its original condition, the land, as shown by the rude turf might have been worth from 1*d*. to 6*d*. per acre. It may be now worth 10*s*., and, continuing the cultivation it will, in a few years, be worth 20*s*. As the rich and generous proprietor of the island contemplates carrying out this improvement over thousands of acres, farms will be provided for the enterprising natives, and subsistence afforded for a great additional population. [We must postpone the remainder of this report until next week.]

FLAX IMPROVEMENT SOCIETY.

At the monthly meeting of committee, held on the 26th ult., the secretary reported that he had attended the Royal Agricultural Society's meeting at Limerick, and had subsequently visited several of the new districts in the south, where Flax was being introduced under the management of the Society's agriculturists. The appearance of the crop was generally much superior to what it was in the north. The yield was likely to be abundant, and the quality good. He had made arrangements for the introduction of Flax culture into several new districts of Galway, Tipperary, Kerry, and Cork. The almost universal loss of the Potato crop was likely to cause a considerable portion of the stubble, which would otherwise be prepared for that crop, next season, to be sown with Flax; while the precariousness of the future culture of the root would induce the farmers and cottiers to grow Flax as a profitable crop, with the produce of which they could pay their rents, so as to leave the grain crops, formerly devoted to this purpose, available for food. The future prospects of success in the south were most cheering for the Society.

Reviews.

Notes on the Nature, Objects, and Practical Application of Agricultural Chemistry. Frederick Shaw, Dundee. Longman and Co., London.

This is a tract originally printed for the perusal of the author's friends, but since, by the well-judged advice of many of its readers, published for general distribution.

It simply professes to be a connection of notes taken during a course of reading on the subject. They are well arranged, simply put together, and illustrated in an instructive manner.

Domestic Fowl; their Natural History, Breeding, Rearing, and General Management. By H. D. Richardson, &c. Dublin. James M'Glashan, 21, D'Olier-street.

A cheap little book, containing descriptive notices of the different breeds, illustrated by good wood engravings, and giving full directions for the every day management of fowls. We have weekly inquiries for a book of the sort, and, by reference to this, are now happily able to meet all inquiries of this kind.

Farm Memoranda.

Spring Park Farm, near Croydon.—(*Report of Maidstone Farmers' Club*).—For the use of those who may not recollect the particulars of Mr. Davis's rotation and general system, it is here repeated, from the report of the deputation who visited his farms last year:—

1st year..	Rye and Tares, for green meat and feeding off with sheep, in April, May, June, and July, and followed by	
,,	Mangold Wurzel	With a liberal dressing of farm-yard dung
,,	Swedes	
,,	Cabbages	
,,	Turnips	
2d year ..	Oats or Barley, sown with Clover.	
3d year ..	Clover, twice mown for hay	
4th year..	Beans or Peas	The Beans have Turnips drilled between the rows, and which come into feed in September and October.
5th year	Wheat.	

The quantities, and periods at which he sows, are the following:—

Rye	1½ bushels	..	In August and September.
Tares	1½ ,,	..	In three sowings, in Aug., September, and October.
Mangold Wurzel.	6 lbs. ..	..	In April
Swedes	1 quart.	..	In May
Turnips ..	1	..	In July.
Cabbages ..	1 every 3 feet.		In June
Oats	7 pecks	..	In January, February, and March
Barley	6 ,,	..	In January, February March, and April
Wheat	3	..	In September and October
Peas	8 ,,	..	In December, January and February
Beans	8 ,,	..	In September and October.

Mr. Davis's Rye and Tares for green feeding are sown in rows at 9 inches apart; all his white crops at 12 inches, his pulse at 27 inches, as are also his root-crops and cabbages on the ridge.

The principles on which Mr. Davis professes to farm are the following:—

1. Never to be contented until all your land has been trenched and turned over by the plough a foot in depth, nor until

2. The wet land be made dry by deep draining, and consider no land effectually drained unless the drains be 4 feet in depth; that is to say, unless the water level be so far below the surface, that corn shall have at least a foot of dry earth to root in, unaffected by capillary attraction of moisture from below, and the chill that water nearer to the surface causes; this can be done only by having the drains 4 feet from the surface, and within 10 feet of each other.

3. For sowing of spring corn consider the season commences with the new year, and have no other fear than that of being too late. When the ground is dry enough, and fine enough, the sooner it is in the better; it will yield more, and the liability to blight, or to be beaten down, will be less.

4. In sowing, drill or dibble all; and have the rows not nigher than a foot between them; so as to admit of hoeing either by horse or hand, and hand-weeding at late periods.

5. Hoe and hand-weed all corn; let not a weed in flower be seen amongst it; ever recollect that weeds occupy space and consume nutriment, displacing corn, and robbing the land.

6. Never sow two crops of one genus in succession; legumes or pulse may follow cereal grain, and cereal grain may follow legumes or pulse; but never cereal after cereal, or pulse after pulse. Recollect Rye Grass is a cereal plant, and unsuits the land for white straw corn.

7. In apportioning the rate of seed per acre, do not lose sight of the bad consequences that must ensue if too much be sown. Bear in mind that if so much be sown as to produce more plants at first than the space will afterwards allow to attain maturity, the latter growth of the whole will be impeded, and a diseased stage will commence, as soon as the plants cover the ground, and remain till harvest.

8. Manure should be applied only to green or cattle crops, and never to corn, by giving it to the former, the earth derives the advantage of the extra dressing that the extra growth returns; but when applied to corn, the earth is so much the more exhausted by the extra growth of straw, and frequently, too, the grain is thereby positively injured by being beat down and blighted in the straw, that it always is made more hazardous by dressing.

9 Were farmers to buy all their manures, they would find that the cost of maintaining their land in fair heart would be about 1*l*. per acre per annum. This quantity of dressing, every farm, in fair productive cultivation, would supply of itself, if a proper use and economy be made of its material to form manure, and a due care taken of it afterwards; but from misapplication and waste of the straw and fodder, and from negligence in the preservation of the dung and urine, at least half is usually lost, and the arable land of England may thus be said to be prejudiced at least 10*s*. per acre.

10. Were any other injury done to the crops by trees and hedges in small enclosures than that which arises from their mischievous shade and shelter, it would be equivalent to the ordinary rent of such fields; but the farmers sustain a further loss in the additional time occupied in its tillage by the more frequent stoppages and turns they cause, and by the encouragement to idleness in the men that their cover affords. I believe arable fields with large hedges and hedge-row timber round them, whose dimensions are under eight acres, are seldom or ever worth a farmer's cultivation. I see much poor open down land in profitable cultivation, and large districts of enclosed land of far better quality, ruinous to the occupiers; and I have not a doubt that to the difference in the size of the fields this may be principally, if not entirely traced.

The deputation visited every field on the farm, and give the following description of what they saw, in a different order from the course over which they passed; so that other persons visiting the farm, may more easily find, and identify, the respective fields visited.

The following is the history of Spring Park Farm, as derived from Mr. Davis, by the deputation:—Spring Park farm, when first tenanted by Mr. Davis, had been seven months out of cultivation, and from 1808 to 1833, had always been in the hands of the wealthy overseers. The late Mr. John Smith was fond of telling that when he bought Spring Park (then comprising about 600 acres) he found a tenant on it whose rent was 66*l*. per annum; that after two years the tenant failed, and he lost his rent. From that time to 1833 it was never let. Since Mr. Davis has rented it, he has drained nearly the whole four feet deep; he has also trenched it 15 inches deep, taking out many hundred loads of conglomerate gravel that was broken up by a plough made on purpose. The result of this is that he grows at least three times as much produce as formerly, and keeps five times the quantity of stock; the seasons are far kinder, and the land admits of winter feeding with sheep, and early sowing. The name of this farm was formerly "Cold harbour." It was then reckoned the coldest spot in the neighbourhood, and consisted principally of a wild heath, full of bogs, affording excellent snipe-shooting in the winter, and, as a neighbour used humourously to describe it, finding keep in the summer for a lark an acre. The late Mr. Maberley, when he bought it, not liking the name, re-christened it Spring Park, probably so designating it from the quantity of water springing up upon it; but deep draining and high cultivation have strangely changed it. The forward state of the crops show that it can no longer be fairly called "Cold harbour," and latterly the springs have been diminishing, till at least half of them are stopped altogether, and corn now waves where Heath alone formerly grew. Still no farmer will envy Mr. Davis his possession of such a soil. Much has been done, probably all that art can do, to improve it, but man cannot change gravel or sand; by draining he may make it dry, and by trenching he may multiply the space for roots to range in, and derive nutriment from; but a gravel or a sand, unlike clay, or chalk, or mould, admits of no further change, and, to the last, must ever be a hungry uncertain bed for corn; a fast consumer of nutriment, much dependant on seasons, and requiring summer rains for maintaining continuously its vegetating powers in May and June.

(*To be continued.*)

Calendar of Operations.

SEPTEMBER.

We have for the last few weeks discontinued our weekly paragraph under this head considering that during harvest *time* it was unnecessary to remind any one of the necessity of attending to harvest *operations*. We now resume these weekly notices as the farm work becomes more various.

The present is a very good time to haul tiles and stone for drains, and to cart road material to the places where it is needed.

The Potato harvest requires immediate attention. How and sell immediately is perhaps the safest mode of procedure to adopt. Where seed for next year is to be preserved, dig and expose them to the sun for a week, covering them during night in case of frost. We have now about 40 sacks thoroughly sound (at present) and well greened, and placed in a narrow ridge about 18 inches wide and a foot high, and thatched, ready for planting in November. Our autumn-planted Potatoes were ripe before the disease had hurt anything but their leaves, and we intend to labour for a similar experience in the ensuing year. Plant early varieties, in early situations, at an early season, this must be the practice of all who are willing to run to speculate in the lottery of Potato growing.

Another operation during dry weather at the present season, must be clearing the stubbles, before giving them the deep ploughing before winter, which should precede the ensuing green crop. Stubbles are extraordinarily foul this season, we suppose in consequence of a mild winter and a consequent early growth and a difficulty of cultivating the soil. The best mode of clearing the land will be by paring, harrowing, and burning. The first costing about 7*s*. per acre, and the others being done by day labourers, or the paring may easily be done by a paring-plough or cultivator.

Notices to Correspondents.

Books—*Bryan Barnaby*—"Bevan on the Honey Bee," "Training for Ladies."

Cost of Food of a Cow—*Inquirer*—Do you mean us to name a sum including the dairyman's profit? We presume of You may assume that on ordinary Grass land 3 acres will keep 1 cow—two being mown, and one, with the aftermath of the others, being depastured

3 acres; rent, say	£4	0	0
Labour, say	2	5	0
	£6	5	0

Or about 2*s*. 4*d*. a week. The cost will be greater in winter than in summer, as hay, a manufactured food, is more costly than Grass, natural.

Electro Culture—Will any one be kind enough to name the publisher of Weeke's pamphlet on "Electro Culture?"

Fish—*Ignoramus*—Add sulphuric acid, not lime. The one fixes, the other dissipates ammonia. Perhaps the best way

will be to place the fish along with alternate layers of sand in a heap, and sprinkle it well with dilute sulphuric acid, covering it well over with sawdust damped with the same. Let the heap be under cover.

FLAX—*B J W*—You may address yourself to Mr. Dickson, of 29, Broad-street-buildings, London; he will advise you about the sale of it.

GRASSES FOR PERMANENT PASTURES—*Novice*—

	Light soils		Heavy soils	
	With crop.	without crop.	With crop.	without crop.
	lb.	lb.	lb.	lb.
Alopecurus pratensis—Meadow Foxtail	1	1½	2	2
Avena flavescens—Yellowish Oat Grass	½	½	..	..
Dactylis glomerata—Rough Cocksfoot	4	5	1	3
Festuca duriuscula—Hard Fescue	2	2	1	1
,, heterophylla - - Various-leaved Fescue	..	..	1	1
,, lolilacea—Spiked Fescue	..	..	1	2
,, pratensis—Meadow Fescue ..	1	2	2	3
,, rubra—Creeping Fescue	2	2	..	..
Lolium perenne—Common Rye-grass ..	10	12	10	12
Phleum pratense—Meadow Cat's-tail ..	..	..	2	3
Poa pratensis—Smooth-stalked Meadow Grass	1	1	..	..
,, trivialis—Rough-stalked Meadow Grass	..	..	2	3
Medicago lupulina Yellow Clover ..	1	1	1	1
Trifolium pratense perenne — Perennial Red Clover	3	3	3	4
,, repens - Dutch Clover ..	1	1	1	1
	29½	36	33	42

And Rye one bushel additional when sown without a crop —*Lauron*

As regards your old pasture, drain it, use the cub-turf plough, manure it well, and sheep it for the first few years. Sowing seeds will do no good. You must enrich the soil in order to get the Grass good again.

GREEN CLOVER, *&c*—*Inquirer*—It generally loses about 70 per cent. of its weight in haymaking.

GUANO—*Inquirer*—You had better use it as a top-dressing in spring.

MANGERS—*Inquirer*—We keep them clean by fixing a pole across them *under* which the animals have to put their heads in order to get at the mangers. You might have a moveable manger slung on two bolts, one of which is removable, and the other placed so that when the manger hangs free, it shall reverse the position it occupies when in use. It would thus hang out of harm's way, except during feeding time. The Uley Cultivator paring-shares are about 11 inches wide

MANURING—*E B*—The principle to go upon is to apply all *soluble* manures on the surface to the growing crop in wet weather—all *half soluble* manures, such as, we would say, well rotten dung, guano, &c., immediately before the crop is sown in spring, covering them very lightly with earth—and all nearly insoluble manures, such as bone-dust, fresh dung, &c., in autumn, or any other convenient leisure time of the year. Perhaps your best plan will be *after* digging your land, which you say is sandy, to sow broadcast about 12 bushels of bone-dust per acre on the surface, and there let it lie all winter, then you may sow your crop in spring whatever it is, and just before it comes up sow 20 or 30 bushels of soot broadcast over the land, if possible, during showery weather. Try half the land that way, and on the other half try an equally expensive dose of guano applied broadcast over the land in April during wet weather; 12 bushels of bone-dust and 24 of soot, will cost here the same as 5 cwt. of Ichaboe guano.

POULTRY—*Ma Zoo*—"Farming for Ladies," a small 8vo volume, contains some instructive chapters. A little book, by Mr. Richardson, noticed in another column, is also useful. About Indian corn apply to any mealman; or, if you would buy largely, to any corn-factor. We should prefer Barley. An application to the secretary of the Zoological Society would doubtless meet with attention.

SHEEP-FEEDING SHED—*Constant Reader*—Your proposed plan is just that which we have ourselves followed. Our sheds are about 10 feet deep, and we cut up the pens about 2 yards further. They are 10 feet wide, and will contain 8 two-year old or 10 yearling sheep comfortably. Pave their feet once a month, and keep them well littered.

STEAMING APPARATUS—*A Sub*—We must make further enquiries.

TOWN FARM—*Agricola*—asks for the address of some one occupying a small farm near a town and keeping cows, who would be willing to give him some practical instruction in economical agricultural improvement suited to such a locality. [If lands are plentiful, you might cultivate such a farm profitably on the spade husbandry system.]

THOUSAND-HEADED CABBAGE—*J B R*—Sow it so as to have young plants ready for transplanting in successions during early spring. As they become ripe, you strip off the leaves and carry them to your stock. Transplant about 2½ feet apart every way.

WHEATS—*Inquirer*—The varieties vary exceedingly in the quantity of gluten and starch which they contain. But we are not aware that the colour of the sort has any connection with this valuableness.

WHITE CARROTS—*W R*—If sown in March, as Parsnips should be, they will many of them go to seed. They should be sown about the second or third week in April. You may sow Parsnips very well in alternate rows with Beans. See p. 126.

*** Communications reaching town after Wednesday cannot be answered the same week.

Markets.

SMITHFIELD, MONDAY, Sept. 7,—Per Stone of 8 lbs.

Best Scots, Herefords, &c.	4s	0d	to	4s	2d	Best Long-wools	—	— to —
Best Short Horns	3	8		4	0	Ditto (shorn)	4	4 to 4 8
Second quality Beasts	3	0		3	4	Ewes and second quality	—	—
Calves	4	4		5	0	Ditto (shorn)	4	0 to 4 6
Best Downs & Half-breds	—			—		Lambs	4	8 to 5 8
Ditto (shorn)	4	8		5	0	Pigs	4	0 to 5 4

Beasts, 4340; Sheep and Lambs, 30,450; Calves, 189; Pigs, 180.

The supply of Beasts is again large, and trade heavy, especially amongst the second-rate qualities. The choicest descriptions, however, still maintain their price.—Sheep trade is firm; the abundance of keeping causes a large demand. Choicest qualities are the turn fetcher.—Lamb trade is brisk.—Good Calves are in request; rather more than 5s is made of a choice one.—The price of Pigs is on the advance.

FRIDAY, Sept. 11.

We have to-day a fair supply of Beasts, and the sale dull, and Monday's prices barely supported, 4s 8d being quite an extreme quotation for best Scots, &c., and is scarcely realised for the best Shorthorns.—For Sheep and Lambs trade continues active; however, the former can hardly be quoted so dear as on Monday, best Downs, &c, making from 4s 8d to 4s 10d, and Long-wools 4s 4d to 4s 6d; Ewes, &c, 4s to 4s 4d; we do not observe any difference with respect to the latter. The demand is considerable for the time of year.—Calves are plentiful; trade is heavy at a reduction of fully 4d per 8 lbs.; prices range from 4s to 5s 4d.—The trade for Pigs is hardly so brisk, but prices remain about the same.

Beasts, 1981; Sheep and Lambs, 6480; Calves, 289; Pigs, 180.

41, West Smithfield.

HOPS, FRIDAY, Sept. 11.

We have now a firm market for Hops, and much business is doing at the following prices:—

Mid and East Kents	£8	0	to	£9	0 per cwt.
Weald of Kents	4	4		4	15 ,,
Sussex	4	0		4	10 ,,

Yearlings are much inquired after, but are very scarce. Duty £150,000.

FARRINGDON & SMITH, Hop-Factors.

COVENT GARDEN, SEPT. 12.—Vegetables are sufficient for the demand, but Fruit is not over abundant, and trade is far from being brisk. Pine-apples have not altered in price since last week. Abundance of good Black Hamburgh and other Grapes may be obtained at moderate prices. Peaches and Nectarines are becoming scarcer; the former chiefly consist of Royal George and Noblesse. Plums, both English and Foreign, may be obtained at moderate prices. Apples and Pears have not altered in price since last week. The supply of Oranges, considering the season, is good; and Nuts are sufficient for the demand. Foreign Walnuts are very plentiful, and so are Filberts; but trade for the latter is dull. Lemons are a little cheaper. English Melons may be obtained at from 2s. to 4s. each, and some good foreign ones are also in the market. Of Vegetables, Cabbages, Cauliflowers, &c., are good, but the latter hardly sufficient for the demand. Carrots and Turnips have altered but little in price since last week. Peas are scarce. Beans remain nearly the same as last week. Celery is good in quality. Potatoes are very much affected by the prevailing disease of last season; so much so, that some are quite unsaleable. Lettuces and other Saladings are good and plentiful. Cut Flowers chiefly consist of Heaths, Jasmines, Calceolarias, Pinks, Camellias, Pelargoniums, Tuberoses, Gardenias, Moss and other Roses.

FRUITS.

Pine Apple, per lb., 4s to 7s
Grapes, Hothouse, per lb, 2s to 4s
— Portugal, per lb., 1s to 1s 6d
Apples, Dess., per bush, 3s 6d to 8s
— Kitchen, 2s to 6s
Pears, per hf.-sieve, 4s to 12s
Melons, each, 2s to 3s
Peaches, per doz., 6s to 10s
Plums, per hf.-sv., 3s to 6s
Oranges per dozen, 1s to 2s 6d
— per 100, 4s to 16s
— Seville, per 100, 8s to 16s
— per dozen, 2s to 2s 6d
Nectarines, per doz., 3s to 8s
Figs, per dozen, 4s
Lemons, per dozen, 1s to 2s 6d
— per 100, 7s to 16s
Almonds, per peck, 6s
Sweet Almonds, per lb., 2s to 3s
Filberts, English, p. 100 lbs., 70s to 80s
Nuts, Cob, per 100 lbs., 70s to 85s
— Barcelona, 90s
Brazil, 12s to 16s
Spanish, 14s
Walnuts, per bushel, 14s to 18s

VEGETABLES.

Cabbages, per doz., 6d to 1s 6d
Broccoli, per doz., 6s to 10s
Cauliflowers, per doz., 4s to 8s
Artichokes, per doz., 2s to 3s
French Beans, per hf.-sv., 1s 6d to 2s 6d
Peas, per sieve, 5s 6d to 7s
Sorted, per hf.-sieve, 3d to 1s
Potatoes, per ton, 7s to 7l
— cwt., 3s 6d to 6s 6d
— bushel, 1s 6d to 3s 6d
— Kidney, per bushel, 2s to 4s
Turnips, per doz., 2s to 6s
Red Beet, per doz., 1d to 1s 6d
Horse Radish, per bundle, 2s to 6s
Cucumbers, each, 3d to 8d
Spinach, per sieve, 1s 6d to 2s
Leeks, per bunch, 2d to 3d
Celery, per bundle, 1s to 1s 6d
Carrots, per bunch, 3d to 8d
Onions, per doz. bunches, 2s to 3s
Shallots, per lb., 4d to 6d
Garlic, per lb., 6d to 8d
Lettuce, Cos, per score, 8d to 2s
Tomatoes, per hf.-sv., 2s to 4s
Endive, per score, 1s to 1s 6d
Vegetable marrows, p. doz., 6d to 1s
Radishes, per 12 bunches, 1s to 1s 6d
Mushrooms, per pottle, 1s to 2s
Small Salads, per punnet, 2d to 3d
Fennel, per bunch, 2d to 3d
Savory, per bunch, 2d to 4d
Thyme, per bunch, 3d
Watercress, p. 12 sm. bun. 6d to 8s
Parsley, per bunch, 4d to 6d
— Roots, per bundle, 2s
Tarragon, per bunch, 3d
Mint, green, per bunch, 6d to 8d
Marjoram, per bunch, 3d to 4d
Chervil, per punnet, 2d to 3d

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Sept. 10.

Prime new Hay	70s	to 78s	New Hay	—	to —	New Clr. —s to —s
Infr. New & Rowen	40	60	Clover	75	to 95	Straw 26 32

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Sept. 10.

Prime New Hay	70s	to 80s	Old Clover	92s	to 100s			
Inferior ,,	55	65	Inferior do	70	90	Straw	30s to 34s	
New Hay	—	—	New Clover	—	—			

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Sept. 11.

Fine Old Hay	70s	to 80s	Old Clover	100s	to 108s			
Inferior Hay	—	—	Infr. ,,	—	—	Straw	30s to 36s	
New Hay	68	72	New Clover	84	92			

Inferior articles scarcely saleable at any price.

MARK-LANE, MONDAY, Sept. 7.

The supply of Wheat from Essex, Kent, and Suffolk, this morning, was fair, and realised 4s. to 5s. per qr. over the prices of this day se'nnight. Free Foreign met a good sale at an advance of 2s. per qr. Bonded continues much wanted for export, but is exceedingly scarce, 50s. has been obtained for Spanish. Barrel Flour is held for 2s. more money, and the top price of English is settled at 48s. per sack.—Fine samples of Malting Barley command 42s., but the trade was less brisk than last week.—Beans are fully as dear; white Peas 2s. higher.—We raise our quotations of Oats 2s. per qr., which rather checks business.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	50	62	Red	50	54
—— Scotch, Lincolnshire, and Yorkshire	50	56	White	50	58
Barley, Malting and distilling, 30s to 38s	36	42	Chevalier	40	50
Oats, Lincolnshire and Yorkshire	27	30	Polands	27	28
—— Northumberland and Scotch	25	30	Feed	24	28
—— Irish	22	29	Potato	30	36
Malt, pale, ship	—	—			
—— Hertford and Essex	—	—			
Rye	36	36			
Beans, Mazagan, old and new	31	to 38	Tick	35	39
—— Pigeon, Heligoland	38	to 42	Winds	—	—
Peas, White	46	to 52	Maple	32	40
			Grey	23	28

FRIDAY, Sept. 11.

The little English Wheat fresh up for this day's market realised an advance of 1s. per qr. upon Monday's prices; Foreign was generally held 1s. to 2s. per qr. higher, but there was little business done at the rise. Of bonded scarcely any is offered, but the inquiry from France continues active.—Flour meets a free sale at our quotations.—Barley, both Malting and Grinding, fully maintains its late value.—Beans are quite as dear; Egyptian afloat realised 33s. to 34s. per qr.—New and fine old Peas are sought after at extreme rates.—The quantity of Oats on sale being small, needy buyers are compelled to pay 6d. to 1s. per qr. advance.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	3030	710	970	9180 Sks
Irish	—	—	4510	—
Foreign	8980	1420	1180	8 brls

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Aug. 1 per Quarter.	47s 8d	26s 11d	23s 5d	29s 2d	30s 2d	30s 11d
— 8 . . .	48 2	26 9	24 0	30 8	30 5	31 10
— 15 . . .	48 1	27 2	23 8	30 7	29 6	30 0
— 22 . . .	46 11	27 5	23 8	30 10	29 9	29 9
— 29 . . .	47 10	29 1	24 0	31 10	29 9	30 6
Sept. 5 . . .	49 0	31 0	23 8	34 7	40 4	37 1
6 weeks' Aggreg. Aver.	46 9	28 1	23 4	30 7	29 8	30 7
Duties on Foreign Grain	10 0	3 6	1 6	3 6	3 6	3 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, August 29.

Price.	Aug. 1	Aug. 8	Aug. 15	Aug. 22	Aug. 29	Sept. 5
52s 10d	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
— 7	..	..	..	..	..	..
— 6	..	..	..	..	..	..
51 5	..	..	..	..	..	..
49 0	..	..	..	..	..	..
47 10	..	..	..	..	..	..
— 9	..	..	..	..	..	..
— 8	..	..	..	..	..	..
45 11	..	..	..	..	..	..
— 2	..	..	..	..	..	..
— 1	..	..	..	..	..	..

SEEDS, Sept. 11.

Canary . .	per qr	48s to 56s	Linseed Cakes, Foreign, p. ton	8l	to	9l
Caraway . .	per cwt	40 44	Mustard, White - p. bush.	7s		9s
Clover, Red, English	—	—	— Superfine	—		—
— — Foreign	—	—	— Brown	9		10s6d
— White, English	—	—	Rapeseed, English, per last	28l		29l
— — Foreign	—	—	Rape Cake - per ton	—		—
Coriander . .	—	10 12	Safflower . .	—		—
Hempseed . .	per qr.	36 36	Tares, Kent, wheat p. bush.	3s		6s
Linseed . .	per qr	42 43	— Foreign - .	2s6d		4
— Baltic . .	—	37 38	Trefoil - per cwt	18		19
— Cakes, Eng. per 1000 lbs		£11	Turnip (too variable for quotation			

KINGSFORD AND LAY.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, AND NURSERYMEN.—MAGNIFICENT PALMS, TREE FERNS, &c.

MESSRS. J. C. & S. STEVENS will sell by Auction, at their Great Room, 38, King-street, Covent Garden, on Monday 14th Sept., at 12 for 1 o'clock, the finest COLLECTION OF PALMS, TREE FERNS, &c., ever imported, which they have just received from Central America, comprising magnificent examples of Chamædoras, Corypha, Astrocaryums, Bartris, Cocos, Desmoncus, Enterpes, Geonemas, Manicarias, Tremaxes, Kunthias, Hyospatheas, Alsophilias, Zamias, Aspidiums, &c., many from 12 to 15 feet long, all collected with very great care. On view, and Catalogues had of the Auctioneers.

CHOICE ORCHIDS.

MESSRS. J. C. & S. STEVENS will sell by Auction, at their Great Room, 38, King-street, Covent Garden, on Tuesday, 15th Sept., at 12 for 1 o'clock, three small parcels of ORCHIDS, which have just arrived in a fine state from Mexico, Paraiba, and Central America, comprising Barkeria spectabilis, Lycaste Skinneri, Lælia superbiens, Cattleya citrina, Odontoglossum Insleyii, and other favourite varieties. On View, the day prior and morning of Sale, and Catalogues had of the Auctioneers.

CHELTENHAM, AT OAKFIELD MANSION, IN THE PARK.—Unreserved Sale of all the choice and very valuable collection of STOVE AND GREENHOUSE PLANTS, upwards of 300 Lots, in which is a splendid display of Orchidaceous and other rare and costly specimens. The whole being the property of Mrs. Wray, who has left Cheltenham, and under whose direction Mr. CHARLES WOOD will SELL BY AUCTION (every Lot without a protecting price) on THURSDAY, the 17th of September, 1846, commencing at 12 o'Clock, punctually to the minute.

NURSERY BUSINESS.

TO BE DISPOSED OF, on advantageous terms, a NURSERY, comprising about 6 acres of land, well adapted for the growth of American Plants and other Nursery Stock, with suitable Dwelling House, Greenhouse, and Business Premises, situate in the County of Suffolk. The business has been established upwards of half a century. The stock to be taken at a valuation.—Apply by letter, prepaid, to F. R., at Messrs. Gray, Adams, and Hogg's, Brompton Park Nursery, London.

A RARE OPPORTUNITY FOR INVESTMENT, TO NURSERYMEN, SEEDSMEN, & OTHERS.

TO BE DISPOSED OF, on very low Terms, an unexpired term of about 30 years in a Lease of most desirable NURSERY GROUNDS, containing about three acres of Land in a high state of cultivation, there is no situation equal to it near London. It is within half an hour's ride from either of the bridges on the Surrey side of the Thames. The coming in about 150l. There are a Cottage, Greenhouse, and other conveniences, on the premises. For further particulars, apply by letter to A. B., Mr. Hainsworth's, 18, Aldermanbury, City.

WANTED to RENT at MICHAELMAS NEXT, from three to six acres of GARDEN GROUND, with large or small quantity of Glass, and a COTTAGE, within six or eight miles of London.—Apply, stating rent, size, and full particulars, by letter, to J. S., Mr. S. Solomons, at the Pine Apple, Covent garden Market.

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton, Draining Engineer to Her Majesty, at Osborne, Isle of Wight; the inventor of a Patent Tile and Pipe Machine (applicable to making Bricks), also a new Machine for taking roots and stones out of clay both which are to be seen at the Royal Polytechnic Institution, Regent-street,—offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P.S.—Land drained at a fixed sum per acre, including every expense.

BRITISH AND FOREIGN SHEET AND HORTICULTURAL GLASS WAREHOUSE, 12, PANTON-STREET, HAYMARKET.

PHILLIPS & WELCH having on several occasions been applied to for the price of sashes and frames, have now added that branch of the business to their establishment, thus affording to the public an opportunity of obtaining at once, and at a much more moderate cost, Sashes and Frames, Greenhouse and Conservatory Lights, &c., fit for immediate use, with weights and lines complete; and have pleasure in submitting their prices.

SASHES AND FRAMES COMPLETE.

1½	inch single hung ..	1s. 4d. to 1s. 6d.	per foot
1½	,, double ,, ..	1 5 to 1 6	,,
2	,, single ,, ..	1 5 to 1 6	,,
2	,, double ,, ..	1 6 to 1 8	,,

Glazed with good Crown Glass, suitable for sitting rooms.

GREENHOUSE, HOTHOUSE, AND CONSERVATORIES.

1½	inch Greenhouse Lights ..	9½d. to 10½d.
2	,, ..	10 to 11½

Glazed with stout Sheet Glass.

Packing and Cartage at a moderate extra charge. No charge for Priming.

GLASS FOR SKYLIGHTS, and other purposes.—BRITISH SHEET AND CROWN GLASS in Crates or Squares, 10 per cent. cheaper than any other house, for cash. Every quality and substance ready at a moment's notice.—R. COGAN, 48, Leicester-square, London.

GLASS WHICH CANNOT BE BROKEN BY RAIN or HAILSTONE.—A large quantity of POLISHED PLATE GLASS to be sold at 1s. per foot.—Apply at the East London Plate Glass Warehouse, Laman-st., Goodman's-fields.

GREEN MILK PANS, very strong, 36s. per doz., or 3s. 6d. each. PROPAGATING GLASSES, White, 1s. per lb., or from 2s. 6d. to 24s. per dozen. CUCUMBER GLASSES from 6d. to 4s. each. GRAPE SHADES, with holes, 1s. 9d. to 2s. 6d. each. FISH BOWLS, from 1s. 6d. each.—APSLEY PELLATT & Co., Falcon Glass Works, Holland-street, Blackfriars.

STRONG HORTICULTURAL SHEET GLASS.

HETLEY AND CO. are supplying 16 oz. SHEET GLASS, in boxes of 100 feet each, an article superior in every respect to the foreign, and well adapted for Horticultural and general glazing purposes, at the following reduced prices, for cash. A reduction on 1000 feet.

Sizes. inches.		inches.	s. d.	Per 100 feet Box. £ s. d.
6 by 4	and under	7 by 5 at	0 2½	1 0 10
7	5 ,, ,,	9 7	0 2½	1 2 11
9	7 ,, ,,	10 8½	0 3	1 5 0
10	8½ ,, ,,	14 10	0 3½	1 7 1
14	10 ,, ,,	2 ft. super.	0 3½	1 9 2

Other sizes of every substance and quality equally low.

	inches.	s. d.	
GLASS TILES,	14 by 10 from	8 0	per dozen according to substance, thinnest being 16 oz. sheet.
SLATES,	20 by 10	8 0	

WHOLESALE GLASS TRADE, Sheet, Crown, and Patent Plate Glass Warehouse, 35, Soho-square, London.

FOREIGN SHEET GLASS, GLASS TILES, &c.

C. JARVIS has a quantity of boxes of FOREIGN SHEET-GLASS left, of the stoutest kind, of all sizes, which he can offer to purchasers at a considerable sacrifice, at his old established WINDOW GLASS WAREHOUSE, 88, Great Castle-street, a few doors from Regent-street.

Also, a large quantity of SMALL GLASS on the lowest terms, for ready money only.

HORTICULTURAL GLASS.

EDWARDS AND PELL, 15, Southampton-street, and No. 7, Maiden-lane, Strand, Agents and Importers of Belgian Sheet Glass, supply stout Belgian and British Sheet Glass at the following net cash prices:—13 oz. 4*d.*, 16 oz. 5*d.* per foot. Stout Sheet in small squares, packed in boxes containing 100 feet, from 2*d.* to 3½*d.* per foot—this Glass is admirably adapted for Horticultural purposes.

Sashes for Garden Frames made of the best 1½ yellow deal, primed and glazed with strong sheet glass, at 10*d.* per foot.

Estimates and designs given for Greenhouses and Hothouses.

GLASS FOR CONSERVATORIES.

APSLEY PELLATT AND CO., Falcon Glass Works, Holland-street, Blackfriars, are prepared to supply (in quantities not less than 100 square feet), SHEET AND CROWN GLASS OF BEST QUALITY, at the following *Net Cash Prices*:—

	Per square foot.
Any size under 2 feet superficial.	
13 oz. weight per foot	4*d.*
16 oz. ,, ,, ...	5
21 oz. ,, ,, ...	8

SMALL Squares up to 10 in. by 8 in., from 1½*d.* to 3*d.* per sq. ft.

N.B.—The 16 oz. is full strength for Greenhouses.

GLASS DAIRY PANS.

EDWARDS AND PELL, HORTICULTURAL GLASS WAREHOUSE, 15, Southampton-street, Strand, and 7, Maiden-lane, Importers of FOREIGN SHEET GLASS and GLASS DAIRY PANS, beg to announce the prices of their PANS, &c.—

	Each—*s. d.*		Each—*s. d.*
12 inches in diameter ..	3 1	18 inches in diameter ..	4 0
14 ,, ,, ..	3 6	20 ,, ,, ..	4 3
16 ,, ,, ..	3 9	22 ,, ,, ..	4 6

The following is one of many letters received respecting the superiority of Glass over Earthenware or Metal:—

"Beau Regard, St. Lawrence, Jersey, Sept. 5, 1846.

"GENTLEMEN, The pans arrived all quite safely, but I deferred acknowledging them until I could tell something about their qualities. I am happy to say, that they answer far beyond my expectation; not only the quantity of cream is increased, but also the quality of the butter is very far superior to that made in the earthenware pans. Will you, on the receipt of this, send me one dozen and a half of the smallest size which you sent me before.—Yours, &c., J. HUME."

The Pans require no scalding, cleaning with the most perfect ease. They are cool, cleanly to a degree, and very handsome, being perfectly transparent, and as stout as the strongest earthenware.

APSLEY PELLATT & Co. (late PELLATT & GREEN) respectfully inform the Public that at their Manufactory, Holland-street, Blackfriars, they retail GLASS, China, and Earthenware, Chandeliers, Lustres, and every variety of English and Foreign Ornamental Vases, Tazzas, &c. Their Show Rooms are equal to any in London, and their stock of the most superior and approved description. Foreign orders and outfits executed with despatch. N.B. No establishment in the City. West-end Branch, 58, Baker-street, Portman-square.

POLMAISE HEATING.

BURBIDGE & HEALY beg respectfully to inform the Public that they had the honour of supplying MR. MEEK with the iron work for his Heating Apparatus. They have inspected his house, and they can assure their Friends and the Public that it acts very perfectly, as far as they can judge at the present season, and altogether the principle is carried out in a very scientific manner; and they are quite ready to supply the various apparatus to any extent that may be required. Their own stove is intended to act precisely upon the same principles as Mr. MEEK'S, but is presumed to obviate some of the liabilities that they, in their practical experience, know all hot-air apparatus to be subject to, and which they believe will be equal, if not superior to, any arrangements for Polmaise Heating they have hitherto witnessed.—Manufactory, 130, Fleet-street.

PLANT LABELLING.

BURROWS AND THOMS' CHEMICAL GARDEN INK, for WRITING ON ZINC LABELS, has been acknowledged by scientific Gardeners to be the only permanent GARDEN INK, as it keeps its jet black colour uninjured by heat, frost, or wet, the writing entering into the metal itself, and therefore will not scale off. See Report of the Horticultural Society, in the *Gardeners' Chronicle*, p. 239. Zinc Tablets, ready cut, 2½ in. by 1 in., 1*s.* 6*d.*; 3 in. by 1 in., 2*s.* 6*d.*; 3 in. by 2 in. 3*s.* 6*d.* per 100; and a variety of other sizes equally cheap. Travellers will find it very useful for directing their luggage.

Sold wholesale by BURROWS and THOMS, Operative Chemists, 239, Strand, London; and retail by Charlwood, Covent-Garden; Hurst and M'Mullen, 6, Leadenhall-street; Clark, 25, Bishopsgate-street: Westmacott, 156, Cheapside; and all Seedsmen.—Provincial Agents wanted. Specimens sent by post.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES CHURCHES, and MANUFACTORIES, upon improved principles; and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

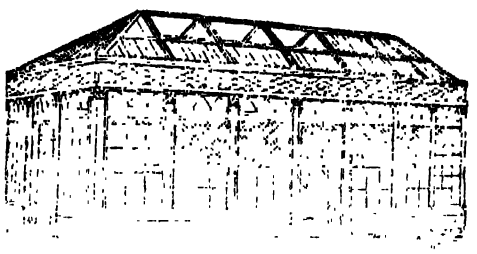
BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This COOKING APPARATUS possesses greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus. B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. May be seen in daily use at Greenwich Hospital; Craven Hotel, Craven-street, Strand; and at their Manufactory, 130, Fleet-street. A Prospectus can be forwarded, upon application, detailing particulars and price.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as references of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.

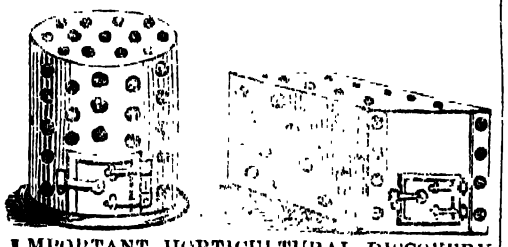


J. WEEKS & DAY, ARCHITECTS, &c., Gloucester-place, King's-road, Chelsea, HOTHOUSE BUILDERS and HOT WATER APPARATUS MANUFACTURERS, most respectfully begs to inform the Nobility, Gentry, and Horticulturists, that they have erected on their premises, for the purpose of inspection, a variety of Hothouses, Greenhouses, Conservatories, Pits, &c., where all the various known improvements of the day can be seen. Their Hot water Apparatus is also erected, and kept in constant action in various Hothouses, Greenhouses, Pits, &c., where the whole principle of Top and Bottom Heating can be seen.

J. WEEKS & DAY warrant their Hot-water Apparatus to be efficient for every purpose to which heat is applicable. Boilers of all sizes; the largest is warranted to heat a range of Forcing-houses 300 feet in length, with a small quantity of fuel, and only to require attention once in 12 hours.

Models, Plans, &c., in great variety.

DR. JOHNSON'S PATENT HEATING AND VENTILATING APPARATUS.



IMPORTANT HORTICULTURAL DISCOVERY IN WARMING AND VENTILATING HOTHOUSES, CONSERVATORIES, PINE PITS, &c.

By Dr. JOHNSON, of Dorset.

Or the POLMAISE SYSTEM of HEATING and VENTILATING ECONOMISED and SIMPLIFIED, by Dr. JOHNSON'S Warming and Ventilating Apparatus, which can be applied at very little expense to any plan of Heating already in use, being admirably adapted for situations where the old brick flue is used; and in conjunction with the various systems of hot water it will be found exceedingly economical as regards labour and fuel, by which a saving of full one-half the coals, or other fuel, is effected.

Dr. J.'s attention has for several years past been closely devoted to the consideration of some improvement on the present unphilosophical, ungenial, and inconvenient mode of Heating and Ventilating Garden Structures, but more especially since the introduction of the Polmaise System, which in his opinion, is an advance in the science in the right way, and has in itself considerable merit, if applied scientifically, and as an auxiliary in connection with his discovery, Dr. J. flatters himself a perfect system of Heating and Ventilating will be secured for all Horticultural and other structures.

In order to enable Dr. J. to extend his scientific and practical experiments still further in the neighbourhood of London, he has made arrangements with Mr. Thomson, Nurseryman, Hammersmith, an old practical gardener, to have two large Hothouses erected on his premises, and by solicitation of Dr. J., Mr. Thomson has kindly agreed to personally superintend, or to give instructions for the erection of his Patent Heating and Ventilating Apparatus, to whose care all letters and plans for Dr. JOHNSON may be addressed.

POTTER'S GUANO FOR WHEAT AND ALL GRAIN CROPS.—The Autumn season is particularly recommended for the application of POTTER'S GUANO for the above crops, as time is afforded for the due decomposition of the Manure in the soil, and it is thus prepared, when the plant feels the first genial warmth of spring, to afford the appropriate nutriment in a fit state for immediate assimilation.—Testimonials and all particulars at the Factory, 28, Clapham-road-place, Kennington.

*** A few respectable Agents wanted.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 69, Dorset-street, Fleet-street, London.

GUANO, &c.

MARK FOTHERGILL begs to offer the following MANURES on the best terms, viz:

GUANO, PERUVIAN and AFRICAN, direct from Import Warehouses.
Ditto, PATAGONIAN and SALDANHA BAY. Ditto.
SODA ASH, for destruction of Wire-worm
SUPERPHOSPHATE OF LIME. (See Royal Agricultural Journal, Vol. vi. Part 2).
GYPSUM, (Pure Sulphate of Lime).
BONE DUST and BONE POWDER.
SULPHURIC ACID. CHARCOAL.
PETRE SALT and AGRICULTURAL SALT for Composts.
SILICATES of SODA and POTASH, and all other Manures.

No. 40, Upper Thames-street

Agent for DINGLE'S HAND SEED-BARROW.

FOR WHEAT, TARES, &c.

THE URATE OF THE LONDON MANURE COMPANY will be found a most valuable Manure for the above crops—it is permanent in its effects, and has stood the test of five seasons with increasing success each year. The Company also supply genuine Peruvian Guano, Gypsum, Superphosphate of lime, Sulphate and Muriate of Ammonia, Charcoal, Bone Sawdust, Sulphuric Acid, and every Artificial Manure, at the lowest market price.—EDWARD PORRER, Secretary, 10, New Bridge-street, Blackfriars.

PROTECTION OF LIFE AND PROPERTY.

J. READ begs to inform the Public that he is now making FIRE and GARDEN ENGINES upon his new patent principle, which surpass anything of the kind hitherto invented. These engines will discharge from 20 to 100 gallons per minute, and are so portable as to pass through any common doorway, and worked with two-thirds the labour of any other engines. The valves are so constructed as to prevent the possibility of their getting out of repair, even in the hottest climates; if standing by for 12 months are ready to act in an instant, a desideratum long wished for but not obtained. Likewise, GARDEN ENGINES and MACHINES on the same improved principle, the valves cannot get out of repair, while the Patentee (from 25 years' experience) can safely warrant.

May be seen and proved at the Patentee's, 31, Regent-Circus, London.

ECONOMICAL, EFFECTUAL, AND DURABLE ROOFING.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

CROGGON'S PATENT ASPHALTE ROOFING FELT, with which the Committee Rooms of the Houses of Parliament are entirely covered. The above Material has been used and highly approved by the Nobility, Gentry, and Agriculturists generally, and Patronised by many Members of the Royal Agricultural Societies of England, Scotland, and Ireland, and by Her Majesty's Office of Woods and Forests, Charles Barry, Esq., R.A., &c. &c.; has been used for several years at the Royal Horticultural Society's Gardens, Chiswick, the Swiss Gardens, Shoreham, Sussex; on the Duke of Buccleuch's, and the Marquis of Anglesey's Property, &c. &c. and (under slate) the Royal Agricultural Society's House, Hanover-square: its advantages are—CHEAPNESS, LIGHTNESS, DURABILITY, and ECONOMY. Being a Non-Conductor, has been proved an efficient "Protective Material" to Plants.

PRICE, ONE PENNY PER SQUARE FOOT.

Samples and Testimonials sent by Post on application.

THOMAS JOHN CROGGON,

8, Lawrence Pountney-hill, Cannon-street, London.

JORDAN'S ANTI-SMUT COMPOSITION.—The only certain Preservative against Smut in Wheat and the attacks of the Wire-worm, Grub, and Slug. In packets 1*s.* each, with directions for use.

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AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 39—1846.] SATURDAY, SEPTEMBER 26. [PRICE 6*d*.

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12 do fine show Pinks		0	1 0
24 do do		1	1 0

A few pairs Ward's Great Britain and Oldaker's Dr Edwards 3*s* per pair

Lychnis, Dickson's Acanthi (small plants) 2*s* 6*d* each

" Newbury's Flimata "

" Turbanata do (fine) "

Lists Sale 2 6

A remittance is requested from unknown correspondents

Albion Nursery Wandsworth road Sept 26

HOLLIS'S SEEDLING GERANIUM

H. SILVERLOCK begs to call the attention of the Public to his Descriptive Advertisement of these in the *Chronicle* of Sept 5 Good plants are now ready The usual allowance to the Trade when a remittance accompanies the order Chichester Sept

NEW PINK

NORMAN'S "HENRY STILES," purple laced, extra fine form fine long pod well laced and constant to bear Sent per post free on receipt of a Post-office order on Woolwich

Messrs Norman feel great confidence in offering the above fine flower assured it will give satisfaction

Catalogues of their select Show Carnations Piccotees Pinks Tulips &c will be forwarded on prepaid application enclosing one stamp Bull Field Woolwich

GREAT REDUCTION IN THE PRICES OF BUCK'S SEEDLING GERANIUMS SENT OUT IN 1845

WILLIAM E. RENDLE AND CO having procured a much larger stock of BUCK'S GERANIUMS than they anticipated have resolved to offer the set of nine sorts as follows for 2*l* 14*s*

DESDEMONA	MARC ANTONY	ISABELLA
MUSTAFA	RUBY CIRCLE	FAVOURITA
SURREY	MARJORET	ARMORIC

All those who have previously ordered sets will be charged at the same rate as above

LYNE'S SEEDLING GERANIUMS OF 1845

The following set Ten for 50*s*

Marmion Princess Merry Monarch King of Saxony Rebecca Chaplet, Vampire Montbeam Picta and Aladdin

FIRST CLASS —*Caution A selection of 12 from the following 50s in our Select or Double — Standard of Perfection* Edith, Lady Bulkeley Miss Halford Prince Alfred King, the French Copy Queen Constance Zauzummum Cleopatra Theresa, Imogene Teodora, Redworth Sapho Apollo Meteor Pluto, Celestial Beauty of Salthill Black Dwarf, Rosetta Selina Shield Achilles Sultana or Perpetual Cock's Hector, King of Saxony (Gaines) Titus Champion Mrs Jephson, Magpie, Queen Francis Pullin Cornucopia (Hoskin), Albion (Hoskin) Princess Alice White Perfection Sarah Jane Queen Phillipa Queen Victoria (Shepherd) Princeps Robustum and Duke of Devonshire

Other varieties of Geraniums from 6*s* to 10*s* per dozen

*** W E RENDLE & CO *have much pleasure in stating that they will commence sending out their* GERANIUM *Orders on and after Monday the 5th day of October next, instead of November the 2d, as previously advertised.*

Descriptions of the Geraniums can be obtained

☞ *All orders above 3l will be delivered (hamper, package, and carriage free) to London Bristol, Exeter, Barnstaple, or Falmouth, or above 6l to Liverpool, Dublin, or Cork*

A remittance is not required from known Correspondents or those who give reference in London

Steamers from this Port three times a week to London, Cork Dublin, Liverpool, and Falmouth

Orders will be executed in strict rotation Great attention is paid to careful packing All plants forwarded to long distances are packed in Tin Boxes, and firmly secured

WILLIAM E RENDLE & Co

Office, Union road, Plymouth Sept 26

CHARLES TURNER begs to offer the following beautiful new PINKS viz — *s d*

Bragg's George Glenny	7 6	per pair
Kirtland's Lord Valentia	5 0	"
Harris's Dauntless	3 0	"
Maher's Berkshire Hero	3 6	"

PICOTEES

Matthews' Enchantress, light purple edge	10 6	"
" No Plus Ultra light red edge	7 0	"

Or one pair of each for the

PANSIES.

Hall's Rainbow, extra fine	5 0	per plant.
Turner's Othello	5 0	"
" Chalvey Rival	5 0	"
" Optimus	3 6	"
Gossett's Lord Hardinge	5 0	"
Hooper's Duke of Wellington	5 0	"

Strong plants of the above are now ready

Descriptive Catalogues may be had on application,

Fancy seedlings 5*s* 6*d*. and 2*s* per packet

Chalvey, near Windsor, Sept 26

NEW SEEDLING STRAWBERRIES

J. MYATT & SONS have selected from their stock of seedlings the following varieties which are now ready for sending out —

MYATT'S GLORY large and fine flavour per 100	30*s*	
" MAMMOTH, very large	20	"
" PRINCE early and great bearer	21*s*	"
HOPE'S SEEDLING early	21*s*	"

The above selection are quite distinct, and will worth the attention of growers

Early orders will ensure strong plants for fruiting next season Manor Farm, Deptford Sept 26

PETUNIA "BLOOD ROYAL," of which Dr LINDLEY says in *Gardeners' Chronicle* of August the 1st "Blood Royal is the best variety among our seedlings the dark state of the flower is very rich and fine in colour A limited number of well hardened off plants are now ready for delivery at 3*s* 6*d* per single plant or two for 5*s* Will be sent per post free in case, &c in bud

With the first planting of new, single or for pot culture, surpassingly superb intensely cultivated dark coloured variety A curator in a flower Intensely rich velvety crimson ground studded with satin purple centre of pure white purple, large open and distinct full size substance and shape good, in duration It does not fade the back of flowers is very high in scarlet Post office orders on Upper Park street will be attended to Station received Address, MICHAEL HOWES, Harriet St John's wood-terrace Regent's park

N P Owing to an attack of wireworm, Erantosa Helena, of which Dr Lindley has made favourable notice, cannot send out as good plants until next May when it will be offered with Blood Royal at 12*s* per dozen

Parties who have been commended through the same medium will have exchange plants or cuttings will be duly replaced by making reference to dates of certificates

Flowered seeds of my approved seedling Verbena sent singly per post at one pill box lined with damp paper would be ordered separately if a parcel of six or eight superb seedlings which Mr Rhodes has effected at to raise and with the above have been seen and admired by the principal town growers

DRIED PLANTS FROM CHINA —A few sets of the VALUABLE DRIED PLANTS collected in China by Mr Fortune may still be procured by applying to R Heward Esq Ryan, street Consignee in London Among them are many new and exquisite species scarcely known to Europeans

HOLLY HOCKS

JAMES KITLEY, NURSERYMAN, Lyncombe Vale, Bath begs to inform his friends and the public that he has an immense Stock of FINE DOUBLE SEEDLING HOLLY HOCKS of every shade of colour which have all flowered and from which every single flower has been thrown out and which he will send out at the following prices viz

100 plants 21*s*	50 ditto 12*s*	25 ditto 7*s* including

Package

Each has no choice but divides for half the amount ordered by the dozen NB Seed of the above 2*s* 6*d* per packet or 5*s* per ounce 7*s* 6*d* per lb

Bath Sept 26th 1846

VAN HOUTTE'S NEW VARIETIES OF CHILIAN ALSTRŒMERIAS

LOUIS VAN HOUTTE FLORIST to the KING, Ghent, Belgium begs to offer his Chilian ALSTRŒMERIAS at the following rates viz —12 varieties 10*s* 25 varieties 18*s* 50 varieties 2*l* Orders executed by Mr GEORGE RAINE 32 Mark lane London on application may be made (post paid) to Mr VAN HOUTTE at Ghent The deliveries will commence on the 1st of August and the plants forwarded to London free.

The Very Dean of Manchester speaking of his visit to Mr Van Houtte's establishment at Ghent (see *Gardeners' Chronicle* 12th July 1845) says of these plants "They are of every tint from scarlet to lemon colour and from crimson to pale green striped with white He further adds of their effect in masses— I do not recollect ever having seen a bed of flowers so beautiful and I should think Mr Van Houtte will find it difficult to supply the demand for them when their merit shall become fully known

In the report of the same Journal on the meeting of the Horticultural Society of the 9th August 1845 is the following account of this flower Messrs Van Houtte sent a request from Ghent comprised of Alstrœmeria Hendersonii the open ground they were buried in very cold ones and although somewhat tarnished by the journey and watching which they were said to have been lately exposed yet they sufficiently showed what beautiful objects large masses of them would be in the flower garden and fully justified the opinion given of them by the Dean of Manchester in a late Number

N P Each packet contains directions for planting and cultivating them The usual discount to the trade

PINKS OF THE MOST SUPERB SHOW FLOWERS

SAMUEL WALTERS, Florist, Hilperton, Trowbridge, Wilts begs to offer the undernamed varieties in fine, well-rooted plants, a selection to be made at 12*s* per dozen; if left to S W, at 9*s* per dozen, carriage free —Alpha, Omega, Lord Brougham Gay Lad, Garland Eclipse, Prince Albert, Willmer's Do, Heartstone's Do Weetman's Elizabeth Lady Flora Hastings Model Marquis Masterpiece Great Britain Beauty, Melona Melrose Bunker's Queen Victoria Weedens Do., Willmer's Do Navigator Dr Coke Sir H Creed Ocres Rosiana, Mars, Treasure Village Maid, Hero of Croydon Marlborough Rival, Jubilee, Matilda, and other varieties 6*s* per dozen A few more pairs of Mrs. Ley and Mosart at 6*s* per pair

CINERARIA MAURITIANA —A most vendable plant and indispensable to every collection Fine Plants prepared for winter blooming 1*s* 6*d* each post free fine Plants in 6-inch pots, full of roots 12 for 20*s*, hamper included, other named sorts 12*s* per dozen

NEW GERANIUMS.—SYLPH SUPREME, a fine large flower in the way of Nymph, but larger, with smooth even petals, and decided round dark spot If 1*s* each

LADY ROSSELL, a most pure white, with smooth even petals, large and round, with decided even dark spot If 1*s*

Plants are now ready in 4-inch pots, with a choice selection, at 12*s*, 18*s*, and 24*s*. per dozen

GERANIUMS, CAMELLIAS, CHRYSANTHEMUMS, CARNATIONS, AND PICOTEES.

JOHN BELL begs to inform the Public that he has a very Extensive and Healthy Stock of the above-named Plants, which he offers at the following prices:—

GERANIUMS.

Good established Plants of any of the following sorts, at 20s. per dozen:—Beauty of Walthamstow, Claude, Cleopatra, Confidence, Cynthia, Duke of Devonshire, Dr. Lindley, Hector, Josephus, Moonbeam, Modesty, Nabob, Phœnix, Old, Robustum, Rosalia, Sarah Jane, Lady Mowick, Unique, &c.

A selection from any of the following sorts, all new last season, at 2l. 10s. per dozen:—Orion (Foster's), Sappho (Ditto), Milo (Cock's), Pearl (Drury's), Augusta (Hoyle's), Duke of Orleans (Ditto), Gipsy Maid (Ditto), Lord Morpeth (Ditto), Hesperius (Lynn's), King of Saxony (Ditto), Rhaplet (Ditto), Merry Monarch (Ditto), Rosebud (Ditto), Princess Alice (Ditto), and Emperor of Russia.

Strong cut-down Plants now ready, in 6-inch pots, that will make fine specimens for exhibition, of the following good varieties, from 12s. to 20s. per dozen.—Achilles, Constellation, Conflagration, Comte d'Orsay, Duchess of Sutherland, Duke of Cornwall, Dido, Emma, Emperor of Russia, Flame, Nestor, Rising Sun, Sapphire, Sir Robert Peel, Symmetry, Sunrise, Queen of Fairies, Unit, &c.

CINERARIAS.

Good established Plants, including Conspicua, and several of last year's new sorts, at 18s. per dozen.

CHRYSANTHEMUMS.

Large Show Plants, in 8-inch pots, including all the new sorts sent out last season, at 12s. to 36s. per dozen.

Salter's new set of ten, sent out for the first time this season, in 6 inch pots, 25s. the set.

CAMELLIAS.

Good strong Plants with flower-buds	..	£1 10	0 per doz.
Next size ditto	..	2 2	0 ,,
Fine bushy ditto	..	3 0	0 ,,

Including the following sorts:—Double White, Double Striped, Eclipse, Fimbriata, Hume's Blush, Chandleri, Colvillii, Imbricata Rubra, Coronata, Reticulata, Leeana Superb, Candidissima, Alba-rosea Florida, Donklarii, King, Bealii, Fraseri, Tricolor, Punctata Major, Grisea, Ochroleuca, and many others.

PICOTEES AND CARNATIONS.

Fine healthy well rooted Plants now ready at the following prices, including Burroughes's Duke of Newcastle, Mrs. Bevan, Cook's President, or Unique, and three fine yellow Picotees:—

25 pairs of very fine show varieties	..	£2	0 0
12 ditto	..	1	0 0

Horticultural Establishment, Broadsdale, Norwich.

* Seed Warehouse, 6, Exchange-street.

MENZIES' NEW HYBRID POTENTILLAS.

POTENTILLA ATROSANGUINEA "MENZIESII." This is a splendid production of extraordinary size, of a brilliant orange scarlet colour, the underside of the petals being bright yellow.

POTENTILLA FORMOSA "RAINESIANA." This is a bright scarlet variety of P. formosa, exceedingly rich, beautiful and unique; the underside of the petals of this are also bright yellow, which gives to both varieties a pleasing contrast.

WILLIAM MAY, F.H.S., having purchased the above splendid, hardy herbaceous plants from Mr. MENZIES, gardener, Hopehouse, Halifax, begs to announce that he purposes sending out the two varieties, in October next, at 21s. per pair, or four pairs for 3l. 3s., post free.

W. M. has the fullest confidence in recommending these superb, hardy herbaceous plants, they having been pronounced by all who have seen them the most beautiful varieties in this much admired family.

N.B. The above, with W. M.'s beautiful Fuchsia, PURITY, will be figured in an early No. of "Paxton's Magazine of Botany."

Hope Nursery, near Bedale, Sept. 26.

THE NEW CRIMSON BOURSAULT ROSE STOCK.

HENRY CURTIS being fortunate enough to possess the largest Stock in Europe this season of the above most valuable Rose, which within the last three years has been proved to make the best Stock ever offered to the public for budding all Teas, Chinas, and Bourbons on, particularly for pot cultivation, far surpassing the old Blush and Red Boursaults in the excessive luxuriance and durability of its growth, it NEVER MILDEWS, and the wood is perfectly smooth and thornless, so that it can be worked most easily. The wonderful property of this Stock appears to be that all Roses of the China strain budded upon it, make nearly double the growth that they would on any other, which can only be accounted for by the fact of the new Crimson Boursault producing nearly five times the amount of robt that the Wild Briar would under similar treatment: it makes a splendid pillar or trellis Rose, producing shoots of from 10 ft. to 12 ft. in length, sometimes blooming in the autumn of a deep rich velvety crimson. The Stocks are very clean and fine, and are offered to the trade at 30s. per hundred; second size, 20s., in less quantities at 2s. per dozen. Sent out the first week in November; and as the Stock this season is limited to 15,000, to prevent disappointment, it is particularly requested that all orders may be forwarded immediately.

HENRY CURTIS begs to call attention to the Celine (Hybrid Bourbon), which he has grown for many years, and of which he cannot speak too highly; as a stock for all Mosses and all Roses of the rough-leaved Damask habit it is unrivalled, perhaps no Rose in existence possesses the amount of buds that this does; but it is not nearly so fine and free to bud as the Crimson Boursault: although for grafting it is superior. Comparatively speaking but few Rose cultivators at present are aware of the immense advantage of using cultivated Stocks over wild ones. So firmly is H. C. convinced of their great superiority, that after the next season, every Dwarf Standard Autumnal Rose sent out from the West of England Rose Nurseries will be worked on the above Stocks. Carriage of packages paid to London per rail.—West of England Rose Nurseries, Moorend, Bristol.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea (by appointment to HER MAJESTY and H. R. H. PRINCE ALBERT).—ORNAMENTAL WATERFOWL, consisting of Black and White Swans; Egyptian, Canada, China, Barnacle, Brent, and Laughing Geese; Shieldrakes, Pintail, Widgeon, Summer and Winter Teal; Gadwall, Labrador, Shovellers, Gold-eyed and Dun Diver; Carolina Ducks, &c., domesticated and pinioned; also Spanish, Cochin China, Malay, Poland, Bolton Gray, Surrey, and Dorking Fowls; and at 3, Half-moon-passage, Gracechurch-street.

White, Japan, Pied, and Common Peafowl. Eggs of the above; and pure China Pigs.

SEEDS.—CORNER OF HALF-MOON-STREET

THOMAS GIBBS and CO.,

(By Special appointment), the SEEDSMEN to the [illegible] OF ENGLAND," [illegible] of the Society, and Agriculturists [illegible] Counting House and Seed Warehouse, [illegible] HALF-MOON-STREET, PICCADILLY, [illegible] at Fifty Years.

Prices [illegible] Seeds are always ready, and may be had [illegible]

MERTON NURSERY, NEAR DEDALE.—The Subscribers, grateful for past favours, beg to recommend to the Public the under-mentioned Stocks, which will be found, on inspection, to be of first-rate quality, and what is of great importance, true to name.

Trained Peach and Nectarine Trees, from 1 to 5 years, comprising Dwarfs, Half and Whole Standards, above 30 varieties, and of finest quality.

N.B. The 4 and 5 years' old are in full bearing, and covering Fadiums of wall from 14 to 15 feet.

Apricots	do.	do.	in 8 sorts.
Cherries	do.	do.	in 15 finest sorts.
Plums	do.	do.	in 26 do. do. including—Reine Claude Monstrouse, Guthries' New Apricot, Moore's Emperor, Imperial Diadem, Prince of Wales, &c. &c.

Apples, Trained and Untrained, of the finest varieties, adapted for the different seasons, for Dessert and Kitchen use, and on Paradise Stocks.

Pears, imported from Brussels 18 months since, in 80 varieties, part of which are as follows:—

Maria Louise.	Charles d'Austria.
Duchess d'Angoulême.	Glout Morceau.
Colmar Sabone.	Passe Colmar.
Beurré Rance.	White Doyenne.
,, d'Capiaumont.	Knight's Monarch.
,, Easter.	Van Mons.
,, d'Ausch.	Althorp's Crassane.
,, Diel.	New Chaumontelle.
,, d'Aremberg.	Neills d'Hiver.
,, Spen's.	Hacon's Incomparable.
,, d'Amaulo.	Louise Bonne, of Jersey.
,, d'Londaute.	Fondante d'Autumnale.
Napoleon.	Smith's New Jargonelle.
Josephine.	Bonne Louise.

Strawberries of the newest varieties, including British Queen, Princess Alice Maude, Prince Albert, Myatt's Eliza, &c. &c.

Grape Vines, from 1 to 3 years in pots—40 sorts, amongst which are:—

Frontignac Muscadine.	Golden Drop.
Shalwell's St. Mark.	New Blue Constantia.
Esculata	Langley's Incomparable.
Red Muscat, or Alexandria.	Isabella, &c. &c.

Filberts, finest sorts, and in bearing.

Gooseberries, above 200 fine kinds.

Currants, Raspberries; Asparagus Roots, from 1 to 3 yrs. old. Seakale, do. do., Mushroom Spawn, &c.

Geraniums, over 200 of the finest and newest sorts, including all of real merit introduced last year, as per Catalogue.

Fuchsias, upwards of 100 of the best sorts, including Smith's Queen Victoria, Serratifolia, &c. &c.

A large assortment of Cape Heaths, Stove and Greenhouse Plants, Cinerarias, Verbenas, Dahlias, Carnations, newest Phlox, Herbaceous Plants, named Tulips, &c. &c.

Common Arbutus, from 1 to 6 feet; Andrachne, from 1 to 4 feet; Bays, Cedars, Arbor-vitæs, Cypresses, Upright and other Yews, Junipers, Alaternus, Mahonias; Standard, Dwarf Chinese, and Climbing Roses, in great variety.

Daphnes, Rhododendrons, Azaleas, Kalmias, Magnolias, Cupressus tortulosus, Cedrus deodara, Pinus excelsa, Cembra, and Abies, Kuthrow morinda, Araucaria imbricata, Cedars of Lebanon, &c. &c.

True Tyrolese Larch from 2 to 4 years, and from 1½ to 6 ft.

A large assortment of Forest Trees, from 2 to 5 feet. Garden and Farm Seeds, Tools, &c. &c.

The Evergreen Shrubs and Forest Trees are grown in most exposed situations, under the influence of the sea breeze, and peculiarly adapted to give immediate effect.

N.B. Garden Sites, Hothouse Structures, Ornamental and Forest Planting, designed and contracted for.

Standing Timber and Woodland Property accurately valued and lotted. Neglected Plantations Thinned and Pruned, with advice and memoranda respecting future culture.

Gardeners, Stewards, and Foresters, of unquestionable character and ability, recommended. THOMAS BARNES & Co.

September, 1846.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

PRESTOE'S IMPROVED MUSHROOM SPAWN may be had of Messrs. BUTT and RUTLEY, Strand; Mr. F. WATKINSON, Manchester; Messrs. FISHER, HOLMES, and Co., Sheffield; Messrs. ROGERS and SON, Southampton; Messrs. LEE, Hammersmith; Mr. GREGORY, Cirencester, and of W. PRESTOE, Shirley, Southampton.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, from 8½d. to 5½d. per foot. Glass Pantiles, 13s. 6d. per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at F. ELPHICK'S, 28, Castle-street East, Oxford-street. ** For Ready Money only.

STRONG HORTICULTURAL SHEET GLASS.

HETLEY AND CO. are supplying 16 oz. SHEET GLASS, in boxes of 100 feet each, an article superior in every respect to the foreign, and well adapted for Horticultural and general glazing purposes, at the following reduced prices, for cash. A reduction on 1000 feet.

Sizes. inches.		inches.		s. d.		Per 100 feet Box. £ s. d.
6 by 4	and under	7 by 5	at	0 2½	.. ..	1 0 10
7	5 ,,	9	7	0 2½	.. ..	1 2 11
9	7 ,,	10	8½	0 3	.. ..	1 5 0
10	8½ ,,	14	10	0 3½	.. ..	1 7 1
14	10 ,,	24	upper.	0 8½	.. ..	1 9 2

Other sizes of every substance and quality equally low.

	inches.	s. d.	
GLASS TILES,	14 by 10 from	8 0	per dozen according to substance, thinnest being 16 oz. sheet.
,, SLATES,	20 by 10	8 6	

WHOLESALE GLASS SHADE, Sheet, Crown, and Patent Plate Glass Warehouse, 35, Soho-square, London.

GLASS WHICH CANNOT BE BROKEN BY RAIN OR HAILSTONE.—A large quantity of POLISHED PLATE GLASS to be sold at 1s. per foot.—Apply at the East London Plate Glass Warehouse, Leman-st., Goodman's-fields.

APSLEY PELLATT & Co. (late PELLATT & GREEN) respectfully inform the Public that at their Manufactory, Holland-street, Blackfriars, they retail GLASS, China, and Earthenware, Chandeliers, Lustres, and every variety of English and Foreign Ornamental Vases, Tazzas, &c. Their Show Rooms are equal to any in London, and their stock of the most superior and approved description. Foreign orders and outfits executed with despatch. N.B. No establishment in the City. West-end Branch, 58, Baker-street, Portman-square.

PROPAGATING GLASSES, White, 3s. per lb., or from 2s. 6d. to 24s. per dozen. CUCUMBER GLASSES from 6d. to 4s. each. GRAPE SHADES, with holes, 1s. 9d. to 2s. 6d. each. FISH BOWLS, from 3s. 6d. each.—APSLEY PELLATT & Co., Falcon Glass Works, Holland-street, Blackfriars.

GLASS FOR CONSERVATORIES.

APSLEY PELLATT AND CO., Falcon Glass Works, Holland-street, Blackfriars, are prepared to supply (in quantities not less than 300 square feet), SHEET AND CROWN GLASS OF BEST QUALITY, at the following Net Cash Prices:—

Any size under 2 feet superficial.	Per square foot.
18 oz. weight per foot	4d.
16 oz. ,, ,, ...	5
21 oz. ,, ,, ...	8

SMALL SQUARES up to 10 in. by 8 in., from 1½d. to 3d. per sq. ft.

N.B.—The 36 oz. is full strength for Greenhouses.

BRITISH AND FOREIGN SHEET AND HORTICULTURAL GLASS WAREHOUSE,

12, PANTON-STREET, HAYMARKET.

PHILLIPS & WELCH having on several occasions been applied to for the price of sashes and frames, have now added that branch of the business to their establishment, thus affording to the public an opportunity of obtaining it at once, and at a much more moderate cost, Sashes and Frames, Greenhouse and Conservatory Lights, &c., fit for immediate use, with weights and lines complete; and have pleasure in submitting their prices.

SASHES AND FRAMES COMPLETE.

1¼ inch Ovolo single hung		1s. 4d. to 1s. 8d.	per foot.
1¼ ,,	double ,,	1 5 to 1 6	,,
2 ,,	single ,,	1 5 to 1 6	,,
2 ,,	double ,,	1 6 to 1 8	,,

Glazed with good Crown Glass, suitable for sitting rooms.

GREENHOUSE, HOTHOUSE, AND CONSERVATORIES.

1¼ inch Greenhouse Lights	..	9d. to 10½d.
2 ,,	..	10 to 11½

Glazed with stout Sheet Glass.

Packing and Carriage at a moderate extra charge. No charge for Framing.

FOREIGN SHEET GLASS, GLASS TILES, &c.

C. JARVIS has a quantity of boxes of FOREIGN SHEET GLASS left, of the stoutest kind, of all sizes, which he can offer to purchasers at a considerable sacrifice, at his old established WINDOW GLASS WAREHOUSE, 35, Great Castle-street, a few doors from Regent-street.

Also, a large quantity of SMALL GLASS on the lowest terms, for ready money only.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

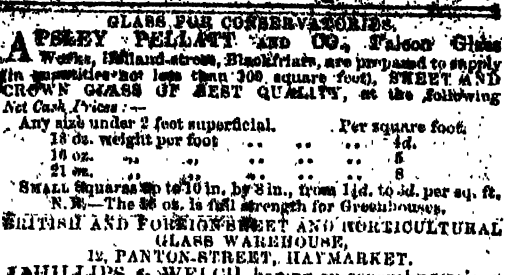
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.



J. WEEKS & DAY, ARCHITECTS, &c., Gloucester-place, King's-road, Chelsea, HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, most respectfully beg to inform the Nobility, Gentry, and Horticulturists, that they have erected on their premises, for the purpose of inspection, a variety of Hothouses, Greenhouses, Conservatories, Pits, &c., where all the various known improvements of the day can be seen. Their Hot-water Apparatus is also erected, and kept in constant action in various Hothouses, Greenhouses, Pits, &c., where the whole principle of Top and Bottom Heating can be seen.

J. WEEKS & DAY warrant their Hot-water Apparatus to be efficient for every purpose to which heat is applicable. Boilers of all sizes; the largest is warranted to heat a range of Forcing-houses 300 feet in length, with a small quantity of fuel, and only to require attention once in 12 hours.

Models, Plans, &c., in great variety.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c., of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HYACINTHS, TULIPS, RANUNCULUSES, ANEMONES, AURICULAS, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, CLAPHAM RISE, near LONDON (removed from Walworth), by APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY, begs to recommend to the attention of the Nobility, Gentry, and Amateurs, his extensive assortment of the above FLOWERS, which he can supply of the best quality. He begs to state that this is a good season of the year to make a selection of the various kinds.

25	HYACINTHS, in 25 fine sorts, named	£1	5	0
100	TULIPS, in 100 fine sorts, named	7	7	0
100	Ditto in 50 ditto ditto	5	5	0
	Superfine Mixtures, per 100, from 10s. 6d. to 21s.			
100	RANUNCULUSES, in 100 Superfine sorts, named	2	10	0
	Superfine Mixtures, per 100 .. .. 7s. to	1	1	0
100	ANEMONES, in 100 Superfine sorts, named ..	1	15	0
	A New Collection of 50 Superfine sorts	1	1	0
	Superfine Mixtures, per 100	0	10	6
25	AURICULAS, in 25 Superfine sorts, named ..	2	10	0
25	GERANIUMS, in 25 Superfine sorts ditto ..	3	3	0
	Good kinds, per doz. .. .. from 12s. to	0	18	0
	LILIUM LANCIFOLIUM ALBUM, good bulbs, each from 1s. 6d. to	0	5	0
	" PUNCTATUM, from 5s. to	0	10	0
	" SPECIOSUM (true) .. from 10s. 6d. to	2	2	0
	A new collection of Hybrid Seedling Lilies, 6 sorts for	1	16	0

H. GROOM begs to say his Catalogue of Bulbs, &c., is ready, and will be forwarded by post on application.

Foreign orders executed.

ROSES.

MESSRS. LANE AND SON beg to announce that their CATALOGUE for the ensuing autumn is now ready, and will be forwarded as usual to all their obliging customers, and to others, by inclosing two penny stamps. It contains a separate list of those sorts best suited for Pot Culture, taken from actual experience: also for Pyramids, &c.

Nurseries, Great Berkhampstead, Sept., 1846.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 26, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

FRIDAY,	Oct. 2—Botanical	. . . . .	8 P.M.
MONDAY,	— 5—Entomological	. . . . .	8 P.M.
TUESDAY,	— 6—Horticultural	. . . . .	3 P.M.

WE last week published the new regulations determined upon by the Horticultural Society for their EXHIBITIONS AT THE GARDEN in 1847. We now proceed to point out the more important of the changes that have been made.

Two new prizes have been offered, one of the value of 15*l.*, and the other of 2*l.* 10*s.* The effect of this is to establish rewards of intermediate amount between 20*l.* and 10*l.*, and between 4*l.* and 1*l.* 15*s.* In order to adjust this change the Large Gold Medal will be hereafter exchanged at the rate of 15*l.* only; and the highest prize—that of 20*l.*—will be called the Certificate of Honour.

So much inconvenience and disarrangement of the plans for showing has been produced by the system of taking places beforehand, that it is now resolved that no places whatever shall be bespoken; but that the plants shall be placed by the Society's officers, as they arrive, and at their discretion.

From the beginning of the exhibitions it has been the practice to conceal from the judges the names of the persons to whom the exhibitions belonged; numbers instead of names being employed to distinguish the collections. That system is put an end to. The names of exhibitors will be attached to their plants from the first, and the judges will make their awards with a knowledge of the persons upon whom their prizes are conferred. Thus, while the Society takes the highest ground, it also does an act of justice to the integrity of the judges, whose fairness long experience has shown to be unquestionable. We believe that it is also in contemplation to attach the names of the judges to each of the awards.

Some attempts at fraudulent showing having been detected, arrangements have been made to guard against their recurrence. Plants grown in small pots have been transferred to larger pots immediately before the exhibition, and flowers have been cunningly stuck on plants which never bore them. These things will scarcely happen again.

Fruit is not required to be more ripe than would satisfy the buyers in a market. Pine-apples are classified, and the value of the medals given for fruit is increased.

The number of plants required for some of the large collections is reduced, while the prizes remain the same. At the same time the bad system of showing duplicates is checked by defining the number of duplicates which a given collection will be allowed to include.

Finally, Fuchsias, Ranunculuses, and Moss Roses, no longer form distinct subjects of exhibition; and on the other hand special medals are offered for Yellow Roses, Coniferous plants, Fancy Pelargoniums, Cape Orchids, Amaryllids, Hardy Ferns, Hardy Dwarf Herbaceous plants, and New Hardy Hybrid Shrubs. The Silver Gilt Medal offered for the latter shows how much importance the Society attaches to attempts for improving and varying the races of hardy plants that decorate our gardens. We formerly drew attention to what might be done in this way, and we shall probably resume the subject.

WHEN HOT WATER drove smoke flues out of the field, the great opponents of the change were the bricklayers and builders, because they found that hot water *prevented their making a bill.* Now that Polmaise is threatening to render hot-water apparatus needless in a majority of cases, some ironmongers are its opponents, because they too perceive that Polmaise will *prevent their making a long bill;* and they are joined in their endeavours by that numerous class which thrives by a per centage upon tradesmen's accounts. Where there is no long bill there can be no per centage. *Hinc istæ lachrymæ.* We cannot, however, sympathise with their sorrows; nor do we intend to acquiesce in their manœuvres.

It is not to the interest of the public that any operation should be involved in needless expense; and we must therefore endeavour, as we best may, to assist our friends in countermining the silent opposition and unperceived obstruction which is offering to those who would adopt Polmaise. There are persons, as we know, who, professing to execute it, will do their utmost to make it fail. In order to prevent this result it is indispensable that those who propose to employ it should consider well their plans, and not give interested parties the opportunity of thwarting them. At the same time we must at once declare that we cannot possibly undertake to furnish plans and contrivances for the application of this principle. Every post brings us a shower of letters asking all manner of questions, every one of which has already been fully answered by the discussion that our columns have contained; and we trust that our friends will not think it any discourtesy if we respectfully decline the task they seek to impose upon us. As we said on a former occasion it is the business of architects, builders, and bricklayers to make plans for details. It is impracticable for a newspaper to do so.

We must refer, then, everybody to the plan of Mr. MEEK'S house, given at p. 563, which any bricklayer can understand if he is so fortunate as to have a head upon his shoulders. There is no possibility of misunderstanding that plan if it is attentively *studied.* It may be as well, however, to draw attention to the fact that the external air-entrances *a, a,* are not left open; they are capable of being closed by a horizontal lid, and are only opened occasionally.

In addition to this we may offer a few words of useful caution, which we extract from a letter of Mr. MEEK'S.

"Have nothing to do with any plan which brings the chimney or flue through the greenhouse. Brick flues will leak sometimes, and if the stove is properly built, and the damper properly placed and managed, no appreciable heat is lost in the chimney. Have nothing to do with any plan which places the fuel or ash-pit doors within the greenhouse; if you do you will save heat, but will certainly expose your plants to the action of sulphurous acid gas, to say nothing of smoke and dust. For HORTICULTURAL purposes employ a BRICK STOVE, the thicker the better, with iron top; the heat will not be raised so rapidly, but it will be far more *uniform*; and if your gardener over-sleeps himself some cold January morning, your plants will not miss him; there will be no frozen faces to tell tales. Lastly, remember that it is the principle on which Polmaise acts, *the rotation of the air,* which constitutes its excellence; it is not any particular form of stove, so do not listen to any 'wonderful tales of a stove.' Where steady heat is acquired, *remember the bricks*; where very high and rapidly-raised temperature are required, the ironmongers will help you. I do not wish these remarks to discourage various attempts at Polmaise heating, but let them be Polmaise. In all that I have done for the cause, my sole view has been to point out the truth for the benefit of the public; for their use I have explained so elaborately the principle; for their use published my plans; to many I have shown the plan in operation; with many corresponded privately. To all these things the public is heartily welcome."

Finally, in order to meet the under-hand opposition which is offered to the employment of this mode of heating, we again recommend all who are in difficulty with builders, or others, or who distrust their own skill in applying Polmaise, to apply to PLUMRIDGE, a working bricklayer at Bletchingly, near Reigate. He will either plan or execute the work, and being a very industrious man, with a large family, deserves the employment and countenance of the public.

LAST year, wherever the tops of the POTATOES were blighted the tubers were also, invariably, decayed. We are not aware of any example to the contrary. This year it is not so. We have ourselves seen Potato fields with all the tops blighted, and yet the crop, a very scanty one, was either free from disease, or inconsiderably affected. Our Paris correspondent, of last week, spoke to the same fact. Near Hythe, in Kent, the crop is better than last year, both in quantity and quality, although the plants were blighted; and we know that the circumstance is by no means uncommon. In other cases a second crop of small tubers is forming; so that, great as the mischief no doubt is, yet it is much less than last year in some places. What does this mean? Of course such a fact may be taken to signify that the atmosphere was the vehicle by which disease was communicated to the tuber; and that in these instances the atmospheric influence, whatever it may be, which has swept over the face of the country, was resisted by the vigour of the Potato crop.

Some weeks ago a correspondent mentioned a report that the Potato crops, within the influence of the smoke from the copper works round Swansea, were saved from the blight, although the crops perished beyond the circle of their influence. It was also asserted in the *Cambrian* newspaper, that:—

"Last year the Potatoes reared in the neighbourhood of the copper works turned out to be healthy, and that in the present season the fact is still more determined. While in Sketty, Llangyfelach, and all around, the Potatoes are universally diseased, it so happens that in the immediate vicinity of the smoke they are sound and healthy, with scarcely a trace of disease to be found in them."

This has been contradicted. But we are now in a condition to show that the statement alluded to was true. The following letter from a resident near Swansea sets the question at rest, by proving that the copper smoke does protect the Potato crop, and effectually!

"On the 31st Aug., I examined many pieces of Potatoes within the immediate influence of the copper smoke from the smelting works in this neighbourhood. There is no occasion perhaps to note the individual cases, but the general result is that the leaves, haulm, and tubers, improve as you approach the works, and that the nearest gardens, little more than 200 yards from them, are entirely free from the blight, and the crop good in quality, quantity, and flavour. The Potatoes are of different sorts. These last named gardens, as I am informed by the proprietor, entirely escaped the disease in 1845, and have borne Potatoes for 40 years. The Potatoes are also said to have escaped in the vicinity of the chemical works at Newcastle. As a kindred misfortune, I may mention that a disease producing rottenness occurs in many instances here in the white Turnip, and it is to be feared that its earliest stage is perceptible in the Swedes. — *Matthew Moggridge, the Wallows, Swansea, Sept. 4.*"

Here it may be urged by the advocates of atmospheric contagion that one miasm has had the power of repelling another from the Potato field.

In former numbers we have given other instances of a similar kind, though far less striking; such as Potatoes under the shelter of trees, or of a mixed crop, or of hedgerows, having also been saved. These also point to atmospheric influence. Mr. NEVIN, in his very valuable pamphlet,* adopts the atmospheric theory without hesitation. Nevertheless, we are as unable as ever to reconcile this theory with the whole of the facts known to us. We are indebted to Mr. BECK, of Isleworth, for the following observation, which bears directly upon the present question:—

"I had a small piece of Ash-leaved Kidneys, which ripened off a healthy yellow colour, and so died down to the ground without a speck of the disease. There was not a speck of it on any of the tubers we cooked. There was no appearance whatever on the portion I had saved for seed, and which was laid out for greening. But on Saturday last (Sept. 12), I was surprised to find that a considerable portion of the whole quantity (about a bushel) was greatly affected. The whole mischief had been done in a few days; for we were about to put them away the early part of the week, but thought a few days longer exposure would be better. I had no other Potatoes in my garden, nor are there any near me. I am surrounded on three sides with high walls; on the fourth, a high Quickset hedge and Grass field form the boundary."

We have ourselves a somewhat similar case, with a new variety, called "Willison's Seedling," the offspring, no doubt, of the Ash-leaved Kidney. It grew, remained healthy, and ripened without a trace of disease. When taken up, the tubers were absolutely sound. They were laid by in a dry shed, well covered with mats, and in a few weeks symptoms of disease, slight ones, made their appearance in the tubers. Similar instances occurred last year with sound Potatoes that were attacked in sand kept constantly in a dry place, and that never formed tops. These are apparently irreconcilable with atmospheric agency, whether miasm, or anything else, unless it is assumed that the supposed disease acts *directly* upon the Potato.

Even the curious state of the Tomato crop in some places, although at first sight favouring the

* "*The Potato Epidemic, and its probable Consequences.*" By N. Nevin. 12mo. M'Glashan, Dublin; Orr and Co., London. *We shall analyse this pamphlet next week.*

opinion, seems to be on the whole irreconcilable with it. This fruit has this year been extensively injured in the country round London, by a rot, which attacks the ripening Apple, and renders it unfit for use. Sometimes the leaves are blotched, sometimes not. It is evidently, we think, the same as the disease of the Potato "Apple," or fruit, and in both cases is, as far as we have seen, unaccompanied by fungi. It appears on the exposed side, where the fruit receives the most air; and therefore, it may be said, is attacked by something in the atmosphere. But there is this difficulty in the way of admitting such an explanation: the supposed miasm ought to attack all Tomatoes in the neighbourhood of tainted Potato fields; But it does not. Our excellent correspondent "Quercus," than whom there is not a more close, shrewd, practical observer, finds no such disease in his Tomatoes; and we have lately seen beautiful samples of this fruit in the market of Boulogne, all round which place the Potato crops are blighted. The French peasants had not even heard of the Tomatoes being attacked.

We respectfully present these facts to the consideration of those who are striving to find out the CAUSE of the Potato disease. They not only must not be neglected, but no theory can be accepted which fails to include them in its scope. One thing, however, they seem to dispose of conclusively, and that is the notion that the Potato disease is to be kept off by regeneration from seed. Tomatoes are annually regenerated from seed, and Tomatoes suffer like Potatoes.

THUNBERGIA CHRYSOPS.

CHARMING as most of the Thunbergias are, the superiority of this species must at once be admitted by everybody; the beautiful variety of tints exhibited in its large blossoms fully entitle it to the first rank in the genus.

I had a few cuttings of it given me in May, 1845, which struck freely in a brisk heat. After they were struck I potted them off into 3-inch pots well drained in a rich soil, and then placed them in a close pit heated with hot water. They grew very fast, and in August I repotted them into 5-inch pots. By the middle of December I had the pleasure of seeing one of the plants in flower, and it continued to blossom from that time to April, daily expanding from 4 to 9 of its beautiful flowers. The other plants, from want of room, I was obliged to put into a common frame; but there they did not do so well. When placed in a warm and humid atmosphere, and not over-potted, the plant ceases to be so exuberant, and it is much easier to keep it within bounds. I never cut any of the shoots, nor allow the plant to grow more than 2 feet high before I turn the shoot downwards, which checks the growth, and which I believe is the great secret of inducing the plant to flower. It is a great mistake to keep repotting as it makes growth, if you wish to flower it. I know several people who kept repotting it until it was established in very large pots, and then all that could be said was that it had made a fine plant. But where were the blossoms?—not to be found.

The plant which I flowered matured some seed long before it ceased to flower. After it had done flowering, I repotted it into a 6-inch pot, and allowed it to remain in a pit with some Orchids all the summer, and I have no doubt that it will flower again much earlier next winter. I regret that some of the other species were not in flower near it, for I do not suppose there is any probability of the seedlings raised from the old plant sporting. As the plants quickly fill the pots with roots, it will benefit them very much, when in flower, to give them once a fortnight a good watering with guano water, at the rate of 1 lb. to 8 gallons of water, letting it stand until it is clear before it is used.—*T. Davis, Colchester.*

POLMAISE HEATING.

IN a recent number I promised that I would endeavour to prove that the advocates and employers of the Polmaise mode of heating have nothing to fear from the coming winter, by showing that the principle of Polmaise is a *compensating principle*, so that, within certain limits (depending on the extent of the means employed), its results will remain the same, whatever may be the external circumstances of heat or cold, and that, as a timepiece preserves its accuracy amidst cold and heat by means of the compensating pendulum, so will this system of heating *necessarily* retain *a proportionate efficiency* at all seasons of the year.

Your readers are aware that I have not built my heating apparatus after any pattern or design; I knew that certain results ought to follow the use of certain means: I have employed the means—the result is what I foretold; had it been otherwise, it would have proved that the laws which scientific men have given, as regulating the diffusion of heat through the atmosphere, are erroneous, for one fact upsets a thousand theories; but in this case fact and theory agree. Not one single doubt has been expressed by those who have seen the hothouse in action as to certain facts, such as the flame of a candle drawn one way by the cold air and carried the reverse by the hot air; the draught of hot air felt when the face or hand is placed near the hot-air openings; the thermometer, hanging in the centre of the hot draught, indicating a temperature of 90° to 100° Fahr.; the condensed atmospheric moisture. What, then, is the principle of this action? and how is it a compensating one? why does the cold air flow out of the house and the hot flow in? Let us trace each step of the process; suppose it is a December morning, the external air piercing cold, and hang a thermometer in the stove chamber and one in the house; they each indicate 32° Fahr., the fire is lighted, the iron plate feels the warmth, absorbs the radiant caloric, imparts it to that portion of air which is in contact with it; air, like all other matter, expands when heated; expanding, it becomes of necessity specifically lighter; becoming lighter than that which surrounds it, it ascends; and ascending, it passes into the house: but what has become of the space it has left behind? Nature abhors a vacuum! The instant one portion or particle of air has moved, its place is occupied by another colder than itself; this, in its turn, is warmed, moves on, leaving its place to be again supplied; and thus is a ceaseless current of air established from the house to the chamber, and from the chamber to the house, caused by the difference of density of the air in the two; which difference of density itself depends on the difference of temperature, so that *difference of temperature* is the very element or *principle of action* in this system. While the stove chamber and the house are at the same temperature, whether it be 32° Fahr. or 100° Fahr. no circulation takes place; with equality all is at rest. But once disturb the equilibrium and the currents instantly flow till the balance be restored!

But this is not all; not only does the flow of the current depend on the difference of density or temperature, but the rapidity or *velocity* of the current bears an *exact proportion* to that *difference*; and here is that compensating principle which I have alluded to, so that supposing these currents travel at the rate of 10 miles per hour when there is a difference of 10°, they will not travel less than 20 miles when there is a difference of 20°; nay, it is probable that the increase of velocity will be in *geometric* progression. Now, I ask your readers to reflect for a moment on the inevitable consequence of this law, as it concerns the maintenance of sufficiently high winter temperature in houses heated on the Polmaise principle; it must be this, that, provided you can keep up the temperature of the stove-chamber, the temperature of the house will of *necessity* be kept up also; that the immediate effect of any attempt on the part of the external cold to lower the temperature of the house, will be only to induce a more rapid flow of the cold air to the source of heat; and thus I consider the question of the diffusion of heat in winter is set at rest, the very *velocity of its diffusion* will be *proportionate* to the *intensity* of the cold!. The power of diffusion being thus beyond all doubt, it only remains to provide sufficient caloric, or heat, to do the work. A bushel of coals can only, in the process of combustion, evolve a given quantity of heat; so that supposing a hot-water apparatus and a Polmaise apparatus equally absorbed every portion of the heat so given out, and conveyed it to the house to be heated, their working claims would be equal, the Polmaise still having the advantage in the first cost; but it is not so. And here I must refer to my own previous efforts; your readers will possibly remember a Table of Temperatures published in the *Chronicle*, March 28, of this year (the accuracy of which has never been impugned), by which it was clearly shown that in all ordinary hot-water arrangements, and especially in those considered the best, there is great loss of heat; that, during one week in which the mean temperature of the air was 40° Fahr., the mean temperature of the hothouse was 60° Fahr., while the mean temperature of the stoke-hole was 80° Fahr.; and it would be no exaggeration to state that if these data had been taken in 1844 (when the external air was 10° Fahr., and the hothouse was with difficulty kept at a point of safety), that the stoke-hole temperature would have been much higher, not relatively but actually; proving thus, that, as there is no such loss of heat in the Polmaise plan, its practical working will be proportionately economical. Natural—sure—cheap in its first cost—cheap in its use! what a contrast does it offer to the unnatural, unsound, expensive, wasteful system of man's devising. How various are the ways in which its path is proclaimed! The peal of the thunder, does it not tell us with what fearful velocity cold air will rush into the rarified space caused by the heat of the lightning! the land breeze, does it not prove how gently the air will travel from a cool to a slightly warmer spot! our common practice of letting some fresh air in "at this door," and the hot air out "at that window"—our very conversation, "mind, and don't sit in a draught"—all prove the undoubted truth of Polmaise.

A few words to the practical men, whose business it is to provide the means of diffusing atmospheric heat. Many years has your attention been engaged on a system unnatural, therefore totally erroneous; you have used an instrument for a purpose for which it was never intended, and, with all your ingenuity, you have not brought it to perfection (look at its waste), and you never can; scientific men have, with two or three brilliant exceptions, as Rumford, Arnott, &c., left you too much to yourselves, so that while an infinity of attention has been bestowed on mechanism, principles have been forgotten. Waste no more time on a system which is erroneous in principle; exert your ingenuity on one that is sound; let no selfish considerations bind you to stand in the way of improvement; increased consumption will more than compensate for diminished cost. Clergymen for their churches, gentlemen for their pleasure, nurserymen for their profit, are all on the alert, and you will find it to your interest to lead the way; above all, remember that this is an age when principles are more relied on than details. Horticulture and agriculture owe their rapid strides to this; their advance is certain, they take Nature as their guide; the means of diffusing heat by the circulation of the air itself will assuredly be brought to perfection, whether it be Mr. Murray's, Mr. Hazard's, or my own; the principles are those of Nature; you cannot prevent their triumph, therefore hasten it; remember, the principle is, *to take the air you desire to warm over a heated surface.*—*D. B. Meek, Holmesdale House.*

THE AMATEUR GARDENER.

PREPARATIONS FOR WINTER.—Although brilliant skies and a high temperature seem to make the mention of winter unsuitable, the Amateur must not forget that the middle of September scarcely ever passes away without sharp frosts, which give him a seasonable premonition of what is so soon to come. It has often occurred, within our memories, that the earth has been frost-bound in November to such an extent as to destroy everything tender or half hardy in the gardens. A wise horticulturist will provide against all such contingencies, and avail himself of the present favourable season, to guard against the ravages of a less propitious one. Nothing is more discouraging than to lose all our garden beauties by the winter's cold, so as to be obliged either to purchase or beg at the next spring. This mortification may be avoided by persons of the most slender means, and I shall consult the interests of a very large class of gardeners by giving the details of a practice by which the tender exotics which delight us in summer may be preserved in winter. To professed gardeners this is a subject quite familiar, and demands from them the highest exertions of their skill. I do not write for them, but for amateurs of less experience, who are so often ready to give up their floral pursuits on account of their losses from cold.

In a former paper I have given some account of an appropriate *habitat* for plants which it is desirable to preserve during the winter. A dry pit, with facilities for excluding frosts, is indispensable, when the amateur's stock exceeds what he can conveniently protect in his dwelling-house. Choose the highest and best-drained portion of the garden, and let the pots, when stored away, be placed with their tops a few inches below the surface of the surrounding ground. The ordinary covering of glass and a mat will suffice till hard frosts set in, when the sides of the frame placed over the pit should be protected with a lining of dry straw, or other material, piled to the level of the lights. This, with an extra mat or two, will defy all frost. *Experto crede.* But I must reiterate the necessity of giving air and light on every favourable occasion, and also of leaving the plants in darkness for a day or two whenever a thaw occurs. More plants are lost by exposure to solar light after frosts, than by any other means; and it is a fact that cannot be too extensively known, that frozen vegetation, even in the case of tender exotics, will recover itself in most cases, if allowed to thaw in the dark.

But what is to be committed to the care of a pit during the winter months? Probably many gardeners have scarcely thought of this yet, for it must be confessed great improvidence is often manifested by those who profess and display great attachment to floriculture. Persons of experience will, before this time, have struck numerous cuttings of those flowers which beautify their gardens in summer, such as Verbenas, Petunias, Heliotropes, Pelargoniums, Fuchsias, &c. These, if not too large and too crowded, may be allowed to remain together in the pots or pans in which they have been rooted; they will keep better than if they are now potted separately, and space will be economised. If cuttings have not been made, they may be yet put in, running the risk of a failure on account of the lateness of the season. A gentle hotbed, with care, will even now secure roots to many cuttings, which may cautiously be hardened off before winter is confirmed.

But presuming it is too late to attempt to strike cuttings with the inferior means many amateurs possess, I will call attention to what is now in existence in pots and in the garden, which may be preserved successfully for another year. Verbenas, which have been pegged down early in the season, will be found to have rooted. Take up as many as you require of these rooted offsets, and let them be carefully potted and transferred at once to the frame or pit. Pelargoniums, which have done flowering, should be cut down, leaving only a few leaves on the pruned stems; the mould should then be shaken off, the roots pruned, and the plants replaced in smaller pots. But more care and thoughtfulness are demanded in the case of plants still flowering in the borders, which it is desirable should be taken up and preserved. If you have many, you must sacrifice the bloom of some of them, take them up at once, and let them be treated as above directed for plants in pots. But as there may be no injurious frosts for some weeks, let the bulk of your plants remain where they are some time longer; indeed until frost touches them. Calceolarias, Fuchsias, Pelargoniums, &c., may then be taken up, and the greater part of the foliage cut off. They may then be potted and put into the pit. With ordinary watchfulness your present stock may in this manner be preserved, and delight you with their beauties next season.

Scarlet Pelargoniums are not so soon prostrated by frost as many other greenhouse plants are, and they

may, therefore, be left in the ground longer. But their great enemy through the winter months is damp, and against this they must be diligently guarded. When taken up, put them in small pots with a light soil, and let them be placed not in the frame or pit, but in a cellar or room in the dwelling-house, where they will have air and light, but no moisture. With this precaution nothing is more easily kept through the hardest winters. While some young plants should be struck every year, those of two or three years' growth have a fine effect, and constitute a gorgeous ornament in any garden. They may be trained to almost any size, and should be cultivated extensively by every amateur.—*H. D.*

Home Correspondence.

Polmaise Heating.—Being about to erect a small plant house, and feeling sufficiently satisfied by the discussion on Polmaise to wish to adopt the warm air principle, I have waited with considerable interest the publication of Mr. Meek's plan of arrangement, knowing that experiment or rather experience is the only safe thing to trust to in the very difficult and hitherto imperfectly understood subject of thermo-ventilation. There is one point in particular in Mr. M.'s arrangement which, as I at present understand it, I could only adopt simply as an act of faith in that gentleman's experience. Why admit the external atmosphere by so many of those perforations in the wall, seeing that the cold air so admitted, is almost immediately poured into numerous holes in the floor? [Air is only admitted *occasionally* at these openings, which are fitted with a lid.] It appears to me that the side branches of the cold air drain might almost as well have been continued to the outside of the wall at once, or that even a single communication through the wall at the end of the cold air drain would have been just as efficient, and more simple. This idea implies, of course, that the cold air drains, their side-branches, and the openings in the walls, may be altogether superfluous. And is there, in fact, any good reason against a well contrived and easily regulated apparatus by means of which all the air designedly admitted to the house shall be passed through the air chamber of the stove? I believe that many of the objections to which such a suggestion would give rise have already passed through my mind. It might probably be said that the atmosphere of the house would be unwholesome and oppressive, as is well known to be the case in apartments heated by the Arnott stove; but the Arnott stove does not, as is commonly supposed, deteriorate the atmosphere of rooms in consequence of its contact with heated iron, but simply because of the slow combustion and consequent feeble draught, allowing the carbonic acid and sulphurous acid gases arising from the coal to gravitate and flow through the doors of the fireplace and ash pit into the apartment. My idea of a warm air system may be expressed in very few words. Whenever the external atmosphere is so cold that it cannot be safely admitted through windows and sashes, pass it all through a warm chamber into the lowest part of the house, and suffer it to escape by a ventilator in the highest part of the roof. You will deem this a very off-hand style of talking; but if you will permit me I will endeavour to describe the means by which I propose to carry out my views, and I should feel obliged if you, or any of your Polmaise friends would set me right if I be in error. In the first place I purpose using a sky-light span-roof which I have by me (it is about 24 feet long), and I would particularly observe that the piece of wood forming the ridge is broader and thinner than is usual in the construction of plant-houses. In this ridge-piece I purpose cutting longitudinal slits of about 9 inches long, leaving solid intervals of corresponding length. Upon this perforated ridge-piece I shall mount a light board of similar width, and perforated exactly in the same way, and thus I form a ridge ventilator, which by sliding the upper board to the extent of 9 inches or less, is capable of the nicest adjustment. One end of the proposed building will abut against the piers of an archway leading into a cave cut out of the sandstone rock; the other end will stand on the edge of a bank, which suddenly falls to a depth of about 4 ft., in which bank I shall build my stove, and with a view to economising the heat of the chamber, as well as from considerations of convenience, I think of placing the air-chamber inside the house, its top being on a level with the floor of the house of which its stout oaken cover would form a part. From the upper part of the chamber, and just under the floor, I propose to carry a warm-air drain under the entire length of a brick pit similar to that represented in Mr. Meek's plan. By these means I think I should obtain that kind of current of which a fluid like air is most naturally susceptible, insuring by an ascending column of the entire height of the house a good draught of air from the exterior through the warm chamber. Here I would make an observation which occurs to me in consequence of my experience in the construction of a warm-air lamp intended for a very different purpose. Air in passing through a hot chamber is heated not nearly so much in proportion to the heat of the surface over which it passes as in proportion to the time it is detained in contact with that surface, and it will be found that if the exit passage in the upper part of the chamber be entirely closed for a time, the confined air will have obtained a temperature nearly equal to that of the plate itself. But on the other hand, if the entrance and exit passages of the chamber be very large, the air will pass through so rapidly that were the plate even red hot it would be insufficiently warmed. It is, therefore, essential that the exit if not the entrance for air be provided with a sliding register similar to that I have described with reference to the ridge timber. With regard to the supply of atmospheric moisture in that necessary degree of excess over what is usually contained in the external atmosphere, in the arrangement I have suggested, if the warm air drain were laid perfectly level and cemented, its bottom might always be kept covered with water to the depth of 2 or 3 inches, and in passing over such an extent of water the warm air would certainly take up a sufficient quantity to produce a due degree of moisture in the house. I would, however, also make a provision similar to that of the iron tank within the air chamber, but with a difference which would, I think, render it more effective. Instead of an iron tank, I purpose having made at a neighbouring tile kiln three oblong troughs of porous earthenware, to be placed in the chamber so that the whole of their surface may be opposed to the evaporating action of the warm air. These troughs will be conveniently accessible by taking up the wooden cover of the chamber within the house, and one or the whole may have water as may be found desirable. In conclusion I would remark that I have purposely avoided supplying the air-chamber in any degree from the interior of the house. —*J. H. Maw, Hastings.*

The Hamiltonian System of Pine-growing (see p. 613).—I think it quite reasonable to consider the branches of all plants, and the suckers of Pines, when brought in contact with the soil, and allowed to root in it so many perfect plants, even though they remain attached to the parent stem, but I should not think it consistent with reason if Mr. Hamilton had planted a Pine in the middle of the bed in which, he says, are 60 Pine stools, and allowed it to multiply by suckers until the bed was filled, and then call it one plant; however, I have no wish to undervalue the advantages of the Hamiltonian system, on the contrary, I consider it preferable to the common method where the plants can be grown out of pots, but I had no idea that by the Hamiltonian (or any other) method both the sucker and fruit could be perfected in seven months. In my experience I have always found the Black Jamaica to take a longer time to perfect its fruit than other varieties; none ripens sooner than the Queen, which generally takes four months in summer; the Black Jamaica five, and in the winter and spring often six months. I consider it an error to hurry the ripening; when such is the case the fruit is never so solid, sugary, or so high flavoured Suppose, then, a Pine-apple to take four months from its first appearance to the time of ripening, it surely cannot take less than two months from the time it begins to form until it makes its appearance; here, then, will be six months out of the seven taken up to mature the fruit alone, and as the trunk of a Pine never elongates after the fruit begins to form, can it be supposed that the sucker will be sufficiently developed in four weeks to produce a fruit 4 or 5 lbs. weight.—*Wm. Stothard, Durdham Down Nursery, Bristol, Sept.* 15.

Grape Preserve.—A very delicious preserve or jelly may be made from Grapes. It is done as follows:—Pick off the Grapes; put them in a stewpan or saucepan; bruise them very slightly; set the pan over a slow fire; and as the seeds rise to the top while simmering, skim them off. When dressed enough, pass the whole through a coarse muslin or cloth; sweeten it to your taste; return it again to the pan, and let it simmer very gently till quite thick; put it in a mould or preserving pot; and, if properly made, the pot may be turned upside down without disturbing its contents. Put thin paper, moistened with a small quantity of salad-oil, over the jelly, and cover with paper or bladder. Keep it in an airy, light, and dry place. It is impossible to state the proportion of sugar required, for situation, season, &c., make so great a difference in the saccharine juice of the Grape, that it is better to leave it to the taste of the maker. Skim off as many of the seeds as possible before pressing, as too many of them will give a bitter taste to the jelly.—*A. B.*

Fig Garden at West Taring.—Having seen this garden, to which your correspondent of 5th inst. alludes, my father was induced to try standard Fig-trees of the usual purple kind (I do not know the name) in his kitchen garden, which is warm, and walled on three sides; they have answered perfectly, and bear good crops, ripening their fruit well in any season. In the very severe season of 1837-38, they were cut to the ground, and again in 1844-45, after which vexatious occurrence it takes more than a season to furnish bearing wood again.—*E. M., Twickenham, Sept.* 15.

The Spot on Pelargoniums.—The cause of the "spot" does not appear as yet to have been satisfactorily explained. In ill-managed greenhouses it is sometimes not met with at all; while in well-managed houses it will sometimes appear. It may be inferred, therefore, that there is a cause independent of management in the affected houses; and this cause may be infection. That the progress of the evil will be in the ratio of the mismanagement, can scarcely be doubted; and experience has led to a belief that a hot sunshine striking upon the exposed sides of small pots, filled with numerous roots, may form a considerable item in this presumed mismanagement. At all events it is much to be desired that the question should be settled as far as may regard the fact of infection. Should this be clean out of the way, a wider field will be opened for experimental tests of the different modes of treatment practised. That the evil is greatly aggravated by mismanagement as regards over-dryness, over-moisture, &c., cannot be doubted. A question arises whether the disease can be produced by such causes, or whether by infection; and whether it is found in the well-managed houses of the large market-gardeners. Perhaps some of your correspondents may be able to throw light upon the subject.—*C., Lincoln.*

Another remarkable Instance of Attachment in the Robin.—As an old contributor, I feel pleasure in bringing under notice one or two more interesting facts connected with the natural history of the robin; and before I have done, I hope successfully to prove that, though possessed of many and very grievous faults, his good qualities far outweigh them all, and fairly entitle him to be a general favourite. On the 26th of March last I perceived at the bottom of one of my robins' cages an egg. I had been, for some time previous, doubtful as to the sex of this bird, for it was neither very lively nor did it sing; indeed, it was the only robin out of 13 that was decidedly non-musical. On making the discovery, and perceiving that the season of spring rendered the bird desirous of mating and going to nest, I at once opened the window and restored it to liberty. Its gratitude for this favour was excessive, and forcibly expressed by every movement of the head and bend of the body, all diverting exceedingly. So far, however, was the bird from evidencing any anxiety to escape, that it flew quite leisurely into the garden, coming repeatedly to the window for a meal worm, and returning to its usual place of roost in the evening. Observing this strict mark of confidence and affection, I resolved on providing her ladyship with a husband of my own choosing; and I accordingly gave liberty to one of my very best and handsomest songsters. In three days I had the pleasure of seeing the pair fondly and happily united; and as they gradually disappeared from the house some days afterwards, I concluded they had entered upon the cares and duties inseparable from a domestic life, and that they had a family in perspective. About six weeks after this I thought I caught a glimpse of one, if not of both the happy pair, but they were so busily occupied with flying to and fro, apparently with food for their young, that I conceived it possible I might be mistaken. Not so, however. I had seen my pet; there was an "object" to be accomplished; I was not yet in his secret. It would seem that, at the time I allude to, my two little friends were the happy parents of a happy family; and that the male, at all events, had determined on revealing this "great fact" to me in confidence. I observed him one morning running along the wall, side by side with me as I walked down the garden. His fine large eye shone magnificently bright; his crest was raised, and his *personnel* looked noble. I knew him instantly, and greeted him most cordially. My recognition delighted him, and he returned my salutation with repeated "salaams," sweeping the bricks with his tail, after the fashion of a pigeon. These, and divers other manœuvres, he practised day after day, till at last I imagined he must have some particular motive for his strange conduct, particularly at a season when all birds are shy and wary. I accordingly watched him narrowly; and one morning, when he flew across the garden, I followed him. This seemed to give him extravagant pleasure. Leading me from tree to tree, he halted when he saw I was evidently interested in his movements; and then, alighting on a large Ivy-bush that overshadows one end of my aviary, he burst out in a melodious volume of song; after which he dropped swiftly down into the centre of the Ivy, and disappeared. I could now readily divine the whole matter. Placing a pair of steps under the Ivy, I mounted, and, looking in where I had seen the robin enter, there I espied a very elegantly-formed nest; and seated, or rather squatted therein, six nearly-fledged young robins! The joy of the old bird as he observed my surprise cannot be expressed in words, but it made a great impression on me at the time. A few days subsequently the entire brood were brought out to see the world; four of them are now inmates of my family, and are remarkably tame, handsome birds; giving promise, moreover, of being very fine songsters. Their papa, also, has again given himself up, voluntarily, to my tender care, and he will lodge with me (should we both live) till next spring, when he will once more be set free. His mate, as is always the case when the breeding season is over, still roams about at her pleasure, caring no more for one bird than she does for another, pecking at each, indiscriminately, that comes in her way.—*William Kidd, New-road, Hammersmith, Aug.* 21.

Rare Moths and Butterflies.—I have taken four fine specimens of the Sphinx convolvuli or Unicorn Hawk Moth, which until this year, was exceedingly rare in this neighbourhood. I have also taken two specimens of the Humming Bird Hawk Moth (Macroglossa stellatarum), which is more than usually plentiful this year. Of all the moths or sphinxes this is perhaps the most curious and graceful. Poised over a flower, like a humming bird, it extracts its juices by means of its long proboscis; darting away with the rapidity of lightning upon the least disturbance, so as to render its capture extremely difficult. The Death's Head Hawk Moth (Acherontia atropos), has also been taken in fine condition in this neighbourhood this year. In addition also to the specimens captured [illegible] recorded in your Journal, another one [illegible] Basingford, near this town, by Mr. Baker, an [illegible] collector. The warm, almost tropical, summer, is clearly the cause of the appearance of these rare insects.—*C. R. Bree, Stowmarket.*—I beg to say that

I also captured a Camberwell Beauty, last week, in my garden (Kent). It was very feeble, uninjured, and made no effort to escape. As those mentioned by Professor Henslow were caught on the east coast, this caught in Kent may serve to confirm his notion, that the wind lately brought them over. The wind has been E. and N.E. for a long time.—*Este.*

Lawns.—Those who are desirous to obtain a nice clean lawn, without weeds, would find the most effectual remedy to destroy them, and Plantains in particular, is, when the sun shines bright and strong, to put a pinch of salt on the heart of the plants; they shrivel in a few hours; but if applied in a moist day it fails.—*Polypodium.*

Maize.—Many of your readers will, I have no doubt, have grown this year some Maize. With me it has been the most admired plant in the garden all the summer, and now I find it the most useful. At the suggestion of an American friend I wrenched off a cob and had it boiled for supper, and a greater treat I never had. Boil it in salt and water and eat it with butter and salt.—*P. B.*

Supposed Substitute for the Potato (see p. 629).—The plant known by the Indian name Saa-gaa-ban, I believe to be the Apios tuberosa, or Glycine apios. I have grown large plants of it, and found the tubers strung together by ligaments, in the manner described. The plants are natives of North America; have weak stems and pinnated leaves; but, if in light rich soil, the stems will rise 6 or 7 feet or more, if anything uphold them. The plants must be grown strong, otherwise the tubers will be small. I have seen plants at Mr. Knight's and other London nurseries.—*G. Thompson, Brasham park, Sept.* 22.

Potatoes.—I have seen, once or twice, a sort of apology made by you for introducing the subject of Potatoes in the *Chronicle*. Surely no apology can be deemed necessary by any one who considers that the subject intimately concerns the comfort and welfare of millions. What is the colour of a Tulip or a Fuchsia to the food of the masses? I can partly imagine the difficulty of pleasing all tastes, but on this subject there is not, in my opinion, any room for the editorial puzzle "*Quid dem, quid non dem, renuis tu quod jubet alter.*" The subject of food is paramount. I consider, therefore, and probably nine-tenths of your readers concur with me, that the public gratitude is essentially due to the Editor of the *Chronicle* for his patience in examining and considering the various discordant opinions presented to his notice by correspondents, and still more for his ability in investigating the phenomena connected with the disease of the useful esculent under notice. I wish, however, that Cumberland could be added to the "localities in which the Potato crop is not by any means so bad as it was last year." In the western parts of the county the crop is ten times worse. In fact, many farmers around me cannot gather a cart-load from 4 or 5, and, in some instances, from 8 acres of land. For my own part, my half acre of black or peat soil allows me not less than three cart loads, and would probably have yielded more, if the tops had been pulled up from the whole, as they were from the prolific part. Whether my success was owing entirely to this last-named supposed remedy, or to dusting the "sets" with lime, previously to planting, or to the black soil, this deponent saith not. Can you state, from the letters of correspondents, what success generally attended pulling up the tops and dusting the seed with lime?—*Neighbourhood of Whitehaven.* [We should say, that upon the whole, the evidence goes against the advantage of lime when applied as a dressing to the crop. This is also Mr. Niven's opinion, and we have no doubt that the *balance* of evidence is unfavourable to the utility of lime dressing. As to pulling up the tops, we shall have a word on that subject next week.]

Potatoes.—A very sensible labouring man lately told me the following as a fact. He said that two men cultivated the headland of a field in Potatoes; that one kept his part clean and did it well, that the other suffered his portion to be covered with weeds; that the crop of the former was extremely rotten, and that of the latter very sound. Another man, quite to be trusted, told me that he had just seen a cottager digging his Potatoes: that in general they were very bad but that under the hedge and among the weeds and filth (his own words), where they both expected there would have been few or none fit for use, they found a good crop quite sound. There are other statements of the same sort in circulation, where thick Chickweed has been abundant.—*C. Y.*

Potatoes and their Disease.—So many communications appear upon this all-engrossing and mysterious subject, that I dare hardly venture to intrude any remarks in your columns. You have already summed up the matter by declaring, which indeed appears to be quite true, that we as yet know nothing of the remote cause of disease. It appears to me, however, that this is a fair starting point for us to recommence our investigation. We should not be disheartened if we fail to prove that the Botrytis infestans, or the atmospherical influences, or a new zoophyte, are at the root of the mischief; we should endeavour, notwithstanding, to prove what is. Have we not hitherto, as in all similar phenomena (human or vegetative), been too much inclined to speculate? and should we not rather be induced to observe and record facts from which sound and useful deductions may hereafter be drawn. The very meagre discussion upon the subject, at the meeting of the British Association, has convinced me of the truth of my queries; for we cannot read the various remarks, and the arguments by which they were supported, without at once agreeing with Dr. Lankester, that, up to the present date, the amount of our knowledge upon this difficult question is literally nothing. After this preface I will state these facts, without venturing at present to theorise, but they appear to me by no means unimportant. 1st. My crop of Potatoes, after flourishing with great vigour during the summer, and evincing a more than usual degree of vital action (as shown by the luxuriant growth of the top, and the increase of the tubers to the third, or even fourth generation), were attacked with the prevailing disease on the 23d August, the same day precisely that the disease appeared last year. 2d. The same parts of the ground which displayed the greatest intensity of disease last year, evinced a similar appearance this, forming patches of black foliage easily distinguished from the rest. 3d. Last year I mowed off the haulm directly the disease appeared, and saved the greatest part of my crop; the seed of the present crop was from this produce. This year I waited a week after the appearance of the disease before I mowed off the haulm, and the tubers are now almost entirely sound, as far as I have yet gone. I have taken up 12 sacks of Early Shaw, the foliage of which was quite black with disease, and I have not a peck of diseased Potatoes. The rest of my crop (Red Kidney) is in an equally good condition, and the young ones, even to the third generation, are nearly as large as the first. A part of the crop planted in June is as fine or finer than that planted in February; the foliage was not so much diseased as the other. I deduce from these facts the following inferences:—1. That the disease appearing on the same ground, at the same time of year in two successive years (the seasons of which were totally different), and the late sown crops being more slightly affected than the early ones, point to the fact, that the disease is intimately connected with some change which takes place in the vital process of the plant. 2. The same parts of a field being more affected than the rest, two years in succession, leads to the inference, that the character of the soil has a greater or less influence over this change in the vital process of the plant. 3. The seasons of last year and this being of opposite character—the former wet and the present dry—disproves the hypothesis of atmospherical influences being the cause of disease. 4. The foliage of my Potatoes being diseased and the tubers sound, proves that the disease commences in the leaves, and not in the tubers.—*C. R. Bree, Stowmarket.*

Result of an Experiment made to Save Potatoes for Seed.—I am fully satisfied that I have and can check the disease so as to keep the tubers fit for seed. The Potatoes were Ash-leaved Kidneys; they were planted in February, and on the 12th August I had them lifted and spread on a clean gravel-walk exposed to the sun all day. I carefully picked the sound from the unsound; I then put 1 lb. of guano to 1 gallon of water, stirred it well together, passed the Potatoes through it, and put them into a barrow, where they had a good dredging with air-slaked lime, so much so that they were well coated over. I then spread them on the walk, where they remained from the above date until September 8; I have carefully examined them, counting both the washed and unwashed, and the result is as follows:—Number unwashed, 1525; sound 505, rotted 1020. Number washed, 654; sound 582, rotted 72. I may remark that the washed Potatoes are showing strong symptoms of growth, even pushing at every eye, while the unwashed ones are just the same as when they came out of the ground. I intend planting them in the end of October. I always plant my early crop in November, in a way of my own, which proves satisfactory; if my mode would be of use, you can have it at another time.—*C. H.* [If you please.]

Soot a Preventive of the Potato Disease.—Mr. Francis Benson, of Wolviston, Durham, planted a small garden with Potatoes; he gave a portion of it a liberal allowance of soot, the rest manure. The Potatoes where the soot was applied are perfectly free from disease, while those planted without soot, within a yard of the former, are exceedingly bad. Would soot be of any service in storing this year's crop?—*Alumina.* [We doubt whether Potatoes would not acquire a bad taste by being packed in soot.]

Foreign Correspondence.

St. Petersburgh, Aug. 12.—Count Orloff's garden at Strelna, about 12 miles from St. Petersburgh, on the road to Peterhoff, is the prettiest of the few private gardens I have had time to see. It was first laid out about 10 years ago by the architect who built the house, but under the instruction of the Countess, a lady of considerable taste and talent, a great patron of the arts, and who has seen and studied much of art in England, France, Italy, and Germany. The extent is but 25 acres, but it has the advantage of the little river Strelta, which here expands into a little lake, then passing under the high road through a two-arched stone bridge, opens into the Gulf of Finland, which we see under the arches. The house is in the semi-gothic style of some of our villas; the garden contains shrubberies and winding walks, flower-beds and a formal parterre, a French charmille (in which the Carpinus, too tender for the climate, is replaced by the Lime); a labyrinth; rock-work and a ruined tower (built with the porous calcareous stone from Ropscha) to show the view; temples and statues; a considerable set of plant-houses, an Apple orchard, &c., and though so much is crowded in so small a space, it is all done with so much real taste that nothing looks cockney, and the passage from the formal avenue to the winding walk; from the Italian to the French, or from that to the English gardens, so well managed that there is nothing to hurt the eye. The lawns, generally a difficult and ill understood department of gardening in Russia, are not even so good in this as in other gardens; but the flowers would do credit to any of our own gardeners—they are under the care of a young man from the botanic garden. As we were here rather earlier in the day than in most other gardens we have been to, we saw the pink Calystegia in full beauty, and it is certainly by far the handsomest hardy Convolvulaceous plant I know. Amongst the shrubs I remarked some fine specimens of Caragana frutescens—said to be so much handsomer in flower than the C. arborescens—so common here in the north. I also observed two or three fine trees (of 10 years' growth since planting), of Populus tristis, Fisch., from Nootka, which I think would be an acquisition in our plantations, being distinguished from the other Balsam Poplars by its dark foliage, and an Oak tree planted ten years ago being then fifteen years old, its branches spread over a space of 50 ft. diameter, it is tall in proportion, with a strong thick stem, and the foliage everywhere dense, deep coloured, and regularly vigorous. It looked like an Oak of 50 years' growth with us; whilst a grove of Oaks between Petersburgh and Peterhoff, planted by Peter the Great 130 years ago, had the stems scarcely thicker, were not above half as high again, and showed but too plainly that favourable as is the soil here for young Oaks (Q. pedunculata), the furious storms and bitter winds will never admit of their attaining the size and beauty they do with us.

The vast gardens and grounds of Tsarskoë Solo are truly befitting the magnificent palace they belong to; and as in the palace every decoration is of real value, and nothing allowed to be in the least out of order, out of place, or neglected, so in the whole of the grounds, gardens, houses, &c., everything is in the most perfect order, without a weed on the walks, drives, or beds, or a stake wanting to the flowers; and this with 35 versts (above 26 miles) of drives and walks, and 600 sajen (near 1900 yards) of glass, almost entirely in fruit. The keeping up the gardens and ground occupies about 800 men, under the superintendence of Mr. Marquarot, a German, for the flowers; Mr. Konnoff, a Russian, for the fruit, and Mr. Piper, a German, for the park. The grounds are laid out partly in the French, partly in the English style, with the advantages of undulating ground and water, though too far from the gulf to have any sea view. The flowers are the same as what I have seen elsewhere about Petersburgh, but on a more extensive scale; the fruit houses are a perfect contrast to those of the Tauride palace; not a pane of glass wanting; all the paint new and clean; the trees, in or out of bearing, properly trained, and everything in and about the houses in front or at the back, kept as if they were laid out for show. The Grape houses, now in bearing, showed crops that would do credit to any of our own growers; the Pines were very clean and healthy; the fruit not so fine as with us, and the crowns too large, but infinitely superior to that of the Tauride Gardens.

We saw Pavlovsk under the disadvantage of coming direct from the splendours of Tsarskoe Selo. The park, it is true, has its peculiar beauty, derived from a long winding glen or little valley, with a small stream spread into ornamental water, and the whole is well kept; but the vast palace looks plain in the interior after Tsarskoë Selo, and Pavlovsk having been the favourite residence of the universally-beloved Empress mother, the Archduke Michael, to whom it now belongs, will not allow of any alterations from the state in which it was left at her death, and many improvements now become almost necessary are left undone in memory of her. The director of the garden is Mr. Weinmann, known for his botanical works; he has especially studied the botany of the neighbourhood of Petersburg, and the Cryptogams of Russia generally, on which he has lately published some memoirs; the collection under his care is therefore rather more botanical than ornamental, with the exception of the favourite gardens of the late Empress mother, which are very well kept up as flower gardens. Amongst these flowers were a good many pots of Scævola macrocarpa, which had a very pretty effect, and the Tagetes signata (which I believe in a former letter I called by mistake T. sinuata), was also very ornamental. At Tsarskoë Selo I observed a very fine tree of Pyrus prunifolia, and the Juglans cinerea appears to be more hardy than any other Walnut.

Before entirely quitting the subject of St. Petersburgh gardens, I must again refer to the admixture of creepers and foliage with the furniture in sitting-rooms, as the more we see of it the more it pleases. Amongst many other pretty devices, maybe mentioned trellis-work, with Ivy in the form of folding-screens, which are converted into real screens by plate-glass on one side; a portion of room, enclosed by a kind of gothic railing (the furniture of the room being in the middle-age style), with creepers to the height of the backs of the chairs; a semi-circular sofa, with a trellis arbour over it—the boxes in which the creepers are planted being about the height of the ordinary back of the sofa; some of the less hardy species, such as Maurandyas, were planted in them and looked healthy; flat vases hanging from the ceiling of a low boudoir (or of a nook in a room railed off by creepers), with an Achimenes, or other flowering plant, in it, and short creepers hanging from it, &c. All these sitting-room flowers require care, it is true; trimming, and picking off dead

leaves, occasional pruning, tying and nailing, caution in not over-watering nor slopping the floors (generally *parquets* in this country), &c.; and once a week the leaves are all washed, but that is said to be soon done by the servant, who is used to it; and the effect is so good, that for any one possessing taste for their arrangement (upon which all depends), it is worth going to a little more trouble or expense.

In speaking of trees, I believe I omitted to mention that the Ulmus effusa, much more generally planted here than the U. campestris, is esteemed as an excellent wood for cart-shafts, &c., having the tenacity of our Ash—very different in that respect from our Elm—and being so very hardy a tree, it may prove a useful one in many parts of our own country.

Societies.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.

Sept. 16.—This exhibition, the last for the season, was held in the Surrey Zoological Gardens. As only two collections of plants were produced, and in these nothing remarkable, we shall confine ourselves to the Roses and the principal feature of the exhibition—the display of Dahlias, which, for extent and perfection, have seldom been equalled. In the 1st Class for Amateurs exhibiting 24 blooms, the 1st prize was awarded to Mr. Weedon, of Hillingdon. This stand contained Cleopatra, Consolation, Victory of Sussex, Athlete, Essex Triumph, Duchess of Richmond, Gloria Mundi, Princess Royal, Alice Hawthorn, Mrs. Shelley, Marquis of Exeter, Blue Bonnet, Antagonist, Admiral Stopford, Lady St. Maur, Lady Leicester, Rose d'Amour, Biondetta, Compacta, Beauty of Sussex, Bathonia, Nonpareil, Essex Bride; 2, to Mr. Howard, of Burnham; 3, to Mr. Hopkins, of Brentford. To these two stands no names were attached. 4, to Mr. Golding, of Hadleigh. The flowers in this stand were—Rembrandt, President of the West, Beauty of the Plain, Bridesmaid, Bermondsey Bee, Essex Triumph, Mrs. Shelley, Duchess of Richmond, Espartero, Spitfire, Admiral Stopford, Nonpareil, Miranda, Lady St. Maur, Phenomena, Indispensable, Pickwick, Antagonist, Aurantia, Cleopatra, Bathonia, Beeswing, Vivid, and Sir E. Antrobus; 5th prize was awarded to Mr. Lusby, of Hackney, for Lady St. Maur, Standard of Perfection, Nonpareil, Victory of Sussex, Stella, Fulwood Hero, Cleopatra, Beeswing, Queen of Roses, Vivid, Essex Bride, King of the West, Optimus, Mrs. Shelley, Sir R. Sale, Raphael, Beauty, Princess Radzewill, Bathonia, Queen, Antagonist, Blue Bonnet, Indispensable, President of the West. For the best stand of 12 dissimilar blooms (Amateurs): the 1st prize was awarded to Mr. Hyde, of Hillingdon, for Cleopatra, Widnall's Queen, Lady St. Maur, Gloria Mundi, Victory of Sussex, Admiral Stopford, Beauty of the Plain, Raphael, Mrs. Shelley, Beauty of Sussex, Antagonist, Princess Radzewill; 2, Mr. Battie, Erith, for Fulwood Hero, Antagonist, Dowager Lady Cowper, Nonpareil, Beeswing, Beauty of Sussex, Victory of Sussex, Cleopatra, Lady St. Maur, Essex Triumph, Indispensable, and Springfield Rival; 3, Mr. Collison (no names attached); 4th, Mr. J. Cook, for Cleopatra, Antagonist, Mrs. Shelley, Bathonia, Sir E. Antrobus, Rose d'Amour, Nonpareil, Scarlet Unique, Lady St. Maur, Optimus, Victory of Sussex, Mar. Cornwallis; 5, Mr. Duttson, for Mrs. Shelley, Bathonia, Standard of Perfection, Emperor, Nonpareil, Dodd's Prince of Wales, Beauty of Sussex, Vivid, Beeswing, Lady St. Maur, Widnall's Queen, and Pet. Rival; 6, Mr. E. Hunt, for Beeswing, Widnall's Queen, Queen of Roses, Cleopatra, Queen of Trumps, Nonpareil, Mrs. Shelley, Sir E. Antrobus, Model, Optimus, Northern Star, Princess Royal. In the Nurserymen's Class, for stands of 24 dissimilar varieties, the 1st prize was awarded to Mr. Cuttor, of Slough, whose stand contained the following sorts:—Great Western, Marquis of Bath, Nonpareil, Gloria Mundi, Indispensable, President, Victory of Sussex, Queen of Roses, Essex Triumph, Cleopatra, Princess Radzewill, Athlete, Eclipse, Lady Lister, Adm. Stopford, Penelope, Alexander, Mrs. Shelley, Bermondsey Bee, Widnall's Queen and Northern Star; 2, Mr. C. Turner, of Chalvey, for Athlete, Model, Lady Featherstone, Springfield Rival, Asmodeus, Mrs. Shelley, Nonpareil, Biondetta, Raphael, Princess Radzewill, Runnymede, Cleopatra, Duchess of Richmond, Bermondsey Bee, Marquis Cornwallis, Marquis Aylesbury, Essex Triumph, Indispensable, Hudson's Princess Royal, Standard of Perfection, Beeswing, Beauty of Sussex, Victory of Sussex and Queen of Roses; 3, Mr. Girling, of Stowmarket, for Rembrandt, Alexandrina, Adm. Stopford, Athlete, Mon Regnion, Eboracum, Marquis Cornwallis, Cleopatra, Lady Stopford, Beeswing, Lady St. Maur, Nonpareil, Essex Bride, Raphael, Essex Triumph, Princess Radzewill, Princess de Joinville, Gloria Mundi, Berth van Jena, Queen of Roses, Princess Royal, Shoon Ericticum, Queen of Perpetuals, Standard of Perfection; 4, Mr. Caines, Battersea, for Eximia, Matilda, Lady Leicester, Princess Radzewill, Prometheus, Vivid, Norfolk Hero, Marquis Corawallis, Mrs. Shelley, Lady St. Maur, Marq. Aylesbury, Beauty of Hants, Prince Albert, Queen, Beeswing, Ophir, Dr. Graham, Athlete, Victory of Sussex, Cheltenham Queen, Model, Ebor, Mark Antony, Beauty of Sussex; 5, Mr. Keynes, Salisbury, for Biondetta, Athlete, Fulwood Hero, Blue Bonnet, Mrs. Shelley, Standard, Princess Radzewill, Lady Featherstone, Mark Antony, Lady St. Maur, Essex Triumph, Sir E. Antrobus, Orlando, Andrew Hope, Catlough's Eclipse, Nonpareil, Princess Royal, Queen of Roses, Victory of Sussex, Captain Warner, Enterprize, Beeswing, and Dazzle.—The extra prize offered to Amateurs by Mr. C. Turner, of Chalvey, for the best 6 blooms of Dahlias sent out in the spring of 1846, was awarded to Mr. Hopkins, of Brentford; an extra prize was also awarded by the Society to Mr. Howard, of Burnham, for ditto.—Certificates were awarded for 2 seedlings of 1845, both in the possession of Mr. C. Turner, of Chalvey—1, Scarlet Gem; 2, Louis-Philippe—two large flowers of first-rate qualities. A certificate was also awarded to a promising maroon flower, a seedling of the present season, also in Mr. Turner's possession. Several other seedlings were also exhibited, among the best were Turner's Miss Vyse, white tipped with purple; Bushell's Victorina, delicate lilac; Pearce's Golden Fleece, and Collison's Andromeda, primrose tipped with crimson.—Extra prizes, offered by J. Bushell, Esq., were awarded, 1, to Mr. C. Turner, for a maroon seedling, very promising; 2, the Beauty of Chelsea, white tipped with crimson; and to Mr. Keynes, for an orange buff seedling.

Of CUT ROSES there was a fine display, from Messrs. Paul and Son, of Cheshunt, and Mr. Francis, of Hertford. From among the varieties sent by Messrs. Paul, who received the first prize, we selected the following:—*Damask Perpetual*: Bernard, salmon; Celestina, rose with pale edges; Mogador, purplish crimson. *Hybrid Perpetual*: Baronne Prevost, pale rose, very large; Docteur Marx, carmine, large; Duchess of Sutherland, pale rose; La Reine, lilac, very large; Lady Alice Peel, deep rose; Marquise Boccella, delicate pink with blush edges; Yolande d'Arragon, rosy blush, large; Comte d'Eu, carmine; Coquette de Bellevue, crimson, with small white spots, small; La Bedoyère, bright crimson, very large. *Bourbons*: George Cuvier, rose; Hennequin, crimson purple; Imperatrice Josephine, white, centre pinkish; Le Grenadier, bright crimson, slightly shaded with blackish purple; Madame Angelina, fawn with cream edges, colour deeper than in Bourbon Queen; Paul Joseph, dark crimson, shaded; Pierre de St. Cyr, pale rose, large; Princesse de Modène, deep pink, edges paler; Souvenir de la Malmaison, flesh with blush edges, a large flat Rose. *Noisettes*: Clara Wendel, yellow with cream edges; Duc de Broglie, blush; Le Pactole, yellow; Lactans, creamy white. *Chinese*: Belle Isadore, pale to dark crimson; Eugene Beauharnais, dark crimson; Madame Breon, rosy pink with small white spots; Clara, rich cream. *Tea-scented*: Adam, large rosy blush; Comte de Paris, white shaded with rose; Delices de Plantier, rosy yellow shaded with crimson; Fragolettii, large, shaded rose; Josephine Malton, cream with buff centre, large; La Renommée, lemon, edges white; Madame Roussell, white, centre flesh; Mirabile, yellow, edges rose; Moiret, pale yellow, edges rose, large; Safranot, apricot and buff.

Stanford Hill Gardeners' Association.—Report for 1846.—As the most prominent feature, the committee would first advert to the lectures which have been delivered monthly throughout the year, some of them by professional lecturers the same receiving pay as such, and the remainder by talented amateurs, to whom the committee beg to convey their best thanks, being under a full persuasion that the society has received no small benefit from the gratuitous services of those gentlemen. The next object demanding attention is the Class Instruction. From the very favourable report of the late committee in reference to this subject and by the expressed desire of a majority of the members at the last general meeting, the committee were induced this year to have the classes continued up to the time when other duties would prevent most of the members attending them. To effect this object it has of course been necessary to hire an additional room, thereby involving a rather serious item in the year's expenditure—still the results are of a most gratifying nature. It is to the committee, and they trust also to every person who contributes to the funds of this institution, a source of great encouragement to find that, at a time when passing events and circumstances all concur to indicate the fact that society is about to demand a far higher order of intelligence in the working population than that by which their own section has hitherto been characterised, many of the young members will, in the competition and struggles which await them, enjoy through these classes all the advantages of a sound education embracing the Latin, French, and other languages. Respecting the Library some large and important additions have been made to it. The extensive circulation of the books induces the committee to recommend a further purchase as soon as the funds will admit of it. All the pecuniary liabilities of the society for the current year have been discharged, and there remains a small balance in its favour in the hands of the treasurer. The committee cannot conclude their report without congratulating the society on the increasing number of its members, which they regard as both indicative of its utility and a sure guarantee for its continued prosperity. —*Syllabus of Lectures* (1846-7). Mr. Dempsey, on the Chemistry of Combustion and Phenomena of Artificial Light. Mr. Castle, on Manures. Rev. W. Hincks, on Vegetable Teratology. Dr. Sexton, on Phrenology. Mr. Moore, on Exotic Orchidaceous Plants. Dr. Carpenter, on the Microscopic Structure of Vegetables. Mr. Fenson, on the Steam Engine.

ERRATUM.—In the Report of the Caledonian Horticultural Society, p. 630, for "The Silver Medal was awarded to Messrs. Dickson and Co.," read to "Messrs. James Dickson and Sons."

Reviews.

Peschel's Elements of Physics. Translated from the German by E. West. 3 vols. 12mo. 1845-6. Longmans.

ALTHOUGH this book does not necessarily form a part of a garden library, yet it in many respects bears so directly upon some of the objects of horticulture, that we do not hesitate to recommend it to public favour. Indeed, we have already done so in the case of the first volume at p. 171 of our volume for 1845. Atmospheric pressure, the pressure of fluids, the strength of materials, temperature, radiation, the nature and effects of light, the action of electricity, are all subjects concerning which it is desirable to have a sound book of reference if not of study. Such is Professor Peschel's, which we all will find useful who have received a sufficient mathematical education. His brief statement respecting luminosity in plants may be read with interest and advantage by some of our correspondents.

"Electricity seems to play an important part in the various stages of the development of plants. Thus flashes of light have been seen to be emitted from many plants in full flower soon after sunset on sultry days. It has further been ascertained, by means of galvanometric experiments, that electric currents are generated in the interior of their substance, although their intensity is but small; and that an uninterupted development of electricity is maintained by the exhalation of carbonic acid in the atmosphere, especially during the germination of the seed, and, indeed, throughout the entire process of vegetation.

"The luminous phenomena in plants have been most diligently noticed by Zawadski, who observed them to happen principally in orange-coloured flowers (Calendula officinalis, Tropæolum, Lilium bulbiferum, Tagetes patula and erecta); that they occurred most frequently in the months of July and August, and that the same flower discharged a number of flashes in succession. Dr. Donné has performed a number of experiments in the course of his investigations into this subject. He has found that in many fruits the current runs from the stem to the eye, while in others it flows in an opposite direction. Blake, who has established the existence of these currents by similar experiments, thinks he has discovered that they run from the stems to the surfaces of leaves; that he has verified their course to be as has been just said, by the chemical decompositions they effect; that, lastly, the leaf itself is rendered positive, and the ambient air negative. Pouillet has rendered essential service to this branch of science by discovering that positive electricity is given out from plants when germinating. This he ascertained by connecting some that were in this state of vegetation with a condensing electroscope. From his experiments he inferred that a surface of 1000 square feet would give out sufficient electricity to charge the most powerful battery.

Miscellaneous.

The Potato Disease.—The Potato disease has now penetrated to the most northern parts of the kingdom—the islands of Orkney and Zetland not even excepted. The disease did not prevail to any great extent in this district last year (Aberdeen). This season, it first appeared in this vicinity about the beginning of July, and has gone on steadily increasing up to the present date. The early kinds were first attacked, and then the later varieties. The attack begins in the leaves and stems these presenting brown spots, which, on examination with the microscope, are found covered with a mildew or parasitical fungus, the Botrytis infestans of botanists, which, if it be not the proximate cause of the disease, invariably accompanies it. The writer of the report is not aware of a single instance in this vicinity where the Potato crop has escaped the disease; and, from personal observations made last week, can vouch for its occurrence in Strathdon, 45 miles from town, along the course of the Don, and in intermediate districts; it also appeared near Ballater, 43 miles from the mouth of the Dee. The more northern parts of the country have not escaped, the disease being prevalent to a great extent at Peterhead. It is an established fact, that healthy tubers, or those apparently so—that is, not presenting any discoloration may be found, although the stems and leaves have been completely destroyed; at the same time, however, a great proportion of them may be diseased. The writer has been informed by a respectable and extensive market-gardener, that of late most of the Potatoes exposed for sale in our market have been from plants whose stems and leaves were diseased. The writer is not at present aware of any well-authenticated case of disease in this vicinity which can be said to have been caused by their use. Various opinions are held respecting the effects produced on men and domestic animals by the use of diseased Potatoes; some telling us they may be eaten with impunity others that they produce injurious effects the evidence is in favour of the first opinion. Mr. Bonjean consumed in three days 8 lbs. of the diseased Potatoes, and drank in the morning's ounces of the water in which they had been boiled, but no bad effects followed; Mr. Durand took them in large quantities for some time; and, with impunity, the writer of this report has eaten tubers whose stems and leaves were diseased, and also last winter frequently partook of tubers from which the diseased part had been cut away without any injurious effect following. Monsieur Decaisne, in his essay on the Potato disease of 1845, published some time ago, states that experience has hitherto demonstrated that the use of diseased Potatoes as food does not produce any injurious effects, either on man or animals, provided the diseased portions are removed. And in corroboration of this, he informs us that, in the barracks within the city of Paris, the soldiers used them for some time. He also states that the indigent classes in Holland made use of them. The effects, however may be different in cases where the affected tubers constitute the only article of food employed. Instances have been recorded in the medical journals of deleterious effects having followed their use among the poorer classes in Ireland. In a late number of the "Dublin Medical Journal," four cases are recorded, and in the same work Dr. O'Brien is stated to have recorded the symptoms observed in 10 cases, in the "Dublin Hospital Gazette." In different parts of the country they have been given to pigs, and no injurious effect has followed. In Belgium, according to Decaisne, they were given in moderate quantity to horned cattle; and the writer of this has been informed, that at some cattle shows in Ireland, animals were exhibited which had been fattened by their use. —*A. Dickie, M.D., Aberdeen, August* 19. 1846.

Calendar of Operations.

(For the ensuing Week.)

Housing tender Plants.—Every week, at this period, will bring business of this kind, the omission of which will peril the welfare of valuable stock that cannot be readily replaced. Where pits or frames are at liberty, or can be made so, by rooting up the remains of exhausted Cucumbers, Melons, &c., there is no absolute necessity for stationing every plant or tribe precisely where it is to remain through the winter. Protection of this sort, for a short period, will contribute more than houses to the production of sturdy and well-ripened wood, possessing a greater tendency to blossom, and more capable of enduring a severe winter. In such places they must be secured from the depredations of the earth-worms. This is easily accomplished, especially where the frames are raised above the common ground level, by a good soaking of lime-water, followed by a coating of cinder-ashes, three inches in thickness.

Nearly all house plants may be kept thus (except, of course, stove plants and Orchids), until the early part of November, taking care to mat up at night in suspicious weather, and to give abundance of air in the day. The glasses or lights should, by all means, be washed thoroughly. Such a course as here detailed will prevent the hurrying off of late annuals, Achimenes, and a variety of other gay things, in order to make way for the real winter stock. Towards the middle of October the Chrysanthemums will be required to be staged, if not before; and the housing of these is frequently the cause of a rearrangement of a considerable portion of other stock. Those who have a house or pit for everything will not need any advice on this head; the majority, however, are very differently situated, and according to the old saying, "Little things are great to little men."

CONSERVATORIES, STOVE, &c.

Conservatory.—Continue to weed out flowers of a temporary character on the eve of decay, and to supply their places with prime specimens of good things. The introduction, however, of some of the hard wooded tribes, which have been placed out of doors (unless they can be placed in temporary situations for a while,) will fill many of those vacancies. Every attention having been paid to autumnal and winter Roses, as recommended in former Calendars, they will now be found of immense use, both in this and other ornamental structures. For this purpose, I would recommend the following, particularly; viz., Armosa, Comte d'Eu, Mrs. Elliott, Madame Laffay, Dr. Marx, Earl Talbot, Lady Alice Peel, Lady Fordwich, Duchess of Sutherland, Baron Prevost, Pierre de St. Cyr, Phœnix, Gloire de Rosamene, Belle de Florence, Caroline, Aricie, Le Pactole, Josephine Malton, Elise Sauvage, the Persian Yellow, Harrisoni, Crimson Perpetual, &c. &c. These kinds will be found particularly adapted for autumn, winter, and early spring flowering, provided due preparations have been made. They should be at this period thoroughly established in their pots; and all attempts at blossoming having been duly checked for months past, they will now be compact plants, full of vigour, and full of the blossoming principle, hitherto confined. They should henceforth receive clear liquid manure—very weak, and be placed in-doors betimes, where they may receive abundance of air and light. *Stove and Orchids.*—Proceed as detailed in former Calendars, dispensing with shading altogether if possible. Hardening grow hs is henceforth the main business. *Mixed Greenhouse.*—Much of the business pertaining to the Conservatory, as well as the introductory remarks, will be found to apply here. In housing the out of door plants be sure to place the Geraniums, and forward Cinerarias, where they will enjoy both light and air: and near the glass, if possible. Hard wooded plants must be content to stand farther back, unless it be young stock of Erica, Epacris, and such choice things; these well deserve a good situation. The Chinese Primroses will do in partial shade, and in the dampest part of the house; these things should be well attended to, as it will help to economise room, which is a most important affair with those who possess only one house.

FLOWER-GARDEN AND SHRUBBERIES.

Where annuals have sown themselves on borders, I would advise that a great portion of them be carefully retained; they will bloom early and strong in spring, especially the Californian kinds, and may moreover be transplanted in February to desirable situations. Let every attention be given before the season closes to stock of all kinds for display in the next year. Calceolarias should be obtained, if not already done, by examination of the old plants; they should be put in store pots, and receive a cutting treatment, somewhat coaxing, for a fortnight or so, at this late period. Lawns should now be well followed up, in regard to mowing, rolling, &c.; and Dahlias, Helianthuses, tall Phloxes, Asters, Delphiniums, &c. should once more be examined as to secure staking, before "old October" commences.

FLORISTS' FLOWERS.

Tulips.—In preparing the compost for the bed, we would advise a sprinkling of unslaked lime to be applied; this is especially necessary this season, and in fact is requisite for the offset bed and breeders. Amid the devastation caused by frost and mildew last blooming season, we may mention some few sorts that particularly attracted our attention. Arlette, a splendid feathered rose, raised by Mr. Dixon, of Manchester; Pauline, a flamed rose, broken from the breeder by Mr. Wood, of Nottingham; Grace Darling, a flamed byblomen, one of the Chellaston seedlings; Countess of Harrington, a flamed byblomen, sold at Mr. Thackeray's sale near Nottingham; Table Monarch, a splendid feathered byblomen, exhibited at Leeds; and Shakspeare, shown in good style, beating most other flamed bizarres at Leicester. We predict a great revolution in the collections of this favourite flower throughout the country in a few years, from the immense quantity of seedlings which are coming into bloom and breaking new colour, greater pains evidently having been taken in the selection of seed, and care being taken to gather only from those having good and pure cups. *Carnations and Picotees.* Get off all layers; those which have but little root should be potted and glassed in the way of pipings; this is better than allowing them to remain on the parent plant. *Auriculas* may be put in their winter quarters, only covering in heavy rain. *Dahlias.*—When the soil is dry, draw it up round the stems to protect them from any unlooked for frost.

KITCHEN GARDEN AND ORCHARD.

Give every attention to the autumn Broccolies, also to autumn and winter Lettuce, as to watering with liquid manure to make them crisp, and tying in regular succession. Let the blanching of Endive and Celery also proceed frequently. Cut away all superfluous shoots on Tomatoes, and if the plants are gross chop away a portion of their roots. Brown and Bath Cos Lettuce, as well as Hammersmith Cabbage, for early spring work, should now be pricked out; more especially if getting what is technically termed "proud." *Orcharding.*—I would advise people to gather some of their autumn Pears, which are apt to become mealy in the fruit room, a little before they are what is considered ripe, as we have had so much sunshine this summer. As instances, I would adduce Easter Bourré, Althorpe Crassane, Fondante d'Automme, Delices d'Hardenpont, &c. The same course may also be pursued with regard to Apples. Everything this autumn is two or three weeks earlier than the average.

COTTAGERS' GARDENS.

So contradictory are the reports, and so fanciful the opinions, about the causes of the Potato murrain, as well as the means whereby to remedy it in the ensuing year, that little conclusive is yet to be met with. Autumn planting carries, as it always did, considerable weight, and in my opinion justly so; Nature has been trying to teach us this for many years; we, however, too often prefer far-fetched notions to solid facts close to our elbow. I would advise the cottager to keep his earliest Potatoes as cool as possible for a fortnight or three weeks longer, and then to plant his whole stock in raised beds, covering them 7 inches deep with well wrought soil.

State of the Weather near London, for the week ending Sept. 24, 1846, as observed at the Horticultural Garden, Chiswick.

Sept.	Mean Min.	Barometer. Max.	Min.	Max.	Thermometer. Min	Mean	Wind	Rain
Wed.	16	17	29 ·68	29 ·57	70	49	54 ·7	N.E.	
Thu.	17	90	29 ·740	29 ·614	74	40	56.5	S.	
Fri.	18	●	29 ·698	29 ·458	70	52	61.0	N.E.	
Sat.	19	0	29 ·637	29 ·580	71	55	63.0	E.	
Sun.	20	1	29 ·657	29 ·584	70	56	63.0	E.	·08
Mon.	21	2	29 ·444	29 ·340	70	52	61.5	S.	1·21
Tues.	22	8	29 ·51	29 ·193	67	52	59.5	W.	·01
Average			29 ·663	29 ·580	70.4	51.4	59.6		1.30

Sept 16—Fine, cloudy; clear and fine
17—Foggy; very fine, clear
18—Clear and dry air; fine throughout
19—Slight showery, cloudy; overcast at night
20—Slight hazy, cloudy; overcast at night
21—Rain; showery; very heavy full of rain during the night
22—Delightful; cloudy, partially overcast; rain
23—Rainy; showery; very heavy full of rain during the night
24—Delightful; overcast; cloudy, fine.

Mean temperature of the week 3 deg. above the average

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Oct. 3, 1846.

Sept.	Aver. Highest Temp	Aver. Lowest Temp	Mean Temp	No. of years in which it Rained.	Greatest quantity of Rain	Fine.	Cloudy.	Rain.	Wind.
Sun. 27	64.2	45.4	54.8	11	0.47 in.	1	1	5	S.
Mon. 28	65.0	44.8	54.9	9	0.52	2	1	7	S.W.
Tues. 29	64.6	45.4	55.0	12	0.25	2	2	5	S.
Wed. 30	64.4	44.1	54.2	10	0.39	2	3	5	S.
Oct.									
Thurs. 1	64.0	43.5	53.2	10	0.23	2	2	6	S.
Fri. 2	64.0	43.0	53.9	10	0.30	1	4	5	S.
Sat. 3	63.5	45.1	54.2	10	0.17	1	3	7	S.

The highest temperature during the above period occurred on the 29th, 1832—therm. 79°; and the lowest on the 27th, 1826—therm. 24°.

Notices to Correspondents.

Apples—*Z Z*—The Pear-shaped Apple, which you state is always produced of that form, is very curious, but its quality is only second-rate.——*A Z*—For a south wall, the old Nonpareil.‖

Bees—*Whitbarrow*—If the combs in your top hive had reached the one below, most likely the bees would have entered it, but force must be applied before they would desert their established home. Remove the empty hive; preserve your decayed one, and secure fresh swarms from it next season. When you think the last one has left it, the remaining bees may be dislodged, by inverting their hive and placing the one containing the swarm upon it. See that the mouths of the hives fit close together; then drum or tap upon the under one to make the bees ascend and mix with those above. The operation is best done in the evening of the same day the bees left the stock, and having the season before them they will soon make up the loss of brood left behind. It is a common practice in some parts of the country to remove hives to heath districts in autumn, and if the depriving system was adopted, the bees might be spared to advantage. *W*.

Belladonna—*D S F*—If you have any *proof* that the berries belonged to Solanum nigrum, be so good as state what the proof is. *Conjecture* cannot be allowed in so serious a matter.

Books—*B Z*—Read the "Theory of Horticulture."——*Jacobus*—There is no later information except in the edition of Donn's Catalogue, published last year.——*J Mc R*—No such plates are to be had that we know of. All *common* terms are explained either in Dr. Lindley's "Introduction to Botany," 1839; or the same author's "Elements." He has a complete Glossary in preparation.——*Subscriber*—Perhaps Johnson's "Gardener's Dictionary" and Neill's "Fruit, Flower, and Kitchen Garden" will suit you. The latest books will always contain the latest improvements or should do so.

Cucumbers—*Oxford*—Cuthill's Black Spine; plant about the beginning of March.‡

Disease in Vines—*C Hodson*—Your wood is so spongy that we presume it has become diseased in consequence of overgrowth. In all probability your border contains too much applied manure, guano, for example.

Figs—*A Lover of Figs*—We have now searched through some Italian books on Pomology, and we believe that the "delicious little round bright green Figs, with insides the colour of the deepest Mulberry, which abound in Florence," are the Fico Brianzolo, or Fico Passin, which is spoken of as the finest variety in the Milanese. You have no chance of obtaining it in England. Apply to Messrs. Baumann, of Bollwyller, in the Department of the Rhine.

Glazing—*Grir*—We cannot advise you to trust to a Joyce. Why not try a Rivers (see p. 51).——*Zolla*—You will have no difficulty with heating your pit; but we fear you will be ruined by damp. You should add a small pipe for drying the air while it warms it, as shown in the pit figured at p. 116, 1845.—The Sion House Cucumber.——*Jacobus*—You cannot usefully heat one house from the apparatus in another at the distance of 25 yards. Apply Polmaise to the new house.

Hollyhock—*H H H*—The flowers of the Hollyhock for competition, should be double from the edge, the crown well up, and forming altogether rather more than half a ball. The fringed varieties should form a separate class; the centre petals of which should form half a ball, and the fringe be narrow.*

Insects—*E H M*—The fly is named Syrphus ribesii, whose history will shortly be published. *M*.——*Murphy's* insects are the Euptoryx picta, a species which inhabits Nettles, Potatoes, &c., and that is all that is known of its economy. *R*.——*C S B*—The Celery-fly, Tephritis Onopordinis, is figured in the first vol. of this Journal, and its history is given. There is no better remedy than cutting off the blistered leaves and burning them. *R*.——*C M*—The holes in your Elm-trees are bored by the beetles, which are named Scolytus destructor: *vide* Curtis's Brit. Ent., fol. and pl. 43. *R*.

Lawns—*H S R* has been advised not to apply soot to his worn-out lawns, on the ground that for the whole of the ensuing year the ground remains black. Who could have so advised our correspondent? The idea is absurd, unless the lawn is *buried* in soot, instead of being *dressed* with it.

Morphology—*P M*—Your leaf has grown to the footstalk of another by its backbone.

Names of Plants—*Henry*—Clerodendron fragrans. What a mite!——*W Perrins*—Torenia concolor; a very nice new greenhouse plant.——*M*—Agnostus sinuata was one of Allan Cunningham's manuscript names.——*W*—The Lantana is pretty; but not worth keeping——*T H*—Prunenes graminea.——*John Aitchison*—Stanhopea insignis.——*C M, Reading*—This is not an Epidendrum, but a very curious plant, quite new, and unknown to us. Pray say whence it came, and send up a sketch of its habit. We will then inform you further.——*W G*—Digitaria sanguinalis.——*A G D*—A Polygonum; but who can name it without any leaves? Specimens for examination *must* be perfect.——*Quæsitor*—Cirrhopetalum vaginatum and Rodriguezia recurva.——*R H*—Tecoma capensis.——*Greta Bridge*—We never name florists' flowers.‡——*Southwell*—Lopezia coronata.——*Fred*—1, Oxalis Bowei; 2, Physalis Alkekengi, the Winter Cherry.——*B H*—Physalis Alkekengi.——*T S P*—Quercus Cerris.——*S M*—Centrum nocturnum.

Pears—*A L*—Two for a south wall, Glout Morceau and Beurré Rance.‖

Pelargoniums—*Omega*—Scarlet Pelargoniums may be preserved over winter in a box, if packed with alternate layers of *dry* soil, sand, or peat, and placed in a situation free from frost or damp; the plants must be cut back freely, and divested of all their leaves before they are packed, and they should not remain longer than the beginning of March in the box before they are again potted. By no means water them; more plants are lost in winter by damp than by frost.‡

Planting Fruit-trees—*J Williams*—In planting fruit-trees against a wall, it is necessary that a border should be prepared, say 15 feet wide, and outside of this it is advisable to have a gravel walk. A footpath is also required along the bottom of the wall, such as a person can walk along, to give the necessary attention to the trees. It should be 15 inches from the bottom of the wall, and need not exceed 18 inches in width, quite of a temporary character, for it should be frequently forked over and re-formed, not necessarily in winter, but during the growing season. Were it nearer the wall the trees would be interfered with by the operation of watering, &c.; and if farther, a person could not easily reach the trees in pruning and nailing. Besides, it is of great importance that a space of 15 inches should be left between the temporary footpath and the wall, in order that its surface may be frequently disturbed to the greatest possible annoyance of insects which infest the trees. Sometimes, indeed, it is necessary to remove the soil adjoining the wall, brushing the latter clean to the depth of 6 inches, if the roots admit; and this could not be so readily done if a footpath were formed close to the trees.‖

Polmaise—We trust that the large number of correspondents who have favoured us with inquiries on this subject will accept as an answer the statement made in a Leading Article of to-day. It is the only answer that it is *possible* to give.——*W I*—We really think that you are combatting a shadow. We have read over with all possible care the paper at p. 596, and your remarks upon it, and we do not see the force of your criticism. On the contrary, it is clear to us that Mr. Meek refers to one thing, a close chamber, a church (with the doors and windows shut); you to another—a house with the chimneys open. Mr. M. never said, that we can discover, that a dwelling-house could not be heated by hot air. What was the other question? We don't remember it.——*T S I*—Next week, if possible.——*The emostphon* must excuse us. He opposes opinions to facts; we prefer facts to opinions. We do not regard his examples as being such.——*Wigley*—If we understand your case, the two might be combined, but some consideration as to the manner is required. Consult Plumridge——*F S*—We must refer you to Mr. Legg. No doubt Polmaise is quite applicable; a blacksmith and bricklayer are all you want.——*G W S*—Under consideration——*A Regular Subscriber*—At Holmesdale House. The Numbers will be most useful.

Polyanthus—*M C K*—It is too late.

Potatoes—*Agricola*—Thanks. The process, and others, by which seedling Potatoes may be raised, was fully given in our columns some months since.

The Lime Fruit—*R* has some Lime trees from the West Indies, which do not fruit. Can any one name any garden where Lime-trees succeed in flowering and fruiting? Of course they require a hotter climate than Lemons.

Thunbergia Chrysops—*Perseverance*—You will find the secret about Thunbergia Chrysops explained in another place. No doubt you over-grow your plants; not, however, the double yellow Rose, which will defy the insects if you can hit upon a place that suits it. Windy, stony, exposed well-drained places, with plenty of weak liquid manure while growing, seem to be the most suitable.

Tomatoes—*Este*—The Egg-plant, another of the Nightshade order, has also been attacked by the Potato disease; but we have not yet heard of other species.

Vine for the Open Wall—*A Z*—The Royal Muscadine is as good as any; but it cannot be depended on for ripening on a west aspect, except perhaps in a hot summer like the present.‖

Yucca gloriosa—*T Crane*—Thanks; but such things are of yearly occurrence.

Misc.—*Rupertis*—We have received no letter.‡——*H M*—In potting Hyacinths, keep one half the bulb above the surface of the mould.‡

*SEEDLING FLOWERS.

Calceolarias—*I N*—Your specimens are varied and pretty in the marking, but they are small and deficient in variety of colour.*——*W H M*—No. 7, lemon ground, with brown spots, is a very pretty variety; 25, makes a good variety, but is more common in colour; 26, good in colour, but the ground colour is stained.*

Fuchsias—*Z Z*—Your seedling is showy and pretty in colour, but not superior to some already out.*——*Anon*—No. 51 appears to be a prolific bloomer, it is peculiar in appearance from the sepals being all green, its great merit is the oddity of its appearance.*——*M W*—No. 1 appears to be rather coarse in the sepals, and though a large and showy flower, not superior to many of the older sorts; 2 is your best, large, delicate, and pretty in colour; 3 does not appear to expand the sepals sufficiently; 4 is inferior to the other sorts.*——*D W*—Your specimens are large, bold, well-formed, and showy varieties, with light tube and sepals, and deep red corollas: they are all fine flowers, but the preference we give in the following order—8, 2, 5, 4, 1.*——*J S*—a pretty variety, with rather too much colour in the tube.*

Verbenas—*W A O*—Your specimen does not surpass other Verbenas of the same class already generally cultivated.*——*Anon*—There is nothing new or striking in your seedling No. 4.*

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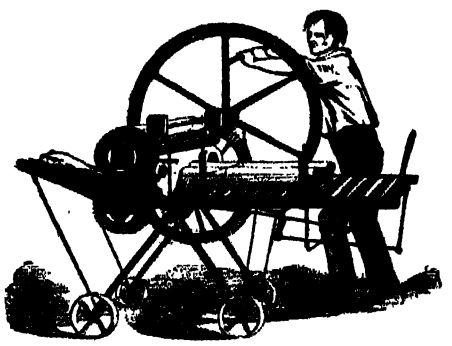
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All letters and applications for further information to be made to the undersigned,

JOHN PATON, *Secretary*,
At the Office, 193A, Piccadilly

The Agricultural Gazette.

SATURDAY, SEPTEMBER 26, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

THURSDAY, Oct. 1—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, " 7—Flax Society, Belfast.

LOCAL SOCIETIES.

Leyland Hundred—Royal K. Berks—Co. Cork—Lancaster—W. Norfolk—Redford—Kirkaldy—Forfarlingston—Shropham and Guilteross.

FARMERS' CLUBS.

Sept. 28—Cirencester — Wenlock — Moreton Hampstead
" 30—Newton — Braintree and Bocking
Oct. 1—Hawick—Blofield and Walsham—Grove Ferry
" 3—Wrentham—Claydon—Tavistock — St. Germains — Chelmsford — Ridleigh — Wakefield—Lichfield
" 5—Dundee — Peebles — Collumpton—Ca dff—Durham—Swansea—Northampton
Oct. 5—St. Columb—W. Hereford—Newark—Great Oakley—W. Market—Yoxford—St. Austell—Market-hill
" 6—St. Quivox—Lewes—Abergavenny—Wivelscomb—St. Peters
" 7—Barleston — Jedburgh — Warwod
" 9—Clympton St. Mary—Hylesworth—Wadebridge
" 10—Darlington

IT has been suggested, and with justice too, that we have ventured too much on the part of agricultural chemistry in staking its trustworthiness upon the average result (in *profit*) of experiments on BARLEY *versus* MALT as food for cattle. All, we imagine, that the scientific man can with safety assert is, that Barley after malting is not so nutritive as it was before; that animals fed upon it will not, other things being equal, *increase in weight* so rapidly. As to *quality* of meat, involving the important consideration of price per lb., that is a point on which we imagine there is yet no very satisfactory theory. No doubt quality of food has much influence, as is exhibited for instance in the cases of Barley and oats-fed mutton; yet there is no such difference between Barley and malt as there is between Barley and oil-cake; and to suppose malt or Barley capable of producing a difference of quality capable of estimation by the butcher is, in our opinion, a mistake. Difference of quality, where there is any, between malt and Barley-fed beasts, is more likely to have been hereditary—present from the beginning. And of course for such accidents or incidents of the experiment as that, the theory of the subject cannot be made responsible.

IN another column we have published some correspondence on the subject of THE PROPER SIZE FOR FARMS. The question is certainly of much importance. It may be enunciated thus—What is the size likely to be of most benefit to producer as well as consumer—to landowner and labourer? The true answer must obviously be conditional—it cannot be absolute—it must in every case depend on the circumstances of fertility, population, capital, amount of labour seeking employment, &c.; and thus it is not easily arrived at. It appears to us that neither of our correspondents have got hold of any general principle applicable to the question, and without this for its decision, we all know that a discussion may be carried on interminably. Instances on the one side and on the other may confuse—they cannot satisfy the judgment.

The correct view of this subject has, we believe, been given by Mr. BLACKER, in the preface to the sixth edition of his essay "On the Improvement of small Farms,"*—a work, whose lessons illustrated as they are on the estates of Lord GOSFORD, in the county of Armagh, have been and will be of the greatest value to Ireland. The principle which Mr. BLACKER asserts is in point of fact this—that the size of farms should be that over which the capital of the tenants may under the circumstances of each case be applied in the most profitable degree of thickness. Every one knows that *extensive* or *intensive* farming prevails according to the relation existing in any locality between the value of land and that of labour. Where the rent of land is very high it will be the interest of the farmer to occupy but little and farm highly—it will be his interest to adopt the "intensive" principle; while when labour is costly and land cheap, as in America for instance, it will be his interest to cultivate a larger extent, of course with less care, and he will adopt the "extensive" principle. Now, when a farmer having farmed for a length of time on the principle—intensive or extensive—most suitable to the nature of his locality, has amassed money, and looks about for an investment, he will find it more profitable to increase the extent of his farm, than in such circumstances to adopt a more expensive mode of cultivation. And thus that size of farm which has grown up from the gradual (not forced), amalgamation of small ones—grown up and carried with it the garden cultivation of the system out of which it has originated—is the best possible. And it must be remembered that it is the tendency of good cultivation thus to increase the extent of its occupation.

"Capital," says Mr. BLACKER, "will always find means for its profitable occupation, as far as it is possible to accomplish it. Now, the small farmer, being a man of limited education, has generally no other means of employing any savings he may accumulate, except by laying it out on the increase of his farm; and in conformity with this, it is notorious that, as his circumstances improve, every opportunity to enlarge his farm is attentively watched and laid hold of with avidity. If a landlord therefore wishes to have large farms let him endeavour to better the circumstances of his tenants, and, as their capital increases, the enlargement will proceed therewith *pari passu* without his adopting any violent measures to effect the change." Again, "that the practical effect of improving the agriculture of small farms is to increase their size instead of diminishing them, is further proved by the fact of so many of the small tenants on the Gosford estate, who have distinguished themselves as Premium men, having enlarged their holdings, and in some instances doubled and trebled them, by no other means than what their superior cultivation of their land procured for them. The charge brought against improved cultivation, of having a tendency to produce subdivision of farms, seems to me therefore most decidedly *disproved* both by argument and facts,—and the tendency is shown to be most decidedly in the opposite direction."

It will be observed, then, in reference to this subject, that the existing state of things, whatever it be, is the best possible only in those cases in which it is carried on under a wealthy tenantry, which either originally or immediately has gradually risen, or is gradually rising from, so to speak, a *lower* class—one adopting what we may term garden cultivation. What the practical effect of such a conclusion is in reference to nine-tenths of the land in this country, we must leave it to others to judge. Mr. BLACKER adds some excellent remarks on the relation of this subject to the present state of cultivation in England.

We subjoin some of them. He says:—"I cannot help expressing my opinion, that no country can be considered in a healthy state, where the population is inadequate to gather in the harvest, and labourers must be brought hundreds of miles to afford the necessary assistance; and also, that no country can be considered in a healthy state, when the agricultural population is so decidedly divided into rich and poor, and such a gulph interposed between the large farmer and the labourer, that all hope of rising in his own line of life is cut off from the latter. This state of things seems to have apparently originated in the practice, so much cried up, of English landlords providing the housing and farm buildings of their tenants, and moreover keeping them in repair, thus making it the *prima facie* interest of the landlord to have as few of such establishments to keep up as possible, and of course to have only large farms; but let the farms be large or small, as a mere matter of money, can this be said to be a wise practice? The landlord, in all that he does, must act through others, and the farmer acting for himself could always accomplish the same work on cheaper terms; therefore the *outlay* hereby entailed on the landlord must always be greater than the *saving* to the tenant, and is therefore an actual waste of money. If the landlord is paid for this outlay, the tenant suffers; and if he is not, he suffers himself. Nor should it be overlooked that this practice gives a decided monopoly of the land to the large farmer, to the exclusion of his more humble competitor, who would be willing and able to occupy it in smaller divisions, and pay more for it. But questions of profit and loss sink greatly in importance when the moral effects of the practice come to be considered. The large farmer, from his superior wealth and better education, belongs more to the class of the country gentleman than to that of the mere farmer; and the humble labourer, who in olden times, if unmarried, was accustomed to be an inmate of the dwelling and a partner at the board of the latter, *is* now turned out of doors as unfitted for the society (which is no doubt the case) of the family of his employer, and therefore turned adrift to fall a prey to all the evils of the bothie and the gang system; whilst *those who are married and have families* are rarely enabled to look beyond their daily subsistence, or entertain even the *idea of future provision for age or infirmity*."

*An Essay on the Improvement to be made in the Cultivation of Small Farms, &c. &c. By WM. BLACKER, Esq. R. Groombridge, London.

NOTE ON THE BURNING OF A LIMESTONE SOIL.

[WE have received the following interesting article from Professor Way, of Cirencester College. It refers to a curious incident in the process of stifle-burning observed in a field of calcareous soil on the college farm.]

Mr. Arkell (our farm superintendent) yesterday called my attention to a white substance which collects on the surface of the heaps in the process of stifle-burning. This substance exhibits itself as a thin crust on the stones and solid pieces of soil which lie on the heap. Upon examining it I found it to consist entirely of acetate of lime. The origin of this salt in the heaps is by no means obscure. Becquerel and Mateucci first pointed out that acetic acid (the acid of vinegar) was produced in the germination of Barley, and given out by the young plant to the soil. More lately Braconnot proved that this acid is excreted in very considerable quantity from the roots of the Poppy, and it is reasonable to assume that other plants may possess a similar power of throwing it off from their roots. Acetic acid is also largely produced in the fermentation which goes on in decaying vegetable matter. It is principally, if not entirely to this acid that the sour character of peaty land is due. The acid itself is certainly very injurious to vegetation, but it seems yet doubtful whether its salts, the acetates, are so to any considerable extent. Braconnot believed the acetates to be peculiarly injurious to plants. Whilst, on the other hand, Saussure found that they were not at all taken up by the roots, and therefore could not affect the health of the plants. The process of liming peat lands converts all the acetic acid into acetate of lime, and as liming renders such lands capable of bearing good crops, it would appear that this salt is not highly injurious to vegetable life. In a limestone soil like ours there is no kind of danger of any free acid; but it comes to be a question whether acetate of lime may not be injurious to growing crops. If it be not positively injurious I think it cannot be otherwise than beneficial. Its solubility in water renders it a ready source both of organic and inorganic food to plants. At all events the process of burning destroys every trace of this salt in the soil; for it is a character of the acetates, in common with all other salts

of organic acids, to be converted by heat into carbonates. When the burning is complete all the acetate has become carbonate of lime. Whether the result is to be placed as an additional advantage to the account of burning, or (in the case of the acetates and other organic salts being really valuable to vegetation) to constitute a drawback on the usefulness of the system, I cannot decide.

I should mention that it is just possible that the acetic acid of the salt might wholly or in part be formed by a species of distillation from the weeds and wood consumed in the slow process of burning. The fact, however, has not, as far as I am aware, been noticed before, and whatever may be the true explanation of its production it appears that the salt shows itself very constantly when earth is burned. Mr. Arkell tells me he has observed it frequently. Its presence at the top of the heap is to be accounted for by its being driven up with the water, or (which is still more likely) carried up in small quantities by the steam which issues from the crevices. Many similar cases of solid bodies being vapourised in this way are known to chemists. It is afterwards deposited on the colder parts of the soil, but under no circumstances does it escape destruction as the process proceeds.—*J. Thomas Way, Cirencester, Sept.* 17.

BUCKWHEAT A SUBSTITUTE FOR POTATOES.

Having lately read with pleasure and interest a poetical eulogy, by an American, on Buckwheat pancakes, in the supplement to the *North British Advertiser*, it may not be judged superfluous to add a few remarks on that most excellent grain, considered generally as a superior article of farinaceous food for man, and under the present defective state of the Potato crop affording, where it can be got, one of the best substitutes for it, and, generally speaking, a more nutritious and safer article of food than the Potato.

Buckwheat, Blé Sarrasin, ou Blé noir des François, is an eastern plant; it grows readily in light sandy soils, and when the grain is deprived of its exterior coverings, and fully ripened by a sufficient exposure to the sun's rays, it appears under the form of a dry triangular seed, covered with a thin brownish red cuticle, not very deep coloured; such is the appearance of the best or thoroughly ripened Buckwheat as it appears when brought to market by the Russian peasantry; when, however, it has already undergone by passing through the mill a process by which each seed is divided into two or three parts, and is thereby better fitted for the purpose intended, to be afterwards described. When the season has been less favourable to the full maturity of the seed, the cuticle is of a pale green colour; as it is met with in the seedsmen's shops of this town the cuticle has a light brown, and the covering immediately exterior to it a dark brown chestnut colour. Buckwheat is grown, I believe, in different parts of England, particularly in Yorkshire, where it is chiefly used, I am told, for feeding poultry, which thrive well and fatten upon it. In Scotland it is very little known, and seldom used, excepting for the purpose of feeding and encouraging the breeding of pheasants; our millers and bakers are hardly acquainted with it, but the said birds guided by unerring instinct are said to be very fond of it. In the state above described, as brought to market by the Russian peasantry, it is fitted for culinary use, and the ordinary mode of preparing it is the following:—A common earthen pot or pipkin, generally unglazed, of a size corresponding to the number of persons intended to partake of its contents, is filled about two-thirds full with the grain, and the remaining third nearly filled with fresh water, the pot or pipkin is then placed in an oven,* sufficiently heated to make the water in the pot boil slowly, and to keep it boiling till the whole of the water has disappeared, and the grain begins to dry, when the heat of the oven may be diminished; the contained grain thus becomes gradually soddened; it swells, and commonly projects over the top of the pot, when it forms a thick dark brown hat or crust; when this appears to be dry and begins to crack, it is ready for use, and, being covered with a plate or saucer, should be sent to table in the pot as it has been prepared. When used, the crust should be first removed, and, when it can be got, a piece of butter and a small quantity of salt added to the grain, and the brown hat broken up and mixed with the pottage below. Thus prepared, it forms a most agreeable, substantial, and nutritious article of food, and, where it can be got, a most excellent substitute for Potatoes, far superior to Oatmeal. It is a favourite and daily article of food with the peasantry and working classes of Russia, who would not exchange it with any other article of food, and this, joined to prejudice, is probably the reason why the use of the Potato has hitherto made comparatively so little progress among the peasantry of that country; with their Rye bread, Cabbage-soup, and Buckwheat pottage, they feel no want of the Potato.

The Buckwheat pottage eats well with milk, or simply as above prepared, where the circumstances of the person prevent his procuring the accessories of milk or butter.

Buckwheat ground into flour and made into pancakes, as recommended by the American, is much used in Russia by all classes, especially in the Carnival, or butter week preceding the fast of seven weeks of the Greek Church before Easter; and I do not doubt of its being well adapted to the making of loaf bread, though I have hardly seen it used in this form.

* In default of an oven, heat, gradually and equably applied in any other way, will do.

But it is not alone as an excellent article of food that the writer of this would wish to direct more attention to Buckwheat in this country than it has hitherto received. With an annually increasing population, and the efforts of the country strongly directed to the means of affording cheap grain and bread to the population, it surely is the duty of both landowners and tenants, merchants, &c., to embrace every opportunity of affording an abundant supply of farinaceous food, and in some variety, to the public, and taught by present experience not to rely so entirely as they have hitherto done on the Potato as an article of food. Too much praise cannot be bestowed on those who are endeavouring to supply in some degree the deficiency of the Potato crop, by the introduction of Maize, and other farinaceous grains, among which a more frequent and extended use both of Rye and Millet, should not be lost sight of; but there is none of them superior or equal to Buckwheat, as an article of pleasant, substantial, and nutritious food, and therefore better adapted as such for the use of the labouring classes. I have been informed that it succeeds well both in the west Highlands of Scotland, and in Ross shire; and I have lately learnt from two different respectable persons that some fields have been growing this summer between Musselburgh and Portobello, near Edinburgh, and in Kyntire, and I do not doubt that there are many localities both in Scotland, England, and Ireland, where the culture of this most excellent article of food would prove a real and positive blessing to the population. I was happy to learn from the spectator that lately there had been a considerable importation of Buckwheat into Liverpool, I presume from America. It may also be got, I suppose, in some quantity from the ports of the Baltic and Black Sea, as well as from America.—*James Keir, M.D., Ex-Professor and Honorary Member of the Imperial Academy of Medicine and Surgery at Moscow.*

THE AGRICULTURAL AND MANUFACTURING INTERESTS MUTUALLY BENEFITED.

As I anticipate a much more extensive cultivation of Flax than has hitherto obtained in this country, from the effect of the Potato crop being again deficient, and from farmers now beginning to perceive the necessity of change in their old systems of cultivation, I shall once more trespass on the columns of your Journal for the benefit of those who may still not be aware of the profits and advantages of Flax culture, and are yet averse to growing it, from the unfounded prejudice *that it is more exhausting than any of the grain crops*; a fallacy that has been triumphantly refuted and exposed by Professor Sir Robert Kane, as well as by numerous practical farmers and extensive landowners in the north of Ireland.

There are now but few landowners in the province of Ulster whose estates are not adorned and made more valuable by the increased erections of Flax spinning mills, bleach works, linen factories, and Flax breaking and scutching mills, and not only does all this improvement of the country result FROM THE INCREASED CULTIVATION OF FLAX, but tenant farmers and labourers prosper by means of it. It cannot be otherwise when you consider that the manufacture of this article in that district of country detains in the hands of its landowners and farmers its Flax spinners and manufacturers, about two millions sterling annually, which must have been paid to the Continental Flax growers had the north of Ireland cultivators continued in their old prejudice, and opposed the efforts of the merchant and manufacturing class to introduce the Belgian system of Flax culture.

It is unquestionable that whilst the English and Scotch landowners and Flax spinners consider our being obliged to transmit near eight millions sterling annually for FLAX, OILCAKE, and FLAXSEED, as matter of no moment, and as not affecting THEIR interests, the landowners and Flax spinners in Ireland have formed *entirely different opinions* on the subject, as their efforts to introduce Flax culture in the south and western provinces prove; and it is evident that in Ulster the statesman, the merchant, the manufacturer, and agriculturist, all look upon the production of this crop in a national, commercial, and industrial point of view as *of the highest importance*. It has been a means to bring the noblemen and the rich and extensive merchants and mill-owners to unite (regardless of all political differences) because it has been *their mutual interest* to remove the prejudices and improve the *practice and condition of the farmers*. Is it not then singularly strange, with these facts before their eyes, that the landowners and Flax-spinners in the manufacturing districts of Great Britain, say Leeds, Knaresborough, and Preston, Dundee, Kirkcaldy, and Aberdeen, continue without any exertion to avert the evils arising from sending away their gold *in millions* for Flax, to enrich a people who (if we are to judge from their increased importation of our newest and best machinery) will soon not only spin and manufacture for themselves, and dispense with British goods and yarns, but also oppose us in every market we now supply with our yarns and linens. Thus, in 1830, the great portion of *all the yarns* spun in Leeds, Manchester, and Preston, went to Ireland, at *double the price they sell for now*; but as Ireland increased in growing and spinning her own Flax, in the same ratio prices fell, and now the Irish people find they can dispense with the supplies of yarns, formerly had from Leeds, Manchester, and Preston spinners, and those gentlemen are now all but excluded from that market; and although the Continental people are following the same course as the Irish did, as they are the growers of the Flax and intend to be the spinners also, you may be sure that the far-seeing Scotch are quite at ease on the subject; however, as it may happen, that the British Flax-spinners will not find that, a "Free trade in Corn," will open up many new channels for yarns, sufficient to make up for what THEY MUST EVENTUALLY LOSE, BY A FREE EXPORTATION OF MACHINERY, I am inclined to think they will not continue to look on with indifference at what should be an object of serious consideration, as the many green valleys in Yorkshire and Lancashire that have been allowed to remain for some scores of years unploughed and comparatively unprofitable, would if they grew Flax yield a profit of 10*l.* to 15*l.* per acre, and a great chance of doubling that sum by superior management.

I have been often told on the Continent that England is *more indebted* to her machinery than to the enterprise of her merchants, or her mechanical and manufacturing skill, for her great wealth and influence as a nation; but I could admit that to be only partially true; as, in my opinion, the great secret has been found, in her WELL-WORKED *mines* of iron, copper, and coal, from which the material of her machinery is produced. For, in no instance, have we had to send to the Continent for those materials to make our machinery from; and thus, the money expended on bringing out our *numerous inventions*, never left the country, and, as a consequence, we are enriched thereby, as it only changes hands from the merchant, or importer of Continental and American produce, say, first to the machine-makers; then from that class it is paid away to the iron-master, the coal-mine owners, and copper-mine owners; and from each of them it next turns to their work-people, and from those people it is handed to the shopkeepers and farmers, in payment of food and raiment; and back it comes again from these classes to the merchants and landowners. Therefore, unless FOR FLAX, and articles *that we cannot grow*—such as tea, sugar, drugs and spices, silk, cotton and wool—our riches and greatness have been acquired from OUR WELL-WORKED MINES, and the produce of OUR LABOURABLE SOILS, as well as from the *skill of our mechanics*, and *enterprise of our merchants*; and thus I argue in favour of producing from the soil what we require for our *linen* manufactures. We have a large drain on us for silk and cotton wool, which our soil and climate will not produce; but this cannot be obviated. It should, however, induce us to stop all the other drains that we possibly can—it should, for instance, make us labour to stop that ruinous annual payment of near 8 millions which I have so often alluded to. We can grow the article (*Flax*) ourselves, which our spinners thus pay for, and, I am prepared to prove, in quality equal to, and at an expense less than that at which our spinners are now supplied. I calculate we can furnish them with Flax on an average of 50*l.* per ton, equal in quality to the Continental Flax, for which we pay on an average 67*l.* per ton; and farmers, at that price, will average at least from 10*l.* to 12*l.* per acre clear profit.

As it is probable some readers of your Journal may doubt the certainty of a clear average of 12*l.* per acre being made by Flax culture, I wish to add a short paragraph from one of my letters that appeared in your Paper in April last, in order to prove the fact. I shall not occupy your space by giving the items of the Dr. and Cr. sides of that statement, as such can be found in your Journal; but for the present I shall call their attention to the following, as I have given an average of *your last six years of Flax imports*, and shown the results of some production.

The Total Importations of Flax in 1840 were			62,662	Tons.
,,	,,	,, 1841	67,368	,,
,,	,,	,, 1842	55,113	,,
,,	,,	,, 1843	71,857	,,
,,	,,	,, 1844	79,174	,,
,,	,,	,, 1845	70,921	,,
		Total	407,095	tons.

Thus, the Flax Imports for the last six years give an annual average of 67,849 Tons, which, at the valuation quoted for 1840, will be about 67*l.* per ton, or	£4,545,883 0 0
Add average Annual Imports of Flax Seed for sowing and feeding, 616,000 qrs., valued at 4*l.* per quarter (being 20*s.* per quarter under the price, for some years past, in Ireland) for Flax seed for sowing	2,464,000 0 0
Add average Annual Imports of Oil Cake, 86,000 tons, valued at 9*l.* per ton	774,000 0 0
It therefore appears, we have been paying annually *for Flax, Oilcake, and Seed for the last six years*, on an average..	£7,783,883 0 0

To the foregoing important facts it will only be necessary to add, that successful results have invariably attended those agriculturists who have engaged in growing Flax. Sir Richard O'Donnell, Bart., of Mayo, Ireland, states, that he has himself "had 130 stones of Flax from 2 acres. That one of his tenants had at the rate of 104 stones to the acre, which produced the large profit of 31*l.* 4*s.* per acre, and that another small tenant had obtained 14 stones of Flax from 14 quarts of seed." Mr. Andrews, of Comber, a gentleman well known to the Royal Agricultural Society in Ireland, communicating with the Secretary of the Flax Society in Ireland, says, that "he received for his Flax at the rate of 28*l.* 16*s.* 10*d.* per acre, to which he adds the amount he received for seed, 11*l.* 6*s.* 6*d.*, giving the amazing result of 40*l.* 3*s.* 4*d.* per acre, which, on deducting the entire expences of rent and labour of all kinds, leaves a clear profit of more than 30*l.* per acre, being a return far exceeding anything *he ever derived from land before.*" On a model farm of the Earl of Caledon (crop 1845), the produce of Flax, tow, and seed, from 1 acre, 1 rood and 39 perches, amounted to 60*l.* 14*s.* 3½*d.*, the whole expenses of sowing, weeding, pulling, rippling, steeping, taking out, spreading, lifting,

breaking, and spreading, from 4l. to 5l. 10s., which thus left a clear profit of 4l. 15s. to 5l. per acre, nearly 60l. per acre. Besides these examples, it is well known by every one experienced in the culture of Flax, that the profits it produces far exceed any other crop whatever, and it may at all times be included in the ordinary rotation crops, without fear of exhausting the soil in a greater degree than other plants, Grasses, or grain crops. But the growing of Flax, besides being eminently profitable to the farmers, is worthy the consideration of the philanthropist, as the tending and preparing it for the spinners must call into active employment thousands of agricultural labourers, who will thus be enabled to earn a competent livelihood (which fact is plainly evident at Telmingham, in Norfolk, where Flax culture being introduced on a very limited scale, has so greatly increased the employment of the labourers, that it has already produced the cheering effect of totally relieving the parish of poor's rates).

In conclusion, I beg to add, as the above are Irish experiments, and as I know it is generally believed that the soil and climate of Ireland is preferable to this country for Flax, I shall only hope to disabuse the minds of farmers on this important point by a few reports from various counties in England and Scotland, as I have understood from several gentlemen that I supplied last spring with Flax seed for sowing, that their crops (so far as can be known by quantity and seed) have turned out well; and I shall shortly be able to tell them the value of the fibre, and the facts of such experiments made in Lancashire, Gloucestershire, Worcestershire, and Yorkshire, by those who never have sown Flax before this season.—*J. Hill Dickson, 29, Broad-street Buildings, London, Sept.* 14.

ON THE DRILL HUSBANDRY OF TURNIPS.

Experiments and their results.— Any observations made by me previous to the autumn of 1837 were either so carelessly noted, or the experiments made on too small a scale, as to the extent of ground measured, the absence of exactness in the manner of doing this, and in the method of weighing the bulbs thereon, I shall therefore confine myself to experiments made in 1837, 1838, 1839, and 1840, when every particular was carefully taken down, the portions of each field fixed on for weighing were chosen at different parts, indiscriminately and impartially, and in every instance so many rows were taken the whole length of the field and measured correctly, not by the chain (the widths of a narrow piece cannot be nicely ascertained this way) but in feet and inches with scrupulous exactness. In a few cases the lots measured for experiment were as small as 7 or 8 perches, but in the great majority of trials the quantities taken measured from 10 to 20 perches each.

In seeking for knowledge, by experiments of this kind, it is a most fallacious and incorrect mode to attempt to find the average produce of any field by setting out a square perch, or even 2, 3, or 4 perches for measuring and weighing, as small square pieces like these may give returns 4 or 5 tons per acre above the average. Generally, men are most pleased when looking at the finest portions of their crops; and when stepping along to fix the patch for trial, we are insensibly led to some particular spot in the field which may be much beyond the average, therefore I think all cases for experiment should be so many rows from one side to the other of the field, because by taking it this way the good and bad parts of the field have a greater chance of being included proportionally; and if the field or part of one, which it is wished to ascertain the average weight of, is several acres in extent, then two or more pieces should be taken.

I have further to add, that the weights given in every case, except where specially noticed otherwise, are those of the bulbs only, after being topped, tailed, and properly cleaned fit for use; the common Turnips were weighed in October and November, and Swedes towards the latter part of December, as these last-named in mild seasons increase in size until that period.

It may also be necessary to state, that all comparative trials of the effects of the different manures were made adjoining each other, in order that equality of soil should pervade the experiment, a most essential point to bear in view in prosecuting such inquiries.

With these preliminary remarks, I proceed to recount my results, commencing with those of 1837.

With Purple and Green-topped Swedes.

No. 1. Land manured in November, 1836, at the rate of 13 loads per acre, and ploughed in at the same time. Ridged up 20th May, 1837, 27 inches wide, part sown next day with 16 bushels bruised Rape cake, and the remainder with same quantity of bone manure per acre. Result—braird much injured by the beetle, being not quite half a plant after the bones, and considerably worse where the cake was applied.

	tons.	cwts.	qrs.
Weight of bulbs after the bone	7	10	0
Do. do. after the cake	5	12	0

I consider the results stated above quite failures, and the more rapid destruction of the young plants where the cake had been applied, was apparent to the most casual observer.

No. 2. With wood ashes on ridges 27 inches apart, applied at different rates, from 20 to 40 bushels per acre, sown 30th May. This proved to be as much injured by the beetle as in the preceding experiment with Rape cake, and the greater quantity applied did not increase the produce.

Weight per acre	4	0	0

No. 3. With farm-yard manure, 22 good loads per acre, in ridges 27 inches wide, sown between the 25th and 29th May, proved a very beautiful regular braird, not injured to any extent by the beetle. Plants a week earlier than No. 1, although nearly a week later sown, turned out a regular, good crop, weighing 28 10 0

No. 4. Without manure of any kind, ridges 27 inches apart (being four ridges taken in the middle of No. 3), sown 26th of May, braird fair, but regular, not much injured by the beetle, was the last portion of the field thinned, and then the plants could scarcely be seen. Afterwards, these kept dwindling away through the season, proving a total failure, producing about 2 0 0

The quality here was wretched, being no better than the tap-roots cut off and thrown aside from good-sized bulbs.

No. 5. Another field of Swedes (8 acres breast-ploughed and burnt), sown 13th June on the flat, 17½ inches wide, and having 10 bushels of bones and 25 of ashes mixed, applied as described in section 5. This proved a very regular plant, but in September became much mildewed, and grew little afterwards. No variety of experiments here. Weight 10 0 0

No. 7. Common Turnips (round Green-tops). Ten acres of these sown on the flat, the 17th June, on breast-ploughed and burnt land. Part of this had 20 bushels of ashes applied, the remainder nothing. No mark was made where the sowing of ashes terminated, thinking it would mark itself. However the season proved favourable, the braird came quick and flourishing. No check was experienced, and a most abundant crop followed, so much so that I never could discern the place where the application of the ashes ceased. It must be borne in mind, that a very abundant crop of ashes had been spread broadcast over the whole of this land, and worked in. Weight 24 0 0

EXPERIMENTS FOR 1838.

In a field of 10 acres, the following trials were made:—

No. 1. Turnips (round Green-top) on ridges 27 inches apart, with 18 bushels of bones per acre. Weight 21 0 0

No. 2. Same as above, with 18 bushels of Rape-cake. Weight 20 10 0

No. 3. White Tankard Turnips, as above, with 18 bushels of Rape-cake. Weight 29 4 0

No. 4. White Tankards, as above, without manure of any kind. Weight 27 6 0

No. 5. Same variety, with 24 loads of manure. Weight 30 6 0

With Purple and Green-topped Swedes.

No. 6. With 24 loads of manure. Weight .. 15 10 0

No. 7. Without manure of any kind. Weight .. 5 2 2

The whole of the above lots were sown between the 14th and 18th of May, on ridges 27 inches apart, and none received any check, this being a favourable year for Turnips in most parts of England.

In another field of 22 acres the following experiments were made. Land breast-ploughed and burnt:—

Purple and Green-topped Swedes sown on the flat 17½ inches apart, between the 8th and 12th of June.

No. 1. With 20 bushels of ashes, and 18 bushels of Rape-cake, mixed. Weight 14 15 0

No. 2. With 28 bushels of bones. Weight .. 18 2 0

No. 3. With 15 bushels of Rape-cake and 26 of ashes. Weight 12 18 0

No. 4. With 20 bushels of bones and 20 bushels of ashes. Weight 13 11 0

No. 5. With 42 bushels of ashes. Weight .. 7 11 0

No. 6. Without manure of any kind. Weight .. 3 5 0

No. 7. With 32 bushels of bones. Weight .. 17 13 0

From an oversight, there was no part of this field sown with Rape cake only, consequently a comparison cannot be drawn between the effects of that manure and bones, but I am inclined to think that the difference is not great in moist years, but in dry seasons the bones are greatly superior. It will be observed that No. 7 produces less weight, with more bones than No. 2; but this arises from the side of the field where the latter experiment was made being rather better land. The 7 lots extended over 15 acres, and were sown from the 9th to the 12th June. The braird came sluggish, but after having commenced, the plants grew rapidly.

No. 8. Seven acres of this field was sown about the 16th and 17th June, with Scotch Yellows, part having a little Rape-cake and ashes mixed, another portion bones and ashes, and the remainder had nothing. The braird where the manure was applied came more vigorous, and the plants were nearly a week sooner ready for hoeing. This difference continued until a week or two after the hoeing was finished, but gradually afterwards became less apparent, and by the end of October neither strangers nor I myself could point out where the manures had been applied. None of these Turnips were weighed, but they were a full crop for the land (this part of the field being a very weak light gravel), and appeared to be 17 or 18 tons per acre.

The decided non-effect of the pulverised manures in the above case, when taken in connexion with that noticed in No. 7 for 1837, and also with those correctly ascertained by measure and weight, Nos. 3, 4, and 5 in first field of this years' experiments, present very anomalous and embarrassing results. Thus No. 7 for 1837, and No. 8, the preceding experiment for the present year, go to show that the pulverised manures named, appear to have had little or no effect, or more correctly speaking, so little effect in increasing the crop, that it was not perceptible enough to experienced men to enable them to point out where the mixtures of manures with ashes or ashes alone left off, for I took several to both fields. It is very much to be regretted that I did not stake out the experiment correctly, and measure and weigh, in order to ascertain the exact amount of difference; but I feel confident (having weighed so many lots) that it was not more in proportion, if so much, as that shown with the Tankard Turnips in the first field of this year's experiments, viz., Nos. 3, 4, and 5. There we have 27 tons 6 cwt. without manure of any kind; with 18 bushels Rape-cake, 29 tons 4 cwt.; and with 24 loads of manure, 30 tons 6 cwt.; so that the manure has really only increased the crop about 3 tons per acre. But it is far otherwise with the Swedes in both fields of this year's experiments.

I was certainly at the time much puzzled with these results; but from subsequent experience I am satisfied it can be rationally and satisfactorily accounted for. The land Nos. 3, 4, and 5 of first field, in this year's experiments, was stubble, or regularly cropped land, but in very good condition, not by any means worn out. That on which No. 7 for 1837 was produced, as well as No. 8, second field of this year's experiments, were old Saltfoot lands, had been breast-ploughed and burnt, and the ashes spread thereon, which is allowed by every one to be the best preparation of such land as this, which can be made for a crop of Turnips, and unless cut off by wireworm, always produce the heaviest crops in every variety of season. I am therefore decidedly of opinion that the application of manure of any kind in these three different fields to the common Turnips was highly injudicious, there being abundance of power or of the necessary ingredients in these lands to bring forward a full crop, without additional manure being deposited under the plant; consequently that which was applied seems to have been thrown away.

It is very fortunate that Swedes had been sown to far the greatest extent in both fields of this year's experiments, in which the above anomalous appearances occur; and with these bulbs which are more difficult to produce, and of greater value, the results show that the application of manures to them have been judicious; in fact absolutely necessary for producing a crop of that variety, the 24 loads of farm manure in the first field (stubble land), of this year's experiments increasing the crop 10 tons 2 cwt. per acre, and in the second field (breast-ploughed and burnt land), the pulverised manures increasing the crop in the lowest case 9 tons 13 cwt., and in the highest 14 tons 17 cwt. per acre. Clearly showing that it is injudicious to apply manures to burnt land where there has been an abundant crop of ashes, or even on other land in very high condition, where common Turnips are to be grown; and likewise as clearly exhibiting the need of farm-yard manure in considerable quantity, on corn stubble lands, to grow a full crop of Swedes, as well as the great effect of pulverised manures mixed with ashes, on burnt land, in increasing a crop of those valuable bulbs.

The last experiment made this year was in a field of 14 acres, the worst field on the farm, having a considerable breadth across the middle of it, cold tough clay, and the whole being foul and in worn out condition. Seven acres were well dunged with rotten farm manure, and ploughed in broadcast (the land not being fine enough for ridging), and sown on the flat, 17½ in. apart, on the 26th June and 3d July, and produced a full crop. The other 7 acres were not got ready before the 26th, a period too late in this situation to give much chance for a crop even on better land. However, common red and white Turnips were sown with 12 bushels bones and 24 bushels ashes mixed, and proved a useful little crop, the bulbs with the stems weighing 7 tons 10 cwt. per acre. Part of this piece was sown without manure, on which the seed brairded regularly, but the plants never grew to any size, and they dwindled off in October and November, so that when the other part was weighed there was not one plant left.—*Wm. Fernie, Manchester.*

(To be continued).

Home Correspondence.

Falcon's Extract upon small farms in your last *Gazette* is so exactly opposite to what I have seen with my own eyes, that I cannot let it pass without a few remarks. I am not going to dispute that small farms may be well managed, and we should naturally suppose the smaller the extent of ground a farmer had to give his attention to, the better it would be cultivated; but that these cases are only exceptions I am well convinced from what I have seen in the different districts in England and Scotland which I have visited. The man I should pitch upon as the best farmer I know, and would defy any one to beat him, at the present moment occupies 1400 acres of land. In my opinion this is 1000 acres too much, but that is not the question we are discussing. I can honestly say 20 instances to one pass through my mind where large holders keep their land cleaner and in better condition than small ones. You will observe I have merely been comparing large farms with small, in England and Scotland. The Flemish farming I have seen, taken as a whole, without doubt beats most of ours.—*A good Small Farmer.*

Small Farms.—Many farmers may conceive that, although I profess to advocate their cause, my letters have a contrary effect, and rather a tendency to expose their weak points, by introducing comparisons between land cultivated in allotments and land tilled on the usual farming system. The greatest failing in human nature is a dislike to being told of our faults in the mismanagement of our undertakings, as it particularly touches our vanity and the good opinion of our own judgment, and draws down the advice of our neighbours, who, while we have been sleeping, and jogging on in the old track at the rate of four miles an hour, have been wide awake, propelled by a locomotive at a speed they of the old school cannot understand. A new era is dawning upon the land, which will, in the course of a few years, change the aspect of neglected districts, and make the barren soil produce a hundred-fold. The door of competition having been opened, labour, capital, and intelligence will, of necessity, be brought to bear on raising food in the largest quantities and at the cheapest rate. Our manufacturers can compete with the foreigner, why should not our agriculturists, after the facts which have been stated relative to the average rate of wages in various rural districts (which reflects anything but praise on the landed community), the stale argument so often used, of the foreigner being able to command the sinews of his fellow man at lower wages than the English farmer, cannot be any longer sustained, as surely seven and eight shillings a week for ten hours' toil per day, is not a very ruinous expenditure to the farmer, however it may pinch the labourer. Taking land in the same locality, and of similar descrip-

tion as to soil, we find allotments pay nearly double the amount of rent that farming land does; and the owners of the former, in many instances, are more punctual on quarter day than the latter. I may be in error, but the obvious reason of all this appears to me to be, that the experience of the labourer, as practically exemplified in his garden, tells him the benefit of minute cultivation; he reasons thus, and is rewarded for his common sense view of the matter. The small plot of ground attached to my house furnishes my family with three times as much food as the same quantity does on Giles's farm, and yet he surely ought to know more about such things than I do. It cannot be because mine is called a garden, and his a farm, that makes the difference; but I strongly suspect it is my spade against his plough, and my wife and children weeding against his permitting Thistles, Charlock, &c., to run to seed. Now, if I can get a bit of land, just enough to employ the leisure hours of myself and family, I think I can make the garden method of cropping and cleaning pay just as well in the field as it does near my cottage, provided I do not overburthen myself in greediness, rent too much for the strength I can depend upon, which is all my capital; I must consider well how far I can calculate upon assistance from my wife and children, and what spare hours I can myself devote to the allotment without depriving my master of his fair share of my labour, for his money given as wages. If such reasoning and practice based upon it, is evidence of what may be accomplished by a common labourer unassisted by scientific knowledge, then what might be anticipated from a more liberal employment of hands on large farms, backed both by money and skill? An increase of about one-third the usual average of food! Agriculture is progressing towards a healthy state of excitement which must be encouraged, even at the expense of sometimes speaking on subjects not palatable to the great interest in question. One of these is the division of farms into sizes more compatible with the means of improvement within reach of the tenant, and thus insuring a judicious and profitable manner of cultivation, more approximating to the garden. The calculation of capital locked up, which might be made available in enriching the land (I mean the unemployed poor labourer, now either existing on precarious charity, the poor-rates, or plunder) would astonish landowners, and open their eyes to the mine of wealth begging at their doors. Idle habits and moral depravity amongst the lower classes are lamented over as the causes of so much suffering and indigence; it would be more correct to say, they are the effects of want of employment, and the absence of the kind superintendence of those to whom Providence has given enough and to spare. The indiscriminate distribution of money, food, and clothing to those who are able to bear a part in supporting the community, is a premium on vice, as too many would rather, and do eat the bread of sloth, in preference to occupying their time in some remunerating pursuit, of advantage to themselves and their brethren. Such men, having no resources excepting of a mechanical nature (I mean working with their hands, without taxing their brains), soon fall into profligate society, and become the leeches, drawing from the active and diligent their life's blood; whereas, they ought, and might be converted into useful and respectable members of society, providing for their own subsistence, and throwing their surplus labour into the general fund of riches belonging to this country, adding to capital to be again circulated amongst the industrious classes. It cannot be too often repeated, that it is false economy to reduce the wages of the working man to the lowest fraction. But still higher ground should be taken, and we should recollect our duty towards our neighbour, and the command "to do unto others as we wish them to do unto us."—*Falcon.* [We may depend upon it that wages will never be raised by preaching to the farmer about his *duties* (and even on this ground, we think, "Falcon's" argument may be met); the fault lies in the system of agriculture, and the errors at the base of all are, the want of education and the impolitic connection between landlord and tenant.]

Wheat.—In the autumn of 1844 a wild goose was shot by an Indian on Lake Simcoe, Canada, West; in his interior some grains of Wheat were found; these were sown by a gentleman, and produced an extraordinary crop, in one case a single grain yielding 17 ears. In Sept., 1845, a few grains were sown by a friend of mine in his garden, an ear of the produce of these, I now send you, and shall feel greatly obliged by your informing me in your next Paper what Wheat it is; no person in this part of the world has ever seen the like. From the time of year when the goose was shot, it is evident he was migrating to the south from the north. The straw you will observe is of a good colour, but the ear is black.—*Jean Baptiste, River Richelieu, Canada, East August 27.* [The variety is Triticum aviatura, a variety grown to some extent in Switzerland and Germany, but not highly esteemed.]

Substitutes for the Potato Crop.—A correspondent in your Paper about a fortnight since (with the best intention, I have no doubt) recommended that farmers should allow cottagers to supply their gardens with Swedish Turnips, by taking them from the fields of the former whilst hoeing, in some degree to remedy the loss of the Potato crop. The hoeing time at that period, I think, must have been past; if not, the bulbs, particularly after transplanting, could never have reached a size sufficient to give one meal. I beg to state that at the meeting of our little band of cottagers last evening at the Town-hall (who received your kind notice of them at last week with smiling faces), I recommended them to thin my Rape, and plant; being more hardy than the Swedish Turnips, and will, after yielding much vegetable food in the spring, come off soon enough for a succession of many other vegetable crops. I hear to-day several of the cottagers wish to avail themselves of it, which gives me great pleasure, recollecting, as I do, more than once having to go into my fields in the spring for a dish of this hardy and delicious vegetable, when the Broccoli and Greens in the garden were all destroyed by the winter's frost.—*A Farmer, Reigate.*

Horizontal Windmills.—An article in your Paper of the 12th inst., reminds me of a promise I made some time back of trying to explain a plan of horizontal sails, which I would recommend any one to try. In the first place, I suppose a barn or other building, with good substantial walls; in this building an upright shaft must be put up, and extend a sufficient distance above the roof to allow room for the sails to be large enough for the purpose required—suppose 8 or 10 feet; on this shaft two iron flanges are put, in which to fix the arms; one of the flanges just above the roof, the other the height above it required for the sails (8 feet). I would recommend six arms and sails; the arms about 12 feet from the centre; at the extremity of these arms the sails are fixed, which act thus: they are made in a quadrangular shape, the pivot on which they turn being placed much nearer one side than the other; there should be three of these sails at the end of each arm—the sails being hung in this manner are acted upon by the wind the same as a vane or weathercock. Now in order to gain the rotatory moving power, there are a set of pegs attached to each arm, and are connected by crank and iron rods with the interior of the building; those pegs are moveable backwards and forwards, when at work they are pushed out so as to prevent the sails passing them; and act thus:—The sail continues stopped by the peg until it comes into that part of the circle where the wind will get to the back part of it, and being hung as a weathercock will cause it to turn with its edge to the wind, and will continue so till it is stopped by the peg; thus wherever the wind blows from, or, however, quickly it changes, the sails will always have their broadside to it in one part and the edge to it on the other, and of course turn the mill. When it is wanted to stop the mill, all that is required is to pull those pegs back, and then all the sails will have their edges to the wind, and the mill will stop, but I would also recommend a break to be used when it is only wanted to stop a short time, instead of pulling the pegs back every time. I have now stated my plan, and will mention the advantages which I think it has over others; 1st. Safety, the manner in which the sails are managed causes them to be put with their edges to the wind in a moment, and remove the danger of a sudden storm, also a very sudden and great change of the wind, say from north to south, it does not affect them in the least, they will still keep their broadsides to it in one part and edges in the other. I once tried a model I had made; there are two windmills in view from our house; one on the west and the other east of us, about four miles apart. I perceived during an approaching storm that one of them was running with the wind from the west, and the other with it blowing from the east; this, I thought, a good time to try my model, accordingly I put it on the garden wall and watched its movements, and was not a little pleased that when the wind changed here, which it did very suddenly, it had no effect whatever upon it, excepting that the broadside sails were on the contrary side of the upright shaft. Now, I consider this a great advantage over those horizontal sails, which I have seen; in order to keep them right to the wind there are 18 wheels required, and to be well attended to during a change of wind. In those of mine not one wheel, and no attention; then as for cost of erection, there is no comparison betwixt those and verticals, as any one may imagine. I had almost forgot to mention that the sails should be made to suit the force of the wind in nearly the same way as patent vertical sails are. If any further explanation is required, I shall be glad to communicate it.—*John Howgate, Hay Park, Knaresborough, Yorkshire.*

Management of Manure.—Your correspondent, "A Cornish Farmer," has chosen to criticise my first article on this subject in a spirit of levity totally unworthy the occasion. I take it for granted that when you insert an article you do it in the belief that it contains something good in itself, and which may prove beneficial to the country; or, that it will provoke a discussion which may be productive of good, and I make no doubt that you are glad to receive any article that contains a novel view of an important subject, as it may open a new way to the discovery of a something that could not be found out by the beaten track. I think that novel plans, because they are novel, should not be despised. "A Cornish Farmer" appears to regard the crane fixed on the top of the manure-bin towers as an amusing plaything, and the towers themselves as ridiculous structures; but it is very evident that he takes a very short-sighted view of the principle involved in the whole management of such a plan as I have described; my object is to save labour in collecting the materials, room in storing them, the prevention of loss by the dissipation of the fertilising elements of the manure, the perfect decomposition of it, and, lastly, the facilitating its application. Now, I think, no one will deny the importance of endeavouring to attain such objects. The house in which I live is situated by the side of the main approaches to the town of Hull, and there is never a day passes but I see waggons and carts laden with manure in the crudest form, totally unfit for application to the land in that imperfectly decomposed state. These waggons and carts come miles for it, and after depositing it by the sides of the roads near the fields where it is to be laid, or in heaps in the fields, it is there left, and in due time a second carting takes place. [The first carting is done in winter, when the horses must otherwise be idle. It would not be a saving to cart the manure in spring, and apply it at once to the land. The horses are then otherwise employed.] It is then spread upon the ground with more or less labour, according to the condition it is in at the time; but the loss of labour and time is not the only loss—look at the immense waste of fertilising matter consequent on the imperfect mode of decomposition! Do you think that half the elements of it are saved—I believe not. Now suppose we compare this fine old plan still so ardently cherished in this part of Yorkshire, and I dare say elsewhere too [Cornwall?] with my amusing plaything, so very scientifically described by "A Cornish Farmer," and then judge which of the two is the most rational. My plan is as applicable in the stable-yards of large inns, and cow-yards, &c., in towns, as it is in the farm-yards in the country. In the first-mentioned places I would erect towers with two or more bins, and as high as those described in my plan. The effluvia, when there was any, which would only be when the management was neglected, would then rise clear of the buildings without being so great a nuisance to the neighbourhood as is now the case in all such places. If the litter, &c., was put into bins and decomposed by proper management, it might remain there until the season arrived for carting it direct to the fields to be spread upon them at once, being so prepared as to be in the most favourable condition for that purpose. Manure in this state would not occupy one-third the space of the crude materials, and if manufactured on sound principles, none of its fertilising elements would be lost during the process of decomposition. [We doubt if you can by merely mechanical arrangements wholly save the volatile parts of manure. Apply acids or acid salts, and you fix the ammonia wholly. But this may be effectually done without the aid of towers.] I am of opinion that it might be kept for more than one year, that its quality would be improved by it, because time would effect the decomposition of the organic matter in a more perfect manner. It has been said that one load of manure properly prepared, is worth four loads in a crude state, and no doubt this is true to the very letter. I believe this plan of constructing manure towers in such places as I have mentioned would enable any one to manufacture and store manure with the greatest facility, that it would save three-fourths of the cartage and labour of conveying it from a town to fields miles off, that it would be more easily spread and ploughed into the soil, and more certain and beneficial in its effects as a fertiliser. Now, with all these advantages, who would, if he knew his true interests, prefer carting raw materials of uncertain value for miles at great expence of time and labour, to one of known strength as a fertiliser, and only one-fourth the bulk; surely there can be no difference of opinion as to the merit of the two plans. The use of the manure-bin towers as receptacles for the manure produced in farm-yards, is an enlargement of a plan already adopted by many farmers, namely, the storing of manure in walled pits; but in such pits as these they cannot regulate the process of decomposition, or prevent the escape of gases generated during the time it is going on, in so effectual a manner as in the manure-bins; in the latter, the process may be accelerated or retarded according to circumstances. My object in recommending lofty towers was twofold; in the first place, because they would enable a farmer to store vast quantities of manures in a comparatively small space, and because they are just as convenient for the purpose of fermenting manure as a walled pit of one-fifth the depth; indeed, they would be more so, the process being more manageable as regards temperature, &c.; the crane would, as I have said on a former occasion, afford the greatest facilities in mixing or removing the manures: in the second place (and here I shall startle "A Cornish Farmer"), the manure-bins would afford an opportunity for erecting a mill, not the one that has so much amused him, but another mill which could be very readily attached to an opening in any one of the sides of a tower, for the purpose of reducing the manure to coarse fragments. If still further dried, it might be reduced to a coarse powder, as described in my first letter. All this may be beyond the comprehension of "A Cornish Farmer;" but, nevertheless, it is perfectly practicable, and I have no doubt that any one of your readers who has a knowledge of mechanics will think so too. There is another advantage in having farm-yard manure reduced to a more portable form, and that is the increased facility of conveying it to fields situated in hilly districts. The subject of reducing farm-yard manure to a more portable form has occupied my attention for many years, and I have not come to a hasty conclusion upon it; it is true I am only an amateur farmer, but my previous habits and pursuits have qualified me to give as sound an opinion on such matters as most practical farmers could do. My plan is a novel one, and, like all such, must be tested by experiment; it is in advance of the times, and must abide its time, but surely every attempt to increase the productive power of the soil of the country must be of national importance, and ought to be encouraged; every day's experience tells us that we should not be hasty in passing judgment on new discoveries.—*Henry Liddell, Beverley-road, Hull.* [There is no doubt of the practicability of all your proposals;

but we must not forget the [illegible]. Will you furnish us with a [illegible]. [illegible] manure costs in small heaps, ready for spreading in the field, about 8d. per cubic yard, and it is thus worth, compared with other fertilizers in the market, from 3s. to 5s. per cubic yard. There is thus not much room for expense.]

The Potato Disease.—Allow me to lay before you a statement respecting an experiment which I made last year, and am following up this summer, as a probable means of renovating and improving the qualities of our second necessary of life, Potatoes—which have been degenerating for several years back. Aware that many garden shrubs and herbaceous plants have their qualities maintained and improved by propagating them by *cuttings* of the stems, rather than by dividing the roots or by seed, in the latter end of June, 1845, I planted, in a good light soil, *without manure*, cuttings of the green stalks of early Potatoes. I scarcely cherished a hope that they would produce tubers; yet in autumn I found a crop—some of them the size of boys' playing marbles, and most of them from two to four times that size. These were planted the 23d of last February; and now, removing the soil from part of a root, the first and only one that I inspected is full larger, and of finer appearance, than those growing in the same ground and planted with tubers of the same sort. The cuttings were the tops of the stalks, four or five joints from the top, and cut *close under* the joint with a very sharp penknife, and with a quick, clean, sloping cut. All the long leaves were clipped off, and such of the buds of the stalks as were growing into leaves, shortened a little, except the top buds—taking particular care not to do this so close as to pinch the bud off, or bruise the stalk—as it is out of these buds that the young tubers grow. They were planted in a sunny aspect, and shaded, and watered every evening, in dry weather, for two or three weeks, until they began to grow. This summer I am planting about half, or two-thirds, of the whole stalks; laying them nearly horizontally, under two or three inches of soil, with the top buds only above ground. The seed will no doubt be more abundant in this length of stalk and horizontal position. I am planting them in portions of ground the size of Onion beds, laying a row of plants three inches asunder the whole breadth of the bed, and another row directly opposite, with the top buds of both rows meeting each other. In this way they will need little shade, and will be easily weeded and watered. As it is rather difficult to furnish shade, I plant some behind any large culinary herbs; and even behind and between ridges of growing Potatoes. The broad leaves of the former, and the luxuriant stalks of the latter, are a sufficient shade. But these growing Potatoes, or herbs, are such as will be dug up in the course of three weeks, as this new crop must have sun to mature it. Latterly I find that by bringing the top buds very near together, they need no shade except a few stalks and leaves thrown over them, of those weeds, herbs, or cuttings of leafy shrubs, on which earwigs and reptiles do not lodge, so that there is no expense, and little trouble attending this attempt to improve Potato seed. The cuttings should be taken from healthy plants, and planted without manure in ground that has not been recently set with Potatoes. I now find young sets growing upon stalks of early Potatoes which I planted only three weeks ago. It is, therefore, not too late to plant cuttings of second earlies and the later sorts. I also find that the small stalks produce as well as the thick stalks; so that those who would hesitate to cut the main stalks of their growing crops for this purpose might succeed by using the small ones. It may be advisable to cover the crop with an addition of light soil, and leave it in the ground until setting time next spring. This method of endeavouring to improve the Potato will be more expeditious than that of doing it by the seed of the Potato-apple (although that should be persevered in, to obtain varieties), and the produce could be always depended upon to be the same sorts as those from which the cuttings were taken. If landed proprietors and horticultural societies would encourage this mode, and if farmers, nurserymen, market-gardeners, and every cottager who has a few yards of spare fresh ground, would immediately practise it, I believe that in two or three years (through the blessing of Heaven, ever ready to second man's instrumentality), the whole of the United Kingdom would have more abundant crops of this nutritious root, much improved in quality, and the different sorts distinctly classified. It is also highly probable that, if cuttings of these new plantations were from year to year planted in fresh ground, the plague of the mysterious disease might be entirely eradicated. I am planting cuttings of the stalks of those growing from the result of my last year's experiment, and expect that the offspring will be superfine.—*W. Whitehouse, Spittal, Berwick-on-Tweed, in "Berwick Advertiser."* [The fault of this, as of all such papers, is, that it tells us only what the writer expects; we want results, not conjecture.]

Farmers' Clubs.

NEWCASTLE: *Sept.* 5.—Donations were received—among others an ear of "Mummy Wheat," from the Countess of Strathmore. The ear of Wheat grown from seed found in an Egyptian mummy case, excited much interest. It is much more bulky than an English ear, being, in fact seven English ears rolled into one! and thus after the lapse of two or three thousand years, a seed is released from the darkness of an Egyptian coffin—planted in English ground—and its vitality unimpaired, produces in due time not simply an ear of Wheat, but (what is more), an evidence, not the less welcome because unlooked for, of the gentleness of the most ancient of all histories—in which we find it written "And Pharaoh slept and dreamed the second time, and behold *seven ears of corn came up* UPON ONE STALK, rank and good."—(Genesis, xli., 5.)—The Chairman then rose to introduce the subject of which he had given notice. It divided itself, he said (after some introductory remarks), into three heads, viz.:—1. The most approved methods of preparing land for Wheat. 2. The varieties of Wheat most suitable to the northern counties. 3. The most desirable methods of preparing and sowing the seed. He would begin with the system of preparing land by summer fallowing, which was very extensively practised in Northumberland and Durham, and also (though not so extensively), in Cumberland and Westmoreland. Indeed, on all strong clay soils, as well as on wet, weak lands, it had come into general use. Since furrow-draining and subsoil-ploughing had been more adopted, there had been less bare fallow; yet he was sorry to say the latter practices had as yet not been sufficiently extended to enable the farmer to cover all, or the greater part of his fallow land, with green crops. The land intended for summer fallow was ploughed with a deep furrow all through the winter and early spring months, and ought to be carefully water-furrowed by the plough and spade. Too much attention could not be given to laying the land as dry as possible, nothing being more prejudicial to the land, and to the following summer working, than allowing it to lie immersed in stagnant water all the winter through. The first operation in the spring was to plough the land again, either across the last furrow, or in the same direction according to circumstances. This ploughing ought to be given in May, at the latest; the rougher and more exposed to atmospheric influence the better. Repeated ploughings, harrowings, and rollings ought to be given in the course of the summer, and if any Couch-grass or other weeds were in the land, they should be picked up by women and burnt; and the land made perfectly clean. All wet ploughing should be avoided. Horses and men had better be idle than cutting every "quicken" into a dozen pieces, each ready to multiply and create work at some future day. He had found heavy grubbers much preferable to ploughing and harrowing. His experience had taught him that unless weeds were exposed to the sun and air, and thereby destroyed, fallows would never be made perfectly clean. He need not inform the club that the part of a farm set aside for summer-fallowing was generally that which was the dirtiest, and too often he was sorry to say, rendered as foul as possible by previous bad management. The intention of perfectly cleansing the land, by the expensive mode of allowing a large part of the farm to be unproductive for the whole summer was totally defeated, if it were not well cleansed and worked. Too many fallows were allowed to be green with weeds when they ought to be clean and in preparation for that golden crop—Wheat. Indeed, they were as much exhausted by growing weeds as by growing corn; and yet some farmers talked of giving their land a *clean fallow*, and expected this slovenly system to answer the purpose of preparing the land for producing crops for the following four or five years. Having prepared the land properly, the next thing to be done was to add dung, lime, or other manure. If fold-yard manure, it ought to be well mixed with the soil. If lime, it should be kept as near the top as possible—it having a downward tendency, and could not be kept too near the root of the Wheat plant. The broadcast plan of sowing Wheat was most in use. He could not but think, however, that the time was fast approaching when it would be drilled, and hoed in the spring, previous to sowing Clover-seed. A great saving of seed might be made if this plan were adopted. He had endeavoured to show that summer fallow land ought to be well worked, cleaned, and manured, or there was no certainty of obtaining remunerative crops. The reverse was sure in the end to be ruinous. Let him, then, urge the necessity of strictly attending to the best practices known, and abandoning the slovenly one of neglect. Having stated as much as the limits of his paper and time would allow, respecting the preparation of the land for Wheat by summer fallowing, he would briefly mention that a crop of Potatoes prepared the land for generally a large crop of Wheat; yet the two crops were very impoverishing, and Clover often failed after them. This might, perhaps, be remedied by a top dressing of some kind of manure. Very little Wheat was grown after Clover. The system had often been tried, but made little progress. Wheat was often sown after Turnips, and succeeded very well, at times; but he was no advocate for the spring-sowing of Wheat. Secondly, as to the most approved kinds of Wheat. He believed, as a general rule, the red Wheats were more suitable to this northern climate than the white, being hardier—yielding a larger quantity per acre—tillering better in the spring—and bearing bad weather better in the harvest. The kinds grown were so numerous, and had so many names (for often the same sort had different names), that it was almost impossible to enumerate them. He might, however, say that the Creeping Red had long stood high as a good miller's wheat, and was very suitable for weak land, but one of the worst for rich land. The Squareheaded Red, the Red Kent, and many others, were the sorts most approved; but now the new varieties were fast superseding the old ones, and the Spalding Prolific, the Britannia Red, the Chevalier, and others, were much sown, and, there was little doubt, were more productive. As to white Wheats, also, the old sorts were giving way to the new ones. The little white, the downy Essex, and the hedge Wheat, might be classed among the old sorts; and the white Britannia, the hedge-row, and the Chidholm (a very fine-grained Wheat), amongst the new. Thirdly, as to preparing the seed. Steeps of chamberley, preparations of arsenic, and some other mixtures, were used as preventives against smut. The usual process was to steep for about 10 minutes in stale urine (which contained ammonia), and then dry the seed with quick-lime. If proper pains were taken to select clean seed, and pickle it with chamberley and lime, there was no doubt of its being kept pure, or nearly so. There was now not so much smut as formerly. There were many chemical preparations for preparing seed. Not having had much experience of them, he must decline giving any opinion. The method of depositing the seed, as he had already stated, was mostly by sowing broadcast. Some was ribbed with a ribbing plough, and part drilled. It would be a great improvement if the Wheat were hoed in the spring previous to sowing Clover-seed. Less seed would do, and weeds would be kept down. He had little doubt, as improved culture advanced, that frequent hoeings of corn crops would become general.—*Newcastle paper.*

Miscellaneous.

Bunch-grasses.—It is erroneous to believe that these two species of Grasses grow naturally so in separate tufts or bunches. The cause is a mechanical one, mainly owing to the annual fires, the great heat and drought during the latter part of summer, as well as to the deep snows, the wet in the month of March, accompanied by severe bare-frosts. But the same causes again may also occasion part of that excellence, which these Grasses possess in respect to feeding qualities, which surpass the best grain fodder. Yet, I am sure that great part is likewise owing to the kinds; for, in the lower regions, on the Upper Missouri River, where there is an elevation of only about 1000 feet, without these extremes of heat, and the destruction by fire, the Triticum Missuricum enjoys the same reputation as excellent fodder for horses and cattle. Two weeks are sufficient to fatten a poor horse, when the first blades spring out in March. There it grows not in bunches, but in dense carpets, suffering scarcely any other plant amongst itself, save a few Opuntia groups. Yet the Festuca 356, surpasses the Triticum by far, which Grass I never recognized east of the Rocky Mountains. Horses and cattle, therefore, in Upper Oregon feed on the former only in the absence of the latter, which occurs in such places where water remains long in the spring. The extreme heat in Oregon give to these Grasses another great value, on which the importance of Upper Oregon, as a grazing country, depends. The heat commences about the 1st of July, when the parching rays of the sun, suddenly dry up the blades of the Grass, and render it a wholesome hay. The centre of the tufts, however, remain green, waiting only for a little moisture to renew the growth, which also takes place about the middle of September, during a series of wet, foggy, cloudy days. Soon afterwards, frosts arrest its growing a second time, and a deep (2—3 feet) snow covers it for five months. I have convinced myself that these Grasses, thus checked and excited, keep green and grow a little, even under the snow. The frosts and snow render the dry blades brittle, and the horses and cattle eat it with greediness, mixed with the young green parts which they find in the centre of the tufts; digging for it with their feet day and night, remaining fat through the winter; and poor ones will, if healthy, get fat notwithstanding that labour. This is the case in places where the fires do not reach; but when fires follow after the heat and drought, it will soon grow again and keep green under the deep snow. The soil is generally a heavy loam, mixed with fragments of granitic and basaltic rocks; getting very hard about the time when the seeds are ripe; hence they will burn up, as well as the borders of the tufts and their dry centres, separating one tuft into several. Seedlings which escape the fire, must either lodge in the tuft, or they will be destroyed by rot under the deep snow, or the wet and bare frosts in the beginning of spring. Sir Wm. Stuart, who, during his travels, became acquainted with these Grasses, has raised already a great many from seeds, which he gathered himself many years ago. Even there (Scotland) they preserve a great deal of their primitive character, and will, no doubt, surpass expectations. Here I must remark, that I somewhat doubt the identity of the Triticum on the Missouri and that of Oregon. The former is the same Sir Wm. Stuart cultivates, the same which agrees perfectly with the description of Triticum Missuricum, Sprengel (see Spr. Syst. Veget. Appx.). Drs. Torrey and Gray recognized it as T. caninum, and Prince Neuwied calls it a variety of Triticum repens. In my estimation it differs from the latter even in its creeping, but short, thick, and ramose root.—*Geyer in London Journal of Botany.*

Drainage with Pipe-tiles (see page 510).—I see clearly that my friend DIXON and I shall never agree about agricultural matters, because he will not believe a fact when he sees it, whilst I would not give one farthing for a thousand opinions, if those opinions were opposed by an observable experiment. I consider that Dr. Dixon is doing a very serious injury to agriculture by denying facts, and endeavouring to substitute in their place his mere opinions, not founded on fact. The "Royal Agricultural Society's Journal" gives in detail the names and addresses of numerous farmers who have drained 4 feet deep with 1-inch pipes, at a

small host. The cost, particulars, and results are also given in a tabular form. This statement is confirmed by Mr Pusey's practice, by Mr. Parkes's own experience, by my own practice on 33 acres the past year, and by that of numerous other persons. Dr. Deacon has not tried 1-inch pipe drainage in strong loams, and I defy him to show a case in which such drainage has failed to act; what, then, is the worth of his mere assertions, or rather opinions? The question is a very important one, nationally It is not a personal question at all, but one of fact I see daily in my rides, that there is a vast deal of draining being now done in this county improperly, almost uselessly, and far too expensively; but it must continue to be so, as long as farmers will be guided by opinions and prejudices, rather than by fact and calculation; and they pay smartly for this, both now and prospectively I have Wheat 6 feet high, growing on land which before this drainage would never produce a full crop The Doctor mis-states the facts. My first plan of drainage does act well (although he said it never would), but my last acts better and at less cost I have yet to learn that is either wise or profitable not to leave a good plan for a better If the doctor is wise, he will not only make the "pencil cases," but recommend them, thus benefiting himself and his customers There is a most mistaken notion as to how water enters drains The fact is, it always come in at the very bottom of the drain under the pipes, and rises up into them. Why, then, put on stones or bushes? I would rather farm well drained land without manure, than undrained land with it The truth is that Essex must amend her agricultural errors and deficiencies; she must drain more deeply and cheaply She may then cultivate more deeply by subsoiling she must abolish her trees and reduce her fences; she must economise her liquid manure the very soul of the farm (I wish my friend Dixon did not waste his); she must economise seed and avoid weeds by thin sowing and horse hoeing; use more effective implements to pulverise and commix the soil She must crush and cut up finely all her horse feed, and keep her horses warm and dry within, in lieu of allowing them to trample upon and destroy it, and injure their healths by atmospheric exposure She must abolish her lumbering useless waggons, and do the same work at two-thirds the cost, with light carts at present one third of her horse labour is employed in timber carting, dragging uselessly heavy vehicles from one part of the farm to another. She must have better farm roads, square fields, and less short lands; better mechanical appliances, and yet employ much more labour. She must substitute for her rotten, detached, and temporary farm buildings, others of iron, brick, and slate; she must fatten her stock with a less quantity of food in a shorter time, by warmth and dryness, she must have leases, corn rents, and a valuation of tenants' improvements; to sum up, she must throw off all her old prejudices, see what other counties are about, and do the best of things in the best of ways I may be asked, how is all this to be done? I answer, make a beginning, or you will never progress I let a farmer with one thousand pounds take one hundred acres instead of two. Let landlords calculate that timber is robbing them as well as the tenants. Abolish the interminable parchment leases, with their thousand useless covenants and restraints, and stipulate for alternate corn, and root, or green crop, the straw, hay, roots, or green crop to be consumed on the farm Let the draining be done by either landlord or tenant, or both, but at all events let no heavy land be farmed until it is drained deeply and permanently with pipes I remember full well that for two years, whilst my improvements were in progress, I was the ridicule and scorn of Essex; my theories were considered wild and visionary I was told my barn would more than hold all my crops, and that I could never raise good and profitable ones on such soil I remember my friend Dixon telling me, "that I should sneak away from Tiptree-heath ashamed of my failure." But the tables are turned now; a great change has come over the public mind. The drains do run, the crops do grow, and challenge competition with the richest in Essex The barn was filled, and the stack-yard not large enough, and I have this year.

80	acres of Wheat	5	acres of Rye grass
25	,, Beans	5	,, Potatoes
6	,, Green Tares	8	,, Mangold
6	,, Rye	5	,, Clover

with 16 acres in preparation for Swedes, &c, and no long fallow All this on 170 acres of land, landlord's measure My object in making these remarks is not vanity, or the gratification of any personal ambition, but to stimulate a better and more energetic spirit in agriculture, practice has shown me that poor and exhausted farming is not profitable, but that good farming is so Practice has proved to me that my theories are sound and consistent with a remunerative calculation. Practice and comparison have convinced me that Essex must make very great changes in her systems and operations, ere she ranks in the van of agriculture. In conclusion, as facts are stubborn things, my crops are open at all times to the inspection of such of my brother agriculturists as may have the spirit of inquiry and comparison. Deep drainage is my sheet anchor, because if earth is the food of plants the deeper you drain the more food you place at their disposal. Every extra 7 inches in depth is about 700 tons per acre. I limit myself to 5 feet deep, because that is the greatest practicable depth at a moderate price, having regard to the open ditches; but for this consideration I would drain 10 feet deep instead of 5.—*J. J. Mechi, Tiptree-hall, June 18.*

(Essex Paper.)

Watering Flax—This process requires the greatest care and attention. River water is the best. If spring water has to be used, let the pond be filled some weeks, or months, if possible, before the Flax is put in, that the sun and air may soften the water That containing iron, or other mineral substances, should never be used If river water can be had, it need not be let into the pond sooner than the day before the Flax is to be steeped The best size for a steep pool is 12 to 18 feet broad, and 3½ to 4 feet deep Place the Flax in the pool, in one layer, somewhat sloped, and in regular rows, with the root end underneath Cover with moss sods, or tough old loa sods, cut thin, laid perfectly close, the shoes of each fitted to the other Before putting on the sods, a layer of rushes or ragweeds is recommended to be placed on the Flax, especially in new ponds As sods are not always at hand, a light covering of straw may do, with stones laid on it, so as to keep the Flax just under the water, and as the fermentation goes on, additional weights should be laid on. It may stand thus covered, it never sinks to the bottom, nor is it affected by air or light A small stream of water allowed to run through a pool has been found to improve its colour It will be sufficiently steeped, in an average time, from eight to fourteen days, according to the heat of the weather, and the nature of the water Every grower should learn to know when the Flax has had enough of the water, as a few hours too much may injure it It is, however, much more frequently under-watered than over watered The best test is the following —Try some stalks of average thickness, by breaking the shove or woody part, in two places, about 6 or 8 inches apart, at the middle of the stock; catch the broken bit of wood, and if it will pull freely out, downwards, for that length, without breaking or tearing the fibre, and with none of the fibre adhering to it, it is ready to take out Make this trial every six hours, after fermentation subsides for sometimes the change is rapid. Never lift the Flax roughly from the pool, with forks or grapes, but have it carefully handed out on the bank, by men standing in the water Spread on the same day it is taken out, unless it be raining heavily; light rain does little harm If it cannot be spread, let it be set on end, or separated into small parcels, to prevent it heating in the heap It is advantageous to let the Flax drain 12 to 24 hours, after being taken from the pool, by placing the bundles on their root ends, close together, or on the flat, with a slope.—*4th Report, Flax Society*

Notices to Correspondents.

CHURN *JJ*—There are many malt burns very suitable in cases where only one cow is kept We have long used one manufactured by Mr Attwood of Lewes and can recommend it The glass milk pans are advisable for their cleanliness You may use straw *ad libitum* for litter to your pigs &c Give your pigs pollard and barley meal You may grow Wheat on your sandy soil It would answer well to marl it if you have the means

CLAY GRINDLE—*Buxton* We know of no such machine unless you refer to the ordinary pug mill found in every tile yard

LIVE STOCK *J S P*—You should clean it before ploughing in your manure Burn the weeds, and burn or cart away to the neighbourhood of a tank It is to be hoped that you have done so during the fine weather we have had Do not manure too highly for your Potatoes We have had no experience of diseased Potatoes as seed but you may safely plant those which seem sound See Mr Paxton's statement in page 10 1846

GARGET—*Ibid* It is inflammation of the udder Give a dose of salts with aromatics internally Externally foment with very hot water and a large flannel cloth held by two men for an hour at a time three times a day afterwards rub in camphor ointment and if hardness of the udder continues apply iodine ointment in a mild form To prevent it avoid all causes calculated to produce cold in the skin

GARDEN FARM—*Country Curate* You may easily keep a cow—you might keep *two* Have half an acre in Lucerne constantly one acre in some grain crop, as Barley Oats or Wheat, to furnish straw for litter one acre in Parsnips and Carrots (Early Horn and white Belgian) and half an acre in Mangold Wurzel The last with the Lucerne and the Early Horn Carrot will keep the cow all the summer, and the Carrots and Mangold Wurzel with the half acre of hay, will keep them well in winter You should have a seed-bed of early Cabbages ready to transplant into the land as soon as the early Carrot crop is off and Wheat stubbles bare

MANURE—*I J*—Certainly you may mix sawdust with your liquid manure, but you may benefit more by charring it first Do not put lime in the cesspools, that would drive off every thing volatile You should complain to your news agent, as we do not send copies Folded from the office Can you not retold them but re cutting?

NAKED BARLEY *West Suffolk*—It is a well known variety and much grown on the Continent, but has not been able to displace the better sorts grown here

SOURING IN YOUR PIGS *Ibid*—Give the sow Beans, or Bean meal, with her pollard and the young pigs a few Peas. *W C S*

WHITE CARROTS AND MANGOLD WURZEL—*P W*—Their ordinary price at this season in towns may have been 3*s* per ton for the former, and 2*s* for the latter Are you a buyer? If so we should be glad of your address

WHITE DOWNY WHEAT—*L J W*—Your ear resembles Le Couteau's White Downy or Velouté, a productive variety, but one whose chaff renders it unsuitable for a damp climate

LABLAB—In the article on 'Agricultural Statistics," at page 634, col *a*, line 16 from bottom, at No 5 in the divisions for "The arrears" read 'Manures."

Markets.

HAY —Per Load of 36 Trusses.

SMITHFIELD, Sept 25.

Prime Mead Hay	70s to 72s	New Hay	—s to —s	New Clo.	—s to —s
Infr New & Rowen	50 65	Clover	70 to 100	Straw	27 30

Trade very heavy. JOHN COOPER, Salesman.

CUMBERLAND MARKET, Sept 24.

Prime Mead Hay	70s to 74s	Old Clover	90s to 100s		
Inferior ,,	45 60	Inferior do	70 80	Straw	28s to 30s
New Hay ,,	— —	New Clover	— —		

JOSHUA BARNS, Hay Salesman.

WHITECHAPEL, Sept. 25.

Fine Old Hay	70s to 80s	Old Clover	100s to 105s		
Inferior Hay	— —	Infr ,,	— —	Straw	26s to 30s
New Hay	60 70	New Clover	80 90		

Trade very dull at the above prices.

COVENT GARDEN, Sept. 26.—Vegetables continue to be sufficient for the demand, but Fruit is not over abundant. Pine-apples have not altered in price since last week Abundance of Black Hamburgh Grapes may be obtained, and large importations of Foreign ones have been received in the market during the week. Peaches are scarce and dear, and the same may be said of Plums, the only table variety being Coe's Golden Drop Apples and Pears have not altered in price since last week. The supply of Oranges, considering the season, is good, and Nuts are sufficient for the demand. Walnuts are plentiful Filberts are scarce, and trade for them is brisker. Lemons are scarce and so are good English Melons, some foreign ones are in the market Of Vegetables, Cabbages, Cauliflowers, &c., are good, but the latter hardly sufficient for the demand Carrots and Turnips have altered but little in price Peas are scarce. Beans remain nearly the same as last week. Celery is good in quality. Potatoes are very much affected by the prevailing disease, some are quite unsaleable Lettuces and other Salading are good and plentiful Cut Flowers chiefly consist of Heaths Jasmines, Pinks, Camellias, Pelargoniums, Gardenias, Tuberoses, Azaleas, and Roses.

FRUITS

Pine Apple, per lb, 4s to 7s	Plums per half sieve, 5s to 8s
Grapes, Hothouse, per lb, 2s to 4s	Figs per dozen 4s
— Portugal per lb, 1s to 1s 6d	Lemons, per dozen 1s 6d to 3s
Apples, Dessert, per bushel, 3s 6d to 8s	— per 100 12s to 20s
— Kitchen, 2s to 6s	Almonds per lb, 6s
Pears per half sieve, 4s to 12s	Sweet Almonds per lb, 2s to 3s
Melons, each, 2s to 4s	Filberts, bushel of 100 lbs, 80s to 90s
Peaches, per dozen, 4s to 10s	Nuts, Cob, per 100 lbs, 7s to 8½s
Oranges, per dozen, 2s to 3s	— Barcelona, 60s
— per 100, 14s to 21s	— Brazil, 12s to 16s
— Seville, per 100, 14s to 16s	— Spanish 14s
— per dozen 2s to 3s 6d	Walnuts per bushel, 10s to 24s
Barberries per half sieve, 4s to 6s	

VEGETABLES

Cabbages per doz, 6d to 2s 6d	Shallots, per lb 4d to 6d
Broccoli, per doz, 2s to 12s	Garlic, per lb 6d to 8d
Cauliflowers, per doz, 3s to 6s	Lettuce, Cos, per score 2d to 3s
Artichokes, per doz, 2s to 3s	Tomatoes, per half sieve, 2s to 3s
French Beans per half sieve, 6d to 2s6d	Radish, per score, 1s to 1s 6d
Peas, per sieve, 3s 6d to 7s	Vegetable marrow, per doz, 2d to 1s
Carrot, per half sieve 3d to 1s	Radishes per bunches 1s to 1s 6d
Potatoes, per bush, old 2s	Mushrooms, per pottle 1s to 2s
cwt, 3s 6d to 6s 6d	Small Salads per punnet 2d to 3d
— bushel, 1s 6d to 3s 6d	Fennel, per bundle, 1d to 2d
— Kidney per bushel, 3s to 4s	Savory, per bunch 2d to 4d
Turnips per doz, 2s to 4s	Thyme, per bunch 2d
Red Beet per doz, 1s to 1s 6d	Watercress, per 12 score bun 6d to 9d
Horse Radish, per bundle, 3s to 6s	Parsley, per bunch 4d to 6d
Cucumbers, each, 4d to 8d	— per bushel, 2s
Spinach, per sieve 1s 6d to 2s	Tarragon, per bunch 3d
Leeks per bunch 2d to 4d	Mint, green per bunch, 3d to 4d
Celery per bundle, 1s to 1s 3d	Marjoram per bunch 3d to 4d
Carrots, per bunch, 3d to 6d	Chervil, per punnet, 2d to 3d
Onions, per bushel, 3s to 7s	

SMITHFIELD, MONDAY, Sept 21 —Per Stone of 8 lbs.

Best Scots, Herefords, &c	4s 0to 4s 2	Beas. long wool	—s —s		
Best Short Horns	3 8 4 0	Ditto (short horn)	4 8 4 10		
Second quality Beasts	3 0 3 6	Ewes and wether Mut quality	— —		
Calves	4 4 4 8	Ditto (shorn)	0 4 4 8		
Best Ins wns & Half-breds		Lambs	5 4 6 0		
Ditto (shorn)	4 8 5 0	Pigs	4 4 5 4		

Beasts 4 26; Sheep and Lambs 29 180; Calves, 0 Pigs, 260

Our supply of Beasts is again very large as to number showing a decline in weight of meat. The very best description is quite as much as ever Second rate are rather heavy sale but very few remain unsold Sheep are scarce and trade for them is brisk the late advance is pretty fully maintained and in a few instances is somewhat exceeded — Lambs is also quite as dear —Calves are not quite so full and rather more money is obtained Notwithstanding the supply Pigs is large, prices remain unaltered

FRIDAY, Sept 25.

Our remarks of Monday last apply precisely to the state of our supply to day number also large but quality deficient We have no difficulty in making 4s 4d of the best beefs, &c., and the best Short horns &c, but as good rate are never any from 4s 2d to 4s 4d nor can a decrease be effected at this reduction —Sheep and Lambs are rather more plentiful, and trade is perceptible in the trade still very nearly Monday prices are maintained for the best qualities Calves dull and make as best Long Acton at 4s 8d, Lewes, &c 4s 4d to 4s 6d Calves are not plentiful, and are 4d quite as dear a few choice ones have made rather over 5s — The trade for Pigs continues steady

Beasts, 11 —, Sheep and Lambs, 600 Calves, 8 Pigs 260

4l, West Smithfield

MARK-LANE, MONDAY, Sept 21

There was a fair supply of English Wheat by land carriage samples this morning and the whole met a free sale at 1s to 2s per qr advance Business in free foreign was not extensive, but where sales were effected 1s per qr more money was generally realised There is still some inquiry for bonded Wheat and floating cargoes, but the market is very bare of either — The top price of English Flour is raised to 37s per sack, barrels are held for an advance but the sales are limited — Barley of all sorts must be written 1s lower —Beans are unaltered in value —New white Peas are again 1s higher —The Oat trade continues flat at our quotations —Maize is still inquired after, and floating cargoes are held at 42s to 43s per qr Linseed cakes are in good demand, and Foreign of all sorts scarce

BRITISH, PER IMPERIAL QUARTER

	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk White	56	64	Red	50	56
—— Norfolk, Lincolnshire, and Yorkshire	56	60	White	59	60
Barley, Malting and distilling 30s to 36s Chevalier	36	41	Grind.	26	30
Oats, Lincolnshire and Yorkshire	27	34	Feed	22	26
—— Northumberland and Scotch	26	34	Potato	30	36
—— Irish	20	30	Potato	28	32
Malt, Ale, ship	—	—			
—— Hertford, and Essex	50	54			
Rye	30	34			
Beans, Mazagan, old and new 32 to 36	Tick	26	30	Harrow	26	30
—— Pigeon, Englished 36 to 44	Winter	—	—	Longpod	—	—
Peas, White 30 to 36	Maple	26	44	Grey	34	40

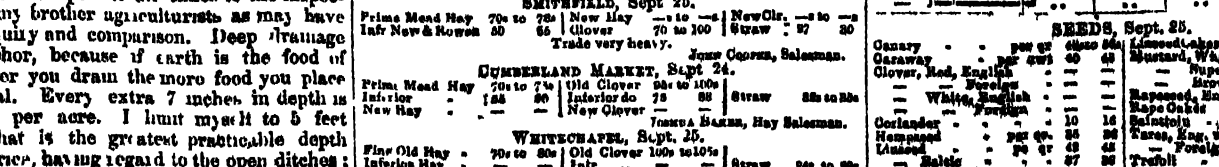
FRIDAY, Sept 25.

There was little English Wheat fresh up for this morning's market, and it readily realised the extreme rates of Monday, Foreign is held for an advance, and where sales are affected buyers are obliged to pay 1s per qr more money —Barrel Flour must also be written 1s higher —Barley, Beans, and Peas, fully support our quotations —The Oat trade is firm, and in some instances a trifle dearer, but sales are quite of a retail character.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats	Rye.	Beans	Peas.
Aug.	15 per Quarter.	48s 1d	27s 2d	23s 5d	36s 7d	39s 6d	36s 6d
——	22 . . .	46 11	27 5	23 8	36 10	39 9	36 9
——	29 . . .	47 10	29 1	23 0	31 10	39 9	38 9
Sept.	5 . . .	49 0	31 0	23 2	33 7	40 4	37 1
——	12 . . .	50 0	33 7	29 5	33 4	40 11	38 10
——	19 . . .	51 8	32 1	28 7	28 0	41 6	40 6
6 weeks' Aggreg. Aver.		48 2	30 9	25 4	31 10	40 5	37 11
Duties on Foreign Grain		9 0	6 6	1 6	5 6	5 6	9 6

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, September 19



SEEDS, Sept. 25.

Canary per qr	48s to 56s	Linseed, Baltic, Foreign, p. ton	6l to 6l
Caraway per cwt	40 42	Mustard, White per bush	7s 9s
Clover, Red, English	— —	—— Superfine	— —
—— —— Foreign	— —	—— Brown	2 10s
—— White, English	— —	Rapeseed, English, per last	20l 30l
—— —— Foreign	10 16	Rape Cakes per 100	— —
Coriander	10 16	Saintoin	— —
Hempseed per qr	36 38	Tares, Kng. winter p bush.	5s 6s6d
Linseed	39 42 42 45	—— Foreign	4s 4s6d
—— Baltic	37 38	Trefoil	18 20
—— Cakes, Eng. per 1000	9l 10l	Turnip (see variable the quotation	

Kentucky also Lay.

Sales by Auction

TO GARDENERS, GENTLEMEN, NURSERYMEN, MARKET GARDENERS, BUILDERS, RAILWAY CONTRACTORS, AND OTHERS ENGAGED IN PLANTING.

MESSRS. PROTHEROE and MORRIS will sell by Auction, on the Premises, Chelsea Nursery, King's-road, on Wednesday, October 14, 1846, and five following days, at 11 o'clock each day (by order of Mr. Little, in consequence of the ground being required for building purposes), the whole of the valuable NURSERY STOCK, consisting of the choicest kinds of Fruit and Forest-trees, Ornamental and Deciduous Shrubs, fine Evergreens of every variety, in considerable quantities, and lotted to suit every description of purchasers. The Stock is particularly worthy the attention of Noblemen and Gentlemen laying out their grounds also of the Trade, from its excellence, and comprises fine Standard and Dwarf trained and untrained Apple, Pear Plum, Cherry, Peach, Nectarine, Apricot, Quince, Medlar, Walnut, Mulberry, Gooseberries, Currants, Filberts, &c., Lime, Elm, Oak, Sycamore, Maple, Ash, Plane, Laburnum, Birch, Beech, Poplar, Hornbeam, Chesnut, Alder, Thorns of sorts Acacia, Lilac, Guelder Rose Syringa, Weeping and other Willows, Ailantus, Calycanthus, Jasmine, Coronilla, &c., Large Portugal and Common Laurels, Large green and variegated Hollies, Aucuba, Box, Arbor-vitæ, Arbutus, Laurustinus Phillyrea, Euonymus, Weymouth Pine, and Pinus of sorts Scotch and Spruce Firs, Snowberry, China and Common Privet, Hemlock Spruce, Sweet Bays, Garrya elliptica, Magnolias, Rhododendrons, Azaleas, Kalmias, &c. A large quantity of Dwarf Roses, Clematis, Pyrus and Ribes in pots, Lilacs and Roses, for forcing; choice Figs of sorts &c. A large quantity of strong Sea Kale, Asparagus, and Rhubarb for forcing. May be viewed one week prior to the Sale. Catalogues (1s each, returnable to those bidders) may be had on the Premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone, Essex. The Premises are a short distance from the Royal Military Asylum, and the Chelsea Omnibuses pass every 10 minutes, the Iron Steam Boats to the Swan Pier, are within five minutes' walk of the Nursery Grounds.

NURSERY STOCK.

TO GENTLEMEN BUILDERS, AND OTHERS.

MESSRS. PROTHEROE and MORRIS will submit to Public Competition by Auction on the premises, Acre-lane, Brixton on Thursday, October 8th 1846 (by order of Mr. Dawson, in consequence of the ground being required for other purposes), the choice EVERGREENS and FRUIT-TREES. Also a selected assortment of CAMELLIAS and ERICAS. May be viewed prior to the Sale. Catalogues (sixpence each returnable to purchasers), may be had on the premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, PUBLIC CEMETERIES, AND OTHER PUBLIC COMPANIES ENGAGED IN PLANTING.

MESSRS. PROTHEROE and MORRIS have received instructions from Mr. Neal to submit to Public Competition by Auction on the premises, Wandsworth Common, on Monday October 26th 1846, and following days at 11 o'clock each day (in consequence of the ground being required for building purposes) the whole of the valuable NURSERY STOCK, consisting of the choicest Evergreens and American Plants Ornamental and Deciduous Shrubs &c.

The above offers great advantages from the variety of the Stock and will be lotted to suit every description of purchasers. May be viewed prior to the Sale. Catalogues, one shilling each returnable to purchasers may be had on the Premises of the principal Seedsmen and of the Auctioneers, American Nursery, Leytonstone.

NEWLY ERECTED GREENHOUSES, PINE PITS CUCUMBER PITS, AND THREE LIGHT BOXES. About 2000 feet of Three and Four Inch Hot water Pipes and Four Boilers nearly new 60,000 good old Bricks a large quantity of rotten Dung and Compost, 100 casts of Garden Mats, utensils in trade &c.

MESSRS. PROTHEROE and MORRIS have received instructions to submit to Public Competition by Auction on the Premises Green street Marlborough road, Chelsea on Tuesday October 6, 1846 at 11 o'clock by order of the Proprietor, the whole of the fine stock of Fruiting and succession PINE PLANTS consisting of Providence Black Jamaica, Pyramid Antigua, Globe, Lemon, Ripley, and Moscow Queen. The whole are clean, healthy, and well rooted. Also about 3000 feet of Glass, as above.

May be viewed prior to the Sale, and Catalogues had on the Premises, of the principal Seedsmen; and of the Auctioneers American Nursery, Leytonstone, or forwarded, on application to W. Davis, Green street, Chelsea.

TO NOBLEMEN, GENTLEMEN, AND NURSERYMEN.

CHOICE GREENHOUSE AND OTHER PLANTS.

MESSRS. J. C. and S. STEVENS will sell by Auction at their Great Room, 38, King-street, Covent-garden, on Tuesday, October 6, at 12 o'clock, a Choice Collection of Camellias, from 2 to 5 feet high, in great variety, some with upwards of 100 flower buds; Azalea Indica, several new sorts, Scarlet Hybrid Rhododendrons 4 feet high Amaryllis excelsa, 3 feet Magnolias, Choice Pinuses, Epacrises, and a variety of select New Holland and other Greenhouse Plants. On view the day prior and Morning of Sale, and Catalogues had.

AGRICULTURAL IMPLEMENTS, IRON WORKS, TOOLS, &c.

MESSRS. CAFE, SON, and REID will SELL BY AUCTION (by order of the Executors of the late Mr. John Davis), on the Premises, No 421, Oxford-street, on Monday, Sept. 28th, 1846, at 12 o'clock, the AGRICULTURAL IMPLEMENTS, comprising Wheat, Bean, and Oil-cake Mills, by Hand or Horse, Turnip, Manure and Northumberland Turnip Drills, Turnip Cutting, Oat Bruising, Potato Pulper and Barrel-cast Seed Machines, 2 Ploughs, Wine Press, Portable Mangle, Napkin Presses, powerful Fluting and Turning Lathes, Anvil, Vices, Press Drill, Tackle and Fall, Iron Work, Patterns, &c. May be viewed on Saturday. Catalogues had on the Premises, and of Messrs. Cafe, Son, & Reid, Great Marlborough-street.

THE LATE HAIL-STORM.—The Committee for the Relief of the Sufferers by the late Hailstorm respectfully announce that an AUCTION and BAZAAR for the sale of PLANTS and FLOWERS, in aid of the Funds, will be held at the Mart, 69 Cheapside, Threadneedle-street, City, on Tuesday 29th, and Wednesday 30th Sept., instant. Messrs. Protheroe and Morris (Auctioneers) having kindly offered their services gratuitously, the sale will commence at 12 o'clock each day, and will comprise Plants of all descriptions and many valuable kinds. The whole will be sold without reserve. Gentlemen, Nurserymen, and others, are earnestly solicited to contribute Plants and Flowers. Contributions to be sent on or before 26th September.—N.B. The smallest assistance will be thankfully received.

J. T. Newman, Hon. Secretary.

Committee Room, Hanover Tavern, Kennington, Sept 22.

TO LET, a small but respectable NURSERY, in a high state of cultivation, well cropped with young stuff, good fences, rent low, and no taxes whatever. This is a very favourable opportunity for a respectable man, as the owner quits through ill health.—Particulars may be known by applying (by letter prepaid) to Messrs. Noble, Seedsmen, No. 152, Piccadilly, London.

FOR SALE, at Fairfield Nursery, Stockport, 1000 fine young Apple and Pear Trees of large size, in full bearing, but the condition for moving. Horses, Carts, Waggon, Van, four-wheel Chaise and Pony; Utensils of any Kind. Ploughs, Harrows, Rollers, Garden Engine, Farm and Garden Implements, Seed Machine, Water Casks, and the Furniture of two Houses, on the premises, near Stanley's Head, Battersea, by Sibley and Co., on Wednesday and Thursday next, Sept. 30 and Oct 1. May be viewed and Catalogues had on the premises, and at the Gardeners' Gazette Office, 420 Strand.

A RARE OPPORTUNITY FOR INVESTMENT.

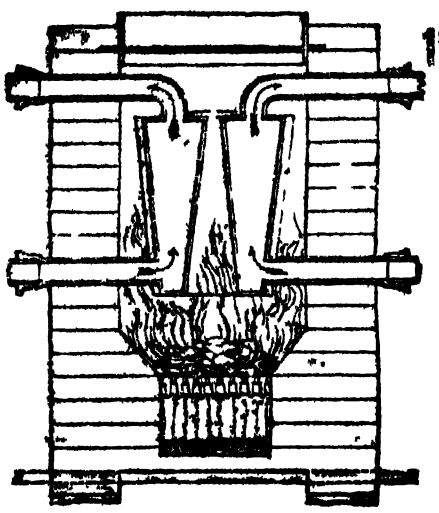
TO NURSERYMEN, SEEDSMEN, AND OTHERS.

TO BE DISPOSED OF, on very low terms, an unexpired term of about 80 years in a LEASE of most DESIRABLE NURSERY GROUNDS, containing about 5 acres of Land in a high state of cultivation. There is no situation equal to it near London, it is within half an hour's ride from either of the bridges, on the Surrey side of the Thames, the coming in about 1861. There are a Cottage Greenhouse, and other conveniences on the premises. For further particulars, apply by letter to A B, Mr. Halsworth's, 18, Aldermanbury, City.

HOT-WATER PIPES.—A large stock of these Pipes, with Elbows, Syphon Bends and all the usual connexions. Also Socket and Flange Pipes, at Jones's, 1, Bankside, Southwark.

HOT WATER APPARATUS.—The attention of Architects, Builders and others is respectfully requested to Benjamin Fowler's superior method of Heating Churches and Chapels, Halls, Staircases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork may be seen in action upon the premises. Benjamin Fowler, 61 Dorset-street Fleet-street.

THE TANK SYSTEM.



BURBIDGE and HEALY having heated a considerable number of Pits and other Horticultural Structures for the cultivation of Pines, Melons, Cucumbers and other tropical plants, particularly upon the plan recommended in Mr. Mills's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time prove beyond a doubt that every kind of structure may be heated by Burbidge and Healy's peculiar Tank Apparatus with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens Chiswick, Royal Botanic Gardens Kew, Baroness Rothschild's Gardens Gunnersbury, Mr. Glendinning, Chiswick Nursery, Messrs. Henderson, Pine-apple-place, and in more than one hundred other places.—130, Fleet street, London.

FOR WHEAT, BARLEY, &c.

THE CRATE OF THE LONDON MANURE COMPANY will be found a most valuable Manure for the above crops—it is permanent in its effects and has stood the test of five seasons with increasing success each year. The Company also supply genuine Peruvian Guano, Gypsum, Superphosphate of Lime, Sulphate and Muriate of Ammonia, Charcoal, Bone Sawdust, Sulphuric Acid and every Artificial Manure, at the lowest market price.—Edward Purser, Secretary, 40, New Bridge-street, Blackfriars.

POTTER'S GUANO FOR WHEAT AND ALL GRAIN CROPS.—The Autumn season is particularly recommended for the application of POTTER'S GUANO for the above crops, as time is afforded for the due decomposition of the Manure in the soil, and it is thus prepared when the plant feels the first genial warmth of spring, to afford the appropriate nutriment in a fit state for immediate assimilation.—Testimonials and all particulars at the Factory, 26, Clapham-road-place, Kennington. *** A few respectable Agents wanted.

GUANO, &c.

MARK FOTHERGILL begs to offer the following MANURES on the best terms, viz.

GUANO, PERUVIAN and AFRICAN, direct from Import Warehouses.
Ditto, PATAGONIAN and SALDANHA BAY. Ditto
SODA ASH, for destruction of Wireworm
SUPERPHOSPHATE OF LIME (See Royal Agri Soc. Journal, Vol VI Part 2).
GYPSUM (Pure Sulphate of Lime)
BONE DUST and BONE POWDER.
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Winter flowers, to force - 668 c
Wheat modes of sowing - 667 c

HOYLE'S SEEDLING GERANIUMS MOUNT ETNA AND ISABELLA.—Good strong plants will be sent out on the 15th of October, for cash only MOUNT ETNA, 1*l* 1*s* ISABELLA, 10*s* 6*d* The two together, 1*l* 10*s* warranted to please every purchaser when flowered N B 25 per cent allowed to the trade when three of each are taken at once —WM MILLER, Providence Nursery, Ramsgate

J R A PLARSON having a large Stock of the true BLACK NAPLES CURRANT can supply strong Plants at 30*s* per 100 It can be recommended as the best Black Currant known, being a better bearer than Ogden's Black Grape, and as having larger and higher flavoured berries, which all ripen at the same time The last quality renders it truly valuable. The usual discount to the Trade.—Chilwell Nurseries, near Notts

TO RAILROAD CONTRACTORS AND NURSERYMEN, &c

RICHARD HARTLAND AND SONS, 86, Patrick-street, Cork, have for sale, at their Nursery, Several Hundred Thousand THORN QUICKS, fit for fencing in Railroads, which will be delivered to purchasers in any part of England, Ireland, or Scotland, at reduced prices.

Also several Thousand Arbutus, from 6 to 12 inches, in and out of pots. All orders addressed as above shall have prompt attention

WILLIAM MASTERS has the honour to announce that he has received his Annual Importation of DUTCH BULBS, and respectfully solicits commissions for Hyacinths, Narcissi, Tulips, Anemones, &c

Named Chrysanthemums 9*s* to 18*s* per dozen.

Exotic Nursery Canterbury.

DUTCH BULBS

H GROOM, CLAPHAM RISE, near London (removed from Walworth) by appointment, FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY, begs to inform the Nobility, Gentry, and Public, that he has received his supply of HYACINTHS and DUTCH ROOTS, in very fine condition, and that his Catalogue of Bulbs is ready for delivery and may be had on application.

ROSE CATALOGUE —NEW EDITION.
NURSERIES, CHESHUNT, HERTS.

A PAUL AND SON beg to apprise their friends and the public at large, that a New Edition of their ROSE CATALOGUE is now ready for circulation, and which will be forwarded to all who may honour them with an application, inclosing two penny stamps for postage. Many new and fine varieties have been added to the Collection since the issuing of the last edition No pains or expense have been spared to render the descriptions accurate, and the Catalogue complete and useful

TO PINE GROWERS, &c.

HUGH BROWN intends, without delay, to dispose of the long celebrated stock of splendid PROVIDENCE and QUEEN PINE PLANTS, in all stages, at GREATLY REDUCED PRICES.—Particulars may be known by personal application, or if by letter, post-paid.

Ragley Gardens, Alcester, Warwickshire.

PETUNIA SEED, saved from Girling's Hebe, Ivery's Meteor, Brewer's Blood Royal, Pet Superb, Mahomet, Lady Sale, Lady Hope, Van Houttii, Fragrans (blue), Inimitable, and other best varieties, in packets, mixed, each containing about 200 well ripened seeds, at 1*s*., will be sent per post free on receipt of postage stamps to the amount.—M. BARWAY, Florist, St. John's Wood-terrace, Regent's-park.

Plants of Blood Royal, as advertised in last week's Paper, may be had to order

TO TULIP GROWERS.—An Amateur, who intends discontinuing the cultivation of the above named flower, wishes to dispose of the whole of his stock. The bulbs are all in fine condition, and consist of some of the finest sorts, such as Brown's Hamlet, Walker's King, Strong's Rainbow, High Admiral, Miss Superb, Butler's No. 3, &c. &c. The number altogether is about 90, and the whole will be parted with at one half the prices quoted on any Nurseryman's or Florist's list All the bulbs warranted true to name.—Apply to A. B., Post-office, Tavistock, Devon.

THE FINEST CARNATIONS, PICOTEES, AND PINKS.

YOUELL & CO.'s Extensive and celebrated Collection of the above are this season unusually strong and healthy, and are now ready for sending out, in fine well rooted plants, to any part of the United Kingdom, or for exportation, at the following prices:—

25 pairs of finest first-rate show varieties of Carnations and Picotees	£5	0	0
12 pairs do. do. do.	2	10	0
25 pairs of very fine show varieties of do. do. ..	3	0	0
12 do. do. do do.	1	10	0
25 do. of finest first-rate show varieties of Pinks ..	1	4	0

FINE CAMELLIAS.

YOUELL & Co are now supplying very healthy plants of the above, comprising the finest varieties in cultivation, at 30*s* per dozen

THE FINEST DUTCH HYACINTHS, &c.

YOUELL and CO. have received their importation of the above in the finest condition, and are enabled to offer very superior HYACINTHS by name, comprising double and Single Red, Blue, White, and Yellow, at 6*s*, 9*s*., and 12*s* per dozen.

CEDRUS DEODARA.

YOUELL and CO. beg to inform Planters and the Trade, they are enabled to supply fine one-year Seedling Plants of the above well established in Pots, upon reasonable terms.

ARAUCARIA IMBRICATA, or CHILIAN PINE.

3 years old	12*s*	per doz.
4 „	18*s*	„
5 „	30*s*.	„
6 „ 1 foot, very fine and bushy, measuring from 12 to 15 ins across	60*s*.	„

A few fine specimen plants 18 inches to 2 feet in height, and from 2 feet to 2 feet 6 inches across, 21*s*. each.

Cedrus Deodara, 2 years	18*s*	per doz.
Ditto ditto 1 foot, worked ..	30*s*.	„
Picea Webbiana, 1 year, ...	18*s*	„
Abies morinda, 2 years, in pots, fine ..	12*s*	„

CINERARIAS.

The newest and best varieties, by name, 12*s* per dozen

GERANIUMS.

Extra fine first-rate show varieties, 12*s*., 18*s*., and 30*s*, per doz.

FUCHSIAS.

12 first-rate new Fuchsias, including their beautiful Seedling "Sansparell"	£1	1	0
12 fine do	0	12	0
Extra fine Fuchsia Seed, from newest and best varieties, per packet	0	2	6
Alstroemeria Seed, from Mr. Van Houtte's varieties, per packet	0	2	6
Antirrhinum Brightii, lutea, and venosa, per packet	0	1	0
„ finest mixed 12 varieties, per packet	0	1	0
Myatt's British Queen Strawberry .. per 100	0	3	6
Princess Alice „ .. „	0	2	6
Dickson's Royal Pine „ .. „	0	15	0

PANSIES.

Extra fine first-class show varieties, 18*s* per doz., fine do., 10*s*

YOUELL'S EARLY TOBOLSK RHUBARB, and MYATT'S VICTORIA Ditto, 12*s* per doz. Fine strong Roots for forcing

Steamers from this port to Rotterdam and Hull twice a-week, and to London daily

Great Yarmouth Nursery, Oct 3

TO PINE GROWERS GENERALLY.—As there will be an EXHIBITION of FRUIT, FLOWERS, &c, at the Horticultural Rooms, Regent-street, on Tuesday next, I. WILMOT most respectfully begs to inform his brother Horticulturists that he intends to exhibit a few varieties of PINES, which, in his opinion, cannot be equalled by any other grower in the United Kingdom, consequently, to invite competition on the occasion, begs this will be received as a public challenge Isleworth, October 3.

DRIED PLANTS FROM FLORIDA.—A few sets of the VALUABLE DRIED PLANTS, collected in FLORIDA by Dr. W CHAPMAN, may still be procured, by applying to Mr. PAMPLIN, Botanical Bookseller, Frith-street, Soho, London. Among them are many rare, and several entirely new species.

LYNE'S NEW SEEDLING GERANIUMS.

WILLIAM E. RENDLE AND CO. have now the pleasure of offering the following new and choice GERANIUMS, which have been selected from upwards of a Thousand Seedlings.

FIRST CLASS.—*The following can be recommended as first-rate show flowers, of superior excellence.*

LYNE'S FORGET-ME-NOT	£1	10	0
„ REMEMBRANCE	1	10	0
„ FIREFLY	1	10	0
„ SIR WALTER RALEIGH GILBERT	1	1	0
„ PERI	1	1	0

Or the whole set of Five for £5.

SECOND CLASS.—*The following are flowers possessing many good properties, and are worthy of being placed in good collections—but are recommended more for their novelty and brilliancy of colour than for their qualification as show flowers.*

Queen of Beauties.. 7*s*. 6*d*.	Nourmahal ..	7*s*.	6*d*
Talleman .. .. 7 6.	Sir Robert Sale ..	7	6

Or the whole set of Four for £1.

DESCRIPTIONS CAN BE HAD ON APPLICATION.

Good Plants of the above will be delivered on and after the 1st of November next The Usual Allowance to the Trade. Great Attention will be paid to careful packing All orders will be executed in strict rotation.

WILLIAM E. RENDLE and Co.

Office, Union-road, Plymouth, Oct. 3.

CARNATIONS AND PICOTEES.

JOHN DICKSON, of Acre-lane, Brixton, Surrey, begs to inform the cultivators of this beautiful tribe of Flowers, that his Catalogue of the best known varieties, now ready to send out, may be had on application, by enclosing a stamp —October 3

CARNATIONS, PICOTEES, AND PINKS

H. WARD, FLORIST, begs to call the attention of Gentlemen, Amateurs, Florists, Friends, &c, to his superb and healthy collection of the above, comprising the finest sorts in cultivation. Catalogues are now ready, and may be had on pre-paid application —Bull Fields, Woolwich, Kent.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN & OTHERS.

ABIES CANADENSIS, or HEMLOCK SPRUCE.

G. BAKER, NURSERYMAN, BAGSHOT, SURREY, having the Largest Stock in Europe, of various sizes and in fine condition can with confidence recommend this noble tree to the notice of the public, at the following prices —

1 ft —Transplanted	at £0	12	0	per 100
2 „ „	„	0	16	0 „
3 „ „	„	1	5	0 „
3 to 4 ft. „	„	1	10	0 „

PICEA BALSAMEA

1½ to 2 ft „	at £0	8	0	„
2 „ 3 „ „	„	0	12	0 „

G B having a fine Stock of Flowering KALMIA LATIFOLIA, can supply them at the following low prices —

9 to 12 inches	at £1	10	0	per 100
12 „ 18 „	„	3	15	0 „
18 „ 20 „	„	5	0	0 „

Fine Specimen Plants from 3*s*. 6*d* to 5*s* each

N B —Large purchasers will have considerable reduction —The usual allowance to the trade.

LARGE GREEN AND VARIEGATED HOLLIES

CHANDLER and SONS, Nurserymen, Wandsworth-road, Vauxhall, having a large and fine Stock of handsome plants of the above from 5 to 10 feet high, can supply them at very moderate prices Also fine Tree Box, Rhododendrons, &c., &c., and a large quantity of fine young Lime Trees Chrysanthemums of the best sorts well set with flowerbuds, from 9*s* to 12*s*. per doz

E. BECK informs the Public that the various Articles manufactured by him in Slate for Horticultural purposes, may be seen in use at Worton Cottage, Isleworth, upon application to the gardener (*Sundays excepted*)

PANSIES, PINKS, CARNATIONS, AND PICOTEES.

CHARLES TURNER'S CATALOGUE, containing Selections of the above popular Flowers, is now ready, and may be had on pre paid application

Chalvey, near Windsor

NEW SEEDLING STRAWBERRIES

J. MYATT & SONS have selected from their stock of seedlings the following varieties, which are now ready for sending out —

MYATT'S GLOBE large and fine flavour, per 100	30*s*	„
„ MAMMOTH, very large	30*s*	
„ PROLIFIC, early and great bearer	21*s*	„
HOOPER'S SEEDLING, early	21*s*	„

The above selection are quite distinct, and well worth the attention of growers

Early orders will ensure strong plants for fruiting next season —Manor Farm, Deptford, Oct 3

R. B. BIRCHAM, Hedenham Rosary, Bungay, Suffolk, begs to offer the following Select PERPETUAL and BOURBON ROSES for Sale These plants are Dwarf (own roots), and having been bedded out all summer, they are nice established plants R B B feels confident they will give satisfaction to any purchaser, to form beds of Perpetuals, or for Pot Culture Careful package, and carriage paid to London, per Norfolk Railway —

BOURBON.

	Per plant—*s*	*d*
Acidalie	1	6
Anne Beluse	2	0
Caris	2	0
Comice de Seine et Marne	2	0
Comte de Rambuteau ..	2	6
Crimson Globe	1	6
Dieul Duc d'Orleans ..	2	0
Duc de Chartres ..		
Dupetit Thouars ..	3	0
Edouard Desfosses ..	1	6
Enfante d'Ajaccio ..	1	6
Gloire de la Guillotierre	2	0
Gloire de Paris	2	0
George Cuvier	2	6
La Gracieuse	2	6
Le Grenadier	3	0
Marechal du Palaise ..	10	6
Madame Aubis	2	6
Madame Souchet ..	2	6
Paul Joseph	2	0
Pierre de St. Cyr ..	1	6
Princess Clementine ..	1	6
Proserpine	2	0
Queen of the Bourbons..	1	6
Reine de Mantin ..	10	6
Reine de Virgis	3	0
Sepintarus	10	6
Souvenir de la Malmaison	2	0
Souvenir de Dumont d'Urville .. .	3	6
Virgil	2	0

HYBRID PERPETUAL

	Per plant—*s*	*d*
Augustine Mouchelet .	1	0
Aubernon	1	6
Clementine Duval .	1	6
Comte d'Eu .. .	1	6
Dr Marx	1	0
Duc d'Aumale .. .	2	0
Duchess of Sutherland .	2	0
Earl Talbot	1	6
Fulgoris	1	6
La Reine	2	6
Lady Alice Peel ..	2	6
Lady Fordwich .	1	6
Lane	1	6
Madame Laffay ..	1	6
Melanie Cornu	2	0
Marquise Boncella ..	2	0
Mrs. Elliot	1	0
Prince Albert	1	6
Prince of Wales ..	1	6
Rivers (Laffay) .	1	0
Thibault	2	6
William Jesse	1	6

NOISETTE

Cloth of Gold	3	6
Fellenberg	1	0
Lamarque Superb ..	1	6
Ophirie	3	6
Solfaterre	3	0

CHINA

Madame Breon ..	2	0
Mrs. Bosanquet ..	1	6
Eugene Beauharnais ..	1	6
Devoniensis .. .	1	6

A Descriptive Catalogue sent upon application

R. B BIRCHAM has a large stock of the following which he can offer to the Trade upon advantageous terms, per dozen —

Persian Yellow, dwarf worked plants.

La Reine, perpetual, dwarf, own roots, or upon 20 to 30-inch stems.

Souvenir de la Malmaison, and Reine de Virgis, Bourbons dwarf, own roots.—Hedenham, Oct. 3, 1846.

BASS AND BROWN have this season to offer the following. Their Autumn Catalogue of Ranunculuses, Bulbs, &c. is now ready, and may be had pre-paid on application.

SUPERB NEW RANUNCULUSES.

These consist of very superior and first-rate flowers, which they have chiefly selected during the last four years from many thousands of seedlings. The following selections with names will be sent free by post, with printed directions for culture:—

50 varieties for 40s., or 1 pair of each, 20s.
25 ditto 21s. 6d., ditto 36s.

The above are particularly recommended for vigorous growth and prolific bloom.

50 fine older varieties, 10s., or 1 pair of each, 18s.
25 ditto 6s., ditto 12s.
Fine mixed Ranunculuses 5s. and 10s. per 100.

GLADIOLUS, 12 beautiful named varieties	15s. 0d.
splendid mixed summer hybrids, per doz.	5 0
EARLY TULIPS, 12 beautiful varieties for pots or borders, 3 roots of each	12 6
6 varieties, 3 roots of each	7 0
DOUBLE TULIPS, 6 fine varieties, 3 roots of each	7 0
HYACINTHS, Imported Dutch, fine named, per dozen	6s. to 15 0

GERANIUMS.

The following strong and well-established are now ready:—

25 superb show varieties 21s., or 12 for 12s.	
25 very superior, newer var. 50s., or 12 for 30s.	
Fine varieties, per doz., 6s. to 9s.	
PICOTEES, 12 pair superior varieties	£1 4 0
CARNATIONS, 12 pair ditto	1 4 0
PINKS, 12 pair ditto	0 10 0
CHRYSANTHEMUMS, 10 superb new vars.	0 15 0
A large stock of very fine GIANT RHUBARB, strong roots, per doz.	0 6 0
YOUELL'S EARLY TOBOLSK ditto	0 6 0
BRITISH QUEEN STRAWBERRIES, p. 100	0 4 0

Carriage free to London; and for orders of 40s. and upwards extra plants or roots will be presented to pay expense of distant carriage. A remittance from unknown correspondents. Post-office orders to be made payable to WILLIAM BASS or STEPHEN BROWN. Seed and Horticultural Establishment, Sudbury, Suffolk, Oct. 3.

TULIPS, RANUNCULUSES, ANEMONES, CARNATIONS, PICOTEES, PINKS, LILIUMS, IRISES, &c.

MESSRS. TYSO & SON, Wallingford, Berks, beg to call the attention of the Public to their extensive collection of the above flowers; and to state that their descriptive priced Catalogue may be had post free on application, enclosing two postage labels.

GREAT REDUCTION IN THE PRICES OF BECK'S SEEDLING GERANIUMS SENT OUT IN 1845.

WILLIAM E. RENDLE AND CO. having procured a much larger stock of BECK'S GERANIUMS than they anticipated, have resolved to offer the set of nine sorts, as follows, for 2l. 14s.

DESDEMONA.	MARC ANTONY.	ISABELLA.
MUSTER.	ROSY CIRCLE.	FAVOURITA.
SUNSET.	MARGARET.	ZENOBIA.

All those who have previously ordered sets will be charged at the same rate as above.

LYNE'S SEEDLING GERANIUMS OF 1845.

The following set of Ten for 50s.

Marmion, Princess, Merry Monarch, King of Saxony, Rosebud, Chaplet, Vampire, Moonbeam, Picta, and Aladdin.

FIRST CLASS.—*Customer's Selection of 12 from the following list for 30s., or our Selection One-third less.*—Standard of Perfection, Edith, Lady Bulkeley, Miss Halford, Prince Alfred, King of the French, Gipsy Queen, Confidence, Zanzummim, Cleopatra, Theresa, Imogene, Leonora, Redworth, Sappho, Apollo, Meteor, Pluto, Celestial, Beauty of Salthill, Black Dwarf, Rosetta, Selina, Shield of Achilles, Sultana or Perpetual, Cook's Nector, King of Saxony (Gaines), Titus, Charupion, Mrs. Jephson, Magog, Queen, Francis Bullin, Cornubiensis (Hockin), Albion (Hockin), Princess Alice, White Perfection, Sarah Jane, Queen Phillipa, Queen Victoria (Shepherd), Princeps, Robustum, and Duke of Devonshire.

Other varieties of Geraniums from 6s. to 18s. per dozen.

*** W. E. RENDLE & Co. *have much pleasure in stating that they will commence sending out their* GERANIUM *Orders on and after Monday the 5th day of October next, instead of November the 2d, as previously advertised.*

Descriptions of the Geraniums can be obtained.

☞ *All orders above 3l. will be delivered (hamper, package, and carriage free) to London, Bristol, Exeter, Barnstaple, or Falmouth; or above 6l. to Liverpool, Dublin, or Cork.*

A remittance is not required from known Correspondents, or those who give reference in London.

Steamers from this Port three times a week to London, Cork, Dublin, Liverpool, and Falmouth.

Orders will be executed in strict rotation.—Great attention is paid to careful packing.—All plants forwarded to long distances are packed in Fir Boxes, and firmly secured.

WILLIAM E. RENDLE & Co.

Office, Union-road, Plymouth, Oct 3.

RHODODENDRONS, NEAPOLITAN AND PERPETUAL VIOLETS, &c. — A large quantity of the above are cultivated for sale at the low scale of prices quoted by W. ROGERS and SON, Nurserymen, Southampton.

Perpetual Violets, bedded, strong flowering plants,	Per 100,	30s.
Ditto ditto, in pots,	ditto per doz.,	9s.
Neapolitan Violets, bedded, strong flowering plants,	per 100,	30s.
Ditto ditto, in pots,	ditto .. per doz.	9s.
New [illegible]-white Violets, bedded	.. ..	6s.

Rhododendron Pontieum, strong bedded plants (not layers but raised from seed and well rooted):—

One year bedded, 1 to 2 inches, 30s. per 1000.
Two years ditto, 2 to 4 inches, 60s. „
Three years ditto, 4 to 6 inches, 80s. „

1 foot, 15s. per 100; 1½ foot, 20s. per 100; 2 feet, 30s. per 100.
Pontieum Roseum, from stools, two years bedded, 1 to 2 feet (many set with bloom), 40s. per 100.
Hybrid Catawbiense, 1 foot, 50s. per 100.
Hybrid Scarlet arborea and maximum, 1 to 2 In., 25s. per 100.
Arboretum Album, 1 to 2 feet, from pots, 3s. 6d. each.

Common Arbutus, bedded, 3 to 6 inches, 12s. 6d. per 100.
Common Laurel, 1 foot, 10s. per 1000; 2 to 3 feet, 30s. per 1000.
Giant or Irish Ivy, 12s. 6d. per 100.
Bignonia radicans, 5s. per doz. Victoria Rhubarb, 30s. per 100.
Scarlet Plants, 2s. 6d. per 100.
Asparagus Plants, 2s. 6d. per 100.

The above quotations are for wholesale: if ordered in less quantities a proportionately higher charge will be made.—Oct. 3.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4s. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have been just received at A. CONSTANTY'S Italian and Foreign Warehouse, 18, Pall-mall, near Waterloo-place. Also Dutch Hyacinths, Crocus, Tulips, Anemones, Ranunculus, &c.; priced Catalogues of which may be had per post.

MENZIES' NEW HYBRID POTENTILLAS.

POTENTILLA ATROSANGUINEA "MENZIESII." This is a splendid production of extraordinary size, of a brilliant orange scarlet colour, the underside of the petals being bright yellow.

POTENTILLA FORMOSA "BAINESIANA." This is a bright scarlet variety of P. formosa, exceedingly rich, beautiful and unique; the underside of the petals of this are also bright yellow, which gives to both varieties a pleasing contrast.

WILLIAM MAY, F.H.S., having purchased the above splendid, hardy herbaceous plants from Mr. MENZIES, gardener, Hopehouse, Halifax, begs to announce that he purposes sending out the two varieties, in October next, at 21s. per pair, or four pairs for 3l. 3s., post free.

W. M. has the fullest confidence in recommending these superb, hardy herbaceous plants, they having been pronounced by all who have seen them the most beautiful varieties in this much-admired family.

N.B. The above, with W. M.'s beautiful Fuchsia, PURITY, will be figured in an early No. of "Paxton's Magazine of Botany."

Hope Nursery, near Bedale, Oct. 3.

THE NEW CRIMSON BOURSAULT ROSE STOCK.

HENRY CURTIS being fortunate enough to possess the largest Stock in Europe this season of the above most valuable Rose, which within the last three years has been proved to make the best Stock ever offered to the public for budding all Teas, Chinas, and Bourbons on, particularly for pot cultivation, far surpassing the old Blush and Red Boursaults in the excessive luxuriance and durability of its growth; it NEVER MILDEWS, and the wood is perfectly smooth and thornless, so that it can be worked most easily. The wonderful property of this Stock appears to be that all Roses of the China strain budded upon it, make nearly double the growth that they would on any other, which can only be accounted for by the fact of the new Crimson Boursault producing nearly five times the amount of root that the Wild Briar would under similar treatment: it makes a splendid pillar or trellis Rose, producing shoots of from 10 ft. to 12 ft. in length, sometimes blooming in the autumn of a deep rich velvety crimson. The Stocks are very clean and fine, and are offered to the trade at 30s. per hundred; second size, 20s.; in less quantities at 5s. per dozen. Sent out the first week in November; and as the Stock this season is limited to 15,000, to prevent disappointment, it is particularly requested that all orders may be forwarded immediately.

HENRY CURTIS begs to call attention to the Celine (Hybrid Bourbon), which he has grown for many years, and of which he cannot speak too highly; as a stock for all Mosses and all Roses of the rough-leaved damask habit it is unrivalled; perhaps no Rose in existence possesses the amount of lungs that this does; but it is not nearly so fine and free to bud as the Crimson Boursault; although for grafting it is superior. Comparatively speaking but few Rose cultivators at present are aware of the immense advantage of using cultivated Stocks over wild ones. So firmly is H. C. convinced of their great superiority, that after the next season, every Dwarf Standard Autumnal Rose sent out from the West of England Rose Nurseries will be worked on the above Stocks. Carriage of packages paid to London per rail.—West of England Rose Nurseries, Moorend, Bristol.

TO CONTRACTORS AND PLANTERS.

QUICK, OR WHITETHORN.—A few Hundred Thousands of fine clean, transplanted QUICK to be disposed of.—For price and sample, apply to YOUELL & Co., Great Yarmouth Nursery.

The above is of the finest quality, and possess an unusual quantity of fibrous roots.

SOLANUM LYCIOIDES, HARTWEG.

H. SILVERLOCK has to offer plants of this very pleasing Greenhouse plant, figured in the "Botanical Register" for May, 1846, at 5s.

SILENE SCHAFTÆ, described in the "Journal of the Horticultural Society" as "a beautiful little hardy herbaceous plant—with bright purple flowers more than an inch long, and must be regarded as a very handsome small plant for rockwork, and very desirable on account of its blooming profusely and for a long time in the autumn," 2s. 6d.; strong plants, 5s.

PTEROSTIGMA GRANDIFLORA, described in the Journal, and at page 55 of the *Chronicle* for January 24, 5s.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, from 8½d. to 5½d. per foot. Glass Pantiles, 12s. 6d. per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at P. ELPHICK'S, 28, Castle-street East, Oxford-street. *** For Ready Money only.

GLASS MILK PANS.—In consequence of the increased demand for GLASS MILK PANS, owing to the incontestible fact of their being better adapted for obtaining Cream, throwing nearly 10 per cent. more than any other utensil hitherto used; and also to the extraordinary reduction recently made in the price; PHILLIPS & WELCH have the pleasure to announce that they have made arrangements with the manufacturer for a constant supply of the above articles, and are now ready to deliver them at the under-mentioned prices:—

Each—	s.	d.		Each—	s.	d.
12 inches in diameter	2	4	18 inches in diameter	4	0	
14 „ „	3	2	20 „ „	4	3	
16 „ „	3	9	22 „ „	4	6	

When a dozen are taken at once no charge is made for packages. British and Foreign Sheet and Horticultural Glass Warehouse, 12, Paulton-street, Haymarket.

GLASS WHICH CANNOT BE BROKEN BY RAIN or HAILSTONE.—A large quantity of POLISHED PLATE GLASS to be sold at 1s. per foot.—Apply at the East London Plate Glass Warehouse, Leman-st., Goodman's-fields.

STRONG HORTICULTURAL SHEET GLASS.

HETLEY AND CO. are supplying 16 oz. SHEET GLASS, in boxes of 100 feet each, an article superlative in every respect to the Straight, and well adapted for Horticultural and general glazing purposes, at the following reduced prices, for cash. A reduction on 1000 feet.

Sizes.				Per 100 feet Box.	
Inches.		Inches.	s. d.	£	s. d.
6 by 4	and under	7 by 5	at 6 2½	1	0 10
7 5	„ „	9 7	0 3½	1	2 11
9 7	„ „	10 9½	0 3	1	5 0
10 8½	„ „	14 10	0 3½	1	7 1
14 12	„ „	2 ft. super.	0 2½	1	9 2

Other sizes of every substance and quality equally low.

	Inches.	s. d.	per Dozen according to
GLASS TILES,	14 by 14 from	3 6	substance, thinnest
„ SLATES,	20 by 10	5 6	being 16-oz. sheet.

WHOLESALE GLASS DEPOT, Sheet, Crown, and Patent Plate Glass Warehouse, 35, Soho-square, London.

APSLEY PELLATT & Co. (late PELLATT & GREEN) respectfully inform the Public that at their Manufactory, Holland-street, Blackfriars, they retail GLASS, China, and Earthenware Chandeliers, Lustres, and every variety of English and Foreign Ornamental Vases, Tazzas, &c. Their Show Rooms are equal to any in London, and their stock of the most superior and approved description. Foreign orders and outfits executed with despatch. N.B. No establishment in the City. West-end Branch, 58, Baker-street, Portman-square.

DUTY OFF GLASS.

GREEN AND HOTHOUSES, CONSERVATORIES, &c., made and fixed Complete in all parts of the Kingdom, at a considerable reduction. One, two, and three-light Cucumber and Melon Boxes, and Lights of all sizes, kept ready for use, packed and sent to all parts of the Kingdom; warranted best material. Two-light Boxes and Lights complete, from 1l. 5s. Garden-lights of every description, at JAMES WATTS'S, Hothouse Builder, Claremont-place, Old Kent-road.

Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

FOREIGN SHEET GLASS, GLASS TILES, &c.

C. JARVIS has a quantity of boxes of FOREIGN SHEET GLASS, of the stoutest kind, of all sizes, which he can offer to purchasers at a considerable sacrifice, at his old established WINDOW GLASS WAREHOUSE, 38, Great Castle-street, a few doors from Regent-street.

Also, a large quantity of SMALL GLASS on the lowest terms, for ready money only.

GLASS FOR CONSERVATORIES.

APSLEY PELLATT AND CO., Falcon Glass Works, Holland-street, Blackfriars, are prepared to supply (in quantities not less than 100 square feet), SHEET AND CROWN GLASS OF BEST QUALITY, at the following *Net Cash Prices*:—

Any size under 2 feet superficial.	Per square foot.
12 oz. weight per foot	4d.
16 oz. „ „	5
21 oz. „ „	8

SMALL Squares up to 10 in. by 8 in., from 1½d. to 3d. per sq. ft.

N.B.—The 16 oz. is full strength for Greenhouses.

PROPAGATING GLASSES, White, 1s. per lb., or from 2s. 6d. to 24s. per dozen. CUCUMBER GLASSES from 6d. to 4s. each. GRAPE SHADES, with holes, 1s. 9d. to 2s. 6d. each. FISH BOWLS, from 1s. 6d. each.—APSLEY PELLATT & Co., Falcon Glass Works, Holland-street, Blackfriars.

GLASS DAIRY PANS.

EDWARDS AND PELL, HORTICULTURAL GLASS WAREHOUSE, 15, Southampton-street, Strand, and 7, Malden-lane, Importers of FOREIGN SHEET GLASS and GLASS DAIRY PANS, beg to announce the prices of their PANS, *viz.*—

	Each—	s.	d.
18 inches in diameter	.. ..	2	0
20 „ „	..	3	3
22 „ „	..	4	6

The following is one of many letters received respecting the superiority of Glass over Earthenware or Metal:—

"Beau Regard, St. Lawrence, Jersey, Sept. 5, 1846.

"GENTLEMEN,—The pans arrived all quite safely, but I deferred acknowledging them until I could tell something about their qualities. I am happy to say, that they answer far beyond my expectation; not only the quantity of cream is increased, but also the quality of the butter is very far superior to that made in the earthenware pans. Will you, on the receipt of this, send me one dozen and a half of the smallest size which you sent me before.—Yours, &c., J. HUME."

The Pans require no scalding, cleaning with the most perfect ease. They are cool, cleanly in a degree, and very handsome, being perfectly transparent, and as stout as the strongest earthenware.

BELGIAN SHEET GLASS.

EDWARDS AND PELL, Agents and Importers, continue to supply the STOUT BELGIAN SHEET GLASS of good quality at their usual low prices. British Horticultural Glass of every description from 13 oz. to 32 oz. to the square foot, Church and Ornamental Staircase Windows executed in the first style, on the lowest terms. Designs furnished. 15, Southampton-street, and 7, Malden-lane, Strand.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND."

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street; near Hyde-park.

BAKER'S PHEASANTRY, Beaufort-street King's-road, Chelsea (by appointment to HER MAJESTY and H. R. H. PRINCE ALBERT),—ORNAMENTAL WATERFOWL, consisting of Black and White Swans; Egyptian, Canada, Chinese, Barnacle, Brent, and Laughing Geese; Shieldrakes, Pintail, Widgeon, Gunnager and Winter Teal; Gadwall, Labrador, Shovellers, Gold-eyed and Dun Diver; Carolina Ducks, &c., domesticated and pinioned; also Spanish, Cochin China, Malay, Poland, Bolton Grey, Surrey, and Dorking Fowls; and at 3, Half-moon-passage, Gracechurch-street,

White, Pied, and Common Peafowl. Eggs of the above; and pure China Pigs.

SUBSTITUTE FOR GARDEN MATS.—Transparent cover to give light and warmth from Greenhouses, Frames, &c., 1s. per yard, nearly 2 yards wide; Tarpaulings for keeping out frost, 1s. 3d. per yard, nearly 2 yards wide; both these articles are Waterproof, they will last much longer than mats, are not half the expense of carriage, are easily fixed, very little more in price than mats, and are warranted to outwear two mats.—ROBERT RICHARDSON, Net and Tent Maker, 21, Tonbridge-place, New-road, London.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

BENJAMIN FOWLER, 46, Dorset-street, Fleet-street.

ROSES.

E. P. FRANCIS'S new and select Edition of ROSES is now ready for delivery, and will be forwarded *gratis* on application. It contains all the new and approved Varieties of the season, as well as a very large Collection of Hybrid Perpetuals, Teas, Chinas, Bourbons, Noisettes, and Climbers, grown on their own roots, strong Plants fit for immediate forcing in pots.—Hertford Nurseries.

SUPERB NEW SEEDLING CINERARIAS, &c.

W. JACKSON & Co., NURSERYMEN, beg to inform their friends and the public generally, that they are now prepared to send out fine Plants of their unrivalled new SEEDLING CINERARIAS, which obtained all the First Prizes at the Darlington Horticultural and Floricultural Society's Show, on the 15th May last. These very rich varieties are of dwarf and compact habit, producing immense masses of bloom, with flowers of extraordinary size, and Dr. Lindley (to whom they were transmitted for his opinion) observes, "Your specimens of Seedling Cinerarias are the largest we have seen; they also combine with size, fine colour, and the flowers are composed of broad and well rounded petals of great substance. No. 1, a deep rich mazarine blue, the flowers of which measure 1¼ inch in diameter. This is a very striking variety," &c. &c. See *Gardeners' Chronicle*, 21st March last, p. 188, Seedling Flowers, "X."

The collection of the 5 varieties .. .. .. 20*s.*
The collection of 6 of the best of their celebrated seedlings of last year .. .. 20*s.*

W. J. & Co. also beg to offer the following New and Rare Plants, and to call particular attention to their fine collection of Ericas, Epacrises, New Holland Plants, and Indian Azaleas, priced Catalogues of which will be ready shortly, and may be had gratis on application:—New White Tree Violet 2*s.* 6*d.*, Anemone japonica 5*s.*, Achimenes patens 5*s.*, A. Leipmanii 3*s.* 6*d.*, Clerita sinensis 2*s.* 6*d.*, Cuphea cordata 5*s.*, Torenia asiatica 3*s.* 6*d.*, Dipladenia crassinoda (strong) 5*s.*, Bernadesia rosea 5*s.*, Francisœa hydrangæformis 10*s.* 6*d.*, Ixora odorata 1*l.* 1*s.*, I. crocata 10*s.* 6*d.*, I. hydrangæformis 5*l.* 5*s.*, Primula sinensis alba plena fimbriata 3*s.* 6*d.* to 5*s.* (large), P. sinensis purpurea plena 5*s.* to 7*s.* 6*d.* (large), Rhododendron Smithii aureum 7*s.* 6*d.* to 10*s.* 6*d.* each, strong plants.

12 Camellias, distinct varieties, 1 to 1½ foot, strong bushy plants, set with bloom buds .. .. 36*s.*
12 fine Prize Hollyhocks, with names .. .. 21*s.*
100 do. double showy do. without names .. 35*s.*

These popular Flowers comprise the most beautiful varieties imaginable. They have been much admired during the past summer, and received an extra prize at the Darlington Horticultural and Floricultural Society's Show, on the 7th August.

100 distinct showy Hardy Herbaceous Plants, correctly named .. .. 35*s.*
100 do. do. in 50 named sorts .. .. 25*s.*

Plants presented to compensate for long carriage, and all goods delivered free on the Railway.

A remittance or reference from unknown correspondents is respectfully solicited.

A liberal allowance to the Trade.

Cross-lanes Nursery, Bedale, Yorkshire, Oct. 3.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 3, 1846.

MEETINGS FOR THE FOLLOWING WEEK.

MONDAY, Oct. 5—Entomological . . . . . 8 P.M.
TUESDAY, — 6—Horticultural . . . . . 3 P.M.

ONE of the earliest steps that were taken by this Paper was to point out to persons desirous to emigrate the advantages of NEW ZEALAND as a settlement (see *Gardeners' Chronicle*, 1840, p. 99). Its soil and climate appeared to offer inducements which can scarcely be found elsewhere, and justified our description of it as a land where emigrants "had most to hope and least to fear."

The result of the experiment of colonising New Zealand has, however, been declared to be a failure, and we have been blamed for advocating its cause. We do not deny that the experiment has been in some respects a failure; we are far from pretending that men's fortunes have not been put in jeopardy or lost there. It is perfectly true that serious disasters have attended the steps of the settlers; but why? Was it because of the soil? the climate? or any of those circumstances of the country on which our recommendation was grounded? Certainly not. The disasters have been wholly owing to the deplorable measures of the Colonial office on the one hand, and to the inconceivable wrongheadedness and incapacity of the Governors whom it appointed. Every body in authority allowed himself to be earwigged by men whose advice was the very last that should have been taken; and the Government acted towards the industrious and enterprising settlers with an insane animosity, which could not have been exceeded had they been rebels instead of good and loyal subjects.

From the very first the *malus animus* of the Government was manifested by the appointment of what were designated "Protectors of the Aborigines," a high sounding title intended to operate upon the spurious humanity that is so rife at home, but which really signified a functionary invested with enormous powers of ruining the settlers for the benefit of nobody. Thus when the acts of these persons brought about a massacre of British subjects, the poor victims were the parties blamed, and it is stated in one of the Parliamentary Blue Books* that RAUPEHAHA, the brutal savage who commanded the party by which the foul murders were committed, was patted on the back by the Governor, and taken by the hand by a post captain in Her Majesty's service; a circumstance that would be incredible if it had not remained for years uncontradicted. The first scene of this extraordinary drama was appropriately closed by the Lieutenant-Governor restraining the settlers from forming themselves into bodies of volunteers for their own defence; so that after exciting a savage population to acts of the most dangerous hostility, the imbecile government of New Zealand in effect commanded the colonists to offer themselves peaceably to be slaughtered.

It is useless to continue such miserable details; they are merely mentioned to show why it was that the experiment of colonising New Zealand wore for many years so gloomy an aspect. The wonder is that the islands were not absolutely abandoned to Governors HOBSON and FITZROY, and their satellites. In every country the first elements of prosperity are safety for the person and security for property. Without them the finest climate and the richest soil are worthless. The Government of New Zealand acted upon this proposition reversed. Their argument was practically this: Let us render the settlers odious to the natives; let us stir up animosity between the races; let us next render the settlers defenceless, declare their possessions illegally held, and make them understand that their capital is expended for the benefit of the aborigines; and thus shall be formed a great and prosperous colony!

Nevertheless, in spite of such enormous difficulties as were thus thrown in the way of the emigrants, the colonists have contrived to exist, and even to thrive, as is proved by the following letter addressed to a gentleman at whose recommendation the writer went to New Zealand three years ago, with a "wife and four nearly grown up children."

"I received your note yesterday, and am very sorry that you should have to tell me about not writing to you before, but I wished to get comfortably settled before I sent you any word, and now I am happy to let you know that I am sitting at my own fireside, with all my children round me as you told me before I left England would be the case, and in two months will be independent of any one, as far as plenty of provision goes, for I have got 1¼ acre of fine Wheat, and about the same quantity of Potatoes and vegetables of all sorts; also, about 400 or 500 fruit trees, and all excellent sorts. I suppose you saw in my letter to the late Mr. Loudon, about my succeeding so well in grafting and budding fruit trees, especially the Pear upon the Whitethorn, which I can assure you makes most handsome trees. I have a row of Apple trees before my own door, about 15 months old, fully 4 feet high, and branching out into splendid heads; there are also trees of my working got Apples on this year. We have had a splendid crop of fruit this season, considering the age of the trees, over at Messrs. Molesworth and Ludlam's garden, which has been under my care ever since I came to the Hutt. I was obliged yesterday to thin out the Apples on two or three of the trees, as they were hanging a great deal too thick; they are now about the size of hens'-eggs.

"We have also got a nice little Vinery. I planted the Vines 15 months ago, and I never saw anything go on so rapidly and make such fine wood in all my life, and I have got a few bunches on this year which will be exhibited at the horticultural show—the first that have ever been grown in the colony: I have got a few bunches, also, showing out of doors, which I have every reason to believe will come to perfection, as we have such a fine autumn and winter here.

"I took six first prizes at the fruit show last year, and I expect to take a few more this year. I have got some splendid Melons and Cucumbers coming on; in fact, everything looks well, for we have got a beautiful soil and a beautiful climate. I have got two plants of the Calceolaria, one in flower; the seeds were sent to me by a gentleman from Scotland, and I have no doubt of being able to raise a fine variety from them in a short time. They are the only ones in the colony.

"Colonel Wakefield came over to see me the other night, and he was quite astonished to see what we had got through in 12 months. We have built ourselves a house, and cleared and cropped 3½ acres of bush; and after our Wheat comes in I intend to plant out ½ an acre of orchard. The colonel said he had quite lost heart for Wellington, for he saw that it was of no use to try and compete with us up the Hutt.

"I was very much down-hearted when I first arrived here, for everything was going on very bad at Wellington; and, in fact, they are not going on altogether well just now, but I believe there is a prospect of a change for the better, but we do not trouble our heads much with the affairs of the colony, for we have got something else to occupy us. Men of industrious sober habits have nothing to fear here, for any one may get a living that has a mind to work for it. I am happy to tell you that my family and myself all enjoy excellent health here, and although getting into years I have got through work that I do not think I could have done 20 years ago.

"I will write to you again by the next vessel that sails, and give you an account of my success in some more experiments that I intend trying in gardening, as I have not the least doubt of it.

"I have plenty of beautiful Flax growing a very short way off us, which I find very useful in tying in trees, and several other things in my way; that is growing in a swamp; but I believe the mountain Flax is generally preferred by the natives for dressing. I know no difference between the two, as they are exactly alike in appearance and flower.—*Wm. Trotter, River Hutt Port Nicholson, Jan. 2, 1846.*"

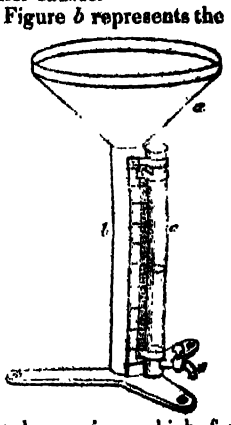
Such being the fate of an intelligent industrious gardener, notwithstanding the past state of the New Zealand colony, everything is to be hoped for now that a truly British Governor is in authority there, whose firm and enlightened acts are a guarantee for the restoration of prosperity. Captain GREY is not the man to be bullied by the natives or cajoled by the land-jobbers of Auckland. He has already shown the former that he knows how to make the name of England respected, as well as feared; that if he feels bound to guard the natives he will also maintain the just rights of the colonists; that he wants no "Protectors of Aborigines" to teach him his duty; and that he has the spirit and intelligence to judge and act for himself in the Herculean task of snatching a great colony from the jaws of destruction.

It will still be found that the picture we so long since drew of New Zealand was in no degree overcharged, and that it will eventually become one of the brightest gems in the British crown.

THERE is a very common instrument which plain men call a RAIN GAGE, and pedants a Pluviometer, concerning which some of our readers seem much in need of information. It is a contrivance that ought to find a place in every garden, and does in the best. Its object is to indicate the quantity of rain that falls during a given period.

The practical utility of this instrument to cultivators of the soil does not however appear to have been sufficiently estimated. Let us then describe it for the benefit of those who would possess it, and yet are unable to employ a philosophical instrument maker, which of course is the best plan for those who have the means; but even then they should be aware that the person who uses it ought to understand its construction perfectly, so that he may detect the derangements to which it is liable from frost or other causes.

Figure *b* represents the usual form of a rain-gage.



A copper funnel, *a*, which has an opening below of a quarter of an inch in diameter, is fastened upon a cylindrical tube, *b*. At the side of this a glass tube, *c*, is placed, which communicates with it below, and has a graduated scale attached. It is evident that any water will stand in the two tubes at the same height, and will be measured by the graduated scale. Enough water is then poured into the funnel to rise above the brass ring which fastens the glass tube just above the cock, and thus is formed the zero point of the scale. The diameter of the rim being known, and hence the area which it includes, a quantity of water that would occupy the same surface for an inch in height must be poured into the funnel, and the height at which it stands in the glass tube will indicate the height at which an inch of fallen rain would stand in the instrument; this must accordingly be marked off on the scale. The same quantity of water should be added again and again, in order to mark off on the scale several inches. As the diameter of the tube is small compared with that of the funnel, the water rises several inches in the tube, and by this means many subdivisions of the inch may be easily made. When the scale is constructed in this way, the size and form of the funnel are of little importance, as the relative depth of rain is measured and not the actual quantity. This apparatus rests upon a tripod, which should be fastened to the ground, so that the wind may not turn it over. The edge of the funnel should be exactly horizontal, and its opening should be small, in order to prevent evaporation. A good observer will measure off the water daily, reducing the quantity after each observation to the point marked zero in the scale before alluded to.

But other kinds of Rain-gages have been contrived and answer the purpose sufficiently well. In one of the reports by a committee of the Royal Society, on objects of scientific inquiry, it is stated with reference to the Rain-gage that it may be of very simple construction. "A cubical box of strong tin or zinc, exactly 10 inches by the side, open above, receives at an inch below its edge a funnel sloping to a small hole in the centre. On one of the lateral edges of the box, close to the top of the cavity, is soldered a short pipe, in which a cork is fitted. The whole should be well painted. The water which enters this gage is poured through the short tube into a cylindrical glass vessel, graduated

* Report on New Zealand, 29th July, 1844. Appendix, No. 17, page 222.

to cubic inches and fifths of cubic inches. Hence one inch depth of rain in the gage will be measured by 100 inches of the graduated vessel, and $\frac{1}{1000}$th inch of rain may be very easily read off."

A military officer in India employed a yet more simple instrument. Its construction could be regulated, and its indications ascertained, by means of a common rule, divided into inches and tenths. The space for the reception of the rain was rectangular, 10 inches by 12; the quantity deposited was received into a box 3 inches by 4, being exactly $\frac{1}{10}$ of the area of the opening at top. These dimensions are very useful because they are not fractional; and the areas which they include are in decimal proportion; consequently inches and tenths of depth in the one is equivalent to tenths and hundreds of an inch in the other.

Rain gages are frequently constructed with a float, to which an index rod is attached, and becomes more or less elevated according to the greater or less quantity of rain deposited in the cylinder. The float should have no more room in the cylinder than is necessary for moving up and down with ease, and so that the water may readily pass. When this is the case evaporation is almost wholly prevented. If the funnel is made 10 inches square, the cylinder may be 3 or 4 inches in diameter; and if 5¾ oz. 9 grains, avoirdupois, of water, at a temperature of 62°, be poured into the gage, the float will be raised as much as if $\frac{1}{10}$ of an inch of rain had fallen. By this means the index rod may be easily and correctly graduated to represent tenths of inches of rain, and a subdivision of the spaces may be readily effected for the hundred parts.

From what has been stated, any one with a little ingenuity may construct a rain-gage, correctly, at small expence. Of the practical utility of the instrument one example will be sufficient.

Suppose a south-wall border is 600 feet in length, and 15 in breadth, with a dry bottom; and that the trees maintained a healthy foliage, with rain falling at the rate of 2½ inches per month, say during the months of April, May, and June. The area of such border, 9000 square feet, will have received in the above period no less than 35,055 gallons of rain-water. But if it should happen that instead of 2½ inches, the monthly depth of rain should only average half an inch, as was the case in the months of April, May, and June, in 1844, the deficiency as compared with the quantity found to keep the trees in good health, will amount to 28,055 gallons, or 1122 tubs such as are used by gardeners for watering, containing, when as full as can be wheeled, about 25 gallons. The weight of the above quantity is upwards of 125 tons; the raising of this, perhaps from a pump at some distance, and conveying, and distributing it on the border, must occasion an amount of labour and expence, which those on the spot can easily calculate from the certain data afforded by the rain gage; and at the same time those also who could otherwise have had no idea of the enormous quantity of water required artificially in a dry season for such a border as we have named, will be made aware of the necessity of supplying it. ||

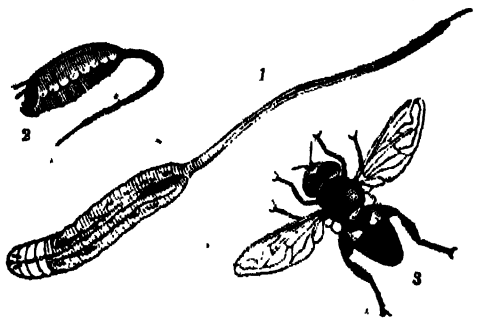
We are happy to observe that Her Majesty has contributed 20*l.*, and His Royal Highness Prince Albert, 10*l.*, to the subscription for the relief of the Nurserymen, &c., who suffered by the late Hailstorm. We understand that the losses are estimated at 15,000*l.*, and that the Committee have only received, at present, about 1500*l.*

ENTOMOLOGY.

Eristalis tenax.—There are 16 species of the genus Eristalis recorded as inhabiting England, and some of them from their buzzing flight, their form and colour, so much resemble hive-bees, that it is difficult to convince many persons they are different; they are, however, easily distinguished by the number of their wings, bees having four, and flies only two wings. One of the most abundant species is the E. tenax, which one sees in the summer and autumn extracting honey from Sunflowers, China-asters, Thistles, Dandelions, &c. The males frequently hover in the air, vibrating their strong wings with a rapidity which renders them invisible, and the body of the animal appears to be immovable and suspended in the air, until the fly darts off in pursuit of a female, and not unusually returns to the same spot.

The eggs of E. tenax are dropped upon stagnant water, whilst the female is on the wing, and produce very extraordinary larvæ; they were extremely numerous in July and August in a tub which had been filled with chamber-wash and had become putrid. Into this slugs and snails were thrown, which seemed to be suited to the taste of the maggots, for they attached themselves to the floating bodies in masses of 20 or 30. I conclude to feed upon them. A vast number appeared to die, and when others were full grown they ascended the inside of the tub, at night probably when it was damp, and reached the earth to undergo their transformations. I expect those which died had failed in their attempts to escape, for I frequently saw them when the sun was shining and the surface of the tub dry, unable to crawl beyond a couple of inches from the liquid they inhabited. The way in which they tumble about in the water, like porpoises, is very amusing; they dilate their broad sucker-like heads, and shoot out two small membranous tubercles beneath; the tail is twisted in every direction, and being, like the body, composed of innumerable rings, it can be lengthened or contracted at pleasure, and one sees a fine, brown, double, hair-like tube down the centre, which projects about 1-8th of an inch beyond the membranous and stouter tail, the tip of it forms a little mouth or spiracle surrounded by six hairs, which rest on the surface of the water and supply the animal with air. The under side exhibits an infinity of vessels, and a large mass or two under the thorax, like a bundle of salmon-coloured eggs; there are also seven pair of membranous feet surrounded by little hooks, distinctly projecting from the ventral segments, which assist the larva in walking. To give a correct idea of this animal, it must be drawn on a large scale, but my sketch (Fig. 1) will identify it. It would make a beautiful object for the microscope, as the skin is so thin that all the viscera can be seen through.

When the larva is full fed, it crawls out of the water, and secretes itself amongst loose stones, in paling, or crevices of woodwork, &c.; having fixed itself, it gradually contracts as the skin dries, and hardens until it assumes an oval shape (fig. 2); it is then of a dirty ochreous brown colour, the anterior extremity is a little depressed, having two horns above, covered with glands on the upper surface for breathing, and beneath them are two similar but very minute horns; on the under-side are seven pairs of spots formed of black horny points, and a slight indentation shows the position of the mouth; the tail although useless in this stage does not fall off.



In the last week of August I discovered two pupæ amongst the Grass near the tub, and one of them produced a female E. tenax the first week in September; but there are still larvæ in the tub and mostly full grown. In the garden are multitudes of the Eristalis; yet I never have been able to detect one laying its eggs. When the period arrives for hatching the fly, by dilating itself, the depressed portion of the pupa, to which the four horns are attached, is forced off, and the fly comes forth of a pale colour, with its wings shrivelled; it then ascends some object, when the fluids soon increase the wings to their proper dimensions, and the atmosphere hardens and colours the skin.

Eristalis tenax is a Linnean species of Musca. It is of a brown colour, the head is semi-orbicular, the face pale ochreous, pubescent and forming a short beak, which receives the proboscis and lip; there is a shining brown oval space down the centre, with a darker spot at the top, beneath which are placed the antennæ, which are small and drooping; the two basal joints are subferruginous; third dull black, compressed, orbicular and larger; on the back of this is inserted a ferruginous pubescent seta; the eyes are brown or copper coloured, large, very pubescent, contiguous in the male; the three ocelli form a triangle at the base of the head; the thorax is orbicular-quadrate, blackish with a brassy tint, the pubescence ochreous; scutel transverse, semi-oval, ochreous; abdomen shining, tapering most in the male and somewhat conical but truncated; basal joint with a large semi-transparent ochreous spot on each side, and a transverse band of the same colour at the union of the segments; upon the second is a smaller spot or line, varying in size, and the edge of this segment is ochreous; the abdomen in the female is more ovate, with the lateral spots on the first segment, and the edge alone ochreous; the wings are divaricating in repose, transparent, with an ochreous brown spot on the disc, very faint in the male; the submarginal cell closed before reaching the costa, one of the central cells looped, the nervures ochreous brown; halteres concealed; legs six; hinder the largest; tips of thighs and base of four anterior tibiæ pale fulvous, hinder broad, curved, silvered with ochreous hairs externally, with black internally; tarsi flat, 5-jointed, basal joint the longest, fourth somewhat bilobed in the anterior; pulvilli and claws ochreous, the latter pitchy at the apex; Fig. 3.

These flies are perfectly harmless, and do no mischief in the garden.—*Ruricola.*

AUTUMN PLANTING POTATOES.

The eligibility of planting Potatoes before winter has been much discussed. A fear was entertained that a crop so planted would be lost from the effects of frost. This fear was most certainly not founded, in Ireland at least, on observation, for the least observant must have seen how few of the Potatoes left in the ground through the winter were injured by frost. The question has now been decided by a number of experiments, many of which are recorded in the *Chronicle*, and it is even affirmed by many that the Potatoes so planted have appeared to escape the disease more than those planted in spring.

It was formerly the opinion of many, and I believe of Dr. Lindley himself, that diseased seed would produce diseased tubers; experience has, however, now shown several instances in which this has not been the case. I always had some doubts of it, and have previously given my reasons for questioning this opinion—the experience of several years in transplanting Potato plants, of which the sets had completely rotted off, from a disease that bore every token of being of the family of the one which now affects the Potato. We may therefore venture, with every prospect of success, to plant diseased Potatoes.

The Dublin market is supplied with Potatoes (the Cumberland Kidney) from the county of Wicklow, in the month of May. They are planted on a strip of bog land, near the sea shore, in September, highly manured and set up in ridges with a heavy covering. When above ground, in frosty weather, two men with a hay rope pass along the furrows, and sweep off the hoar frost before the sun rises. It is a known fact, of which most of your readers must be cognizant, that it is the breaking up of the cellular tissue in animals and vegetables by the sudden application of heat to a frozen surface that causes the destruction of the frozen part. By striking off the hoar frost from the leaves, this injury is in a great measure prevented. Upon the same principle, Potatoes planted on a western exposure will be more likely to escape the effects of frost than those planted on an eastern one. I have seen this exemplified. And for the same reason, Potatoes planted among early spring Greens, where they will be shaded from the direct rays of the sun, will also be likely to escape.

Nineteen years ago I planted at Michaelmas, among Cabbages for winter use, some whole Potatoes, of a kind called in Cork, Quarries. They sent up shoots early, many of which were destroyed to the ground by frost (and recollect it is only to the ground they are destroyed; they may therefore at first coming above ground be protected by a covering of clay); but in a few days after, fresh shoots would appear, and at length they beat the frost out of the field, and I dug well grown Potatoes in May. Five or six years ago I dug Potatoes of a good size on the 15th of June from a planting of sets in January of Potatoes that had sent out strong shoots in the pits, leaving the shoots on them. It is to be observed, that the kinds planted were not the earliest, but the third or fourth earliest of the gardeners, large field Potatoes.

From the Potatoes having ceased growing so early this year, and from the warmth of the present season, those now digging out, whether diseased or sound, show either strong buds, in some cases shoots, or a disposition to shoot, and I have not the least doubt that the common earlier kinds of Potatoes, if now planted, would yield us a sure crop in May or early in June; and as the premature ripening of the later kinds will probably give them a precocious property of production, and as the Cup (Minion in Cork) appears naturally disposed to early and quick production, I think we might also venture to plant this valuable Potato (it is one of the firmest we have, and a strong proof of its value lies in its being known and grown all over Ireland) in the expectation that it would acquire a reasonable growth before the appearance of the disease next summer. And as the Potato appears to suffer less from the disease in the ground than in the pit, we have in this an additional reason not to defer our planting till the spring.

In Ireland an objection may be raised to autumnal planting in the want of manure, but straw alone has in many a poor man's necessity been found to give him a good crop of Potatoes. They might in addition receive a top dressing in spring. I need not say what a seasonable relief it will be to have a general supply of new Potatoes by June next.

As the diseased Potatoes send out strong shoots, and even earlier than sound ones, and as they have been found to yield sound tubers, it would be advisable to plant the diseased Potatoes as well as the sound ones; as they are of little value their loss would not be felt, and should they perish in the ground they would have done so in time for a spring crop.—*J. M. Goodiff, Grenuril, Sept.* 26.

EXOTIC FERNS.

The annexed list contains a selection of pretty kinds that any person may grow to perfection in a greenhouse or conservatory (either grouped by themselves, or placed amongst the other plants—whether exposed to the sun, or in the shade), where they will require no other care than what is bestowed upon the other plants in the house, of watering, shifting into larger pots when necessary, and occasional surfacing when necessary.

A mixture of two-thirds of loam, and one-third of peat, is suitable for potting all of them, except the Adiantums, which do better in peat alone. As many of the species grow to a considerable size, and require pots of a size to allow their free growth, the soil for potting them ought to be mixed with coarse drainers, to keep it open and porous; and in potting at all times, drainers ought to be used in the bottoms of the pots.

There are many other species of Ferns that will do better in a greenhouse than in the stove; but, as they

require an attentive and particular treatment, none such are inserted in this list.

Acrostichum alcicorne, Sw.
Adiantum concinnum, H. and Kth.
,, cuneatum, L. & Fls.
,, formosum, Br.
,, moritzianum, Lk.
,, pubescens, Schk.
Aliantodia australis, Br.
,, axillaris, Kaulf.
,, umbrosa, Br.
Anemia fraxinifolia, Rad.
Aspidium coriaceum, Sw.
,, eburneum
,, elongatum, Sw.
,, falcatum, Sw.
,, molle, Sw.
,, patens, Sw.
,, pennigerum, Sw.
,, prolliferum, Br.
,, pungens, Kaulf.
Asplenium bulbiferum, Forst.
,, decurtatum, Lk.
,, flabellifolium, Cav.
,, monanthes, L.
,, planicaule, Wall.
Asplenium præmorsum, Sw.
,, virens, Presl.
Blechnum australe, L.
,, brasiliense, Desv.
,, gracile, Kaulf.
,, striatum, Br.
,, triangulare, Lk.
Chellanthes davallioides, W.
Cibotium glaucescens, Kunze. (Baromets).
Darea cicutaria, W.
,, Odontites, W.
Davallia canariensis, Sw.
,, elegans, Sw.
,, pyxidata, Cav.
Dicksonia antarctica, Labell.
Diplasium lasiopteris, Kunz.
,, Shepherdii, Lk.
Doodia aspera, Br.
,, caudata, Br.
,, Kunthiana, Gaud.
Gymnogramma ochracea, Presl.
Lomaria antarctica, Carm.
,, attenuata, W.
,, Gilliesii, H. and Gr.
,, nuda, W.
,, Patersonii, Spr.
,, procera, Spr.
Nephrodium decompositum, Br
,, Ottonis, Lk.
Niphobolus Lingua, Spr.
,, rupestris, Spr.
Nothochlæna distans, Br.
,, Ecklonl, Kunze.
Polypodium auroum, W.
,, Billardieri, Br.
,, concinnum, W.
,, decursive pinnatum
,, lepidopodum, H. Ber.
,, phymatodes, L.
Pteris arguta, Vahl.
,, crenata, Sw.
,, cretica, L.
,, falcata, Br.
,, hastata, Sw.
,, Kingiana, End.
,, laeta
,, longifolia, L.
,, pedata, L.
,, polita, H. Ber.
,, serrulata, L.
,, sinuosa, Rad.
,, tremula, Br.
,, umbrosa, Br.
,, vesportillonis, Labill.
Woodwardia radicans, Sw.

—*D. Cameron, Botanic Garden, Birmingham.*

Home Correspondence.

Subjects affected by the Potato Disease.—I perceive by the *Chronicle* of the 26th inst. that you are not aware of any other species of plant but the Solanums [we did not say so], being attacked with the prevailing blight, erroneously termed the Potato murrain. The following facts will, however, fully satisfy you that, be the disease what it may, it is not confined to any particular species, as the accompanying list will testify. I may just observe that I first detected its ravages in the last days of July and the first week of August. 1st. Tomatoes: every fruit set up to the 1st of August quite unfit for use, and scarcely a leaf left on the plants; dressed them heavily with caustic lime, which, in my opinion, completely checked the further progress of the malady, as the fruit since set are as fine as could be wished for, and no trace of disease to be found. 2d. The Solanum crispum nearly destroyed, same time, and manner. 3d. The Solanum dulcamara in full berry at the time, and almost every berry infected precisely as the Tomatoes. 4th. All my late planted Dahlias severely infected, both roots and stems. The early, and consequently more matured ones, only very slightly touched. 5th. A crop of very luxuriant Spinach entirely cut off. N.B. Close by some let run up for seed, not in the least affected; it had lost its succulency. 6th. An entire square of curled Endive swept away in one week. N.B. This crop was highly manured with stable-dung and guano; another plantation on poorer land not in the least affected. 7th. Every Lettuce (and there were several thousands), on the first week of August, all but destroyed. 8th. All the late-sown Windsor Beans, not a pod left. 9th. Almost every plant of the common blue border Iris greatly affected; the semi-tuberous roots, many of them quite gone, just like the Potato. And 10th, and lastly, the most remarkable of the whole, viz., the Vine! This occurred in an old Vinery, a very late house. The fruit is just now stoning, and known among gardeners as the Grove-end Sweetwater. There are three or four bunches affected precisely similar to the Tomatoes, and as the Berries get more pellucid, it is most interesting to watch the progress of the brown taint—plant our worthy friend Mr. Moore would call it. The above will establish the fact that the disease in question is not confined to any particular species; consequently, the doctrine of the dying out of the Potato falls to the ground.—*J. Walker, Viceregal Gardens, Sept.* 28.

The Hedgehog Carnivorous.—Two years ago I had a brood of six young ducks under a hen, and I put them into a greenhouse one evening for warmth. A hedgehog was brought me, and was let loose in the same place for the night, and in the morning every young duck was dead, having had their heads gnawed through, and the brain eaten, the body being untouched; now, no animal of any other sort could have done it. And if any one doubts the carnivorous propensities of the hedgehog, let him try for himself.—*M. S. Y.*

Brunsvigia Josephinæ.—This fine bulb is much more hardy than is generally imagined. Some time since, a friend, who had got tired of keeping one for years in a greenhouse without an appearance of bloom, handed it over to me in disgust. Encouraged by the success of some former essays of the same kind, I determined on planting it in the open border, close under a south-west wall (of itself a certain degree of protection from wet and frost). The first season it seemed to remain dormant, but bloomed the ensuing autumn, and is now in flower for the third year running, the head of blossom consisting of 36 spikes; and, I have but little doubt, if the fine weather lasts a fortnight longer, it will ripen abundance of seed. The soil of my garden is a sound strong loam, and the only protection that has been given during winter is a common bell glass with a Russia mat thrown over it; this filled with Moss or straw would, of course, be still more effectual; but here it is not required. The neck of the bulb was left just level with the surface.—*H. D., Guernsey, Sept.* 22.

Potato Disease.—It has struck me that the following fact may be of some value to some of your correspondents who talk about the necessity and desirableness of getting Potatoes anew from the original stock in South America. I have a considerable quantity of this much-to-be-desired stock, obtained in the following manner. In the spring of 1835 (the autumn of the S. hemisphere), Mr. Darwin collected some seeds from ripe tubers, in the Cordillera of central Chili, in a most unfrequented district, many miles from any inhabited spot, and where the plant was certainly in a state of nature. These vegetated under Professor Henslow's care in the year 1836 or 1837, and in that year or 1838, a tuber was given me by Mr. Darwin. It was either three or four years before the Potatoes from it became eatable. They are now good both for eating and keeping, and good bearers. I had them growing last year among many other kinds; and as they are a late variety, they had not ceased growing when the disease appeared in Cheshire. They fared exactly the same as other kinds, having the blotch in the leaf and a few tubers decayed. This year the haulm was destroyed totally, in the same manner as all my Potatoes were; and on taking up the tubers I find about the same number diseased as in other kinds. I fear this decides the point as to the uselessness of procuring seed from even the fountain head—the wild stock itself. As I have intruded thus far, I will add a few words as to the result of my own experiments and observations last year and this. I felt no doubt last year that the disease was communicated from the south of England—for this reason: when I first observed it in the south, we had not a speck upon the leaves, nor an unsound Potato. This continued long after grievous complaints in the south, until at length it seemed to gradually creep to us, and kept proceeding northward, but did not work very far in Scotland. None of my early Potatoes, and scarcely any second earlies, were touched, being raised before the disease came to us; the second earlies were, however, spotted in leaf. The produce of those early Potatoes this year was little injured in the tubers; but the haulm was destroyed. The second earlies of last year, of which the foliage only was slightly specked then, have been this year almost totally destroyed, after yielding an abundant crop, but of which the tubers almost all decayed. I have this year crops of seedling Potatoes—autumn sown, early and late in the year, with and without manure, and I can see no difference in them. Some crops rather better than others in the tubers; but of all, the haulm totally destroyed, and most rapidly in the best growing crops. I see that some of your correspondents state that in crops of which the haulm was destroyed, they could see no disease in the tubers. May not this have arisen from the diseased tubers being quite rotted away? I have seen this the case, so that you could not discover them without a very diligent examination, and the remainder of the crop was to all appearance quite sound. That the disease is sometimes communicated by the air I have no doubt is the fact. Adjoining my Potato field I had some Dahlias, and when the disease attacked the Potato-haulm so virulently as to make the air for a considerable distance most disagreeable, blotches appeared upon the Dahlia-leaves which could not be mistaken. They began similarly, had the white appearance under the leaf, and soon had the same scorched black look. They, however, outgrew it, and it appears quite gone. Whatever may have been the cause and origin of this destructive agent, about which all seem as yet about equally in the dark, does it not seem, weighing all the evidences on the point from your numerous correspondents, that both parties are right—those who say it comes, or rather is promulgated, from within—and those who say it comes from without. This is the conclusion I have come to after carefully watching it last year and this in a great Potato-growing country, and from numerous experiments. You asserted, I think, at one time your conviction that the spot in the leaf never came till decay had commenced in the stem just above the tubers. In many instances I find this correct; but in many more I could not detect the least discolouration or decay in any part of the plant or tuber when the blotch first appeared of a palish hue above, and a mildew look underneath the leaf. I believe this is after the real commencement of disease in the plant, when communicated through the medium of the air; but I imagine that after that the plant is tainted, and its tubers the following year have the seeds of death within themselves.—*W. D F.*

Horticultural Society's Prize-list for 1847.—Observing that a Silver Gilt Medal is offered for hardy hybrid shrubs, at the Exhibitions in 1847, allow me to suggest the genus Erica as a subject for hybridising. Would it not be possible to raise hybrids between our hardy species and some of the Cape species, which might probably prove as hardy as the splendid hybrid Rhododendrons.—*Milnthorpe.*

Thunbergia Chrysops.—By the following treatment this beautiful species has been induced to expand daily from 20 to 60 of its delightful blossoms. It was repotted from a 5-inch pot in April 1845, using a compost of turfy peat, loam, and sand into a 12-inch pot, and placed in the plant stove, where it soon commenced growing very fast; it was frequently stopped with a view to induce it to flower, but without effect. This treatment, however, caused the shoots to become short-jointed and somewhat woody, which proved to have had a great tendency in inducing it to flower. As the winter approached, no signs of its flowering having exhibited themselves, water was gradually withheld, just enough being given to prevent it from losing its foliage, and it was removed to the coolest part of the house, where it remained until spring, when it was brought from its winter quarters and placed in a situation as much exposed to the sun as possible, a liberal allowance of water being now given it. About the beginning of May it showed signs of flowering from the axils of almost every leaf, and from that time it was occasionally watered with some good clear liquid manure, which caused the flowers to expand much more freely. It will thus be seen that although a plant does not happen to bloom the first season, success must not be despaired of; for by treating it through the winter as above, the labour will be amply repaid in next season.—*James Grant, Bowood Gardens.*

Potatoes shaded by Indian Corn not diseased.—At Waltham Abbey, Essex, a person of the name of Wright has, growing, some fine Indian corn; it is now 11½ feet high, and the distance between the rows induced him to plant Carrots and Potatoes, both of which are remarkably fine and free from disease; but further on he continued the same Potatoes, where there is no corn, and these are diseased and bad. Does this not prove that the influence of our late scorching sun must be the cause of failure?—*Waltham.*

Gardeners' Advertisements.—I presume that the persons who advertise for places wish to obtain them. May I enquire of them whether they seriously expect gentlemen to trouble themselves about writing to them, when they invariably avoid stating the wages they demand? I am employed to find two or three gardeners, and upon looking over your advertising columns I do not find a single advertisement that I can answer.—*G.* [We wish very much that gardeners would for their own sake attend to this hint.]

Soot a Preventive of the Potato Disease.—Last year, in November, I planted some seedling Ash-leaved Kidney Potatoes upon a gravelly soil. Trenches were made about 7 inches deep, and the tubers were planted, whole, in them, and a liberal quantity of soot was thrown over. I commenced lifting them in the latter end of July, and finished on the 1st of August, when I found the sets were encased in soot, and nearly all as sound as when planted. The tops were a little attacked with the disease, but the tubers appeared sound and a good crop. I placed them, according to custom, upon a gravel walk in my garden to dry for planting, and in about three weeks I found them severely attacked with the disease. I had them sorted over and placed in an out-house with the doors left open, and have continued to sort them over up to this day, and out of 10 bags I have three only left apparently sound.—*R. M. S., Sept.* 29.

Abies Douglasii at Dropmore.—The following are the height and dimensions of our best plant of Abies Douglasii:—Height, 48 feet 6 inches; diameter of branches, 38 feet 6 inches; girth of stem 3 feet from the ground, 4 feet. The seeds of this splendid tree were sown in March, 1828, and the tree was planted out in the following year on a very poor soil, with very little fresh earth added to it; or if this had been the case, the tree would have been still finer. On two or three occasions, two or three leaders have been formed, which I have removed; and the same happened this season in the shape of a second leader, which I have taken off. If removing contending leaders was more universally attended to, we should see much finer trunks to our finest timber-trees than are often to be met with. I have some seasons had excellent seed from Douglasii; but it is not to be depended on. There are but few cones this year, and the seeds are mostly abortive. When I sent the height of the Araucaria imbricata (see p. 479), it was 22 feet 6 inches: it is now 23 feet 3 inches, and will be several inches higher before winter, as the tree is growing very fast.—*Philip Frost, Dropmore.*

Solanum laciniatum affected by Potato Disease.—You mention that you are not aware of the Potato disease having attacked any other of the Nightshade family except the Tomato and Egg-plant To these I can add a third, the Solanum laciniatum, which was growing in great vigour and beauty in my nursery in the open air on Sunday the 25th of July, and its development was so singularly beautiful and perfect, that my sons with myself remained about it, examined it, and pronounced it one of the most interesting of its tribe, when grown from seed in the open air, as this plant was, and not confined to a pot as we usually see it. Between 10 and 11 the following morning, in passing the same plant, I observed a change had taken place, the whole of the plant on the south-west side appearing to droop. Upon closer examination, the branches with their membranous angles, as well as the leaves they bore, were blotched over with dull purple, and upon removing the epidermis the tissue was disorganised and discoloured, the walls of the cells were broken, and the watery matter they had contained was diffused. At this time I saw no symptom of mouldiness, but by two o'clock on the same day nearly the whole of the infected parts were covered with minute white hair-like fungi, that had pierced the outer integument, and whose rootlets had inserted themselves in all directions in the diseased matter. In a few days the peculiar havoc and brittle stage of the disease became apparent, and as a consequence no more fungi were nourished. That the disease was identical with that on the Potato there is not

the shadow of a doubt, but from whence did it come? I had no Potatoes growing in the nursery, and the parts of the plant affected were those that came in contact with the wind. Were the spores of the fungus borne on the air from the Potato gardens in the distance? and although everywhere present, could they only find a suiting pabulum for their development in this one plant of the Potato family? or must we refer the disease to the mysterious agency yclept "atmospheric," and that the growth of fungi was a consequence and not a cause? For myself, I incline to the former opinion. But I admit that the matter, after all the observation that has been bestowed upon it, comes to us still in a questionable shape. There are two points, however, that my Solanum laciniatum my help to elucidate; the first, that no raising of plants from seed will prevent this noisome pestilence, for this plant, as I before mentioned, was a seedling; and secondly, that the disease does not commence in the tuber, for this plant is only furnished with fibrous roots, and has nothing analogous to the swollen and compressed stem which we designate a Potato root. Further, as our legal friends would say, the parts of the plant on the side of shelter from the wind are yet green and healthy, and will perfect their seeds, although those on the exposed side have long since been blackened, brittle, and dead. Upon tracing the vessels that were injured down to the rootlets that gave them support, no change could be perceived; no disintegration, no discolouring, no shrivelling had taken place; the rootlets were as vivacious as those of the opposite side, where the plant had been unaffected by disease; but this state of things lasted but a few days, when the roots of the parts that connect themselves with the diseased stem and leaves became yellower, and ultimately browner than in the living, proving, in this case at least, that vitality was first extinct above, and that death descended by degrees below. — *William Masters, Exotic Nursery, Canterbury.*

The Deadly Nightshade.—Will any reader inform me what birds or insects feed on the black berry of the Belladonna? We have some very large plants growing about, and we find the berries gone the moment they are ripe, and though we have found some perforated, we have not yet been able to discover whether it is done by birds or insects; but no traces of the berries are under the trees.—*Onyx.*

Two Crops of Potatoes from the same Sets.—Somewhere about December last I planted six lights of Ash-leaved Kidney Potatoes. I commenced taking them up in Easter week; the old sets were perfectly sound, and laid exposed on the surface some time. Upon examining them, it struck me whether or not it was possible for the sets again to vegetate and produce Potatoes. I accordingly planted six of them by way of experiment; the result was they were soon up, and produced a moderate crop, and of a size sufficiently large to send to table. Attention they had none, not even a drop of water during the whole season. I might add, I have just finished taking up my Potatoes, and have had an abundant crop of the best quality notwithstanding every set was badly diseased, so bad that although bought for the pigs, they were considered unfit to give them. In fact they were a complete mass of rottenness (?!), yet they produced me as fine a crop, and of as good a quality, as I ever lifted.—*W. Holmes, Hackney, Sept.* 15.

Polmaise Heating.—With respect to the mode of warming a hothouse at Spofforth, which was detailed in the *Chronicle* (p. 580), it is advisable to correct a misstatement made by your correspondent at p. 613, where he says that I state, "that the heat which issues from the air-chamber is inconsiderable, while the flue is quite hot." A fine moist heat issues from it, not only while the flue is hot, but for 24 hours after the fire is extinguished, in consequence of the retention of heat by the bricks under-ground. I said that the chamber did not become hot as quickly as the flue, because it was placed directly over the fire, and the excellence of the draught carries the heat forward into the flue, and the top of the furnace is not so hot as the neck of the flue. I prefer it thus; but I stated that by continuing the air-chamber over the neck of the under-ground portion of the flue, more powerful heat would be speedily obtained; but it would be less durable. Your correspondent says that a flue is more unsightly than a wet blanket, and that it is decidedly injurious when coupled with hot-water pipes. Iron pipes are very unsightly, and they cannot be easily concealed without sacrificing some advantage; but a flue is capable of any degree of ornament; and if any wealthy person will give me mouldings from Flaxman or Thorwalden, I shall be glad to adorn the front of mine with them. As to their being unsightly, I must observe that my conservatory has been heated for 28 years in that manner, and no person has seen the flue since it was built, but those who clean it once a year, though its warmth is felt in walking over it. Some years ago I pulled down the flues in three houses, and heated them by pipes from a boiler, of which the heat is scarcely sufficient in hard frost. I have long regretted my flue in the Orchidaceous house, and have this year replaced it without disturbing the hot-water pipes, yet it cannot be seen, for it runs in the platform on which the plants stand, and the stone front of that platform is untouched, and forms the front of the flues. The advantage arising from having replaced the flue is invaluable. I will explain how it is done. The neck of the flue is brought forward in the house from the very narrow aperture that confines the heat as much as possible round the boiler, and is merely covered with an inclined plate of iron. At a short distance from the front of that plate the flue rises perpendicularly from the sloping neck, and thence it passes between two air-flues along the middle of the house, the three flues being flagged over evenly, and the air-flues delivering their heat into a chamber over the iron plate and neck of the flue; there is likewise an under-ground air-drain communicating with the chamber, and air from out of doors can be admitted into the drain from the further end of the house, which in the coldest weather would thus be delivered into the house fresh, but quite warm. The chamber over the iron plate and neck of the flue has side-walls up to the level of the flue and platform; and over it, at the distance of 3 inches from the wall, a square-cornered zinc pan, strengthened by a cross-partition in the middle, is placed close behind the flue, the back and front being 3 inches lower than the sides, and a board with strips of list hanging into the water at the front of the pan, is placed upon it touching the wall, and all the hot air issues through the wet strips of list. On the edge of the flags that cover the smoke and air-flues, a line of bricks, set on edge, are placed, and plastered over, and the whole surface within is filled with sand. An ornamented moulding might be substituted for the bricks. That sand, being watered, is an invariable and powerful hotbed, yielding the most genial warmth, and fit for every purpose of cultivation or propagation that demands moist heat. Will it be easily shown that there is anything necessarily either unsightly or detrimental in this arrangement? My objection to Mr. Meek's plan is not that it will fail to heat his house, but that, with the same fire and attendance, three times (I believe, indeed, six times) the space might be heated. Place a boiler on his fire, and it will certainly heat a larger space of glass-house added on to it, if not three times as large; carry, also, the smoke into another house in the manner I have just described, and I will answer that it shall heat a third house larger than his with moist heat without interfering with his house. The moist heat I have acquired, by replacing the flue as detailed, was entirely wasted in the upright chimney, and I am confident that if I were to prolong the flue behind the building in which it stands, the same fire would be still capable of heating sufficiently for Camellias another house which might be built with a northern aspect behind it. The question is not simply, whether a house can be heated by certain means, but how the greatest space can be heated in the most beneficial manner with a given quantity of fuel and attendance. Suppose four houses to be built in the form of a cross, one heated as Mr. Meek proposes, the furnace being in the centre, I would heat another with a flue as I propose, and it would be a larger house, I think, than his, and, in front and behind, should project two houses heated by hot-water pipes from the same fire, each of which, I imagine, might be double the size of his; at all events, three more of equal bulk would be certainly heated by his fire. I do not mean to recommend that position of buildings, but merely to illustrate the additional power from the same fire. In the explanation of the fig. p. 580, O return-pipe, is printed by mistake for O return-flue.—*W. Herbert.*

Opuntia Tuna.—On a former occasion I sent a pericarp of Opuntia Tuna, which had produced a flower and pericarp on its top. I can send now, if required, a pericarp which fell after flowering on the surface of the pot; it took root, and has produced a shoot 1 inch in length. Is this a new mode of propagating the plant? —*Denis Murray, Cork.* [We should like to see it.]

The Camberwell Beauty (*Vanessa Antiope*).—I beg to mention that I have received a fine specimen of the above, taken by a lady at Burnhamthorpe, Norfolk. I also saw one on the wing near Macclesfield, at the end of July, but was not so fortunate as to capture it — *Charles Trimmer.*——I have this year taken at East Bourne, five chrysalis of Death's Head Moth, two caterpillars, three Sphinx convolvuli, and one Macroglossa stellatarum. At Croydon my gardener caught a Sphinx convolvuli, and this morning, in mowing the lawn, cut out a Macroglossa stellatarum.—*R. M.*—— Yesterday was captured, in the most perfect order, a Death's Head Moth, by the same young lady who last week found a Camberwell Beauty.—*Onyx.*

Hydraulic Ram.—Having had my attention directed to some papers relative to what is termed a new hydraulic machine, wherein a comparison is made with the hydraulic ram improved by Mr. Roe, especially to one Article signed "Hydrangea," who from "experience" speaks of the machine in question, permit me, in justice to Mr. Roe, to say something in his favour. In all machines it is undoubtedly of great importance to the public, to be convinced of their lasting and useful properties. These rams are put up at little if any more expence than the machine "Hydrangea" notices, they have worked for 20 years without material repair, throwing water 150 feet high and a mile distant, consuming only about 12 gallons of water per minute. The cost of such a ram would be about 15*l.* Allow me to ask "Hydrangea" what would be the cost of the machine he speaks of to throw water the same height (150 feet) and distance (1 mile); also what quantity of waste water there would be in a minute? "The pint overflow," which he states is the "moving power," even if applied to a waterwheel working small pumps, I cannot see how he could raise above a few feet, and even in that case friction would be excessive. This I must leave for him to answer, for "Hydrangea" may be in possession of something superior to anything yet invented, as it is impossible in this age to say what can or cannot be done.—*James Henson,* 40, *Tower-street, Lambeth.*

Societies.

BOTANICAL SOCIETY OF LONDON.

Sept. 4.—The Vice-President in the chair. Donations to the library were announced from Dr. Cooke, Dr. Beche, Dr. Palmer, Dr. Ayres, Mr. G. Cooper, Mr. J. Freeman, Mr. J. Rich, Mr. C. Rich, and Mr. J. Reynolds. British plants have been received from Mr. C. Prentice and Mr. J. Roby. Mr. Williamson, of Kew Gardens, presented specimens of an Orobanche, collected by him near Epsom, Surrey, and suggested to be Orobanche lucorum (of Braun), but perhaps rather an identical species with the Orobanche elatior (of Sutton). Its occurrence in Clover fields, in which the specimens were collected, is also in favour of this view. The specimens differ from the character given to Orobanche lucorum in Koch's "Synopsis," by having the sepals shorter than the tube of the corolla; but in other respects the dried specimens do not exhibit any decided difference from the characters of Orobanche lucorum, though corresponding as well with those of Orobanche elatior. Dr. Ayres read a paper "On the Potato Disease."

Country Shows.

Royal Horticultural Society of Cornwall, Sept. 10.—This was the third and last exhibition for the present year. Mr. Pontey, of Plymouth, and Messrs. Veitch and Son, of Exeter, had a fine display of plants. In Mr. Pontey's collection were Torenia asiatica, Cuphea miniata, Dipladenia crassinoda, Allamanda grandiflora, Achimenes patens, Brugmansia parviflora, &c. Messrs. Veitch had a beautiful new Æschynanthus, a Tromsdorfia speciosa, a stove plant with lovely blue and white flowers, some good Cattleyas, Rondeletia speciosa major, Allamanda grandiflora, Galphimia splendens, &c.; and a fine collection of cut Fuchsias, including their new one Macrantha. The prizes were awarded as follow:— FRUIT: Best flavoured Pine-apple, Black Jamaica, G. C. Fox, Esq.; 2, Queen, J. Vivian, Esq.; heaviest ditto, Antigua, J. Vivian, Esq. Best flavoured Melon, Green-flesh, J. Vivian, Esq.; 2, King's Own Green-flesh, W. Daubuz, Esq.; 3, Cabul, Sir C. Lemon, Bart., M.P. Best bunch of Grapes, White Muscat of Alexandria, Earl of Falmouth; 2, Muscat of Lunell, J. Vivian, Esq. Best dish of ditto, J. Vivian, Esq. Best 6 Peaches, Nivette, J. Vivian, Esq. Best 6 ripe dessert Pears, Swiss Bergamot, G. C. Fox, Esq.; 2, Moor Fowl Egg, Sir C. Lemon, Bart., M.P. Best collection of ditto, Sir C. Lemon, Bart., M.P.; 2, G. C. Fox, Esq. Best 12 ripe dessert Apples, Autumn Pearmain, Rev. C. Rogers; 2, Leaming's Pearmain, G. C. Fox, Esq. Best collection of winter dessert Apples, Rev. C. Rogers; 2, G. C. Fox, Esq. Best 6 out-door Figs, M. Williams, Esq. Best dish of Cherries, Morello, Rev. C. Rogers. Best dish of Plums, Nectarine, J. Vivian, Esq. EXTRA: Dish of Cherries, G. C. Fox, Esq. Apples, Boston Russet, Sir C. Lemon, Bart., M.P. Ditto, Ribstone Pippin, J. Vivian, Esq.—FLOWERS: For the most Ornamental Plants, Erica elata, Mandevilla suaveolens, Petunia splendens, Phœnocoma prolifera, Leschenaultia formosa, Boronia viminea, Statice puberula, Fuchsia fulgens, Ceropegia elegans, Clerodendron infortunatum, Medinilla erythrophylla, Allamanda cathartica, Mr. Passingham; 2, Erica cruenta, Thunbergia alata, Pentas carnea, Veronica Lindleyana, Begonia bulbosa, Myrtus tenuifolia, Fuchsia recurva, fulgens hybrida, delicata, and Defiance, G. N. Simmons, Esq., Ridersville. For the newest and most Ornamental Plant, Siphocampylus coccineus, W. Daubuz, Esq. Best Stove Plants (not Orchids), Cyrtoceras reflexum, Dipladenia crassinoda, Clerodendron infortunatum, Vinca oculata and rosea, Begonia multiflora, Rondeletia speciosa major, Achimenes longiflora, Ixora coccinea, Ardisia crenulata, Mr. Passingham; 2, Dipladenia crassinoda, Cyrtoceras reflexum, Manettia cordata, Clerodendron splendens, Jatropha pandurefolia, Achimenes picta, longiflora, and grandiflora, Æschynanthus parasiticus, Rondeletia speciosa, Pentas carnea, W. Daubuz, Esq. Best Stove Specimen: Lisianthus Russellianus, Mr. Passingham; 2, Dipladenia crassinoda, W. Daubuz, Esq. Best Orchidaceous Specimen, Catasetum Claveringi, G. C. Fox, Esq. Best collection of Gloxinias, Gesneras, and Achimenes: A. longiflora and grandiflora, Gesnera bulbosa and Suttonii, Gloxinia magniflora, seedling, Mr. Passingham. Best specimen of ditto, A. grandiflora, W. Daubuz, Esq. Best Greenhouse Plant: Siphocampylus betulæfolius, J. Williams, Esq. Best 6 Fuchsias: Dingleana and Red Rover seedlings of 1846, Exoniensis, Eppsii, Sir Henry Pottinger, Goldfinch, Mr. Passingham; 2, Cleopatra, Sir W. Magnay, Lowryi, Nymph, Goldfinch, Delicatissima, G. N. Simmons, Esq.; 3, Hector, Sir Henry Pottinger, Gigantea, Sir W. Magnay, Sylph, Sanguinivea, G. C. Fox, Esq. Best specimen of ditto, Duke of Cornwall, seedling, Mr. Passingham. Best 12 Dahlias: Bathonia, Mrs. Shelley, Alice Hawthorn, Cleopatra, Brown's Orlando, Princess Royal, Lady Antrobus, Sir Edmund Antrobus, Marquis of Bath, Drummond's Beeswing, Bragg's Antagonist, Orange Superb. The Silver Medal, Mr. R. Dunn (disqualified); 2, Duke of York, Sure Enough, Hon. Miss Abbot, Royal Sovereign, Antagonist, Sir Edmund Antrobus, Standard of Perfection, Mrs. Shelly, Alice Hawthorn, Beeswing, Sir J. S. Richardson, Aurantia, J. Williams, Esq.; 3, Antler, Beeswing, Cleopatra, Antagonist, Bathonia, Essex Bride, Bedford Surprise, Blue Bonnet, Standard of Perfection, Lady Sale, Essex Champion, Princess Royal, G. C. Fox, Esq.; 4, Mr. R. Dunn (disqualified). Best 6 striped or tipped ditto: Bridesmaid, Oakley Surprise, Dodd's Favourite, Beauty, Prin-

cess Royal, Alice Hawthorn, W. Daubuz, Esq. Best 6 Roses: La Reine, Souvenir de la Malmaison, Bourbon Queen, La Superb, Devoniensis, Louis Philippe, M. Williams, Esq.; 2, General Kleber, Souchet, Myzanthus, Bourbon Queen, Louis Philippe, La Dauphine, J. Williams, Esq.—EXTRA: New and Ornamental Plant, Veronica Lindleyana, W. M. Tweedy, Esq. Asters, Mrs. Warren.—VEGETABLES: Best 3 Red Beet, Sir C. Lemon, Bart, M.P. Best 3 Carrots, G. C. Fox, Esq.; 2, Rev. C. Rogers. Best 6 Tomatoes, W. Daubuz, Esq. Best 3 heads of Celery, Rev. C. Rogers; 2, J. Vivian, Esq. Best collection of Salad Plants for winter use, W. Daubuz, Esq.—EXTRA: Beet Roots, Rev. C. Rogers. Brace of Cucumbers, G. C. Fox, Esq. Garlic, Mr. Passingham. Best collection of Fruit, Mr. J. Waters.

Reviews.

The Potato Epidemic and its Probable Consequences. By N. Niven. 12mo. McGlashan, Dublin; and Orr. London.

THIS is one of the best pamphlets that has appeared on the Potato murrain; sensible, practical, and authentic. It therefore deserves an extensive circulation, and will no doubt have it. Mr. Niven truly states that up to the present moment "all human power, experience, and learning, has proved vain and futile, in the discovery of anything like an antidote, even in the way of mitigating or keeping in check the ravages of the disease; every expounded expedient has failed, or at best proved but of trifling avail. Science, no doubt, has zealously done her best; neither men nor means have been spared for the purpose. The dissecting-knife and microscope of the acute physiologist, the crucible and the analyses of the investigating chemist, have all hitherto been used in vain; and now we are beginning to be convinced how impotent we are when we attempt to grapple with the workings of the Almighty."

He denies that seedlings have enjoyed any immunity from disease, refers the origin of the malady to the leaf and not to the tuber, and doubts the supposed connection between the brown decay of the bottom of the stem and the blotches of the leaves. His general conclusions are:—

"First—That the earliest symptom of the epidemic is the deposition on the leaf, through the media of atmospheric cause, of a minute and destructive plant.

"Second—That the origin of the disease being thus on the leaf, its destruction thereby is more immediately the cause of the decay of the tuber.

"Third—That the epidemic is of a periodical character, not existing so much, if at all, during the spring and early summer, as during the end of summer and autumn.

"Fourth—That the disease being epidemical, and of atmospheric origin, we may be justified from past experience of similar visitation, to hope for its gradual abatement.

"Fifth—That every possible care should be taken this year, to secure by the method described, seed for next year, even though considerably tainted."

Thus, it will be seen, that he adopts the fungal theory, and attempts to explain the comparative safety of the early crops upon the assumption that the Botrytis can attack Potatoes only in the latter period of the year.

It is superfluous for us to say that we cannot accept this explanation. It does not, however, seriously affect the main purpose of the book, the indication of the eventual consequences to Ireland of the present alarming visitation, and the mode of cropping the land in 1847. Regarding as he, and all sensible men do, the Potato lost to agriculture for the present, he looks of course to a total change in the habits of the Potato-drugged Irish peasant.

"Grievous as it must verily be for an Irishman to relinquish the cultivation of his favourite root, yet still he too must learn to adapt himself to circumstances, and take advantage, like other people, of other things placed within his reach; I have not a doubt when once he has got over the difficulty of the transition state, he will have discovered how well it was he was so roused out of his lethargy and long cherished prejudices. That the cultivation of the Potato has grown almost to a mania with him, there can be no doubt; on it he solely depends, as I have already hinted, for his subsistence; with it he feeds his meagre family; with it he feeds his grateful pig; and with the pigs he sometimes pays his reluctant rent; or otherwise, it may be, a few Oats or Wheat is grown, and these too, generally sold for the same purpose. It is seldom he attains to the possession of a cow—and as to butter or milk, it scarcely ever forms a part of his miserable meal; how soul and body under such circumstances can really hold, for any length of time, together, is next to a miracle—in short it is scarcely possible for human beings to be worse off than is the patient Irishman with his boggy walls and cheerless cabin; hitherto he has been satisfied with the Potato, and the Potato only—a root, however much to be desired as a *portion* of diet, certainly not conducive either to general health or vigour of constitution, when used exclusively for that purpose. No doubt the cultivation of the plant hitherto has been a matter comparatively easy and simple, and being so far suited to the habits of those who thus choose to be satisfied with it, the loss of it to them must be of no ordinary consideration. As to the comparative nutrimental value of the Potato, I believe I am correct when I state that it is found to contain only about 25 per cent. of pure nutriment; whilst Wheat contains so much as 85, and Barley 83. If such be the case what a difference is here! We also know the Potato has qualities pertaining to it of an impure nature—in short, that the genus 'Solanum' is the actual type of a powerfully narcotic family. Such being the case, and valuable, no doubt, as the root in question really is, still we ought rather to desire the pure and more wholesome cereal food alluded to. That the constant absorption or assimilation into the animal system of this same nutrimental ingredient has been conducive to disease, I believe there is, amongst medical men, but one opinion—but more especially in unfavourable seasons, when the quality happened to be bad."

Again, "If employment, and ample employment, can be given, and the labourer receive in money (no labourer willing and fit, should have less than from 8*s.* to 10*s.* per week according to the present state of things), the means of purchasing what he requires for the subsistence of himself and family, he cannot be worse, but rather, I expect, better than he would have been with his too cherished root and *without* employment, as has been hitherto so much the case. The matter, I conceive, is plain and evident; but how, it may be urged, is the Irishman to exist without the Potato? Just as the Irishman of other days existed before the time of good Sir Walter Raleigh, the reputed father of it. What! are Irishmen so foolishly fastidious as to refuse to avail themselves of the rich and cheap grains of their own good colonies, and pout like spoiled children because they cannot get their dear Potatoes? dear did I say! never was word more truly said; the Potato is, after all, one of the most expensive of cultivated plants, and but for the cheapness of labour in Ireland, and its use as a preparatory crop, would be *dear* indeed."

We are, however, surprised to find Mr. Niven proposing that Rice should be made a temporary substitute for the Potato. Rice is a worse food, and even more lowering than the Potato itself—a diet under which man's physical force so dwindles away, that the smallest fatigue becomes impossible. We trust that no one will follow that recommendation; and why should they when the strengthening, and in all respects admirable, Indian corn can be had so easily?

As substitutes for the Potato he recommends Swedish Turnips, Parsnips, Carrots, Cabbages, and Jerusalem Artichokes for man, and Mangold Wurzel for the pigs. Upon this subject we would refer to the carefully calculated tables of produce given by Mr. Edward Solly at page 163 of the present volume.

Mr. Niven's experience, like our own and that of so many others, is unfavourable to the effect of *lime*: that is to say, he fails to discover that any advantage is derived from its use. He prefers early spring planting to autumn planting, and strongly recommends sowing Mangold Wurzel between the rows of Potatoes, as a reserve crop. But for this and other matters we must refer to the work itself, which although containing some things in which we cannot concur, is upon the whole an opportune and useful publication.

New Garden Plants.

48. GARDENIA DEVONIANA. The Duke of Devonshire's Gardenia. *Stove Shrub.* (Cinchonads*). Sierra Leone. Mr. Glendinning's Nursery.

SP. CHAR. Unarmed. Leaves opposite, papery, stalked, wavy, oblong, acuminate, rather pilose when young, nearly smooth when old, except the axils of the principal veins of the under side, which are always woolly. Flower solitary, terminal, erect. Ovary cylindrical, smooth. Sepals linear, somewhat spreading, separated to the base. Corolla very long (10½ inches) with a slender cylindrical tube, a funnel-shaped throat, with five obtuse, revolute, obliquely emarginate lobes.

This is the finest Gardenia yet seen, infinitely superior to G. Stanleyana, to which it is related. The leaves are thin, and when young pale green, but when full grown they are a dark blue green. The magnificent flowers, which before expansion are 10½ inches long, are pure white at first, but gradually change to a pale yellow. At first they look something like a long-tubed white Lily.

Miscellaneous.

The Stanwick Nectarine.—Fruit of this new and extraordinary production was received August 29, 1846, from the Right Hon. Lord Prudhoe, in whose garden at Stanwick-park it had ripened. His lordship obtained the variety from stones given him by Mr. Barker, formerly Her Majesty's Vice-Consul at Aleppo, and now residing near Suedia, or Souadiah, in Syria, whose favourable climate is peculiarly suitable for the cultivation of Asiatic and European fruits. A year or two since he brought to this country, amongst other things, Peaches and Nectarines with sweet kernels—such varieties previously unknown in Europe, and probably never heard of till their existence was announced by Mr. Barker. The Nectarine forming the subject of this notice is about the size of an Elruge, and like it in shape, except in being less heart-shaped at the base. Its skin is pale, like that of the White Nectarine, where shaded, with a violet tinge next the sun. The flesh is white, exceedingly tender, juicy, rich, and sugary, without the slightest trace of the flavour of prussic acid. The stone is middle sized, ovate, with rather a prominent sharp edge, very rugged, and of a chocolate colour. The kernel is sweet, like a nut, imparting nothing of the bitter-almond flavour. The fruit of the Peach and Nectarine, partaking so much as it does of the qualities of the bitter-almond, must have been very deleterious in its unimproved state. Mr. Knight, who himself succeeded in producing a melting Peach from an Almond (figured "Hort. Trans.," vol. iii. p. 1), states that the Tuberes of Pliny must have been swollen Almonds, or imperfect Peaches; and Duhamel has given an account of a fruit which accurately corresponds with this description, being sometimes produced by a variety of Almond-tree in France. Mr. Knight adds: "The bitterness, in this case, I conclude can only arise from the presence of the prussic acid; and as this acid, without being extracted by distillation, operates very injuriously upon many constitutions, some explanation appears to be given of the cause why the Peach was reported to possess deleterious qualities when it first came from Persia into the Roman empire."

"Stipantur calathi et ponds, quo barbara Persis
Miserat (ut fama est) patriis armata venenis."
Columella, lib. 10.

The varieties of the Peach and Nectarine now generally cultivated retain but little of the injurious properties ascribed to the species by ancient authors; and, when well ripened, they can be generally eaten with impunity, notwithstanding the slight prussic acid flavour which pervades even their luscious sugary juice; but some constitutions are liable to be affected by this trace. It was, indeed, considered unlikely that amelioration would be carried much further. For at least a century little improvement has been effected, and in every variety the kernels have proved intensely bitter. But at last this is overcome; in the specimen above described the deleterious quality considered inherent in the species has disappeared; and Mr. Barker himself informed me that his fruits with sweet kernels may be eaten as a full meal, in quantities at any time of the day, and repeatedly, with perfect safety. Mr. Crawford Baillie, gardener to Lord Prudhoe, has furnished the following additional memorandum concerning the Stanwick Nectarine: "The Stanwick Nectarine was raised from seeds sown in March, 1843, and budded the same autumn on the Bellegard Peach. In 1845 a few flower-buds were produced near the ends of some of the strongest shoots, but the wood not being sufficiently ripe they proved abortive. The tree on its own roots is a strong and robust grower, and continues to grow late in autumn, and has hitherto retained its leaves throughout the winter. I have no doubt, however, that when worked upon Apricot, Plum, or Almond stocks, it will prove quite hardy, and bear well, even in the north of England. I may mention that the Nectarine is 14 days later than the Peach upon which it was worked."—*Journal of the Horticultural Society.*

Battle of the Bees.—On Thursday afternoon, the 18th, a farmer in the neighbourhood of Twyn Barlwm mountain, watching his flocks, when suddenly his attention was attracted by a buzzing noise, and a cloud of insects, almost to darken the air. Upon closer examination he found the multitude engaged in serious warfare, which lasted a considerable time until heaps of the vanquished covered the ground, some without heads, others minus their wings, and others completely separated into two parts. They proved to be different sorts of the humble bee and the honey bee. A friend assured me that he scraped together three or four bushels with his foot, and many persons carried away the slain in baskets'ful to show to their friends the result of this very unaccountable warfare.—*Monmouth Merlin Paper, Sept.* 19.

Scraps.—Such is the scarcity of fruit on the Wolds and in the Clays in the neighbourhood of Caister, Lincolnshire, that from upwards of 100 Apple trees in one orchard, the owner has not obtained a single peck of fruit——*Failure of the Onion Crop.*—Around Bicester Onions are very scarce, and consequently dear; the crops are thin, and many of them are found to be diseased.—*Oxford Chronicle.*——*Second Crops of Pears.*—We have received a number of accounts of Pear trees bearing a second crop this year.—*Westmoreland Gazette.*——*Foreign Strawberries.*—A vessel, named the Hannah, which has arrived at the port of Hull from Memel, had, with other productions, 16 cases of Strawberries on board. This is a novel article of importation from the place named, the produce of Prussia; and whether with reference to the place of growth, or the late period of the season for the supply of the article, is as singular and remarkable an importation as we have of late had occasion so frequently to record.——*Mortality amongst Hares.*—It is a curious circumstance, as connected with the present season, that not only has there been extensive and dangerous disease among cattle, but hares are now found dead in large numbers in the fields. On one estate, on which the game is very numerous, about a dozen miles south from Edinburgh, the mortality has been very extensive.—*Edinburgh Witness.*——*Extraordinary Produce of Honey.*—Last week the gardener of James Wintle, Esq., Grey Friars, in this city, took from one stock of bees in that gentleman's garden, a comb, weighing no less than 85 lbs.; the net weight of honey which it yielded was near 60 lbs.—*Gloucestershire Chronicle.*

Calendar of Operations.

(*For the ensuing Week.*)

Forcing Winter Flowers.—The Ice-king may shortly be expected, and the pleasure-ground or flower-garden, in consequence, stripped of its gay colours; it becomes therefore an important consideration at this period how to preserve and encourage, in-doors, a constant succession through the dull winter months. Part of this business may be accomplished by retarding autumn flowers, and part by genuine forcing. Success in the latter, it is well known, depends in no small degree on the eligibility of the plants selected, as well as in the

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

condition of the stock in the end of autumn. All plants intended for this purpose should have undergone a preparatory course for weeks, nay, for months previous. An equally important concern is, to provide a proper house or pit, it matters not which; in such a place three or four principles are of the greatest importance, and must be duly secured, viz.—a sufficiency of atmospheric heat, a steady and permanent bottom-heat of (as near as possible) 75°, plenty of atmospheric moisture at command, abundance of light, and, I need scarcely add, a clean glass roof; in addition to this, night covering would be a great acquisition. Those who cannot command such perfect structures may resort to a pit heated by fermenting materials; the best and most enduring of which are tree-leaves, more especially those of the Oak. Two-thirds of these, fresh from the trees, mixed with one third of last year's stock, in a half-perished state, and trod firm to the depth of 4 feet or more, will make a gradual and enduring warmth; a coating of tan may be placed over it, for plunging. Some structure of this kind should be prepared as soon as fresh leaves can be obtained.

CONSERVATORIES, STOVE, &c.

Conservatory.—Chrysanthemums intended for the decoration of this structure should be placed under cover at once, and receive every attention. Regular watering is one of the most important matters; for if they are allowed to get dry (if only for one hour), decay or yellowness immediately takes place in the under leaves. They will from this time enjoy liquid manure constantly, provided it is perfectly clear and weak. All suckers should be pulled away as they are formed. See to thorough staking here, and the extermination of all insects; there can be no good gardening where insects are allowed to establish themselves. Large specimens of the following make a fine figure at this period:—Buddlea Lindleyana, Gesnera lateritia, Salvia patens, Begonia incarnata, Phlox Drummondi, Ipomœa ficifolia (trellis), Thunbergias, Plumbagos, Justicias, Clerodendrons, &c. *Stove and Orchids.*—The stove as well as other gardening structures, partakes in general of some re-arrangement at this period, when the general cry is, "House all tender plants." Whilst such is proceeding, let all plants that require it have a thorough staking where necessary, as well as a cleansing from insects. Young stock of Begonias, for winter flowering, may still be shifted. Some of the bulbous tribes will now begin to waken from their dormant state, and some will speedily show blossom; such when fairly started, if pot-bound, may receive a shift, using a compost of sandy loam and vegetable matter; a little bottom heat would be of service after this operation. Keep the atmospheric temperature moderate at this period, encouraging a liberal ventilation. *Mixed Greenhouse.*—Stocks and Mignonette sown a few weeks ago, may now be transplanted, especially the Stocks. If an early bloom is desired, half a dozen plants may be put into a well drained 5-inch pot. The last shift should now be given to forward Cinerarias intended to bloom this autumn, and early in the spring use most liberal drainage, and put them under cover close to the glass, with a free circulation of air. The Tagetes lucida is a good late thing; although of long standing it is not so generally known as it deserves, and grown in pots it makes a good display in November, being a rich yellow. Keep a watchful eye on self sown Annuals, and transfer some choice ones to pots to decorate the mixed house in March.

KITCHEN GARDEN FORCING.

Vines in pots for forcing, as also Figs, Peaches, Cherries &c., for early work, should receive what pruning is necessary, provided they are in a rest state. Let late Grapes have every attention as to thinning out decaying berries, and thorough ventilation, with occasionally a little fire heat if the weather be damp. The early Peach-house, if at rest, should be pruned forthwith; and it will be well to syringe the wood occasionally with soap-suds. Cucumbers in dung beds will now require hot linings, taking care that the Vine does not get crowded.

KITCHEN GARDEN AND ORCHARD.

Let the latest sown Turnips have a thorough thinning and weeding forthwith. Get ready a quarter of ground for the main crop of Cabbages, for next May, June, or July. Let it be thoroughly manured and trenched, as they will have to remain perhaps 18 months on the same spot, for if well managed they will produce a most abundant crop of winter sprouts, after cutting, of the Colewort character. If ground and plants be to spare, I would advise a great quantity of the Early York to be planted out on well manured beds or borders, at about 6 inches apart; these will be "in cut" before the early Cabbage comes in—perhaps by the end of March. Follow up the pricking out of winter Lettuce, keeping the ground much elevated. The Cauliflowers sown in August will be getting gross; they should be removed forthwith. Some persons put them, which I consider an excellent plan for the earliest lot. They may be kept thus, in a cold frame or pit, until the early part of February, when they may be planted under hand-glasses. Those for succession crops, if getting too strong, may be pulled up and thrown on the ground for half an hour, to check the fibres, and then pricked out where they are to remain, in poor soil.

FLOWER-GARDEN AND SHRUBBERIES.

The time is at hand for alterations and the planting of choice shrubs; and those who are unwilling to think of such matters whilst the present fine weather continues, will have their memory jogged when the Icc-king arrives. Where extensive alterations are contemplated, more especially in the flower way, it is requisite that all possible observations be made before the flowers lose their character and the trees and shrubs are stripped of their foliage. It is to be hoped that all propagation matters are secured by this time; young stock propagated late are almost sure to damp off in the winter.

COTTAGERS' GARDENS.

As observed last Calendar, let preparation be made for planting a considerable breadth of Potatoes, more especially the early kinds. Where the soil is of a mellow texture, I should advise the "lazy-bed," system as it is termed in the north; it will be a better guarantee against the frost than sharp ridges. The Potato set should be on the ordinary ground level, and the subsequent operations should tend to raise the surface higher—this will provide against stagnant water.

State of the Weather near London, for the week ending Oct. 1, 1846, as observed at the Horticultural Gardens, Chiswick.

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain
Frid. 25	4	29.815	29.782	56	48	52.0	W.	
Sat. 26	5	29.736	29.700	64	54	59.5	S.W.	.05
Sun. 27	6	29.760	29.732	66	49	57.5	S.W.	.31
Mon. 28	7	29.557	29.518	60	48	52.0	N.	.19
Tues. 29	8	29.447	29.391	64	36	50.5	S.W.	.01
Wed. 30	9	29.300	29.218	62	39	51.0	W.	
Oct. Thurs. 1	10	29.270	29.266	67	52	59.5	W.	
Average		29.731	29.642	63.4	44.8	55.1		.89

Sept 25—Fine, with light clouds; clear and fine
26—Overcast; showery; overcast at night
27—Fine; cloudy and fine, overcast
28—Rain; heavy clouds; partially overcast
29—Clear and cool, rain; clear at night
30—Slight fog; cloudy; clear
Oct. 1—Foggy; very fine throughout.
Mean temperature of the week equal to the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Oct 10, 1846.

Oct.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds						
						N.	N.E.	E.	S.E.	S.	S.W.	W.
Sun 4	64.2	42.9	53.5	8	0.36 in	—	5	1	—	5	9	1
Mon. 5	63.3	41.0	52.1	7	0.67	4	2	1	4	4	5	—
Tues 6	59.3	42.2	50.7	9	0.78	1	2	3	2	3	4	1
Wed 7	61.8	43.0	52.4	7	0.51	1	5	2	—	2	6	3
Thur. 8	60.7	44.6	52.6	9	0.63	—	4	3	2	4	8	4
Frl. 9	59.7	43.7	51.7	10	0.52	—	4	1	1	4	5	4
Sat. 10	61.4	44.1	52.7	9	0.63	—	1	3	—	6	2	2

The highest temperature during the above period occurred on the 6th, 1838—therm. 79°; and the lowest on the 9th, 1839, and 7th, 1844—therm. 29°.

Notices to Correspondents.

Back Numbers of the Gardeners' Chronicle.—The publisher has two copies left of the Volume for 1844, bound in cloth, price 1*l.* 10*s.* The Volume for 1845 is out of print. The following Numbers in the respective years can also be had. Any Subscriber who will forward post-office stamps equivalent to as many Numbers as are requested, will have them sent free by post.

1841—1, 8, 13, 14, 15, 16, 17, 18, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 34, 47.

1842—3, 4, 6, 8, 9, 11, 12, 16, 18, 20, 27, 30, 31, 32, 34, 35, 38, 40, 41, 42, 45, 46, 47, 48, 50, 51, 52.

1843—10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52.

1844—All but Nos. 36, 46, 47, and 50.

1845—1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 31, 33, 39, 40, 41, 42, 43, 44, 47, 49, 50, 51, 52.

1846—1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 35, 36, 37, and 39.

Post-office Orders.—In order to obviate the inconveniences which are now constantly being experienced by parties who wish to remit small sums to the office of the Gardeners' Chronicle for Advertising we have to request that all Post-office orders may in future be addressed to Mr. James Matthews, 5, Upper Wellington-street, Covent-Garden, and made payable at the Post-office, 180, Strand, London. Post-office orders, remitted by subscribers for the Paper, should be sent to the respective Agents who supply them.

Bulbs—*W E*—Plant Belladonnas now, in river sand, under a south wall, and cover them with spent tan, or some such material in winter, if frost is likely to be severe. The reason why it is recommended to keep Coburgias deep is that they may be safe from frost. In a pot in a glass-house the precaution is needless. Lilium lancifolium should be hardy in Devonshire, and so will the Antholyza with a little shelter in winter. We should put it into the ground at once, and secure it against frost.

China—*Micklewell*—Will you favour us with your address. We have got it for you.

Fruit-trees—*Delta*—It is not necessary to root-prune your old Apple and Pear-trees which were last year headed back, and have since produced luxuriant shoots in all directions. Encourage rather than check their power of producing such; but let the growths be properly regulated by judicious winter and summer prunings. Fresh tops will be formed in a few years; luxuriance will be moderated naturally; and fruitfulness will ensue, on wood capable of supporting it, in greater abundance and to more perfection than would be the case were you now to stunt the trees. A Plum-tree, 10 or 12 years old, may be moved very well.‖

Glass—*R G*—Do not be misled by fine names. Buy your glass in crates, of 100 feet each, and cut it yourself. Sixteen ounce sheet is not worth more than 3*d.* a foot, and will cut to 40 inch lengths. We shall have a word to say about the glass dealers very soon. The sun will not hurt your plants, because of the quality of the glass, provided it is not blistered.

Gooseberry Caterpillar—*Constant Sub*—We will tell you all about this in good time.

Insects—*W S*—The larva from Wales will change to a dipterous fly, possibly a Volucella. *R.*—*J B*—Your Cuffre Wheat is infested by the Calandra oryzæ; that which you sent before was probably the C. granaria. If you take any interest in their economy you will find their histories given in the last part of the Royal Agricultural Journal. *R.*—*Emily*—The house flies received are named Musca stramentaria. Have you tried half filling tumbler glasses with sugar and water, covering the top close with writing paper? Cut a triangular opening in the centre to admit the entrance of the flies; it is an excellent trap. *R.*

Names of Fruits—*T Rivers*—The oval, white, or rather greenish-white, thin-skinned Grape, is the Early White Malvasio, known likewise as the Grove End Sweetwater.‖—*Z Z*—Marie Louise Pear, and King of the Pippins Apple ‖—*P W Paul*—Pomme Royale, not as you observe, the Royal Russet; the latter is only fit for Kitchen use; the former is a sound keeping dessert Apple, and an excellent bearer, even in the present season.‖—*B B*—4, Autumn Pearmain; 5, appears to be King of the Pippins; 6, Stagg's Nonpareil; 25, Court Pendu Plat. The others require further investigation, as they change colour.‖—*J T L*—Court of Wick.—*K B*—1, King of the Pippins; 2, not known, worthless.‖

Names of Plants—*O Kay*—Linum catharticum, Galium verum—*John Moore*—Dahlia glabrata, Catasetum luridum—*W S*—1, Tulpis barbata; 2, Hibiscus Trionum—*Mary Anne*—Euphorbias without stem leaves are mere puzzles; yours has only floral leaves. It seems to be a morsel of E. platyphylla—*J G S*—Cuicus arvensis and Polygonum aviculare.—*H D*—Plants cannot be named from vague description. You will hardly obtain any Cape bulbs in this country. If we lived in Guernsey, we should open a communication with some nurseryman at the Cape.—*A Balston*—Mormodes aromaticum, Eranthemum pulchellum.—*C D*—1, Adiantum pedatum; 2, Adiantum Capillus Veneris; 3, ditto; 4, Gymnogramma sulphurea; 5, Gymnogramma tartarea (?); 6, Asplenium viride.—*Denis Murray*—Adiantum Capillus Veneris and Pteris longifolia.—*B*—Plumbago zeylanica.—*C L*—Nerine sarniensis, crimson; venusta scarlet, flexuosa? rosea.—*Dowager Lady S.*—Salvia confertiflora.—*Dick*—Rivina lævis.—*Admirer*—The Althæa frutex.

Planting—*P H*—Plough your land as deep as you can now, and plant it before Christmas. Do not let any one persuade you to wait till spring. If it has brought a good crop of Turnips, you can hardly go wrong with forest trees, and had better select the kinds which you think will be most profitable. Take care that the land is well drained.

Polmaise Heating—*S W Smith, Leamington*—Your opinions are contrary to nature and philosophy, to fact and theory. While abusing the principles of Polmaise in your statements you avail yourself of them in your plans, in a very imperfect and clumsy form.—*R A J*—If we find that our hint has not been taken we may then name the ironmongers to whom we alluded. At present it would be premature. There is no reason why the Polmaise plan should not heat at the same time both a study and a conservatory. In that case it will be as well to place the stove in the party wall, if it admits of such an arrangement. Otherwise place it in the study. We do not know to what you allude.—*T G P*—Much obliged, but it seems hardly worth publishing the mode, especially as an exact plan would have to be given, which we do not possess.

Potatoes—*G P L*—Whatever doubt there may be about many things, this seems perfectly clear, that planting Potatoes in the autumn, as constantly advocated in this Journal against prejudice and cavil, is the right one. See a capital article, by Mr. Goodiff, of Graunard, in another column.—*Scotchman, Signus, and others*—We will endeavour to answer your questions next week in a Leading Article.

Simmons' Hygrometer—*Henry*—Place it in the shade, and keep the index between 10 and 20. Your leaves are devoured by red spider.

Strawberry—*P T O*—We know nothing of the Ettrick Shepherd Strawberry, and cannot print such an eulogium as you have passed upon it, except as an advertisement.

Strawberries—*B B*—The ground should be well trenched and manured, and if the soil be of a stiff nature, the addition of some gritty matter will be of advantage for keeping it open; no spade ought to be inserted among the plants. Choose well-rooted runners, or such as have been taken up and pricked out in beds previously. A good watering with liquid manure now and then when the plants are growing, and frequent application of pond or rain water, during bearing time (if the season be dry), will be found beneficial.‡

Tomatoes—*Canuto*—Take a ripe Tomato, quite red but not soft; cut out the stalk and scoop out the seeds, leaving as much of the flesh as possible. Fill the inside with forcemeat (which will be better if mixed with a little chopped ham or tongue). When well stuffed set it in a Dutch oven in a dish before the fire, with a piece of butter upon the head of each Tomato, and leave it to roast till brown; care must be taken that it does not burn. They are sometimes used in salad, sliced like Cucumbers, with vinegar, oil, salt, and pepper. They are also stewed, &c. &c. See cookery books.

Vanessa—*A G*—We have not Este's address. We will keep the letter for him, and forward it when we know where.

Vines for a Greenhouse *F F*. The Black Hamburgh and Royal Muscadine, two of each. The best mode of planting and training depends on the construction of the house and the formation of the border. For the open wall, the Royal Muscadine.‖

Window Gardening—*C C G*—The best thing you can do will be to throw out from your sitting room a Belgian window garden, such as is described at p. 203, and then you may grow many things in it. If you cannot do that there is nothing to be done, except to confine yourself to succulents and spring bulbs.

Misc—*Plutarch*—We are not sure that we make out your meaning. If we understand it we should say favourable.—*A Lover of Birds* can surely not believe the absurd story he mentions. It is too silly to deserve contradiction.—*R M G*—The New Zealand Sweet Potato is the same as that cultivated in other warm climates. It will not grow in the open air in Great Britain.—*G C*—Half-inch slate will do if the boarding is not too long. Let the shelves be 18 inches wide. Iron supports last longest; wooden ones cost least. Get the shelves as near the glass as you can.—*P S*—The young wood of your Vines being well ripened, you may proceed with renewing your border now. In lifting, the roots should be as little injured as possible.‡—*An Amateur* should complain to his news-agent, or re-fold the paper before cutting it.

SEEDLING FLOWERS.

Calceolarias—*W H M*—Three very bright and showy specimens. 22 is decidedly the best in form, having the front of the flower well rounded and projecting.*

Dahlias—*D*—The specimen sent of a seedling fancy Dahlia, if sufficiently full in the centre, will make a good addition to this class, as the flower is well formed and regularly tipped.*—*J B*—Your lilac is a full-sized and symmetrical flower, with the centre well up, pleasing in colour, and will prove a useful flower in a stand. The general form of the bright yellow variety is good, and will, when at its best, be found a useful variety, still the petals are too much ribbed for the improved taste of the present day. The light tipped flower will make a very pleasing border variety; it is well formed, but its size will render it useless as a show flower, the petals also are too notched.*

Fuchsias—*F J A*—No. 1 is a pretty flower, but there are several in cultivation equal to it, and some that surpass it in size; 2 is pretty also, but imperfect in the corolla.*—*W M*—Your seedling is large and showy, having bright pink tube and sepals, with crimson purple corolla; it is a good variety, with the exception of the sepals being rather long and not expanding sufficiently.*—*G R*—No. 2 is probably showy on the plant, but we consider it not a good specimen of form; the sepals are too long and pointed, and do not expand sufficiently to show the corolla (which is very good) to advantage. The tube and sepals of No. 1 are pure white, free from any stain of pink; the corolla in the specimen sent is rather short, and altogether the flower appears cramped in its growth, and not to be a perfect one, we should like to see it again when the plant is in better condition, as the colours are very pleasing.*—*G M*—Both your seedlings are good in colour, but neither of them appear to expand their sepals sufficiently.*

Petunias—*W W*—Your seedling with violet centre and veining, is a large handsome and showy variety.*—*J J*—No. 1 is your best seedling; the flower is small, but it is peculiarly rich and fine in colour; the veined varieties, 2, 3, and 5, are not quite equal to the specimens generally sent—the veining wants richness.*

Scarlet Pelargonium—*F J A*—Your scarlet horse-shoe forms a large and handsome truss of bloom; but the scarlet does not appear so vivid as in some others recently brought under our notice.*

GUANO, &c.

MARK FOTHERGILL begs to offer the following MANURES on the best terms, viz:
GUANO, PERUVIAN and AFRICAN, direct from Import Warehouses.
Ditto, PATAGONIAN and SALDANHA BAY. Ditto.
SODA ASH, for destruction of Wireworm.
SUPERPHOSPHATE OF LIME (See Royal Agri. Soc. Journal, Vol. vi. Part 2).
GYPSUM (Pure Sulphate of Lime).
BONE DUST and BONE POWDER.
SULPHURIC ACID. CHARCOAL.
PETRE SALT and AGRICULTURAL SALT for Composts.
SILICATES of SODA and POTASH, and all other Manures.
No. 40, Upper Thames-street.
Agent for DINGLE'S HAND SEED-DIBBLE.

FOR WHEAT, TARES, &c.

THE URATE OF THE LONDON MANURE COMPANY will be found a most valuable Manure for the above crops—it is permanent in its effects, and has stood the test of five seasons with increasing success each year. The Company also supply genuine Peruvian Guano, Gypsum, Superphosphate of Lime, Sulphate and Muriate of Ammonia, Charcoal, Bone Sawdust, Sulphuric Acid, and every Artificial Manure, at the lowest market price.—EDWARD PURSER, Secretary, 40, New Bridge-street, Blackfriars.

POTTER'S GUANO FOR WHEAT AND ALL GRAIN CROPS.—The Autumn season is particularly recommended for the application of POTTER'S GUANO for the above crops, as time is afforded for the due decomposition of the Manure in the soil, and it is thus prepared, when the plant feels the first genial warmth of spring, to afford the appropriate nutriment in a fit state for immediate assimilation.—Testimonials and all particulars at the Factory, 28, Clapham-road-place, Kennington. *** A few respectable Agents wanted.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
WM. JOSEPH MYERS AND CO., LIVERPOOL;
And by their Agents,
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL;
COTSWORTH, POWELL, AND PRYOR, LONDON.
To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

CHEAP AND DURABLE ROOFING.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, the Manufacturers and only Patentees of THE ASPHALTED FELT FOR ROOFING Houses, Farm Buildings, Sheds, Workshops, and for Garden purposes, to protect plants from Frost.

At the Great National Agricultural Shows, it is this Felt which has been exhibited and obtained the Prize, and is the Felt patronised by
HER MAJESTY'S WOODS AND FORESTS,
HONOURABLE BOARD OF ORDNANCE,
HONOURABLE EAST INDIA COMPANY,
HONOURABLE COMMISSIONERS OF CUSTOMS,
HER MAJESTY'S ESTATE, ISLE OF WIGHT,
ROYAL BOTANIC GARDENS, REGENT'S PARK,
And on the Estates of the Dukes of Sutherland, Norfolk, Rutland, Newcastle, Northumberland, Buccleuch (at Richmond), the late Earl Spencer, and most of the Nobility and Gentry; and *at the Royal Agricultural Society's House, Hanover Square.*

It is half the price of any other description of Roofing, and effects a great saving of Timber in the construction of Roofs. Made to any length by 32 inches wide.

PRICE ONE PENNY PER SQUARE FOOT.

*** Samples, with Directions for its Use, and Testimonials, of seven years' experience, with references to Noblemen, Gentlemen, Architects, and Builders, sent free to any part of the town or country, and orders by post executed.

☞ The Public is respectfully cautioned that the only Works in Great Britain where the above Roofing is made, are
F. M'NEILL AND CO.'S
Patent Felt Manufactory, Lamb's-buildings, Bunhill-row, London, where Roofs covered with the Felt may be seen, as also the new Vice-Chancellor's Court, and the Passages and Offices at the entrance to Westminster Hall, and other buildings at the New Houses of Parliament, done under the Surveyorship of Charles Barry, Esq., R. A.

Note.—Consumers sending direct to the Factory can be supplied in lengths best suited to their Roofs, so that they pay for no more than they require.

J. LEGG'S IMPROVED SELF-ACTING HYDRAULIC ENGINE being now Registered, he begs to call the attention of the Public to the following Prices:—A machine to convey water 100 yards, conducting-pipe included, 20*l.*; do. do. 600 yards, 50*l.* This machine can be made to convey from 1 gallon to 20 per minute to a distance of 2000 yards, and to an elevated point of 500 feet or upwards. Fountains, Towns, &c., situated on eminences, can be supplied by the above machine. Deep well-pumps on an improved principle.—N.B. All Machines warranted.—Apply at 9, St. Philip's-street, Cheltenham.

ORNAMENTAL TILES for Floors, Walls, &c., of Greenhouses, Conservatories, Garden Terraces; Encaustic, Venetian, &c., in EVERY VARIETY. May be seen at Messrs. PARKER and WYATT'S, Surrey-street, Blackfriars, London, Agents to Messrs. MINTON & CO., the Patentees, of Stoke-upon-Trent. Also Patentees of the PORCELAIN BUTTONS, cheaper and more durable than Mother-o'-Pearl, &c.

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton, Draining Engineer to Her Majesty, at Osborne, Isle of Wight; the inventor of a Patent Tile and Pipe Machine (applicable to making Bricks); also a new Machine for taking roots and stones out of clay, both which are to be seen at the Royal Polytechnic Institution, Regent-street,—offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P.S.—Land drained at a fixed sum per acre, including every expense.

PHOSPHORIC RAT POISON.—This preparation is offered to the Public with the greatest confidence, being decidedly superior to all those poisons containing arsenic and other minerals. It is most greedily eaten by rats and mice as long as it is offered to them, and invariably proves certain destruction. Prepared only by EDWARD PURSER, 40, Bridge-street, Blackfriars, London. Sold in pots, with full directions for use, at 4*s.*, 8*s.*, and 20*s.* each.

SEED WHEAT.

RED STRAW WHITE WHEAT, AND HOPETOUN WHITE WHEAT — Varieties whose excellence has been tested and acknowledged by very many farmers both in England and Scotland,—for Sale at
WHITFIELD FARM, WOTTON-UNDER-EDGE, GLOUCESTERSHIRE.
Price 8*s.* per bushel, or 3*l.* per quarter, in quantities more than five quarters; sacks 2*s.* each. Orders must be accompanied by a remittance or a reference. JOHN MORTON.

ECONOMICAL, EFFECTUAL, AND DURABLE ROOFING.
BY HER MAJESTY'S ROYAL LETTERS PATENT.

CROGGON'S PATENT ASPHALTE ROOFING FELT, with which the Committee Rooms of the Houses of Parliament are entirely covered. The above Material has been used and highly approved by the Nobility, Gentry, and Agriculturists generally, and Patronised by many Members of the Royal Agricultural Societies of England, Scotland, and Ireland, and by Her Majesty's Office of Woods and Forests, Charles Barry, Esq., R.A., &c. &c.; has been used for several years at the Royal Horticultural Society's Gardens, Chiswick; the Swiss Gardens, Shoreham, Sussex; on the Duke of Buccleuch's, and the Marquis of Anglesey's Property, &c. &c. and (under slate) the Royal Agricultural Society's House, Hanover-square; its advantages are—CHEAPNESS, LIGHTNESS, DURABILITY, and ECONOMY. Being a Non-Conductor, it has been proved an efficient "Protective Material" to Plants.
PRICE, ONE PENNY PER SQUARE FOOT.
Samples and Testimonials sent by Post on application.
THOMAS JOHN CROGGON.
8, Lawrence Pountney-hill, Cannon-street, London.

EARLY FOOD.—The farmers of the United Kingdom have now an opportunity of providing early food, by sowing, without loss of time, the WINTER DON OATS, which resists the most intense frost, and comes in early in proportion to the period sown; growing a heavy crop according to ground. Its mealing quality is unequalled.—Further particulars to be had from Mr. MORGAN DILLON STEWARD, Stratford-on-Slaney, Ireland, by enclosing a stamped envelope, with address of applicant on it.

LIQUID MANURE.
ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.
The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

The Agricultural Gazette.

SATURDAY, OCTOBER 3, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Oct. 7—Flax Society, Belfast.
THURSDAY, — 8—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.

Lancaster—W. Norfolk—Bedford—Shropham and Guilteross.

FARMERS' CLUBS.

Oct. 5—St. Columb—W. Hereford—Newark—Great Oakley—W. Market—Yoxford—St. Austell—Market-hill
— 6—St. Quivox—Lewes—Abergavenny—Wivelscomb—St. Peters
Oct. 7—Harleston—Jedburgh—Watford
— 9—Plympton St. Mary—Halesworth—Wadebridge
— 11—Darlington
— 13—Wootton Basset

WE see, from a circular now before us, that the GUANO trade is assuming a new form. Hitherto the object has been to obtain Guano genuine as imported, and miserable stuff some of it has proved to be. But now the public is advised to have it mixed. "Compound" Guano is brought into the market, with the usual apparatus of testimonials and analyses, all proving its excellence. The public is told that a mixture of Peruvian and Saldanha Bay Guano is the very thing that they should buy; and the inference is that we have been quite wrong all this time in looking sharp after the genuine article.

We should like to know *why* guano is the better for being mixed? why if Peruvian or Saldanha Bay Guanoes are in themselves good, they should be improved by being shaken together? We can understand how the *quality* of guano may be improved by the addition of certain ingredients in which it may be deficient, and we also know how the *profits* upon this article may be increased by additions of another kind. But how the quality of anything is to be affected by mixing it with itself, passes our comprehension. Perhaps Mr. —— will enable us to guess the riddle he has proposed to the public.

Of course we do not impute to any parties the idea of doing wrong. We dare say they merely belong to the class of dealers who deceive themselves. It does, however, unfortunately happen that there is a great deal of excellent Peruvian Guano in the market, and also a monstrous deal of worthless Saldanha Bay and other refuse; and we wonder that it should never have occurred to the vendors that they expose themselves to unpleasant suspicions when they propose to do a thing which some people would find it so very convenient to do. At all events, it is clear that no advantage can possibly arise *to the buyer* from this practice, and therefore we should like to know whose are the interests which this new scheme of doctoring Guano is to serve.

THE paragraph by Sir G. S. MACKENZIE in another column suggests a very important consideration. In experiments undertaken, of course, for the discovery of truth, it is of the greatest importance as a *preliminary* step to ascertain the accuracy of the means and methods we employ. Thus, the astronomer must know by long use and observation the errors to which his instruments are liable, and the limits within which their indications may vary from the truth, before he can determine what degree of dependence he may place upon them. The chemist, too, carefully tests the processes of his art, before he ventures to apply any of them in quantitative analysis. And so with the farmer: before he can place implicit reliance on the published results of experience, he must consider of the methods for ascertaining those results, and of the very processes themselves of which they are the results, how far the one or the other may be worthy of his confidence.

And thus we consider that, while many investigations are proceeding and accelerating the *progress* of agricultural *improvement*, an altogether new class of experiments is much wanted for the *establishment* of agricultural *truth*; experiments are required to determine the real value and trustworthiness of many of our methods of investigation. Suppose the object of an experiment be to ascertain the fertilising ability of guano, and that the method adopted be to select and apply this manure on perch-wide surfaces of a definite number of yards in length all over a field of uniform soil, bearing one crop, and excepting in the particular under examination, receiving as nearly as possible the same treatment. The crop is weighed on those patches, and it is weighed on patches of equal extent unmanured, and the difference is supposed to be the measure of the fertilising ability of the manure employed. And so it is, if there have been no other causes of difference at work; but this we do not know; and in the case of such a variable matter as farm produce, we cannot justly assume it. Well! here is a fair subject for inquiry. What has been the amount of disturbing cause in *natural* action on these plots of land? What portion of the differences observed in the crop are due to agencies which the farmer has not put in exercise? And the way to arrive at an answer is simply to measure out other plots, treated *wholly* alike, and weigh their produce, and to take the differences observed in *this* case as the measure of the confidence we can place in the results of the others.

And so with other matter which may be under investigation. Let the object be, for instance, to ascertain the degree of confidence we may place in the results of an experiment on malt or Barley as food for cattle. If cattle in threes, or sixes, or tens, be subjected to the conditions of this experiment, let other lots of equal number, but which have had no difference of treatment, be weighed also, and any variations in the results observed here will certainly exhibit the degree of confidence which we may feel in the results obtained there.

Subjects for experiment in agriculture are numerous; they may refer to the influence of means employed to improve soil, its texture, or its composition; to the qualities of sorts of plants or breeds of animals; to the best methods of treating the one or of feeding the other. And along with any series of experiments, on *any* of these subjects, we want a corresponding train to exhibit the degree of variableness to which the results of such investigation are *naturally* liable.

Here, then, is a field for inquiry, needing only patience and perseverance—needing no acute or profound knowledge of the theory or hidden causes of phenomena; one on which labourers are much needed. Labourers in *this* field will be doing as much to accelerate, and more to establish the progress of agricultural improvement, than those working in any other departments of the art.

BELGIAN AGRICULTURE AND THE ALLOTMENT SYSTEM.

HAVING had, during a short residence this summer in the neighbourhood of Liege, some opportunities of examining the practical agriculture of this part of Belgium, I have naturally watched with some anxiety the progress and condition of the Potato crop. The early sorts yielded well, but at this moment the reports from all quarters are equally unfavourable; all are more or less affected, the red sorts universally so, and the greatest apprehensions are naturally felt, inasmuch as a great portion of the population in the rural districts are more or less dependent upon the Potato crop for subsistence. Barley, Rye, and Spelt, which is extensively cultivated hereabouts, which supply the Belgian peasant with bread of very indifferent quality, are not an average — if, therefore, the disease in Potatoes proves general, of which there is no moral doubt, in combination with a short crop of grain, much distress must again prevail during the ensuing winter throughout this country, and a large importation of grain must inevitably take place—in fact, is now going on.

A comparison of the agriculture of Belgium with that

of our own country, and the relative condition of the labouring classes, might prove a source of mutual instruction, and of some advantage, probably, to both parties. Whilst in England land is in the hands, for the most part, of large owners, the holdings are also large, and small cultivators, as a class, may be said to be unknown. In Belgium, on the contrary, the soil is not only subdivided into minute properties, cultivated, in a majority of instances, by the owners themselves, very many of whom have neither capital or resources to fall back upon, but the progressive "*morcellement des propriétés*," inseparable from their law of succession, render every year what has not been inaptly termed "the squares of the territorial chessboard" more minute, and marches, moreover, hand in hand with all the evils of open-field cultivation. It is striking to find of how many isolated pieces, and at what distances apart the farms, whether large or small, in almost every instance, consist. No stock can be left in the fields without some man, woman, or child, to keep them off the neighbouring crops. The peasants are undeniably industrious, well conducted, and most moderate in their habits; still many of these small owners may be said barely to exist—they are literally "*fruges consumere nati*," not, however, forgetting that the crops are raised by their own hands. Whatever may be the advantages or disadvantages of "*la petite culture*," the perseverance with which it is carried on, early and late, is beyond all praise. Their soil and implements, however, are, with hardly an exception, of so very inferior character, that I have no doubt but that, with deeper cultivation, in combination with drill husbandry, their produce might be materially increased.

The distress during the last winter, admitted on all hands to have been borne with much patience, has not, however, been without some advantages. The sum of 2,000,000f., advanced by the Government in aid of public works, has been met so liberally by local contributions, and to such an extent, as to have enabled them to lay out many extensive lines of roads, which will afford means of communication with places which, up to this time, were, to use their own phrase, "*au bout du monde*." I have myself, within the last few weeks, been an eye-witness to several lines which are being carried through districts previously all but impassable in winter, which will furnish employment to very many hands for a considerable time to come, and must, when finished, be of incalculable benefit to the country at large. Thus, to a certain extent, at least, good has come out of evil.

The actual condition of a large number of the small proprietors in this country might be studied with advantage by those philanthropists who now advocate the general adoption of the allotment system as the best means of ameliorating the condition of our labouring classes—that the investigation into those causes which have tended, in too many instances, to depress morally and physically the inhabitants of our rural districts, should not only be searching and complete, but also immediate, must be the earnest wish of every benevolent mind. To secure well-regulated home comforts to the labourer, and so much garden ground as may afford him employment during his leisure time, or may be cultivated by his family, is one thing, and can be open to no objection; but let these parties be cautious how they attempt to carry out any measure which would call into existence on a large scale a race of small cultivators, whose only capital is the labour of their hands alone, and who would naturally be inclined to place too much reliance upon a crop which is now proved, beyond all doubt, to be liable to utter and complete failure. To the liberal application of capital, and the well-understood division of labour, England is mainly indebted for her undoubted superiority in manufacture. May not the same principle be applicable equally to sound improvement in agriculture? It strikes me that a labourer can never be placed in a position so favourable either to his own individual interests, or to those of society at large, as when he forms no unimportant part of a well-conducted system of husbandry, under which the value of efficient servants can never fail to be duly appreciated.—*A Subscriber, and Member of the Royal Agricultural Society, Sept.* 21.

ON THE STATE OF HUSBANDRY IN LOWER BRITTANY.

WITH INCIDENTAL OBSERVATIONS ON THE CONDITION OF THE FARMING POPULATION THERE, COMPARED WITH THE SOCIAL STATE OF THE ANALOGOUS CLASSES IN IRELAND.

By Martin Doyle.

(*Continued from p.* 618.)

The dietary of the Breton is inferior to that of the Norman peasant, yet better (decidedly so with the common labourers) than that of the Irish peasantry, and without danger of famine even to the poorest, because they do not exclusively depend on one kind of food.

In a regular farmer's house the diet is abundant; all the family fare alike. On galettes, a kind of pancake made of the flour of buckwheat; soup of the same flour, or prepared with lard and cabbage, and twice a week with pork; poor cheese and barley or oatmeal cakes; potatoes mashed with sour milk or butter, and coarse bread in abundance. In some parts where orchards are common, cider is drank; but generally water is the beverage, milk being kept for making cheese or butter, except a very small portion for cooking. The children are reared on grease or cabbage-soup, but great numbers of them die prematurely. The mealy Potato with milk is certainly more nutritious and wholesome, if we may judge from the physical condition of the Breton labourers, who are feeble, diminutive, and sallow-complexioned, and no more to be compared with the Irish than "I to Hercules." Yet those men eat four or five times a day; a piece of bread, however, with an apple often doing duty for a meal, and as they never work so as to sweat themselves, they have a very tolerable dietary.

The labourers who diet with their own families cannot afford to eat often in the day, and rarely taste meat more than once or twice a year, and have no other bread than that made of Rye or Sarragin flour: indeed they now live very much on Potatoes mashed with sour milk or grease, and the recent failure has become a source of much privation. The workmen in farmers' houses are so much better fed than the externs, that one is surprised to find, even in so cheap a country, that the difference of daily wages is estimated at so low a sum as five sous, the rates being 10 sous a day with diet, and 15 sous without it. The ordinary labourer's condition, however, is very miserable, and so depressed has it been for ages, that the songs of the country, like the plaintive melodies of Ireland, always referring to some national or local woes, leave a character of sadness. There is a song called the labourer's lamentation, in which the hardships of his lot are feelingly set forth; but we doubt if one of the verses, which after warning maidens not to wed a soldier nor a sailor, nor above all a labourer, has much effect among a simple people entirely ignorant of the prospective prudence of the Malthus tribe. The lament concludes thus:—

> Oh labourers you lead a hard life in this world;
> You are poor and enrich others;
> You are despised and yet must be most respectful;
> You are cold and hungry.

Again:—

> My brother, life is not to be desired,
> For life is sad, and our happiness is to die.

The sufferings of this class must have been great indeed to have called forth such wailings.

The Breton cattle are of a good description—like those of Ayrshire. In-calf cows are worth about 6*l.* each, and milchers produce 1 lb. of butter per day in the season; the diminutive breed falls in value to 1*l.* 10*s.* per head, and like the Kerry breed is very good and thrifty when put on kind pasture; but it bears more resemblance to the mountain breed of Switzerland in form and colour, than to the corresponding kinds in the highlands of Ireland and Scotland. The Breton sheep are worth from half a-crown to 10*s.* of our currency, and when aged and fattened on the sea downs—as at Treguier in the Côte du Nord—delicious to the taste. The black woolled are much prized for the fleece, and on that account are allowed to live till they become pretty tough picking; but whether long or short lived, they do not enjoy that happy and tranquil existence which our flocks ordinarily enjoy. Confined by night without fodder in a close cabin, driven forth in the morning by a reckless urchin, who, regardless of their fetters, hurries them with the incessant cracking of a whip and the barking of a cur at their heels, where to a bare field they are tethered in couples in a very severe manner, or with hardly time to snap at the scanty herbage in any one spot, urged forwards. How different their state from that of our happy fat sheep reclining under the shade of a tree or in a glen, ruminating in undisturbed repose, and fattening as if from a sense of gratitude to its owner!

The Breton horse is an admirable specimen of its kind, strong, hardy, enduring, and keen to the draught. There are, however, two very distinct breeds. The round, robust, heavy-limbed draught-horse, is bred on strong rich land, as in the valleys of Treguier; the other is a light, active, lank animal, reared and principally used in the mountainous parts, and though degenerate in form, bearing the traces of Arabian origin. The sharp-eyed horses which are employed in carrying charcoal on their backs are principally bred in Morbihan. The horses reared for the cavalry, produced from the native mares and high bred stallions (not always English), are very defective, the legs being too long, and the heads heavy in a remarkable degree; the body is also disproportionately lengthy, and the loins are almost universally defective. The number of horses bred in lower Brittany and drafted thence to the great Norman pastures is prodigious. So great was the redundancy about 14 years ago, that an English tanner (established in the country), bought at one of the fairs a score of colts and fillies, 18 months old, for the sake of their skins alone.

The price of a good horse 15 hands high is from 20*l.* to 24*l.* each; but it is hard to find one that has not been worked from a very early age. The swine are very like the old Irish breed, so completely extinct in all the civilised parts of Ireland, long legged, and long flanked; yet, thus ill-formed and without aptitude for fattening, they are reared for sale and domestic use in vast numbers. The teams of horses and oxen*—the latter not common in lower Brittany—are necessarily large from the condition of the farm-roads, which for a great part of the year are of the worst kind; the ploughing is well executed, in consequence of this redundancy of animal power, as to depth; but the objectionable partiality for high narrow ridges, even on perfectly dry soil, prevails in Brittany as in Ireland; but in the former country the centre of the ridge is thoroughly loosened by the plough; whereas, in the latter, it is usually left unstirred.

The turning of stubble land begins at Christmas, and it lies until February, when it is broken to pieces with hand-hoes for Potatoes or spring corn. There is no cross-ploughing; the harrow completes the preparation. Ley is broken up in May with plough and hoes, for Buckwheat in the first instance, which is sown before the end of June at farthest. The ground is afterwards manured for Wheat, and ploughed (with two horses abreast and one leading), as on an English fallow; but there is no succeeding ploughing, the seed being harrowed in after the former labour.

Much of the slovenly and exhausting cropping which has been so long subject of regret in Ireland characterizes the agriculture of Brittany where it is common to take successive crops of Oats as long as the land will yield it, and then leave it to recover as it may. The fences are frequently very large—eight or nine feet in width; but this, though apparently wasteful, is not so in reality; for these barriers are planted to the utmost advantage with trees, and kept exclusively by the lord of the soil or proprietor, among his foncial rights, as timber preserves.

Tenants are generally prohibited from selling their straw; but as they rarely give hay to their working cattle until spring, a great portion of it is consumed for fodder; the housing of live stock, however, through the greater part of the year, necessarily produces a large supply of manure, of which the liquid portion too frequently flows off in utter waste, from mismanagement and ignorance.

The farmers on the coast are fully aware of the value of seaweed—vareck*—which they apply in the various modes familiar to us. In Finistere it is collected like the harvest crops at a stated time from the rocks in the bays which are covered at low water, with carts and their attendants; but as the farmers who have the greatest amount of human and horse labour would take the lion's share, without some restrictions, the clergy have effected an arrangement, by which the poor peasantry only are allowed to collect the vareck on the first day, and so considerate are the great for the interests of the little farmers, that they lend their men and horses to them on the poor man's day. The weed detached from rocks in the sea is often brought to shore on rafts rudely constructed with limbs of trees and ropes, on which the work-people float to land. The number of those moving masses of weed, each with its family of human beings—as described very graphically by M. Sousvestre, must form a very curious and interesting combination.

(*To be continued.*)

* In Brittany the oxen are yoked by the heads; in Normandy they draw from the collar.

* This Celtic word is altered somewhat by the Celtic Irish, who pronounce it wrack.

PRACTICAL REMARKS ON THE BREAKING UP OF GRASS LANDS.

Let us now consider how the tenant ought to break up his pastures. For in giving him this permission the landowner will doubtless specify the mode in which he requires it to be done. I think that all clay pasture lands should be pared and burnt; there are many advantages attending this operation in all cases, but there are some peculiar to clay lands—such, for instance, as the improvement it effects in the texture of such soils. At the same time it should be remembered, that land when wet will appear to have an adhesive texture, which when drained will prove a friable open soil; and therefore no decision on this subject is advisable until after drainage. The object of the landowner in naming the terms (on this head) on which he will permit the farmer to break up Grass land, should be to arrange so that he may have half of his land in green crop and half in grain during the first and all succeeding years; and in the case of clay land it is necessary to burn all, because while there is no immediate necessity for it in the case of that half of it which is to be sown to Oats, Beans, or Wheat, as the case may be, yet on such soils the sward will not have been sufficiently reduced by the ploughing and rest for a year, which that half of it will thus receive, to answer for the green crop, which in the succeeding year follows those crops. In the case of light land, however, there is no such difficulty, and therefore on such soils it will be advisable to *plough up* the half intended for grain crops (it will thus be sufficiently rotten and reduced by next spring for green crop culture), and to pare and burn the half intended for Turnips, Swedes, &c. That was the mode adopted on the farm I now occupy; about half of it was ploughed and half pared and burnt. A great crop of Oats, and a great crop of Turnips, was thus obtained, and a large stock of sheep and cattle were thus kept during the first winter; a large stock of manure was thus produced, and a sure foundation thus laid for the permanent fertility of the land.

The farmer has to superintend and bear the expence of all these operations. We have put the amount of expence he will incur beyond the ordinary cultivation of the land at 30*s.* per acre on half of the pastures converted. If he enters on the land at Michaelmas, which will be the most convenient term for him, he will be able to plough those Grass lands, *which are to be ploughed*, in the autumn (we suppose all the landlord's operations, except the buildings, to have been completed). The Grass should be cut close, and the land ploughed about 4 inches deep; and it will be the better of being rolled before winter, so as to press the furrow-slices home, in order that no Grass may grow between them. In March 4 bushels of Oats per acre may be sown broadcast—they will fall into the furrows and spring up as if they had been drilled—they should then be harrowed up and down and across the former ploughing, rolled, and left till harvest. The farmer will also, during winter, be able to get all the hedgerows that are to be removed grubbed up.

With regard to those fields which are to be pared and burnt, they must lie till the spring; but in ordinary seasons there will be no difficulty in getting them ready part for Swedes and part for common Turnips. They may be pared either by hand or by plough; in the latter case it is right to cut the land by circular shares, arranged on an axle and weighted, so that they shall pierce the sward in lines about a foot apart. The paring-plough in crossing them, and turning over a furrow-slice about 10 inches wide, will turn over, not a continuous riband of turf, but a series of patches about a foot long, 10 inches wide, and 1 inch deep. These are more manageable in the burning. This ploughing, I imagine, will cost about 9*s.* or 10*s.* per acre. I have had no experience of it. All this farm was pared by hand, by the breast plough, at a cost of about 12*s.* per acre. The burning, which should be done in as large heaps as possible, and as slowly as possible—the one to ensure against the fires being put out by every passing shower, and the other to ensure black ashes—will cost about 10*s.* or 12*s.* an acre more; and the ashes where the turf has been cut about an inch deep, will cost 3*s.* or 4*s.* per acre to spread—the burners being allowed the rubbish off and out of the adjacent grubbed up hedgerows to assist them.

The next operation is to plough this land as shallow as possible (say 3 inches deep), in narrow furrow-slices, and thus bury the ashes. The ploughed land should then be rolled hard, and then harrowed twice or thrice lengthways; and, lastly, twice or thrice across the ploughing—and the soil should by that time be pretty well torn to pieces. Let the land be then again rolled, and ploughed 6 inches deep across the former ploughing. This will bring up the 3 inches of fast land below the ashes, and bury those 3 which had been on the surface; the ashes, as before, being between them, or 3 inches deep in the ground. If the same succession of rollings and harrowings be again repeated, the land will be ready for that drilling up at intervals of about 26 inches, which prepares it for the seed. The additional cost in preparing turf land for the seed, may fairly be put at 30*s.* per acre over the cost of preparing arable land. In ordinary seasons a large extent of Grass land may thus be broken up in one season, half of it being got ready for a crop of Swedish, and the other half for a crop of common Turnips.—*M. S.*

Home Correspondence.

Small Farms.—The communication of your correspondent "T. M. T.," with your remarks upon it, as contained in your last number, is of interest to others than himself. I believe that the system of small farms, of from 40 to 100 acres, may, under some circumstances, be made profitable, and perhaps more so than larger holdings, as allowing of more concentration of capital. It becomes, then, a question of interest to know how the small holder can carry out the principles of large holders. On a farm of, say 50 acres, how many head of stock should be kept permanently? What is the most economical way of feeding them, both as regards the food itself and the proportion of such food? What, also, is the most economical way of preparing the raw material produced on the farm for market. The latter question is, in fact, the only one in a commercial point of view, whether we regard the raw material of pulse and corn crops made marketable, or whether we regard roots and green crops made marketable in the forms of beef and mutton. Regarding them, however, as separate questions. The stock is best fed on the raw material of food, crushed or cut, and then boiled or steamed. A considerable mechanical power is required for cutting the roots, hay or straw, for crushing the Linseed and bruising the Oats or Barley. This is a power which is frequently required, and how is it to be obtained? The same power would be available for preparing the pulse and corn crops for markets. On large farms it is admitted that steam power is most economical; may it not be so on smaller farms? In many manufactures small steam-engines are used and found economical; it will be observed that the steam may be made useful for heating water, and even making it boil, as is done in the free washing houses in London. Let an intelligent mechanic set his mind to work and devise a cheap and effective engine. Till this shall be done, however, I would wish to inquire what I am to do. I hold 50 acres of land; how am I to thresh my corn? I had thought of having one of Barrett and Exall's hand-threshing machines, but "T. M. T." says the work is too hard for men. In your reply to my inquiries on the 29th ult. you said that I must employ horse power for a threshing-machine. You tell "T. M. T." that his farm will not allow of the outlay. What then must we little people do? I will endeavour to procure some facts respecting the expense of erecting and working steam-engines which would be available for these purposes; and in the mean time I should be obliged by your informing me whether you would advise me to procure one of the threshing-machines I have named, or whether I should continue to use the flail.—*Bannerman.*—[If we have been inconsistent it is because the size of the farm in question is just the limit when it becomes doubtful whether horse or steam power (we mean whether a large horse machine or the flail) as applied to threshing, is the more economical. Your farm will employ two horses. You had better get a horse-wheel for two horses constructed, and attach it to one of the largest hand-threshing machines you can obtain.]

Experiment on Shed-feeding Sheep.—The flock of sheep consists of the pure Leicester breed, Southdowns, and half-breds, viz., between Leicesters and Southdowns. Consequently, to test the relative qualities of the Leicesters and half-breds, there was 22 of each kind chosen from the flock, and placed in two separate yards, the size of the yards being 12 yards by 10 yards, including sheds for them to run under during the inclemency of the weather. I must here remark that at the time of folding up they were in condition that would be called fat, in consequence of which they did not gain so much weight as they might have done had they been in a much lower state when folded up. The kind and quantity of food given to each sheep per day was ¼ lb. of Linseed cake, ½ lb. of Barley, and as many Turnips as they could eat. The following is the exact and monthly weight of each lot, being from the 13th December, 1845 (the time of their first being folded), until the 13th April, 1846:—

Leicesters.	st. lbs.	st. lbs.
Date.		Increase.
13th Dec., ..	207 6	
13th Jan., ..	224 4	.... 16 12
13th Feb., ..	241 2	.... 16 12
13th March,	257 9	.... 16 7
13th April,..	270 2	.... 12 7
		62 10
In favour of Half-breds		4 6
		67 2

Half breds.	st. lbs.	st. lbs.
1845.		Increase.
13th Dec.,	207 9	
1846.		
13th Jan.,	222 11	.... 15 12
13th Feb.,	238 13	.... 16 2
13th March,	254 2	.... 15 3
13th April,	274 11	.... 20 9
		67 2

It will be observed that the sheep of the Leicester breed increased more during the first months, when it will also be perceived that the half-breds gradually began to increase more, and continued so to do until the time they were slaughtered. It appears from the above tables of weights that the Leicester sheep would for a limited time, on first putting up, gain a greater weight than the half-breds, but if kept for a moderate length of time the half-breds will obtain the lead of weight, and continue so to do as long as it may be the wish to keep them, for I find that when the Leicester breed of sheep has obtained a certain weight, their increase afterwards is but a mere trifle compared with the half-breds, and, as far as my judgment and experience goes, I should prefer for general feeding on poor soils the half-breds.—*Richard Woods, Scafton Farm, Osberton, 18th April, 1846.*

Comparative Experiments in Feeding Cattle.—There is a consideration of no small importance omitted in all experiments that have been made on the properties of various substances used in feeding cattle. Two animals are selected; each gets a different kind of food, and the one that gets fattest in a given time is held to have got the most nutritious diet. Now, it is well known that no two beasts are exactly alike in constitution, any more than human beings. It is impossible to say that the condition and power of assimilation of the digestive organs are exactly the same in any two cases. Suppose the experiment reversed after the animals become lean again. Suppose the one which got fat in the first experiment, to get in the second the food on which the other did not thrive, it is quite possible it will get fat again, and the other on the supposed best food may not get fat. The way to come at the truth is to feed only one animal with different kinds of food at different intervals, allowing it to get back to its normal state after each experiment. Notwithstanding all that has been done, I hold that we are yet ignorant whether Barley or Malt be the better food.—*G. S. Mackenzie.*

Cutting Peat Drains.—At p. 636, Mr. Smith, of Deanston, appears to have said that the cutting peat drains is done by a particular process. It would be a great advantage to me and others who possess acres of peat many feet deep, to have this particular process described. Perhaps Mr. Smith will kindly oblige us with it.—*L.*

Potato Disease.—My firm belief is, that the original cause of this calamity is still a mystery, and the remedy without hope. The cause has been assigned to electrical action, blight, minute fungi, and ammoniacal gas from guano. In all these cases the haulm must be first attacked (that being the part only exposed), by which the sap might become vitiated; but as this fluid does not descend to the Potato, such theories are wrong. Besides, it is scarcely possible for any one of the above causes to have prevailed at exactly the same period in places 5000 or 6000 miles apart, with oceans separating them; and as regards guano, I understand the disease is unknown in Peru (from whence, it is said, the Potato was originally brought), although this article abounds on its coast. The disease has originated from some unknown cause, and is certainly now latent in the Potato, having first shown itself to any extent in the United Kingdom last year, and then spontaneously about June or July. It appears that well selected (apparently sound) tubers impart disease to their young tubers the following season, and that a certain degree of heat is necessary for its development, because it takes place in forcing frames very early in the season, and not in the open air till June or July. The circumstance alone of its arising in frames in January and February, which it is well-known to have done, fully subverts the theory alluded to. The diseased new Potatoes I possess were taken five or six days back from a heap of five or six bushels. The old tubers were carefully selected last autumn, and kept in a perfectly dry boarded floor store closet, with a well closed door; and although there was no earth, no admission of blight, or ammoniated atmosphere, the young tubers, from a ¼ to 2 inches diameter, or more, are more or less infected with the disease; and, strange to say, many of them are in contact with the old tubor, although the latter in every case, examined externally, appears perfectly sound, having, of course, no haulm to convey infection. If slightly diseased Potatoes are examined, it will be found that 49 out of 50 are affected only at the crown, which fully accounts for the premature decay of haulm, and an unhealthy secretion produces fungi, which has often been spoken of; not in any case can the latter produce the former. In slicing a diseased Potato, the fibrous portion will be shown by dark ramifications which are connected with the eyes; and sections of apparently sound old tubers also show this mark, but in a faint degree, and which constitutes latent disease; the eyes from whence the young tubers originate being the conductors of the contaminating virus. We find in the Potato, farina, gluten, and fibrine. The first preserves the root from too speedy destruction; the second, when vegetating, passes into a state of fermentation, and, I have no doubt, materially assists that process by forming carbonic acid gas, the fibrine conducting the fluid or sap to the eyes; and when this first principle (the sap) of the future tuber is diseased, the tuber must be also. I particularly noticed, this season and the last, that Potatoes that were dug up before the middle of June are not diseased, whether planted in autumn or not; and although autumn-planted Potatoes have the advantage, the skins setting, as it is termed, before the time the disease takes place comes round, which is about the end of June, and are consequently preserved from it, still the risk of general planting on most lands in autumn is very great. Dr. Playfair and Mr. G. W. Johnson suppose the disease to be an ulceration or decay of the tissue arising from the absorption of oxygen, which, I think, cannot be the case; for having made very careful analysis of a number of old tubers, I find that the cellular tissue remains perfectly sound, but the ramified discolourations which may be seen throughout is the latent disease, viz, sap in an unhealthy state, capable under certain conditions of reproducing the disease in the young tubers, the liber in many becoming ulcerated, and, like all other matters or bodies in the same state, the putrefactive process is induced: all this is the consequence, not by any means the origin. Oxygen is not absorbed by the Potato in a dormant state, unless the putrefactive process is present, and it always commences on the exterior; and old tubers capable of reproducing disease in young ones, and sections of which clearly indicate its presence, are, nevertheless, perfectly free from putridity. —*C. L. Smartt, Eyfield.*—I had some Potatoes planted in a pit, which turned out to be an excellent crop, free from disease. They were taken up in the beginning of June. I left the old seed in the ground, the haulm of which is now full grown, and as clean as possible, and some of the young tubers look as well as those taken up in June. By this it appears that the blight only comes at a certain period, and these not being above ground are uninjured, while the remainder of my crop, although growing close to them, is destroyed. Therefore, where seed can be spared it would be a good plan to plant in October, and then the crop would be fit for taking up by the beginning of June, when the old seed might be planted as above, or the ground might be planted with something else. This would be preferable to planting in April, May, or later. *Littlegreen, Sussex, Sept. 24.*

Experiment in Planting Potatoes.—On the 23d of March, 1846, I planted the following sets of Potatoes; sort, Early Shaw; soil, sandy loam or gravel; had been well manured:—No. 1. Nine sets, containing 15 eyes peeled off the Potato, the peel being rather thicker just opposite the eyes. No. 2. Nine whole sets. No. 3. Nine half sets. The sets were all taken from Potatoes of the same size, and containing as nearly as possible the same number of eyes. Of No. 1, seven plants grew; of 2 and 3, all grew. The plants flourished and looked vigorous and well until the 23d of August, when, they were attacked with the epidemic, and a week after the haulm was mowed off. They were taken up on the 18th of Sept., and yielded the following produce:—

Size.	Number of Potatoes.	Weight.
No. 1. .. Middle, good	46	8¼ lbs.
No. 2. .. Largest, fine	81	13½ ,,
No. 3. .. Smallest, fair	133	18 ,,

Thus it will be seen that the produce from half sets was considerably larger than that from whole ones, and that the seven peels which vegetated produced 46 Potatoes, weighing 8¼ lbs. As a comparative experiment it is defective, inasmuch as the number of eyes in the peels were much less than in the other two; but I am inclined to think if two peel sets had been placed in each hole, that the produce would have equalled, if not excelled that of No. 3. Not one of the tubers was diseased.—*C. R. Brec, Stowmarket.*

Farmers' Clubs.

Harleston.—*Sept. 2, 1846.*—*The Planting of Wheat, thick or thin, early or late sowing, dibbling or drilling, and the cultivation of Bean stubbles for Wheat.* —*Resolution,*—It was arranged that the discussion on the first two points of the question should be taken together, and on the other two separately; and also decided that in this district 10 pecks per acre might be considered thick, and 6 pecks per acre thin sowing; that the early part of October might be called early, and the latter part of November late sowing. The discussion having commenced with the above explanation, it was considered that as regarded the first point, *viz.* thick or thin sowing, no positive rule could be laid down, as the quantity of seed must always depend on soil and season; that however desirable it might be on good land and very clean to sow a thin seed early, yet with the general farming of the kingdom it would be a dangerous practice. Several members of the club who farm highly, stated it to be their constant practice to

sow late (frequently in December), finding thereby the advantage of a stiffer straw, and a greater yield; and these would be afraid to decrease their quantity of seed. Two of the members entertaining these views had had the advantage of seeing Mr. Hewitt Davis's farm, but were not thereby convinced that the extreme of thin sowing there practised was applicable to this district. After a lengthened discussion it was decided that as the farming of the kingdom improved, the seed corn might be gradually reduced, but that at present for the general tillage of this district, the club could not recommend a departure from that practice which long experience had sanctioned, of planting from five to six pecks per acre early, and eight pecks per acre late, with an intermediate quantity for an intermediate time. As regards dibbling or drilling, the majority of opinions were in favour of the latter, simply because of the correctness of machinery compared with the uncertainty of manual labour. There seemed to be a unanimous opinion, that if the dropping could be regulated with precision, which machinery alone could effect, dibbling would be preferable on many soils. It has always, and continues to be largely practised in this neighbourhood. The advantages of treading in one case, and of horse-hoeing in the other, were not lost sight of in the discussion. Lastly, the cultivation of Bean stubbles for Wheat was considered, and evidence was given of superior east from unploughed stubbles highly manured for the previous crop. On the other hand, it was found by some, that although the practice ensured an almost total absence from annuals, the deep-seated perennial weeds, such as Colt's-foot, Cat's-tail, and, above all, Bind-weed (Convolvulus), not having received any check from ploughing, were exceedingly troublesome, the latter particularly so at harvest time. Further trials were recommended to decide how far the advantages of a solid bottom and freedom from annuals counterbalanced these objections. The club cannot close this lengthened resolution without regretting that it is less decided than usual, which it trusts the nature of the subject satisfactorily accounts for.

LEYLAND: *Sept.* 23.—The following report of farms was read at the meeting here, by Mr. Morell, the Secretary:—Having been honoured by being appointed inspectors for the Leyland Agricultural Society of this year, we have paid every attention so as to discharge the trust committed to us, faithfully, without bias, and therefore beg leave to submit the following as the result of our observations. As we cannot lay too much stress upon a scientific system of draining, which we consider to be the root of all substantial agricultural improvements, we cannot sufficiently impress upon the minds of landowners and tenants paying the greatest attention to this subject, satisfied as we are that the ample remuneration which they will obtain will be a cheering and solid proof to them of the benefits to be derived from this branch. This they will be early able to effect, now that they have the manufactory in their neighbourhood, which is upon a highly improved principle, and which has been established under the auspices of this society. We were very much pleased to see, for the most part, some well cultivated crops of Swedish Turnips, which evinces considerable improvement. We have also seen a crop of Swedish Turnips transplanted upon land after a crop of forward Potatoes, which does great credit to the tenant, and which system, in our opinion, might be very much carried out in this district. The dairies also bear proof of good management. We now beg to offer a few words upon the subject of draining, which, in some parts, particularly of the Moss lands, we do not find sufficiently attended to. We generally find those lands are upon a low level, and of course the fetchings up of fall and the building of permanent platts, are a considerable hindrance to the drainage, but we wish to add that no other land is capable of so much improvement, and we suggest to the landowners the propriety of coming forward and assisting their tenants in this laudable work. We should also be glad to see much of the hedge-row timber taken down, for be assured if the trees are not improving, they are doing much injury yearly to the tenants. It is our wish to call attention to the following important subject in this locality, viz.—the laying down of land for permanent pasture; as we have seen some land intended for pasture which, after being green-cropped, has been succeeded by Wheat—a crop by no means calculated as a foster-mother for Grass seeds; consequently, wherever this has been put in practice, there is a failure in the seeds. We congratulate the society on the improvements already effected, but must still remind them that much remains yet to be done, and would advise tenants to drain, clean, and manure their land, so that in due time they may receive the benefits arising therefrom. It is much to our gratification to see the samples of Grass seeds exhibited, which are highly creditable to the growers. This leads us to observe that a considerable proportion of the land in the Leyland district seems particularly favourable for pasturage, while, on the contrary, the western portion appears better for the cultivation of the various root crops. We cannot but deplore the awful visitation this year of the infectious disease, which only partially presented itself last year amongst the Potato crop, the cause of which hereunto seems to have escaped the observation of our most scientific agriculturists; and, therefore, it is not surprising that we should be unable to suggest any plan calculated to check the disease, but we trust that a remedy will be eventually discovered for it.—*Joseph Newton*: *William Jackson.*

Farm Memoranda.

AMERICAN FARMING.—For judicious and economical management, few farms that we have ever visited will compare with that of A. Van Bergen, Esq., situated about three miles from Coxsackie landing. It consists of 700 acres, lying mostly in a body, about 300 acres being cleared, and the remainder wood-land. The nett proceeds from sales for the last 10 years have been from 2000 dollars to 6000 dollars yearly. The staple product is hay. About 300 acres are this year in mowing. The average yield is from a ton to a ton and a half per acre. The hay is pressed on the farm, and shipped to New York. The price obtained per ton in that market is from 10 dollars to 16 dollars. The mowing grounds are laid out in large lots, thus obviating the expence and trouble of many inland fences. These are 212 acres in one field. One side of this field, embracing 20 to 30 acres, having the benefit of the wash from the highway, has been in Grass for 40 successive years, and has yielded annually from one and a half to two tons per acre. But the usual course is to break up the meadows once in four or five years, take a crop of corn and a crop of Oats, and then seed down again with Timothy and Red-top. Top dressings of manure are sometimes given, in connection with which the sward is scarified, some Grass-seed sown if required, and the surface made smooth with the roller. The mode practised by Mr. V. B. in making hay is deserving note. The Grass is never cut while wet with dew or rain; thus, from its dryness, it does not pack in the swath, but is so light that it admits the air, and dries rapidly without being spread. From the swath the hay is put into small Grass-cocks. This is done very expeditiously with large wooden forks—one man being able to accomplish more in this manner than three or four could with rakes. The next day the cocks are turned over for the moisture of the bottoms to dry off, which in good hay weather is all that is done before taking the hay to the barn. But if there is a prospect of rain, the cocks are carefully doubled and trimmed. After the bulk of the hay—that is, what was put in cock—has been carried off, the scatterings are collected with a spring-tooth horse-rake, an implement which answers admirably for this purpose, as well as for another, of which we shall speak presently. This mode of making hay we think a very cheap one, and it seems to answer well in this case. It should be remarked, however, that as Mr. Van Bergen sells his hay, a considerable object is to obtain the greatest weight with the least expence; most of the Grass, therefore, is not cut till it has reached such a state of ripeness that the curing is effected with much less labour than it could be at an earlier stage.

Land under Cultivation.—Mr. Van Bergen has this year about 100 acres under the plough, viz.: 32 acres in corn and Beans (in alternate rows), 40 in fallow, with Beans in rows 10 feet apart, 8 in Potatoes, 10 in Oats, and the remainder in Buckwheat. The cultivation is admirably conducted; the work is done in the most thorough manner, and with the least possible expenditure of cost. The soil, though of a character commonly called "strong," is not, on the whole, of a nature favourable to crops. A great portion of it is too flat, and it is mostly of a very tenacious texture, with a cold compact subsoil, which does not admit of the free descent of water. For these reasons crops are liable to suffer both from the excess and deficiency of water. If there is much rain the soil is made into mud, and from being thus run together, it bakes so hard when dry that the plants cannot extend their roots. We mention these disadvantageous circumstances, as they serve to show in a more striking manner the superior skill and judgment used in cultivation. Against obstacles which really would have induced many farmers to relinquish the idea of obtaining profitable crops, Mr. Van Bergen has persevered, and has received for his well-directed labours an abundant "recompense of reward." Sixty bushels of corn per acre, and from 40 to 60 bushels of Oats, have not unfrequently been taken from such land as we have described. That these crops have been obtained at small comparative cost, will be inferred from the fact that three men, under the direction of Mr. Van Bergen, have done all the hand labour on the farm, from the opening of spring to the first of June. The secret of accomplishing so much with so few hands, lies in the performance of much the greatest portion of the work by improved implements drawn by horses. We cannot give at this time a particular description of these implements and the manner in which they are used, but hope to obtain cuts before long, of some which we consider particularly valuable. It may be observed, however, that in cultivating the crops above mentioned, Mr. V. B. uses no less than three kinds of ploughs, three kinds of cultivators, and a harrow, besides a spring-tooth horse-rake, which is made, in some instances, to do the work of a harrow in an improved style. In ploughing, as well as in all the after-culture, particular regard is paid to adapting the work to the nature and tendencies of the soil. The first object is to obviate the difficulties arising from the water remaining too long on, or near the surface. For this purpose the land is laid partly in beds, with open channels so disposed as to facilitate as much as possible the discharge of the water. The land is next thoroughly subsoiled to the depth of 15 to 17 inches. In the course of culture, particular attention is paid to keeping the soil open, which is effected by the use of tools which penetrate and loosen to a considerable depth. The 30 acres of corn and Beans which we have mentioned were managed from first to last, entirely without the hand-hoe, and yet we have never seen an example of more clean and perfect cultivation than the field presents. Mr. Van Bergen assures us that a man and a boy will readily tend 40 acres of corn, on his system, in a season, and that too in a most thorough manner—not run over so as to have the ground full of "unclean things," as we have too often witnessed on the corn-lands of the west. The Bean crop of which we have spoken was planted with Lewis's seed-planter, an implement with which Mr. Van Bergen is much pleased. It is drawn by a horse, and does the work with great precision and dispatch. Mr. V. B. intends to use it hereafter for planting corn. Mr. Van Bergen's fallows are managed on the new plan. The object is to clean the land, and this is done most completely. The land is alternately worked with cultivators, or "gang-ploughs," paring cultivators, and the spring-tooth horse-rake. The cultivators or gang-ploughs leave the ground in small ridges a foot apart; the pavers, which are narrow plates of steel of lengths varying from 1 ft. to 3 ft., are made to shave the surface, which levels the ridges and cuts clean all vegetation; the horse-rake, which is made of extra-sized wire to fit it for this purpose, follows after, rakes the ground smooth, collects weeds or grass where there is any, and leaves the ground in the most beautiful condition. These different operations are repeated in the course of the season at various intervals, as may be necessary to keep the soil clean and light. The last operation before sowing winter grain is to put the land in the small ridges (as described before) by the gang ploughs; on these ridges the grain is sown, and is then harrowed in with the horse-rake, which running lengthwise the ridges, brings the grain in regular rows, a foot apart. The gang-ploughs and the largest sized cultivators are drawn by two horses. Some of them work a breadth of 9 ft. at once, and a man and pair of horses will work over from 15 to 20 acres of fallow land a day, with one of them. Mr. V. B. has lately made one still larger than those we have mentioned, which cuts a space of 10 ft. in width, and requires three horses to draw it. It is designed partly as a scarifier for Grass-grounds, and partly to clean the foul growth from the fallows; and is at the same time so contrived that differently-shaped tools may be readily fitted to it, so that at option it is metamorphosed from a scarifier to a mammoth cultivator, or set of gang-ploughs. It may be observed in passing, that Mr. Van Bergen makes considerable use of the subsoil plough in draining his Grass lands. It answers in this case a similar purpose to the mole plough. The implement is passed through the sward in such places as would be likely to effect the most drainage, and a channel is thus made which not only takes the water from the surface of the land, but conducts it off to natural courses. The plough does not turn over the sward, but only raises it, so that the Grass grows as well or better immediately over the channels as in other places. These spaces made by the subsoil plough remain open for two years, and are of great advantage.

Injury by the Wire-worm.—Mr. Van Bergen's crops have been greatly injured this year by the wire-worm. His Wheat and corn have been almost totally destroyed; his Oats have been considerably cut off, and even his Beans have not escaped; and judging from the numbers which on examination we found preying on their roots, their chance of affording a crop must be small indeed. He has not found any mode of counteracting their ravages.

Live Stock.—Three pair of horses are kept by Mr. Van Bergen, which perform all the team-work on the farm, as well as all other service required by horses. A yoke of oxen have formerly been kept, in addition to the horses, but this season their use has been discontinued. A small stock only is kept. The cows, 10 in number, are mostly Durhams, Ayrshires, and grades of these breeds. Several of the Durhams were imported. They are evidently of a milking family, and show excellent points for the dairy. The Ayrshires are very pretty stock—silky haired, clean skinned, small boned, with all the indications of first rate dairy-stock. Mr. V. B. formerly fatted calves for the New York market. He usually sold them at from 5 to 10 weeks old, and obtained for them an average price of 9 dollars per head. He sold one year 160 calves fatted by himself. The business proved profitable for several years; but competition after awhile reduced the profits till it became no longer an object.

Conclusion.—Mr. Van Bergen's farming must, on the whole, be considered eminently successful. Many, very many farmers, even with greatly superior advantages of soil, do not obtain anything like as good crops on the average, or realise half as good profits on their capital invested in farming. What is the cause of this success? is the question obviously suggested. We answer, it is to be found in the fact that "knowledge is power." A mind well balanced, well disciplined, and discriminating, here exerts its energies; and the effect is seen in the systematic plan on which the various operations are based, and in the highly satisfactory pecuniary returns which are the ultimate results.—*Albany Cultivator.*

Miscellaneous.

Rotation of Crops in Belgium.—The crops raised in Belgium are Wheat, Oats, Rye, Flax, Potatoes, Rape and Clover, as principal; and, as secondary, Turnips, Carrots, Buck-Wheat, Tobacco, and Spurry. The farmers consider Flax and Rape the best paying crops they cultivate, and they are the most exhausting; hence the enormous quantities of manure given them. The Rape is sown in July, transplanted in September, and cut in June of the next year. The Clover, which is

grown for seed as well as for food for cattle, is an important crop with the Flemish farmer. He is not particular among what he sows it. We find it growing amongst Flax, Wheat, Oats, or Rye. There are two varieties of Rye used, winter and spring. The winter variety is almost always sown after Potatoes in December, and some of it is cut green in spring, before the Clover is ready for cutting. It thus answers the purpose of early Tares in this country. Another crop is taken the same year, after it is cut. The ground is ploughed several times for Potatoes. When the last ploughing is finished, the furrows of which are about 7 inches wide, one man walks up one of the furrows, and, with an instrument similar to that used for picking Turnips, makes a hole, into which a boy drops the cutting of a Potato. Eight inches further another Potato set is put, in making the hole for which he draws the soil over the previous setting. This he does every second furrow, so that the distance between each row of Potatoes is not more than 14 inches. One man and a boy do about 450 yards in this manner in the hour. The Turnips are almost always taken as a second crop in the year. Immediately after the Rye is cut, they begin to prepare the land for Turnips, and by the powerful agency of the liquid manure, a beautiful bed is obtained in a few days. The Turnips have attained a pretty good size when they are pulled, and with the Potatoes, form the winter food for the animals on the farm. Carrots are often sown with Flax, so that they are enabled to have two crops the same year from the land; for by the time the Flax is pulled, the Carrots are considerably advanced. This method of double cropping is very frequent in Flanders, and is another instance of what, by economy of manure and a judicious application of it, they are enabled to produce from the soil. The next subject which comes naturally after this is the rotations of crops practised in Flanders. I was prepared, before crossing the channel, to encounter some little difficulty in this subject, from having read of the great variety of rotations to be found there. Every field, Mr. Radcliff tells us, has its own rotation. But the four, five, or six years' courses to which we are accustomed in this country, made me form but a faint idea of the difficulties of comprehending the Flemish courses; and, therefore, when I began to study them, these exceeded my greatest anticipations, and every day I renewed my inquiries but plunged me into greater perplexities. I could perceive no fixed principle on which they founded their constantly varying rotations. The same farmer would give me one day one rotation, and the next another totally different from yesterday's, as the rotation he practised on his farm; and, were I to transcribe all the various systems I jotted down in my note-book, as those followed on farms within the narrow compass of a few miles, I should fill as many pages as this short sketch of Belgian farming would require. With such conflicting statements, and with no prospect of unravelling the mystery, I began to solace myself with the thought that the Flemings had no such thing as a rotation; that they knew the value of a change of crops each year, and therefore they practised a succession rather than a rotation of crops. If they are rotations, it is difficult to tell where they commence and where they end; and they are besides extremely long. The principle they seem to go upon is, that the same crop shall not be taken two successive years from the same land. And on examining my heterogeneous mass of rotations, I have been enabled to trace out the few following facts:—That Wheat and Rye almost always succeed Potatoes, and Rye, Potato Wheat; the place of Flax seems to be after Oats and before Wheat or Rye. Clover is sown with any of the principal crops. Rape seems to succeed Oats or Rye. I think I cannot do better than conclude this part of the subject in the words of *Mr.* Radcliff:—"In Flanders they would consider their industry and their manure inefficacious without the aid of a precise and well-regulated rotation; hence the variety of successions which we observe at every variation of the soil. They have been farmers time out of mind, rotation farmers for centuries; there is not a cultivated acre, the properties of which are not matter of notoriety, and, according to those properties, the most suitable succession, and the most profitable application of manure, have been long since resolved on, and are now invariably practised."—*P. M'L., in the Highland Agri. Soc. Trans.*

Management and Composition of Manure. (*Boussingault*, vol. ii., p. 62.)—Whatever be the form in which manure is applied, the question arises whether it is more profitable to apply it before or after fermentation. Organic substances do not become capable of promoting the growth of plants till they have undergone great modifications. One of the results of these changes is the production of ammoniacal salts. Dung fresh from the stall, applied immediately to the land, undergoes precisely the same changes, and produces the same substances; there is merely this difference, that decomposition takes place much more gradually than when it is heaped up in the yard. The question then really reduces itself to this; Is it profitable to let the fermentation take place in the land or in the manure-heap? It may be matter of astonishment that such a question has been raised, and yet more that an answer in the affirmative has been disputed by very excellent agriculturists. It has even been asserted that fresh dung is injurious to vegetation. The proof of the contrary is easily shown. It is sufficient, in fact, to call to mind, that in the folding of sheep and cattle, the excrement and urine fall immediately on the ground. Doubtless fresh manure in excess may for the time be injurious; but the same may be said equally of fermented manure. An Italian chemist, Monsignor Gazzeri, has with a laudable industry investigated the subject, and has shown that a considerable loss of fertilising principles takes place during the process of fermentation in the farmyard; and that consequently it is best to apply the dung as it comes from the stall. To remove all doubt which might arise respecting the supposed injurious consequences of unfermented manure, M. Gazzeri produced wheat in land which had been highly manured with pigeon-dung, which is allowed to be one of the most active manures. Horse-dung taken immediately from the stable, and mixed with earth in the proportion of one-fourth in bulk did not at all impede the germination of seeds. To estimate the loss in dung thus submitted to fermentation, M. Gazzeri weighed it before it was subjected to fermentation, and again after the fermentation was over, he not only ascertained what was lost, but examined the proportion of dried and other manures contained in it. In the case of horse-dung he found that after three months' fermentation it had more than one-half the weight of the dry manure which it contained before fermentation. Pigeon-dung, indeed, he already found that during the fermentation of dung, the most volatile substances, which, of course, are the most valuable, are dissipated to a considerable degree. The experiment was carried on in the following manner:—A pigeon's nest was placed under turf. After a few days the birds occupied in the construction of the nest, agitated with extraordinary vigour. Although it is certain that by prudent management of the manure-heap the volatile ammoniacal principles which are generated during the process of fermentation may be retained, it seems nevertheless beyond doubt that the immediate use of manure before fermentation gives the surest guarantee against loss. Thaer, Schwerts, and Coke, of Norfolk, have, in consequence, recognised the propriety of this practice. Notwithstanding, in the greater number of farms the old practice is continued, though this is in many cases, from local circumstances, a matter of necessity. In cultivation on a large scale, the manure is carried out at certain seasons only; it cannot be used as it is produced, as there is not land ready to receive it, and therefore it necessary to form manure-yards. In Alsatia it is carried out whenever circumstances will allow, without waiting for decomposition. Under these circumstances it lies in the yard about 3 months, and is usually about half decomposed, which is perhaps the most convenient state in which it can be introduced into the land. It is then easily buried, and the fecundating principles are already sufficiently abundant to act in a given time with more activity than would be the case with perfectly fresh dung, a point which is of some importance. Fresh dung will always act more slowly than that which has arrived at a certain state of decomposition, and the advantage arising from stimulating the crop in an early stage of growth will often make the older manure preferable. In warm and moist climates one can easily understand that it is a matter of indifference whether the fresh manure be buried or not; the decomposition, aided by the warmth of the climate, is always accomplished rapidly, but such is not the case in cold countries. The temperature which developes and promotes vegetation is there frequently of short duration, and must at once be taken advantage of. During a great part of the year the cold soil will retain the organic substances committed to it without decomposition. Under these circumstances, doubtless, the preference must be given to fermented manure, and it is probable to some such motives that the practice so common in Switzerland is attributable of using fermented liquid manure, whose action is immediate. It is with similar manure that the valuable crops of Woad, Beet, and other plants used in manufactories, are produced in Flanders. Fermentation, judiciously conducted with proper precautions to prevent the escape of the ammoniacal salts and the loss of the soluble principles, independently of the advantage of producing a manure which is speedy in its action, has that of giving less bulk and weight. Dung frequently loses a third of its bulk during fermentation, a circumstance which makes a great difference in the expence of carriage. To this end fresh dung is sometimes dried in the sun, by which it is reduced to a third or fourth of its original weight, and when the distance is great this may be worth consideration. An important objection to the use of fresh dung is, that it contains generally the seeds of weeds, and the eggs of insects, which can be destroyed only by putrefaction. Where, however, the crop easily admits of hoeing, this is of little consequence; and our custom at Bechelbronn of carrying out our manure in every state of decomposition on the first crop in rotation, shows that there is really no inconvenience in the practice. Another point indicated by Thaer is the difficulty of burying long manure; but this difficulty vanishes where it is placed in the furrows as they are turned up by the plough.—*M. J. B.*

Thin Sowing, &c.—In the neighbourhood, I saw the very worst farming I had ever seen in my life. A gentleman, who had, he told me, been a farmer 22 years, that is, more than three periods of apprenticeship, and who cultivated, with the assistance of a bailiff, his own farm, threw away nearly 3 bushels per acre, from which he would reap not more than three quarters per acre, not enough to pay him for cultivation, with no money for rent and taxes and rates; an increase of only eight times the seed, whereas upon no better land Mr. Mechi, from only half a bushel of seed, had full five quarters per acre, or 80 times the quantity of his seed, and Mr. Davis's increase on an average was nearly in the same proportion. Having left this agriculturist, therefore, and on whom I ought to record that I intruded myself, and whose hospitality and wines showed that he did not depend upon farming to replenish his cellar, I visited one more farm, the idol of its owner, and the most interesting of anything I had seen. It was situated in the midst of a garden, and consisted of one plot of Wheat of perhaps 12 or 14 yards long, and about half as many broad. The projector of this Lilliputian farm was a Mr. Mannington, a worthy and honest butcher. Upon conversing with him I found that he was a man of more than a common share of intelligence—that his mind was not chained down with prejudice, and that, although his farm was in the centre of a town garden, the cultivation of it showed that he was a first-rate agriculturist, and worthy to occupy 500 acres of land. His principle was right, founded on the firm basis of science, proved to be correct by his own practice. If it be objected that his farm was a small one, I observe that it was land and cultivated, and that the largest farm on the whole earth is made up of plots no larger than his. How long is signify how small a plot of ground may be if the principle be correct by which it is tilled. The man who can properly cultivate a garden could, if he had an opportunity, cultivate a whole farm, just as the labourer, who can feed one pig properly could, if he possessed them, feed 20. The smallness, therefore, of Mr. Mannington's plot of Wheat militates nothing against the great principle upon which it was cultivated. He, like Mr. Mechi in Essex, and Mr. Davis, in Surrey, has proved, by his thin-seeding, that a single grain of Wheat, when properly planted, is as capable of bringing its kind to perfection, and by a most wonderful multiplication, as is a Windsor-bean, or as from a single Acorn grows the giant Oak. I therefore conclude my journal (for I was obliged to return home abruptly from this place) by adding the name of Mannington, in Sussex, as a scientific cultivator of the soil, to those of Mr. Mechi, in Essex, and Mr. Davis, in Surrey, the three best growers of corn, whether on a small scale or large, I ever yet have seen.—*From the Journal of the Essex Farmer, in the Suffolk Agricultural Express.*

Calendar of Operations.

OCTOBER.

The stubbles it is to be supposed are now cleaned, and to some extent ploughed. Some extent of Clover stubble and Bean stubble is also doubtless ploughed and ready for Wheat sowing. Winter Vetches, Winter Beans, and Wheat may be sown this month—*the first after a grain crop, the second after*

Fig. 1.

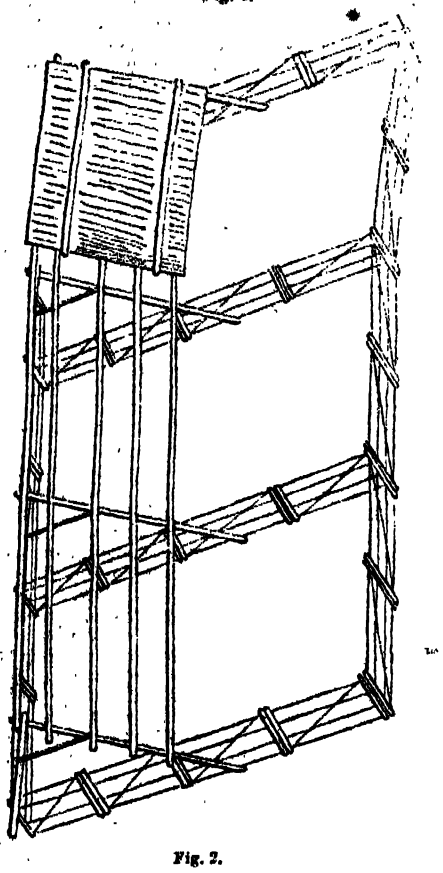
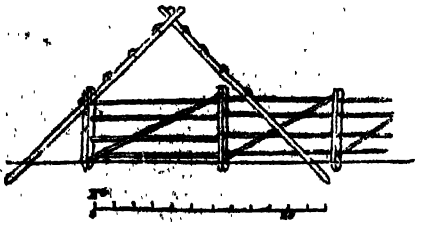


Fig. 2.



a grain or a green crop, and the third after a green crop. As regards the first, the land should be manured if not already very rich, and the seed drilled at the rate of three bushels per acre in rows six inches apart. As regards the second, the land deeply ploughed and well manured should be sown after the rate of about two bushels per acre, in rows eighteen inches to

two feet apart. This crop is well adapted for the practice of "double culture." Bean soils are very suitable for growing Parsnips on, and they may, in sheltered districts, be *both* sown at this season. Suppose the land to be already ploughed and manured—draw the plough through it at intervals alternately of eighteen inches and six feet—in the furrows sow Beans, and cover them by harrowing the land down; then drill your Parsnips as shallow as possible, by means of the Suffolk drill (first mixing about 5 lbs. of the seed with the number of bushels of sand which the machine is set to sow), in rows eighteen inches apart, two in each of the wide intervals between the Beans, and cover by bush harrowing. Let the rows be north and south, for the sake of a uniform distribution of daylight. Or the Beans may be sown by themselves in this manner, and the intervals left for Carrots to be sown in April. The interval of six feet is wide enough for the effectual cultivation of the land.

This is the season when it is proper for those who do not breed their own stock to be purchasing for winter feeding. Early Turnips may be commenced with sheep. Such a stock should be purchased as shall consume all the White Turnips by the middle of November, the Yellow sorts by the end of the year, the Swedes by the end of March, and the Mangold Wurzel by May. And to assist calculation, it may be assumed that good crops of the above roots on ordinary soils will yield per acre 24, 20, 20, and 26 tons of clean roots respectively; and that a fatting animal, either sheep or ox, supposing it full grown, will in general, when out of doors, eat a weight of these roots equal to about a quarter of the carcase weight it is expected to attain when ready for the butcher. If fed under shelter, three-fourths of this quantity may be assumed as the basis of calculation. "Three-fourths!" If this be true, and from a somewhat extended experience on this subject, we believe it to be so, what a saving does this shed-feeding hold out to the winter grazier! It is objected to the system that it entails the heavy expence of carting the crop to the buildings, and the dung back again; and, in the case of sheep, that it renders them especially liable to the foot-rot: but the first item may be greatly diminished by erecting a temporary shed on the neighbouring stubble field, which will require all the manure made there for the ensuing green crop, and thus the second item will disappear. Such a shed may be easily erected; the subjoined is a plan of it, which has already appeared in this Journal. A few Larch poles, nails, hurdles, and bundles of straw, are the materials required; they are not costly, and certainly they will not exceed in expence 6*d.* for each of the sheep they shelter. And as regards the foot-rot, we have not suffered from it during the last two winters, probably owing to the monthly paving which the sheep's feet received. We shall in our next Calendar consider the subject of Wheat sowing.

Notices to Correspondents.

Composition Floors—*C O*—See p. 307. Will tar compost do?

Farm Foreman—*Henry*—A Scotchman who has acted as Bailiff for two or three years in England, should possess the shrewdness and honesty, and agricultural skill, without the stubborn prejudice generally characteristic of his race and profession. If you are going to "import" such an officer, try to obtain such a one as we have described.

Feeding Stalls—*Constant Subscriber*—You will find it as good a plan as any to keep your cattle on the "box" system; to let the litter accumulate under them and absorb all the urine. That is our plan. See Calendar in No. 2, 1846. If you resolve to have a tank, let it be simply a cylindrical hole well bricked and cemented, capable of containing say two months' accumulation of urine. That from 24 cattle would be 70 gallons per diem, or 4,200 gallons in all. A tank 10 feet in diameter, and 8 feet deep, would hold this.

Flax Society's Publications—*C F*—Apply to Mr. M'Adam, Secretary, Belfast.

Machine for Removing Landfast Stones—*Delta*—We do not know Mr. Webster's machine. About Mr. Davis's pamphlet on Thin-sowing, apply to Ridgway, Piccadilly.

Pond Mud—*W W*—It should receive a thorough drying, and then be broken up and carted on the land before winter. Frost will break it up, and you may harrow it down and plant either Beans or Spring Wheat.

Roads—*Village*—We know of no implement for breaking stones except the ordinary stone hammer.

Rotation of Crops—*A Young Farmer*—Low's "Elements of Practical Agriculture" is the best general work within reasonable limits, and Stephen's "Book of the Farm," is a complete but expensive work.

Steaming Apparatus at Liverpool—*H Careless*—Mr. Clyburn, Uley, Dursley, Gloucestershire.

Tanks—*W M*—If you have tried cement in every possible way and failed to keep out spring water, you must sink a sheet iron tank. You might get an old steam-engine boiler cheap that would answer the purpose well.

To Char Straw—*G M*—Use it in stifle burning your stiff soils. That will char it. Unless you can get some arrangement similar to that of a coke factory, we do not see how otherwise it is to be done. Many farmers, indeed, char their straw by wetting it and turning it over two *or* three times in what are facetiously termed *dung*-heaps. The result is that one half of the straw is lost, but the rest is effectually charred; witness its black colour.

*** Communications reaching town after Wednesday cannot be answered the same week.

Markets.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Oct. 1.

Prime Meadow Hay	65s to 75s	New Hay	—s to —s	New Clo.	—s to —s
Infr. New & Rowen	50	55	Clover	70 to 90	Straw	25	32

More demand, and prices firmer.

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Oct. 1.

Prime Meadow Hay	70s to 76s	Old Clover	95s to 100s		
Inferior	55	64	Inferior do.	75	84	Straw	30s to 34s
New Hay	—	—	New Clover	—	—	

JOSHUA BARNES, Hay Salesman.

WHITECHAPEL, Oct. 2.

Fine Old Hay	70s to 80s	Old Clover	100s to 105s		
Inferior Hay	—	—	Infr. do.	—	—	Straw	24s to 32s
New Hay	60	70	New Clover	84	86		

SMITHFIELD, MONDAY, Sept. 28.—Per Stone of 8lbs.

Best Scots, Herefords, &c	4s 4d	to 4s 8d	Best Long-woolls	—	—s to —s
Best Short Horns	3 8	4 0	Ditto (shorn)	4 4	4 8
Second quality Beasts	3 10	3 4	Ewes and second quality	—	—
Calves	4 0	4 8	Ditto (shorn)	4 0	4 4
Best Downs & Half-breds	—	—	Lambs	4 8	5 4
Ditto (shorn)	4 8	5 0	Pigs	4 0	4 8

Beasts, 4,671; Sheep and Lambs, 26,800; Calves, 134; Pigs, 430.

The unfavourable state of the weather and a large supply have caused a dullness in our trade for Beasts, nevertheless, the best qualities maintain late prices; several of second rate descriptions remain unsold, although a disposition was evinced to take lower prices.—The number of Sheep is rather larger, and trade heavy; the choicest qualities are sold nearly as dear as of late, but second-rate are lower.—Lamb season has nearly closed.—The trade for Calves is exceedingly dull; as 8*d* is with difficulty obtained for the choicest.—The supply of Pigs is large, so also is the consumption, consequently prices are quite so good.

FRIDAY, Oct. 2.

The supply of Beasts is large, including about 420 from the Continent, the majority of which are of inferior quality; also, about 300 from the neighbourhood of London, being Cows and middling Runts left over from Monday last; thus, the choicest quality are not over-abundant, and in consequence there descriptions make fully as much as of late, as all being readily obtained for the best Joints, and do for the most selling Shop-beef: Second-rate are with difficulty disposed of at rather less money.—The supply of Sheep is small, and the trade has recovered itself from the depression noticed on Monday, best Downs making as 10*d* to 5*s* 8*d*, choice Long-woolls, as 4*d* to 4*s* 10*d*; Ewes and Second-quality, as 3*d* to 4*s* 6*d*.—We scarcely know what the season may be considered as close; what few are in the latter under short Mutton price.—Calves are in demand; a choice one under fifty 5*s*.—Pigs are quite as dear.

Beasts, 1,926; Sheep and Lambs, 8000; Calves, 221; Pigs, 410.

COVENT GARDEN, Oct. 2.—Vegetables are sufficient for the demand, but Fruit is not over abundant. Pine-apples, of excellent quality, may be bought at last week's prices. Abundance of Black Hamburgh Grapes may be obtained, and large importations of Foreign ones have been received. Apples and Pears have not altered in price since our last account. Oranges are scarce. Nuts are sufficient for the demand. Walnuts are plentiful. Filberts realise a tolerably brisk trade. Lemons are scarce, and so are good English Melons; some foreign ones are in the market. Of Vegetables, Cabbages, Cauliflowers, &c., are good, but the latter hardly sufficient for the demand. Carrots and Turnips have altered but little in price. Peas are scarce. Beans remain nearly the same as last week. Celery is good in quality. Potatoes are rather scarce, and very much affected by the prevailing disease; some are quite unsaleable. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Heaths, Jasmines, Pinks, Camellias, Pelargoniums, Gardenias, Fuchsias, Azaleas, and Roses.

FRUITS.

Fine Apples, per lb., 4*s* to 7*s*	Figs, per dozen, 4*s*
Grapes, Hothouse, per lb., 2*s* to 4*s*	Lemons, per dozen, 1*s* 6*d* to 3*s*
— Pascagul, per lb., 1*s* to 1*s* 3*d*	— per 100, 10*s* to 20*s*
Apples, Best, per bushel, 2*s* 6*d* to 3*s*	Almonds, per peck, 6*s*
— Kitchen, 2*s* to 4*s*	Sweet Almonds, per lb., 2*s* to 3*s*
Pears, per hf. sieve, 4*s* to 12*s*	Filberts, English, p. 100 lbs., 95*s* to 100*s*
Melons, each, 2*s* to 3*s*	Nuts, Cob, per 100 lbs., 100*s* to 110*s*
Oranges, per dozen, 2*s* to 3*s*	— Barcelona, 90*s*
— per 100, 14*s* to 21*s*	— Brazil, 14*s* to 16*s*
— Seville, per 100, 12*s* to 16*s*	— Spanish, 14*s*
— per dozen, 2*s* to 3*s* 6*d*	Walnuts, per bushel, 16*s* to 24*s*
Barberries, per hf.-sv., 4*s* to 6*s*	

VEGETABLES.

Cabbages, per doz., 6*d* to 1*s* 6*d*	Shallots, per lb., 4*d* to 8*d*
Broccoli, per doz., 6*s* to 12*s*	Garlic, per lb., 6*d* to 8*d*
Cauliflowers, per doz., 4*s* to 8*s*	Lettuce, Cos, per score, 3*d* to 2*s*
Artichokes, per doz., 2*s* to 5*s*	Tomatoes, per hf.-sv., 2*s* to 3*s*
French Beans, per hf.-sv., 1*s* 6*d* to 2*s* 6*d*	Endive, per score, 1*s* to 1*s* 6*d*
Peas, per sieve, 2*s* 6*d* to 7*s*	Vegetable marrow, p. doz., 6*d* to 1*s*
Kernel, per hf.-sieve, 3*d* to 1*s*	Radishes, per 12 bunches, 1*s* to 1*s* 6*d*
Potatoes, per cwt., 1*s* to 6*d*	Mushrooms, per pottle, 1*s* to 2*s*
— cwt., 2*s* 6*d* to 3*s* 6*d*	Small Salads, per punnet, 2*d* to 3*d*
— bushel, 1*s* 6*d* to 3*s* 6*d*	Fennel, per bunch, 2*d* to 3*d*
— Kidney, per bushel, 2*s* to 4*s*	Savory, per bunch, 3*d* to 4*d*
Turnips, per doz., 2*s* to 4*s*	Thyme, per bunch, 3*d*
Red Beet, per doz., 1*s* to 1*s* 6*d*	Watercress, p. 12 sm. bun., 6*d* to 8*s*
Horse Radish, per bundle, 2*s* to 6*s*	Parsley, per bunch, 4*d* to 6*d*
Cucumbers, each, 3*d* to 9*d*	— Roots, per bundle, 2*s*
Spinach, per sieve, 1*s* 6*d* to 2*s*	Tarragon, per bunch, 3*d*
Leeks, per bunch, 2*d* to 3*d*	Mint, green, per bunch, 6*d* to 8*d*
Celery, per bundle, 1*s* to 1*s* 3*d*	Marjoram, per bunch, 3*d* to 4*d*
Carrots, per bunch, 3*d* to 5*d*	Chervil, per punnet, 3*d* to 4*s*
Onions, per bushel, 3*s* to 7*s*	

HOPS, FRIDAY, Oct. 2.

We continue to have a brisk demand for all kinds of Hops, particularly Sussex. Picking is now nearly brought to a close, and there is a general complaint of the crop falling much short of expectation. Many think the duty fairly estimated at £100,000.

Mid and East Kents	£6 0	to £7 0	per cwt.
Weald of Kents	4 6	5 0	"
Sussex	4 0	4 10	"
Farnhams	5 12	7 0	"
Yearling Kents	4 0	4 10	"
" Sussex	3 10	4 4	"
Old Hops	2 0	4 0	"

PATTENDEN & SMITH, Hop-Factors.

ENGLISH TIMBER AND BARK.—Oct. 3.

Round Timber, per load.			Plank, per foot cubs.		Lath board pr. ft. superf.	
Oak	3*l* 0*s*	to 9*l* 0*s*	3*s* 6*d* to 5*s* 6*d*		4*d* to 6*d*	
Ash	4 10	7 10	2 6	4 0	2	4
Elm	2 15	3 —	1 8	2 0	2	2½
Beech	2 5	2 15	1 6	2 0	2	2½
Lime	3 10	4 0	2 0	2 6	2½	3

Oak Bark (per load of 48 cwt.), 19*l.* to 14*l.* J. S.

MARK-LANE, MONDAY, Sept. 28.

The supply of English Wheat by land carriage samples this morning was moderate, and quickly cleared at 2*s.* to 3*s.* per qr. over the prices of this day se'nnight. Foreign sold at a similar advance, but the business was not extensive.—The top price of Flour was raised to 36*s.* per sack, and barrel held 2*s.* to 3*s.* higher, which checks business.—Picked samples of Barley being scarce, fully maintained late rates, but inferior qualities were a dull sale.—Beans are 1*s.* to 2*s.* dearer, and we advance our quotations for new white Peas 2*s.* per qr., but the sale is slow. Maple and Grey unaltered.—Oats realise 6*d.* to 1*s.* above the rates of last Monday.

BRITISH, PER IMPERIAL QUARTER.

	s.	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White	55	66	Red	52	60
—— Norfolk, Lincolnshire, and Yorkshire		50	62	White	50	64
Barley, Malting and distilling 30s to 32s	Chevalier	36	41	Grind.	26	30
Oats, Lincolnshire and Yorkshire	Polands	28	34	Feed	25	30
—— Northumberland and Scotch	Feed	27	32	Potato	26	28
—— Irish	Feed	26	30	Potato	26	28
Malt, pale, ship		—	—			
—— Hertford and Essex		—	—			
Rye		36	40			
Beans, Mazagan, old and new	36 to 41	Pink	38	44	Marrow	39	43
—— Pigeon, Old and New	40 to 46	Winds	35	70	Longpod	38	43
Peas, White	36 to 36	Maple	35	42	Grey	34	40

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.		Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	6446 Sks.	Bris.	10513	2750	1004	4019	68	1018	490
Irish	—	"	—	—	45	3190	—	—	—
Foreign	5807	"	1134	960	—	4866	—	—	1186

FRIDAY, Oct. 2.

There was little English Wheat fresh up for this morning's market; the same found buyers at 1*s.* to 2*s.* per qr. over the rates of Monday last. A similar rise was readily realised on free Foreign, but it is sparingly offered and generally held for a greater advance. A few thousand quarters of Polish Odessa in bond have been taken at 33*s.* per qr.—Barrel Flour is held very firmly at our quotations.—Barley is scarce and the turn dearer.—Beans and Peas fully maintain their late value.—Old Oats bring 6*d.* to 1*s.* per qr. more money.—Maize meets a renewed inquiry, and cargoes of Galatz afloat command 49*s.* to 51*s.* 6*d.* per qr.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	6300	3060	760	1070 Sks.
Irish	—	—	11000	—
Foreign	5807 qrs.	—	1800	1870 bels.

AVERAGES AVERAGES.

		Wheat.	Barley.	Malt.	Rye.	Beans.	Peas.
Aug.	28 per Gazette	48 11	29 4	38 10	30 10	35 6	36 7
—	29 "	47 10	29 1	38 6	31 10	36 9	36 4
Sept.	5 "	49 0	31 0	42 3	31 7	40 4	37 1
—	12 "	50 3	32 7	38 5	33 4	40 11	38 10
—	19 "	51 7	30 1	38 7	28 0	41 6	40 6
—	26 "	52 1	30 10	38 7	31 2	39 7	38 0
6 weeks' Average, over		49 6	30 4	38 8	30 10	39 2	38 5
Duties on Foreign		9 0	9 0	14 6	6 0	9 0	9 0

Diagram showing the fluctuations in the price of Corn on the average of the six weeks ending Saturday, Sept. 26th.

Price.	Aug. 29	Sept. 5	Sept. 12	Sept. 19	Sept. 26
53s 1d					
51 8					
50 0					
49 0					
47 10					
45 11					

SEEDS, Oct. 2.

Canary	per qr.	48	0	56	Linseed Calcutta, Foreign, per qr.	51	0	52
Carraway	per cwt.	30	0	42	Mustard, White	per bush.	7	0	7
Clover, Red, English		—		—	—— Superfine	per lb.	0	4	0
—— Foreign		—		—	—— Brown		0	3	0
—— White, English		—		—	Rapeseed, English, per last		22	0	23
—— Foreign		—		—	Rape Cakes	per cwt.	0	12	0
Coriander	per cwt.	10		16	Saintoin	per bush.	0	0	0
Hempseed	per qr.	35		39	Tares, Eng. winter p. bush.		0	0	0
Linseed	per qr.	48		52	—— Foreign		0	0	0
—— Baltic		47		50	Trefoil	per load	12		13
—— Odessa		1000		1200	Turnip seed for the Continent				

Linseed and Rape Cakes.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, MARKET GARDENERS, BUILDERS, RAILWAY CONTRACTORS, AND OTHERS ENGAGED IN PLANTING.

MESSRS. PROTHEROE AND MORRIS will sell by Auction, on the Premises, Chelsea Nursery, King's-road, on Wednesday, October 14, 1846, and five following days, at 11 o'clock each day (by order of Mr. Little, in consequence of the ground being required for building purposes), the whole of the valuable NURSERY STOCK, consisting of the choicest kinds of Fruit and Forest-trees, Ornamental and Deciduous Shrubs, Fine Evergreens of every variety, in considerable quantities; and lotted to suit every description of purchasers. The Stock is particularly worthy the attention of Noblemen and Gentlemen laying out their grounds; also of the Trade, from its excellence; and comprises fine Standard and Dwarf trained and untrained Apple, Pear, Plum, Cherry, Peach, Nectarine, Apricot, Quince, Medlar, Walnut, Mulberries, Gooseberries, Currants, Filberts, &c.; Lime, Elm, Oak, Sycamore, Maple, Ash, Plane, Laburnum, Birch, Beech, Poplar, Hornbeam, Chesnut, Alder, Thorns of sorts, Acacia, Lilac, Guelder Rose, Syringa, Weeping and other Willows, Allanthus, Calycanthus, Jasmine, Corchorus, &c.; Large Portugal and Common Laurels, Large green and variegated Hollies, Aucuba, Box, Arbor-vitæ, Arbutus, Laurestinus, Phyllirea, Euonymus, Weymouth Pine, and Pinus of sorts, Scotch and Spruce Firs, Snowberry, China and Common Privet, Hemlock Spruce, Sweet Bays, Garrya elliptica, Magnolias, Rhododendrons, Azaleas, Kalmias, &c. A large quantity of Dwarf Roses, Clematis, Pyrus and Ribes in pots, Lilacs and Roses, for forcing; choice Figs of sorts, &c. A large quantity of strong Sea Kale, Asparagus, and Rhubarb, for forcing. May be viewed one week prior to the Sale. Catalogues (1*s.* each, returnable to purchasers) may be had on the Premises; of the principal Seedsmen; and of the Auctioneers, American Nursery, Leytonstone, Essex. The Premises are a short distance from the Royal Military Asylum, and the Chelsea Omnibuses pass every 10 minutes; the Iron Steam Boats to the Swan Pier, are within five minutes' walk of the Nursery Grounds.

NURSERY STOCK,
TO GENTLEMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition by Auction on the premises, Acre-lane, Brixton, on Thursday, October 8th, 1846 (by order of Mr. Dawson, in consequence of the ground being required for other purposes), the choice EVERGREENS and FRUIT-TREES. Also a selected assortment of CAMELLIAS and ERICAS. May be viewed prior to the Sale. Catalogues sixpence each, returnable to purchasers, may be had on the premises; of the principal Seedsmen; and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, PUBLIC CEMETERIES, AND OTHER PUBLIC COMPANIES ENGAGED IN PLANTING.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Neal to submit to Public Competition by Auction on the premises, Wandsworth Common, on Monday, October 26th, 1846, and following days, at 11 o'clock each day (in consequence of the ground being required for building purposes), the whole of the valuable NURSERY STOCK, consisting of the choicest Evergreens and American Plants, Ornamental and Deciduous Shrubs, &c. Also 2 Stacks of Capital MEADOW HAY, about 100 loads.

The above offers great advantages from the variety of the Stock, and will be lotted to suit every description of purchasers. May be viewed prior to the Sale; Catalogues, one shilling each, returnable to purchasers, may be had on the Premises, of the principal Seedsmen; and of the Auctioneers, American Nursery, Leytonstone.

NEWLY-ERECTED GREENHOUSES, PINE PITS, CUCUMBER PITS, AND THREE-LIGHT BOXES. About 2000 feet of Three and Four Inch Hot-water Pipes, and Four Boilers nearly new, 60,000 good old Bricks, a large quantity of rotton Dung and Compost, 100 casts of Garden Pots, utensils in trade, &c.

MESSRS. PROTHEROE AND MORRIS have received instructions to submit to Public Competition by Auction, on the Premises, Green-street, Marlborough-road, Chelsea, on Tuesday, October 6, 1846, at 11 o'clock, by order of the Proprietor, the whole of the fine stock of Fruiting and succession PINE PLANTS, consisting of Providence, Black Jamaica, Enville, Antiguas, Globe, Lemon, Ripley, and Moscow Queens. The whole are clean, healthy, and well-rooted. Also about 5400 feet of Glass, as above.

May be viewed prior to the Sale, and Catalogues had on the Premises; of the principal Seedsmen; and of the Auctioneers, American Nursery, Leytonstone; or forwarded, on application to W. Davis, Green-street, Chelsea.

TULIPS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition, at the Auction Mart, Bartholomew-lane, on Friday, Oct. 9, 1846, at 12 o'clock, A VERY RICH COLLECTION of TULIPS, which have been collected with great care by Mr. Cooper. The flowers comprise the following new and esteemed varieties:—Louis XVI., Duke of Devonshire, Prince Albert, Sir Charles Napier, King of Oude, Cooper's Solon (new), Parmegiane, Camaxe de Crais, Walker's Coronation, Surpass Brulante Ecletante, Queen Boadicea, Duc de Bordeaux, Brulante Ecletante, Violet Alexander, Lalla Rookh, Lord Wintheiss, &c., &c. Also a quantity of fine mixed Tulips, Crocus, &c. May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

NASCOTT-PARK, NEAR THE RAILWAY STATION, WATFORD, HERTS.

MR. HUMBERT will Dispose of, by Public AUCTION, at the Rose Arms Inn, Watford, on Friday, the 23rd of October, 1846, at 2 o'clock, 550 FEET OF FRONTAGE, on the Turnpike Road, at a pleasant distance from the town of Watford and the Railway Station, in Eleven Lots, each having a frontage of 50 feet, and a depth of 200 feet. This charming site is in all respects unexceptionable for the erection of genteel Villas so much needed in Watford, as there are not now comfortable houses sufficient to accommodate even the little visitors of the town. Further particulars, with Plans, may be obtained of Messrs. J. & W. Lowe, 2, Tanfield-court, Temple; of Messrs. Bundle, 9, Davies-street, Berkley-square, London; and of Mr. Humbert, Surveyor and Auctioneer, Watford, Herts.

NURSERY STOCK, near GREAT STANMORE, MIDDLESEX. 10½ miles from London, and 2 from the Harrow Station.

MR. HUMBERT will Sell by Public AUCTION, on the Premises, known as RIDDICK'S NURSERY (under circumstances which preclude the possibility of any reserve), on Wednesday and Thursday, the 14th and 15th days of October, at 10 o'clock, the whole of the genuine stock now growing on about 8 acres of Ground, and consisting of more than 30,000 DECIDUOUS and EVERGREEN HARDY TREES, SHRUBS, &c. May be viewed, and Catalogues had, on the Premises, and of Mr. Humbert, Surveyor, &c., Watford, Herts.

TO NOBLEMEN, GENTLEMEN, AND NURSERYMEN. CHOICE GREENHOUSE AND OTHER PLANTS.

MESSRS. J. C. AND S. STEVENS will sell by Auction, at their Great Room, 38, King-street, Covent-garden, on Tuesday, Oct. 6, at 12 o'clock, a CHOICE COLLECTION of Camellias, from 2 to 5 feet high, in great variety, some with upwards of 100 flower-buds; Azalea Indica, several new sorts; Scarlet Hybrid Rhododendrons, 4 feet high; Araucaria Excelsa, 3 feet; Magnolias, Choice Pinuses, Epacrides, and a variety of select New Holland and other Greenhouse Plants. On view the day prior to the Sale, and Catalogues had.

SALE BY AUCTION.

WILLIAM DENNIS and CO., NURSERYMEN AND FLORISTS, King's-road, Chelsea, beg to call the attention of Noblemen, Gentlemen, and the public generally, to the fact of their being obliged, by Christmas next, to clear a very large portion of their densely stocked Nursery, the ground, being let for immediate building. The great variety of Plants, Shrubs, Trees, Bulbs, &c., and the numerous quantity of all sizes offer advantages to purchasers rarely to be met with on one spot. The Stock consists of a large quantity of Moss, Provence, and other Roses; large stock of Persian, Siberian, and Rothamagens Lilacs, in Dwarfs and Standards. The Evergreens consist of Hollies, Laurels, Laurestinus, Aucuba Japonica, from 6 inches to 6 feet; Irish Ivies, from 1 to 20 feet high; the finest and largest varied collection of Gooseberries in the kingdom; fine fruit-bearing Mulberry, Apple, and Pear-trees, &c. &c. &c.—Further particulars and time of Sale will be given in future advertisements.

RADDON COURT BARTON, THORVERTON, NEAR EXETER.

TO BE LET BY TENDER, for a term of 10 or 14 years, with immediate possession, either together or in the Two following Lots:—Lot 1. The Capital BARTON OF RADDON COURT, containing about 500 Acres (more or less) of superior Orchard, Watered Meadow, Arable, and Pasture Land, with an excellent Dwelling-house, Labourer's Cottages, a Thrashing-machine driven by Water, and all necessary Agricultural Buildings thereon. Lot II. Also, KITLAKE NORTON, adjoining the above, consisting of a Dwelling-house, all necessary Outbuildings, and about 93 A. 1 R. 22 P. of Land (more or less). These Estates are most desirably situated in the parish of Thorverton, in the county of Devon, about 6 miles from the city of Exeter, and about the same distance from Crediton and Tiverton.

☞ Mr. THOMAS REYNOLDS, the tenant, will shew the Premises, and further particulars may be obtained of Messrs. CROOTE & SON, Lapford, or of Messrs. SMITH, Solicitors, Crediton, at whose office the terms of Letting may be seen, and to whom Tenders may be sent on or before the 17th day of OCTOBER.—October 8, 1846.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

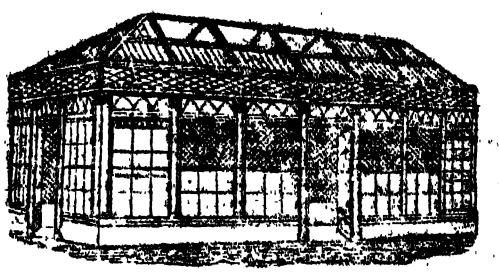
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or, at intervals, required, and which may be seen at their Manufactory.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.



J. WEEKS & DAY, ARCHITECTS, &c., Gloucester-place, King's-road, Chelsea, HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, most respectfully beg to inform the Nobility, Gentry, and Horticulturists, that they have erected on their premises, for the purpose of inspection, a variety of Hothouses, Greenhouses, Conservatories, Pits, &c., where all the various known improvements of the day can be seen. Their Hot-water Apparatus is also erected, and kept in constant action in various Hothouses, Greenhouses, Pits, &c., where the whole principle of Top and Bottom Heating can be seen.

J. WEEKS & DAY warrant their Hot-water Apparatus to be efficient for every purpose to which heat is applicable. Boilers of all sizes; the largest is warranted to heat a range of Forcing-houses 200 feet in length, with a small quantity of fuel, and only to require attention once in 12 hours.

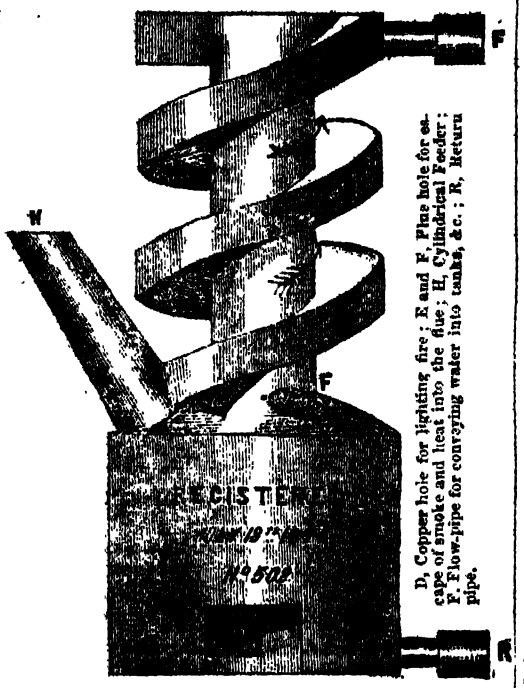
Models, Plans, &c., in great variety.

GARDENERS' NEW CAPES, dressed with a solution of India Rubber, long enough to effectually protect a man at work when stooping down, 2s. each. The above are strongly recommended for Gamekeepers, Watchers, and others exposed to the wet. Capes, shorter, 2s. and 2s. 6d. each; also a large quantity of second-hand Policemen's Capes, 2s. each; Dog Cart Aprons, 10s. 6d. lined; Tarpaulin Coats, ditto of India Rubber, also Capes and Coats for Gentlemen for Shooting, &c. Waggon Covers, 2½ per square yard.—Exeter Riguamaree, Hat and Tent Maker, 31, Tenbridge-place, New-road, London.

HOT-WATER PIPES.—A large stock of these Pipes, with Elbows, Syphon Bends, and all the usual connections. Also Socket and Flange Pipes, at JONES's, 6, Bankside, Southwark.

AGRICULTURAL DRAINING.—The attention of Agriculturists is respectfully directed to a simple and most efficient DRAINING LEVEL, price 28s. It can be sent to any part securely packed. It cannot well be put out of order, and a mere labourer can use it. To be had of the maker, JOHN DAVIS, Optician, Derby.

J. B. SAMPSONS SELF-FEEDING ECONOMICAL HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, CHAPELS, &c. &c.



D, Copper hole for lighting fire; E and F, Flue hole for escape of smoke and heat into the flue; H, Cylindrical Feeder; F, Flow-pipe for conveying water into tanks, &c.; R, Return pipe.

SPIRAL WATER HEATER.

J. B. SAMPSON, ENGINEER, &c., Maidstone, Kent. Inventor and Manufacturer of the much approved REGISTERED SPIRAL WATER HEATER, having erected many during the last season, on his own responsibility, which have given the greatest satisfaction in every case he can with confidence offer this admirable Boiler to the Public as the best yet introduced, possessing great advantages over the Conical and all others. 1st, Forming its own flue, and exposing three large surfaces to the action of the fire, after it has left the body of the boiler, the heat (which is lost in others), passing round it, and being economized to the greatest extent, allowing the least possible escape. 2nd, Requiring fuel but once in 14 hours, and being made of cast iron, renders it more durable, not burning out as copper or wrought iron. 3rd, A saving of full 50 per cent. in the consumption of fuel. 4th, Having cylindrical feeder, with air-tight cover, the fire is kept uniformly supplied. 5th. The simplicity of its construction enables any mason to fix it with the greatest ease.

These Boilers are made different sizes, and may be applied to any pipes, tanks, &c., already fixed.

Can be seen at Messrs. J. and C. Peppercorn's, Ironmongers, Maidstone, and other establishments. A Prospectus, with full particulars, may be had, post free, on application to the Inventor. A liberal discount to the Trade.

N.B. A model may be seen at the Polytechnic Institution, London.

CLARK'S METALLIC HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.

Proprietor, Mr. THOMAS CLARK.

Superintendent of the Works, Mr. JOHN JONES.

IN returning his grateful thanks to the Nobility, Gentry, and Public at large, for their liberal patronage of the above Establishment during a period of nearly 30 years, Mr. CLARK begs to state that the repeal of the duty on Glass enables him to offer his METALLIC HOT and GREENHOUSES at a greatly reduced price. These Houses are glazed with British sheet Glass, in panes of from 24 to 30 inches in length, and of such thickness as to preclude all danger of accidental breakage, whilst that which arises from the action of frost (frequently amounting to 25 per cent. per annum), is effectually prevented by the peculiar mode of glazing adopted. As a sample of his Metallic Hothouses, in which all the most recent improvements are happily combined, Mr. CLARK refers with pride and satisfaction to the magnificent range erected by him in the new Royal Gardens at Frogmore, which is admitted by all competent judges to be the most complete and perfect of its kind in the world.

WARMING AND VENTILATING CHURCHES, LARGE BUILDINGS, GENTLEMEN'S ENTRANCE HALLS, &c. &c.

CUNDY'S PATENT STOVE for these purposes, is the most efficient and economical yet introduced to public notice. The price of No. 1 Stove, calculated to Warm and Ventilate Buildings from

1,000 to 10,000 cubic feet, is 15l.
No. 2, from 10,000 to 30,000 do. 24l.
No. 3, from 30,000 to 100,000 do. 36l.

Ample testimony can be adduced. They may be seen in daily operation at the FARRINGDON IRON WORKS, the Great Western Emporium for Stove Grates, Kitchen Ranges, Fenders, Fire Irons, &c. Where is also the largest assortment in the Kingdom of General Furnishing Ironmongery, in Tinned Copper, Tin, and Iron Cooking Ware; best Sheffield Plate and Table Cutlery; Japanned Paper and Iron Tea-Trays; Bronzed Tea-Urns; Baths of all kinds; Brass and Iron Bedsteads; Wire-Trellis Work; Garden Ornaments; Verandahs, &c. &c.

TURNER, FALLOWS, & Co., Farringdon Iron Works, 58, Baker-street, Portman-square.

GROVE HOUSE ACADEMY, BUSHEY, HERTS.

Head-Master.—MR. H. L. BIGGS.

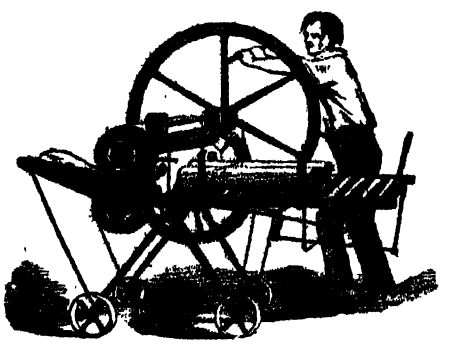
At the above School Young Gentlemen are liberally Boarded, and instructed in the Latin and Greek Languages, the Mathematics, and Book-keeping; together with the various branches of a sound English Education, including the Theory and Practice of Rural Chemistry, Land Surveying, Mapping, Drawing, &c. Terms, from 5 to 8 guineas per quarter, according to age and requirements.

Grove House is salubriously situated at a few minutes' walk from the Bushey Station, on the London and Birmingham Railway. A Coach also runs to and from London daily.

G. H. possesses the advantages of a Dry and Airy Playground, a Field, and an extensive Garden, the produce of which is devoted to the School; portions of the same being allotted to each Pupil for practical purposes connected with Agriculture and Horticulture.

References to the Parents of the Pupils, to Gentlemen in the neighbourhood, and others.

THE AINSLIE TILE MACHINE COMPANY, (WITHOUT ROYALTY.)



DIRECTORS.

Chairman—JAMES SMITH, Esq., of Deanston, Queen Square, Westminster.
JOHN AINSLIE, Esq., Alperton, Middlesex.
MARK BOYD, Esq., 6, New Bank Buildings.
W. S. BOYD, Esq., Lowndes Square.
JOHN CONNELL, Esq., 36, St. James's Place.
J. W. SUTHERLAND, Esq., Birdhurst, Croydon.
GEORGE WEBSTER, Esq., Great George Street, Westminster.

THE Directors, in consequence of the numerous representations made to them by applicants for Machines, and the difficulty they experience in collecting the Royalty, have determined to abandon their claim for Royalty, and sell the Machines at a fixed price; and in order still further to meet the views of the public, they have come to the determination of reducing the price as follows, and, considering the quality of the Machine, they feel confident it will now be considered the cheapest and best offered to the public.

These Machines, for which Prize Gold Medals were given by the Royal Irish Agricultural Society, at their Meeting at Ballinasloe, and by the Highland and Agricultural Society of Scotland, at their Meeting at Dumfries, are of two sizes.

PRICES.—*Cash.*

A Hand Machine at the Office, to make two at once, including two moulds for Tiles or Pipes, 35l.
A Machine at the Office, to make two at once, to be worked by horse or steam, including two Moulds for Tiles or Pipes, 70l.

By these Machines, Draining Tiles and Pipes of the most perfect form are produced at a much cheaper rate than by any other process hitherto invented.

A Machine may be seen at work at Alperton; also at the Office, 139A, Piccadilly, London; at the Polytechnic Institution, Regent Street, London; at Mr. SLIGHT's, Curator of the Highland Society of Scotland; at Mr. LAURENCE HILL's, 141, Buchanan Street, Glasgow; and at Messrs. DRUMMOND and SONS', Dublin.

All letters and applications for further information to be made to the undersigned,

JOHN PATON, *Secretary*,
At the Office, 139A, Piccadilly.

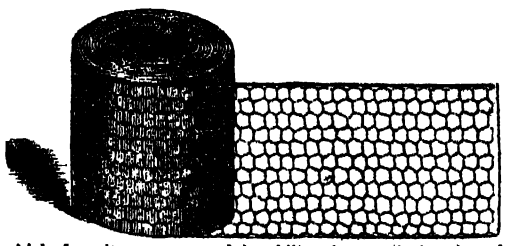
FARMERS' CLUBS.—An arrangement has just been made by which the result of the discussions entertained upon practical questions in the Local Farmers' Clubs will be given in the "Farmers' Magazine." Nearly 200 columns of Agricultural Intelligence will be continued, with Engravings of the best and most perfect animals which obtain the prizes of the leading Agricultural Societies. The series of Portraits of Patrons of Agriculture and Eminent British Farmers, with Biographical Memoirs, is in continuation—Mr. J. Grey, of Dilston, and Mr. Smith, of Deanston, have just appeared. Price 2s. May be had of all Booksellers. Office, 24, Norfolk-st., Strand.

"TENANT RIGHT."—That an Alteration in the Conditions upon which Land has been hitherto occupied and cultivated, affording greater security to the Tenant Farmer for the investment of his capital and a wider scope for the exercise of his judgment, as well as a considerable change in the law of Landlord and Tenant, will be greatly accelerated by the Repeal of the Corn Laws, is perfectly manifest; in fact, a system of "Tenant Right" must be established. The MARK LANE EXPRESS has always advocated the rights of the Tenant Farmer, and will continue so to do unflinchingly.—May be had by order of all Booksellers, price 7d.; or 1l. 10s. 4d. per annum. Office, 24, Norfolk-st., Strand, London.

THE CORN TRADE.—The ascertained destruction of the POTATO crop in the United Kingdom, and the admitted failure of the grain and pulse crops, and, it is apprehended; of the Potato also, in France—render early and correct information on the stock of grain available to meet the exigency, of more importance than for many years past. No trouble nor expense is spared to furnish the latest and best intelligence in the MARK-LANE EXPRESS, which has been for many years the authority in the CORN TRADE in ENGLAND and in FOREIGN COUNTRIES.—May be had, by order, of all booksellers, price 1l. 10s. 4d. per annum. Office, 24, Norfolk-street, Strand.

LORD GEORGE BENTINCK stated at the meeting at Colwick, on the 4th of September, that by the destruction of the POTATO crop as proved, food to the value of 12,000,000l. had been lost; and that France, through the failure of the crops, would require 2,000,000 quarters of grain. This vast demand must cause great excitement, and render correct information as to the supply, and the quantity from whence it may be obtained, of the highest importance. No trouble nor expense is spared to furnish the latest and best intelligence in the MARK-LANE EXPRESS, which has been for many years authority in the CORN TRADE in ENGLAND and in FOREIGN COUNTRIES.—May be had, by order, of all Booksellers, price 7d. Office, 24, Norfolk-street, Strand, London.

W. AND C. YOUNG, Manufacturers of Iron and Wire Work, &c., 128, High-street, Edinburgh, and 32, St. Enoch-square, Glasgow, beg respectfully to call the attention of Landed Proprietors, Horticulturists, &c. to their STRONG HARE AND RABBIT PROOF WIRE NETTING,



which, from its economy and durability, is peculiarly adapted for inclosing and rendering impervious to HARES and RABBITS, Extensive Grounds, Young Plantations, Gardens, Nurseries, &c. It can be attached to Hedges, Paling, and other existing Fences, and removed, when required, with the greatest facility.

Prices, in Webs of any length—18 inches high, 3d. per yard; 24 inches, 1s.; and 30 inches, 1s. 3d. per yard; and delivered free at any of the principal ports of the three Kingdoms for One Halfpenny per yard,

STRONG STRAINED WIRE FENCES, with Wrought-iron Uprights, for Horses, Cattle, and Sheep, at from 1s. 4d. to 1s. 10d. per lin. yard, according to strength.

STRONG STRAINED WIRE FENCES, for Horses, Cattle, and Sheep, in Wood Posts (which are furnished by the Proprietors), from 7d. to 10d. per lin. yard.

STRONG STRAINED WIRE FENCES, with Wrought-iron Uprights, for Red Roe and Fallow Deer, at from 2s. 6d. to 3s. 6d. per yard according to height and strength.

STRONG STRAINED WIRE FENCES, Plain and Ornamental, Hare and Rabbit proof, for inclosing Flower Gardens, &c., at from 2s. to 5s. 6d. per lin. yard.

PORTABLE Do., in the form of Hurdles, at from 2s. 6d. to 3s. 6d. per lin. yard.

Definite Estimates of Costs given upon receiving a Description of the Fences wanted, the nature of the Lines, and the extent required.

PREMIUM WROUGHT-IRON HURDLES, for the permanent or temporary division of Grounds and Pasture Lands, at from 2s. 6d to 3s. 6d. per yard, according to the strength and number of Bars.

These Hurdles are made with prongs to fix them into the ground, and can be removed or fitted up with the greatest facility by any labourer.

For the East and West Indies and America the Wire Fences is peculiarly suitable, from being light and portable, and the facility with which it can be conveyed to and erected in any situation. Iron Hurdles for exportation are made portable and packed in bundles for shipment, occupying on board no greater space than common iron bars, and charged for freight the same.

LODGE GATES AND RAILINGS, made of Wrought and Cast Iron, of various designs, in the Gothic, Elizabethan, and other styles of Architecture.

WROUGHT-IRON CARRIAGE GATES, of light and beautiful patterns, at from 3l. 3s. to 6l. 6s.

HANDSOME CAST-IRON PILLARS for ditto, from 30s. to 50s. per pair.

PREMIUM WROUGHT-IRON FIELD GATES, constructed upon the most approved principles, to combine strength with lightness. They are perfectly secured from dropping by diagonal bars, and from twisting by strong welded knees in the framework. Price 30s., 35s., and 40s. each, complete with springs or bolts, and mounting for wood or stone posts.

HANDSOME CAST-IRON PILLARS, for ditto, with bolts and nuts, 25s. per pair.

STRONG AND HANDSOME WROUGHT-IRON WICKETS, from 14s. upwards.

PREMIUM PORTABLE WROUGHT-IRON SHEEP HAY-RACKS, with and without Covers, Wheels, and Troughs, at from 3l. 3s. to 4l. 4s.

W. & C. Young manufacture every description of IRON and WIRE WORK required for this and foreign countries, and from the increased facilities afforded them by the Glasgow branch of their business lately established, they feel assured that all commands from the West of Scotland and Ireland will be executed in a manner that will give every satisfaction to those who honour them with their patronage. Drawings, Catalogues, and Testimonials, sent free of expense to any Nobleman or Gentleman requiring them.

Workmen sent to all parts of Scotland, England, and Ireland.

WIRE NET, 15 inches high, to effectually exclude Hares and Rabbits, 3d. per yard; 2 feet high, 4½d. per yard; 3 feet high, 6d.; 4 feet high, 9d.; and 6 feet high, 1s., adapted for parting Lawns and Fields—for excluding Dogs, Cats, &c.—for inclosing Pheasants, Fowls, &c.; and for various other purposes. Wire Net for Sheep folding, 5d. per yard, 4-inch mesh, and nearly 4 feet high.—Robert Richardson, Net and Tent Maker, 21, Tonbridge-place, New-road London.

FISHING NETS, SHEEP NETS, RABBIT NETS, and all kind of FISHING NETS for Sea, River, Lake, and Pond Fishing. Sheep Nets 4½d. per yard, nearly 4 feet high. Nets for catching Rabbits, and Cover Shooting on Cords, 50, 80, and 100 yards long each. Nets to inclose Pheasants, Fowls, &c.—Robert Richardson, 21, Tonbridge-place, New-road, London.

CARSON'S ORIGINAL ANTI CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, and other public bodies, &c., is particularly recommended to the Nobility, Gentry, Agriculturists, Manufacturers, West India Proprietors, and others, it having been proved by the practical test of nearly sixty years to surpass all other Paints as an out-door preservative. It is extensively used for the preservation of wooden houses, farm and other out-buildings, farming implements, conservatories; park paling, gates, iron railing, iron hurdles, copper, zinc, lead, brick, stone, old compo and stucco fronts, and tiles to represent slating. The superiority of the Anti-Corrosion over other Paint for out-door purposes may be easily inferred from the simple fact, that its use has been always most strenuously opposed by colour manufacturers, painters, oil and colourmen, and others interested in the sale of common Paints. It is also very economical *any labourer being able to lay it on*. Colours—light stone, drab or Portland ditto, Bath ditto, light and dark yellow Attto, light and dark oak, light and dark lead, light and dark chocolate, bright and dark red, and black, 9s. per cwt.; invisible green, 56s.; bright ditto, 60s.; deep green, 60s. per cwt.; in casks, 28 lbs., 56 lbs., and 112 lbs. each. Oil and Brushes. More detailed particulars will be sent free of postage. The Original Anti-Corrosion Paint is only to be obtained of Walter Carson (successor to the inventors), 15, Tokenhouse-yard, all, back of the Bank of England, who will show nearly 800 Testimonials received from the Nobility, Gentry, and Clergy, who have used the Anti-Corrosion for many years at their country seats. W. C. is reluctantly compelled to caution the public against the spurious imitations of his Original Anti-Corrosion Paint now offered for sale. He has no agents whatever. All orders are particularly requested to be sent direct.

ROSES IN POTS.

OBSERVATIONS ON THE CULTIVATION OF ROSES IN POTS, including Forcing, Propagating, &c. By William Paul, of the Nurseries, Cheshunt, Herts.

Sherwood & Co., Paternoster-row; or from the Author, free by post, on receipt of 22 postage stamps.

This day is published, Price 6s.,

THE JOURNAL OF THE HORTICULTURAL SOCIETY OF LONDON. Volume I., Part IV.

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A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 42—1846.] SATURDAY, OCTOBER 17. [PRICE 6*d.*

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Ditto ditto 1 foot, worked ..	36*s.*	,,
Picea Webbiana, 1 year, ...	18*s*	,,
Abies morinda, 2 years, in pots, fine ..	12*s.*	,,

CINERARIAS.

The newest and best varieties, by name, 12*s.* per dozen.

GERANIUMS.

Extra fine first-rate show varieties, 12*s.*, 18*s.*, and 30*s.*, per doz.

FUCHSIAS.

12 first-rate new Fuchsias, including their beautiful Seedling "Sunsparell"	£1	1	0
12 fine do.	0	12	0
Extra fine Pansy Seed, from newest and best varieties, per packet	0	2	6
Alstræmeria Seed, from Mr. Van Houtte's varieties, per packet	0	2	6
Antirrhinum Brightii, lutea, and venosa, per packet	0	1	0
,, finest mixed 12 varieties, per packet	0	1	0
Myatt's British Queen Strawberry .. per 100	0	5	0
Princess Alice ,, .. ,,	0	3	6
Dickson's Royal Pine ,, .. ,,	0	15	0

PANSIES.

Extra fine first-class show varieties, 18*s.* per doz., fine do. 10*s.*

YOUELL'S EARLY TOBOLSK RHUBARB, MYATT'S VICTORIA Ditto. Fine strong Roots for forcing. STRONG GIANT ASPARAGUS, 2*s.* 6*d.* per 100.

Steamers from this port to Rotterdam and Hull twice a-week, and to London daily.

Great Yarmouth Nursery, Oct. 17.

H. GROOM, CLAPHAM RISE, near LONDON (removed from Walworth), by APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY, begs to call the attention of the Nobility, Gentry, and Amateurs to the following new and rare Plants:—

	Each	*s.*	*d.*
Calystegia pubescens ..		5	0
Weigelia rosea		10	6
Abelia rupestris		5	0
Anemone Japonica ..		7	6
Indigofera decora ..		7	6
Hydrolea spinosa ..		2	6
Phlox Drummondii alba ..		2	6
Siphocamphyllus coccinea ..		2	6
Stylidium androsaces ..		2	6
Chirita sinensis		2	6
— zeylanica ..		3	6
Tetrathaca hirsuta ..		2	6
Angelonia floribunda ..		2	6
Tacsonia molliesima ..		2	6
— manicata ..		3	6
Rondeletia speciosa ..		3	6
Clematis smilaxifolia ..		5	0
Epacris miniata		5	0
Epacris lævigata		5	0
— elegans		5	0
Lolanthus nigrescens ..		1	6
— longiflora ..		5	0
Dichorisandra ovalifolia	10	6	
Achimenes argyrostigma	2	6	
— patens ..	10	6	
Columnea crassifolia 2*s.* 6*d.* to 3	6		
Corokia buddlioides 1*s.* 6*d.* to 10	6		
Bouvardia flava	1	6	
Platycodon grandiflorum	2	6	
Gardenia Sherbournii ..	3	6	
Garrya lagrifolia ..	3	6	
Ruellia montana ..	3	6	
Mussænda frondosa ..	5	0	
— macrophylla	21	0	
Geranium Duke of Hamilton	3	6	

Foreign orders executed and the Trade supplied on the usual terms. A remittance will be expected with orders from unknown correspondents.

NEW BAST OR MATTING FOR HORTICULTURAL PURPOSES.

—This article, imported from the Island of Cuba by J. Cook, Esq., of Brooklands, exhibited at the Chiswick Fete in July, and highly approved for its strength and neatness by Dr. Lindley, Mr. Marnock, and the numerous eminent gardeners and nurserymen who saw it, may now be procured in packets as imported, at 6*s.* each, each packet yielding as much tying material as six mats, by forwarding a Post-office order for the amount either to Wm. P. Ayres, Brooklands, Blackheath-park, Kent, or any of the following Agents:—Messrs. J. A. Henderson & Co., Pine Apple-place, Edgeware-road; R. Glendinning, Nurseries, Chiswick; F. Fraser, Lea Bridge-road, Leyton, Essex; F. and J. Fairbairn, Nurseries, Clapham; W. Catleugh, Haus-place, Sloane-street, Chelsea; and Flanagan and Son, Mansion House-street, City.

Persons wishing for a sample may procure the same by forwarding two postage stamps to Mr. Ayres. The usual discount to the trade for cash on delivery.

RARE AND BEAUTIFUL COLUMBINE.—The Subscribers send free by post, safely packed, strong plants of AQUILEGIA GRANDIFLORA at 2s. per pair, or 9s. per dozen, on receipt of stamps of that value. The plant is a hardy perennial, and produces a profusion of two-coloured blossoms, blue and white, of the size and shape of the common Passion flower. The following, by the Editor of the *Gardeners' Chronicle* of 29th November last, refers to this remarkable flower:—"NEW PLANTS.—*John Gregor.*—Your Aquilegia is certainly one of extraordinary beauty. A flower now before us is upwards of 4 inches in diameter."

JOHN GREGOR & Co., Nurseries, Forres, N.B.

TO THE TRADE AND OTHERS.

Nurseries, Cheshunt, Herts, near the Waltham Railway Station.

A. PAUL AND SON beg to call attention to their extensive stock of FOREST TREES, EVERGREENS, ORNAMENTAL TREES, SHRUBS, PLANTS, ROSES, &c. &c., of all ages and sizes, which cover upwards of 30 acres of ground. The whole are in the finest possible condition, and on sale at very moderate prices.

A. PAUL AND SON will be very happy to show the stock to any one who may honour them with a visit.

Priced Lists will be forwarded on application.

CHOICE GERANIUMS, CHEAP.

BASS AND BROWN have a fine stock of the following superior varieties ready to send out immediately, strong and well established in 4-inch pots at the annexed low prices. Packages to London will be sent carriage free.

The following 20 for 50s., or any 12 for 35s.—*viz.* Ackbar, Bogum, Cid, Chance (Silvester's), Cotherstone, Egbert, Eliza Sauvage, England's Queen, Fearless, King of Beauties, Kingfisher, Magician, Mogul, Princess Alice, Rosetta Superba, Sultana or Perpetual, Shield of Achilles, Titus (Hoyle's), White Surrey, Zenobia (Beck's).

Any of the following 20 for 20s., or 12 for 15s.—*viz.* Black Dwarf (Beck's), Constellation (Garth's), Conflagration (Foster's), Coronation Superb, Cyrus Superb, Duchess of Sutherland, Duke of Cornwall, Elegans Nova, Favorite (Foster's), Hebe (Beck's), Imogene, Ivanhoe, Imperialis, Incomparable, Lady Villiers, Lord Chancellor, Mulberry, Madeline, Nestor, Oberon, Orange Perfection, Priory King (Gaines's), Prince of Wales, Pulchella (Foster's), Queen of Bourbons, Queen of Fairies, Queen of Sarum, Rhoda, Robustum (Foster's), Sarah Jane (Hoyle's), Sir R. Peel, Sunrise (Lynes'), The Jew, The Pet, Tipula, Unit, Victoria, Witch, Wizard.

The best older varieties 6s. and 9s. per dozen.

Very fine selections as follows, when left to B. & B. to select:—

25 superb show varieties for 21s., or 12 do. for 12s., including a few comprised in the first list.

25 very superior (newer selection) 50s., or 12 for 30s.

Post-office orders payable to WILLIAM BASS, or STEPHEN BROWN. Remittances are requested from unknown correspondents.

Seed and Horticultural Establishment, Sudbury, Suffolk.

NEW SEEDLING STRAWBERRIES.

J. MYATT AND SONS have selected from their stock of seedlings the following varieties, which are now ready for sending out:—

MYATT'S GLOBE, large and fine flavour, per 100		30s.
,, MAMMOTH, very large	,,	30s.
,, PROLIFIC, early and great bearer	,,	21s.
HOOPER'S SEEDLING, early	,,	21s.

The above selection are quite distinct, and well worth the attention of growers.

Early orders will ensure strong plants for fruiting next season.—Manor Farm, Deptford, Oct. 17.

RHODODENDRONS, NEAPOLITAN AND PERPETUAL VIOLETS, &c. — A large quantity of the above are cultivated for sale at the low scale of prices quoted by W. ROGERS and SON, Nurserymen, Southampton.

Perpetual Tree Violets, bedded, strong flowering plants,	Per 100,	30s.
Ditto ditto, in pots, ditto	per doz.,	9s.
Neapolitan Violets, bedded, strong flowering plants,	per 100,	30s.
Ditto ditto, in pots, ditto	per doz.	9s.
New Double-white Violets, bedded	,,	6s.

Rhododendron Ponticum, strong bedded plants (not layers but raised from seed and well rooted):—

One year bedded, 1 to 2 inches, 30s. per 1000.
Two years ditto, 2 to 4 inches, 60s. ,,
Three years ditto, 4 to 6 inches, 80s. ,,

1 foot, 15s. per 100; 1½ foot, 20s. per 100; 2 feet, 30s. per 100.

Ponticum Roseum, from stools, two years bedded, 1 to 2 feet (many set with bloom), 50s. per 100.

Hybrid Catawbiense, 1 foot, 50s per 100.

Hybrid Scarlet arboreum and maximum, 1 to 2 in., 25s. per 100.

Arboreum Album, 1 to 2 feet, from pots, 3s. 6d. per doz.

Common Arbutus, bedded, 3 to 6 inches, 12s. 6d. per 100.

Common Laurel, 1 foot, 40s. per 1000; 2 to 3 feet, 80s. per 1000.

Giant or Irish Ivy, 12s. 6d. per 100.

Bignonia radicans, 6s. per doz. Victoria Rhubarb, 50s. per 100.

The above quotations are for wholesale; if ordered in less quantities a proportionately higher charge will be made. Oct. 17.

TO RAILROAD CONTRACTORS AND NURSERYMEN, &c.

RICHARD HARTLAND AND SONS, 86, Patrick-street, Cork, have for sale, at their Nursery, Several Hundred Thousand THORN QUICKS, fit for fencing in Railroads, which will be delivered to purchasers in any part of England, Ireland, or Scotland, at reduced prices.

Also several Thousand Arbutus, from 6 to 12 inches, in and out of pots. All orders addressed as above shall have prompt attention.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN & OTHERS.

ABIES CANADENSIS, OR HEMLOCK SPRUCE.

G. BAKER, NURSERYMAN, Bagshot, Surrey, having the Largest Stock in Europe, of various sizes and in fine condition, can with confidence recommend this noble tree to the notice of the public, at the following prices:—

1 ft.—Transplanted	at £0 12	0	per 100	
2 ,,	,,	0 16	0	,,
3 ,,	,,	1 5	0	,,
3 to 4 ft.	,,	1 10	0	,,

PICEA BALSAMEA.

1½ to 2 ft.	at £0 8	0	,,	
2 ,, 3 ,,	,,	0 12	0	,,

G. B. having a fine Stock of Flowering KALMIA LATIFOLIA, can supply them at the following low prices:—

6 to 12 inches	at £2 10	0	per 100	
12 ,, 18 ,,	,,	3 15	0	,,
18 ,, 20 ,,	,,	5 0	0	,,

Fine Specimen Plants from 3s. 6d to 5s. each.

N.B.—Large purchasers will have considerable reduction.—The usual allowance to the trade.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

EDWARD FREDERICK FAIRBAIRN, FLORIST, Wandsworth-road, London, begs to offer the following in strong plants, at the annexed prices. Post-office orders are requested from unknown correspondents *made payable at Clapham.*

12 pair fine show Carnations			£1	1 0
12 do. do. Picotees			1	1 0
12 do. do. Pinks			0	9 0
12 extra fine Pinks			0	12 0
12 do. do. including Otleys, Dr. Edward's, and Ward's Great Britain			0	18 0
12 fine show Fuchsias			0	9 0
12 do. do., including Fairbairn's Lady Sale, Fairbairn's Delicata, and Newberry's Delicata			0	18 0
12 fine named Geraniums			0	9 0
12 superior do. do.			0	12 0
12 extra fine do. do.			0	18 0
12 fine flowering Ericas			0	12 0
12 stronger do do.			0	18 0
12 extra fine named Antirrhinums			0	12 0
12 fine Hybrid Perpetual, Bourbon, and Tea-scented Roses, in pots			0	18 0
24 do. do., including Bourbon Reine de Virgis			1	15 0

E. F. F. begs to offer a few packets of Antirrhinum Seed, saved with great care at 2s. 6d. and 5s. per packet. Pansy-seed saved from the newest kinds, 2s. 6d. and 5s. per packet. Lobelia, saved from Fulgens multiflora, *hybridised*, 5s. per packet. Also Artanema fimbriata, 2s. 6d. per packet.

Wandsworth-road, Oct. 17.

J. B. SMITH begs leave to inform the Nobility, Gentry, and the Trade, that his stock of AZALEA INDICAS are unusually fine this season. His list will be found to contain many new and splendid varieties of this interesting genus, of the last two seasons' production. Parties favouring J. B. S. with their commands, will find the articles of first-rate excellence, and charges strictly moderate. A good collection of Camellias, Rhododendrons, Liliums, Roses, &c.

N.B. A List will be forwarded on receipt of a postage stamp.

Norbiton Nursery, Kingston, Surrey.

ROBERT BENJAMIN BIRCHAM, Hodonham Rosary, Bungay, Suffolk, begs to offer the following Select Perpetual and Bourbon ROSES for Sale. These plants are Dwarf (own roots), and having been bedded out all summer, they are nice established plants. R. B. B. feels confident they will give satisfaction to any purchaser, to form beds of Perpetuals, or for Pot Culture. Careful package, and carriage paid to London, per Norfolk Railway:—

BOURBON.

	Per plant—s.	d.
Acidalie	1	6
Anne Beluse	2	0
Ceris	2	0
Comtee de Seine et Marne	2	0
Comte de Rambuteau	2	6
Crimson Globe	1	6
Dieul Duc d'Orleans	2	0
Duc de Chartres	2	0
Dupetit Thouars	3	0
Edouard Desfosses	1	6
Enfante d'Ajaccio	1	6
Gloire de la Guillotierre	2	0
Gloire de Paris	2	0
George Cuvier	2	6
La Oracleuse	2	0
Le Camee	5	0
Le Grenadier	3	0
Marechal du Palaise	5	0
Madame Anbis	2	6
Madame Souchet	2	6
Paul Joseph	2	0
Pierre de St. Cyr	1	6
Princess Clementine	1	6
Proserpine	2	0
Queen of the Bourbons	1	6
Reine de Mantin	5	0
Reine de Virgis	3	0
Sepulturus	5	0
Souvenir de la Malmaison	2	6
Souvenir de Dumont d'Urville	3	0
Virgil	2	0

HYBRID PERPETUAL.

	Per plant—s.	d.
Augustine Mouchelet	2	0
Aubernon	1	6
Clementine Duval	1	6
Comte d'Eu	2	6
Dr. Marx	2	0
Duc d'Aumale	2	0
Duchess of Sutherland	2	0
Earl Talbot	1	6
Fulgoris	1	6
La Reine	2	6
Lady Alice Peel	2	6
Lady Fordwich	1	6
Lune	1	6
Madame Laffay	1	6
Melanie Cornu	2	0
Marquise Boccella	2	0
Mrs. Elliot	1	6
Prince Albert	1	6
Prince of Wales	1	6
Rivers (Laffay)	1	6
Thibault	2	6
William Jesse	1	6

NOISETTE.

Cloth of Gold	3	6
Fellenberg	1	0
Lamarque Superb	1	6
Ophirio	3	6
Solfaterre	3	0

CHINA.

Madame Breon	2	0
Mrs. Bosanquet	1	6
Eugene Beauharnais	1	6
Devoniensis	1	6

A Descriptive Catalogue sent upon application.

R. B. BIRCHAM has a large stock of the following, which he can offer to the Trade upon advantageous terms, per dozen:—

Persian Yellow, dwarf worked plants.

La Reine, perpetual, dwarf, own roots; or upon 20 to 30-inch stems.

Souvenir de la Malmaison, and Reine de Virgis, Bourbons, dwarf, own roots.—Hodenham, Oct. 17, 1846.

TO CONTRACTORS AND PLANTERS.

QUICK, OR WHITETHORN.—A few Hundred Thousands of fine clean, transplanted QUICK to be Disposed of.—For price and sample, apply to YOUELL & Co., Great Yarmouth Nursery.

The above are of the finest quality, and possess an unusual quantity of fibrous roots.

MR. SMITH begs to inform the Pink growers that he has to dispose of a few pairs of his Challenge PINKS, from the seed of 1844. Seed, "British Damsel" pollen "John Hampden," namely OXONIENSIS, PRINCESS ROYAL, GOLIATH, and OLD ENGLISH YEOMAN, exhibited by him at the last Pink and Fancy Show at Slough, and are considered first-class show flowers. Price 5s. per pair, with the usual allowance.

Mr. SMITH has for next year 41 seedlings from his "Fox Hunter" pollen "Diana" (with the exception of two), and is willing to show six of them against any other person, whatever his stock may be.—Oxford, Blenheim-place, Oct. 17.

NEW SEEDLING CINERARIAS.

WM. IVERY has selected from his stock of superb Seedlings the following varieties, which are now ready to send out:—

CONQUEROR, rich blue with white disk, and the petals are broad, flat, short, and rounded. Received a certificate at the Horticultural Society's Rooms, Jan. 24, 1846. 7s. 6d. each.

COLOSSUS ROSE, with a peculiar rosy tint; fine shape. 5s.

DESIRABLE, white ground, tipped with crimson. 3s. 6d.

PURPUREA SUPERB, fine. 3s. 6d.

FAIRY QUEEN, white, a small neat flower. 5s.

PRINCE ALFRED, shaded purple. 3s. 6d.

W. I. can also recommend the following known varieties:—Beauty of Wonham 2s., Beauty of Cyston 2s., Criterion 2s. 6d., Emperor of Russia 3s. 6d., Nobalis 3s. 6d., Fanny Elsler 2s., Nosegay 2s., Wee Pet 2s., Pet 3s. 6d., Captivation 2s., Red Rover 3s., Standard 2s. 6d., Eclipse 1s. 6d., Perfecta 3s. 6d.; the above set 30s.

Hanover Nursery, Peckham, near London, Oct. 17.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS AND CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

HYACINTHS, RANUNCULUS, ANEMONES, &c.

DUTCH HYACINTHS.

36 splendid varieties, *for pots*, named	6s. 6d.	per doz.
18 very choice do. do.	7 0	,,
24 do. *for water*, glasses included	10 0	,,
Fine mixed, *for beds*	5 0	,,
Ranunculuses, 100 varieties, named	20 0	per 100.
Do. fine mixed	5 0	,,
Anemones, finest double mixed	5 0	per lb.
Crocuses, mixed, fine	1 0	per 100,
Double Snowdrops	2 0	,,

Irises, Tulips, Narcissuses, and every variety of Bulbs equally moderate.

On receipt of a Post-office order, any of the above would be delivered carriage free to any market town not exceeding 20 miles; when less than a dozen, 100, or 1 pound is taken, a proportionately higher charge will be made.

W. BAKER AND SON, Seedsmen, Wells, Somerset.

ITALIAN AND DUTCH BULBOUS ROOTS.

R. HALL begs to advise his Annual Importation of the above-named Bulbs, consisting of DUTCH HYACINTHS in great variety, CROCUS, JONQUILS, TULIPS, &c. The double Roman Narcissus, which is the most fragrant of all the Narcissus, is very fine this year, 3s. per dozen. Printed Catalogues, with prices, names, and description of the flowering of Hyacinths, may be had, free, on application, at 63, South Audley-street, Grosvenor-square, facing the Chapel.

EDWARD BECK'S DESCRIPTIVE CATALOGUE OF SEEDLING PELARGONIUMS.—The above is now out of print, and as several of the varieties described are sold out, and it has had an extensive circulation, E. B. does not intend to have it reprinted.

Of the following varieties strong plants may still be had in exchange for Post-office orders on Brentford:—

Aurora	£2 2 0	Hebe's Lip	£1 11 6
Competitor	1 11 6	Resplendent	1 1 0
Gigantic	10s. 6d.		

The usual allowance to the Trade.

N.B. The remaining plants of the Seedlings of 1844 are very good, with cuttings on each.

Worton Cottage, Isleworth, Oct. 17.

SCARLET PELARGONIUMS.—12 Plants of the above, in 12 of the best and most distinct varieties in cultivation, are now offered for 1 guinea, basket included, *viz.*:—

Shrubland superb	Prizefighter improved
General Tom Thumb	Mrs. Mayler
Comet	Honeymoon
Vivid	King of Scarlets
Victoria	Huntsman, true
Goliah	Queen

Also seeds collected from the above, mixed, in 2s. 6d. packets per post or otherwise.—Philip Conway, Old Brompton, Oct 17.

MESSRS. WESTMACOTT & CO., SEEDSMEN AND FLORISTS, 156, Cheapside (opposite St. Paul's), London, beg to inform Noblemen, Gentlemen, and their Customers in general, that their Annual Importation of DUTCH, CAPE, and other BULBS, has arrived in excellent condition; and solicit the favour of early orders. See priced List in "Floricultural Cabinet and Florists' Journal," for September, and the "Horticultural Magazine;" Paxton's and Curtis's "Botanical Magazines," for October.—A Catalogue will be forwarded on receipt of a prepaid application.

Murray Stuart's Grove, Fulham-road.

GLASS MILK PANS.—In consequence of the increased demand for GLASS MILK PANS, owing to the incontestible fact of their being better adapted for obtaining Cream, throwing nearly 10 per cent. more than any other utensil hitherto used; and also to the extraordinary reduction recently made in the price; PHILLIPS & WELCH have the pleasure to announce that they have made arrangements with the manufacturer for a constant supply of the above articles, and are now ready to deliver them at the under-mentioned prices:—

Each—s.	d.		Each—s.	d.
12 inches in diameter	3	4	18 inches in diameter	4	0
14 ,, ,,	3	6	20 ,, ,,	4	3
16 ,, ,,	3	9	22 ,, ,,	4	6

When a dozen are taken at once no charge is made for packages. British and Foreign Sheet and Horticultural Glass Warehouse, 12, Panton-street, Haymarket.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, of 100 and 200 feet each; also Glass Pantiles, 11s. per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at F. ENGHOK'S, 28, Castle-street, East, Oxford-street. *** For Ready Money only.

PATENT VENTILATORS for Public Offices, Smoking Rooms, &c.

DUTY OFF GLASS.

GREEN AND HOTHOUSES, CONSERVATORIES, &c., made and fixed Complete in all parts of the Kingdom, at a considerable reduction. One, two, and three-light Cucumber and Melon Boxes, and Lights of all sizes, kept ready for use, packed and sent to all parts of the Kingdom; warranted best material. Two-light Boxes and Lights complete, from 1s. 5s. Garden-lights of every description, at JAMES WATTS'S, Hothouse Builder, Claremont-place, Old Kent-road.

References may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

FOREIGN SHEET GLASS.—In consequence of a further reduction in the duty of Foreign Sheet Glass, C. JARVIS is enabled to supply this article at a considerably lower rate than it has hitherto been offered to the Public, at his old established WINDOW GLASS WAREHOUSE, 28, Great Castle-st., a few doors from Regent-street.

Every description of British Manufactured Glass equally low.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

BECK'S, HOYLE'S, MILLER'S, AND FOSTER'S SEEDLING GERANIUMS OF 1845, at 2*l.* per dozen; Purchaser's selection, 3*l.*—BECK'S Marc Antony, Juno, Desdemona, Rosy Circle, Sunset, Isabella, Margaret, Zenobia, Mustee, Bellona, Arabella, Favorita, Bella.—HOYLE'S Augusta, Lord Morpeth, Josephus, Duke of Orleans, Alice, Revenge, Cid.—MILLER'S Egyptian Prince, Vesta, Veritas, Pallida, Agrantia, Miss Sebright, Sanye, Sunbeam.—CATLEUGH'S Merry Monarch, Cilo, Duke of Wellington, Sunbeam, La Polka.—Drury's Pearl.—Foster's Orion.

Unknown correspondents must send cash with their orders.

N.B. Good strong established Plants are now ready for delivery.

All other new varieties at 1*l.* 1*s.* per dozen. See printed Geranium Catalogue, which can be had gratis.

Hybridized Geranium Seeds, 100, 10*s.*; 50, 5*s.*; 25, 3*s.*

WILLIAM MILLER, Providence Nursery, Ramsgate.

ROSE CATALOGUE.—NEW EDITION.
NURSERIES, CHESHUNT, HERTS.

A. PAUL AND SON beg to apprise their friends and the public at large, that a New Edition of their ROSE CATALOGUE is now ready for circulation, and which will be forwarded to all who may honour them with an application, inclosing two penny stamps for postage. Many new and fine varieties have been added to the Collection since the issuing of the last edition. No pains or expense have been spared to render the descriptions accurate, and the Catalogue complete and useful.

E. BECK informs the Public that the various Articles manufactured by him in Slate for Horticultural purposes, may be seen in use at Worton Cottage, Isleworth, upon application to the gardener (*Sundays excepted*).

The Gardeners' Chronicle.

SATURDAY, OCTOBER 17, 1846.

No visible cause for the POTATO DISEASE having been discovered, or at least found satisfactory, men have naturally taken refuge in the invisible. It is so easy to test theories built on the action of agents which may be seen if they exist, that persons with speculative minds have always been fond of seeking refuge in the regions of imagination. Hence have arisen sundry hypotheses about electricity, meteors, deranged luminosity, and smells too subtile for the nose; which, if they are incapable of proof, have the great advantage over more material causes, that they are equally difficult of disproof.

In studying such transcendental views, we must by no means omit the name of Mr. THOMAS CROFT, who, it seems, is the author of "the" Chemico-agricultural Essays. This gentleman has made the Pennsylvanian world acquainted with his opinions in a pamphlet which has the following attractive title:—"A Philosophical and Practical Treatise on the Potato Disease, recommending a remedy for it, which, when properly applied has, in hot or cold, wet or dry, clayey or sandy soils, invariably cured or prevented it; also showing that the cause of the disease, when great, may be so directed as to largely increase the crop of healthy Potatoes."

In this country men would have had glory enough in showing how the cause of the disease is to be removed; but Mr. CROFT does more, he tells us how to make it profitable. We at once concede that this is a step far in advance of anything that we have heard of on this side of the Atlantic.

Mr. CROFT has discovered that "an excess of carbonic acid" is the cause of the mischief. He does not say how he knows it to be so; he does not furnish us with any evidence of the fact; but he asserts it, which is the same thing—in his own opinion.

Having thus discovered, that is to say asserted, that carbonic acid causes the evil, Mr. CROFT, by aid of his chemical knowledge, points out a cure. "An excess of carbonic acid causes the Potato disease, and the alkalies are the proper remedy for it;" that is *his* opinion. It appears, however, that the caustic alkalies are not necessary to effect this cure; their salts will do as well. And accordingly we find Mr. CROFT resting his proof upon the supposed action of sea-salt and "lime prepared manure," that is to say of manure in which the lime is in the form of a carbonate, and the soda of a muriate.

Let it not, however, be assumed, because Mr. CROFT writes from Dreamland, that all hypotheses of the Potato disease being caused by some unknown miasm are equally unworthy of consideration. As we have frequently stated we by no means at present accept such an explanation as satisfactory; but neither can we entirely reject it, considering how signally all others have failed. The disease may be of the nature of cholera; it may be an epidemic affection analogous to the cattle murrain, which certainly would seem to be of such a nature; and we have no desire to treat with the slightest disrespect those who have come to that conclusion. We only say that their arguments are at present unsatisfactory, and that the hypothesis does not appear to meet the case in some important particulars.

We will not insist upon the objection to the theory of miasm that we have no modern well-attested instance of epidemics attacking plants, for it is possible that they may not have been observed, and it is doubtful philosophy to assume that the principle of vitality is distinct in the vegetable and animal worlds; modern science points indeed to the opposite conclusion, and ancient testimony seems to be in favour of the opinion that plants are subject to epidemics. This doctrine was maintained with great ingenuity by Mr. PARKIN, in his work on Epidemic Diseases* published five years ago. He observes:—

"That the cause of pestilence exists in the atmosphere, would also appear from the fact, that at all epidemic periods vegetable life is affected, as well as animal. Hence, as Webster has remarked, pestilence, murrain of beasts, and famine occur at the same time. We find this to have been the case in the earliest record we have of pestilence; for it is said in scripture, that the plague of blotches and blains, the murrain of beasts, and the blight producing famine in corn, all visited Egypt in close succession. The same circumstance was observed in the black death of the 14th century, as we have before shown, while considering the atmospherical changes and vicissitudes which occurred at this period: for although there was an abundance in the granaries at the commencement of the plague, failures in the crops became so general, subsequently, that children died of want in their mothers' arms.

"That the famine in those cases is not the cause of the pestilence is certain, from the fact, that plagues have frequently commenced in the midst of the greatest plenty; while famine, when it occurs at epidemic periods, follows the disease in the generality of cases. This shows, that vegetables are able to resist the malign influence, which produces disease, for a longer period than animals. That the destruction of vegetable life is produced by the same cause as that which gives rise to disease and death among animals and the human species, we may infer from the fact, that the same peculiarities are observed in the one case as in the other. Thus blights, like epidemic diseases, are only observed along *particular lines* of the earth's surface; for so defined is their boundary, that they will not only intersect a field, but they will even attack one side of a tree, and leave the opposite untouched. That the cause, productive of these effects, cannot exist *generally* in the atmosphere is clear from the limitation of its operation to such narrow boundaries. It is only on the supposition that some poisonous element is extricated from the soil along the lines taken by the blights themselves, and which becomes innocuous at a certain distance from dilution in the surrounding atmosphere, that will enable us to account for the effects observed. But the poison, although extricated on the surface, cannot be produced from any peculiarity of soil, as this is found to have no influence on their direction or limitation; for blights are frequently seen to extend along a line only of some particular district, the geological and other features of which are exactly the same.

"Again: Those diseases of vegetables, like those which attack animals, frequently spring up in some particular district, where, previously, they were unknown; continue to prevail for certain definite periods, and then subside. Thus it has been stated by some writers, that Wheat had not been known to mildew in France until the year 1550—an epidemic period, and that in which the black death prevailed in Europe. Webster also informs us, that it has been impossible to raise Wheat in Massachusetts since 1664, on account of the mildew—although it was successfully produced by the first settlers in that country. As these affections of vegetables are only observed at particular epochs, although the soil, and all other external circumstances remain the same at other periods, to a cause existing beneath the surface we can alone look for the generation of the poison productive of these effects among vegetables, the same as animals. This cause, if the deductions before drawn are correct, must be that usually designated volcanic action, as we know of no other process which could give rise to the same effects."

Volcanic action, in Mr. PARKIN's opinion, causes cholera, and those other mysterious affections which man has so entirely failed to deal with successfully. He believes that all cases of the kind are so far traceable to the neighbourhood of lines of volcanic disturbance that the latter offers an intelligible explanation of their appearance; and that it is the only satisfactory solution of the curious facts that cholera travels *against the wind* as well as with it, and that its action is often confined to one side of a street or road, or to a narrow strip of country, without reaching the neighbourhood, a circumstance which he considers explicable upon the supposition that "the poisonous matter, extricated from subterranean reservoirs becomes innocuous when largely diluted in the atmosphere."

Such is Mr. PARKIN's view of this matter, as far as we have space to explain it. His book should be studied. In considering how far his views are applicable to the present disaster the reader cannot fail to be at once struck with the fact that the disease travelled in 1845 westward from Poland to the West of Europe, extending in its most northerly course to Christiania, bending downwards as low as Aberdeen and losing itself in the West of Ireland, while to the south it formed a line drawn from Lyons through Bayonne to the north of Portugal, missing, however, the Spanish province of Galicia. The whole of the Mediterranean was free from disease. It is for geologists to decide how far this is consistent with lines of volcanic forces. The absence of the disease from the Mediterranean might, perhaps, be accounted for by the activity of the volcanoes there, which allow gaseous matter to escape by their natural vents, while in countries where such vents do not exist gases are pent up and must escape through subterranean interstices of which there is no indication on the surface.

Supposing that Mr. PARKIN's theory should not be inconsistent with geological facts, concerning which we are not prepared to express an opinion, this great difficulty will remain. The disease appeared in Bermuda, exclusively among *imported* Potatoes; Bermuda is a coral reef, and its Potatoes were sound, except where the seed was obtained from the United States. In like manner the disease, at Oporto and Graham's-town, is reported to have been confined to crops raised from English imported sets. How these facts are to be reconciled with the volcanic theory we do not discover.

We wish we could satisfy ourselves that Mr. PARKIN is right; because if so we might hope that the disease is already disappearing, and would wear out sooner than we at present anticipate. It is certainly less formidable in France and Germany and the south of England; but that may have been owing to the fine summer, which enabled the Potato crop better to withstand the evil when it came; while in Ireland and North Scotland the bad habits of late planting produced the opposite effect. Many other difficulties suggest themselves, but we must not occupy more space to-day with these speculations, which we now lay before our readers for their own consideration rather than for our discussion.

* On the remote cause of Epidemic Diseases. By John Parkin. 8vo. pp. 198. Hatchard.

WE learn from the *Daily News* that Mr. JUSTICE TORRENS has announced that he will give premiums to his tenantry, on all his estates in Derry and elsewhere, for the cultivation of Rye. Mr. JUSTICE TORRENS has done well, and we earnestly hope that his example will be followed, either exactly, or by the Irish gentry taking the most active measures to secure the cropping of land with something that may *certainly* be gathered in.

We have formerly pointed out the relative value of various substitutes for the Potato (see p. 163), and we again refer to the information there collected. But in the present state of Ireland nothing can be universally employed in room of the Potato except grain, because there is no possibility of procuring the requisite quantity of seed for any other field crop. Mr. E. B. ROCHE stated a few weeks since that he had ascertained the fact that 9000 acres of land were this year under Potatoes in one Union (that of Aghada) and a writer in the *Cork Reporter* asserts that 130,000 (Irish) acres are so cropped in the county of Cork. Now if it were proposed to substitute Carrots in these cases, it would require nearly seven tons of seed for the parish, and 380 tons for the county; or 1786 tons if we take all Ireland. Such quantities are not procurable.

If half-a-dozen different substitutes, not grain, were selected for cultivation, the difficulty would be of course diminished, but not removed; for the European seed market is only supplied with what suffices for ordinary consumption, and is wholly unable to meet any vast unexpected demand.

Grain and grain only must then of necessity be the crop mainly chosen to replace the Potato in the first instance. Provisions of another kind can only be introduced by degrees. We, therefore, repeat that the step taken by Mr. JUSTICE TORRENS is one of the most judicious that can be made under the present circumstances of Ireland.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

(*Continued from p. 677.*)

FRIDAY, Sept. 11.—In the natural history section a paper was read from Mr. BENJAMIN CLARKE, "*On the foliage and inflorescence of the genera Phyllanthus and Xylophyllum.*" The author stated that the leafy appendages from which the flowers in most of the species of these genera spring have been described by De Candolle,

Jussieu, and others, as branches. Having carefully examined the structure and relations of these so-called branches, he had come to the conclusion that they were truly leaves. In tracing the analogy between these organs and those of other species of the same genera and the same order, it would be found that it was with the leaf and not with the branch. It would be found that these organs possessed the structure of leaves, and like leaves were deciduous, and were developed in the same way as leaves. The author described several species of Xylophyllum and Phyllanthus, and illustrated this part of his paper with numerous drawings. In conclusion, he suggested whether the additional leaf-buds which are sometimes seen in the axils of leaves do not originate from the base of the petioles. Such buds occur in the genus Rubus, in some species of which the additional bud is developed beneath the axillary bud instead of on one side of it. Also in Equisetum the lateral branches spring from a verticillus of scales situated at each node in the stem; this may be ascertained by removing them, when it will be found that the lateral branches, which appear as if they proceeded from the node, come away with the detached scales; from the external surface of these scales they distinctly arise, nor are they at all connected with the stem.

Mr. W. Hogan read a paper "*On Potatoes raised from seed as a means of preventing the extension of the prevailing disease.*" The greater portion of Mr. Hogan's paper was a translation of a paper which we gave with many others on the same subject in the *Gardeners' Chronicle* in the month of May last. The reading of this paper lead to a long discussion, in which Mr. Morris—Stirling, Dr. Crook, Dr. Daubeny, the Dean of Westminster, Dr. L. Playfair, Mr. E. Solly, Mr. Busk, Professor Balfour, Mr. A. Strickland, Mr. Mouckton Milnes, and Dr. Lankester, took part. Nothing more was said than has been often said before in the *Gardeners' Chronicle*, and the subject, as far as the British Association is concerned, is *in statu quo*.

In the Chemical Section—Prof. Daubeny communicated a paper "*On the Rationale of certain Practices employed in Agriculture,*" specifying amongst the rest the use of quicklime and of gypsum as fertilisers to the land. The former of these substances he supposes to act in part, by rendering those inorganic substances which are present in the soil more soluble, or—in accordance with the views laid down by the author in a memoir which he has published in the Philosophical Transactions of last year,—by converting the *dormant* constituents of the soil into active ones, or into a state in which they become immediately available. He appealed to the authority of Prof. Fuchs, confirmed by Mr. Prideaux, of Plymouth, that the alkali may be readily extracted from granite by water, after the rock in a pounded form has been heated, together with quicklime; and he stated that a soil exhausted by long-continued cropping, after having been mixed with quicklime, was found by himself to yield to water twice as much alkali as it had done before. Hence the frequent application of lime tends to produce exhaustion in the land: not only because it supplies in itself no fresh alkali, but likewise, by rendering that which the soil contains more soluble, it causes it to be washed away more readily by atmospheric water. Ploughing, and other mechanical methods of pulverising the soil, appear to act in the same way; and so, also, we may suppose, do the sprinkling of the soil with sulphuric acid, as is practised in some parts of the Continent. The author then alluded to the various modes of explaining the advantage attributed to gypsum, which certain leading agricultural chemists had proposed; one ascribing its virtues to the direct influence of the salt; another to its property of fixing ammonia; a third, regarding its acid constituent as of the principal utility; and a fourth, its base. Dr. Daubeny gave reasons for rejecting the third and fourth of these hypotheses; but considered that the use of gypsum may be in part attributable to the first, and in part to the second, of the causes pointed out. He supposes that this substance is generally useful to all plants, from its property of fixing ammonia; and also especially serviceable to certain species, by supplying them with a salt which they require for their development. A long discussion followed; several agricultural gentlemen remarking on the effects of carbonate of lime on Wheat crops, and on the resulting weakness of the straw, owing to a deficiency of the silicate of potash necessary for the formation of the supporting epidermis of the Grass.

Some specimens of the disease in Turnips, commonly called fingers-and-toes, were exhibited; and it was stated that the superphosphate of lime as a remedy for that disease.—The Bishop of Norwich, however, remarked that the cause assigned for this disease was not that to which he believed it must be attributed. The flow of the sap was checked by the action of an insect, and then an abnormal condition developed. This year, in many parts of the country, this and similar diseases were very prevalent; and the rev. prelate was disposed to regard the existence so abundantly of this insect as in some way connected with the electrical condition of the atmosphere during the exceedingly hot weather which has prevailed,—producing with extreme rapidity the decomposition of animal and vegetable matter.

"*On the Fairy-rings of Pastures,*" by Prof. J. T. Way.—A description of these patches, with which most meadows are familiar, was given; and it was stated that

Every ... as of which such rings are formed, is always the ... CHENWARE ... ord-street, near Hyde ... in the spring, and keeps the lead of the ... s of the pastures till the period of cutting.

If the Grass of these fairy-rings be examined in the spring and early summer, it will be found to conceal a number of Agarics, or "toad stools," of various sizes. They are found situated either entirely on the outside of the ring, or on the outer border of the Grass which composes it. De Candolle's theory, that these rings increased by the excretions of these fungi being favourable for the growth of Grass, but injurious to their own subsequent development on the same spot;—was remarked on, and shown to be insufficient to explain the phenomena. A chemical examination of some fungi (the true St. George's Agaric of Clusius—Agaric graveolens) which grew in the fairy-rings on the pasture around the College at Cirencester, was made. They contained 87.46 per cent. of water, and 12.54 per cent. of dry matter. The ashes of these were found to contain:—

Silica	1·09
Lime	1·35
Magnesia	2·20
Peroxide of Iron	a trace
Sulphuric Acid	1.93
Carbonic Acid	3·80
Phosphoric Acid	29·49
Potash	55·10
Soda	3.32
Chloride of Sodium	0·41
	98·69

The author thought these rings were formed as follows:—A fungus is developed on a single spot of ground; sheds its seeds, and dies; on the spot where it grew it leaves a valuable manuring of phosphoric acid and alkalies, some magnesia, and a little sulphate of lime. It thus appears that the increase of these fairy-rings is due to the large quantity of phosphates secreted by the fungi, and whilst extending themselves to seek their own nutriment, they leave an abundant supply for the Grass.

(*To be continued.*)

ON THE TRANSPARENCY OF CERTAIN POTATOES.

As the condition of the Potato has of late so much engrossed the attention of the public, I have thought it worth while to describe shortly an alteration of the tuber, of which I have seen many examples among Potatoes grown in Essex. They are very different from the ordinary diseased ones, as they appear of a healthy aspect, yet exhibiting such a degree of transparency when held before a lamp as a sperm candle would do under the same circumstances. These Potatoes are equally infected with the disease as the other kinds.

On dividing such examples with a knife, the exterior of the section presents much of the usual appearance of healthy Potatoes, but a short distance from the margin the transparent portion commences, and is separated from the more opaque by a distinct boundary, in which are many dark points.

When such Potatoes are boiled the external parts become mealy as usual, but the internal remain very hard, and when eaten resemble very much the half-dressed portion of the stem which belongs to every head of Broccoli.

When sections are submitted to the microscope, those taken from the circumference exhibit the cells full of starch grains, as in ordinary Potatoes; but those taken from the centre appear to contain scarcely any grains, the contents being chiefly limpid.

The absence of starch from the central portions is not owing to the Potatoes having given origin to secondary tubers, which might have exhausted the starch from the cells; if such a change had taken place the most external would have suffered first; but on looking minutely into the cells of the transparent portion, it is evident that something has interfered with the development of the starch, as in most of the cells can be observed the first commencement of the process, such as I have described in a paper read before the Linnean Society, an abstract of which appeared in the "Annals of Natural History" for September last, viz., that the cytoblast, after the cell is formed by it, becomes itself a minute cell with a distinct nucleus, and develops on its exterior several minute granules, which after undergoing certain changes become perfect starch grains.

The commencement of this process is evident in most of the cells, and it appears that some cause has interfered with the process going on to completion; and thus it is that the cells contain very few granules, but are filled with an extra quantity of watery fluids.

Potatoes to become "mealy," by the action of boiling water, depend on two circumstances: firstly, the heat of boiling water continued for a while is sufficient to loosen the adhesion of one cell to another; secondly, the temperature is more than sufficient to cause the rupture of the cell containing the gummy materials of which starch is composed, so that every starch-grain bursts, and its contents become mixed with the fluid of the cell and constitute a viscid mass, on account of the density of which some water from without enters the cell by endosmose, and its figure, by the distension, is made to assume a sphere; and as spheres can only touch each other at one point, thus it is that the cells (previously presenting a hexagon in section, and nicely adapted to each other on all sides) are now so separated as to constitute that condition known as "mealy." In the centre, as they are not filled with starch, the mealiness cannot obtain; and probably instead of amylaceous matters albuminous ones may take their place; so that it may be accounted for, why, under boiling, this portion of the Potato becomes hardened.

If persons, taking up Potatoes answering to this description, would observe the conditions under which they grew, some [illegible] thrown on the nature of the cause which [illegible] arrest the development of the starch grains.—*Edwin J. Quekett, Wellclose-square; Sept.* 30.

HINTS ON THE MANAGEMENT OF BEES FOR COTTAGERS.

Bees may be made a source of considerable profit, especially where Broom, Heath, Wild Thyme, Lime-trees, and Blackberries abound, as well as White Clover and other wild flowers. With these advantages, they will store up, in tolerable seasons, a large supply of honey, but I am sorry to find that a cruel practice prevails in many counties of suffocating them in autumn.

When you consider a good hive will contain about 36,000 of these industrious insects, you will at once see what a sad waste of life takes place. In my own neighbourhood this practice has been discontinued, and the cottagers find it greatly to their advantage. I will now relate the method I have recommended to them.

If the hive be very strong, wait till it has thrown out a swarm. Then with a sharp knife cut two or three laps of the straw from the top, leaving a hole large enough to admit the thick end of a common quart bottle. Have ready a small straw hive which will hold from 7 to 10 lbs. of honey, with a piece of glass on one of the sides, and place it over the hole, plastering it round the edges with a little clay or mortar. This small hive in the south is called a cap, and it should be protected from the weather by a straw hackle. When the bees have worked into the cap, look at the glass, and if you find that the cells next to it are sealed up, you may be sure that it has been filled. Take it off in the evening, carry it to a little distance, and as the bees come out brush them away with a little bush, and they will return to the parent hive. In very good seasons a strong hive will fill two caps, but even a swarm and one cap is no bad return from one stock. In this way you increase your capital in bees every year, and I believe that with care every cottager may pay the rent of his cottage by means of his bees. If your swarm is an early one it will generally fill a cap. Now there is another great advantage in the method I have proposed. The queen bee will seldom deposit her eggs in the cells formed in the cap, as she dislikes light. The consequence is that the honey is of a much purer quality than that from smoked hives, and with me it will always bring double the price in the market. When cells which have had young bees in them are afterwards filled with honey, the latter is discoloured by the impure state of the cells from the breath and excrement of the brood. If there is any difficulty in procuring a straw cap, a box with a bit of glass in it, or even a flower pot, will do, although not so well, as sufficient light cannot be admitted.

In conclusion, I would strongly recommend every cottager to keep bees, as I know how much money may be made by them. Treat them like deposits in the savings' bank, and they will pay you good interest; but if you do away with your capital your interest ceases. *Edward Jesse, Belle Isle, Bowness, July* 14.

POTATO DISEASE IN DENMARK.

For the following *literal* translation of a report made officially to the Danish government, and for the original, we are indebted to a kind but unknown correspondent, signing himself "X. Z. D." It was made to the Polytechnic Institution of Copenhagen, is written by Professor Liebmann, and is in Denmark thought to give a satisfactory solution of the cause of the sickness:—

"Although the Potato complaint already in the course of several years has been known in various places in Europe, it did not become the subject of general attention before last year, when almost all over Europe it caused great devastation. Also this year the sickness has broken out suddenly, and with great violence at the same time, all over the country, and has in short time destroyed the greatest part of the parts of the Potato plant vegetating above ground; but it is not yet decided whether the complaint will have as great influence on the tubers as was the case last year. According to all accounts we have been able to collect, as well as from our own observations, the complaint this year has chiefly attacked the early ripe Potatoes; but those later ripe have been much more free. Although, where the Potato complaint last year made its devastations, it has become subject of investigation carefully conducted by individuals as well as by committees appointed to this effect, employing large sums of public money for the promotion of these inquisitions; still, notwithstanding all that is done in this direction, and that our literature has been increased to an enormous extent, still the result of all these endeavours is comparatively nothing. None of the remedies so variously proposed have been effective. Last year the attention was only drawn to the illness when far advanced; its first beginning as well as its cause, came not at all under experienced and scientific men's observation. This year, when attention has been early directed to the vegetative process of the Potatoes, it has been possible to observe all the phenomena of the illness from its first beginning, and there can *no longer be doubt of the cause of the illness.* It is a parasitical *fungus belonging to the mildew or thread fungi* which attacks the parts of the Potato above ground, and which shortly, in the way peculiar to fungi, destroys the cellular texture of leaves, flower, and stem; this fungus presents a fine cobweb texture of uncoloured branched fibres, and increases with great speed by elastic germinating grains, which only appear by a considerably magnifying power. These germinating grains are so small and so light that they are floating about in the air, and descend with the dew drops on the sound plants, develop themselves in few hours to threads, and destroy the leaves. It is certain that the illness is produced by this parasitical fungus.

"The sickness in the tubers appears only some time after the part of plant above ground is destroyed, and shows itself by destroying the cellular texture which, by the destruction of the leaves, is deprived of the regular nourishment which is derived from these parts.

"The existence of the Potato thread fungus is like all fungi generally, only brief, and it is only plainly discernible on leaves not yet blackened or faded. We feel bold to assert that the period of vegetation of this parasitical fungus this year, has been confined to the first 14 days of August, and that it will only be the consequences of the ravages of the fungus during these fourteen days which will be felt this autumn.

"Since it is now made apparent that the illness is caused by this parasitical fungus, it is evident that all previous suppositions about the degeneration of the Potato plant as cause of the illness are groundless, and that orders for seed Potatoes from places hitherto free would be useless. This may easily be conjectured when the cause of the illness is known; and what confirms this opinion is that Liebmann, on a journey through the island of Tionia, in the beginning of this month, learnt that several farmers who, at great cost, had got seed Potatoes from places in the United States free from illness, had, notwithstanding, got several such fields attacked as much as others with the common seed.

"The committee feels therefore pleased that already, before these experiments were made, it advised not to import from Spain or the United States, feeling convinced that there was small probability of the complaint being from degeneration of the plant. *It is therefore evident* that all trials to destroy the complaint will be useless, inasmuch as it originates in a parasitic fungus, the invisible germinating grain of which is carried about in the air, and which will develop itself wherever it finds a suitable soil, viz., Potato plants, be they natives or from abroad, or whether the seed tubers have been washed or not in water or solutions of salt.

"The Potato complaint is an evil which we hope time will heal as it has brought it.

"E. A. Sommering, F. Liebmann, &c. Wahlbach."

"Copenhagen, August 31."

Home Correspondence.

Polmaise Heating.—I have felt much interest in the discussion on Polmaise heating, and should feel obliged if you would grant me a corner to put a question or two on the subject to Mr. Meek, who I make no doubt will be so kind as to favour me with a reply. In the first place I should be glad to learn what proportion (for they evidently must bear some ratio to one another), there should be between the number of superficial inches of heating surface with which it is proposed to bring the air into contact, and the number of cubic feet of air to be raised to a given temperature, and under the following variety of circumstances, viz., a lean-to greenhouse; a span ditto, sides all brick; ditto ditto, sides half of glass; stoves under the same three varieties of condition? Second—As I suppose the quantity of moisture absorbed by the heated air to depend on the extent of watery surface over which it is compelled to pass, what proportion should the surface of the water bear to the cubic feet of air to be charged with moisture, under the same six varieties of condition given above? N. B.—As it will be desirable to vary the relative proportions of heat and moisture communicated to the air at different periods of the year, I think it would be useful to adopt, in a modified form, the suggestion of one of your correspondents, who proposes using earthern troughs, one or more as occasion requires; for instance, the cistern might be made with divisions, of which one, two, or more, might be kept filled at a time. Third—The third point involves a suggestion of my own, on the validity of which I shall be very glad to have the opinion of Mr. Meek, or of any of your correspondents, whose experience may enable him to speak on the subject. In any case where bottom-heat is to be applied as well as air-heat, I apprehend that an approach to uniformity of the temperature applied to the roots of plants is far more desirable (as being far more in accordance with the proceedings of nature), than the same amount of uniformity in the air-heat; and I would suggest for the consideration of others, especially of Mr. Meek, whether such uniformity of bottom-heat between the time of leaving the fires at night and re-lighting them in the morning, might be brought about in some such manner as the following, viz.: by adapting to the openings from the bottom-heat chamber into the body of the house, spring or elastic doors, which would remain open as long as there was any very sensible circulation of the air by reason of difference of temperature and specific gravity (being of course wider in proportion as the current of air is stronger), and shutting with their own weight when the circulation is nearly ceasing from exhaustion of the heating power. This shutting would probably take place not long before the fires were visited in the morning, and subsequent to it; although the air in the body of the house might by radiation lose some degrees of its heat, the air confined in its range to the stove-chamber and the bottom-heat chamber, would undergo little or no change, instead of being reduced to the same degree with the air in the body of the house, as it must of necessity be without some such appliance as I have suggested.—*A Constant Reader, Carnarvon.*

Autumn-planting Potatoes.—In your remarks on Potatoes, you do not seem to attach any importance to the objection to autumn planting, "lest they should get through the ground so early in spring as to be cut back by frost." Some autumn-planted Potatoes in my garden were above ground in the middle of Jan. last, they were earthed-up, and seemed to continue healthy till the severe frosts and snow of March 18, and following days, cut them down; they put out some fresh shoots in a few days, which were again cut off on the 10th April. Many sets never made any more attempts at growing, and the crop, from the few that did show any stalks eventually, was not worth the digging. Now, was not this failure the result, apparently, of their being above ground too soon? Granting that they were not set deep enough, and that the very mild winter forced them more than would usually be the case, still it seems to me that the cutting back by frost spoiled the crop. My gardener said such would be the case as soon as they were cut back, although I was inclined to think he said so because autumn planting was contrary to his previous habit and notions; his prediction certainly came true in this instance. I have now left some rows in my garden undug, having found those in a corresponding and adjoining piece much diseased. I fear they are not set deep enough to stand the winter. I have no garden mould to spare, and they cannot be earthed up much more than at present; several are now putting forth fresh shoots. Will fresh stable dung, leaves, or rotten dung, be best to put over them, or can you advise me what to do?—*A. C. S. S.* [When Potatoes are killed back by frost, the crop is apt to consist of small tubers. The frost, in our correspondent's case, is probably what produced the mischief. Had his Potatoes been deep, or well earthed-up, no such consequences would have ensued. Thin land is not fit for Potato growing.]

Balsams.—Some seeds of 14 varieties of Balsams, received from Vilmorin six years ago, produced that year flowers large, true to their colours, and very double. Last spring I gave what remained of these seeds to a friend who has an excellent gardener, with everything at his command for the due cultivation of her garden. Plants of all the 14 sorts were raised, but the flowers they bore were most of them single, the greater number white, none of them either large, handsome, or true to their varieties.—*M.*

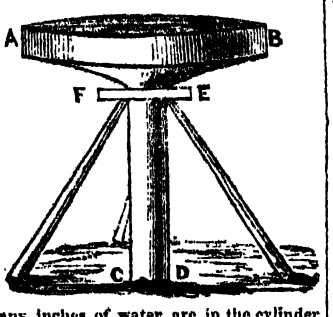
Bones Dissolved in Sulphuric Acid.—I applied them as manure to Strawberry plants in pots for forcing, and from the appearance of the plants I am satisfied it is one of the very best manures for this fruit, and worthy of extensive trial. I have tried the effect of various manures on the Strawberry, but never had plants near so good as I have them this season. Should they produce fruit according to my expectation I will send a sample for inspection.—*Robert Cassilis, Ewen Kemble, Wilts.*

Abies Douglasii.—On seeing the notice of the size of this plant at Dropmore, as given at page 661, I was induced to measure the largest specimen at this place, of which I subjoin the dimensions, viz.:—

	Carclew.	Dropmore.
Height	48 ft. 4 ins.	48 ft. 6 ins.
Girth 3 ft. high	3 ft. 0	4 ft. 0
Diameter of branches ..	29 ft. 0	38 ft. 6

The tree at Carclew was planted out in 1831; the one at Dropmore in 1828. The difference in height is only 2 inches; but in other respects there is considerable disparity between the two—the Dropmore tree being much larger in girth, as well as in the diameter of its branches. It is interesting to compare the relative growth of the two trees. In the "Gardeners' Magazine," vol. xiv, page 31, the height of Abies Douglasii at Dropmore in 1837, is stated to have been 16 ft.; whilst the one at Carclew was only 14 ft. The annual rate of growth, therefore, appears to have averaged rather more than 3 ft. 4 ins. at Dropmore, and 3 ft. 9 ins. at Carclew. We have had cones in abundance on our plant for several years past; but owing to some cause or other the seeds have not come to perfection.—*Wm. B. Booth, Carclew, near Penrhyn.*

Rain Gage.—In a late Number you refer to a rain gage employed by a military officer in India. From your description and the accompanying sketch, as sent to me by Lieut. Maxwell, Bengal Artillery, I conclude they are the same. Perhaps his explanation may be of service to some of your readers who wish to construct such an instrument. Its simplicity and cheapness strongly recommend it, and obtained for it the approval of the engineer department in India.



"A B C D a tin tube with a large mouth about 2 feet 6 inches long. Make the area of A B ten times larger than the area of section of C D E F. Make a measuring iron rod, divided into inches and tenths, also a stand, and the apparatus is complete. Now the cup A B catches ten times more rain than if its diameter were the same as C D; therefore having measured with the rod how many inches of water are in the cylinder E F C D, divide it by 10 for the actual quantity of rain that has fallen; therefore the rod, which is divided into inches and tenths, measures in tenths and hundredths of rain."—*C. M.*

Horticultural Society.—At the meeting held at the Regent-street rooms on the 6th inst., I was struck by the extraordinary conduct of an exhibitor, who carried a basket with two lids which could not be shut down owing to the quantity of whole Pears, Chesnuts, cut flowers, &c., indiscriminately crammed into it by this visitor. By calling public attention to this, you will probably prevent a recurrence of it, and save the other visitors the possible error of considering the things exhibited as public property, and transferring them from the tables into their own pockets.—*Honesty.* [It is contrary to the rules of the Society that anything should be removed from the tables unless special notice to that effect is given. On the occasion in question Chesnuts were allowed to be removed, and a few flowers were distributed by the Vice Secretary; but nothing more. We think you must be mistaken.]

The Hamiltonian System of Pine-growing—(see p. 613).—Some growers imagine that Pine plants cannot support both fruit and suckers at the same time, for, say they, the one will diminish the other. Now this may possibly be the case when the plants are confined in pots, but this is not Nature's plan of doing the work, neither is it Mr. Hamilton's, who follows Nature so closely. Provide soil for the plant to grow in without restriction, and it will effect the rest itself. To the lover of Pine-apples it is delightful to see three and four fruit produced by one plant in about 12 months, the plant still being capable of doing the same for a series of years, for Mr. Hamilton has stools which have been planted out from 12 to 13 years. The suckers, even while the fruit is swelling, bounding away in the most healthy luxuriance. Mr. H.'s Pinery is but small compared with many: it contains about 62 or 63 stools in a space in which 62 good fruiting plants in pots could scarcely be accommodated. Now contrast the difference between this and the old mode of Pine growing. Average Mr. Hamilton's stools to produce three suckers each, the suckers producing three fruit, making 186 fruit from the 62 stools, and that in 12 months. Now some gardeners take 18 months, two years, and others still longer, to produce one fruit from one plant; then look at the time, trouble, expence of potting, dunging, renewing bark beds, &c., and after all the produce is only about a third of that by the Hamiltonian system. With Polmaise heating and this admirable system of Pine-growing, fruit may be grown at one half the expence at which they now are. In the summer time Mr. Hamilton can ripen fruit in from 12 to 14 weeks from the time they show, so that both sucker and fruit is perfected at that season in seven months. In conclusion I beg to say that I never saw Pines swell off better than those at Thornfield, three and four on a plant, averaging from 16 to 17 lbs. weight, and occupying no more room than a single plant in a pot.—*J. Ellis, Yew-tree Cottage, Eccles, September* 30.

The Hedgehog Carnivorous.—I once kept two hedgehogs for several months, and their food was bread and milk, Apples, crabs, &c., with a daily allowance of raw meat cut into small pieces. I have seen their saucer half full of bread and milk and my hedgehogs rolled up snugly in a corner of their pen; but when I whistled them up on supplying the raw meat, they would turn out briskly and eat it with great avidity. Whilst on this subject I may mention, that I was once advised to turn up a hedgehog on my premises which were infested with rats, and they would shortly disappear. I tried the experiment. In a few days I noticed that my poor hedgehog was exceedingly lame, and took him up for examination; his leg had evidently been bitten, and I naturally suspected the rats; shortly afterwards I noticed that most of my hedgehog's spines had lost their sharpness; they appeared to have been clipped or stunted, probably by being bitten off at the points, and again I suspected the rats; finally, the hedgehog disappeared altogether, and the rats continued to indulge me with their company.—*Edward Cope, 15, New York-street, Manchester, Oct.* 5.

Potato Disease.—I have this year raised Potatoes from seed of five different kinds, and all are more or less diseased. I also planted about five bushels of the Hen's-nest variety, in November 1845, and took up a most excellent crop from them in July, 18 or 20 large Potatoes from one on the average, and not a symptom of disease among them all.—*T. W. W.*

Paulownia imperialis.—This is a highly ornamental tree, which has not yet been fully estimated in this country. It appears that for the first year or two, when planted in congenial soil, it grows most vigorously, and continues its growth late in autumn. The shoots, from their extraordinary grossness, are not properly ripened, and consequently get killed back to the harder parts in winter. I have plants at this moment with leaves 20 inches across, and shoots of the current year's growth 6 feet long. I was informed that when first planted in the Garden of Plants at Paris, it grew away in the same robust manner. This is not, however, now the case, the original tree which first flowered there is 30 feet high, the branches are about 20 feet in diameter, with a clean stem 3 feet in circumference. The leaves now upon this tree are about the size of those of the Catalpa, and the shoots scarcely exceeding a foot in length, which of course ripen perfectly. This is (October) covered with a complete mass of incipient blossoms, which do not expand until next spring, when the tree exhibits an inconceivable picture of beauty. It is a remarkable fact that this tree only flowers in alternate years, when it ripens an abundance of seed. What an admirable subject this is for shrubberies and general ornamental planting, both as regards its foliage and flowers, and may well be pointed out as an object deserving the attention of planters.—*R. G.*

Influence of the Moon on Vegetation in Columbia.—In this country trees and plants during the increase of the moon are full of sap, at the decrease the sap descends. This is so well established a fact, that timber felled at the increase is useless, rotting immediately. I have myself seen in the Cauca the great bamboo, called Guadua, whose joints supply the purest water in the first quarter of the moon, perfectly dry after the full moon. Does this singular fact lead us to suppose that Nature intends it as a sort of repose for the vegetating process where winters are unknown?—*W. J., Liverpool.*

The Camberwell Beauty.—A very fine specimen of this beautiful insect was taken by a lady at North Cray, in Kent, in August last; likewise a Sphinx convolvuli by myself.—*Constant Reader.*

Result of Sowing Beans and Potators in the same Drills, with reference to Disease.—Last spring, dreading a return of the Potato disease, I had Beans sown in the drills with my Potatoes at the time of planting, hoping the former might do some good in case of the latter failing, as they eventually did, and I have now reaped a crop of excellent Beans; the return, so far as can be calculated before thrashing, appearing to be considerably above thirty-fold. But what I consider remarkable is, that while the Bean crop in the neigh-

bourhood has failed or been blighted in apparently an exact similar manner to the Potatoes, this field, among the Potatoes, has entirely escaped. The inference I have drawn is, that the insect (for I believe an insect to be the cause of the mischief), finding the two plants together, and preferring the Potato to the Bean, has attacked the former, leaving the Bean unmolested. This, however, as far as I am aware, being only an isolated instance, requires the confirmation of further experiment; but I think it worth trying by those who have Potatoes to plant next season. For who may purpose of experiment I would [illegible], and for the purpose employed be the [illegible] recommend that the Bean is sur[illegible] early Mazagan. The foregoing result may a strong fact in favour of the idea that an insect is the cause of the disease; it at least upsets one or two theories, either it is not the same blight which has affected the two crops, or if it is, as many believe, then it cannot proceed directly from atmospheric causes, as no blight proceeding from such cause could discriminate between the two crops (intimately mixed as they were in the field alluded to) blighting the Potato completely and leaving the Bean perfectly healthy. On the other hand, we can readily conceive an insect feeding indiscriminately on either plant when grown separately, but finding the two kinds of food together, taking only that which is most agreeable to it. Indeed, we find this method of preserving plants in daily practice with gardeners, viz., planting a herb or shrub, which snails or other insects are particularly fond of, beside another plant which they are desirous of preserving; and in this manner I believe the Potato to have acted in preserving my Beans. The plan I have adopted to endeavour to save some seed for next season's crop, is to green the Potatoes by exposure to the light and sun, which I am confident will preserve them, having in the Barley stubbles picked up a considerable number of Potatoes which had, in raising last year's crop, been left as diseased; in these I have found the part which had been affected entirely gone, leaving the remainder, which had by exposure become green, perfectly sound.—*Smollett M. Eddington, Creggan.*

Effect of the best Peruvian Guano on Potatoes.—*Cheshire Whites*: 1st row, farm-yard manure; 2d row, half guano, half farm-yard manure; 3d row, guano. No. 3 by far the best and soundest. Quantity about the same. *Scotch Seedlings*: 1st row, guano; 2d row, half guano and half farm-yard manure; 3d row, farm-yard manure. No. 1 the soundest and best quality. Quantity about the same. 30 bushels sown to the acre —*H. V., Ripon.*

The Tortoise being oviparous, it may be interesting to know the manner in which the eggs are laid. About the 1st of August I observed one in the act of making a hole in dry soil in a Vinery; knowing it was not the proper time for the animal to bury itself for the winter, I suspected it was making a nest. Being slow in motion, it was really interesting to see the manner in which she made the cavity, by raising the soil with her hind feet, scraping a little first with one and then the other, until the hole was about 4 inches deep. In order to support or prevent her falling while at work, her fore leg was fast in the soil, and although a weak anchor, still perhaps it answered her purpose. I observed her deposit three white eggs about the size of those of a pigeon, with very hard shells; she then carefully covered them up, and made impressions with her feet while in the act of leaving, as if purposely to conceal the nest. Such seemed to be the case; for twice I smoothed the spot, and found upon inspection the same foot-prints. This shows that the tortoise has some care about her eggs, though left in the ground to be hatched by the heat of the sun.—*J. Wighton.*

Atropa Belladonna.—"Onyx" inquires (p. 662), what "birds or insects feed on the black berry of the Belladonna." I have observed the berries to suddenly disappear without knowing what became of them, whilst at other times the plants have been laden with berries for a considerable time. Though the latter are very poisonous, and though the plant contains much, still I do not think that it is so bad as has been lately represented. Insects certainly do attack it, and I have lately been feeding some shell snails (Helix Hortensis) upon the leaves, which they eat greedily without any bad effect. Neither do I think Deadly Nightshade has so much of the poisonous tree of Java about it. I mean that other plants will grow freely beside it. The Belladonna, in general, is found in thickets, where it happens to escape the notice of the labourer, who is sure to destroy it, consequently it is very rare; indeed in some parts of the country it is hardly known. But none need mistake it who has seen the drawing of it in a late number, with its enticing but deadly berries.—*J. Wighton.*

Large Pumpkins.—There has been grown in a garden in the parish of Hoxne, near Eye, three gourds. The first weighed 127 lbs., and measured in circumference 6 feet 2 inches; second weighed 97 lbs., and measured in circumference, 5 feet 8 inches; third weighed 58 lbs., and measured in circumference 5 feet, being the produce of one seed, and, consequently, from one root. The plant grew in the open garden without any particular care in the cultivation. The quality and flavour is much esteemed by the cottagers in the neighbourhood, who consider them, when properly cooked, a light nutritious food, and an appendage to their dietary. The colour of the outside is a beautiful bright orange, and the shape nearly round. — *A Correspondent.* ——An amateur gardener at Earl's Colne, near Halsted, Essex, cut a large yellow Orange Gourd (Potiron jaune) on the 23d ult., of a beautiful form and colour; it weighed 118 lbs., and measured rather upwards of 6 feet in circumference, having been grown upon a perfectly open bed. The soil best suited to the Gourd, Vegetable Marrow, &c., seems to be as follows: one-third road-scrapings, chiefly horse droppings, and two-thirds rich garden mould, with a sprinkling [illegible] soda, well pu[illegible] or common yellow [illegible] mixed together. The large Orange Gourd is used in France when cut young as a vegetable, mashed like Turnips or Potatoes, and is of very delicious flavour.—*R. B. P.*——Two specimens of the above were grown on one plant in the Swansea Nursery, of White and Melville; one measured 7 feet in circumference, and weighed 123 lbs., the other measured 6 feet, and weighed 85 lbs.—*S. W. M* [We cannot spare room for further announcements about Pumpkins; much heavier weights than these have been obtained.]

Foreign Correspondence.

Paris.—The Cercle Generale d'Horticulture has again taken the lead of the Royal Society, by holding an extra show for fruit and Dahlias, at the Grand Gallery of the Luxembourg Palace, on the 25th September and three following days. The exhibition was well attended, considering that Paris, like London, is at this moment half empty. The fruit consisted principally of Grapes, Pears, and Pines; many of the specimens were equal to anything ever produced here. The great fault in Paris, and indeed throughout France, is that societies offer prizes for too much, namely, for the largest collections; on the contrary, were they to define the exact number of fruits or flowers, the collections, although less numerous, would appear to much greater advantage, and be more fairly judged upon their intrinsic merits. At present it is evident that a small collection, however fine, stands no chance against a cart-load of rubbish, and as a consequence very many amateurs are deterred from sending at all. The experimental gardens of the Luxembourg have been long celebrated for a collection of Vines, the most complete and extensive in the kingdom; and on this occasion Mr. Hardy, the chief gardener, exhibited somewhere about one hundred varieties, all of which were grown in the open air. Among them were natives of France, Spain, Portugal, Italy, Greece, Hungary, Persia, Syria, &c., and all, or nearly so, at maturity without any artificial appliances. The berries of some were enormous, especially Damas Blanc, Muscat réal, Malaga, Romanza, Ribier, Ribier de Calabre, Balkin, Gros Guillaume, Cornichon, and Syrian. The Frankaentha' (Black Hamburg) was every nearly if not quite as large as those usually grown under glass in Holland or England. The most handsome specimens were Raisin Prune de Herault, a round black Grape; Pouga de Rolle, larger than Black Hamburgh; Miracle, black, very large bunches; Raisin Prune blanc de Naples, like the Fontainebleau but more yellow; Muscat de Sardaigne, large white; Romanza, much larger than black Hamburgh; Sideritas de Smyrne, large rose colour; Chasselas Napoleon, finer than C. de Fontainebleau; Cabral, a large sea-green coloured kind; and Rosse Panse, a long white. In M. Barbot's collection there were splendid specimens of Gros Guillaume, Gromier de Cantal, Gros Ribier de Maroc, Superbe de Decandolle, Trousseau, Gros Damas, Muscat d'Alexandrie, Chasselas Doré, Frankaenthal, Cornichon, and Chasselas Violet. There was also a large basket of Chasselas de Fontainebleau from M. Berger, of that golden waxy colour for which they are so renowned, and which alone was worth going far to see. M. Dupuy Jamin had a large collection of Pears; among the finest were the following: Passe Tardive, Beurré Gris d'Hiver Nouveau, Bon Angévine, Bon Chretien d'Espagne, Beurré Aurore, Gros Givet, Belle de Berry, Duchesse d'Angoulême, Beurré de Lombardy, Bergamotte de Pentecôte, Saint André, Doyenné d'Estrekemann, Souvenir de Boulogne, Beurré d'Arembourg, Bon Chretien Turc, Napoleon d'Hiver, Bergamotte d'Austrasie, Belle de Flandres, St. François, Calabasse Royale, Bergamotte de Bruxelles, Bon Chretien Napoleon, Catillac, and Leon Leclerc. Messrs. Jamin and Durand exhibited 100 varieties, and among them noble specimens of Duchesse d'Angoulême, Beurré Incomparable, Belle Angévine, Bon Chretien Napoleon, Leon Leclerc, Bon Chretien d'Hiver, Beurré Gris Doré, Colmar d'Arembourg, Catillac, Colmar Van Mons, Belle Alliance, Beurré Bosse, Lemon, Beurré de Sterkmann, Rosaline, Triomphe de Jodoigne, Philippe de Franco, and Josephine. M. Goutier contributed six finely grown Pines.

The Dahlias were divided into five classes, and though not equal to the shows at the Surrey Gardens, were decidedly the finest that have ever been exhibited in Paris; among the seedlings were three or four of first-rate properties, and some fancy kinds, quite new in colour, and far superior to any English ones; the collections comprised all the new English, French, and German varieties. M. Soutêf had Childe Harold, Napoleon, Marchioness of Aylesbury, Athlete, Antagonist, Cleopatra, Duchess of St. Albans, Gloria Mundi, Duchesse de Richelieu, Lady Charleville, Lady St. Maur, Schöne Erfurterin, Princess Royal, &c. M. Salter had Doctor Graham, Erzherzog Stephen, Grosherzog Von Hessen, Fulwood Glory, Johannes Bosse, Captivation, Josephine Erian, La Belle Blonde, Lady Featherstone, Adrienne de Cardoville, Beauty of Hants, Madame Zehler, Madame Dresser, Beauty of South Parade, Captain Warner, Alexandrina, Bohemian Girl, Marchioness of Cornwallis, Queen Mary, Queen of Perpetuals, Miss Prettyman, Princess Radzeville, &c. M. Chevrière sent Cleopatra, Stella, Madame Dresser, Antagonist, Adrienne, Alphonse Kar, Gloria Mundi, Lady Charleville, Josephine, Madame Chauvière, Fairy Queen, Captain Warner, Captivation, Mirabeau, Athlete, Ludwig Marquard, Le Domino Noir, [illegible] Aylesbury, [illegible] M. Dufoy had Captivation, Madame Dresser, Antagonist, Mademoiselle Chariot, Captain Warner, Marchioness of Cornwallis, Roblin, Metropolitan Primrose, Miss Prettyman, Sir E. Antrobus, Queen of Perpetuals, Le Domino Noir, Sarah, Tilly Mimoss, &c. M. Vasseur had a large collection of 600 or 700 flowers, but as many of them were repeated seven or eight times, and the whole quite unworthy of exhibition, it will be useless to particularise them. M. Tollard showed Athlete, Standard of Perfection, Mademoiselle Chariot, Cleopatra, A-la-mode, Madame Chauvière, Harlequin, Cheri Pouffin, Albert, Beauty of Stow, Zeitgeist, Bijou, Cassandra, Ludwig Marquard, Fancy, Lady Antrobus, Madame Von Marc, Antagonist, Triomphe d'Epoudry, Viscount Resigner, Zoe, Nutwith, &c. M. Guyard had some fine flowers of Cleopatra, Standard of Perfection, Orlando, Captivation, Scopa, Sylph, Sir John Richardson, Arethusa, Lady St. Maur, Viscount Ressigner, Bauduin, Beauty of Sussex, La Belle Blonde, Biondetta, Earl of Liverpool, Lady Charleville, Essex Primrose, Marie, Gloria Mundi, Antagonist, &c. Among the seedlings were two or three very pretty fancy varieties, one nearly black, tipped white; another bright yellow, tipped white; and a curious mottled red, striped yellow; but as no names were attached, I am not able to give further particulars. Selfs and margined flowers were abundant; the best were a yellowish fawn colour by M. Roblin, and clear lilac, each by M. Salter. In the whole there were from 20 to 25 exhibitors, and the prizes were awarded as under.

First Silver Medal for Grapes	..	M. Hardy.
Bronze " "	..	M. Barbot.
First Silver Medal for Pears	..	M. Dupuy Jamain.
Bronze " "	..	Messrs. Jamin & Durand.
Silver Medal for Pines	..	M. Goutier.
Bronze do. (general collection)		M. Soutef.
Bronze Medal for Dahlias	..	M. Chauvière.
Silver do. for Dahlias (new varieties)		M. Salter.
Bronze Medal for Dahlias	..	M. Dufoy.
Silver do. for do. (largest collection)		M. Vasseur.
Bronze Medal for Dahlias	..	M. Tollard.
Silver " "	(amateurs)	M. Guyard

Reviews.

Wild Sports and Natural History of the Highlands. From the Journals of CHARLES ST. JOHN, Esq. (Murray's "Home and Colonial Library," Nos. XX. VI. and XXXVII.) Murray.

It is impossible for any one who loves White of Selborne not to include in his affection the author of these entertaining volumes. The manner is the same, the mode of narration the same, there is the same truth and freshness in every picture, and there is, above all things, that accurate delineation which never fails to take the reader captive. Mr St. John is a gentleman in station and manner; while he writes with the confidence of a practised sportsman, he never neglects the exactness of the naturalist, and consequently his Journal is [illegible] of valuable facts, associated with entertaining anecdote and charming descriptions of scenery. We cannot pay the author a higher compliment than by placing him at once, as we have already done, in the same class with White of Selborne.

Like that universal favourite, Mr. St. John eschews hard words. He does not find it necessary to [illegible] in order to be [illegible] he is [illegible] good for his purpose; [illegible] to too much respect for science [illegible] is dressed in the buckram of a pedant. [illegible] is that his example is not more generally followed. [illegible] was but the other day that a very intelligent [illegible] pressed his regret that an attempt should [illegible] made by a modern naturalist to coin [illegible] English terminology for the technical Latin of botany, observing that although it might be desirable to do so for popular purposes, it was not suited to science; that is to say, there must be two languages in Natural History, the scientific and the popular. We have them, no doubt; but *why* should it be so? Of what earthly use is science except to be popular? If any branch of it is of such a nature as to be incapable of assuming a popular form, it is little worth the study, and still less worth bringing before the world. The truth is, naturalists are more than any men the slaves of custom; their prejudices are very deeply rooted, and, we say it advisedly, there is not a few of them whose science consists of little beyond the power of running over a roll of barbarous words. Rumex, Veronica, and Crataegus sound grandly; Dock, Speedwell, and Whitethorn, their equivalents, are but homely. When a man says that he has made a discovery regarding the *foramen* of the *ovule* of the *Rumex Hydrolapathum*, people stare and think him a great philosopher; but if they knew him to mean merely that he had discovered something in the *aperture* of the *young seed* of the common *Water Dock*, they would be better able to judge of the value of his philosophy. Let us not be misunderstood; we do not by any means undervalue the technicalities of science in their proper place and within due limits. On the contrary, they are indispensable; but they are much abused, and needlessly made to perplex plain people, when there is no manner of necessity for it.

We should be unjust, however, to Mr. St. John, if we appeared to rest our opinions of his admirable work merely upon such ground as this. We shall, therefore, produce an extract or two from his pages, by way of

illustrating his excellent style. How true is the following account of the toad!

"For my own part, I can see nothing more disgusting in animals usually called reptiles, such as lizards and toads, than in any other living creatures. A toad is a most useful member of society, and deserves the freedom of all floricultural societies, as well as entire immunity from all the pains and penalties which he undergoes at the hands of the ignorant and vulgar. In hotbeds and hothouses he is extremely useful, and many gardeners take great care of toads in these places, where they do good service by destroying beetles and other insects. In the flower-beds, too, they are of similar use. Of quiet and domestic habits, the toad seldom seems to wander far from his seat or from under a loose stone, or at the foot of a fruit tree or Box-edging. There are several habitués of this species in my garden, whom I always see in their respective places during the middle of the day. In the evening they issue out in search of their prey. I found a toad one day caught by the leg in a horse-hair snare, which had been placed for birds. The animal, notwithstanding the usual placid and phlegmatic demeanour of its race, seemed to be in a perfect fury, struggling and scratching at everything within his reach, apparently much more in anger than fear. Like many other individuals of quiet exterior, toads are liable to great fits of passion and anger, as is seen in the pools during April, when five or six will contend for the good graces of their sultanas with a fury and perinacity that is quite wonderful, fighting and struggling for hours together. And where a road intervenes between two ditches, I have seen the battle carried on even in the dry dust, till the rival toads, in spite of their natural aquatic propensities, became perfectly dry and covered with sand, and in this powdered state will they continue fighting, regardless of the heat, which scorches on their skin, or of passers by, who may tread on them and maim them, but cannot stop their fighting. There is more character and energy in a toad than is supposed. After the young ones have acquired their perfect shape, they appear to leave the water, and frequently the roads and paths are so covered with minute but well-formed toadlings, that it is impossible to put your foot down without crushing some of them."

We scarcely know a more thoroughly natural piece of description than the following, of one of the most charming districts in all Scotland.

"Nothing can exceed the beauty of the river and the surrounding scenery when it suddenly leaves the open and barren ground and plunges at once into the rich and extensive woods of Duncarn and Barcaldine. The woods at Duncarn are particularly picturesque, in consequence of the Fir-trees (at least those near the river), having been left rather farther apart than is usual, and no tree adds more to the beauty of scenery than the Scotch Fir, when it has room to spread out into its natural shape. The purple Heather, too, in these woods forms a rich and soft groundwork to the picture. What spot in the world can excel in beauty the landscape comprising the old Bridge of Dulsie, spanning with its lofty arch the deep black pool, shut in by grey and fantastic rocks, surmounted with the green of Grass sward, with clumps of the ancient Weeping Birches with their gnarled and twisted stems, hanging again by the dark Pine-trees? The rivet here forms a succession of very stack and deep pools, connected with each other by foaming and whirling falls and currents, up which in the fine pure evenings you may see the salmon making curious leaps. I shall never forget the impression the scenery made on me when I first saw it. The bridge of the Dulsie, the dark-coloured river, and the lovely woodlands as I viewed them while stretched on the short green sward above the rocks formed a picture which will never be effaced from my memory. I cannot conceive a more striking *coup d'œil*, nor one more worthy the pencil of an artist. On these rocks are small flocks of long-horned, half-wild goats, whose appearance, with their shaggy hair and long venerable beards, adds much to the wildness of the scene. The blackcock and the roebuck now succeed the grouse and red-deer. The former is frequently to be seen either sitting on the trunk of a fallen Birch-tree or feeding on the Juniper-berries while the beautiful roebuck (the most perfect in its symmetry of all deer), is seen either grazing on some grassy spot at the water's edge, or wading through a shallow part of the river, looking round when half way through as timid and coy as a bathing nymph. When disturbed by the appearance of a passer by, he bounds lightly and easily up the steep bank of the river, and after standing on the summit for a moment or two to make out the extent of the danger, plunges into the dark solitudes of the forest."

Among the many interesting facts with which Mr. St. John's pages abound is the following singular account of the way in which *fish make their nests!*

"One summer day I was amused by watching the singular proceedings of two lampreys in a small ditch of clear running water near my house. They were about six inches in length, and as large round as a pencil. The two little creatures were most busily and anxiously employed in making little triangular heaps of stones, using for the purpose irregularly shaped bits of gravel about the size of a large pea. When they wished to move a larger stone, they helped each other in endeavouring to roll it into the desired situation; occasionally they both left off their labours and appeared to rest for a short time, and then to return to their work with fresh vigour. The object of their building I am not sufficiently learned in the natural history of the lamprey to divine; but I conclude that their work had something to do with the placing of their spawn. I had, however, a good opportunity of watching them, as the water was quite clear and shallow, and they were so intent upon what they were at, that they took no notice whatever of me. I had intended to examine the little heaps of stones which they had made, but going from home the next day put it out of my recollection, and I lost the opportunity. It seems, however, so singular a manœuvre on the part of fish to build up regular little pyramids of gravel, bringing some of the stones from the distance of two feet against the current and rolling them to the place with evident difficulty, that the lampreys must have some good reason which induces them to take this trouble."

Whether or not Mr. St. John was the first to observe this singular operation we do not know; but we find his account of the lamprey paralleled in a very unexpected way by M. Coste's description of the manner in which the stickleback or prickleback prepares its nest, and which he calls the most curious spectacle that it is possible to witness. This writer describes the proceedings of the stickleback to the following effect:—The male is the workman. He picks out with great care a place fit for the purpose, on which he forms a floor or foundation with bits of Grass; and, in order to prevent such light objects from being carried away by the currents, he weights them down with sand, over which he glides continually, till he has plastered together the particles with the natural glue of his skin. That done, he agitates his pectoral fins with his utmost force, so as to test the firmness of his building by exciting rapid artificial currents all round it. Being satisfied on this point, he then proceeds as follows: selecting more solid materials, such as pieces of straw or wood, he arranges them with his mouth on his flooring so as to build up the arch; if he finds that he has placed them badly, he pull them out again, adjusts them better, turns them about, or, if he finds them unmanageable, swims away with them and drops them at a distance. All this time he takes care to glue every particle together as before. As soon as the flooring and walls are up he begins the roof, which is made in the same way, except that he leaves a hole large enough for the female to get in at, and into which he takes care to pop his head very often, in order to see that the sides of the interior are smooth and that the hole is large enough. For the further details of this curious building we have no space. The reader will find it all described in the *Comptes rendus* for May 11, 1846.

Garden Memoranda.

Visit to East Lothian, the seat of the Earl of Wemyss.—This season has proved remarkable for the blooming of exotic trees and shrubs, in a period widely different from those observed in ordinary years. At Gosford house, four magnificent specimens of Yucca gloriosa, or superb Adam's Needle, are now to be seen, in various stages of flowering. One specimen, with a flower-stem nine feet high, exhibits at this time upwards of 600 blossoms. As July and August are the months in which the Yucca generally flowers, it would appear that the late unusual summer heat has forwarded these plants, so as to bring them into bloom at this period instead of the summer of 1847. These noble plants are growing on the grassy bank of the beautiful artificial lake near the mansion-house, forming a striking contrast with the large masses of rich foliage of the shrubberies behind them. The rare Chinese Privet, Ligustrum lucidum floribundum, is here to be seen flowering freely as a standard. The Strawberry-tree (Arbutus Unedo) and the Laurustinus, two of the most ornamental shrubby plants cultivated for flowering at Christmas, are already in full beauty. These, with other rarities, combined with the high keeping of the whole grounds, render Gosford at this season of the year a most attractive spot. The extensive plantations made during the last forty years have produced complete shelter from the sea-breeze; and the mildness of the climate of Gosford is strikingly illustrated by the circumstance of the Sweet Bay (Laurus nobilis, the true Laurel-bay,) being here seen in flower as a standard tree; and the still more remarkable fact of the sweet Spanish Chesnut being now loaded with full-grown fruit, some of the trees not less than 50 feet high. It may be added, that many of the recently introduced Himalayan and Mexican Conifers (among the latter the Pinus apulcensis and Tuocote) are here in a very thriving state, and will soon give a new feature to the landscape.

Miscellaneous.

Beet-root a Substitute for Potatoes.—Beet-root cannot be too much recommended as a cheap substitute for the Potato. Hitherto the red has only been used in England as a pickle, or as a garnish for salad; even the few who dress it generally boil it, by which process the rich saccharine juice is in a great measure lost, and the root consequently rendered less nutritious by the quantity of water which it imbibes, as well as by parting with the native syrup of which it is thus forcibly deprived; it is, therefore, strongly recommended to bake instead of boiling them, when they will be found to afford a delicious and wholesome food. This is not an untried novelty, for both red and white Beet-root are extensively used on the Continent; in Italy especially, they are carried about hot from the oven twice a day, and sold in the streets, giving to thousands, with bread, salt, pepper and butter, a satisfactory meal. There are few purposes, for which baked or even roasted, or fried Beetroot would not be found preferable to boiled. If these roots were so universally cultivated in England for human food as they are on the Continent, and baked and sold as cheap, as they might easily be, many a poor person would have a hearty and good meal who is now often obliged to go without one.—*Torquay Directory.*

Superphosphate of Lime.—When a small portion of superphosphate of lime is mixed with seeds when sown, in sufficient quantity to give them the appearance of being limed over, the seeds germinate quicker and stronger, more especially in the case of old seeds; and it is also found that the plants are less liable to damp off, or be injured by insects.—*Journal of Horticultural Society.*

Calendar of Operations.

(For the ensuing Week.)

Planting Evergreens.—After all that has been said about spring planting of evergreens, or even midwinter, I am persuaded that no part of the year can equal the autumn—say from the middle of October until the end of November. I have moved hundreds of large Evergreens, at all periods within the last 20 years, and I have invariably realised the greatest amount of success by autumn planting. Much, however, depends on the character of the soil, as well as on the mode in which the operation is conducted. Some persons advocate "puddle planting;" but on what principles I never could discover. Why not "puddle potting?" Certainly it is better to puddle a large specimen than to totally neglect it in regard to moisture. My practice is this:—To open a hole much larger than the ball of earth or volume of roots about to be introduced, taking care not to make the hole any deeper in general than the surface-soil extends; then to saturate the subsoil with water, and next to pulverise the soil thoroughly intended for filling in round the roots. After this is completed, I invariably rake together a body of tree-leaves (if at hand), weeds, sticks, &c., and throw three or four inches (sometimes a foot), in the bottom of the hole, to set the ball or roots on, putting little or no soil beneath the tree. The tree being carefully removed—not a fibre suffered to dry if possible during the operation—is placed on the leaves, and the process of filling up commences. I invariably mix decayed vegetable matter with the common soil; this is sometimes obtained on the spot by raking or paring the surface of the ground contiguous. The soil being in a mellow state, is slightly trod as the filling proceeds; and when filled level with the ball or rather above it, the whole receives a thorough watering, using several cans of water at slight intervals. The next business, and a most important affair, is to thoroughly stake the tree to prevent wind-waving. When this is completed, a thick mulching of half-rotten manure or leaves will finish the process. Such trees should have one thorough soaking of water in the early part of April; afterwards they may be safely left to themselves.

CONSERVATORIES, STOVE, &c.

Conservatory.—The climbers here, at least some of the most rambling, will now want a smart dressing where they obstruct the light in any material degree. Such as flower on the young wood, and which are now in a ripening state, or approaching a state of rest, may be pruned in exceedingly close. Such as the late-blooming Passifloras, the Combretums, Echites, Ipomœas, Stephanotis, Thunbergias, Pergularias, Mandevillas, &c. &c., which are still thriving, must be regulated with a more gentle hand; cutting away merely barren shoots, and drawing the remainder into somewhat closer festoons, in order to throw sun-light into the interior of the house. *Stove and Orchids.*—A somewhat warm temperature may still be maintained in the stove, in order to consolidate as much as possible immature growths. When this is accomplished, there will be less necessity for strong fire-heat in the dead of winter. Orchids as in last Calendar. *Mixed Greenhouse.*—Some skill will be necessary here, at this period especially; there will be so many candidates for admission that confusion and, consequently, failures will be inevitable, unless some things be discarded or removed to a cold pit, or plant hospital. Better grow a few things well than many badly. Let winter stuff have every attention.

KITCHEN GARDEN FORCING.

See that the linings of Pines grown in dung-pits are kept in good repair. A sudden drop in temperature, at this period, when the summer's growth is scarcely solidified, will be very prejudicial. *Vines.*—Now begins the conflict in many gardens between the desire to preserve the late Grapes as long as possible, and the attempt to house a great many plants. The compromise required of a gardener in this respect is of a most painful nature, and cannot be carried out without a sacrifice on one side or both. No pots, with the exception of rest bulbs or Cacti, should ever be allowed to stand in a house of late Grapes, after the end of September. In such a case a very small amount of firing will suffice; whilst, where plants are crammed in such houses, the consequence is that much watering, and a considerable amount of fire-heat is necessary, in order to expel the great accumulation of moisture. *Early Vinery.*—As a preparatory step, I would advise the borders to be covered forthwith with at least a foot of dry litter, or any other light and porous body, to prevent the escape of warmth. "Lock the door before the steed is gone." In cases of early forcing, where the roots are inside, the borders hitherto kept dry on rest principles, may have a thorough watering with clear manure-water. Take every care of autumn Cucumbers; if in boxes, let them

be stopped and top-dressed when necessary; also give them regular waterings with tepid and clear liquid manure. See to Kidney Beans in pots. Mushroom-beds next week.

FLOWER-GARDEN AND SHRUBBERIES.

Choice things in the parterre can no longer be depended on as to display; it is therefore desirable at this period to look over the masses and beds, and see if there be any choice article of a tender character which it is desirable to secure for next year; such may be potted with balls, and wintered in the cold pit. Alterations may be proceeded with, planting, turf laying, edging, &c.

FLORISTS' FLOWERS.

The time is now arrived when all Tulip beds ought to be properly arranged for planting, so that the bulbs may be got into the ground not later than the last week in October. Some means also should be adopted to shelter the bed or beds from heavy rain, as it is extremely prejudicial to the bulbs before they have begun to appear above ground, and in fact excess of moisture ought at all times to be avoided. Attention ought also to be given to those bulbs whose spike has elongated, aphis or green fly being apt to attack them, which should be carefully brushed off. *Carnations and Picotees.*—In obtaining new varieties the best plan is to have them immediately, better plants will generally be obtained now than in the spring, and they will have time to establish themselves before winter, which is highly necessary, if they are to be kept in a state of health till next spring. *Auriculas.*—Mind that the frames in which these are to be wintered have a proper pitch, and that all the glass is sound, so that the plants may not be subject to drip, which will infallibly ruin them. Free circulation of air should at all times be promoted, and when properly managed few flowers are more hardy than the Auricula. *Pink and Pansy* beds, we presume, are already planted; some of the plants of both are occasionally "long on the leg," such should be supported with small sticks, or they are apt to be broken over by the wind.

KITCHEN GARDEN AND ORCHARD.

At this period let every inch of spare ground, if time permit, be trenched into sharp ridges; spare ground, however, to any extent, under the circumstances of the Potato murrain, will deserve the name of bad gardening. Let a stock of herbs be potted for forcing in winter, such as Sweet Marjoram, Mint, Sorrel, Tarragon, &c. Early-ripened Seakale for forcing, in dung beds or the Mushroom-house, may be trenched up with every root entire, and heeled in the compost ground, in order to be drawn out successively as wanted. Let a good breadth of Cabbage plants be pricked out at once on rather poor ground; they will all be wanted in spring House a good breadth of half-blanched stout Endive plants in every spare frame; also stout half-blanched Cos and Cabbage Lettuces. Gather Tomatoes as soon as they begin to colour, and complete their ripening process in-doors, in a good dry heat. Examine Onions in store, and give occasional ventilation to the fruit-room, shutting up as dry as possible. Gather all remaining Pears and Apples forthwith; if unripe, they will receive no benefit out of doors after this period. Attend to the remarks in last Calendar, as to the removal of fruit-trees.

COTTAGERS' GARDENS.

The Carrots, Parsnips, Beet-root, &c., will soon require to be taken up for winter storing. I would advise cottagers to begin betimes cutting or mowing off the tops daily, and feeding the cow or pigs with them; they may thus be worked up to advantage. Where time permits, and where land is in good working condition, and labour and manure can be spared, I advise what I have often practised, viz., manuring for the next crop on the crown of the roots, and trenching them out, leaving the land in ridges for the winter. Carrots and Parsnips, if grown in beds, may, however, be cut close down, and soiled over about 4 inches deep; they will keep well in this way, as I have proved, and may be taken up as wanted. Look to the section "Kitchen Garden and Orchard."

FORESTING.

Those who desire to plant Holly hedges will do well to prepare the ground forthwith. They make an invaluable fence, but the ground requires more preparation than for quicksets. It must be well trenched of course; and if of a poor or gravelly nature, may be improved by mellow ditchings, furrowings, and peat or any old black vegetable matter. Great care should be exercised in removing the plants; not a fibre should be allowed to get dry. I have seen some good folks in this part planting them after travelling for hours on the top of a cart, tied up like besoms; in fact after the manner of quicksets, The young hedge is full of blanks subsequently, and the country folks console themselves with the idea that the soil is unsuitable. The Holly is partial to a fat loam also, if friable. Clays, however, would require a considerable amount of sand or loose soil as well as black vegetable matter.

State of the Weather near London, for the week ending Oct. 15, 1846, as observed at the Horticultural Gardens, Chiswick.

Oct.	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max	Thermometer. Min.	Thermometer. Mean.	Wind.	Rain
Frid. 9	16	29.650	29.490	62	52	57.0	S. W.	.20
Sat. 10	19	29.785	29.447	63	46	54.5	S. W.	.12
Sun. 11	20	29.743	29.502	65	50	51.0	S.E.	.56
Mon 12	(	29.531	29.405	59	45	52.0	S. W.	.07
Tues. 13	22	29.689	29.393	54	36	45.0	N.	.01
Wed. 14	23	29.501	28.992	58	45	50.5	S.	.80
Thurs. 15	24	29.081	28.984	56	42	49.0	S.	.69
Average		29.566	29.301	59.0	44.6	51.3		1.85

Oct. 9—Rain; densely overcast and windy at night.
10—Hoderate rain; partially overcast
11—Fine; rain; constant rain at night
12—Slight fog; heavy and damp; foggy
13—Boisterous, with slight rain; clear and cold at night
14—Densely overcast; rain; overcast
15—Rain: very heavy rain in forenoon; fine; rain at night.
Mean temperature of the week 3 deg. below the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Oct. 24, 1846.

Oct.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds.						
						N.	N.E.	E.	S.E.	S.	S.W.	W.
Sun. 18	62.8	38.5	50.6	9	0.49 in.	—	2	1	1	2	4	7
Mon. 19	58.7	39.3	49.0	7	0.14	—	1	2	2	1	6	4
Tues 20	60.4	39.5	49.9	8	0.15	1	2	—	2	4	4	1
Wed 21	60.1	38.9	49.5	6	0.64	1	2	1	2	4	3	—
Thur 22	61.6	38.8	51.7	14	0.80	—	—	3	1	3	4	9
Fri. 23	61.2	37.7	49.5	13	0.49	2	1	—	2	4	6	1
Sat. 24	60.3	36.1	48.2	8	0.89	1	1	1	—	7	4	3

The highest temperature during the above period occurred on the 21st, 1826—therm. 72°; and the lowest on the 21st, 1842—therm. 30°.

Notices to Correspondents.

POST-OFFICE ORDERS—In order to obviate the inconveniences which are now constantly being experienced by parties who wish to remit small sums to the office of the GARDENERS' CHRONICLE for Advertising we have to request that all Post-office orders may in future be addressed to Mr. JAMES MATTHEWS, 5, Upper Wellington-street, Covent-Garden, and made payable at the Post-office, 180, Strand, London. Post-office orders, remitted by subscribers for the Paper, should be sent to the respective Agents who supply them.

The *Fourth* Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each copy. An index has been added. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 25 for 5*s.*

BOOKS—*R T*—It is in preparation, that is all we can say. To be done well it must be a long and troublesome operation. It will be in the form of "School Botany."——*H M*—"Roberts on the Vine," except that he makes his borders much too animalized.——*One of the Old School*—We know of no such books. Mr. Ayres formerly gave some useful directions in our columns.

FRUIT-TREES—*J N, Bolton le Moors*—In proceeding to plant an orchard of Apple and Pear-trees you ought to well drain, trench, lime, and manure the soil. Let the bottom of the trenches have a regular slope towards clear drainage. Plant in November, on slightly raised mounds. The following varieties are considered suitable for your climate:—*Apples*: dessert; Cockle Pippin, Court of Wick, Early Harvest, Hughes's Golden Pippin, Kerry Pippin, Margil, Braddick's Nonpareil, Scarlet Nonpareil, Claygate Pearmain, Pearson's Plate, Boston Russet, Wormsley Pippin, Sturmer Pippin. *Kitchen Apples*: Bedfordshire Foundling, Hawthornden, Keswick Codlin, Dumelow's Seedling, Lucombe's Seedling Rymer, Northern Greening, Yorkshire Greening, Waltham Abbey Seedling, Tower of Glamnis, Beauty of Kent. *Pears*: Beurré Bosc, Fondonte d'Automne, Glout Morceau, Broom Park, Knight's Monarch, Althorp Crassane, Hacon's Incomparable, Louise Bonne, of Jersey, Comte de Lamy, Eyewood, Flemish Beauty, Winter Nelis, Ne Plus Meuris, Suffolk Thorn, Thompson's Seckel, Aston Town.‖

FRUIT-TREE BORDERS—*H C* Under the circumstances, you cannot do better than as you propose. If you could add 6 inches of fresh soil to the present depth of the border, it would be better not to disturb the clay underneath any more than would be necessary to form a slope to the front drain. When the ground is made good under a walk, roots generally do well in it.‖

FUCHSIAS—*A Constant Reader*—Procure the following sorts:—Dr. Jephson, Kentish Bride, Venusta, Cassandra, Lady Walsingham, and Lowryll.*

GLAZING—*A B*—We have little experience of edge to edge glazing, and that is not favourable: the edges chip when frozen. There is no good work on the subject; if there were we should not occupy so much space ourselves with such details. Hood's book on "Warming and Ventilating" may be consulted advantageously for principles. Grow Queen Pines for a general crop, and get them into your house in May if you can. No house should have a fireplace within it, unless it is a mere greenhouse, from which frost is to be excluded occasionally only.

GRAPES—*H C D*—There is no white Grape larger, earlier, and better-flavoured than the Sweetwater; and, therefore, it may be considered the best white Grape for early exhibitions.‖

GREENHOUSE PLANTS—*L*—The following are sweet scented:—Aloysia citriodora, Daphne odora, Jasminum grandiflorum, Luculia gratissima, Heliotrope, common Orange, of which the Brigadier multiflora is one of the best, and Mandevilla suaveolens. The latter is a climber.†

HEATING—*H D*—Mr. Meek will tell you all about temperature hereafter: never fear.——*A B*—Paxton is right.

INDIAN CORN—*D W L*—There is nothing extraordinary in the stature of your Indian corn. So hot a summer has suited the coarse-growing sorts.

INDIAN CORN FLOUR is no doubt to be had of the bakers in any large town.

INSECTS—We wish correspondents would do us the favour to date their letters, and to name the place where any fact has occurred. Such trifling additions would make their data more useful to *Farmers*.——*W T*—Cannot you pour some turpentine into the nest, and stop it up? If not, you must wait till the hornets hibernate, and then take their habitation. *R.*——*T A*—You may be right in your conjecture, yet it seems probable that a few specimens come over from the Continent, and in favourable seasons multiply. Vide Curtis's "Brit. Ent.," fol. and pl. 96. *R.*——*R W*—The Asparagus beetle, Crioceris asparagi, is confined to that plant. It is often abundant upon it, but does not occasion any serious mischief in the autumn. Its history you will find in the 5th vol. of the *Gardeners' Chronicle*, p. 592. *R.*——*E O*—Thanks for your specimens, &c., of Hylurgus pinipardo. We will shortly make this beetle the subject of an essay. In the meanwhile you will find its history in fol. 104. *R.*——*G T, Dover-street*—It is the Ptinus serpens. Have the goodness to send some specimens to Mr. Curtis, at Hayes, Middlesex, and state any further particulars you may recollect. It is closely allied to an Egyptian beetle. *R.*——*D B*—It is the Thrips Adonidum, which we fear cannot be extirpated, as it resists very great heat. *R.*——*Nerium*—Your plant wants cleansing with soap and water. The upper sides of the leaves are covered with soot apparently, and the undersides with a female coccus. If you use turpentine, it will destroy the leaves. We have never tried the solution you allude to. *R.*——*A B*—They are mites which always generate in the refuse of stacks and barns. There is no preventing their introduction. *R.*

LENTILS—*J R A*—These are the seeds of different species of Ervum. They are from the south of Europe, require warm land, and may be procured from the great London seedsmen. In appearance they resemble Tares.

NAMES OF FRUIT—*T M*—Apples, Nos. 1, 2, and 3 are all the Blenheim Pippin, which the cottager has grown remarkably well.‖

NAMES OF PLANTS—*Derby*—Asclepias curassavica, Polypodium aureum, Pteris longifolia, all very common things.——*J M Stansfield*—Illfrenaria vitellina.——*C F W*—We are obliged to decline naming plants unconnected with horticulture. What you have sent are not plants at all. Apply to the Secretary of the Ray Society, 22, Old Burlington-street.——*Burlington Gardens*—The leaf from China is unknown to us. It appears to belong to some Hibiscus or an allied genus; but in the absence of flowers cannot be identified.——*J M*—Ferraria antherosa.——*A Young Beginner*—1, Hæmanthus coccineus; 2, Teucrium fruticans; 3, some sort of Flax.——*J T C*—If you wish for correct names you should send examinable specimens, not small morsels of things which are easily mistaken for each other. In future we will beg you to name your own plants.

PHASIANUS COLCHICUS—*Minkiewell*—A thousand thanks. Mind, it is the *white* Or. longifolium.

PEARS—*J E M*—The Flemish Beauty should be gathered in the beginning of September; and, as a general rule, all early autumn Pears should be taken as soon as their seeds begin to acquire a brown tinge. Winter Pears, and particularly Glout Morceau, should be allowed to hang as long as they can be left with safety, or till they part from the spur by merely raising the fruit to a horizontal position. All varieties that are disposed to turn mealy should be taken off before they part so easily as is indicated by the above criterion.‖

POTATOES—*No Glass Dealer*—Chemists have already done all that you suggest, and more; their results have been published, some in our own columns, and they throw no light on the subject. The Horticultural Society and others have made all sorts of experiments, and the result has been or will be published. Some of your suggestions are—forgive us the word—Utopian.——*J N*—If planted in autumn 8 inches deep, there is little danger of the sets being injured by frost.‖

PRUNING—*Delta*—The advantages from pruning the Peach-tree in autumn, as recommended in an article at p. 20 of last year's volume, have been fully proved. Autumn pruning strengthens the buds left. Spring prunings impair the vigour of the whole tree. Therefore some say that when trees are over-luxuriant, spring pruning is advantageous; but the vigour of the tree can be far better regulated, and with greater safety, by summer pruning.‖

SIMMONS' HYGROMETER—We agree with you that Mr. S., in justice to his customers, should send out with his instrument directions for its use. Hang it in the shade towards the back wall; in a greenhouse keep it at 50° in winter, and from 30° to 40° in summer. A stove requires it to stand from 10° to 20°.

SPANISH CHESNUTS—*J P*—These are best preserved by being barrelled up in sand after having been well dried in the sun. In the Chesnut countries they are often kiln-dried.—Many very fine specimens of Yucca gloriosa have been brought into flower by this glorious summer.

TEMPERATURE—*L*—The temperature given in our weekly tables is obtained by the indications of self-registering thermometers, one giving the highest temperature during the day in the shade, and the other the lowest in the night.‖

TULIP BEDS—*C N R*—Dig your bed of 30 rows over, and sprinkle half a peck of lime on it; then fork it well in; allow it to remain till next morning, when the bed may be ridged up. Plant in about a fortnight afterwards. *W.*

VINERY—*A Constant Sub*—In a span-roofed house, 60 feet long, the south side glazed, the north wood and asphalte, Vines will not do well under the latter. Better glaze the north span; but depend upon it you would do better still were you to add another 60 feet to the length, and so form 120 feet of roof facing the south, instead of employing the same quantity of glass for a house half the length with a double aspect; and the more especially as it is intended for early forcing. An inside border is advantageous for early forcing. Various compartments can rarely be properly kept at different temperatures from the same fire with economy.‖

VINE BORDER—*J E*—Good turfy loam and dung with some peat, 2½ feet deep. It will be better for the Vines if no other plants are allowed to root in the border.‖

WOODLICE—*S A*—A toad or two kept in your frame will thin their numbers; and quantities may be killed by pouring boiling water along the sides of the pit, if that can be conveniently done. A trap may also be formed by placing two tiles or boards over each other, between which they crawl as morning approaches to conceal themselves. Tiles laid over Cabbage leaves form good traps.†

MISC.—*J G P*—An advertisement will cost from 1*s.* to 5*s.* dependent on the length. It is, perhaps, the best course you can take.——*J T*—Canna indica will live two or more years if kept dry and free from frost in winter. Under good management Salvia patens will flower the first year.——*Cognatus*—The Horseradish often becomes Fern-leaved more or less. The Violet has not produced its fruit without flowers; but the fruit comes from flowers without petals, a common occurrence in this genus. As to the leaves, we presume their stalks *must* have been punctured by an insect, though not used for purposes of nidification.——*A St Quentin*—Syon House, Cuthill's Black Spine and Emperor Cucumbers, and Emperor and Beechwood Melons; the former is green fleshed, the latter scarlet fleshed. Your other questions next week.‡——*T B, Hornsey*—The manner of constructing Rivers' brick Arnott stoves has been fully given at p. 51 of the present year's volume, where there is also a plan.‡——*A Bird*—The Patent *Protoxide Paint* is probably what you allude to. It was advertised 10th Oct.

SEEDLING FLOWERS.

ANTIRRHINUMS—*J G S*—Neither of your seedlings are at all uncommon.*

DAHLIAS—*J H S, S S*—It is impossible to judge of the qualities of a Dahlia from two or three petals sent in a letter pressed quite flat and discoloured, and the season is too advanced to judge with certainty even from the flowers. Compare the crown of your flower with that of Proctor's Nonpareil; if it will stand the test, you are safe in that particular point.*——*S H*—We cannot give a satisfactory opinion upon your flower, the season is past; it showed a large yellow disk before any of the back petals fell.*

FUCHSIAS—*C A R*—Of your seedlings we prefer No. 2, though deficient in contrast of colour; it is deep and rich in this quality, and the flower is well formed. 1 and 3 are repetitions of varieties already generally cultivated.*——*J W*—Your seedlings generally fall short in the properties looked for in the present day, more especially in form and colour. The best in the collection is No. 3.*——*F B Deal*—Dividing your collection into dark and light kinds, we cannot discover in the former division any novelty or improvement upon the flowers already out. No. 3 is the best, but the sepals of this variety do not expand sufficiently. Among the lighter sorts, No. 1 is to be preferred for its colour, the contrast being very striking, though in form it is rather deficient; 9 is uncommon and pleasing in colour; 4 is very similar, but possessing a lighter tube; 8 is good in colour, but the sepals cling too closely to the corolla; 10 is a slight improvement upon it. Among those having bright vermilion corollas, 16 is decidedly the best.*——*G R*—Our opinion is unaltered regarding 1 and 2. No. 3 is inferior to many varieties we have seen this season.*——*S E*—Your seedling is a large and stout variety, a little coarse in the sepals, and not superior to many of the old sorts.

PETUNIAS—*J T P*—The specimens Nos. 2 and 4 are particularly rich and superior in colour, possessing also a fine velvety surface; these are unusually fine. 1 and 3 are not uncommon.*——*S E*—No. 7 is a pretty variety, but not uncommon.*

VERBENAS—*W*—Your seedling appears to be a very good flower, but not novel in colour; if a dwarf grower it will be desirable.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those correspondents, the insertion of whose contributions is still delayed.

NEW INVENTION FOR DIBBLING WHEAT.

Registered in pursuance of the Designs' Copyright Amendment Acts, 6 & 7 Vic., c. 65, No. 469.

DINGLE'S HAND DIBBLING MACHINE,

FOR DEPOSITING ALL KINDS OF SEED.

This Machine is confidently recommended by the Proprietors, which will at the same moment make the Hole, and deliver the exact quantity of Seed, with extreme regularity. It is simple in its construction, and not liable to get out of order.

THE DIBBLING POINT IS SO CONSTRUCTED THAT THE SOIL CANNOT CHOKE IT.

*** *The cups are of various sizes for discharging either Wheat, Mangold Wurzel, Barley, Beans, Peas, Vetches, &c.*

Single .. .. Price 40*s.* each.
Double .. .. „ 4*l.* 10*s.* „

Testimonials and Circulars, giving descriptions of its working, &c. can be had on application to

WILLIAM E. RENDLE and Co., Merchants.

☞ THE TRADE SUPPLIED.

Plymouth, Oct. 17.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
WM. JOSEPH MYERS AND CO., LIVERPOOL;
And by their Agents,
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL;
COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

The Agricultural Gazette.

SATURDAY, OCTOBER 17, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
THURSDAY, Oct. 22—Agricultural Imp. Soc. of Ireland.
THURSDAY, — 31—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.
Trafalgar—Ross—North Staffordshire.

FARMERS' CLUBS.
Oct. 19—Botley
20—Newton
Oct. 29—Wingerworth — Ottery St Mary—Bolsover
— 30—Debenham.

It is obviously of importance in any art or profession for those engaged in it to know the principles on which their practice is founded. Just consider two or three instances:—How could the physician deal with the ever-varying symptoms of disease if he were unable to regulate his practice in accordance with the well-known facts and *principles* which the chemist and the anatomist have established? Without such guides, his treatment of the different cases he meets with must be mere guess-work and quackery. Or, how could the lawyer attempt the settlement of differences or the administration of justice, if (to guide him out of the confusion which often surrounds him), he had no common law to fall back upon—no *principles* of justice which have gradually arisen out of past decisions. And then, again, look at the case of the chemical manufacturer, who, out of various substances—salt and lime, and oil and sulphur, nitre and charcoal, makes soap and soda, sulphuric and muriatic acids, &c. *He* is so convinced of the value to him of an acquaintance with the *principles* of his art, that at great expense he engages the highest scientific ability he can procure to superintend his processes and devise new ones. And it is unquestionable that in the case of the agriculturist also a knowledge of the theory of his art is most important. It would be of real money value to him to understand the *nature* of his operations—to know why their results are so variable—to learn the conditions under which they shall be most productive. They are, as everybody knows, carried on under a great variety of circumstances—on a great variety of soils—under a great variety of season and climate. How important, then, for the farmer to be familiar with the *principles* which amidst all this variety remain the same; and which, whatever be the circumstances, and whether he knows it or not, have always and in every instance, been the cause of success in practice!

Now, between the last-mentioned professions—those of the chemical manufacturer and of the farmer—there exists very considerable similarity. Indeed, almost any definition of the one if expressed in sufficiently general terms, will answer for the other. Both are among the many arts whose main object is the acquisition of profit—the exhibition of a good balance-sheet at the end of the year; and *that* in further tracing their resemblance is an important thing to remember. Both are arts in which certain substances by subjection to certain processes are converted into certain other substances: their elements under the influences brought to bear upon them are made to rearrange themselves in other combinations, assuming different forms and more useful properties. In the one—to take a few cases—nitre and sulphur and the oxygen of the air acting on one another are made to produce sulphuric acid; common salt and sulphuric acid, lime and charcoal, acting on one another, are made to produce muriatic acid and the soda of our shops; muriatic acid, manganese, and lime are together concerned in the manufacture of a bleaching powder, and so on. In the other—*Agriculture*—elements and compounds, which are naturally present in the air and in the soil, together with other bodies added by the farmer, are, by his agency, brought to act upon one another, so that certain substances are produced—substances which are not the less truly chemical or the results of chemical process, because we do not give them scientific names—Wheat, for instance, Barley, Oats, Grass, Beans, Peas, Turnips, Mangold Wurzel, Carrots, &c. And then, again, some of these, both grain and green crops, with the assistance of the air of the atmosphere, are afterwards concerned in the manufacture of beef, mutton, pork, milk, and wool; and the processes which result in *these* products are not the less truly *chemical* processes because, in order to carry them on, the farmer employs certain self-acting machines, his cattle, sheep, and pigs.

We have compared the profession of the chemical manufacturer with that of the farmer thus minutely, because we do not know any better method of illustrating the important connection existing between an acquaintance with theory and success in practice. The farmer, whether he admits it or not, is truly a chemical manufacturer; he may talk of his ploughing, harrowing, sowing, cultivating, but the real agent at the bottom of all is the law of chemical affinity which regulates the combination of the different substances that are, by means of these operations, brought to act upon one another, and which out of earth, air, and manure, thus produces food for man and for beast.

It is a true resemblance which exists between these two professions. The fact of Life being an agent in the one case and not in the other—that in farming we deal with living plants and animals, not with inert matter, does not spoil this resemblance. Life in the one case is but as the steam-engine in the other—the source of power which fetches and carries and lifts and mixes. The laws of chemical affinity prevail in the tissues of a living plant or animal just as they do in the coppers and retorts of a chemical manufactory.

The *comparison* between the two professions is therefore just as well as instructive; and now let us see if we cannot learn as much from their *contrast*.

Just consider—

In the one you have an art, whose processes are all conducted with the greatest nicety, away from the influence of any disturbing cause—whose materials of known composition are weighed with accuracy and mixed in right proportions—whose agents are applied just in the right degree at the proper time and place; its furnaces may be reduced in intensity, or heated at will, one seven-times hotter: in fact all the details of an apparently perfect practice seem to be entirely under control.

In farming, on the other hand, you have an art of all others the most at the mercy of unmanageable elements—one whose processes are exposed to wind and weather, to the variable action of storm and calm, of rain and sunshine, heat and cold—one on the practice of which there exists the most extraordinary difference of opinion among its professors.

Surely if in the former case, where practice seems already perfect, a knowledge of the theory of the art be deemed advisable, it must be doubly so in the latter.

The manufacturing chemist has no need to determine for himself which among many methods is the most advisable to follow; there are but few differences of opinion in the body to which he belongs, like there are among farmers, as to the practical details of his art; he does not need scientific assistance to keep his processes uninjured by disturbing causes; he has no difficulty in selecting his materials, and determining their composition; his instruments and machines are constructed to do their work with perfect accuracy.

Contrast all this with the position of the farmer. Consider his variable soil—his changeable climate—his clumsy implements—his uncertain materials, and his practice various to an inexplicable degree. Well! notwithstanding the high advantages and great superiority of the circumstances in which the former is placed, he finds it to be his interest to maintain a close, and though an expensive, he finds it a profitable connection with the science, *i. e.* the principles of his art; *the latter*, notwithstanding his need of all possible assistance, has hitherto made but little use of anything but the limited observations of which his ordinary practice affords the field. The farmer, obviously requiring the assistance it might afford him, neglects the theory of his art; the manufacturing chemist though apparently already perfect, anxiously studies it and endeavours to apply it. The one most requiring assistance is, for the most part, regardless of it though offered to him; the other hardly requiring it at all is at great pains and expense to obtain it. We think—and our readers will, doubtless, agree with us—that this anomaly cannot last much longer; that as more general intelligence prevails, Agriculture will be found vieing with our *other* chemical manufactures in her efforts to apply the information which chemists have collected.

AGREEMENT BETWEEN A LANDLORD AND HIS YEARLY TENANT.

MEMORANDUM OF AGREEMENT, had, made, and concluded, this day of , in the year of our Lord , between A. B. of &c., of the one part, and C. D. of &c., of the other part.

The said A. B. agrees to let, and the said C. D. agrees to take and rent all that messuage, farm, and premises, called situate in the parish of , and now in the occupation of , consisting of a messuage or tenement, with the several closes or parcels of meadow, arable, and pasture land thereunto belonging, as specified in the schedule hereunto annexed, containing together by estimation acres, be the same more or less. Except and always reserved unto the said A. B., his heirs or assigns, all timber and other trees, with the tops and lops thereof now growing, or to grow upon the said premises; and also all mines, minerals, and other things under the soil thereof, with full and free liberty for the said A. B., his heirs or assigns, and his or their servants, to enter upon the said premises, to cut down and take away any timber or other trees, to dig and carry away minerals and other things, and to inspect the state of repairs; and also liberty for the said A. B., his heirs or assigns, and his or their companions, gamekeepers and servants, at all reasonable times, to enter into and upon the said premises, to hunt, shoot, fish, and fowl, over and upon the same. TO HAVE AND TO HOLD (except as aforesaid) the said premises, and the said arable and pasture lands, for the term of one year, from the 29th day of September next, and so on afterwards from year to year, so long as the said parties shall mutually agree, and until legal notice shall be given by either party to determine the same; yielding and paying to the said A. B., his executors or assigns, or his or their agent, the yearly rent or sum of pounds of lawful money of Great Britain, by two equal half-yearly payments at Lady-day and Michaelmas respectively, the first payment to be at Michaelmas next; and the further rent of pounds for every acre of the said premises that shall be let to any under tenant without leave in writing from the said A. B. or his steward for the time being; also the further rent of pounds for every acre of the aforesaid natural meadow or pasture land, which without the written consent of A. B. or his steward, he shall suffer to be broken up. And the said C. D. agrees to crop and cultivate the land according to a good and approved system of husbandry; to wit, he will not take more than one seed producing crop without an intervening fallow or green crop. Wheat, Barley, Oats, Rye, Peas, Beans, Clover (seeded), Vetches (seeded), and other crops allowed to mature their seeds, to be considered seed producing crops, and Turnips, Cole, Potatoes, Clover (not seeded), Vetches (not seeded), and other root and forage plants, whether dried as hay or in any other form, if not suffered to mature their seeds, to be considered green or fallow crops. And the said C. D. will yearly and every year, in a husbandlike manner, consume upon the said land and premises all the roots and green food, hay, &c., the produce of the green and fallow crops aforesaid; and also all the straw and haulm, &c., the produce of the corn or seed producing crops aforesaid, and he will each year apply to and upon the said lands all the manure thus yearly produced. The said C. D. also agrees to pay the several rents as they shall respectively become due, and to pay all taxes (except landlord's property tax and land tax), also to insure the said premises and buildings against loss by fire in some trustworthy insurance office; and also to keep the said buildings, with all walls, gates, stiles, and fences, in good and sufficient tenantable condition and repair, being allowed materials in the rough sufficient for that purpose.

[The form and most of the substance of the remainder is by Barugh Almack, as published by him in the "English Agricultural Journal."] And the said A. B. and C. D. hereby mutually agree that if any dispute shall arise between them, their executors, and administrators upon the said C. D. quitting the farm, or upon the state of cultivation or condition thereof, such dispute shall be settled by two referees, one named by each party or their umpire, and in case one party refuse to

nominate a referee within ten days after notice has been given in writing by the other party, the referee of the other party alone may make a final decision. If two referees are appointed, they are to nominate an umpire before proceeding to business, and the decision of such referees or umpire, as the case may be, shall be final.

Witness the hands of the parties. A. B. C. D.

Memorandum.—In order to encourage the tenant to cultivate the farm in the highest possible manner, the said A. B. hereby engages on behalf of himself and his representatives, owners of the farm let to the said C. D., *on condition* of the foregoing covenants having been fulfilled and kept by the said C. D., his executors or administrators, that in case of the death or incapacity of the said C. D., or of his having received notice to quit the said farm, and quitted it agreeably to and in consequence of that notice, the said A. B., or the incoming tenant, will allow to the said C. D., or his executors, administrators, or assigns, for such improvements made on the said farm subsequent to the date of this memorandum, and within the stated periods, before quitting, as are contained in the following list, and are marked and enumerated with the figures, that is to say, so much of the amount of such expense as shall be in the given proportion in each case to such a number of years as the said C. D, his executors, administrators, and assigns, shall fall short in the occupancy of the said farm after incurring such expense: *it being expressly stipulated that the tenant is to give an account each year* of such outlay as he proposes to make in matters of *durable* improvement, in order to obtain the owner's sanction to the proposed expense, *such sanction being necessary in order to claim or be entitled to any allowance* from him, and shall also render an account of such disbursements within each year: such account to be examined and signed by the landlord or his accredited agent, and to serve as a voucher for the sums so to be recovered by the said tenant; and that non-payment of rent (if the same shall have been demanded, and have afterwards remained unpaid for the space of six months), or non-fulfilment of covenants, shall *forfeit* any claim or right to such allowances for improvements.

The proportion of the proposed conditional allowances to be regulated as follows:—

DURABLE IMPROVEMENTS.

1. If the tenant drains the land at his own expense, with the consent and subject to the inspection of the landlord or his agent, an allowance to be made for the materials and workmanship for [*eight to fourteen years, as the case may be*] years, so that the allowance shall yearly diminish in equal proportions, and be cancelled by years' enjoyment of the improvement.
2. For lime used on the land, with like sanction, the allowance to extend in like manner for *four* years.
3. For marl or chalk used on the land, with like sanction, the allowance to extend in like manner for *eight* [illegible].
4. For clay used on the land, with like sanction, the allowance to extend in like manner for [*six to eight*] years.
5. For buildings erected on the land, with like sanction the allowance to extend in like manner for [*twenty*] years.

TEMPORARY IMPROVEMENTS.

6. For bones used on the land, the allowance to extend in like manner as to diminishing for *three* years.
7. For bought dung and night-soil used on the land, the allowance to extend in like manner as to diminishing for years.
8, 9, 10, 11, 12, 13. Other manures, as the case may be.
14. For Linseed-cake used for feeding cattle or sheep on the land or premises, the allowance to be one-third of the cost for the first year, and one-sixth for the second year. A. B.

* CULTIVATION IN THE LAND.

The said C D on quitting the said farm in some future month of September, as aforesaid, shall receive from A B, his heirs or executors, or his or their incoming tenant,

a permission to consume his Turnips and other green crops, as well as straw, in the yards and farm buildings, of which he shall retain occupation until the following Lady-day. Also permission to consume such a portion of his root crop in the fields on which they have grown, as he may, according to his usual practice, deem advisable; the occupation of these fields being allowed him until the 1st day of February in the following year,

b the Market value to be determined by the referees aforesaid of all *made* manure which the said C D may have upon the farm or premises when he finally leaves them on Lady-day as aforesaid,

c the full value of all Clover-seed sown, according to his usual practice, with his last grain crop,

d half the cost of the manure and cultivation of his last fallow crops, the same to be determined by the referees aforesaid according to their real cost and value respectively,

(Signed). A. B.

The above is a form of agreement on which I should be glad if you could obtain the opinion of your correspondents.—*M. S.*

PROGRESS OF AGRICULTURAL CHEMISTRY.

At the late annual meeting, at Belfast, of the Chemico-Agricultural Society of Ulster, Professor Johnston made the following remarks:—In order to carry you with me to a clear perception of what chemical science can, and what it will do to promote agricultural improvement, permit me to draw your attention to a few of the steps which mark the progress of agriculture in every country. When people settle at first in a country, and proceed to cultivate it, those portions as a matter of course, are always selected which require the least labour at the hands of the husbandman, which are most free from water, and are most easily tilled. After a time, however, it is discovered, that manures increase the quantity of the crop—that the richer the land is rendered by means of manures, the more productive will be the crops grown upon it. The next improvement that suggested itself was a regular rotation of cropping, and here it was discovered that a higher return could be obtained from those soils which were naturally dry than from those which were otherwise—that they were more easily and less expensively tilled, and men were thereby led to adopt artificial means to render the soil dry when it happened to be wet, and to bring it into the condition of those which were naturally dry and fertile. This led, and is still leading in many places, to the introduction of drains, to the introduction of subsoil ploughs, and other improved implements, which are manufactured in the country, and which have produced what may be aptly described as a great revolution in the machinery by which the soil is cultivated. It being discovered that proper manuring and a judicious rotation of crops were the means by which the highest profit could be reaped by the farmer, it became to him a question, whether he might not apply as manures other substances than those immediately within his reach. Hence the demand for the refuse of towns sprung up, and hence the price of land in their neighbourhood began to rise; but still there was not found a sufficiency to meet the want. But very providentially it came into the minds of some persons to apply bones as a manure to the land; and not merely those which could be procured in this country were so used, but they were imported from different countries on the Continent as an article of manure. Some 50, or 60, or 70 years since, they began to be used in large quantities. Places far on hills, which it was before impossible to reach, by the ordinary means of carrying farmyard manure, and which had before been left in a state of nature, could now be reached and manured, and brought into cultivation. I may instance as a remarkable benefit derived from the introduction of bones as a manure, that many of the wolds of Lincolnshire and Yorkshire were by their means redeemed from infertility, and rendered rich and fertile. You will observe this, that in the first place, the husbandman carefully collected such things as were known to be of value, and afterwards other substances began to be applied. But their application was of different results—in some cases beneficial, and in some cases otherwise. The consequence of this was, that the farmer was deterred from using these manures, not knowing whether their use might or might not prove beneficial to him; and here came in the first demand of the practical man on the chemist. There had indeed always been some men who held that the difficulty could be solved by means of chemistry; but now it was, that an absolute necessity existed for the practical man to seek the advice of the chemist as to how such and such effects resulted; and thus in the first instance, chemistry was brought to bear directly on the practical operations of the farmer. It was a question in which the profit of the farmer was concerned, and one in which, as a matter of course, he was deeply concerned. Next came the introduction of guano, which became a new instrument in the hands of the husbandman. It was at once taken up; the profitable results springing from it were so clear, that it spread over the whole of Great Britain, in a very short period; and I have seen bags of it proceeding up the hills, to the places of the most distant Highland farmers. Guano came into use not to supersede the use of bones, but to give a higher manuring to the land. The farmer found out that it could be used in a new way, as a top-dressing for Clover, Grass, and other green crops. It was found, that when the farmer applied it to some descriptions of land, it answered the purpose; in others it did not; and that while some descriptions of it were highly beneficial to him to purchase, there were others, which were of no use to him at all. It was evident that they were of different values, and it was manifest that he would require some person to check the adulteration of the article going forward, to instruct him as to what he ought to purchase, and what he ought not. There were persons, as there would always be found persons, desirous to take advantage of the ignorance of purchasers, and to make money, at the farmer's expense. Now, the only means within the reach of the farmer, in this case, was to call in the assistance of the chemist, to tell the real value of this substance and of that, and to expose the frauds of the guano adulterator. This was another point in which the pecuniary profits of the farmer required him to seek the aid of the chemist. British guano, under various names, began to be manufactured, and to be brought into the market; and it then became manifest to the farmer, that it would not be safe for him to use one substance or the other, until he had tested them by means of chemistry. Other substances, such as salt, gypsum, nitrate of soda, were found, when applied to the soil, in some cases, to be of great service, and in other cases to be injurious; and, in order that the farmer may be enabled to discover when and where they might produce a profitable return, it was necessary to procure assistance from the chemist. The men who were in advance of the rest saw this plainly, and felt, that by means of the chemist alone could this be solved. It was also found, that the same manures, on the same soil, would not do an equal amount of good, but were different in their results on different crops; and this opened another wide field for the inquiries and the assistance of the chemist. This was to examine the different crops, and, by analysis, to determine the substances of which each was composed, what each contained, and what each required, in order that whatever was wanting in the soil might be added; and thus great attention began to be directed to agricultural chemistry. That which was found to be of benefit to Clover was found to produce no such result on Barley; and the object of the scientific inquiries was to ascertain whether and in what quantities these different substances should be used as manures for the soil. First, you had chemistry applied to the manures, next you had it applied to the crops, and finally you have it applied to the soils on which the crops are sought to be raised. This has come to be the most important branch of the agricultural chemistry of the country. But, the further step still remained, and now remains, for the chemist, upon which to engage his researches. I have told you of the difficulties which arose, and which were the cause of his being called upon to pay attention to the subject, with respect to the soil, the plants, and the manures, artificial and manufactured. It then struck the farmer to inquire if it were not possible to manufacture a description of manure capable of producing a crop, which would not be subject to any of the disadvantages which the existing substances used for that purpose are under, which will open any soil to produce any given crop? Now, these two questions, with respect to the crop and the soil, are different in themselves; for example—there are a certain quantity of substances required for a certain description of plant, and if the soil contain the whole of these materials, it will produce that crop; if it contains them all except one, then it is evident that only one is required, and that if the farmer apply more than one of them he is doing needless work, putting on the land what it does not require, and going to a greater expense than necessary. If, on the contrary, it contain none of the substances required for raising the crop, it is obvious that some substance must be applied, containing all the required ingredients. Whether the soil does or does not contain them, and by what substances they can be supplied, in case it does not, is a question of the very greatest practical importance to the farmer, and it is this problem which the agricultural chemist is called upon to solve. You will observe, gentlemen, that it is a question which directly bears upon the pocket of the farmer; and, therefore, one in which he cannot fail to feel an interest. If the association which I have the honour to represent, or your own society here, do not profess to fulfil these objects, and to work out the solution of this problem, for the benefit of the farmer, I think neither of these associations nor myself deserve your support. I say this, because I believe that if we can point out the way for the more profitable cultivation of the soil, we do establish a claim upon the support of the agricultural community at large. In Scotland there were a few men who saw these points in their proper light, who saw how science could be brought to bear on agriculture, how a higher and less expensive system of manuring might be attained, and the profits of the farmer thereby increased. These few men more enlightened than the rest, put their heads together, for the purpose of devising some means of bringing science to bear on the practical agriculture of the country; they established and organised a plan for working out this object, and raised subscriptions for the purpose of giving effect to their society thus established. In the first place, their object was to diffuse, as widely as possible, the knowledge which they already possessed in regard to agricultural science. It was first proposed to make the farmer acquainted with what had already been done, in the way of making science bear on his pursuits, and this end it was designed to accomplish in various ways. He had been throughout Scotland delivering lectures, and had everywhere been listened to attentively by large audiences, and to such as he could not reach with his voice, the newspapers had conveyed it. And, in almost every place, there were found persons to start local papers, periodically to diffuse the knowledge among the people. In some 12 months, no less than 10 new papers had been started, all devoted to the publication of interesting agricultural information. There was another grand instrument in the promotion of their cause, which many of their members were desirous to engage with them, and that was the schoolmaster. There was some difference of opinion in regard to the expediency of introducing the science at the schools existing in their Society; but his own opinion was in favour of it, and, in his private capacity, he was willing, by every means, to promote it. He was of opinion, on his own part, that the best means of reaching the next generation, to render it better instructed in the science of agriculture, were through the schoolmaster. More had been done, in regard to the education of the humbler class, in Ireland, on this head, than had been done in either England or Scotland. There was the training school, at Templemoyle, doing a great deal of good; and there was the humbler school, at Larne, which was as creditable to them, in its way, as the other; and there was the training school over which Mr. Skilling was placed, which would be a source of great benefit to the community at large. What they had to complain of was, that there was no school for the middle and higher classes, where they might receive a sound practical, agricultural education. They knew what was meant by the terms a properly educated lawyer, and a properly qualified physician; there was no place where a man could be trained up in a like way to be a properly educated agriculturist. He was convinced that there was nothing required to raise the position of the farmer but to bring more knowledge to bear on his pursuits. If he were to ask how it came to pass that this part of the country took such a lead in the manufacture of linen, and the preparation of Flax, he should be told, that it was owing to the introduction of machinery, to their adoption of every improvement; and so he held it to be with agriculture.

* All below this is added by our correspondent. Mr. Almack is not responsible for it.

Prof. Johnston next proceeded to state the means taken by the Society of Scotland for the development of its objects. That Society consisted of 750 members, all of whom were most anxious for its success. Their income was 1100*l.*, and it was increasing. It had been said, that the people of Ulster and the people of Scotland were of the same blood. The population of Ulster was as large as that of Scotland; he saw before him as good farmers as any in Scotland—and he trusted this Society would be as prosperous as theirs.—*Much abridged from the Northern Whig.*

EXPERIMENT ON THE PREPARATION OF LAND FOR THE TURNIP CROP.

I HAVE procured for the *Gazette* a copy of an account of an experiment connected with agriculture, for which a prize was awarded by the Farnham Agricultural Society. I was an eye-witness of the result of the experiment; the crop was certainly very splendid.—*W. C. Spooner, Southampton.*

"To the Secretary of the South-East Hants' Cattle Show Club.

"SIR,—I beg to offer the following written account of an experiment made by myself, in the year 1845, on my farm at Maidenstone Heath, in competition for the premium offered by the South-East Hants' Cattle Show Club for the best written account of the result of any experiment connected with agriculture.

"In treating of the best and cheapest method of preparing the land for the Turnip crop, it would perhaps be difficult to lay down any one practical system which would be found applicable to every description of soil; because it is well known to every practical farmer that the difference in the texture of soils, and various circumstances connected with the cultivation of the Turnip, (to say nothing of the ever-varying character of the seasons,) must of necessity induce a departure from any general rule. Yet, having been for many years an advocate for less ploughing than is usually done in preparing land for Turnips in this part of the county, I was induced to undertake an experiment for the purpose of proving to what extent a reduction of expenses might be made in the preparation of land for the Turnip crop. For this purpose I selected a field of 10 acres, the soil a deep loam upon brick-earth; previous crop, Wheat manured; ploughed once out of ley; seeded in the month of March with Italian Rye-grass, which afforded excellent food for sheep from August to December. After being divided into equal parts of 5 acres each, the following course of tillage was pursued:—

No 1.—*5 acres under the usual system.*

	£	s.	d.
In December one deep ploughing, at per acre	0	12	0
In Feb. two draggings	0	1	6
,, two harrowings	0	1	0
,, one rolling ..	0	0	9
In March, one ploughing	0	10	0
,, four draggings	0	3	0
,, four harrowings	0	2	0
,, two rollings ..	0	1	6
In May, one ploughing	0	8	0
,, two draggings	0	1	6
,, four harrowings	0	2	0
,, two rollings ..	0	1	6
	£2	4	9

No. 2.—*5 acres under the improved system.*

	£	s.	d.
In December, one deep ploughing, at per acre	0	12	0
In April, two draggings	0	1	6
,, two harrowings	0	1	0
,, one rolling ..	0	0	9
In May, one scarifying	0	5	0
,, two harrowings	0	1	0
,, one rolling ..	0	0	9
	£1	2	0

"The following statement will show the crop of Swede Turnips, for which the preparation was in every respect similar, except as regards tillage:—

No.	Cost of Tillage p. acre.	Cost of Manure p. acre.	Time of Drilling	Sort of Swede.	Kind of Manure	Weight of Produce per acre.
	£ s. d.	£ s. d.				Tns. cwt. lbs.
1	2 4 9	2 2 0	May 20	Skirving's	Night-soil, Bones, and Ashes.	27 12 0
2	1 2 0	2 2 0	Same.	Same.	Same.	28 7 0

"Although I am by no means prepared to advocate what I here term the improved system, under all circumstances, still I am of opinion that on all soils free from Twitch or Couch Grass, it may be carried out successfully, as from the result of this experiment it will be seen that the improved system of cultivation costs less than the usual method by 24*s.* 9*d.* per acre, and that the acreable produce was greater by 15 cwt. I will now proceed to state some other of the advantages of the improved system, as compared with the usual one. I have invariably found, in dry seasons, in the cultivation of strong or mixed soils, the weather-beaten surface alone will insure a fine tilth, so essential to the growth of Turnips, it being always doubtful after spring-ploughing whether a fine surface can be again obtained in time for sowing, and if obtained, it will be by the application of costly labour. Whereas by scarifying the land, the tillage can be deepened without turning the soil, and still retain the stale and pulverised surface. Again, with regard to gravel or light chalk soils, by ploughing we lose the moisture of the land, which is required for the vegetation of the seed, the time of sowing being often delayed thereby beyond the proper period, and consequently the crop proving deficient. There is also another great objection to ploughing land in the spring, for being made very dry it is highly productive of the wireworm and grub, the two most destructive insects by which the Turnip is attacked. It may perhaps be scarcely necessary here to observe that the advocates for much ploughing are compelled in wet seasons to lay the plough by until the return of dry weather, when it is often found so much time has been lost that the land cannot receive the usual number of ploughings before the time for sowing has arrived; in such case the scarifier will be found an excellent substitute for the plough, as it is equally destructive of summer weeds.

"In conclusion, with all due deference to the opinions and practice of many who are more experienced than myself, I beg to observe that if I have written sufficient to call the attention of my brother farmers to this important subject, my object will be accomplished, and I trust that they will see my desire has been to be useful." — *Joseph Blundell, Maidenstone Heath, Sept. 18.*

ON THE DRILL HUSBANDRY OF TURNIPS.

Experiments for 1846.

A field of Purple-topped Swedes, 17½ acres, ridged up 27 inches apart, and manured with good farm-yard dung at the rate of 26 loads per acre, a few ridges only about the middle of the field being kept for the three last experiments with the pulverised manures. The field was sown as far as the experiments are concerned between the 1st and 5th of June.

	Tons.	cwts.	qrs.
No. 1, with seed purchased from Messrs. Dods, of Haddington, from which three-fourths of the field was sown	16	0	0
2, with same seed at another part of the field	15	11	0
3, with same seed, and on ridges adjoining the last three experiments with the pulverised manures	16	19	0
4, with Mr. Skirving's seed from Liverpool.	15	10	0
5, with seed from Mr. Purchase, near Sydney, Gloucestershire, a Tankard Purple-topped Swede	16	14	0
6, without manure of any kind, Mr. Dod's seed	3	4	0
7, with 24 bushels per acre ground Rape and Linseed cake, called mill sweepings, with Mr. Dod's seed	3	0	0
8, with a mixture of pulverised manures as follows—15 bushels bones, 7 malt and kiln dust, and 30 bushels turf ashes per acre. Mr. Dod's seed	12	14	0

Unluckily for trying bone manure only in this field in different quantities per acre, we had omitted to keep some back from the mixture which had been got ready for the common Turnips, consequently we are here deprived of the comparative effects of that manure by itself. This is the field which has been alluded to in section 6th, as having been thinned by the hand instead of the hoe, and, although 3 acres of it was so much injured by the rooks pulling up the plants, I consider the field averaged 14 tons per acre. With regard to the three sorts of seed used, I found Skirving's produced the greatest weight, and from what I have seen elsewhere this season, I am inclined to think few varieties will produce so much; however, the plants show coarse and large about the neck, and therefore do not look so pleasing to the eye, but many will be inclined to overlook this, in order to obtain a large and robust growing variety, most essential qualities for poor weak indifferent soils. Tender and delicate plants, however handsome and symmetrical, are equally unfit and improper for adoption on high late poor soil as it is to stock such lands with flocks or herds of the very delicate breeds of animals, both divisions of rural economy being to the present hour ruled more by fanciful predilections for plants and stock, than decided by the unerring results of carefully conducted experiments.

Mr. Purchas's Tankard Swede is a very handsome bulb, with fine deep purple top, regular in shape, and I think grows more from the tap root than any Swede I know, there being very few roots thrown out from its sides. From what I have seen here, and at other places, I do not think this variety will prove much inferior to Skirving's in weight of crop; it grows very much out of the ground, and for early feed or storing, I consider it a first-rate Swede, and is decidedly handsomer than the other. Dods' Swede is also an excellent variety, and vigorous grower; it pushes deeper in the ground than the other two kinds, and I have no doubt would stand the winter better. No. 8, in the foregoing experiments, with mixed pulverized manures, is the only approach in produce to the farm-yard manure in all my trials with Swedes; and No. 7 is a miserable result from cake, for which I cannot account; of this I am certain, the manure was regularly and correctly put in, for I regulated the working of the drill myself, while the experimental rows were sowing; the whole field brairded regularly, received no check worth noticing, the rows with pulverized manures, and those without, as usual, being last ready for each hoeing process, and there was no mildew to do much harm. Another 16 acre field of purple-topped Swedes produced 13 tons per acre; this was also ridged up 27 inches apart, and received 26 loads of manure per acre. The only experiment made here was the sowing of 2 or 3 acres on the 5th May, and the remainder between 24th and 28th. The plants on the early sown part kept the lead, and looked very superior until the 1st of August, and every one thought they would prove decidedly the best crop; however, mildew attacked the field to a considerable extent, and most severely on the early sown part, which by the middle of December turned out the lightest part of the field by about 1 ton per acre. A few plants run to seed, but not in any number to find fault with.

Experiments with pulverised manure on a 12-acre field. Common Turnips, sown on the flat 17½ inches apart, on the 14th, 15th, and 16th days of June.

Bulbs produced per acre.—Tons	cwts.	qrs.
No. 1, with White Globe Turnips, treated with mixture No. 10, described under the head "Pulverised Manures," section, 4th, and applied at the rate of 52 bush. per acre	22	10	0
2, with round Green-tops, same mixture, and in the same quantity per acre ..	18	10	0
3, with 36 bush. kiln-dust (round Green-tops)	7	10	0
4, with 36 bush. malt-dust do.	6	10	0
5, with cake-dust, called mill-sweepings, 24 bush. per acre (round Green-tops) ..	5	0	0
6, without manure of any kind, do. ..	3	10	0

This field brairded quickly, and went on without a check, and, with the exception of 1 acre, which was occupied with experiments Nos. 3, 4, 5, and 6, proved a remarkably even and full average crop for the land. About the 1st of September I took an eminent agriculturist, and determined advocate for the universal ridge system, over the field, and he agreed with me that the leaves were then on the decline; that the plants were not too close; and also that the bulbs had evidently arrived at nearly their maximum growth. In this case I felt somewhat gratified in having convinced such a powerful opponent of the correctness of my views, and I trust my excellent and esteemed friend has seen nothing since to cause him to withhold his assent from the views I have given in section 5th, in respect to the width at which Turnips should be sown with pulverised manures on the light lands which we have to deal with in such large breadths in the south of England.

From these results, for the last four years, I cannot come to any other conclusion than that pulverised manures in ordinary quantities will not produce Swedes on the stubble or regularly cropped lands on this farm worth cultivating. Indeed, it is evidently wrong to attempt it, because the same quantities of bones alone, or combined with ashes, &c., are proved to be very efficacious in the same sort of land in producing full crops of common Turnips. Rape-cake seems to be very inferior in its effects, in all trials except on burnt land with Swedes in 1838, where its effects seem to have been considerable, but still inferior to the bones.

Expenses of Cultivating Swedes with Farm-yard Manure.

	£	s.	d.
One year's rent of land (average)	1	4	0
,, tithes and taxes	0	10	0
Three ploughings, at 10*s.* each	1	10	0
Harrowing, rolling, &c., and picking up weeds ..	0	12	0
Ridging and splitting	0	7	0
Loading in the field, carting to ridges, and spreading the manure—25 loads, at 6*d.* per load	0	12	6
Seed (about 2½ lbs.), and sowing	0	4	6
Horse and hand-hoeing, with perfect weeding ..	0	17	0
Considering that all farm-manures ought only to be charged at the prime cost incurred in making the same, therefore I have come to the conclusion that the expenses attending this operation (first in the yards, the loading, and carting it to the fields; putting it up in heaps there, and turning twice) will amount to 3*s.* per load. After it is in a fit state of decomposition to go on the land, take 25 loads at this price, and charge the Swedes with one-half of the amount, as I am of opinion that the other half should be apportioned among the corn and seed crops which follow; therefore 22 loads, at 1*s.* 6*d.* each, is	1	13	6
Also 3 loads more per acre of bought manure, at 6*s.* each; one-half of which is	0	9	0
	£7	19	0

From the results given for the four last years, I may fairly assume that 12¼ tons per acre, for an average of seasons, may be grown here under the same system; and if these bulbs are taken at 15*s.* per ton, it will give .. .. | 9 | 7 | 6 |
| | £1 | 8 | 6 |

Leaving 28*s.* 6*d.* per acre for expenses of taking up, storing, or preparing for sheep and for profit.

The expenses incurred by me may seem heavy and unreasonable to many cultivators who farm similar lands; however, let those bear in mind the crop of Swedes produced, and, next, reflect on the clean state of the land, and high condition it has now got to, which will in a very considerable degree increase every subsequent crop, until the land comes round again for Swedes. Others, who do not know the nature of the land, will feel surprised at these poor returns from the application of so much manure, there being many soils on which 24 tons per acre might commonly be raised with such a dose. Such small returns, from what may be termed great efforts, only go to prove the very indifferent quality of the soil experimented on, and its ungeniality to the production of Swedes.

Some individuals may be disposed to say the Swedes are put at too much money in the foregoing calculation; to those I would remark, that there are plenty of customers to be found throughout the country for those bulbs at 20*s.* per ton, and glad to haul them four or five miles besides.

Expenses of Cultivating common Turnips with mixed pulverised Manures, as used in the 12-acre Field, being the last experiments made in 1846.

	£	s.	d.	£	s.	d.
One year's rent (average)				1	4	0
,, tithes and taxes				0	10	0
Three ploughings				1	10	0
Harrowing, rolling, &c. and picking off weeds				0	12	0
Seed and sowing				0	5	0
Hand-hoeing and weeding				0	13	0
13 bushels bones, at 8*s.* 1½*d.*—this includes carting expenses	5	0	7			
30 ,, ashes, at 3*d.*—including cartage ..	0	8	4			
9 ,, malt and kiln-dust, at 8*d.*	0	6	9			
52 bushels.						
Expenses of mixing this, turning, loading into carts, hauling to field, and throwing it into the drill, at 1*d.* per bushel ..	0	4	4			
Value or cost of manure per acre ..	£3	9	0			
Let one-half of this be charged to the Turnips, and the other half apportioned among the subsequent crops				1	10	0
				£5	4	0
Supposing 16 tons of Turnips can be grown for an average of years, at 9*s.* per ton ..				7	4	0
				£1	0	0

Leaving 1*l.* per acre for pulling, storing, and profit.

This year we had a very beautiful piece of Turnips,

about 10 acres, after Vetches, sown from the 10th to the 22d July; one part of the field being sown with the common red and white sorts, and the mixed pulverised manure (No. 10, section 4), at the rate of 36 bushels per acre, producing not less than 11 tons per acre; the other part, sown with Early Stone or Stubble Turnips (without any manure), producing about 7 tons of bulbs per acre; these last stood the winter, and proved good feed for ewes and lambs. In 1839, our Vetch-land was thrown into the Wheat break for that year; and, in 1838, we had 8 acres of Turnips, after Vetches, producing about 6 tons per acre, and stood over the winter for ewes and lambs. In 1837, none tried after that crop. —*W. Fernie, Manchester.*

Home Correspondence.

Norwegian Harrow.—[The following is a testimony to the value of this instrument, noticed last week, which Mr. Stratton has handed to us.]:—I am favoured by yours of the 5th. I have great pleasure and satisfaction in informing you that your Norwegian, where required, is the most effective and valuable implement ever offered to the agriculturists of this country, and I beg to offer you on the part of that body our best thanks for its introduction; I plough my land at the rate of one acre per day with two horses abreast; though a sharp gravelly land, yet it contains sufficient alumina to bake into large clods in dry sunny weather. This spring my Turnip land was in such hard clods that I despaired of getting in a crop unless assisted by rain; we tried the roller and harrows to no purpose. At this critical point your Norwegian harrow arrived, and in one forenoon with a pair of strong horses we reduced five acres to a tilth sufficient to stitch up for sowing, though before putting in the plough we did not consider it as fine as we could have wished, for the surface was covered with unbroken lumps, the size of bantam eggs; but imagine our surprise, when on ploughing up the land we found the under soil reduced to the finest dust, the surface lumps falling out of the way into the bottom and middle of the stitch. Thinking the work too hard for a pair of horses, I yoked three abreast in my next field, which was very full of two kinds of Couch Grass, and hard baked clods much larger than a man's head. Here I found that the quicker the horses are driven, so in a compound ratio do they pulverise the ground, therefore recommend your customers to put on ample power and drive fast. The clods of Couch are pulverised, and the roots are left quite free from mould, so that the harrows when applied swim without jerks up to the cross bars, as if on water, and hold the clean roots in their teeth. After your implement the various drags for roots work easily and efficiently. The first row of rowels must be greatly increased in size, which, by necessarily raising the centre of their leverage, will enable them to surmount the large clods which at present they push before them. The front wheel, also, must be single, instead of being double, as at present, which will enable it to turn better at the land ends. You should also have a pair of shafts to assist a horse in transferring it from one place to another: a pole does not answer, as our farming collars are not made to suit a pole-strap. The implement is liable sometimes to pick up stones that stop its progress, to rid it from which it would be very desirable to be able to raise the middle row of rowels. (My implement is 5 feet wide). You should never allow your harrow to compete at any exhibition unless a plough is allowed to follow, for the purpose of showing the perfection of its work underground, in which it surpasses every other implement. Several gentlemen wish to see my Norwegian at work before giving you an order. Please, therefore, to send your improvements as soon as possible. It is a great pity you cannot fit the fore-wheel as I suggest, for the wheel will never work well without a bend.—*Robert Brisco, Lowmill House, Aug.* 15.

Transplanting Swedes, &c.—Some of your correspondents seem to ridicule the idea of cottagers planting their gardens with Swede Turnips. To encourage cottagers, I would just say that through the advice of your Paper upon it, I this year had a mind to try the experiment. As soon after harvest as I could, I had 1 rood of Wheat land haulmed and ploughed and transplanted with Skirving's Swede. After the plants had well struck their roots, I put about a teaspoonful of guano to each root, and had them well hoed. Their growth is very rapid, and I have at this present time very fair Turnips, and I think I shall have an average crop with the good fallow land of the county. Now what could a cottager better have done, especially where he has an allotment, after he had gathered his little Wheat (which I should say 19 out of 20 had a small quantity of this season) than to have dug up that land and planted it to Swede Turnips? But some say you had guano for yours; true: and what master or neighbour would deny a poor man 10, 20, 30 lbs. of guano? I would not. But let the man be taught how to use it, or, as very many do, he will sow this excellent manure in waste. I have sown for my rood 28 lbs. A boy went over them with a dibber in the one hand, and made a hole close to the side of the Turnips, and with the other hand placed in the hole about a teaspoonful of guano, covering up the hole with mould as he went along. This is the way I sow my guano for Cabbages, for Potatoes, and sow 1½ cwt. per acre, putting it into the mould in the midst of the plants, and I find it answers my purpose better than any other way of sowing it.—*Fred. Fairbank, Halstead.*

Societies.

HERTS AGRICULTURAL SOCIETY.

At the late meeting of this Society, the following remarks were made:—Mr. Hainworth, in reference to the prospect of reduced prices for farm produce, said: I think we ought to look a-head, and prepare for the coming day. I don't know a better system of doing this than corn-rents. I never heard a sound argument against that system. It is sometimes asked how this system can be acted upon, when a man has a short crop. We don't make a calculation of one year; we take the average of seven years. I don't know what objection can be made to this by the landlords. If the prices are not going to be lower, the landlords will have the same rent; and if they are going to be lower, the tenants' interests will be provided for. No man can say that the tenant does not undergo great risk. I have laid out money on land, and I have done it at some cost. I have had land that I have occupied taken out of my occupation. I don't mean to reflect on my landlord for so doing, but there is one contingency which we are not capable of providing against, and that is—death. Although property is not often disposed of in the case of death in this country, we cannot insure that the mantle of a good man—and a good landlord—shall fall on his successor. You must have read some statements showing that there are some lots of land in this country cultivated to the highest extent. There is a limit to the cultivation of land. There was an article in the last or preceding number of the Royal Agricultural Society's Transactions showing that after a certain amount of manure had been applied to the land, any additional amount was useless in producing Turnips, in which it was stated that twenty-six loads of manure would produce very little more than thirteen. There was a letter some time ago from Vernon Harcourt, in which it was stated that eight cwt. of guano produced no more than four cwt., and four cwt. with twenty bushels of bones, very little more than twenty bushels without the guano. I have tested this on land in my own occupation, and the guano which has been added to a full complement of farm-yard manure, has been thrown away. We have a right to cultivate the land to the best of our ability, but I believe that when we have done our best we shall not have provided against the contingency that is coming on us. And he who has the most reason to fear the contingency is the man who cultivates his land to the highest state. The man who farms badly will have nothing to lose. I may state to the meeting as the result of an experiment which I made this year in the growth of Turnips,—sowing them broadcast, horse-hoeing them into rows. I very much question whether it would not be found equally advantageous to sow broadcast. And as I had sown all my head Wheat, I was driven to take some of my best offal Wheat to sow. I don't say that will not produce as good a crop as head Wheat. I have read that it does not require the best Wheat for seed.

Mr. E. Roberts, the Treasurer, said they had in this Society, in order to carry out their views, various premiums to encourage the labourers and the farmers, but they had not a prize for improving the habits of the landlords in their dealings with their tenants. He hoped he should not give offence by these remarks. He was a plain honest man; but he thought it was wrong that while they had prizes for the best carter, the best shepherd, and the best general labourer, for the best cultivator of farms, and many other prizes, they should have none for the best landlord. Why should they remain isolated and neglected? Were they not worthy of a prize, or were they so wedded to outworn habits of making bargains with their tenants; or had they arrived at such perfection as to be incapable of improvement? He would now read the resolution at this late hour. "That a piece of plate of the value of 100 guineas, be presented to the landlord possessing not less than 1500 acres of land, who shall, previous to Michaelmas, 1847, introduce and bring into general use amongst his tenants a condensed form of lease or agreement best calculated to induce them to carry out all such improvements as are best calculated to produce additional quantities of corn, and to maintain an augmented head of live stock. Perfect security to the tenant's capital invested in the soil to be one indispensable condition." He intended nothing disrespectful or personal to any man, and were he to speak of his own landlord, he should class him with their much-beloved chairman, and declare to the meeting and to the whole world, that they would rather let a tenant live in a farm for nothing, than intentionally and deliberately take undue advantage of him. But this had nothing to do with the question. He had no hesitation in saying, that the undue preservation of game, the growth of hedgerows and timber near arable land, were amongst the greatest hardships and troubles which a British farmer had to contend with; and amongst the greatest hindrances to all agricultural improvements.—*Hertford Mercury.*

Farmers' Clubs.

Probus: *Autumnal Planting of Potatoes.*—A lecture was lately delivered to the members of this club, on the necessity of early planting of Potatoes, as a preventive of disease, by Mr. W. F. Karkeek. His attention had been directed to the effect of planting Potatoes in the autumn some four or five years since, whilst investigating the disease then prevalent amongst Potatoes called Bobbin Joans, and he found, he said, in several instances, that where Potatoes had been left in the ground over the year, either by accident or otherwise, no such disease exhibited itself. Bearing these few isolated facts in memory, he was anxious to know what results had been experienced by the planting of Potatoes in the autumn in respect to the Potato murrain—the origin of which, and its cure, is invested with so many doubts and difficulties. Among the many causes to which the disease has been attributed, was "the digging up the Potatoes in the autumn, and keeping them half the year in pits and other places, foreign to the natural habits of the plants," and he found in the course of his enquiries, that there were a great many instances of flourishing autumn-planted Potatoes—and as we may safely conclude that the practice of planting Potatoes in the autumn was an exception to the general rule, rather than otherwise, the fact of so many instances presenting themselves wherein they had been thus successfully cultivated, struck him very forcibly, that if the cause of the disease was not discovered, at all events he could make them acquainted with a remedy. The lecturer first related a case which occurred in his own district—wherein the planting of Potatoes in September had proved successful. The Rev. T. Phillpotts, of Feock, planted the Ash-leaf Kidney Potatoes early in September of last year, some in November, and some in January. Those of the September planting were excellent in quantity and quality. The November crops were middling—but the January crops were completely diseased, and worth scarcely anything. Mr. Karkeek then adduced several instances from the columns of the *Gardeners' Chronicle*, which we need not republish in support of his views. "These facts accumulate upon us," says Mr. K., "and whether viewed as possibly affecting the yet obscure question of the Potato disease, or merely as the result of a few experiments, the knowledge of them at all events may prove useful." In the "Farmers' Magazine" for this month, October, is a very interesting paper on the Potato disease by Mr. Cuthbert W. Johnson, a well known agricultural writer. He gives a great many instances of autumnal-planted Potatoes escaping unhurt, and strongly advises the farmers to plant at the close of September, or the first week in October. His brother Mr. G. W. Johnson, has paid particular attention to this disease, and the result of his observation is—to strongly recommend early planting. Last year he planted, in the month of October, every variety which he usually cultivates—both early and late—Walnut-leaved, Ash-leaved, Julys, and Red-nosed Kidneys, and they all have yielded crops so free from disease that his gardener has not detected a peck of ulcerated tubers amongst all those taken up as they have been required; whilst other crops of the same varieties, planted in the spring of the present year, are extensively diseased. A plot of Cornish Kidneys which he obtained from Penzance, particularly clear and sound, and planted in the spring of this year, produced plants, not only half their tubers ulcerated, but their leaves much curled, and the produce consequently very small. "From these facts," says Mr. Karkeek, "I strongly recommend that the seed of all varieties of Potatoes, early and late, intended for future crops, should be planted during the present month. The seed should be planted whole, and not taken out of the ground a single hour longer than is necessary to plant them in again. They should be planted full six inches deep, and slightly covered with charred saw-dust, or wood ashes. The absence of any other manure prevents their sprouting too early, and manure could be applied after the frost had disappeared, as a top dressing in the spring. The different instances which I have related," he said, "of successful crops being produced from early planting, may be accounted for on the supposition that there is a loss of power sustained by allowing the seed to remain in the pits until the spring. It may be stated in opposition to this, that it is only within the last two years that this Potato murrain has appeared amongst us, whilst the practice of drawing the Potatoes in the autumn, and planting them in the spring of the following year, is as old as the hills. This is very true, but there must be a period of commencement to a disease, and may not the withdrawal of the bulbs and tubers from the soil have had the gradual effect of rendering them and their progeny diseased. He considered that the Potato had proved a very tender and delicate root to cultivate for these ten years past, and he believed that the storing of Potatoes in pits, and such unnatural, such artificial practices, through a series of years, had tended more than anything else to produce the present prevailing malignant disease. A writer in the *Gardeners' Chronicle* remarks, 'that the bulbs of Hyacinths, Tulips, and Crocuses, keep well in the ground, but, if taken up, have a strong tendency to decay. But what effect has this treatment upon the plants to which they give birth? Why, it imparts to them disease. The beautiful variegation of the Tulip's petals is the effect of disease. Leave the bulb in the soil throughout the year, and it will return to its natural vigour and simple colours. No variety, occasioned and preserved by such artificial treatment, will endure beyond a few years.' It is no effectual objection that seedling Potatoes are now affected with the same disease, for such diseases are hereditary in vegetables as well as in animals, and the seedling tubers have been subjected to the same keeping out of the soil for months as were their parents. But whether I am right or not as to the cause, I trust I have produced sufficient proof of the efficacy of early planting as a preventive and remedy for the disease in future. For even supposing that the disease was produced by fungi and insects, the plan which I have recommended will prove an effectual

remedy, as those creatures do not make their appearance until August, by which time, if early planting be adopted, the tubers will be ripened, and may be taken up and stored away in safety before they arrive. There is nothing new in the practice of leaving Potatoes until required for seed undisturbed in the soil wherein they are grown, for it has been practised by many farmers, particularly in Scotland, for a series of years with great success. Mr. Grey, of Dilston, a very intelligent and practical farmer, has long practised autumnal planting, and from his repeated experience states, that it yields on the average one-third more than spring planting. In 1844 and 1845, he made some interesting experiments on an extensive scale. The land was prepared in October, manured with fold manure below the sets. The Potatoes were planted in drill rows of 30 inches width, but leaving three rows unplanted for each intermediate month between October and April inclusive. Three rows were similarly dunged and planted in November, three at the end of December, three early in March, and the remainder in April. The result of the experiment is, that to produce 10 stone weight of Potatoes there required to be taken up—

Of the October planted	.. .. ..	30 yards.
,, November	.. .. ..	32 ,,
,, December	.. .. ..	32 ,,
,, March	.. .. ..	44 ,,
,, April	.. .. ..	45 ,,

This experiment clearly demonstrates that a loss of vigour is sustained by allowing seed to remain in pits until the spring. Mr. Grey adds, "that autumn planting was adopted, not suggested by himself, for it was long before practised by other farmers in Cumberland, in Glendale, and on the Tweed." An interesting discussion ensued on this very interesting subject, during which it was stated that the practice of planting Potatoes in the autumn had been pursued at Trewarthenick, the seat of G. W. F. Gregor, Esq., and that those planted in this manner last year, were entirely free from disease, and proved a productive and valuable crop. Mr. Robert Hearle, one of the members, also stated that he planted a quantity of Potatoes early in November last, which proved excellent in quantity and quality, without any disease—whilst those he planted in the following spring were nearly all worthless. The club were of opinion that Mr. Karkeek had adduced sufficient evidence to prove the efficacy of autumnal planting of Potatoes, as a palliative, if not a preventive, to the ravages of the Potato murrain—and most of the members stated it to be their intention to commence planting almost immediately.

Miscellaneous.

To Hatch Eggs.—It has been generally supposed that heat is all that is necessary to incubation, and that placing eggs in an oven which could be kept heated at a moderate and even temperature, eggs might be hatched to any extent. This was the plan adopted at the Eccaleobion, exhibited in London some few years since, but which, from the uncertainty of its operations, and the small per centage of chickens hatched to the number of eggs destroyed, rendered the machine useless, except as a mere exhibition. Many men of science and writers of books have also stated, for years past, that they have succeeded in hatching by artificial means; but when the system is examined, it will be found that all their attempts for practical purposes have been useless, and therefore abandoned. Let us first of all examine the egg. Where does the germ lie? On the uppermost side, always floating on the top of the yolk, and against the shell. Which part of the egg does the hen sit upon? The top, and she affords no heat to the bottom, which rests on the ground, and is cool until the formation of the blood-vessels within the egg carries the heat downwards by circulation, and thus the egg becomes warmer, and finally hot at the bottom, when the chick fills up the shell. We are led to these remarks from having visited a model hatching establishment at Heathfield, Sussex, which is being carried on under the superintendence of Mr. W. J. Cauhlo, and which is patented under the name of Cauhlo's Patent for Artificial Hatching. We were first shown the Patent Incubator, which consisted of two long counters filled with drawers, intended to contain 5000 eggs. The top of the counter is a reservoir of warm water, contained in water-proof cloth, and which rests on the top of the eggs, and answers the purpose of the hen, by giving the eggs "top contact heat." The water is heated by a small fire of charcoal, which warms a large tank of water which communicates with the water contained in the cloth on the top of the eggs. This is kept constantly in motion by machinery, so that the heat is always at the same temperature. We fortunately paid our visit to this interesting establishment on the hatching-day, which is on each Thursday, and saw upwards of 500 chickens leave their shells. The inventer showed the whole process. It appears he first began in America, and expended a large sum, and found he could only succeed by following Nature step by step. On leaving the hatching-house, we were shown the rearing-houses, to each of which is allowed an acre of ground for the chickens to run over; this is divided by netting, so that each hatch of chickens is kept separate, and, the day being warm and fine, upwards of 3000 chickens might be seen all running about at the same time. Great ingenuity is displayed in the construction of these rearing-houses, or places of shelter for the chickens; they being provided with a series of warm-water pipes, under which the chickens get the warmth which the hen would afford them. Altogether, this is one of the most pleasing sights we ever beheld, and, from what we could learn, is likely to turn out a profitable speculation, the great difficulty at present being in getting good eggs in sufficient quantities. They hatch from 80 to 90 per cent. of the eggs they procure, which is a larger amount than can be obtained by natural means; and when we consider that a hen will lay upwards of 200 eggs in a year, and will rarely incubate more than once in a year, although she will occasionally bring out two broods of from 12 to 15 each, it appears that it will be far more profitable to keep poultry for raising eggs than it will be for rearing. We have no doubt, in a few years, that each large town will have an artificial hatching establishment; and that, by this means, a vast amount of food will be raised for our increasing population. We were told that the chickens were always fat, and, from the extreme cleanliness in which they were kept, and being fed regularly, and on the best food, have no doubt their flesh will be far superior to the general run of poultry. They have turkeys and Guinea fowl hatched by the same means, the turkeys taking longer; but have not tried ducks, not having the command of open water. —*Chambers' Edinburgh Journal.*

Sale of Short Horns.—The following prices for calves were realised at Tortworth Court, near Wotton-Under-Edge, Gloucestershire, on the 13th October, at the Earl of Ducie's annual sale.

Lot	Name.	When Calved.	Price—Guineas
1	Fitzhardinge (white) ..	Nov. 19, 1845 ..	Sixty
2	Belus (roan)	Feb. 20, 1846 ..	Fifty-three
3	Caledon (red and white)	April 1, 1846 ..	Twenty-three
4	Hymenæus (light roan) .	May 13, 1846 ..	Thirty-one
5	Beeborough (white) ..	April 9, 1846 ..	Thirty-five
6	Puritan (roan)	July 3, 1846 ..	Fifty
7	Colchicum (red).. ..	June 8, 1846 }	Fifty
8	Colocynth (roan) ..	June 8, 1846 }	Forty-eight
9	Capsicum (red & white)	August 27, 1846	Fifteen

Auctioneers, Messrs. Humphreys and Co., Stroud.

Preservation of Swedish Turnips.—Having read and tried every method, I believe, that has been suggested as to the management of the Swedish Turnip when taken up previous to the winter, I have never been quite satisfied, as, whether they were placed with a good deal of trouble and labour in long piles, and covered with straw or straw and earth, or in round heaps and covered with earth, or between wattled hurdles, or topped and tailed and deposited in a furrow made by a double mould-board plough, and covered by the common plough, there have always been too many rotten to satisfy me. If deposited in a barn or building, it might answer very possibly, as in the case of Mangold Wurzel, which I have for several years managed in this manner. I do not remember ever having had a single rotten one. But for Swedes, it would be almost impossible to store any great quantity, so much room would be required—as, for instance, for only ten acres. However, this year I tried a plan that does appear to answer, very simple and very cheap; but only having tried it one year, and that year a remarkable one for its mildness, I will not speak positively, and shall be happy to hear any remarks upon the plan, or any improvements suggested by brother farmers. The plan is this:—In December, or when you please, with the horse-hoe, only one of the side knives being on, and that knife reversed, you will be able to cut all the tap-roots and scarcely disturb a Turnip in the rows. This alone is of use in the spring, even if you do not wish to do more, as it will very much prevent the Turnips running to seed, and of course the tap-roots from drawing the ground. I tried two rows at a time, both knives on; but my man found it almost impossible to hold the instrument sufficiently steady, and the Turnips were consequently disturbed in the rows. The tap-roots having been cut, I then pass the double plough up the centre between every six rows, and let the Turnips (which pull up, the tap-root being cut, as easily as possible) to one of my labourers at 2*s.* 6*d.* an acre, at which he finding two children, probably his own, he will make good wages, the average wages in this country being 2*s.* a day for a man. A child on each side of him hands the Turnips to him, and he places them in the furrow made by the plough. One ploughing then with the common plough completes the business, by turning the earth to the Turnips and covering them to the necks; if not quite so neat as you wish, a man with a hoe will quickly and easily make it perfect. By this means I believe the plants will resist almost any frost, will be ready when wanted, cannot draw the ground, and scarcely a Turnip will be rotten. —*Mr. Allis, in Eng. Ag. Soc. Journal.*

Instance of Grass-land broken up.—In describing how this farmer intends to break up 11 acres of land of two kinds of soil in the same field, I shall only give the methods adopted by him on previous occasions, and which have always succeeded. The field he has now under hand lies at the junction of the forest marble with the great oolite, and is in consequence variable, part on rock and part on clay. The clayey part has been well drained. He intends to plant the part on the rock with Turnips, and the other part with Swedes. His process will be as follows: To pare and burn the turf in the spring, as early as the weather will permit, and haul away half the ashes to be drilled with Turnips on other land. To rafter-plough, and leave it for a month or so to the influence of the sun and weather; then drag it, to pulverise it as much as possible; and after having harrowed it, to plough it clean, with a slight furrow, and then drill white Mustard with a portion of the ashes, on the lightest part, reserving the other portion for Swedes. The Mustard will come up soon, and be ready for sheep in about a month after being sown. The Mustard is to be eaten off with sheep in folds, and the land immediately ploughed, dragged, harrowed, and then Turnips are to be drilled with the remaining ashes. Of course, between the time of sowing the Mustard on the lightest part and its being eaten off with the sheep, the stronger portion will be cultivated and drilled with Swedes. Both the Turnips and Swedes will be eaten off with sheep in folds; the Turnips first, and the Swedes afterwards, and sown with Wheat, unless circumstances render it desirable to reserve them until nearer spring, in which case the land will be sown with Barley; but the former plan of sowing Wheat is most usually practised. This method has been adopted by him on other lands before, and he has always had abundance of green crops and Turnips, and plenty of good corn afterwards.—*Mr. Bravender, in Eng. Ag. Soc. Jour.*

Metropolitan Sewage Manure Company: Analysis of Evidence.—The Sewer Water has a high money value.—Ammonia in a state of salt is worth, at the lowest computation, 16*s.* a cwt. Now, upon the low computation that only one ton of ammonia (which is equal to three tons of any salt of ammonia) passes off into the Thames each day from this sewer, 48*l.* worth would be thrown away; in the same way, about a ton of earthy phosphates, or bone earth, the commercial value of which is not less than 3*l.* a ton; say the same for the potash thrown off; we shall have 54*l.* worth passing off every day, actual money value. The quantity of solid matter in suspension, say it amounts even to double the quantity I have found (I have found nearly 50 grains per gallon), say 100 grains, would yield daily about 16 tons (of course taking for granted that the calculation of the delivery of this sewer is correct), it would yield daily 16 tons of solid matters in suspension, which at 10*s.* per ton would be worth only 8*l.*, so that we have for the liquid manure an excess of value 46*l.* over the solid. The daily loss is 54*l.* for the liquid; and the total loss would be about 64*l.* (According to this calculation, the annual value of the sewage water, which at present passes into the Thames from the King's Scholars' Pond Sewer, is 23,360*l.*)—*Professor Miller, of King's College. Report of Select Committee on Metropolitan Sewage Manure.*

Calendar of Operations.

OCTOBER.

It will soon be time for the farmer to think of harvesting such portions of his root crops as he intends to consume in the buildings. The following observations on the subject have already been published in a past volume.

Fig. 1.

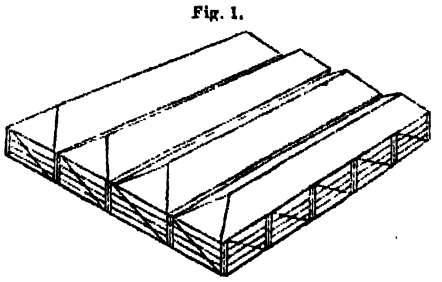


Fig. 2.

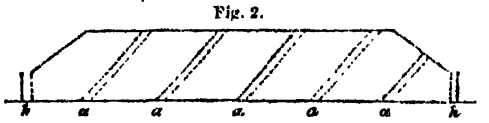
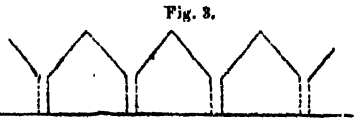


Fig. 3.



The first of the above is a drawing in perspective of a series of heaps, of which fig 2 is the longitudinal, and fig. 3 the transverse vertical section. They are made in the following manner: Two rows of hurdles are placed upon a firm piece of ground, parallel to one another, and 9 feet apart. The interval between these is filled with roots, the carts bringing them from the field being backed between them, and tilted up at the proper place. The roots are piled up above the hurdles in a ridged or roof-like form, and are afterwards covered with straw, roughly drawn out as a thatch, which is kept in its place by the weight of long poles resting upon it. At intervals of two or three yards faggots are placed in the centre of the heap, inclining backwards, and reaching from the ground to the roof (see *a*, *a*, *a*, fig. 2). These act somewhat as chimneys, and facilitate a due ventilation of the heaps, thus hindering any tendency to heating or putrefaction in the roots.

When one heap is completed, another is built within a foot of it, the passage left being intended as a channel both for the egress of the water which drops from the thatch, and for the circulation of air. No security against frost, at the sides of contiguous heaps, is required, further than that which is afforded by the interlocking of the bushy eaves of their respective roofs. When, however, a series of heaps has thus accumulated, as in fig. 1, a rough dead-wood hedge should be constructed around them (see section in fig. 2), and the space between it and the hurdles, which may be 12 or 18 ins., should be loosely filled with straw.

We have annually kept many hundred tons of Swedes, Carrots, and Mangold Wurzel in this way, without losing any considerable portion by putrefaction. It fulfils the three conditions of success in the preservation of root crops through the winter—it furnishes security from the frost and wet, and at the same time provides a sufficient ventilation of the heaps.

The harvesting of root crops is best done by piece-work. The harvesting of a good crop of Carrots has hitherto cost us from 17*s.* to 25*s.* per acre—that of Swedes and Mangold Wurzel, from 6*s.* to 10*s.* For this sum the contractor pulls the roots, cuts off the leaves, fills the roots into carts, and gathers and loads the leaves also.

In the operation of harvesting Carrots the spade is required; it is pressed into the ground, and used as a lever by the right hand, while, by the left, the root is pulled up. Each man lifts two rows as he proceeds, and four men forming a company,

night rows are thus pulled and laid regularly on the ground in two lines. Two women can top the roots, *i. e.* cut the leaves off them, as fast as this number of men can pull them; and, leaving the roots in a central row, they throw the leaves into two lateral ones, as they proceed. The carts, the number of which, varying according to the distance from the heaps, must be such as will convey the roots off the land as fast as they are ready, follow close upon the cutters; a man and a boy will be able, under ordinary circumstances, to fill both roots and leaves into them as fast as those already mentioned can prepare them; and another man and boy will be able to pile the roots up in the heaps, and thatch and finish them off as they proceed. We mention all these details, because it is all-important to the speed and economy of the operation that the forces employed in the different parts of it should be rightly proportioned to each other.

The leaves, if they be already withered, may either be left on the ground and ploughed under, or, as on land already rich enough for grain crops, they may be carried away to the fold-yard and trod down by the cattle. When they are still green, they may be used as fodder. As long as leaves are green they remain useful in the growth of the plant. The only reason why we should harvest our Carrot crop before the roots have stopped growing, is their extreme sensitiveness to frost. This is so great, that it is of the greatest importance to secure before night all the roots pulled during each day; if they get frozen, though it be merely on the surface, it will be almost impossible to preserve them through the winter.

We have but one more remark to make, and that is on the fact that rottenness, when it is owing to any external cause, always commences at any cut or bruised portion of the surface. It thus becomes of importance that the surface of the roots should be cut or abraded as little as possible. The root fibres should not be cut off at all, and the leaves should be cut off so far from the crown of the root, as that they may fall separated from one another. So far as our experience has hitherto gone, if these points be carefully attended to, and if such a plan of harvesting be adopted as fulfils the three requisites of success before alluded to, there is but little risk of the farmer losing much of his crop by heating or putrefaction before the spring.

Notices to Correspondents.

BOOKS—*J. J.*—Low on the Domesticated Animals.—*R D C.*—Blacker's Essay on "Small Farms" is a good book to put in the hands of small tenants. Low's "Elements of Practical Agriculture," and Hilliard's "Practical Grazier," are good works for occupiers of large farms.

BLEACH REFUSE—*Chandlacon*—It is a mixture of sulphate of soda and chloride of manganese; and if the sulphate of soda has not been removed from it, it may be a useful manure. But the salt has probably been removed from it, and then it is of little use. You had better take a little and add some water to it in a vessel, and see what portion of its weight is washed out; if much the manure is valuable, and you might apply it at such a rate as would give 2 cwt. of the soluble part per acre. Apply it to any root-crop broadcast over the ground a fortnight before seed time.

CORN DRESSERS—*Sub*—Stones cut for grinding Wheat will not make Oatmeal. On this subject you should apply to Mr. Dean, of Birmingham.

DIBBLING MACHINES—*Aleph*—We do not know Wetherstone's. Newberry's is good.

FIELD BEANS—*Georgo*—We know of only one kind for autumn sowing. It is a small seed commonly called the Winter Bean

MANURE—*W S*—You may safely apply your manure if of the stated composition; but a better one might be manufactured for Wheat. This contains no phosphoric acid. Unless assured by a knowledge of the respectability of the parties, we should be very much inclined to doubt the story about the carbonate of ammonia being picked out of Peruvian guano-beds and shipped to Liverpool.

SMALL FARMS—*W K C and Others*—We hope to give the account next week.

STALL FEEDING—*Cookney*—Certainly; you may stall feed your cow, and if her apartment be well ventilated and dry she will preserve her health. She will eat of green food daily a weight equal to about ¼ of her carcase weight, supposing her ready for the butcher—and you may deduct from this from 6 lbs. to 8 lbs. for every pound weight of grain or oil-cake given to her along with it. Her green food may be Carrots, Parsnips, Mangold Wurzel, &c., and the grain given to her may be Barley or Malt, or Oats, or Beans. If you give hay you may reduce the green food 5 lbs. for every lb. of hay given.

SUNDRIES—*F P B M*—Soap-suds and guano mixed would just equal in their effect the sum of the effects of soap-suds and guano applied separately. They would not, that we are aware, exert any influence on one another.——Mangold Wurzel should be sown in April; 5 lbs. of seed per acre is sufficient when the seed is dibbled at a foot apart, in rows 27 inches asunder.——Sulphate of magnesia is a good manure for Potatoes. It is composed of sulphuric acid and magnesia, both of them containing substances which occur in the Potato.——The early grey Warwick or early Nimble Hog Pea is the earliest, dwarfest field Pea in cultivation; sow about 2 bushels per acre early in April.

"THE COMPLAINT" IN SHED—*H C*—Next week.

TO HARVEST ROOTS—*Kirton Bright Farmer*—See Calendar.

TO STEAM FOOD—*Inquirer*—Richmond, of Salford, sells a very nice apparatus. We shall refer to the subject of steaming food in an early Calendar.

URATE—*Mr Farmer* refers our correspondent "C." to any of the following gentlemen on the quality of urate as a manure:—Mr. Anderson, Oakley, near Bedford; Mr. N. Taylor, Romney, near Shefford; Mr. T. Baker, Writtle, near Chelmsford; Mr. G. Turner, Barton, near Exeter.

ERRATUM—In page 660, in the 29th line from the top of col. c, for "their soil and implements" read "their stock and implements."

*** Communications reaching town after Wednesday cannot be answered the same week.

Markets.

SMITHFIELD, MONDAY, Oct. 12.—Per Stone of 8 lbs.

Head Scots, Herefords, &c.	4s	5s	6s	6d	Best Long-wools	4s	10 to 5s
Best Short Horns	4	6	4	8	Ditto (shorn)	—	—
Second quality Beasts	3	8	4	8	Ewes and second quality	4	4 4 8
Calves	4	0	4	10	Ditto (shorn)	—	—
Best Downs & half-breds	5	0	5	4	Lambs	—	—
Ditto (shorn)	—	—	—		Pigs	5	0 5 6

Beasts, 3,031; Sheep and Lambs, 23,310; Calves, 120; Pigs, 410.

We have to day a short supply of Beasts, there being 300 less than on Monday last. Several cargoes of foreign consigned to this market have not arrived, and there is also a deficiency from our own grazing districts. In consequence prices are higher for all descriptions. A few of the choicest Scots have been sold, and some of the most selling Short-horns rather over 4s 6d. The number of Sheep in stall and directly considerable; an early clearance effected at advanced prices. Calves and not plentiful, nor are they much in request; late prices were with difficulty maintained. There are not enough pigs; but mild weather hitherto kept improvement in the trade.

FRIDAY, Oct. 16.

The number of Beasts is smaller; trade is about the same as on Monday. We are sorry to hear that one ship freighted with cattle from Holland has gone down, and those another was obliged to throw her live cargo overboard, making a difference to our supply of nearly 100 Beasts, and about 600 Sheep. Best Scots, fully 5s/ake from 4s 8d to nearly 4s 6d; and best Short-horns, 4s to 4s, and in a few instances rather over. Second quality 4s 4d to 4s 8d. Sheep are very scarce, and Monday's prices are fully maintained. But few of the best Downs are on offer; they are making very nearly 5s 4d; best Long Wools rather more than 5s; Kents, &c., 5s 4d to 5s 8d. We have a tolerably good supply of Calves; trade for them is dull—the very choicest descriptions barely make 4s 8d, and coarser qualities, 4s to 4s 4d. Choice Porkers command a ready sale, and make about 5s 4d; but trade is still very dull for large Hogs with 4s to 4s 6d.

Beasts, 918; Sheep and Lambs, 4960; Calves, 272; Pigs, 480.

41, West Smithfield.

COVENT GARDEN, Oct. 17.—Vegetables are still sufficient for the demand, but Fruit is not over abundant. Pine-apples, of excellent quality are plentiful, and may be bought at last week's prices. Grapes, both English and Foreign, are cheap and plentiful, more especially the latter, large importations of which continue to arrive twice a week by the steam-ships from Rotterdam. They are well flavoured, and generally arrive in excellent condition. Apples and Pears have not altered in price since our last report. Oranges are scarce. Nuts are sufficient for the demand. Walnuts are plentiful, and very good in quality. There is little demand for Filberts. Lemons are scarce, and so are good English Melons; some foreign ones are in the market. Of Vegetables, Cabbages, Cauliflowers, &c., are good, but the latter hardly sufficient for the demand. Carrots and Turnips have altered but little in price. Peas are almost over for a season. Beans remain nearly the same as last week. Celery is good in quality. Potatoes are rather scarce, and very much affected by the prevailing disease. Lettuces and other Salading are good and plentiful. Cut Flowers chiefly consist of Heaths, Jasmines, Pinks, Camellias, Pelargoniums, Gardenias, Violets, Fuchsias, Azaleas, and Roses.

FRUITS.

Pine Apple, per lb.,	4s to 7s	Lemons, per dozen,	1s 6d to 3s
Grapes, Hothouse, per lb.,	1s to 4s	— per 100,	12s to 20s
— Portugal, per lb.,	6d to 1s	Almonds, per peck,	6s
Apples, Dess., per bush.,	3s 6d to 6s	— Jordan, per lb.,	0s to 0s
— Kitchen,	4s to 6s	Filberts, English, p. 100 lbs.,	90s to 95s
Pears, per hf.-sieve,	4s to 12s	Nuts, Cob, per 100 lbs.,	95s to 100s
Melons, each,	2s to 3s	— Barcelona,	80s
Oranges, per dozen,	2s to 3s	— Brazil,	12s to 16s
— per 100,	14s to 21s	— Spanish,	14s
— per dozen,	1s to 2s 6d	Walnuts, per bushel,	10s to 24s
Barberries, per hf.-sv.,	4s to 6s		

VEGETABLES.

Cabbages, per doz.,	6d to 1s 6d	Shallots, per lb.,	4d to 6d
— red, per drm.,	2s to 4s	Garlic, per lb.,	6d to 8d
Broccoli, per doz.,	4s to 12s	Spinach, per sieve,	1s to 1s 6d
Cauliflowers, per doz.,	4s to 8s	Lettuce, Cos, per score,	2d to 1s 6d
Artichokes, per doz.,	2s to 3s	Tomatoes, per hf.-sv.,	2s to 3s
French Beans, per hf.-sv.,	1s 6d to 2s 6d	Endive, per score,	1s to 1s 6d
Sorrel, per hf.-sieve,	2d to 1s	Vegetable marrow, p. doz.,	6d to 1s
Potatoes, per ton,	£7 to £8	Radishes, per 12 bunches,	1s to 1s 6d
— cwt.,	2s 6d to 3s 6d	Mushrooms, per pottle,	1s to 2s
— bushel,	1s 6d to 2s 6d	Small Salads, per basket,	2d to 3d
— Kidney, per bushel,	3s to 4s	Fennel, per bunch,	2d to 3d
Turnips, per doz.,	1s to 2s	Savory, per bunch,	2d to 4d
Red Beet, per doz.,	6d to 1s 6d	Thyme, per bunch,	2d
Horse Radish, per bundle,	2s to 4s	Watercress, p. 12 small bun.	6d to 8d
Cucumbers, each,	2d to 6d	Parsley, per bunch,	4d to 6d
Leeks, per bunch,	2d to 3d	— Roots, per bundle,	2s
Celery, per bundle,	1s to 1s 3d	Tarragon, per bunch,	2d
Carrots, per bunch,	2d to 3d	Mint, green, per bunch,	6d to 8d
Onions, per bushel,	3s to 7s	Marjoram, per bunch,	2d to 4d
— Spanish, per d.z.,	1s 6d to 4s	Chervil, per punnet,	2d to 3d

HAY,—Per Load of 36 Trusses.

CUMBERLAND MARKET, Oct. 15.

Prime Mead. Hay	72s to 78s	Old Clover	95s to 98s				
Inferior	65 68	Inferior do.	72 92	Straw	30s to 34s		
New Hay	— —	New Clover	— —				

JOSHUA BAKER, Hay Salesman.

WHITECHAPEL, Oct. 16.

Fine Old Hay	76s to 78s	Old Clover	100s to 110s				
Inferior Hay	— —	Infer. do.	— —	Straw	28s to 32s		
New Hay	64 72	New Clover	84 98				

HOPS, FRIDAY, Oct. 16.

There continues a very good demand for all descriptions of Hops, at the following quotations. At Weyhill fair yesterday there was a very large amount of business done, and nearly all the Farnham Hops sold at a slight advance on the previous day's prices; the country Farnhams also sold very freely.

Mid and East Kents, from	£5	0 to	£6 10
Weald Kents	4	4 to	5 0
Sussex	3	14 to	4 10
Farnhams	5	12 to	6 10
Country ditto	4	10 to	5 10
Yearling Kents	3	10 to	4 10
Ditto Sussex	2	8 to	4 4
Old Hops	2	0 to	4 0

PAYMENTON & WILKINS, Hop-Factors.

MARK-LANE, MONDAY, Oct. 12.

There was a good supply of English Wheat by land carriage samples from Kent and Suffolk this morning; that from Essex was moderate; having a large attendance of buyers the red met a free sale at the extreme prices of this day se'nnight, and 1s. per qr. advance was made of the white. Free Foreign was more in demand, and realised in many instances prices which last week were unobtainable.—Picked samples of Malting Barley are 1s. per qr. dearer, and inferior qualities fully support our late quotations.—White Peas are 1s. per qr. lower; Beans unaltered in value.—The sale of Oats is slow at former rates.—Flour is held very firmly; but business is not active.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk, White	60	68	Red	58	60
—— Norfolk, Lincolnshire, and Yorkshire	54	64	White	54	62
Barley, Malting and distilling 36s to 38s Chevalier	38	45	Grind.	32	36
Oats, Lincolnshire and Yorkshire	23	24	Feed	20	20
—— Northumberland and Scotch	27	31	Potato	20	25
—— Irish	23	30	Potato	26	28
Malt, pale, ship	—	—			
—— Hertford and Essex	—	—			
Rye	—	44			
Beans, Masagan, old and new	36 to 41	Tick	28	41	Harrow 39 40
—— Pigeon, Hollo-land	42 to 43	Winds	43	70	Lemped 38 40
Peas, White	30 to 36	Maple	36	42	Grey 36 36

FRIDAY, Oct. 16.

There was little English Wheat fresh up for this morning's market, and we observe no alteration in its value. Foreign being held for high prices, and in many instances for an advance, prevented business from being extensive. The demand for barrel flour continues inactive.—Fine Malting Barley is exceedingly scarce, and commands extreme rates; grinding is fully as dear.—Beans and Peas are unaltered.—Old Oats fully support their late value; but new are a slow sale.—Maize continues in improved request at advancing prices—say at 44s. to 50s. per qr., including freight and insurance, according to the time of delivery.—The American advices induce a belief that their exports of corn and flour this season will be trifling, and the harvest is represented as inferior to that of last year. Letters from Canada state the full shipments as likely to be smaller than usual.

IMPERIAL AVERAGES.

	5 per Quarter.	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
		49s 0d	31s 8d	22s 2d	34s 7d	40s 4d	37s 1d
Sept.	12	50 0	33 7	23 5	36 4	40 11	38 10
—	19	51 6	34 1	23 7	38 0	41 6	40 5
—	26	52 1	35 10	23 7	38 7	42 7	41 0
Oct.	3	54 1	36 0	24 8	38 5	43 6	42 4
—	10	56 10	37 2	24 7	38 9	43 7	42 4
4 weeks' Aggreg. Aver.		53 4	35 9	23 9	38 1	43 1	42 0
Duties on Foreign Grain		6 0	2 0	1 6	2 0	2 0	2 0

Diagram showing the fluctuations in the price of Corn as the average of the six weeks ending Saturday, October 8.

Paron.	Sept. 1	Sept. 12	Sept. 19	Sept. 26	Oct. 3	Oct. 10
56 10	••	••	••	••	••	
54 0	••	••	••	••		••
53 1	••	••	••		••	••
51 3	••	••		••	••	••
50 0	••		••	••	••	••
48 0	••	••	••	••	••	••

SEEDS, Oct. 9.

Canary	per qr	48s to 56s	Linseed Cakes, Foreign, p. ton	£7	0	10
Caraway	per cwt	40 42	Mustard, White	7s		8s
Clover, Red, English	—	—	— Superfine	—		—
— Foreign	—	—	— Brown	9		10 6d
— White, English	—	—	Rapeseed, English, per last	£10		£21
— Foreign	—	—	Rape Cake, per ton	£7	15s	£8
Coriander	10	12	Safflower	—		—
Hempseed	per qr.	36 38	Tares, Eng. winter p. bush.	2s		3s 6d
Linseed	per qr	42 43	— Foreign	2s		2s 6d
— Baltic	37	39	Trefoil, per cwt	16		18
— Cakes, Eng. per 1000	£8	8s	Turnip (too variable for quotation).			

KINGSFORD AND LAY.

Sales by Auction.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Proprietor, who is about to dispose of the business, to offer for sale by Auction, on the Premises, at the Edmonton Nursery, opposite the Golden Fleece, Edmonton, on Thursday and Friday, the 22d and 23d of October, 1846, at 11 for 12 o'clock, the whole of the out of door STOCK, consisting of EVERGREENS, CHOICE STANDARD ROSE TREES, &c. The Stock comprises a quantity of splendid large Laurels, Portugal Laurels, Aucubas, Box, Arborvitæ, Red Cedars, Evergreen Oaks in pots, and a large lot of fine Laurestinus well set with bloom, &c. Also the remainder of the collection of choice GREENHOUSE PLANTS, including a lot of fine Camellias, received since the last sale, and comprising about 80 choice named varieties, small bushy plants covered with bloom.

N.B.—The Proprietor is now ready to offer the Lease (21 years), Greenhouses and Fixtures, with immediate possession, on very advantageous terms. Further particulars may be obtained by applying to Mr. Henchman at the Nursery. Catalogues of the sale may be had of the Auctioneers, or at the Nursery.

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton, Draining Engineer to Her Majesty, at Osborne, Isle of Wight; the inventor of a Patent Tile and Pipe Machine (applicable to making Bricks); also a new Machine for taking roots and stones out of clay, both which are to be seen at the Royal Polytechnic Institution, Regent-street,—offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P.S.—Land drained at a fixed sum per acre, including every expense.

IMPORTANT SALE OF 2000 CAMELLIAS, HYBRID RHODODENDRONS, AZALEA INDICA, &c., CONSIGNED FROM BELGIUM FOR ABSOLUTE SALE.

MESSRS. PROTHEROE AND MORRIS have received instructions to submit to public competition, at the Auction Mart, Bartholomew-lane, the middle of November, 1846, about 2000 CAMELLIAS, from 2 to 4 feet, most of which are beautifully furnished with bloom-buds, and comprise all the esteemed varieties. Also Rhododendron arboreum, Azalea indica, and other Greenhouse Plants. Catalogues may be had a week prior to the sale, at the Auction Mart; and of the Auctioneers, American Nursery, Leytonstone.

FOURTEEN ACRES OF NURSERY STOCK, Wandsworth Common. The Ground being required for building purposes.

MESSRS. PROTHEROE AND MORRIS are favoured to bring before the Public by Auction on Monday the 26th day October, 1846, and thirteen following days, the superior STOCK of Mr. NEAL of Wandsworth Common Nursery, affording an excellent opportunity for Gentlemen to furnish their Pleasure Grounds and Gardens with Varieties of the choicest Deciduous and Ornamental Plants, and the Trade are respectfully invited, as this is incomparably one of the first class Stocks ever offered to Public Competition. It consists of every Variety of useful and Ornamental SHRUBS, EVERGREENS, FRUIT AND FOREST TREES, AMERICAN PLANTS, usually and unusually grown. Also two Stacks of fine Old Meadow Hay, about 100 loads. May be viewed prior to the Sale. Catalogues (1*s.* each, returnable to purchasers), may be had on the premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition by Auction, on the Premises, Tredegar House, Bow, (near the Little Driver), on Wednesday, October 21st, 1846, at 11 o'clock, by order of Mrs. Gibson, who is leaving the house, the whole of the GREENHOUSE PLANTS, consisting of fine Double Camellias, well set with bloom buds, Azaleas, Fuchsias, Verbenas, Geraniums, a very fine Aloe in tub. Also, two 2-light Boxes, with glazed sashes, capital iron Roller, Garden Engine, Iron Stage for Plants, several ladders, steps, wheelbarrow, and sundry effects. May be viewed one day prior to the Sale, and Catalogues had on the premises, and of the Auctioneers, American Nursery, Leytonstone.

CHOICE CAMELLIAS.

MESSRS. J. C. AND S. STEVENS will sell by Auction at their Great Room, 38, King-street, Covent Garden, on Tuesday, 20th October, at 12 for 1 o'clock precisely, an Importation of CAMELLIAS, from 2 to 4 feet high, just received from a celebrated Grower in Belgium, comprising most of the favourite sorts and many new varieties. They are healthy, well-grown Plants, abundantly furnished with flower-buds.—May be viewed the day prior to, and morning of Sale. Catalogues to be had.

VALUABLE SOUTH AMERICAN PLANTS.

MESSRS. J. C. AND S. STEVENS are instructed to sell by Auction, during the present month, a consignment of VALUABLE PLANTS, being part of the Collections of Messrs. N. FUNCKE, J. LINDEN, and L. CLAUSSEN, during their latest researches in the high Cordilleras of New Granada, in the island of Cuba, and in the interior of the Brazils. They comprise magnificent specimens established in pots in perfect health, and most of them never before introduced into England. Also the very extensive Herbarium of Brazilian plants collected by M. CLAUSSEN in the various provinces of Minas, Geraes, and Santa Catherina, consisting of many thousand specimens, lotted to suit private Botanists. Catalogues are preparing, and the day of sale will be advertised in the next number of the *Chronicle*.—38, King-street, Covent-garden, Oct. 17.

CAPITAL NURSERY AND FLORIST'S business for Sale.—Mr. GLENNY has to dispose of a very complete business, returning 900*l.* per annum ready money, and capable of extension. Everything in high condition and full work. Long Lease. Business and Stock, 2500*l.*—Further particulars, for Principals only, at the Gardeners' Gazette Office, 420, Strand.

GREAT SALE OF TULIPS, at the Mart, by GEORGE GLENNY & CO., on Tuesday and Wednesday, the 27th and 28th October. A Splendid Collection, the property of Mr. Baron, of Saffron Waldon.—Catalogues at the Seed Shops, and Gardeners' Gazette Office, 420, Strand, London.

TO BE DISPOSED OF Fifty POCKETS of NORTH CLAY HOPS, at £5 12*s.* per cwt. Owing to an auspicious summer and beautiful mild autumn, I have been fortunate enough to succeed in gathering in a crop of North Clay Hops, unusually fine and thick, and fuller of condition than any I have ever previously known; for weight and extent of crop also, I may without fear of contradiction, assert that I possess the largest in the district, and I feel confident, that under any circumstances, they will do business well for several years to come. Relying upon this fact, I venture to solicit the kind orders of the public. JOHN HUDSON.

East Retford, Oct. 15th, 1846.

For convenience of purchasers, any quantity may be had, either Pockets, half Pockets, &c.

TO NURSERYMEN AND GARDENERS.

TO BE DISPOSED OF, THE LEASE AND BUSINESS OF PARAGON NURSERY, Brixton-hill. At present in the occupation of the widow of the late Alexander Couper. Twenty-six years of the Lease are unexpired. For further particulars apply to Mrs. COUPER, on the premises.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.

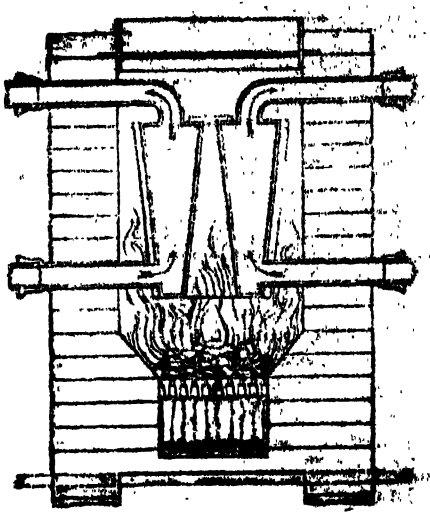


J. WEEKS AND DAY, Architects, &c., Gloucester-place, King's-road, Chelsea, HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, most respectfully beg to inform the Nobility, Gentry, and Horticulturists, that they have erected on their premises, for the purpose of inspection, a variety of Hothouses, Greenhouses, Conservatories, Pits, &c., where all the various known improvements of the day can be seen. Their Hot-water Apparatus is also erected, and kept in constant action in various Hothouses, Greenhouses, Pits, &c., where the whole principle of Top and Bottom Heating can be seen.

J. Weeks & Day warrant their Hot-water Apparatus to be efficient for every purpose to which heat is applicable. Boilers of all sizes; the largest to warranted to heat a range of Forcing-houses 800 feet in length, with a small quantity of fuel, and only to require attention once in 12 hours.

Models, Plans, &c., in great variety.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. Mills's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by Burbidge and Healy's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130 Fleet-street, London.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to Benjamin Fowler's superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

Benjamin Fowler, 69, Dorset-street, Fleet-street.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. Bailey having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

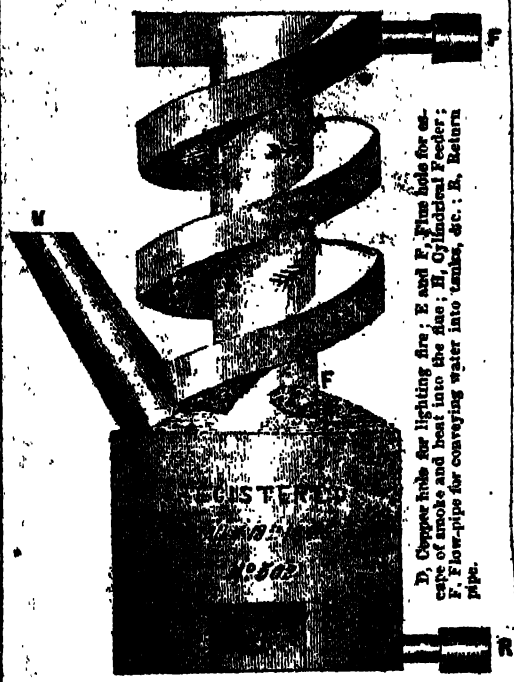
D. and E. Bailey also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. Bailey were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. Bailey have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at Intervals, required, and which may be seen at their Manufactory.

AGRICULTURAL DRAINING.—The attention of Agriculturists is respectfully directed to a simple and most efficient DRAINING LEVEL, price 26s. It can be sent to any part securely packed. It cannot well be put out of order, and a mere labourer can use it. To be had of the maker, John Davis, Optician, Derby.

J. B. SAMPSON'S SELF-FEEDING ECONOMICAL HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, CHAPELS, &c. &c.



D, Copper tube for lighting fire; E and F, Flue tube for escape of smoke and heat into the flue; H, Cylindrical Feeder; F, Flow-pipe for conveying water into tanks, &c.; R, Return pipe.

SPIRAL WATER HEATER.

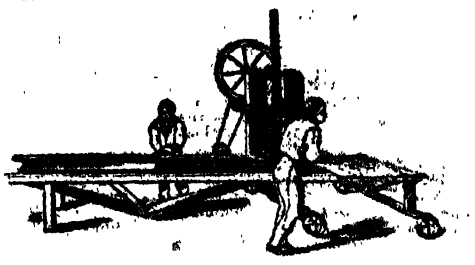
J. B. SAMPSON, Engineer, &c., Maidstone, Kent, Inventor and Manufacturer of the much approved REGISTERED SPIRAL WATER HEATER, having erected many during the last season, on his own responsibility, which have given the greatest satisfaction in every case, he can with confidence offer this admirable Boiler to the Public as the best yet introduced, possessing great advantages over the Conical and all others. 1st, Forming its own flue, and exposing three large surfaces to the action of the fire; after it has left the body of the boiler, the heat (which is lost in others), passing round it, and being economised to the greatest extent, allowing the least possible escape. 2nd, Requiring fuel but once in 14 hours, and being made of cast iron, renders it more durable, not burning out as copper or wrought iron. 3rd, A saving of full 50 per cent. in the consumption of fuel. 4th, Having cylindrical feeder, with air-tight cover, the fire is kept uniformly supplied. 5th, The simplicity of its construction enables any mason to fix it with the greatest ease.

These Boilers are made of different sizes, and may be applied to any pipes, tanks, &c., already fixed.

Can be seen at Messrs. J. and C. Peppercorn's, Ironmongers, Maidstone, and other establishments. A Prospectus, with full particulars, may be had, post free, on application to the Inventor. A liberal discount to the Trade.

N.B. A model may be seen at the Polytechnic Institution, London.

HATCHER'S BENENDEN TILE MACHINE.



Manufactured and Sold by

COTTAM AND HALLEN, 2, WINSLEY-STREET, OXFORD STREET, LONDON.

This is by far the simplest and most efficient Machine for the purpose of making Drain Tiles. Any shape Tile can be made by it. It requires but few hands to work it, namely, two men and two boys. With this amount of labour the produce will be as follows:—

1 in. diameter of Tile, 12,000 | 1½ in. diameter of Tile, 5,600
1¼ do. 8,000 | 2½ do. 3,200

As stated by Thomas Law Hodges, Esq., in his communication to the Royal Agricultural Society of England.

The Machine is quite portable, and requires no fixing, but can be moved up and down the drying sheds, thus requiring no extra boys in carrying the tiles, nor are any shelves required in drying. There is no charge for patent dues or license; the purchase of the Machine includes the free use of it.

Price 28l., including four Dies of any pattern or size.

Extra Dies, of any shape or size, 5s. each.

References can be had as above as to where it can be seen in actual use.

Improved Pug-mills, wholly of Iron	£16 16 0
Wood	10 10 0
Draining Spades, per set of three, with swan-neck scoop	1 1 0
Improved Drain Level for the use of workmen	2 5 0

COTTAM'S IMPROVED CLOD CRUSHERS.

The improvements made in these useful Implements consist in the division of the roller into two parts, which greatly facilitates the turning and working of the Implement. The frames are made wholly of iron, and are therefore much more durable than those of wood. The prices of these Clod Crushers will be found considerably lower than those usually charged.

5 feet 6 inches long, 17l. 6 feet, 18l. 10s. 6 feet 6 inches, 20l.

Every description of Agricultural Implements, including Grubbers, Ploughs, Harrows, Drills, Dibbles, Weighing Machines for live cattle and farm produce, Chaff Cutting Machines, Churns, &c., and every description of Agricultural and Horticultural Implements, at the Agricultural Repository, Winsley-street, Oxford-street, London.

GUANO, &c.

MARK FOTHERGILL begs to offer the following MANURES on the best terms, viz:

GUANO, PERUVIAN and AFRICAN, direct from Import Warehouses.
Ditto. PATAGONIAN and SALDANHA BAY. Ditto.
SODA ASH, for destruction of Wireworm.
SUPERPHOSPHATE OF LIME (See Royal Agri. Soc. Journal, Vol. vi. Part 2).
GYPSUM (Pure Sulphate of Lime).
BONE DUST and BONE POWDER.
SULPHURIC ACID. CHARCOAL.
PETRE SALT and AGRICULTURAL SALT for Composts.
SILICATES of SODA and POTASH, and all other Manures.

No. 40, Upper Thames-street.
Agent for DINGLEY'S HAND SEED-DIBBLE.

FOR WHEAT, TARES, &c.

THE URATE OF THE LONDON MANURE COMPANY will be found a most valuable Manure for the above crops—it is permanent in its effects, and has stood the test of five seasons with increasing success each year. The Company also supply genuine Peruvian Guano, Gypsum, Superphosphate of Lime, Sulphate and Muriate of Ammonia, Charcoal, Bone Sawdust, Sulphuric Acid, and every Artificial Manure, at the lowest market price.—Edward Purser, Secretary, 40, New Bridge-street, Blackfriars.

POTTER'S GUANO FOR WHEAT AND ALL GRAIN CROPS.—The Autumn season is particularly recommended for the application of POTTER'S GUANO for the above crops, as time is afforded for the due decomposition of the Manure in the soil, and it is thus prepared, when the plant feels the first genial warmth of spring, to afford the appropriate nutriment in a fit state for immediate assimilation.—Testimonials and all particulars at the Factory, 28, Clapham-road-place, Kennington. *** A few respectable Agents wanted.

KAGENBUSCH AND Co.'s REMEDY FOR THE POTATO DISEASE.—Price 5s. per packet, which ensures an acre of sound Potatoes and a large crop.

KAGENBUSCH AND Co.'s GERMINATING COMPOUND.—Price 2s. and 4s. per packet. The best Steep for Wheat and other Grain; Turnip, Clover, Onion, and all other Seeds and Pulse. This is the gardener's best friend.

KAGENBUSCH AND Co.'s GERMAN SCIENTIFIC MANURES, which fertilise the land without exhausting it, at 30s. per acre for Meadows, once in three years; for Tillage 35s. per acre, and for Hops 40s. per acre, annually. Price 7l. 10s. per ton for Meadows and Tillage, and 9l. per ton for Hops. One ton is sufficient for 4 acres.

These articles are kept at Hibernia Wharf, London-bridge, and Mr. Joseph Edwards will deliver them to any one bringing the amount in cash.

Manufactured by Kagenbusch and Co., Agricultural Chemists, Leeds. Sold by James and Co., Agents for the South of England, 55, King William-street, City; and Potter, Brothers Agents for the North, Cromford-court, Manchester.

*** Vessels of 50 tons, drawing 8 feet, load at the Works in Leeds, and can ascend the creeks of every port in the Kingdom, so that Dealers or Farmers, and Landed Proprietors, clubbing together, may be supplied direct, at a saving of expence.

A liberal allowance to the Trade.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.



SIX THOUSAND SIX HUNDRED FEET OF CROGGON'S PATENT ASPHALTE FELT have been used to roof the above Society's buildings, at Newcastle-upon-Tyne.

PRICE ONE PENNY PER SQUARE FOOT.

Thomas John Croggon, 8, Lawrence Pountney-hill, Cannon-street, London.

PROLIFIC WHEAT.

R. BEMAN, of Donnington, near Stow, Gloucestershire, having received numerous Testimonials of the superiority of the several varieties of SEED WHEAT which he sold last year, as compared with other Wheats, begs to inform the Public that he has now for sale the following sorts, viz., Red Cluster, Spalding's Red, and Whitfield White.

The prices are—for Spalding's Red and Red Cluster, for 20 bushels and upwards, 9s. per bushel; 8 bushels and under 20, 10s. per bushel; less than 8 bushels, 13s. 6d. per bushel. For Whitfield White—for 20 bushels and upwards, 10s. per bushel; 8 bushels and under 20, 12s. per bushel; less than 8 bushels, 14s. 6d. per bushel.

PIPER'S THREE SORTS OF SEED WHEAT.

1. PIPER'S THICKSET, the very same which Mr. Richardson, of Heydon, Norfolk, calls a new description of Wheat, and has given it a new name, viz. "Protection" Wheat, the fame of which has gone the whole round of the agricultural Papers. I sent the party that Mr. R. writes for the seed two years ago. Norfolk seems to suit it, for Mr. R. says, "it grows from three to four sacks per acre more than the very best Wheats, and five sacks more than Rattling Jack or Spalding," and "makes more and better flour." It should be sown thin on good ground, and cut early. It is, I should think, the stiffest strawed Wheat in England. On a middling piece of land, with trees on both sides, and after Wheat, on the old stubble, without ploughing, from four pecks per acre seed, I grew this year seven quarters four bushels per acre. Thrashed so much, after the wind blew out perhaps four bushels per acre.

2. COLNE WHITE-CHAFF RED, raised by J. D. P., adapted for poor land, grows more straw, and sometimes more corn than the Thickset.

3. BRISTOL RED, grows more straw still. Last year J. D. P. sowed this Wheat, beside eleven other sorts, and it grew more than any of the rest.

J. D. P. did not raise this Wheat. Had it from Huntingdonshire two years ago. It is the Wheat which gained the first prize when the Royal Agricultural Society met at Bristol.

Thickset 80s., White-chaff and Bristol Red 72s. per quarter for cash, in new sacks 2s. each. Carriage paid to London.

Mr. J. Brown, an experimental farmer of Colne, tried nine sorts of Wheat this year. Colne White-chaff and Bristol Red grew more than any of the rest.

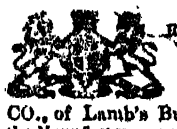
There is no one sort of Wheat which will every season, and on every variety of land, grow more than all other sorts. Perhaps the way to ensure a crop would be to sow all three descriptions. The above Wheat may be had in many counties; but perhaps not so select as from

J. D. PIPER, of Colne Engaine, Essex.

PHOSPHORIC RAT POISON.—This preparation is offered to the Public with the greatest confidence, being decidedly superior to all those poisons containing arsenic and other minerals. It is most greedily eaten by rats and mice as long as it is offered to them, and invariably proves certain destruction. Prepared only by Edward Purser, 40, Bridge-street, Blackfriars, London. Sold in pots, with full directions for use, at 4s., 8s., and 20s. each.

ORNAMENTAL TILES for Floors, Walls, &c., of Greenhouses, Conservatories, Garden Terraces; Encaustic, Venetian, &c., in EVERY VARIETY. May be seen at Messrs. PARKER and WYATT'S, Surrey-street, Blackfriars, London, Agents to Messrs. MINTON & CO., the Patentees, of Stoke-upon-Trent. Also Patentees of the PORCELAIN BUTTONS, cheaper and more durable than Mother-of'-Pearl, &c.

CHEAP AND DURABLE ROOFING.

BY HER  ROYAL LETTERS

MAJESTY'S PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, the Manufacturers and only Patentees of THE ASPHALTED FELT FOR ROOFING Houses, Farm Buildings, Sheddings, Workshops, and for Garden purposes, to protect plants from Frost.

At the Great National Agricultural Shows, it is this Felt which has been exhibited and obtained the Prize, and is the Felt patronised by

HER MAJESTY'S WOODS AND FORESTS,
HONOURABLE BOARD OF ORDNANCE,
HONOURABLE EAST INDIA COMPANY,
HONOURABLE COMMISSIONERS OF CUSTOMS,
HER MAJESTY'S ESTATE, ISLE OF WIGHT,
ROYAL BOTANIC GARDENS, REGENT'S PARK,

And on the Estates of the Dukes of Sutherland, Norfolk, Rutland, Newcastle, Northumberland, Buccleuch (at Richmond), the late Earl Spencer, and most of the Nobility and Gentry; and *at the Royal Agricultural Society's House, Hanover Square.*

It is half the price of any other description of Roofing, and effects a great saving of Timber in the construction of Roofs. Made to any length by 32 inches wide.

PRICE ONE PENNY PER SQUARE FOOT.

*** Samples, with Directions for its Use, and Testimonials, of seven years' experience, with references to Noblemen, Gentlemen, Architects, and Builders, sent free to any part of the town or country, and orders by post executed.

☞ The Public is respectfully cautioned that the only Works in Great Britain where the above Roofing is made, are

F. M'NEILL AND CO.'S

Patent Felt Manufactory, Lamb's-buildings, Bunhill-row, London, where Roofs covered with the Felt may be seen, as also the new Vice-Chancellor's Court, and the Passages and Offices at the entrance to Westminster Hall, and other buildings at the New Houses of Parliament, done under the Surveyorship of Charles Barry, Esq., R. A.

Note.—Consumers sending direct to the Factory can be supplied in lengths best suited to their Roofs, so that they pay for no more than they require.

TO BRICK AND TILE MAKERS.

THE AINSLIE PATENT TILE MACHINE COMPANY (JAMES SMITH, Esq., of Deanston, Chairman), having attention to their improved TILE MACHINE, and to their new Patent Improved Kilns, for drying and burning Bricks and Tiles, by which a saving of from two-thirds to three-fourths of the fuel is effected, and all the articles are burnt equally without loss or damage. The Machines at work and a Model of the Kilns to be seen, and all particulars to be obtained from Mr. JOHN PATON, Secretary, 103A, Piccadilly, London. Agents wanted.

J. LEGG'S IMPROVED SELF-ACTING HYDRAULIC ENGINE being now Registered, he begs to call the attention of the Public to the following Prices:—A machine to convey water 100 yards, conducting-pipe included, 20*l.*; do. do. 600 yards, 50*l.* This machine can be made to convey from 1 gallon to 20 per minute to a distance of 2000 yards, and to an elevated point of 500 feet or upwards. Fountains, Towns, &c., situated on eminences, can be supplied by the above machine. Deep well-pumps on an improved principle.—N.B. All Machine warranted.—Apply at 9, St. Philip's-street, Cheltenham.

On sale, 8vo, price 3*s.* 6*d.* to Fellows of the Society, and 5*s.* to others, or, postage free, upon receipt of a Post-office order, price 5*s.* to Fellows of the Society, or 6*s.* 6*d.* to others.

A CATALOGUE OF FRUITS cultivated in the Garden of the Horticultural Society of London. *Third Edition.* Containing the Names, Synonyms, Colour, Size, Form, Quality, Use, Time of Ripening, and many other particulars concerning all the most important varieties of hardy Fruit cultivated in this country.

Sold at the House of the Society, 21, Regent-street; and also by LONGMAN & Co., Paternoster-row; J. HATCHARD, Piccadilly; RIDGWAY, Piccadilly; RIVINGTONS, Waterloo-place; and by the principal Booksellers in all parts of the Empire.

FARMERS' CLUBS.—An arrangement has just been made by which the result of the discussions entertained upon practical questions in the Local Farmers' Clubs will be given in the "Farmers' Magazine." Nearly 200 columns of Agricultural Intelligence will be continued, with Engravings of the best and most perfect animals which obtain the prizes of the leading Agricultural Societies. The series of Portraits of Patrons of Agriculture and Eminent British Farmers, with Biographical Memoirs, is in continuation—Mr. J. Grey, of Dilston, and Mr. Smith, of Deanston, have just appeared. Price 2*s.* May be had of all Booksellers. Office, 24, Norfolk-st., Strand.

"TENANT RIGHT."—That an Alteration in the Conditions upon which Land has been hitherto occupied and cultivated, affording greater security to the Tenant Farmer for the investment of his capital and a wider scope for the exercise of his judgment, as well as a considerable change in the law of Landlord and Tenant, will be greatly accelerated by the Repeal of the Corn Laws, is perfectly manifest; in fact, a system of "Tenant Right" must be established. The MARK LANE EXPRESS has always advocated the rights of the Tenant Farmer, and will continue so to do unflinchingly.—May be had to order of all Booksellers, price 7*d.*; or 14*s.* 10*s.* 4*d.* per annum. Office, 24, Norfolk st., Strand, London.

THE CORN TRADE.—The ascertained destruction of the POTATO crop in the United Kingdom—and the admitted failure of the grain and pulse crops, and, it is apprehended, of the Potato also, in France—render early and correct information on the stock of grain available to meet the exigency, of more importance than for many years past. No trouble nor expense is spared to furnish the latest and best intelligence in the MARK-LANE EXPRESS, which has been for many years the authority in the CORN TRADE IN ENGLAND and in FOREIGN COUNTRIES.—May be had, by order, of all booksellers, price 1*l.* 10*s.* 4*d.* per annum. Office, 24, Norfolk-street, Strand

LORD GEORGE BENTINCK stated at the meeting at Coleshill, on the 9th of September, that by the destruction of the POTATO crop as proved, food to the value of 19,000,000*l.* had been lost; and that France, through the failure of the crops, would require 2,000,000 quarters of grain. This vast demand must cause great excitement, and render correct information as to the supply, and the quarters from whence it may be obtained, of the highest importance. No trouble nor expense is spared to furnish the latest and best intelligence in the MARK-LANE EXPRESS, which has been for many years the authority in the CORN TRADE IN ENGLAND and in FOREIGN COUNTRIES.—May be had, by order, of all booksellers, price 7*d.* Office, 24, Norfolk-street, Strand, London.

PUNCH'S POCKET-BOOK FOR 1847, Illustrated with a coloured Frontispiece and numerous Engravings on Steel and Wood by JOHN LEECH and RICHARD DOYLE, will be published on November 1st. Price 2*s.* 6*d.*

London: Published at the PUNCH Office, 85, Fleet-street.

DEALINGS WITH THE FIRM OF DOMBEY AND SON. By CHARLES DICKENS. Advertisements intended for insertion in the Second Number of this popular Work, should be sent to the Publishers by the 21st inst. Bills (of which 30,000 are required) by the 24th.

London: BRADBURY AND EVANS, Whitefriars.

ROSES IN POTS.

OBSERVATIONS ON THE CULTIVATION OF ROSES IN POTS, including Forcing, Propagating, &c. By WILLIAM PAUL, of the Nurseries, Cheshunt, Herts.

SHERWOOD & Co., Paternoster-row; or from the Author, free by post, on receipt of 22 postage stamps.

FLAX CULTIVATION IMPROVED.

Just published, by J. RILL DICKSON, 29, Broad-street-buildings, London; and may be had of Messrs. GROOMBRIDGE AND SONS, Paternoster-row,

EIGHTEEN LETTERS on the Improved Method of CULTIVATING and MANAGING FLAX, proving, by the evidence of Professor Sir R. Kane and others (practical agriculturists), that, without deteriorating the soil, a proper system in the Culture of Flax will insure greater profits than can be produced from any other description of farm produce whatever. Also, Easy Rules for ascertaining the value and qualities of Flax, adapted for spinning into the different number of Yarns, and Instructions for the proper method of Manufacturing Linens, Damasks, Lawns, Drills, and Cambric Handkerchiefs, with accurately-calculated Directions, Rules, and Examples, for the exact quantity and numbers of Yarns required for each set, or quality. This publication teaches the farmer the most economical and profitable process of Cultivating Flax, and the Manufacturer the art of working it into all kinds of articles at the lowest possible cost, for the great markets of the world; while the Merchant will find ample directions to protect himself against the frauds of practised consigning jobbers. Also,

A LETTER TO HIS GRACE THE DUKE OF RICHMOND, when President of the Royal Agricultural Society of England.

N.B. The Cultivation of Flax in Great Britain has long been impeded by the inexperience of British farmers in preparing it for the market, and in the use of breaking and scutching, or dressing mills, as in Ireland, or other Flax-growing countries. This difficulty may, however, be entirely obviated by the invention which will be known as DICKSON'S PORTABLE FLAX-BREAKING AND SCUTCHING MILL, which will shortly be in the market; it will separate the woody part from the fibre, and can be connected at pleasure with any power now used by farmers in working their thrashing-machines, cider-mills, &c. &c. The Inventor having for years devoted a large portion of his time to the cultivation, management, and manufacture of Flax, confidently affirms that, were the improved system of Flax Culture adopted by English farmers, and persevered in by efforts similar to those so successfully employed by farmers on the Continent, the enormous profits annually drained from England by foreigners for this article, would very speedily be the due reward of the British agriculturist, and the present scandal would cease; our home-grown Flax would profitably employ many thousands of our industrious classes, and keep the machinery in motion, that, up to the present moment, has been worked more to the benefit of the continental Flax-growers and dealers, than to the advantage of British Flax-spinning capitalists, whilst the British fen downers and farmers are deprived of all the advantage that would accrue from cultivating the plant.

Farmers having Flax to dispose of, and those who require Flax seed for feeding or sowing, will find their orders promptly attended to by the Advertiser. Also, communications respecting Dickson's Portable Flax-breaking Mill to be directed to 29, Broad-street-buildings, London., where the Secretaries of Farmers' Clubs and Agricultural Societies can each have a copy of the Work gratis, if called for.

COLOURED ILLUSTRATIONS OF FLOWERS.

To be published with the Annuals, elegantly bound, price 12*s.*

THE FLORIST'S JOURNAL AND GARDENER'S RECORD.

A practical book of reference for all who have gardens, illustrated with Twelve Engravings on steel, exquisitely coloured after nature and numerous Woodcuts. The coloured engravings are portraits of the choicest flowers of the year. The woodcuts are chiefly representations of modes of heating, grafting, budding, protection from the weather, rustic garden ornaments, designs for greenhouses, &c.

The LITERARY PORTION consists of original treatises on the cultivation of flowers, fruits, and vegetables, management of greenhouses and horticultural buildings, together with numerous plainly written essays on interesting subjects, and a most complete calendar of operations for twelve months.

*** In order to make this volume doubly valuable,

A COMPLETE DICTIONARY OF FLOWERS

is bound up with it; the design of which is to supply such information as will enable any person to form a selection of the most ornamental plants suited to every description of garden, and to cultivate them with ease; thus affording, under alphabetical arrangement, at a moderate price, the best information not otherwise to be obtained, unless in works of a very expensive character.

THE FLORIST'S JOURNAL AND GARDENER'S RECORD is suggested as a most appropriate present to ladies and friends residing in the country.

ELEGANT PRESENTS FOR LADIES IN THE COUNTRY.

Early in November will be published, on a Bristol board, expressly prepared,

THE GREENHOUSE REMEMBRANCER,

A perfectly new Almanac for 1847; the design of which is to afford at a glance the necessary information as to what should be done in a greenhouse, the plants which are in bloom every month in the year, and their general management. The temperature required at all seasons will be explicitly given. The whole will be surrounded with a Splendid Border of Flowers, by Paul Jerrard, richly coloured from nature.

London: R. GROOMBRIDGE and SONS, Paternoster-row.

DEDICATED BY PERMISSION OF HER MAJESTY THE QUEEN, TO HER ROYAL HIGHNESS THE PRINCESS ROYAL.

Nearly ready, with Illustrations from Designs by Gilbert, square, cloth gilt,

TALES FOR YOUNG PEOPLE. By AGNES LOUDON. Edited by Mrs. LOUDON.

London: BOWDERY AND KERBY, 190, Oxford-street.

JOHNSON'S GARDENERS' ALMANACK FOR 1847, will be published on the 19th Nov. by the Stationers' Company.—Besides the usual contents of an Almanack, it contains full information of all the Horticultural Discoveries of the past year, and directions for the future—highly important information relative to the Potato—Garden Calendars, &c.

N.B. All Advertisements must be sent to Mr. GREENHILL, Stationers' Hall, Ludgate-street, London, on or before the 2nd of November.

MR. LEIGH HUNT'S NEW WORK.

This day is published, in post 8vo, price 9*s.* boards, or 10*s.* 6*d.* elegantly bound in cloth (uniform with "Imagination and Fancy"),

WIT AND HUMOUR. Selected from the English Poets: with an Illustrative Essay and Critical Comments. By LEIGH HUNT.

London; SMITH, ELDER, & Co., 65, Cornhill.

Of whom may be had, "IMAGINATION AND FANCY." By LEIGH HUNT. Third edition, 9*s.* boards, or 10*s.* 6*d.* cloth elegant.

BOTANY OF CHINA.

Re-issued at the very greatly reduced price of 16*s.*,

ICONES PLANTARUM adhuc China nascentium è Bibliotheca Braamiana excerptæ. Lond. 1821.

The above Work (valuable as being the only publication on the Botany of China, with coloured plates) was originally published at the price of Three Guineas; 15*s.* royal folio; *but few copies remain*, they are done up in extra cloth boards, and offered at the very moderate price of 16*s.*

WILLIAM PAMPLIN, 45, Frith-street, Soho.

NEW WORK BY MRS. LOUDON.

Just published, a New Edition, fcp. 8vo, with an Engraving on Steel, and Illustrations on Wood, 7*s.* 6*d.* cloth,

THE LADY'S COUNTRY COMPANION; or, How to Enjoy a Country Life rationally. By Mrs. LOUDON, Author of "Gardening for Ladies," &c.

London: LONGMAN, BROWN, GREEN, and LONGMANS;

Of whom may be had, price 7*s.* 6*d.*

A New Edition of MISS ACTON'S MODERN COOKERY.

NEW EDITION, EDITED BY MRS. LOUDON.

A New Edition, corrected, with a Supplement, bringing down the Work to 1846, in one very thick volume, 8vo, of above 1300 pages, with 2000 Wood Engravings, 3*l.* 3*s.* cloth,

LOUDON'S ENCYCLOPÆDIA OF COTTAGE, FARM, and VILLA ARCHITECTURE and FURNITURE; containing numerous Designs for Dwellings, from the Villa to the Cottage and the Farm, including Farm Houses, Farmeries, and other Agricultural Buildings; Country Inns, Public Houses, and Parochial Schools; with the requisite Fittings-up, Fixtures, and Furniture; and appropriate Offices, Gardens, and Garden Scenery; each Design accompanied by analytical and critical remarks.

A New Edition, edited by Mrs. LOUDON.

*** The SUPPLEMENT, *separately*, 7*s.* 6*d.* sewed.

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AN ENCYCLOPÆDIA of TREES and SHRUBS. 50*s.*
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REPTON'S LANDSCAPE GARDENING and ARCHITECTURE. 30*s.*; with the Plates coloured, 3*l.* 3*s.*
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ARCHITECTURAL MAGAZINE. 5 vols. 3*l.* 6*s.*
GARDENERS' MAGAZINE. Complete in 9 vols. 9*l.* 17*s.*
ON LAYING OUT and PLANTING CEMETERIES. 12*s.*

London: LONGMAN, BROWN, GREEN, and LONGMANS.

THE EDINBURGH REVIEW, NO. CLXX., was published yesterday.

CONTENTS:

I. PROPOSALS FOR EXTENDING THE IRISH POOR-LAW.
II. SPEECHES AND WRITINGS OF THE LATE LORD KING.
III. GROTE'S HISTORY OF GREECE.
IV. LIVES OF EMINENT ENGLISH LAWYERS—LEGAL EDUCATION.
V. STATE AND PROSPECTS OF BRITISH AGRICULTURE.
VI. GOVERNMENT OF BRITISH INDIA.
VII. RAILWAYS AT HOME AND ABROAD.

London: LONGMAN and Co. Edinburgh: A. and C. BLACK.

THE HORTICULTURAL MAGAZINE, Price 1*s.*, contains 6 Illustrations and 96 columns of really useful and practical information on the cultivation of Flowers, Fruits, and Vegetables, and the general management of Gardens, Greenhouses, and Farms. An illustrated specimen will be forwarded, postage free, to every part of the kingdom, by the Publishers, HOULSTON AND STONEMAN, 65, Paternoster-row, on receipt of 4*d.* or postage stamps.

FISHING NETS, SHEEP NETS, RABBIT NETS, and all kind of FISHING NETS for Sea, River, Lake, and Pond Fishing. Sheep Nets 4½*d.* per yard, nearly 4 feet high. Nets for catching Rabbits, and Cover Shooting on Cords 50, 80, and 100 yards long each. Nets to inclose Pheasants Fowls, &c.—ROBERT RICHARDSON, 21, Tonbridge-place, New road, London.

FEATHER BEDS PURIFIED BY STEAM.

HEAL and SONS have just completed the erection of Machinery for the Purifying of Feathers on a New Principle, by which the offensive properties of the quill are evaporated and carried off in Steam; thereby not only are the impurities of the feather itself entirely removed, but they are rendered quite free from the unpleasant smell of the stove, which all new feathers are subject to that are dressed in the ordinary way.

Old Beds, re-dressed by this process, are perfectly freed from all impurities, and by expanding the feathers the bulk is greatly increased, and consequently the Bed is rendered much softer.

The following are the present Prices of New Feathers:—

Mixed, per lb.	1*s.* 0*d.*	Best Foreign Grey Goose	2*s.* 0*d.*
Grey Geese	1*s.* 4*d.*	,, Irish White ,,	2*s.* 6*d.*
Foreign Grey Goose	1*s.* 8*d.*	,, Dantzic White ,,	3*s.* 0*d.*

HEAL & SON'S List of Bedding, containing full particulars of Weights, Sizes, and Prices, sent free by post, on application to their Establishment, 196, opposite the Chapel, Tottenham-court Road.

WARMING AND VENTILATING CHURCHES, LARGE BUILDINGS, GENTLEMEN'S ENTRANCE HALLS, &c. &c.

CUNDY'S PATENT STOVE for these purposes, is the most efficient and economical yet introduced to public notice. The price of No. 1 Stove, calculated to Warm and Ventilate Buildings from

5,000 to 10,000 cubic feet, is 15*l.*
No. 2, from 10,000 to 50,000 do. 20*l.*
No. 3, from 50,000 to 100,000 do. 25*l.*

Ample testimony can be adduced. They may be seen in daily operation at the PANKLIBANON IRON WORKS, the Great Western Emporium for Stove Grates, Kitchen Ranges, Fenders, Fire Irons, &c. Where is also the largest assortment in the Kingdom of General Furnishing Ironmongery, in Tinned Copper, Tin, and Iron Cooking Wares; best Sheffield Plate and Table Cutlery; Japanned Paper and Iron Tea-Trays; Bronzed Tea-Urns; Baths of all kinds; Brass and Iron Bedsteads; Wire Trellis Work; Garden Ornaments; Verandahs, &c &c.

THORPE, BALLOWS, & Co., Panklibanon Iron Works, 58, Baker-street, Portman-square.

Printed by WILLIAM RAMSAY, of No. 6, York-place, Stoke Newington, and FREDERICK MULCAHY EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their office in Longbard-street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—SATURDAY, OCTOBER 17, 1846.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 43—1846.] SATURDAY, OCTOBER 24. [PRICE 6*d.*

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ROSES.—WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON'S DESCRIPTIVE CATALOGUE OF ROSES. A New Edition, containing all the PROVED novelties of the season, may still be had GRATIS on application

DRIED PLANTS FROM GREECE, AND FROM SOUTH PERSIA.—A few Sets of the valuable Dried Plants collected in GREECE by M. Th. Heldreich, and those collected in SOUTH PERSIA by M. T. Kotschy, may still be procured by applying to Mr. PAMPLIN, BOTANICAL BOOKSELLER, Frith-street, Soho, London. The Plants in both collections are named; many of them are scarcely known in the English Herbaria, and some of them are entirely new species.

☞ The New ANATOLIAN COLLECTION of M. Th. Heldreich is expected to arrive shortly.

LYNE'S NEW GERANIUMS.—Now sending out FORGET ME NOT, REMEMBRANCE, SIR WALTER RALEIGH GILBERT, and the PERI. The whole set for 4*l.*

*** *Usual allowance to the Trade.*

Descriptions can't be obtained. Great attention paid to careful packing.—WILLIAM E. RENDLE and Co., Plymouth.

CHOICE PANSIES.

OLIVER, BROTHERS, SEEDSMEN and FLORISTS, Falkirk, have on hand a large stock of the most popular PANSIES in cultivation, a descriptive Catalogue of which can be had on application. Prices moderate. The usual discount to the Trade

LOUIS VAN HOUTTE, FLORIST, Ghent, Belgium, begs to offer for sale Mr. J. LINDEN'S (his late partner for this operation) following novelties, in strong plants:—

PENTARAPHIA CUBENSIS	3*s.* 6*d.*
DICHARTREA ERECTA	3 6
CATESBÆA LINDENIANA	5 0
BERBERIS AURUIACENSIS	5 0
LOBELIA SERRATA	5 0
RHYTIDOPHYLLUM FLORIBUNDUM (Lobelia libanensis)	5 0
SIPHOCAMPYLUS NITIDUS	2 6

The usual discount to the Trade.

WHITETHORN.

F. C. BALL having a Stock of from two to three millions of the above, begs to offer them to the notice of Railway Contractors and Planters. Samples and prices will be forwarded on application.—Taunton Nurseries, Oct. 24, 1846.

SHOWY HERBACEOUS PLANTS.
WOODLANDS NURSERY, MARESFIELD, UCKFIELD, SUSSEX.

WM. WOOD AND SON having for several years paid particular attention to the cultivation of HARDY HERBACEOUS PLANTS, during which time they have spared no expence in obtaining all the Newest and most esteemed Species and Varieties. They have now much pleasure in offering well assorted collections on the following advantageous terms, when the selection of sorts is left to themselves, viz.—

	Per doz.	Per 100.
Good showy kinds, all distinct ..	6*s.*	42*s.*
Superior do. do. ..	12*s.*	75*s.*
Extra superb and new do. ..	16*s.*	100*s.*

Catalogues of the above are just published, and may be had, GRATIS, on application.

Plants presented with each order to defray the expence of carriage, &c.

SEED POTATOES.—A quantity of sound Potatoes of the SHORT TOP RED, and RED KIDNEY sorts, both excellent and profitable kinds, grown on new and rich Fen Land, referred to by "Curator," in another part of your Paper, are now on sale at 1*s.* per peck. They will be sent to any part of the kingdom, and any information afforded as to the most advisable mode of culture.—Direct to P. P., Curator, care of Mr. Rumpus, Bookseller, Holborn Bars, London.

NEW PINK.

NORMAN'S "HENRY STEERS," purple laced, extra fine form; fine long pod; well laced and constant, 5*s.* per pair, sent post free on receipt of a Post-office order on Woolwich.

Messrs. NORMAN feel great confidence in offering the above, feeling assured it will give satisfaction.

Catalogues of their select Show Carnations, Picotees, Pinks, Tulips, &c., will be forwarded on prepaid application enclosing one stamp.—Bull Fields Woolwich.

FOREST TREES, SHRUBS, AND FRUIT TREES.

WILLIAM E. RENDLE AND Co., of Plymouth, have this season an unusually large stock of FOREST TREES, SHRUBS, and FRUIT TREES, in the most luxuriant and healthy condition, having upwards of

500,000 LARCH FIRS.
200,000 SCOTCH FIRS.
150,000 PINUS AUSTRIACA.
400,000 THORNS.
20,000 LAURELS.

And all other kinds in equal abundance.

As the Lease of one of their Nurseries expires at Christmas next, they are determined to offer many of the leading articles at a very low price, in anticipation of a large demand, and to enable them to clear the ground at the appointed time.

Steamers are continually running from this port to London, Liverpool, Dublin, Cork, Southampton, Torquay, and Falmouth, at low freights.

Priced Catalogues are now ready, and can be had *gratis* on application to

WILLIAM E. RENDLE AND Co, Plymouth.

Office, Union-road, Oct. 24.

STAPLETON ROAD NURSERIES.

WM. MAULE AND SONS beg to call the attention of the floricultural world to a figure of their new Hardy CLEMATIS, named by Professor Lindley SEMPERFLORENS, which will appear in the forthcoming number of the "Botanical Register." This magnificent addition to this hardy and beautiful tribe of Climbers will shortly be offered to the public.

Bristol, October 24.

SCARLET PELARGONIUMS.—12 Plants of the above, in 12 of the best and most distinct varieties in cultivation, are now offered for 1 guinea, basket included, viz.:—

Shrubland superb	Prizefighter improved
General Tom Thumb	Mrs. Mayler
Comet	Honeymoon
Vivid	King of Scarlets
Victoria	Huntsman, true
Goliah	Queen

Also seeds collected from the above, mixed, in 2*s.* 6*d.* packets per post or otherwise.—PHILIP CONWAY, Old Brompton, Oct 24.

EDWARD BECK'S DESCRIPTIVE CATALOGUE OF SEEDLING PELARGONIUMS.—The above is now out of print, and as several of the varieties described are sold out, and it has had an extensive circulation, E. B. does not intend to have it reprinted.

Of the following varieties strong plants may still be had in exchange for Post-office orders on Brentford:—

Aurora	£2 2 0	Hebe's Lip	£1 11 6
Competitor ..	1 11 6	Resplendent ..	1 1 0

Gigantic .. .. .. 10*s.* 6*d.*

The usual allowance to the Trade.

N.B. The remaining plants of the Seedlings of 1844 are very good, with cuttings on each.

Worton Cottage, Isleworth, Oct. 24.

NEW SEEDLING STRAWBERRIES.

J. MYATT AND SONS have selected from their stock of seedlings the following varieties, which are now ready for sending out:—

MYATT'S ELTHAM, large and fine flavour, per 100		30*s.*
,, MAMMOTH, very large	,,	30*s.*
,, PROLIFIC, early and great bearer	,,	21*s.*
HOOPER'S SEEDLING, early	,,	21*s.*

The above selection are quite distinct, and well worth the attention of growers.

Early orders will ensure strong plants for fruiting next season.—Manor Farm, Deptford, Oct. 21.

UNIQUE HOLLYHOCKS AND SHOWY HERBACEOUS PLANTS, &c.

WILLIAM MAY, F.H.S, having propagated the above in extensive quantities, begs to offer them on the following very reduced terms, *viz.*—

Hardy Herbaceous Plants, of showy sorts, by name, of which he grows more than 1000 species and varieties, 30*s.* per 100, W. M.'s selection.

Hollyhocks, very superb sorts, by name and colour, for exhibition, and for which he was awarded the premium prize at the Darlington Exhibition in September last, 12*s.* per dozen.

Hollyhocks, fine double sorts, proper for borders or shrubberies, of all shades and colours, 30*s.* per 100.

W. M. having paid especial attention to collecting, selecting, and improving the Hollyhock for more than 20 years, flatters himself his collection is equal to any in cultivation. The same remarks may be applied to his Herbaceous Plants, for which he has long been celebrated.

Seed of Hollyhocks (all warranted from best double flowers), Pansy, Calceolaria, Fuchsia, and Antirrhinum from the best flowers of the present season, in packets at 2*s.* 6*d.* and 5*s.*, post free.

N.B. The Trade supplied on the usual terms.

Hope Nursery, Bedale, Yorkshire, Oct. 24.

HOLLYHOCKS.

JAMES KITLEY, NURSERYMAN, Lyncombe Vale, Bath, begs to inform his friends and the public that he has an immense Stock of FINE DOUBLE SEEDLING HOLLYHOCKS of every shade of colour, which have all bloomed, and from which every single flower has been thrown out, and which he will send out at the following prices, viz.

100 plants, 2*l.*; 50 ditto, 21*s.*; 25 ditto, 12*s.* 6*d.*, including basket and packing.

J. K. has no objection to take goods for half the amount ordered by tradesmen. N.B. Seed of the above 2*s.* 6*d.* per packet, or to Seedsmen, 7*s.* 6*d.* per lb.—Bath, Oct. 24, 1846.

TO RAILROAD CONTRACTORS AND NURSERYMEN, &c.

RICHARD HARTLAND AND SONS, 86, Patrick-street, Cork, have for sale, at their Nursery, Several Hundred Thousand THORN QUICKS, fit for fencing in Railroads, which will be delivered to purchasers in any part of England, Ireland, or Scotland, at reduced prices.

Also several Thousand Arbutus, from 6 to 12 inches, in and out of pots. All orders addressed as above shall have prompt attention.

NEW AND SUPERB CINERARIAS.—The undersigned have much pleasure in announcing they are now prepared to execute orders for the following superb Cinerarias, which they will guarantee for size, form and distinctness, to be the most desirable set of seedlings that has yet been offered to growers of this tribe, and have had highly favourable opinions passed upon by the Editor of the *Gardeners' Chronicle*.

SPECTABILIS, 7*s.* 6*d.*—Very dark rich crimson, each flower being 1½ inch in diameter, and of the finest form.

BRILLIANT, 7*s.* 6*d.*—Rich puce, possessing all the properties of size, &c., of the foregoing.

ENCHANTRESS, 7*s.* 6*d.*—Pure white tipped with violet, large, and of fine form.

STANDARD, 5*s.*—Bright crimson, possessing all the properties of a first-rate Cineraria, of medium size, and very compact.

BEAUTY, 5*s.*—Bright puce, with light circle in centre of each flower; fine form, and very compact.

AGNES, 5*s.*—White, tipped with crimson, large, of fine form, and very compact.

The set of six will be charged 30*s.* The usual discount to the Trade when three sets are taken.

It is requisite to state the above are a set of Seedling Cinerarias that VOUELL and Co. can confidently recommend, as they possess that rotundity of form in the petals so desirable in this class of flowers.

TULIPS.

50 first-rate show varieties by name, 3*l.*; including Surpass Catafalque, Gloria Mundi, Coburg, Dutch Catafalque, Rob de Snam, Norwich Black Baguets, Dey of Algiers, Grotius, Violet Alexander, Mattie Parton, Pearson's Regent, Blacca, Bell's Best Rose, Triumph Royal, Thunderbolt, Georgina Tertius, Queen of Egypt, &c.

They also beg attention to the particulars of the following, which appeared in their advertisement of last week.

THE FINEST CARNATIONS, PICOTEES, AND PINKS.
FINE CAMELLIAS.
THE FINEST DUTCH HYACINTHS, &c.
CEDRUS DEODARA.
ARAUCARIA IMBRICATA, OR CHILIAN PINE.
GERANIUMS AND FUCHSIAS.
FUCHSIA CORALLINA, 5*s.*
TRUE FALSTOFF RASPBERRY.

PANSIES.

Extra fine first-class show varieties, 18*s.* per doz., fine do., 10*s.*

VOUELL'S EARLY TOBOLSK RHUBARB, MYATT'S VICTORIA Ditto. Fine strong Roots for forcing.

STRONG GIANT ASPARAGUS, 2*s.* 6*d.* per 100.

Steamers from this port to Rotterdam and Hull twice a-week, and to London daily.

Great Yarmouth Nursery, Oct. 24.

ROSE CATALOGUE.—NEW EDITION.
NURSERIES, CHESHUNT, HERTS.

A. PAUL AND SON beg to apprise their friends and the public at large, that a New Edition of their ROSE CATALOGUE is now ready for circulation, and which will be forwarded to all who may honour them with an application, inclosing two penny stamps for postage. Many new and fine varieties have been added to the Collection since the issuing of the last edition. No pains or expence have been spared to render the descriptions accurate, and the Catalogue complete and useful.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN & OTHERS.
ABIES CANADENSIS, OR HEMLOCK SPRUCE.

G. BAKER, NURSERYMAN, Bagshot, Surrey, having the Largest Stock in Europe, of various sizes and in fine condition, can with confidence recommend this noble tree to the notice of the public, at the following prices:—

1 ft.—Transplanted ..	.. at £0 12	0 per 100
2 ,, ,, ..	.. ,, 0 18	0 ,,
3 ,, ,, ..	.. ,, 1 5	0 ,,
3 to 4 ft. ,,	.. ,, 1 10	0 ,,

PICEA BALSAMEA.

1½ to 2 ft. ,, ..	.. at £0 8	0 ,,
2 ,, 3 ,, ,, ..	.. ,, 0 12	0 ,,

G. B. having a fine Stock of Flowering KALMIA LATIFOLIA, can supply them at the following low prices:—

9 to 12 inches ..	.. at £2 10	0 per 100
12 ,, 18 ,, ..	.. ,, 3 15	0 ,,
18 ,, 20 ,, ..	.. ,, 5 0	0 ,,

Fine Specimen Plants from 3*s.* 6*d.* to 5*s.* each.

N.B.—Large purchasers will have considerable reduction.—The usual allowance to the trade.

ROSES.

J. B. GUILLOT, NURSERYMAN, AND SPECIAL CULTIVATOR OF ROSES, Place de la Croix, la Guillatière, Lyons, France, begs to inform Amateurs and the Public in general, that in his establishment all the best varieties of ancient and modern ROSES are to be found at moderate prices. He has just introduced several new Seedlings raised by him in 1845, and especially the unorb hybrid perpetual plant, named "LE GEANT DES BATAILLES." Orders post paid punctually attended to.—October 24.

RHODODENDRONS, &c.

F. C. BALL is prepared to execute immediate Orders for the undermentioned Plants, and can with confidence recommend them.

	s.	*d.*
Taxodium sempervirens, 9 to 18 in.	10	6
Chirita sinensis	2	6
Weigela rosea	10	6
Veronica Lindleyana, per doz.	20	0
Cuphea cordata (Veitch's)	5	0
Alona cedestis, 9 to 18 in. per doz.	12	0
Statice monopetala (strong) per doz. ..	18	0
Centetenion gens. alba.	2	6

	s.	*d.*
Rhododendron arboreum album, 6 to 30 in. .. to	3	6
Arbutus procera, 18 in. to 2 feet	3	6
Torenia asiatica ..	2	6
Fuchsia corallina (Pince's)	10	6
Chironia floribunda, pr. doz. ..	2	6
Balsamia latifolia (Veitch's)	5	0
Begonia Fuchsioides ..	2	6

An allowance to the Trade.—Taunton Nurseries, Oct. 24, 1846.

WM. WOOD AND SON'S GENERAL CATALOGUE OF NURSERY STOCK.—NEW EDITION.

WM. WOOD AND SON, in returning their sincere acknowledgments to the numerous friends who have in past seasons favoured them with their commands, would with especially to direct attention to their very extensive stock, extending over an area of 40 acres, and comprising a general collection of HARDY TREES AND FLOWERING SHRUBS, TRANSPLANTED FOREST TREES, CONIFERÆ, ORNAMENTAL TREES OF LARGER GROWTH, EVERGREENS AND AMERICAN PLANTS, FRUIT TREES, &c.

Also Greenhouse, Hothouse, and Herbaceous Plants, Camellias, Chrysanthemums, Petunias, Cinerarias, &c., all of which are in the finest possible condition, and will be offered on the most reasonable terms.

W. W. and S. also beg leave to remark that their immense stock of Roses, Standards and Dwarfs, and in pots, are exceedingly vigorous and fine this season.

Catalogues of the above may be had, GRATIS, on application.

Woodlands Nursery, Mayfield, near Uckfield, Sussex.

MOUNT ETNA AND ISABELLA.—The following testimony to the excellence of the above Plants has just been received, unsolicited, from one who is a Geranium raiser:—

"*Farnham, Oct. 19, 1846.*

"SIR,—The two plants came to hand on Saturday in good order, and are very nice plants, particularly 'Mount Etna;' foliage good, and a fine grower. The drawings I think are well executed.—I am, Sir, yours respectfully, THOS. EYRE."

"To Mr. Wm. Miller."

Similar strong plants are now ready,

Mount Etna	£1	1 0
Isabella	0	10 6

The Two for 30s.

"Mount Etna" has received Four Prizes and "Isabella" One, at the London Exhibitions. Plates and descriptive lists can be had for twelve postage-stamps, of

WILLIAM MILLER, Providence Nursery, Ramsgate.

"FORGET-ME-NOT, (LYNE'S) 1846.—Rich Vermilion top petals, with an intensely dark cloud. In the way of Lyne's Duke of Cornwall, but much superior to it."—*Editor's opinion, see Horticultural Magazine for the present month*, where will also be found descriptions of Firefly, The Peri, Nourmahal, Queen of Beauties, and Talisman.

Now sending out:

FORGET-ME-NOT, REMEMBRANCE, SIR WALTER RALEIGH GILBERT, and THE PERI, for 4*l.*

Also, NOURMAHAL, QUEEN OF BEAUTIES, TALISMAN, and SIR ROBERT SALE, for 1*l.*

*** *Usual Discount to the Trade.*

Printed descriptions can be obtained. Great attention paid to careful packing. Orders will meet with prompt attention.—Apply to WILLIAM E. RENDLE and Co., Plymouth.

Office, Union-road, Oct. 1846.

WILLIAM PRESTOE, Shirley, near Southampton, begs to inform the Public that he has a collection of GREENHOUSE PLANTS for sale, healthy and well established, in three to six-inch pots, at 50s. per 100; also about 100 STANDARD GERANIUMS, from 3 to 6 feet high, in excellent condition for early flowering in the conservatory, or to turn out in the spring with Roses, &c. A fine plant of WISTARIA, or Glycine, trained 20 feet, transplanted last spring, price 20s.

N.B.—Improved Mushroom Spawn, and fresh dug Truffles as usual.—Oct. 24.

WANTED.—Poplar, Black Italian and Ontario, 4 to 5 feet; Elm, Wych, 2 to 3 feet; Do., 4 to 5 feet; Willow, Bedford, 5 to 6 feet; Oak, Turkey, 3 to 4 feet; Do., 8 to 10 feet; Oak, Evergreen, in pots, 1½ to 2 feet; Cedar, red Virginian, 2 to 3 feet; Arbor-vitæ, Chinese, do.; Hemlock Spruce, do.; Do., 3 to 4 feet; Balm of Gilead Fir, do.; Common Spruce, do.; Silver Firs, do.; Hazel, 2 to 3 feet; Laburnums, 6 to 7 feet. The prices of the above per hundred, delivered free at the Staplehurst Station of the Dover Railway, to be sent, postage free, to WILLIAM MASTERS, Camden-hill, Cranbrook, Kent.

ROBERT BENJAMIN BIRCHAM, Hedenham Rosary, Bungay, Suffolk, begs to offer the following Select Perpetual and Bourbon ROSES for Sale. These plants are Dwarf (own roots), and having been bedded out all summer, they are nice established plants. R. B. B. feels confident they will give satisfaction to any purchaser, to form beds of Perpetuals, or for Pot Culture. Careful package, and carriage paid to London, per Norfolk Railway:—

BOURBON. Per plant—	s.	d.
Acidalie	1	6
Anne Beluze	2	0
Coria	2	0
Comice de Seine et Marne	2	0
Comte de Rambuteau ..	2	6
Crimson Globe	1	6
Dieul Duc d'Orleans ..	2	0
Duc de Chartres ..	2	0
Dupetit Thouars ..	3	0
Edouard Desfosses ..	1	6
Enfants d'Ajaccio ..	1	6
Gloire de la Guillotierre	2	0
Gloire de Paris	2	0
George Cuvior	2	6
La Gracieuse	2	0
Le Camus	5	0
Le Grenadier	3	0
Marechal du Palaise ..	5	0
Madame Aubis	2	6
Madame Souchet ..	2	6
Paul Joseph	2	0
Pierre de St. Cyr ..	1	6
Princess Clementine ..	1	6
Proserpine	2	0
Queen of the Bourbons ..	1	6
Reine de Mantin ..	3	0
Reine de Virgis	3	0
Sepinturas	5	0
Souvenir de la Malmaison	2	6
Souvenir de Dumont d'Urville	3	6
Virgil	2	0

HYBRID PERPETUAL. Per plant—	s.	d.
Augustine Mouchelet ..	2	0
Aubernon	1	6
Clementine Duval ..	1	6
Comte d'Eu	2	6
Dr. Marx	2	0
Duc d'Aumale	2	0
Duchess of Sutherland ..	2	0
Earl Talbot	1	6
Fulgorie	1	6
La Reine	2	6
Lady Alice Peel ..	2	6
Lady Fordwich ..	1	6
Lane	1	6
Madame Laffay ..	1	6
Melanie Cornu	2	0
Marquise Boccella ..	2	0
Mrs. Elliot	1	6
Prince Albert	1	6
Prince of Wales ..	1	6
Rivers (Laffay)	1	6
Thibault	2	6
William Jesse	1	6
NOISETTE.		
Cloth of Gold	3	6
Fellenberg	1	0
Lamarque Superb ..	1	6
Ophitie	3	6
Solfaterre	3	0
CHINA.		
Madame Breon ..	2	0
Mrs. Rosanquet ..	1	6
Eugene Beauharnais ..	1	6
Devoniensis	1	6

A Descriptive Catalogue sent upon application.

R. B. Bircham has a large stock of the following, which he can offer to the Trade upon advantageous terms, per dozen:—

Persian Yellow, dwarf worked plants.

La Reine, perpetual, dwarf, own roots, or upon 30 to 36 inch stems.

Souvenir de la Malmaison, and Reine de Virgis, Bourbons, dwarf, own roots.—Hedenham, Oct. 24, 1846.

J. B. SMITH begs leave to inform the Nobility, Gentry, and the Trade, that his stock of AZALEA INDICA are unusually fine this season. His list will be found to contain many new and splendid varieties, of this interesting genus, of the last two seasons' production. Parties favouring J. B. S. with their commands, will find the articles of first-rate excellence, and charges strictly moderate. A good collection of Camellias, Rhododendrons, Lilliums, Roses, &c.

N.B. A List will be forwarded on receipt of a postage stamp.

Norbiton Nursery, Kingston, Surrey.

DUTCH BULBS.

H. GROOM, CLAPHAM RISE, near London (removed from Walworth) by appointment, FLORIST TO HER MAJESTY THE QUEEN, AND TO HIS MAJESTY THE KING OF SAXONY, begs to inform the Nobility, Gentry, and Public, that he has received his supply of HYACINTHS and DUTCH ROOTS, in very fine condition, and that his Catalogue of Bulbs is ready for delivery, and may be had on application.

TO RAILWAY CONTRACTORS, NURSERYMEN, &c.

TO BE SOLD.—600 000 QUICKSETS, of superior quality, from 6s. 6d. to 10s. per 1000; and 200 bushels of HAWS, gathered last season. Also 1000 clean-stemmed GOOSEBERRY TREES of the choicest sorts, amongst which are the following:—Companion, Wonderful, Thumper, Leader, Gunner, Pilot, Eagle, &c.—Apply to EDMUND SALISBURY, Melbourn, near Derby.

NOW SENDING OUT,

"FORGET ME NOT" GERANIUM is a great improvement on Mr. LYNE'S celebrated flower "THE DUKE OF CORNWALL." It is much brighter in colour, *having clear and brilliant petals of rich vermilion*, with a large and intensely black spot; is a bold truss of good habit. *It can be recommended as one of the richest and most valuable flowers of the day*, each 1*l.* 1*s.*

The following Set of four, for 4*l.*, namely:—

FORGET ME NOT, REMEMBRANCE, SIR WALTER RALEIGH GILBERT, AND THE PERI.

The Stock of FIREFLY is exhausted, and a few Sets only of the above remain; early orders are therefore necessary.

The usual allowance to the Trade. Great attention is paid to careful packing.—Apply to WILLIAM E. RENDLE and Co.

Plymouth, Oct. 24.

DRIED PLANTS FROM CHINA.—A few sets of the VALUABLE DRIED PLANTS collected in China by Mr. FORTUNE, may still be procured by applying to R. HEWARD, Esq., Young-street, Kensington, London. Among them are many new and rare species scarcely known to Europeans.

GLOXINIA FYFIANA.—This new and deservedly admired variety was raised from seed, and bloomed for the first time in 1845. The colour of the flower outside is white, slightly tinged with purple; the upper part of the inside, or throat, is a deep shaded purple, and the lower part nearly white, regularly spotted with purple. The flowers are large, equally round, supported on strong erect stems, standing perfectly upright, in the form of a cup or inverted bell, differing in this respect from every other variety, and giving to the plant a most strikingly beautiful and novel appearance. That a proper idea may be formed of the habit of this variety (or it may be termed new species) of Gloxinia, a correct engraving has been completed by an eminent artist, of which a proof sheet will be sent to those who desire it, on receiving the address, inclosing six postage stamps, and free when plants are ordered.

Plants will be sent out not later than the first week of April at 15*s.* each, or when three are ordered one over will be added. The stock is not large, therefore early orders are recommended. DRYSDALE and Co., Nurserymen, &c.

Glasgow, October 24.

CARNATIONS AND PICOTEES.

JOHN DICKSON, of Acre-lane, Brixton, Surrey, begs to inform the cultivators of this beautiful tribe of Flowers, that his Catalogue of the best known varieties, now ready to send out, may be had on application, by enclosing a stamp.—October 24.

THE HUNTINGDON ELM.

ULMUS GLABRA VEGETA, THE HUNTINGDON ELM.—This is by far the most vigorous growing kind of ELM propagated in British nurseries, often making shoots from 6 feet to 10 feet in length in one season, and the tree attaining the height of upwards of 30 feet in ten years from the graft. Raised at Huntingdon about 1746, *from seed collected in that neighbourhood by Mr. Wood, Nurseryman there.—London's Encyclopædia of Trees and Shrubs, p. 723.*

Of all the numerous varieties which may be procured in British nurseries, the best kind for cultivation for its timber appears to be the Huntingdon Elm.—*Ibid, p. 715.*

A large quantity of the above excellent ELM of all sizes is now on sale at the Huntingdon Nurseries, at the following prices:—

3 to 4 feet, per 100	12*s.*	6 to 7 feet, per 100	25*s.*
4 to 5 do.	15*s.*	7 to 8 do.	30*s.*
5 to 6 do.	20*s.*	8 to 9 do.	35*s.*

The last size is exceedingly rooted and admirably adapted for Parks, Avenues, &c., being certain to move well. Also a large quantity of the Hertfordshire, a superior broad-leaved variety of the English Elm, at the same prices as the Huntingdon.

A large collection of Forest and Ornamental Trees, Flowering and Evergreen Shrubs, &c., a Catalogue of which may be had on application.—Address to S. WOOD, Nurseries, Huntingdon.

IXORA COCCINEA.—Strong healthy Plants fit for Exhibition, 10*s.* 6*d.* each, smaller do., 18*s.* per dozen. May be had, on receipt of a Post-office order, by application to W. COOMBS, Florist, &c., Bromley, Kent.

T. LOCKHART, SEEDSMAN and FLORIST, Fulham, near London (late of 156, Cheapside), has just received from Holland several cases of Flower Roots which have arrived in excellent condition, lists of which may be had free by Post on application. Among them are the following splendid Gladiolauses, which will be sold at these unusually low prices:—

GLADIOLUS, per Root—Eximius, 2*s.* 6*d.*; Queen Victoria, 3*s.* 6*d.*; Pen Brillant, 3*s.* 6*d.*; Floribundus, of enormous size, 6*d.*

MILFORD NURSERY, NEAR GODALMING, SURREY.

Five miles from the South-Western Railway.

WILLIAM YOUNG begs to inform Noblemen, Gentlemen, Nurserymen, and others, that he still continues to carry on this extensive Nursery, and would call their attention to his large Stock of bedded forest Trees, which are of the most healthy description, consisting of 100,000 and upwards of Ane Ash, from 2 to 3 and 3 to 4 feet; 100,000 and upwards of Birch, 2 to 3 and 3 to 4 feet; 100,000 and upwards of Spanish Chestnut, 2 to 3 feet; 50,000 Scotch Elms, 3 to 4 feet; 100,000 and upwards of Hazel, 1½ to 2 and 2 to 3 feet; 100,000 of English Oak, 2 to 3 and 3 to 4 feet; 100,000 and upwards of Red Beech, Willow, 2 to 3 and 3 to 4 feet; 100,000 and upwards of Larch Fir, 1 to 2 and 2 to 3 feet; 100,000 and upwards of Scotch Fir, 9 inches to 1 foot and 2 feet upwards; 100,000 Spruce Fir and upwards, 1 to 2 feet, besides 100,000 and upwards of Mahonia Aquifolium or American Berberry, 1 and 2 years' bedded, very fine, from 9 inches to 3 feet, and 2 to 3 feet, together with a large quantity of fine quartered Spruce and Silver Firs from 4 to 6 and 10 feet, which will remove with the greatest safety; also a quantity of fine Elm and Spanish Chesnut, with about 1000 of the true Quercus Sessiliflora or Fir Oak, all of which are from 10 to 12 feet upwards, and will remove with safety; a large Stock of fine Common and Portugal Laurels, Common Hollies, &c., &c., from 3 to 5 feet. Gentlemen who are planting extensively will find the above Stock well worth their notice, as the prices will be regulated by the quantity taken. Further particulars may be had on application. A few thousand of bedded tree Mats.

SEEDS.—CORNER OF HALF-MOON-STREET THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in General, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FLOWERING AND GARDEN SEEDS.

JOHN MORTIMER, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and GARDENING at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

STRONG HORTICULTURAL SHEET GLASS.

HETLEY AND CO. are supplying 16 oz. SHEET GLASS, in boxes of 100 feet each, an article superior in every respect to the foreign, and well adapted for Horticultural and general glazing purposes, at the following reduced prices for cash. A reduction on 1000 feet.

Sizes. Inches.		Inches.	s.	d.	Per 100 feet Box. £	s.	d.
6 by 4	and under	7 by 5 at	0	2½	1	0	10
7	5 " "	9	7	0	2½	1	2	11
9	7 " "	10	8½	0	3	1	5	0
10	8½ " "	14	10	0	3½	1	7	1
14	10 " "	2 ft. super.		0	3½	1	9	2

Other sizes of every substance and quality equally low.

	inches.	s.	d.	
GLASS TILES,	14 by 10 from	2	0	per dozen according to substance, thinnest being 16 oz. sheet.
SLATES,	20 by 10	2	6	

WHOLESALE GLASS SHADES, Sheet, Crown, and Patent Plate Glass Warehouse, 35, Soho-square, London.

BRITISH AND FOREIGN SHEET AND HORTICULTURAL GLASS WAREHOUSE,

12, PANTON-STREET, HAYMARKET.

PHILLIPS and WELCH having on several occasions been applied to for the price of sashes and frames, have now added that branch of the business to their establishment, thus affording to the public an opportunity of obtaining at once, and at a much more moderate cost, Sashes and Frames, Greenhouse and Conservatory Lights, &c., fit for immediate use, with weights and lines complete; and have pleasure in submitting their prices.

SASHES AND FRAMES COMPLETE.

1½	inch Ovolo single hung	1*s.* 4*d.* to 1*s.* 5*d.*	per foot.	
1½	" double "	1 5 to 1 6	"	
2	" single "	1 5 to 1 6	"	
2	" double "	1 6 to 1 6	"	

Glazed with good Crown Glass, suitable for sitting rooms.

GREENHOUSE, HOTHOUSE, AND CONSERVATORIES.

1½	inch Greenhouse Lights ..	9½*d.* to 10½*d.*
2	" ..	10 to 11½

Glazed with stout Sheet Glass.

Packing and Cartage at a moderate extra charge. No charge for Priming.

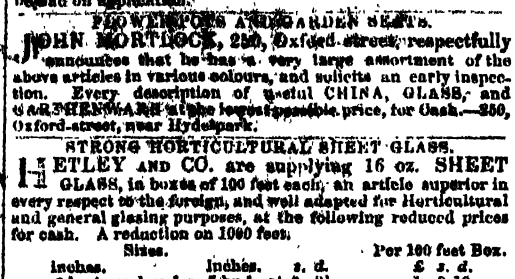
FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, of 100 and 200 feet each; also Glass Pantiles, 11*s.* per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at F. ELENICA'S, 28, Castle-street, East, Oxford-street. *** For Ready Money only.

☞ PATENT VENTILATORS for Public Offices, Smoking Rooms, &c.

FOREIGN SHEET GLASS.—In consequence of a further reduction in the duty of Foreign Sheet Glass, C. JARVIS is enabled to supply this article at a considerably lower rate than it has hitherto been offered to the Public, at his old established WINDOW GLASS WAREHOUSE, 38, Great Castle-st., a few doors from Regent-street.

Every description of British Manufactured Glass equally low.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.



J. WEEKS AND DAY, ARCHITECTS, &c., Gloucester-place, King's-road, Chelsea, HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, most respectfully beg to inform the Nobility, Gentry, and Horticulturists, that they have erected on their premises, for the purpose of inspection, a variety of Hothouses, Greenhouses, Conservatories, Pits, &c., where all the various known improvements of the day can be seen. Their Hot-water Apparatus is also erected, and kept in constant action in various Hothouses, Greenhouses, Pits, &c., where the whole principle of Top and Bottom Heating can be seen.

J. WEEKS & DAY warrant their Hot-water Apparatus to be efficient for every purpose to which heat is applicable. Boilers of all sizes; the largest is warranted to heat a range of Forcing-houses 300 feet in length, with a small quantity of fuel, and only to require attention once in 12 hours.

Models, Plans, &c., in great variety.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most economical designs. Balconies, Balustrading, Field and Garden Fences, Wire Work, &c. &c.

NOW SENDING OUT.

BECK'S GERANIUMS OF 1846.—The set of five for 1*l.* 1*s.*; *namely*, Desdemona, Isabella, Zenobia, Musteo, and Margaret.

LYNE'S SEEDLINGS OF 1845.

The set of six for 1*l.* 15*s.*; *namely*, Maculata, Princess, Merry Monarch, Chaplet, Vampire, and Rosebud.

Customer's Selection of 12 *from the following list for* 30*s.*—Standard of Perfection, Edith, Lady Belhaven, Miss Halford, Prince Alfred, King of the French, Castilia, Charles the Tenth, Gipsy Queen, Zenaidmma, Cleopatra, Imogene, Leonora, Redworth, Sappho, Meteor, Flute, Exquisite, Rosetty of Saltaill, Blank Dwarf, Selina, Shield of Achilles, Cook's Hester, King of Saxony (Gaines), Titus, Champion, Mrs. Jephson, Magog, Repeal, Francis Bullin, Corruscans (Hoskins), Princess Alice, Sarah Jane, Queen Phillipa, Princess, and Duke of Devonshire.

20 excellent Geraniums from 15*s.* to 20*s.*

All orders can be executed immediately for any of the sorts named above.

☞ *All orders above* 3*l.* *will be delivered (hamper, package, and carriage free) to London, Bristol, Exeter, Barnstaple, or Falmouth; or above* 6*l.* *to Liverpool, Dublin, or Cork.*

A remittance is not required from known Correspondents, or those who give reference in London.

Steamers from this Port three times a week to London, Cork, Dublin, Liverpool, and Falmouth.

Great attention is paid to careful packing.—All plants forwarded to long distances are packed in Fir Boxes, and firmly secured.

WILLIAM E. RENDLE & Co.

Office, Union-road, Plymouth. October, 1846.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 24, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Monday,	November 2	Entomological	8 P.M.
Tuesday,	— 3	Horticultural	2 P.M.
		Linnean	8 P.M.
Friday,	— 6	Botanical	8 P.M.

We are convinced that the importance of immediate, and for the future constant, autumn planting the Potato, cannot be too strongly insisted upon, notwithstanding failures here and there, from the "seed" rotting in the ground. Among the many memoranda which we have received in confirmation of this view, the following, for which we are indebted to the *Dublin Evening Post*, is of great interest, and we may add that the Editor in a private letter answers for the fidelity of the statement.

"In the month of April, 1844, I planted with Potatoes a piece of coarse peaty pasture land, containing about seven acres. The kind of Potatoes principally put down were the coarser kind for cattle-feeding, but there were also some of the finer kinds, intended to be used for seed in the ensuing year. The land had not, I believe, ever before been broken up.

"The crop was more than an average one, when dug out in November. From the boggy nature of the ground, I found it impracticable to till it till the ensuing spring, and when about then to prepare it for a crop of Rape, I found a great number of strong healthy Potato-stalks growing over the surface, which induced me to leave it untouched, and to take chance of a crop of Potatoes for that year without any further tillage or planting. Accordingly, in the month of November last, I dug out of it an unusually large sound crop of Potatoes—the greater part of which I reserved for seed—and all of which were, in the month of April last, when they were taken out of the pits in which they had been placed during the winter, found to be untainted and sound. They had the strong wild taste of all bog-grown Potatoes, and, therefore, were better suited for seed than for eating, and were all used for that purpose.

"In the spring of the present year, notwithstanding considerable care had been taken in digging and picking up the Potatoes in this ground the autumn previous, I found a quantity of Potato plants again appearing over ground. I resolved, therefore, to try whether I might not have a third crop. My expectation has been realised; and, although the stalks became withered and black prematurely, similar to all the Potatoes in the country, I this week finished the digging of as fine, as sound, and as full-sized a crop of Potatoes as I ever saw. There is not one bad or tainted Potato in every thousand. Indeed, in no year have I ever seen a similar quantity of Potatoes with so few bad or small ones. Among them are every variety of Potato—Cups, Scotch Apples, and Lumpers principally. If I were not afraid of their being stolen, I would not dig them at present, or until I actually required them for seed.

"Within a few yards of where these Potatoes grew, and in exactly similar peaty soil, I had some Potatoes planted in the month of April, this year, which are greatly affected by the disease, and more than two-thirds of which are useless.

"The inferences I draw from these facts are as follow:

"First—That the disease primarily affects the stalks, but when the Potato is planted very early, and has acquired a certain degree of maturity before it is attacked with the disease, that the destruction of the stalks does very little injury to the tubers.

"Secondly—That peaty soil, having certain antiseptic qualities, is best suited for resisting the decomposing effects of the winter frost, and should therefore be selected to grow autumn-planted Potatoes in for seed.

"Thirdly—That the disease attacks Potatoes with equal virulence in all soils.

"Fourthly—That until the present disease in the Potato plant becomes mitigated, autumn planting, or when that is impracticable, early spring planting is to be preferred.

"Fifthly—That cutting off the stalks is a useless expense.

"Sixthly—In situations where it can be done, and where autumn planting cannot be resorted to, it is preferable to allow the Potatoes intended for seed to remain in the ground during the winter months.

"Lastly—That, with care and attention, the Potato can be preserved in this country, and be made a most important auxiliary in the reclamation of thousands of acres of what is at present unprofitable and waste land. —*P. M'E. Gartlan, Dundalk, Oct.* 10, 1846."

Although we do not agree with Mr. McGartlan in his inference that peaty soil is necessary, or even peculiarly advantageous to the Potato in winter, for it happens that the Cumberland autumn planted "moss" Potatoes have rotted much, yet we do think that upon the whole this communication is of great importance at the present moment, when men are undecided what to do.

We have on several occasions ventured to assert that the Pine-growers of this country, the very best of them, notwithstanding their great merits, have much to learn; that they are in fact only just beginning to know their art. This was, no doubt, a strong opinion to express in the face of Queen Pines weighing nearly 7 lbs., and we can understand how laggards in gardening should have felt convinced that further improvement was impossible. It was of a piece with their denial that anybody ever did or could grow a crop of Queen Pines varying from 5 lbs. to 7 lbs. each.

We are now prepared to show that this opinion of ours is entirely justified by the result; and we will next week bring them acquainted with the manner in which Pine-apples are grown in France. Our greatest Pine-growers will then find that they have more to learn than they have learnt, and the inferior men will discern that they know nothing at all about the matter.

The information we thus provide comes from a sure hand—one of the most experienced English Pine-growers, and therefore a person who could perfectly understand what he saw and learnt.

THE LAWS OF HEATING.

In requesting insertion for the following remarks on the diffusion of heat, I feel that as they do not relate strictly and entirely to horticulture, I ought perhaps to offer some apology for the space they will occupy; but believing their truth, knowing the importance of the diffusion of that truth, knowing how extensive a circulation they will obtain both in this and other countries by this means, knowing also that they will thus at once pass extensively into the very hands for which they are especially intended, namely, into the hands of the clergy and country gentlemen, I shall only commend them to their serious attention, assuring them that the principles of Polmaise heating take a far wider range than relates to horticulture, and that their importance can hardly be overrated since they affect the question of the diffusion of atmospheric heat for whatever purpose required. The course I propose is to state plainly certain acknowledged truths, laws as they are called, well known and agreed upon; and by these laws I shall try our practice, and show that our knowledge and our practice are at variance to a singular extent. The laws are three:—

First—The atmosphere cannot be heated by radiation; radiant caloric having little effect on transparent media. Air can only be heated by coming in contact with heated surfaces.

Second—The effect of radiant caloric decreases as the square of the distance increases between the object and the heating body.

Third—The velocity of a current of air bears a definite ratio to the difference of temperature of the places between which it is travelling, other things being equal.

In proof of law the first, I would remind your readers of the power of the burning-glass, itself remaining cold; also of the temperature of the air decreasing the higher we ascend; while, if the air were heated by the radiant caloric of the sun, the very reverse should be the case. The proof of law the second is found in the different effect produced on the thermometer by radiant caloric at different distances. As an illustration of this law I would say that were the earth double its present distance from the sun, it would require four suns to heat it. If three times the distance, nine would be required to cause the same temperature. The third law is proved by our daily experience of drafts.

The point to be considered is the equal diffusion of heat; with the economy of its production I have nothing to do. The merit of pointing out the true principles of economising fuel belongs to Dr. Arnott—to him is the public indebted for pointing out a principle, the practical importance of which can hardly be overrated; namely, that the proper mode of economising fuel was to regulate the supply of air (containing oxygen), enabling that fuel to burn; not to regulate the heat by the supply of fuel, but by the supply of air; and whether the stove be this man's or that man's, whether it have a screw door or a sliding door, the principle of its economy is the same. Let the mechanic have the praise for his mechanism; but far more is due to the propounder of the principle. But of equal importance with the economic production of heat is its economic diffusion. I shall divide this interesting question into two separate inquiries, determinable by the laws given above.

First—By what means have we hitherto attempted the equal diffusion of heat in our churches and public buildings? Have the means been successful? and are they such as, in consideration of the above laws, are likely to prove successful?

Is it possible to diffuse heat equally, and by what means? The first and cheapest, and consequently the most frequent, though I must say the most erroneous mode, is some form of stoves placed within the buildings. These stoves are most of them excellent means of economising fuel, all formed on one principle; but what are their principles of diffusing heat? are they not all radiating stoves, diffusing their heat like the sun by radiation? But by law No. 1 they cannot warm air by radiant heat; and by law No. 2 the effect of radiant caloric diminishes as the square of the distance increases. Is it possible that we are guilty of the absurdity of attempting to heat the atmosphere by means which we know will not heat it; or of the folly of attempting to heat a building equally by a power which we know decreases in force in such a rapid ratio. When we consider that in a church heated by a stove, an individual sitting one yard from the stove receives 16 times more heat than another who sits four yards from it, we shall cease to wonder that in our churches one portion of the congregation is roasted and another frozen; but the absurdity is greater even than this, for all this would be true if the objects around the stove were transparent, instead of which they are opaque, consequently absorbing bodies, not permitting the transmission of the rays that might otherwise reach the distance, though with their diminished force; and thus the distant objects are totally unaffected by the radiant heat, while the nearest become intensely hot; and yet the point desired is equal diffusion. I appeal to the clergy whether the constant complaints of their parishioners do not prove the fact which philosophy explains?

But let us forget the existence of this evil influence and consequence of using a radiating body to diffuse heat equally; let us regard the stove as a means of heating the air by contact, either with itself or the walls of the pews, church, &c., which is has previously heated by its radiating power; for by Rule 1, in such a manner alone can the air be heated. This stove is placed in the centre or elsewhere of the church, which may therefore be properly regarded as containing an area of concentric atmosphere around the stove; these atmospheres must therefore necessarily decrease gradually in temperature as they increase in distance from the heating body. There is no sudden variation; each ring of air, so to speak, is only just warmer or just colder than the one on either side of it, so that by Rule 3, there is no inducement to rapid currents, and thus the air that is hottest remains so. The action of the lady's fan or Indian punka illustrate this principle. A room in India is at the temperature, say of 86°, its occupants complain of heat, the fan is worked, they are refreshed; but why?—for the thermometer indicates the same temperature. It is because their own bodies are the source of the heat which annoys them. Their bodies create by their animal heat an atmosphere around them, say of 90° Fahr., and this, being surrounded by one of 86° is not rapidly displaced, becomes oppressive, but is at once removed by the mechanical agitation of the punka or fan. So in the church, the change being gradual and not sudden, there is no inducement to rapid diffusion. The air at 50° is not rapidly displaced by that at 45°, neither is 45° by 40°, or 40° by 35°, or 35° by 30°, and thus one portion of the church may contain air over-heated, while the rest is cold; and thus the stove, so admirably fitted to economise heat, but so ill fitted to diffuse it, becomes a positive nuisance to some, and is useless to others; and yet this very stove, placed under the conditions of Polmaise, will probably be found equal to warm the entire air of the building, and that to nearly a uniform point.

The second mode of heating is by means of iron pipes filled with hot water, the temperature of the pipes being sustained by the constant flow of the water to and from the boiler. The advantages of this mode over the first are at once apparent, for the evil (that is the radiating force) is lessened in intensity, while the good is further secured; for instead of the small and intensely heated surface of the stove radiating very powerfully, we have a great extent of surface at a low temperature, and proportionately low radiating power, and the diffusion of that power secured by the mechanical extension of the heated surface, insufficient to annoy those who are near it, and not very far from any one. It also presents a much larger surface to the air, which becomes warmed by contact with it, and as it extends through the air, it of course warms it more equally; in truth it does literally take the heat to the air. These remarks I intend to apply only to water circulating at moderate temperatures; in that plan where the water circulates at very high temperatures, and under consequently great pressure, the evils of the stove are approached to, and I am convinced the danger is considerable.

I think the admirers of hot water will admit the above as a candid statement of its claims; and yet I cannot allow that it heats a building equally. The same objections, founded on the same laws, attach to it as to stoves, only in a very much more mitigated form. The diffusive power still depends on radiation; that cannot be right. There is the same obstruction to the diffusion of the heat of contact, and then, to

these objections of principle, comes the weighty one of expense, the enormous and probably daily increasing cost of metal pipes, the *deposition that takes place within them and the boiler*, the occasional explosion, the extent of space occupied in the building, and, lastly, the enormous waste that takes place at the source of heat, namely the boiler chamber. Why should money be wasted on a plan, which even admitting it distributes heat tolerably well, is extravagant in first cost, extravagant in its use, unsound in principle, and unnecessary in practice?

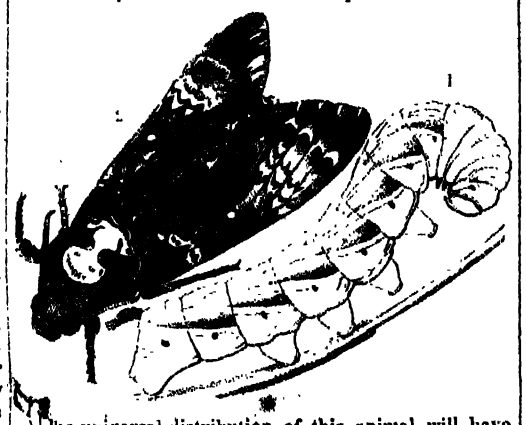
The last method of diffusing heat, greatly superior to the first, and more economical in its first cost than the second, is by passing the external air over the heated surface of a stove, and pouring it into the space to be warmed; to accomplish this, provision must be made to allow of the escape of air from the place to be heated, for as air is material, and therefore occupies space, it is absurd to suppose that a building will contain *more* than fills it. This mode avoids the absurdity of attempting to break laws 1 and 2, for the effect of the radiation of the stove is got rid of, by usually placing it out of the building, while it is subject to the operation of law 3; but let your readers reflect for a moment on the fact, that if 1000 cubic feet of warm air are to enter, 1000 must leave the building; therefore the greater the cold the greater the ventilation, the more warm air required the more must be suffered to escape; stop the exit and you check the flow. Again, look at the result of this mode, in which ventilation and heating are so inseparably connected; in the case of a church built to contain 4000 people, 1000 only are present they require a greater amount of heating power than the 4000, but only one quarter the ventilation; and yet on this system, "in which ventilation is the basis of heating," you must heat fresh air enough for the 4000, or you will not get sufficient warmth into your building. Again, look at the practical waste involved! a church 120 feet long, 60 feet wide, and 30 feet high, contains 216,000 cubic feet of air — here is oxygen sufficient for the respiration of 10,000 men for nearly two hours (according to the experiment of Allen and Pepys, who state that a healthy man withdraws about 26 inches of oxygen from the atmosphere per minute), even if the church were hermetically sealed. This air is already say 10° or 15° warmer than the external air. Is it not the more economic course to take this air first? which probably only requires 20° of heat to make it pleasant, instead of allowing it to escape and at once resorting to the external air, that probably requires 40°. To make the temperature agreeable, it must of necessity consume double the fuel. I do not propose hermetically to seal up congregations in churches, but I do oppose the absurdity of combining heat and ventilation in such a manner that while the requirements for the two are constantly varying, and bear no necessary proportion to each other, they can only be supplied in equal quantities—much air can only be given with much heat, and much heat with much air, while probably the wants are just the reverse. Another practical objection to this mode of hot-air heating in public buildings is, that as the flow of the hot air in is determined by the flow of the colder air out, and as this takes place from the upper portion of the building, the flow of the hot air as it enters is at once determined to the roof, exactly where it is not wanted, and this in particular channels or drafts.

Have these various means produced the desired result? Has not the first necessarily and signally failed? Has not the second only approached the desired end, and by an enormous cost and complication of mechanism likely to get out of order? Has not the third been accompanied by such practical difficulties as to preclude its general employment? Doubtless individuals are to be found who will maintain that each one of these plans is in their several opinions perfect; but I fearlessly assert, that in the opinion of the public, we have hitherto been without a system by which heat can be equally diffused. The second consideration—namely, "can heat be equally diffused, and by what means?" I must reserve for another paper. — *D. B. Meek.*

ENTOMOLOGY.

Sphinx or Acherontia Atropos.—The Death's-head Moth (called also "*Tête de mort*" by the French) is considered, in many parts of the Continent, the messenger of pestilence, famine, and of the "Grim Monarch," whose emblem is impressed upon its back; and, from its being associated with the failing Potato crops, and more abundant this year in England than it was, perhaps, ever known before, it is not likely to lose its inauspicious character. However this may be, the unusual numbers, both of the caterpillars and moths, which have made their appearance this summer and autumn are indicative of a peculiar season and high temperature. It becomes an interesting question to ascertain where the females have laid their eggs: certainly not upon the haulm of the Potato, as that withered [illegible] the moths hatched; but although [illegible] as before [illegible] favourite [illegible] ...though the Potato-leaf is the ... food of the larvæ, they will live upon the Bitter-sweet, Tomatoes, Thorn Apples, Jasmine, Spindle-tree, Elder, Damson, and even upon Hemp; and it is upon these, probably, that the eggs are deposited when the Potato is gone by.

This insect brings to my recollection the great difference in the state of the Potato during the last two years and in 1832, which was the year of the cholera. I was at Ramsgate in October, when that vegetable had not entirely lost its foliage, and the caterpillars of the Death's-head Moth were very numerous and full-grown. I was so anxious to rear them, that I took every means in my power to keep them in health, and used daily to visit the fields on the cliff, where I found Potato leaves during the first fortnight, green and fit for their food apparently. It is, however, very remarkable that all the caterpillars died: they seemed to thrive upon the leaves and rested upon the stalks; but they successively died in a very singular way, in a few hours; for I observed them at night plump and apparently healthy, and in the morning scarcely any more than the skin was left, adhering firmly by their abdominal and anal feet, whilst the head and fore part of the animal hung down like an empty sack. I suspected they were affected by dysentery, and I believe it is not unusual for the autumnal broods of larvæ to die, at any rate the moths are seldom reared from them, and consequently, an excess of caterpillars at that season is no proof that the moths will be abundant the following year. During the past season the larvæ were so numerous in parts of Kent, that the cottagers fed their fowls with them, and in July I received several full grown, two of which buried themselves, and the moths hatched the first week in this month; but those caterpillars which enter the earth in the autumn produce moths in May. It seems not improbable, notwithstanding the extraordinary broods of this insect which have been distributed over this country, that there may be very few moths next year, for I am informed by a zealous naturalist that most, if not all, of the females that have been dissected are barren, and he is disposed to attribute the rarity of moths in a year immediately succeeding one of abundance to this circumstance. I am not, however, satisfied that these late hatched females may not hibernate and become fertile in the spring, although no appearance of eggs can be discovered in the autumn, and the fat they contain may sustain them in their repose.



The universal distribution of this animal will have given every good collector of Lepidoptera an opportunity of adding this beautiful moth, and largest of all British insects, to his cabinet; and as the economy of so noble and remarkable a creature cannot be uninteresting to the public, I will proceed with its history. The eggs I have never seen, and owing to the caterpillar coming forth only at night to feed, it is seldom or ever observed until it is full-grown, when it rambles about in search of a convenient spot to bury itself and form its tomb in the earth, by uniting the particles and smoothing an oval cell with a liquor from its mouth. In this it becomes a chrysalis, protected from cold and wet, until the moth is formed and bursts from its confinement to fulfil its destiny. At this period of its existence, it is not only wonderfully beautiful when perfect, as well as curious in its markings, but it is remarkable for a power it possesses of emitting a plaintive squeaking cry, which has been compared to the voice of a mouse or the creaking of a cork. When excited by being handled it is distinctly heard; and from the peculiar formation of the palpi, or feelers, it has been attributed to their friction; others have stated that, air escaping from two spiracles at the base of the abdomen, or air confined under scales on each side of the thorax, is the cause; and lastly, Passerini asserts that the sound issues from the head, and passes through the short trunk.

I must not omit to observe that Sphinx Atropos is accused of robbing bee-hives of honey, whence it is denominated the bee tiger-moth. In our cut, fig. 1, is the caterpillar reduced one-third, and the moth is drawn to the same scale, which in some specimens measures five inches, when the wings are expanded. As the caterpillar and moth are so well known, it is not essential to describe them, and coloured figures with ample dissections and descriptions will be found in Curtis's Brit. Ent., fol. and pl. 147. The pupa is of a shining rust colour.—*Ruricola.*

THE AMATEUR GARDENER.

Culture of Strawberries.—Few gardens, however small, are without a spot devoted to the growth of this favourite fruit, although very many persons fail of securing an adequate produce. This disappointment is attributed to many causes but the right one, which is, in general, an ignorance of the habits and wants of the plant. In most instances we find a bed appropriated to the Strawberry, as ancient as that given to Asparagus, the treatment of which has been annually the same for probably 15 or 20 years. The following is the routine generally practised by those who prefer "the wisdom of our ancestors" to abundant crops of fruit:—The young plants are set pretty closely in the first instance; the runners go where they please, and by the following autumn have formed a network all over the bed. The whole of the foliage is then mowed or cut down, and a layer of dung thrown over the denuded plants prepares them for the coming spring. As there is no rule without exceptions, and nature *will* often be prolific, in spite of untoward circumstances, it happens that the owners of such beds sometimes tell you they have abundance of fruit. The rule, however, is, that under such discipline the Strawberries grow "small by degrees and beautifully less," until the gardener is compelled to have recourse to a remedy, and begins this 10 or 20 years' course over again.

Now the fact is that the Strawberry, although capable of an indefinitely prolonged existence, by the production of offsets from the old stools, will bear well for only a very limited period, and the renewal of the beds every third or fourth year is the practice of all experienced gardeners. It is strongly recommended to amateurs to make a new plantation every year, and to dig up the beds every fourth season. Thus, if at the present time your garden has been arranged on this four-year principle, the following will be the state of your Strawberry beds:—One is about to be dug up and planted with something else, or, what is far better, has been dug up since July, and is now covered with some growing crop; the second is just planted; the third is two years, and the fourth three years old. By this method a supply is secured without the loss of a year, as is the case when the whole stock is destroyed at once, and as by proper management those just planted will bear next season, abundance of good fruit may be reckoned upon.

As this is a good time for making new beds, the first thing to be done is to fix upon the sorts you intend to patronize. The varieties are very numerous, and fresh competitors for public favour are constantly appearing, so that there is room for caprice or experiment, or love of novelty. If neither of these impulses is very strong within you, and you feel that you can be satisfied with good tried sorts, take these three—Keens' Seedling, the British Queen, and the Elton Pine. These are deservedly favourites, as having fine flavour and being plentiful bearers; they also come in in succession, which is a great advantage. If you have no old beds, you must procure runners elsewhere, with all the delay consequent upon having young plants with the roots exposed and somewhat dry. But if you have old beds, and have neglected to plant out the runners into a nursery bed in the summer, you cannot do better than adopt the following rules, which for several years have been found effective for securing good crops of this delicious fruit.

Let the ground be well dug, and incorporated with good rotten dung from an old Cucumber or Melon-pit. I prefer growing Strawberries in double rows, at the edges of the beds in the kitchen-garden, and I think the plan has many advantages. But, whichever mode you prefer, do not allow the plants to be more than two rows in depth, but interpose a path half a yard in width between every phalanx of two rows. The object is to have every plant distinct in the rows, so that air and light may be fully enjoyed, and runners may be easily cut off as they appear; and also that a space may be allowed wide enough to walk down the beds, to get at the fruit. Having your ground marked out with a line, proceed to the old bed, and take up the young plants which have rooted in it with a trowel. Choose those which appear to be most strong and established. Then dig holes with the trowel along your line, and carefully deposit the plants in them, about a foot apart every way. As the Strawberry has, even in its young state, a vast quantity of root-fibres, the process of taking up with a trowel preserves these, and prevents the plants being much checked by removal. By this process some fruit may be expected next year, although not so much as a more scientific plan would have secured. Those plants, removed from an old bed, have been denied many advantages which a little forethought would have given them; they have been crowded together and shaded by the old leaves, so that they are not so fully developed as they might have been if the runners had been planted in a nursery bed in the summer as soon as they were old enough to be removed.

As the treatment needed afterwards can be dwelt upon more usefully at the proper season for applying it, more need not now be said on the subject. If not done before, your old bearing beds should now be *looked* over. Remove all runners and dead leaves, but *do* not interfere with those which are healthy, as *they* have even now more work to do in maturing the *future* buds. A little dung may be laid on the surface, *and* worked in with a fork, but do not let the prongs go *too* deep to interfere with the roots. I have sometimes thought Strawberry-beds are manured too highly, inducing too large a growth of leaf, to the injury of the fruit. One thing is certain with regard to vegetation generally, that, in proportion as you manure highly, you must allow more room. Turnips will bulb well when left thickly together on a poor soil; but, if it is rich, they must be hoed out to greater distances, or there will be nothing but leaf.—*H. B.*

THE FRENCH BEAN A SUBSTITUTE FOR THE POTATO.

Supposing the Potato disease to continue, it will be some years before the cultivation of the root will cease to be essayed, and many before it will cease to be regretted. Every proposed substitute will be received at

first with a certain degree of doubt, for not only has old prejudice to be conquered, but new tastes to be acquired. Two qualities which may be considered as highly recommendatory and peculiar to the Potato, help to give it its present value in the estimation of that class by whom it is chiefly used: one the quantity of matter produced, convertible into food, the other its facility of preparation for that purpose; nothing can be more readily cooked, and with poor people this last is really an important consideration.

That the excessive cultivation and use of the Potato is an evil, can scarcely be doubted, and the check the existing disease has given to its farther extension will not, I am well persuaded, ultimately be greatly lamented, as other and possibly more wholesome and nutritious vegetables will be sought for and brought into more general cultivation. There is one particularly that may be favourably mentioned and recommended as well worthy increased attention: I allude to the Dwarf French Bean, or Haricot as it is commonly termed in France, in which country it is commonly used in its more wholesome and proper state, the matured seed, and not as we employ it, in its unripened condition.

I think cottagers would not do wrong in appropriating half their usual Potato ground to this useful Bean. It is exceedingly prolific, and will afford a constant supply of green pods all through the season, independant of its regular crop, which will ripen better from the pods being occasionally thinned. In corroboration of this we have now a considerable piece of ground cropped with this Bean, which has afforded a regular supply all the season, and will give an ample crop of well ripened Beans for winter consumption.

In France the Haricot is boiled and served up with Parsley and butter; it forms an excellent and highly nutritious dish. Should particulars of its culture be required, I shall be happy to give them.—*W. J., Windsor, October* 16. [Pray do.]

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

(*Continued from p.* 692.)

TUESDAY, SEPTEMBER 15.—NATURAL HISTORY SECTION.—A letter was received from MRS. WHITBY, of Newlands, near Lymington, Hants, in which she stated the encouraging result of her experiments begun 10 years ago on her own estate, and exhibited specimens of raw and manufactured silk, with full details. Mrs. Whitby began by planting various sorts of Mulberry trees, and finds the dwarf Philippine (Morus multicaulis) is by far the best, as producing more leaf, and from the facility with which its cuttings are struck, more easily propagated than any other. Of the various races of silkworms, she finds, that by procuring the eggs of the large Italian sort of four changes, she obtains as great a proportion, and as good a quality of silk as they do in Italy or France. The testimony of several eminent manufacturers in London, Manchester, and Coventry, attest this, and has afforded Mrs. Whitby the satisfaction of presenting to her Majesty Queen Victoria, 20 yards of rich and brilliant damask, manufactured from silk raised at Newlands, who was graciously pleased to accept of this indication of a new source of riches in her dominions. After making every allowance for occasional unfavourable seasons and labour, machinery, outlay of money, &c., it will be found that land laid out for furnishing food for this valuable caterpillar will yield at least 20*l.* per acre profit. The comparison is briefly as follows, 1 oz. of eggs produces 40,000 worms, which require 1400 lbs. of leaves; deducting 25 per cent. for accidents there will be 30,000 cocoons, weighing 75 lbs., which, at 10 lbs. per lb. of silk will yield 7½ lbs. of the best raw silk (besides refuse), equal at 25*s.* per lb. to 8*l.* 12*s.* 6*d.*, one acre of land bearing 1225 plants of 6 or 8 years' growth, yields 4900 lbs. of leaves, and will consequently feed 3½ ozs. of eggs, which at 8*l.* 12*s.* 6*d.* nett per oz., as above stated, yield 30*l.* 3*s.* 9*d.*, and deducting 33 per cent. for labour, machinery, &c., 10*l.*, there will remain a final profit per acre on 3½ ozs. of eggs, 20*l.*

The reading this paper excited much discussion. Mr. OGILBY regarded it as of great importance. Mrs. Whitby had by introducing this new species of Mulberry (Morus multicaulis) overcome the great difficulty which laid in the way of rearing the silkworm in England, as other species did not produce their leaves early enough to feed the worm. He especially hoped that the tree would grow in Ireland so as to afford a means of subsistence to some portion of that country. He had made many enquiries with regard to the value of different kinds of silk and found that that made from the English cocoons was the most valuable.

Reference having been made to feeding silkworms on other plants containing milky juices, Mr. PATTERSON referred to the experiments of Mr. Folkin, of Nottingham, in which it was found that when silk-worms were fed on other plants they died in much greater numbers than when fed on Mulberry leaves.

Dr. LANKESTER stated that it was well known that the silk-worm of India would not feed on the Mulberry, and that the silk-worm of Italy would not feed on the food of the Indian worm. Caution ought, therefore, to be employed in recommending substitutes for the ordinary food of the silk-worm.

Mr. MONCKTON MILNES wished to know if it were probable that the Morus multicaulis would grow in the north of England, and whether other plants, such as Maize, would grow under its shade? In answer to these questions it was stated that this Mulberry was growing in several parts of the south of England at the present time.

Observations on the true nature of the Tendril in the Cucumber, by T. BELL SALTER, M.D., F.L.S.—While it is now admitted that the tendril is a modification of some essential part of the plant, it is in most plants sufficiently obvious what organ is so altered, as for instance the leaf or petiole in the Leguminous plants, of the peduncle in Passiflora, and of the primary axis of the plant in the Vine—in this family it is not so obvious. In the monstrous state of a Cucumber plant now shown, where all the parts appear in a more elementary form than in its natural state, we have this question satisfactorily solved. While the female flower is resolved into an aggregation of thick adherent leaves, and the staminate flowers into an aggregation of leaves not adherent, we see the tendril as a simple slender leaf, and not a branch bearing any aggregation of leaves, as it would be were it any modification of a branch or any part of the inflorescence. It would appear from this that the tendril in this genus and family represents the leaf, while the developed leaf next to it is the first leaf of a sessile axillary branch.

A paper was read by Mr. W. THOMPSON, entitled, "*Comparison of the periods of the flowering of Plants in the early spring of* 1846 *in the Botanic Garden of Belfast and the Jardin des Plantes at Paris*;" also, "*Notes on additions to the Flora of Ireland.*"—The comparison showed that the same species flowered much earlier at Belfast than at Paris, though at the latter place the spring of 1846 was the earliest of the last 40 years. It was suggested that returns of this kind from the botanic gardens of the United Kingdom, and these again compared with similar catalogues from the public gardens on the continent of Europe, would possess much interest in various points of view. A few species of Phænogamic and Cryptogamic plants were noticed as additions to the flora of Ireland and specimens exhibited, the Phænogamic species were chiefly collected by Mr. D. Oer, foreman in the Belfast botanic garden.

(*To be continued.*)

RESULT OF AN EXPERIMENT UPON POTATO PLANTING,

ON THE ESTATE OF SIR P. DE M. G. EGERTON, BT., M.P.

IN each instance two drills were measured, each 11 yards long and 1¼ yard apart.—*October* 12, 1846.

When planted.	Names of Potatoes.	Weight of good Potatoes.	Weight of infected ones.	Remarks.
1845.		lbs.	lbs.	
Nov. 5..	Winter Pink Eyes	49	5	Moderate in size.
,,	Cork Reds	..	..	Obliged to be raised five weeks ago; they were rotting very fast.
,,	White Ladies ..	62	15	Seed obtained in the garden.
,,	Bloody Rogers ..	10	18	Very small; the best doubtful.
Dec. 10.	Winter Pink Eyes	41	4	Moderate in size.
,,	Blue Farmers ..	57	4	Very fine.
,,	Second forward Piukeyes	45	4	Very fine.
1846.				
Jan. 12.	Blue Farmers ..	62	5	Very fine.
,,	Bloody Rogers ..	8	28	These adjoin the others; I cannot assign any reason for the difference.
,,	Winter Pink Eyes	57	8	Very fine.
Feb. 18	Winter Pink Eyes	40	6	Tolerably fine.
,,	Blue Farmers ..	50	4	Fine Potatoes.
,,	Bloody Rogers ..	7	15	Inferior, even the best ones.
Mar. 27	Winter Pink Eyes	40	5	Not so large as Jan. 12.
,,	Blue Farmers ..	65	10	Good.
,,	Bloody Rogers ..	11	21	The best very inferior
April 23	Winter Pink Eyes	43	5	Small.
,,	Blue Farmers ..	55		Good.
,,	Bloody Rogers ..	5	17	The best very inferior

N.B. The Bloody Rogers, which have failed so signally, were previously regarded as the best spring Potatoes.

Home Correspondence.

Effect of Manure on the Potato Disease.—Your articles on Potatoes are excellent and most valuable; but have you not made one omission? Manure both years has increased the rot. In some fields the heaps were left a time unspread. On these spots the crop was *entirely* decayed, whilst in the rest of the ground, not a tenth part was destroyed. From last year's experience, many planted Potatoes without any manure, and the result has verified the excellence of the plan. The quantity of untainted Potatoes is far greater than where manure was applied. The aim next year must be to obtain *sound*, not *great* produce. The manure should be applied to other crops. Now for *theory*, as to the reasons:—1. Potatoes absorb a small portion of undecomposed manure when it is supplied in abundance (Solly 507.) Will not this accelerate decomposition in the plant? 2. *Nitrogen* causes many substances to be decomposed (Solly, end of 314). But nitrogen either in ammonia, or some other way, is supplied by fresh manure containing animal substances. Will not therefore an extra dose of nitrogen in a Potato tend to destroy its soundness? Indeed, it is in the nitrogenous part where the decay begins.—*Sigma.* [But in 1845 unmanured land suffered *excessively*. Nevertheless we agree that azotised manures had better be discontinued for the present.]

Abies Douglasii.—The size and growth of the Abies Douglasii in the fine climate of Dropmore and Carolew, having been noticed, it may not be uninteresting to know how it has prospered in a comparatively ungenial climate, and at a height of 750 feet above the level of the sea. I have just had mine measured; the height is 40 feet, the circumference at 2 feet from the ground is 3 feet 6 inches, the length of some of the lower branches nearly 14 feet, and the circumference of the branches on the ground about 90 feet. It is thickly clothed with luxuriant branches from the ground to the top. It would certainly have been 5 or 6 feet higher, but from the misfortune of having twice lost its leading shoot; three years ago a shot from a gun pierced the leading shoot, and this year a severe hailstorm broke it down. In one respect I am more fortunate than Sir C. Lemon, at Carclow, for I have 50 fine young plants raised from the seed of last year, but which had a narrow escape from death by the same hailstorm that broke the leading shoot of their parent, and were only saved by the gardener rushing out with a hand glass; they would otherwise all have perished, along with other plants that were cut down in great numbers. I have two or three fine plants raised from layers, which seem to be putting out shoots on all sides, and growing well and upright. There are no cones upon the tree this year.—*William Ord, Whitfield Hall, Northumberland.*

Magnolia pumila, &c.—It is stated in the "Botanical Magazine" for September (t. 4251), that the charming shrub, Magnolia pumila (under its new name of Talauma Candollii) is a "native of Java, and that the warmth of a stove is necessary for it." Now, in 1844, I happened to have two plants of it in but indifferent health, and was induced to try what a cooler treatment would do for them; they were accordingly placed in a cold pit, and very soon showed, by the foliage acquiring more substance, becoming of a finer green, and by the shoots getting more robust, that they enjoyed the change. Here they have remained for the last two winters, the lights only covered with mats, without any artificial warmth, and have bloomed splendidly, and are now in more vigorous health than I ever before had them. I also observe in the "Botanical Register" for September (491) that Holbollia latifolia (or Stauntonia latifolia) is noticed as having been flowered in March last, "perhaps for the first time in Europe," by L. W. Dillwyn, Esq. It, however, flowered with me in April, 1845, and again profusely this spring in my conservatory, perfuming the air with its fragrance for a considerable time; and though its flowers are not showy yet, the fine dark-green foliage and delightful fragrance (much resembling Pergularia odoratissima) make it worthy of a place as an evergreen climber in every conservatory. It certainly does not require more warmth than the Camellia, if not perfectly hardy; for, having a duplicate plant for which I could not spare room when housing my plants last autumn, it was turned out into my shrub-border to take its chance (as is my frequent practice with spare conservatory plants), and, without any protection, it stood the winter, being but partially cut down, and has made a good healthy shoot this summer trained to a stake. So there can be little doubt of its hardiness.—*J. A., Northampton.*

State of the Potato Crop in Germany and Belgium.—I have just returned from a trip to Germany by way of Belgium, and having purposely attended to the state of the Potato crop in those countries, I beg to give the substance of my observations. I left Ostend for Louvain on the 5th of September, and as far as Termond the appearance of the Potato crop was that it was injured to the extent of one-half, but the dreadful storm of thunder, lightning, and rain which fell that evening, and the night coming on, prevented me from seeing the progress of the affliction further towards Louvain. The excellent hostess at the Hotel Suéde would have it that the Potatoes in the district of Louvain were not injured; and, certainly, those at her *table d'hote* on the 6th of September did not appear to be so. However, on proceeding thence on the afternoon of that day, for Aix la Chapelle, I found as long as daylight lasted that the leaves and stalks of the Potatoes were blighted to the extent of one-third, yet in the immediate neighbourhood of Aix there were, even for some days after my arrival there, but slight appearances of the disease. Nevertheless, on walking about the country on Friday, the 11th of September, I found spots in which the leaves and stalks were partially blackened, and the peasants were taking up the Potatoes. The wife of a peasant who was so employed told me that the injury commenced about a week previously, but that the Potato itself was not affected; yet, on examining, with an intelligent peasant, the next occupation but one, we found a diseased Potato. On my arrival at Wiesbaden, on the 15th of September, I could not see any traces of the pestilence; yet, before I left on the 25th of September, it had made its appearance; but the crop by that time was nearly ripe, and the country abounds with Cabbages, Carrots, a species of Turnip Cabbages, and all sorts of vegetables; so that that district will scarcely feel the evil effects elsewhere sustained. On my return on the left bank of the Rhine, I found at Bonn and homeward, the stalks and leaves considerably blighted; but a peasant near Malines told me that the Potato itself was not much affected, and, in his own opinion, the root would not in that country be dear. It appears to me that the affliction began in Ireland and in the west of Europe, and travelled east and south-east about 50 miles a week. I went into Devonshire the latter end of July, when there were no appearances of it; but before I left the blight had spread over the whole county, and thence it traversed the east and south of England; but there was a singular exception of a piece of land between Margate and Ramsgate, which had not any visible sign of the disease

on the 4th of September. I am happy to say that I saw no disease amongst the Turnips on the Continent. Experience has shown that Potatoes thrive best when planted in the autumn, and I hope it will not be lost sight of this season.—*J. T., Oct.* 1846.

Legg's Hydraulic Machine.—I lately asked for information respecting this engine which "Hydrangea" has placed in juxtaposition with the hydraulic ram; and who adverts to its great superiority over the latter; and, doubtless, as he has one fixed on his premises, and therefore under his immediate observation, he has means of judging. Now it was in consequence of reading "Hydrangea's" statement that I made inquiry relative thereto, but instead of receiving an answer to my questions, "Hydrangea" only reiterates his former statement, and refers inquirers to Mr. Legg for information. This is scarcely fair, because nothing is lost by scientific communications, and especially as "Hydrangea" took upon himself the task of making the engine known. Therefore I ask him again the price and power of an engine on a large scale, agreeably to my first letter, with this addition: is not this new hydraulic engine a water-wheel working pumps? If so, this is very old; has been tried over and over again; and will bear no comparison with the ram. All scientific men are aware that stuffing boxes of pumps, bearings, cranks, buckets, leathers, packing, &c. &c., require constant attention, while in the ram there are only two valves, which will work for months without the ram ever being seen at all. "Hydrangea" says that a ram could not be applied to a 2 feet 6 inch fall. I have seen one at work with 1 foot fall only; and rams are fixed with not more than 4 inches fall to the 10 feet. The greater the fall to the ram the more water will be thrown; as all are aware that fluids seek their own level. But I would ask, why all this mystery respecting the nature of this new machine. Many of your readers, as well as myself, would, no doubt, like to know more about it, that we might have an opportunity of judging whether it is a good thing or not; as many new inventions, professedly so, are only some different arrangement of an old one, which upon investigation has proved to be worse than the original. It would be an additional satisfaction if "Hydrangea" would give the *bore* of the conveyance-pipe, also the number of yards of 2-inch pipe there is to his machine; for many might imagine that he has 300 feet of 2-inch pipe, which would cost nearly the 30*l.* mentioned, leaving but little for the machine, &c. &c.—*James Henson, Tower-street, Lambeth, Oct.* 15.

To prevent Hares and Rabbits barking Trees.—To one gallon stale urine add one quart powdered lime, and one pint foreign tar; warm the tar to mix with the above, then add as much cow's dung as will bring it to the consistency of thin paint. Apply it to the trees with a painter's brush.—*E. M. G., from the Observer of Dec.* 26, 1836.

Large Fuchsias.—Seeing (p. 677) an account of a large Fuchsia at Exeter, induced me to measure a shoot of this year's growth, and I found it to be 8 feet 4 inches long, out of which are several branches, one 3 feet long, another 2 feet, the others from 3 to 12 inches.—*J. G., Clonmel.*

Seedling Pelargoniums.—To what are we to attribute the small number of new varieties of this favourite flower advertised this season? From those to whom we have been accustomed to look for these productions there are none. Messrs Foster and Garth seem to have quitted the field. To the uninitiated it would appear they had ceased to raise them; but it is not so. The fact is, the judicious regulations of the Horticultural Society, by which the merits of seedling Pelargoniums are fairly tested, first as yearlings and secondly as two years old, give a kind of warranty with flowers by which purchasers can be guided; and so great is the value of this character when obtained in two current seasons, that we need not be surprised at the prominent place it occupies in those advertisements that do appear. Had Mr. Foster or the Rev. R. Garth raised anything during the last two seasons that would have borne this severe test, we should, no doubt, have heard of them ere this. The name of the raiser will not do now, as it once did. Too little care has been exercised in the selection of the varieties sent out; and great disappointment has, consequently been entailed upon those who, confiding in the judgment of the raiser, have laid out their money in these productions. It cannot be too often urged that there is now ample protection against this error, if amateurs will avail themselves of it. The means of transit from one end of the kingdom to the other are so easy that there is no reasonable excuse for the non-exhibition of a really fine flower at the metropolitan shows, because if it be awarded a prize there, it adds at once to its value ten times the cost of its carriage. If, therefore, raisers keep them at home, those who send them out must not be surprised at a very limited sale, for purchasers will ask for a character beyond that given by either raiser or seller.—*Philo.*

Unripe Potatoes for Seed.—In a late Number it is stated as an established fact that unripe Potatoes have been found more liable to the disease than ripe ones. My experience has shown the reverse of this. On reading the statement, I examined the produce of three diseased plants, the circumstances of which I formerly communicated, and found it still perfectly sound. The tubers are very small, and were taken up on the 6th of the plants in July. I have just gone over my whole collection, and I should say, decidedly, that my ope of preserving the unripe tubers is much greater than that of leaving any of the larger and riper ones to plant. The whole thing is anomalous, and impossible of solution, notwithstanding the numerous reports and affirmations that have been published. Though certain appearances may be truly reported from one district, the reverse may be as truly reported from another; and we know that various circumstances, not always sufficiently appreciated to affect plants in many ways so as to justify us in hesitating to dogmatise. Those Potatoes from which I cut out the diseased portion, and many of them no larger than sets with one eye, are keeping quite well. All that is necessary is to make sure that none of the diseased portion is left, and that the wet part is allowed to dry on the surface, and the pieces kept in a dry place. The Tomatoes which were affected in my garden recovered, and there is now a very abundant crop.—*G. S. Mackenzie.*

Fairy Rings.—The theory of the formation of fairy rings proposed by Professor Way appears to me to be open to a fatal objection. He speaks of the fungi as secreting a large quantity of the phosphates. Surely they can contain none besides that which they have obtained from the soil, and which on their decay they restore to it. The luxuriance of the subsequent crop of Grass is rather to be attributed to the nitrogenous products of the decayed fungi, which are actual additions to the soil. Professor Way does not seem to be aware of the explanation given by botanists of the cause of this phenomenon. The toadstools are the fructification of the fungus, and are produced at the growing border of the underground thallus or spawn, which grows only at this border, radiating in every direction from the centre, where the spore originally germinated. This radial growth clearly explains the increased diameter of each successive circle or crop of reproductive organs. The shedding of spores would not be likely to effect a reproduction taking such a definite form and occurring in such regular succession, since we know of nothing more irregular and uncertain than the germination of the spores of the higher fungi.—*Arthur Henfrey.*

Gardeners' Capes are frequently advertised in your columns; but most of those I have seen are open to viz, that from their stiffness they are liable to crack, and thus admit wet. In the 26th vol. of the "Transactions of the Society for promoting Arts and Manufactures," &c. &c. (page 136), is an account from Mr. Anderson, of the dockyard at Portsmouth, of the mode adopted by him for painting canvas for the navy, which the purposes of giving pliancy and preventing cracking, and is at the same time so cheap and simple as to deserve being better known, and more generally adopted. Mr. Anderson says: "To 1 lb. of yellow soap I add 6 pints of water; a few minutes' boiling will dissolve the soap, which is to be added while hot to paint prepared as under. To 96 lbs. of English ochre, ground in boiled oil, I add 16 lbs. of black paint, being one-sixth. This, when mixed, forms an indifferent black. The solution of soap and water is to be added to this paint, and be well united therewith; and, without the canvas being previously wetted, this composition is to be laid upon the canvas as stiff as can conveniently be done with the brush, and this will form a tolerably smooth surface. The second coat is to be formed of the same proportion of English ochre and black, without any soap solution; the third, or finishing coat, of black paint as usual. There should be an entire day's space between laying on the first and second coats, and a day or two between the second and third; so that the paint may have time to harden." Mr. A. used black paint, as that is the colour the hammock-cloths for the navy are painted; but it may be presumed the soap solution is equally applicable to any other colour.—*Anon.*

Pelargoniums.—When I commenced reading "Philo's" letter (p. 678) I was all expectation, the opening paragraphs were so promising, but woeful was my disappointment when I found queries which I should have expected from the merest novice alone, not from one who, "for many years has selected the Pelargonium as his pet flower." I am the more surprised because there has appeared in your columns from time to time the mode of cultivation adopted by the most successful growers. Every one of "Philo's" questions ought to have been answered by his experience. No man will make a first-rate cultivator that works by written rules. His fate will be the fate of the inexperienced commander's, who was tacking ship by the printed directions. He had the helm put down all right, his head sheets let go all right, hauled his main yard very properly, but unfortunately turning over two leaves at once, instead of getting his head yards round, he sung out "Let go the anchor." Now, let me answer the queries seriatim as I best may. 1st. Pelargonium cuttings are better struck on gentle bottom heat, though it is not absolutely necessary to do so. After being potted off, they are better placed in the greenhouse, protected from heavy rains and hot suns, but with abundance of air day and night. 2d. Do not water over the leaves in the autumn, except when shifted from one pot to another, then do it through a rose. Cleanse the plants also with the syringe after fumigation. Let the water be clean and soft. 3d. Let the plants grow until December if they will, and they will do so if properly treated. Keep them quite still all that month if you can; a time of perfect rest is very beneficial. The next time any one tells you he "never waters at any time of the year without watering over the leaves," listen to it very respectfully, but do not believe it or act upon it, unless for experiment, and then please to give us the results as an answer to query the 4th. In the early volumes of the *Chronicle* are to be found Cook's mode of growing from cuttings, also Catleugh's; in last year's volume, in a Leading Article, Beck's ditto, who also published this season a catalogue with directions, &c., noticed at p. 483. We should all read before we write.—*Veritas.*

Autumn Planting Potatoes.—I fully coincide in the recommendation of autumn planting. Invariably this year the later the crop was put in the ground, the more diseased it proved, and the smaller was the yield. But I advise planting about 3 or 4 inches below the surface, and casting as much earth as the plough will enable you to do upon the rows, forming drills; then roll down with a heavy roller or a Cressklill's crusher, and with double breasted plough mould up again; this is an almost certain preventative against the hardest frosts, as the rolling casts off the wet, and the loose earth last ploughed upon the ridges acts as a blanket to the whole ridge. I advise also planting them in rows 3 feet apart, and in the spring Mangold Wurzels planted between every other row. I tried that plan this year, and have at least from 15 to 20 tons to the acre of Wurzel. Another subject I must allude to, as it so fully confirms the assertions of many of your correspondents, as to the advantage of salt. My crop was grown on an old Grass field, the turf burnt in the spring, and ashes spread, but on a portion of the field the turf or sods were carted off, the weather being too wet to burn them. On the land where the ashes were spread, I had not one tuber in 200 diseased, whilst on the other they are nearly all worthless, the salts in the ashes no doubt preserving the crop. I have about 150 bushels of these Potatoes to sell, which I refuse to sell for consumption, as I think them so well calculated for seed, grown as above, and off fen land.—*Curator.*

Disease in Fir Trees.—Some of the old Scotch Fir plantations here are more or less attacked with an insect, as per specimens sent, and by splitting up the piece of wood you will see the effects, and probably an insect at work. You will observe that it bores through the bark and eats out the wood, and the consequence is, that the last and present year's growths, as the case may be, break across where most bored,—sometimes fall at once to the ground, and sometimes hang withering for a short time, and then fall to the earth, where they may now be raked together in considerable quantities. I first observed the trees partially diseased about a month ago; but as it was confined to the rough natural wood proposed to be taken down, I thought little about it, and it was only within the last few days that I have discovered the extent of injury done to other plantations. I find that *thriving* trees with the tops standing erect, and quite green, are attacked likewise, in proof of which the specimen sent only fell to-day, and appears to have been fed upon for a few days. As to the extent of injury done, I may report that the trees most affected are the rough natural wood in old plantations; and part of an Inverary plantation of 148 acres and 70 years old, more especially on the side next the old wood, is more or less touched. The other woods and the young planting are not much affected. I can assign no reason for this extraordinary occurrence unless the excessive heat of the past summer; though I may mention, that the trees are worst where growing on a wet moorland pan. This I believe to be the same insect nurserymen are afraid of attacking young plants put into a plantation recently cut down, and which they all guard against in becoming bound to uphold a plantation planted under these circumstances. It may be caused by the numerous trees cut down this season; but again, why should not this have happened before [illegible] in 1838, when there was double the quantity of wood lying?—*Walter Dingwall, Oct.* 5. [This insect is the well-known Hylurgus piniperda.]

Reviews.

Observations on Natural History. By the Rev. Leonard Jenyns.

We remember hearing a once zealous collector of British plants remark "that he had ceased caring for botany since he had dried all the species within the range of country he had the opportunity of examining." Such was the unsatisfactory result of his labours to a mere collector. Essential as such materials are to the study and progress of natural history, they will cease to interest the collector who shall value *his* herbarium or his museum only in proportion to the number of its rarities, or the amount of expence or trouble it may have cost him in getting it together. Mr. Jenyn's book is calculated to instil a much more healthy taste for natural history, by inviting mere collectors to become observers; and by directing those who are willing to observe how they may do so with best advantage to themselves, and greatest benefit to the progress of natural science. He has remarked (page 10), that "it is doubtless in a great measure owing to the influence which 'White's Natural History of Selborne' has exercised on the present generation, that the science has had so many followers in this country of late years. It is not that his work carries us any great way in unravelling the mysteries of nature; but it is the spirit which it breathes that so strongly recommends it to our notice. He has induced others to follow up the same sort of life which had such charms for himself; and to him we are indebted for many volumes besides his own, of which the authors by their own acknowledgment, were first excited and trained to habits of observing, by the perusal of his work." This book of Mr. Jenyns'

is a good sample of the result which White's work has assisted in eliciting from one who is thoroughly imbued with a love of the works of nature. Mr. Jenyns has long been well known as a strictly scientific author, and here he shows himself to be much more than a closet naturalist only.

We say this without intending to cast the slightest reflection upon those whose want of opportunities does not permit them to make observations on the habits of animals, or the conditions under which plants flourish in their native localities. We entirely agree with what Mr. Jenyns has remarked of the relative occupations of in-door and out-of-door naturalists (page 8). "It is absurd for either of these two classes of naturalists to throw contempt and censure upon each other, as sometimes has been the case; seeing that they both work together for the good of science, and labour in a common cause, although in different ways." There can be no doubt that if those persons who are in a position for noticing such phenomena as Mr. Jenyns has here recorded, were only to co-operate systematically in registering their observations, much important information would be very speedily accumulated, which might be brought to bear on a variety of questions in natural history, and more especially serve to illustrate many unsettled points in meteorology. It is with reference to this department of natural science that Mr. Jenyns has devoted a portion of the present work to noticing and illustrating a scheme which has been propounded by Mons. Quetelet, according to which (page 349), "a number of scientific persons have agreed to undertake a regular system of observations in meteorology and natural history, with an especial view to certain important questions connected with climate and animal and vegetable physiology." It is by comparing the times at which the periodic returns of certain phenomena occur in different quarters of the world, that a hope may be fairly entertained of some light being thrown upon those more subtle climateric influences which hitherto have eluded research. Who knows whether the influences under which the Potato and some other plants have lately suffered, may not be rendered appreciable when the suggested "isochronic" lines of flowering, fruiting, &c., shall have been ascertained in the manner that [redacted] here proposed?

Let the mere collector turn to the 47th page of the "Calendar of Periodic Phenomena," which Mr Jenyns has drawn up from his personal observations, carried on during 11 years' residence in the same locality, and he will never again be inclined to fancy that he has nothing further to engage his attention, because he is no longer able to add any fresh species to his local collections. "Ray has remarked," says Mr. Jenyns (page 12), "that so rich is nature, that a man born a thousand ages hence will still find enough left for him to do and notice."

With respect to the body of this work we strongly recommend it to general perusal, whether the introduction shall have prevailed or not with its readers sufficiently to persuade them to turn observers. It contains an interesting and amusing collection of facts in various departments of zoology, told in plain and correct language, and is more truly trustworthy than some of our popular expositions of natural phenomena, which afford amusement to naturalists mainly from the extreme credulity, and ridiculous mistakes which may be detected in them. Mr. Jenyns dwells upon the importance of a correct record of the minutest facts observed in the habits of animals, even where such facts might appear too trivial for notice. They may be calculated, very unexpectedly, to throw light upon some of the most abstruse speculations concerning the fundamental principles upon which created beings have been formed, and according to which they should be systematically classified. It is strange how many popular errors and ignorances prevail, even concerning many facts which day by day present themselves before the eyes of those who witness but do not heed them. The very first sentence of Mr. Jenyns' "Observations on Quadrupeds" will suffice in illustration of this remark (p. 49.) "A farmer, who had lived all his life among stock, was not aware, till I drew his attention to the fact, that horses and oxen rise from the ground differently. There is a slight difference in their mode of lying down, the horse not generally remaining so long upon his knees as the ox, before bringing the rest of his frame to the ground. But in getting up, the horse invariably rises first upon his fore-legs before rising upon his hind. The ox, on the contrary, rises first upon the hind, and often remains upon his knees some few seconds until his hind legs are straightened. These differences probably prevail throughout the two Cuvierian groups of Pachydermata and Ruminantia, to which the horse and ox respectively belong."

Our limits prevent our enlarging further upon the subject, but we recommend the work to the perusal of all naturalists, as a memento of what they ought not to neglect in the midst of their systematic studies; and to others, as a testimony that there is in observing Nature something more refreshing to the mind, more healthful to the soul, more truly man-worthy, than the ordinary follies and frivolities with which so many occupy their lives. "It is, indeed," (as Mr. J. remarks, p. 18), "lamentable to think, as an excellent author ('Lucas on Happiness') has observed, how many waste a whole life without ever being once well awake in it, passing through the world like a heedless traveller, without making any reflections or observations, without any design or purpose becoming a man."

New Garden Plants.

49. FORSYTHIA VIRIDISSIMA. Green-leaved Forsythia. *Hardy? Shrub.* (Oliveworts.*) China.

A bush with a very rich green colour and handsome foliage, looking something like a Viburnum, was received from Mr. Fortune some time before he returned from his mission; but in the absence of flowers it could not be determined. Dried specimens have now supplied the deficiency, and proved it to be a new species of the genus Forsythia, of which one only had been previously known to botanists. That plant, the Forsythia suspensa of Vahl, was called a Lilac by Thunberg, who thus perceived its natural affinity, but was not happy in his identification of it, for although its leaves are often pinnated, yet its flowers grow in pairs from the axils of fallen leaves, instead of forming terminal panicles. It is described as a very fine shrub, with deep yellow flowers, and growing from 8 to 12 feet high. According to Siebold and Zuccarini, who have figured it, there are two varieties, one with weeping branches, and the other with upright ones; both are said to have been obtained from China by the Japanese, who plant them along with evergreens for the sake of obtaining, from the varied appearance produced in the spring by this plant, a good background to the Peaches, Apricots, and Camellias, that blossom at the same time. This species is said to have been brought alive to Holland in 1833, by M. Verkerk Pistorius. (See Siebold and Zuccarini, Flora Japonica, vol. 1, p. 14.) The species obtained by Mr. Fortune is very distinct from the original Forsythia. Its leaves do not appear even to be pinnated, and instead of having an ovate form, they are strictly oblong, or oblong lanceolate. The branches are four-cornered instead of being terete, and are perfectly erect. The calyx is shorter and more membranous, and the flowers are smaller. It is no doubt a very different plant, and may be expected to become a great favourite when the specimens in the Garden are old enough to flower; for then the branches will be found to be loaded, before the leaves, with yellow flowers as large as those of Chimonanthus grandiflorus. In its present state it forms a compact deep green bush, with oblong opposite leaves serrated near the point, but perfectly free from indentations below the middle. They emit a slight balsamic odour, and from their smoothness, want of lustre, and deep rich tint, are very handsome. The following are Mr Fortune's observations on this species:—"This is a deciduous shrub with very dark green leaves, which are prettily serrated at the margin. It grows about 8 or 10 feet high in the north of China, and sheds its leaves in autumn. It then remains dormant like any of the deciduous shrubs of Europe, but is remarkable for the number of large prominent buds which are scattered along the young stems produced the summer before. Early in spring these buds, which are flower-buds, gradually unfold themselves, and present a profusion of bright yellow blossoms all over the shrub, which is highly ornamental. I first discovered it growing in the same garden with Weigela roseа, which, I have said in another place, belonged to a Chinese Mandarin, on the island of Chusan, and was generally called the 'Grotto Garden' by the English. Like the Weigela it is a great favourite with the Chinese, and is generally grown in all the gardens of the rich in the north of China. I afterwards found it wild amongst the mountains of the interior in the province of Chekiang, where I thought it even more ornamental in its natural state amongst the hedges than when cultivated in the fairy gardens of the Mandarins. In England it is probable that it will be nearly hardy, but I advise the possessors of it in the first place to keep it in the greenhouse, and to plant it on the conservative wall, until its constitution is proved in the Garden of the Society next winter. It is a free growing bush, and is easily increased by cuttings or layers."—*Journal of Hort. Soc.*

Garden Memoranda.

Gordon Castle, the Seat of His Grace the Duke of Richmond, Morayshire.—This princely residence is situated on the fertile banks of the Spey, about 3 miles from the sea. In entering by the village of Fochabers, the traveller is delighted with the scenery; the Speybridge to the west, and Mr.'s new Free School (a splendid building) to the east, are prominent objects in the landscape. The great entrance near Fochabers has a fine effect, and the approaches and walks are magnificent. The forests and park around wore exuberant verdure, many of the trees being of great size and symmetry. The Duchess Lime-tree, in particular, measures 26 feet in circumference. From the front of the Castle there is a long promenade walk, upwards of 20 feet in breadth, leading to a noble flight of stairs which lands the visitor beneath a large spreading Elm, ornamented below with various-coloured pebbles. A line of composition vases, 5 to 6 feet in height, blooming with scarlet Geraniums, adorns the sides of this walk, and their large square pedestals are beautifully varied with innumerable devices, &c., all of which have been executed at the garden under the superintendence of Mr. Sanders.† Intermixed with the vases on the lawn, large standard Portugal Laurels in boxes produce something of the effect of the Orange-trees similarly grown on the Continent. There is a new flower-garden in progress, which, when completed, will be one of the most beautiful features of Gordon Castle. The Italian Flower Garden, about half a mile from the Castle, is generally admired for its romantic appearance. It is formed in an old rugged quarry, and well exhibits the triumphs of Flora over one of the most unseemly portions of landscape. There is a noble specimen of Yucca gloriosa, upwards of 10 feet in height, in full flower, here; the largest spike bearing above 220 white hexandrous blossoms larger than Tulips! The Cottage Garden is very interesting, the old cottage in it being the only remaining house of the ancient village of Fochabers; it is beautifully embellished within, as well as surrounded with a balcony outside, and trellises covered with climbing Roses. The Eastern Flower Garden is remarkable for its fountains playing amid fine American shrubs; and in front of the Conservatory and verandah is an interesting collection of Carnations and flowers bedded out on the lawn. In an isolated parterre, there has recently been erected a new span-roofed greenhouse of elegant design. The rafters were covered with seedling Passifloras in fruit, and the house was gay with Heaths, Calceolarias, Fuchsias, Geraniums, &c. The sweet Stephanotis floribunda, the showy Allamanda cathartica, Passifloras Bonapartea and princeps, &c., adorned the stove. The kitchen garden contains about 9 acres, and the forcing departments are extensive. Mushrooms are successfully grown on the wall borders in wooden span-roofed beds with linings of dung between them.—*R. A.*

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

† Mr. S. has an interesting garden factory, as well as a small saw-mill for cutting wood into flower stakes, labels, &c., which deserves the attention of horticulturists in large establishments.

Miscellaneous.

Locusts.—A specimen of this celebrated species of insect, which was caught the other day in a field near Broxbourn, has been shown to us by a friend. It is about two inches in length, and altogether is like a very enlarged grasshopper, having the same long and powerful legs, and large brilliant eyes, but with rather more brown in the colour of the body. It seemed quite active and lively, and was only preserved from escaping by being kept in a close box. The person who caught it says it cost him a great deal of trouble, as it flew far and swiftly. The visitation of these curious insects to this country seems to have been pretty general, for we observe from the *Fife Herald*, that two have lately been caught in the neighbourhood of St. Andrews, while another has been captured at Helmsdale, Sutherlandshire.—*Scotsman.*

Musquitoes in England.—Many persons have complained that the flies and gnats bite more severely than usual this year. A gentleman who has resided long in the East assures us that he has seen several musquitoes both here and in London. It is not improbable that they have come over from America and the West Indies in goods and passengers' luggage, and that the unusual heat of the weather here has induced them to wander merrily abroad in search of adventures.—*Country Paper.* [Nonsense,—when is it that a musquito cannot be found in England? It is the genus Culex, which is a greater pest at the North Pole than anywhere.]

Calendar of Operations.

(For the ensuing Week.)

Protection of Half-hardy Plants.—As the winter approaches, protection of some kind should be provided for plants and shrubs of tender character; almost any material is eligible, provided it will, in a considerable degree, throw off wet. Canopies for this purpose should be so contrived as to admit of one or two sides being opened at pleasure. If only one, I would place it on the north or west side—certainly not on the south; as the excitement occasioned by fits of sunshine, is apt to prove very prejudicial. The covering, or canopy, should by no means be allowed to touch the plant; and the greater the space allowed between it and the plant the better will it afford protection. It is a very bad practice to bundle the shoots together like a besom, in order to make them occupy a more limited space; such may save trouble and material, but is a most injurious proceeding. More injury is occasioned by confined damp, in a majority of cases, than by lowness of temperature. Hoodings of straw, so formed as to overlap the protecting material beneath, are very good, and simple protectors, and if rightly contrived, may be removed with as much facility for ventilation, as the top of an ordinary handglass. Oil-cloth will form a good protection also, formed into a kind of cone, on the sides of which, a small flap or two may be made to open without admitting the rain. Before the application of any top-covering, I would advise an inch or two of the surface soil around the collar to be removed, and replaced with dry sawdust—the newer the better. This should be piled as high up the stem as the plant will admit, taking care not to choke too many of the lower leaves, and if the canopy is so contrived as to overlap this mound, the covering will be complete. The only thing that remains is to give air in favourable opportunities, avoiding particularly cutting winds, which in all probability do more harm than the frosts.

CONSERVATORIES, STOVE, &c.

Conservatory.—Proceed according to former directions; see that all plants belonging to this structure are housed forthwith. Do not be flattered by fine weather; such at this period usually "flatters to betray." Cleanliness, free ventilation, and clever arrangement, are the main points. If severe weather should occur, do not hesitate to use a little fire-heat at times, especially where many plants are blooming; as by these means a free ventilation may be

indulged in, to expel damp and stagnant air. A mere hibernatory is another thing: in this, whether the roof be of glass or opaque, free ventilation will be all that is requisite for some time to come. *Stove and Orchids.*—As before: much less moisture will suffice at this period, even for the growing Orchids; keep the temperature progressively on the decline, more especially in dark weather. Ventilate freely whenever the weather will permit. *Mixed Greenhouse.*—The Hybrid Perpetual, Tea, and other Roses, as well as the Chrysanthemums, if attended to as directed in former Calendars, will render this structure, as well as the conservatory, most interesting for the next two months. Let these tribes have weak manure water, perfectly clear: it should be administered about five or ten degrees warmer than the atmosphere of the house, and if given at every watering, it is almost impossible to give it too weak or too clear. If the water is just barely coloured, it will be sufficient. An ounce of guano with a handful or two of soot, will make a large bucket or can'ul, strong enough for anything; and it ought to be provided as clear as fine ale. *Cold Pits.*—These will now be in request; saw-dust is in my opinion the best plunging material, if new and dry; coal ashes are also very good: whatever material is used, keep the plants within a foot of the glass, unless perfectly dormant. Endeavour to keep the soil in the pots in a somewhat dry state.

KITCHEN GARDEN FORCING.

The Mushroom beds made as directed in September, will now be bearing; it is a good plan to sprinkle or syringe the surface of the bed, a week or so before the Mushrooms make their appearance; more especially in Mushroom houses, where a fire may have been used occasionally: this is far better than watering after the Mushrooms are through. The water, however, must not be allowed to penetrate the manure—merely to soften the soil. Late beds or portions may still be made in-doors; let the droppings be made somewhat drier than those of September, and do not mix any soil with them. In spawning the beds, it is good practice to wrap the lump of spawn in a mass of half-decayed, half-moistened, strawy manure; in case of overheating, the spawn is not so readily destroyed. Let all the process be made as firm as possible, by treading or ramming: light and porous beds will neither endure so long nor produce such good Mushrooms as those of a solid character.

FLOWER GARDEN AND SHRUBBERIES.

All walks, drives, &c., should now have a thorough cleaning; this will carry them through until next May, or nearly so. Let the lawns be well rolled, and receive a clever mowing close on the heels of it; such will keep them in repair for a long time to come, unless unusually mild weather takes place. Let me urge the great importance of proceeding with all alterations, planting, &c. as soon as leisure permits. Spring, in these gardening days, brings such a crowd of business as would *l.* be confounded some of the gardeners of the olden time.

FLORISTS' FLOWERS.

We need hardly urge on our readers the necessity of taking advantage of the first favourable opportunity to get their main bed of Tulips in the ground; every week that they remain unplanted will be prejudicial to them, though we make no doubt many will put it off till the middle of November. All bulbs which have been reduced in size should be removed from the position they held in the best bed, and be planted on a side bed to recover their strength previous to being re-introduced, and their place should be occupied, if possible, by some other variety which will nearly correspond with the one taken away. The amateur must ever keep in mind the necessity of promoting the uniformity of his collection. In another week or 10 days we would advise no one to remove Carnations; it will then be getting late indeed for them, and it is so important that they should be well established previous to the coming winter; therefore, no time should be lost. The plants already potted we hope have been sheltered from the late excessive rain, according to the directions we have previously given. Auriculas also must be carefully preserved from similar visitations, and a watchful eye must be kept on the surface of the pots, which will speedily indicate where the drainage is bad.

KITCHEN GARDEN AND ORCHARD.

This is an excellent period to lay the spring Broccoli. It is best performed by two persons, one on each side the drill or row. Keep a good trench, and sink all the heads to the north, burying the stems with soil up to and even amongst some of the lower leaves. This process will protect them very considerably against a severe winter, on three accounts: 1st, by reason of their position; 2dly, on account of their avoiding sudden changes or excitement; and 3dly, through the reduction of succulence. It is no uncommon or new practice for good kitchen gardeners, to throw their overgrown Lettuce or Cauliflower plants on the ground, to shrivel before planting them. Plants in this state will endure hard weather better than those in quiet and luxuriant growth. I would advise a great breadth of Potatoes to be planted without delay, taking care, as before observed, to keep them high up, and to cover deep. Two seasons in succession of severe failures, especially in the late kinds, have, I should think, suggested to most minds the propriety of encouraging to a greater extent the early and middle season kinds; especially those of the latter which ripen early, and may be in use for a long period after storing. Surely the circumstance of the superior success of the earlier kinds, which have for generations ripened well, and escaped fermentation much more than the late kinds, will direct public attention to two such striking facts, or are they to pass for nothing in this important investigation?

FORESTING.

The Berries of Holly, Yew, Thorn, &c., when procured, may be placed in a heap to rot until spring. Some lively sand should be used, as it will easily riddle from them. Cuttings of Laurel and other evergreens may be got out now in shady situations. Layering may be performed, and where it is designed to promote the extension of common Laurels in game-covers, or as undergrowths, large old plants may be hacked half through, after the manner of plashing as applied to the Thorn, and the branches bent down, throwing a few spadefuls of soil on them. They will thus root, and extend with a very good effect.

State of the Weather near London, for the week ending Oct. 22, 1846, as observed at the Horticultural Garden, Chiswick.

Oct.	Moon's Age.	Barometer. Max.	Barometer. Min	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean.	Wind	Rain
Frid. 16	25	29.263	29.189	64	41	53.5	S.W.	.40
Sat. 17	26	29.17	29.241	60	42	51.0	S.W.	.18
Sun. 18	27	29.805	29.449	51	35	43.0	W.	.85
Mon. 19	28	29.79+	29.6+8	56	45	51.0	S.W.	.16
Tues. 20	29	29.5 9	29.5.6	62	40	51.0	S.W.	.25
Wed. 21	1	29.671	29.950	57	44	50.5	S.W.	.87
Thurs 22	2	29.348	29.080	50	42	46.0	S.W.	
Average		29.536	29.501	58.1	41.8	49.8		2.13

Oct. 16.—Clear, fine, clear; rain at night
17.—Slight fog; cloudy, clear
18. Heavy and continued rain; clear at night
19. Fine, with clouds; clear
20.—Heavy; very fine, clear at night
21.—Heavy rain; hail storms; cloudy
22.—Cloudy; rather boisterous; cloudy and cold.
Mean temperature of the week 4 deg. below the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Oct. 31, 1846.

Oct.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest quantity of Rain	Prevailing Winds
Sun 25	55.7	36.8	47.2	8	0.73 in	4 1 3 3 4 3 1 2
Mon. 26	54.4	36.7	46.5	8	0.52	4 1 1 2 5 3 2 2
Tues 27	56.6	37.6	47.1	15	0.60	1 5 2 — 2 2 6 2
Wed 28	54.4	37.2	45.3	9	1.06	— 5 2 — 3 5 2 3
Thu 29	51.8	35.8	43.8	3	0.42	2 3 3 — 5 5 1 1
Fri 30	54.4	39.8	47.1	9	0.80	2 3 1 3 1 6 1 1
Sat. 31	55.3	38.7	46.0	11	0.88	— 2 3 2 — 7 4 3

The highest temperature during the above period occurred on the 29th and 30th 1841 therm 67°, and the lowest on the 28th and 30th, 1826, and 29th, 1843—therm. 32°.

Notices to Correspondents.

MAY we beg our *Correspondents* not to ask us to answer their questions privately by post. We are obliged to mention this because we find a very inconvenient practice on the increase, and we really *cannot* comply with such requests.

ABUTILON—*E G*—The leaves are attacked by a sort of mildew called Torula Fumago. It is the result of bad aeration and negligent gardening. Sponge the leaves frequently with lime water. They swarm with insects.

BOOKS—*Iaxus*. We never heard of Miss Jackson's work; but it cannot possibly give plates of all flowering plants. No work does. Dried specimens are examined by Botanists without the least difficulty, by steeping the flowers in hot water till they soften.

CALAVANCA—*I L*.—This is some small kind of Kidney Bean, with which we are unacquainted. It is probably from the Peninsula, or the Western Islands. It is not the Calavance, as its name would indicate; for that kind of pulse is what we call the Chick Pea, Cicer arietinum.

CARNATIONS—*Calico*—We do not usually oil ours, for the simple reason that it answers the end intended very well without it, and if strained tight over the hoops will be found perfectly efficacious. *W*.

FRUIT-TREES—*A Subscriber*—Better leave your Espalier-trees as they are, till you receive in due time information on the subject of pruning in full detail.——*A Friend*—You will do well in thinning the branches of your orchard-trees till scarcely two branches directly intervene between you and the sun. By all means finish pruning before spring.

INSECTS—*Indy*—We regret that our suggestions are not available. We think the flies may be banished by perseverance. *R*.——*J W*—Your Spinach insects are Oxytelus nitidulus. The luminous animal is Scolopendra electrica. Will you send Mr. Curtis a specimen? *R*——*C M*—Thanks for the beetles from the ship-biscuits, they are quite sufficient. *R*.——*E V S W*—Sphinx convolvuli has been abundant this autumn. It extracts honey from tubular flowers, and the caterpillar lives upon wild bird-seeds.——*G T*—We hoped you could tell us the cause of the Ptinus appearing in your house. Such insects generally bore into furniture and books, and in that way are very mischievous. *R*——*B C M*—We must trouble you for specimens of the insect before we can answer your queries regarding the Apple-trees. *R*.

MOUTAN PÆONY—*J M*—Your plant must have been very badly treated in the removal, for it is not easily injured by lifting, unless it is removed at the wrong season or planted in bad soil; the proper time for removing Moutans is the end of October, and the proper soil is very light rich sandy loam, it likes an open situation, but not fully exposed to the full glare of the sun. You had better cover the plant with a large hand-glass and keep it quite close and dry until next spring, and when it begins to grow cut it well back. If it is very sickly, and the roots in a bad state, take it up now and wash the roots clean; afterwards, when they become dry, replant it in a light sandy loam, which should be rather dry at the time of planting, and cover it with a hand-glass as above directed. You may either cut the tops back now or just when the plant begins to move. If you layer the branch, it will be two years before the layers are rooted, and, if the plant is in bad health, probably four. Why not graft it on the roots of any of the albidoras in the spring!

NAMES OF FRUITS—*A A*—2, Decayed, probably Hawthornden; 3, Pigeon; 6, Winter Pearmain; 7, Round Winter Nonsuch; 8, Franklin's Golden Pippin; without No., Golden Noble, Beurré de Capiaumont: 6 Late Pears:—Knight's Monarch; Jean de Witte; Ne Plus Meuris; March Bergamotte; Easter Beurré; Beurré Rance: 6 Late Apples:—Réinette du Canada; Court-pendu Plat; Scarlet Nonpareil; Sturmer Pippin; Golden Harvey; Herefordshire Pearmain.——*J T T*—The Grape is the Scarlet-leaved Black Cluster. The Pear appears to be an imperfect specimen of the Marie Louise.——*J P L P*—The fruit is under examination, and will be duly reported on. We have no idea that such a work as you speak of would pay its expences; at all events we are not prepared at present to undertake it. A short general account of cider making is given in the "Penny Cyclopædia," you may also consult "Maculloch on Wine Making," and "Crocker's Art of making Cider," which gives details.

NAMES OF PLANTS—*J G*—Apparently Fuchsia gracilis——*A B*—Ageratum cœlestinum; treat it like a Verbena——*J H W*—Houssingaultia baselloides——*M E C*—Ageratum conyzoides. We see nothing unusual in the Apple——*Belle*—Melissa officinalis, Cyclamen hederæfolium? Ageratum cœlestinum——*E M*—Cuscuta trifolii, one of the parasites called Dodder, see p. 625, of 1844——*Constant Subscriber*—The Deodar——*G G*—Verbena jamaicensis——*H G*—It seems to be a fragment of Symphoria montana——*J M C*—Pteris longifolia, species of Lantana, Erica elata.——*J A*—Either a variety of Catasetum Naso, or an unpublished species.——*P B*—1, Stanhopea Wardii; 2, St. graveolens; 3, Cypripedium venustum; some Oncidium allied to O. reflexum.

OBITER—*W S*—Thanks. The paragraph has been published at p. 679.

PELARGONIUMS—*A Subscriber*—The following sorts will answer your purpose:—Emma, Beck's Susanna, Matilda, Nestor, Beck's Leonora, Rosetta superba, Garth's Symmetry and Queen Philippa, Luna, Unit, Foster's Erectum, Sir R. Peel, Pulchellum, Hodge's Oberon, Beck's Favourite, Zenobia, Foster's Pulchellum, and Lyne's Duke of Cornwall.

PINE-TREES—*E M G*—They are best transplanted in the autumn; but as the frosts is apt to pull them out of the ground, early spring is often preferred. Give us your address, state your wants exactly, and we will see what can be done.

PLANTING—*Leyton*—June is a good season for Hollies, but precarious; now is as good a season and certain. The qualifications of gardeners are printed at p. 545, of Vol. for 1845. Forcé Muscats and Frontignans; plant Sweetwaters and Hamburghs, with West's St. Peters in your second house. Plant at least the early Vines inside if you can. The plan is feasible. You need not heat the second house at all for such Grapes.

POLMAISE—*R A J*—Next week will produce further explanations as to the details of Mr. Meek's house. Of course the roof of the hot-air chamber is spoken of. Mr. Meek disperses his heated air by means of a hollow pit; it is that which renders a wet blanket or some dispersing contrivance needless. The valves are not self-regulating; nor can they be, the external orifices *a a* are only occasionally opened, and not all at once except in extreme cases. They may even be dispensed with. The damper is to prevent the too rapid escape of heat up the chimney.

POTATOES—*T S*—For autumn planting long dung is the best. Sets 8 ins. deep, and as much apart, in rows 28 ins. asunder. Try the Devonshire Reds or York Regents.——*W J T*—It is no wonder that your Potatoes were up last winter in February. Consider what a winter it was. All risk of such a thing is prevented by earthing up very deep in the autumn, and harrowing or otherwise breaking down the ridges in the spring.—We wish we could; but if we do, it must be at the expense of the type, for our sheet is already as large as the Act of Parliament relating to newspapers will permit.——*A Subscriber*—The mode you propose of storing your Potatoes will doubtless answer very well. Laid on the surface not more than a foot thick, and mixed with the earth in covering, they cannot undergo fermentation, an evil that cannot be too much guarded against, and thatching will protect them from frost and wet.

ROSES—*J S*—Perhaps you prune your Banksian Rose at a wrong season. The proper time for performing the operation is midsummer, after the flowering is over, thus plenty of new wood is formed in the latter part of the year, and when spring comes it will no doubt flower well. The Banksian Rose produces its blossoms on one year old wood. If pruned in spring, therefore, all the flowering wood is removed, and disappointment is the result.

THORNS—*W L S*—The following is the usual way of raising these from seed:—A pit should be prepared, say in October, about 1½ ft. deep, into which the fruit is to be put, with a mixture of earth or sand. It should be turned several times during the season, and if dry, a little water may be added; 1 in. or 2 ins. of soil being a sufficient covering to ensure the decomposition of the pulp. During the following October a piece of good ground should be prepared, and the seed sown in drills pretty thick, as it is taken from the pit, and in the succeeding spring the plants will begin to appear. Hollyberries should be treated much in the same way. We may mention, however, that we have seen the haws thrown into a heap under the stage of a warm greenhouse, where fermentation soon took place, and of course decomposition speedily followed. This was in October, they were sown in the following spring in beds and grew well.

TREES AND SHRUBS TO WITHSTAND THE SEA AIR—*Sub*—Sea Buckthorn, Tamarisk, Pinus Pinaster, and Weymouth Pine; also Pinus Strobus, Pinea, and Cembra, Quercus Ilex and Pyrus Aria; Coronilla Emerus, Leycesteria formosa, Spiræa salicifolia, Colutea cruenta, and Sambucus racemosa. With respect to sowing Grass seeds, you had better perhaps wait till spring.

VINES—*J G*—Heaths do not like lime-water. Calcareous soil suits Vines better than siliceous.

MISC—*A Sub*—The advertisement appeared on the 3d and 17th inst. The address is 9, St. Philip's street, Cheltenham.——*W E*—The cheapest way of heating a small greenhouse, and the best, is by Polmaise. Apply to Mr. Ayres, of Brooklands, near Blackheath. We do not know where the pipes are to be had. Mr. Mechi would tell you, we are quite sure, if you will apply to him.——*Decandolea*—[illegible]'s hydraulic engine is advertised weekly in our columns.——*Vigil*—Thanks, especially for your courteous manner. But we cannot undertake not to quote authorities for the intelligence we communicate. It is necessary to do so, and if the paper you complain of is more frequently used than others (a circumstance that we are not aware of), it is because it contains more of the intelligence that suits our purpose.——*M A*—The Black Wattle is an Acacia, and is not hardy enough to bear a Staffordshire winter.——*A B*—Loschenaultias require a cool airy greenhouse in winter. If the smoking has been effected with sulphur the red spider will be killed, and the plants may be removed; you will not kill it by any other means. The Violet leaves are suffering from damp and want of aëration.——*Cheiri*—Your Pelargonium leaves are affected by the spot, a disease as yet ill understood. It is probably damp that produces the mischief. A dilute solution of nitro-muriatic acid, it has been said, stays its progress, but we doubt it.——*V E S*—Prune all the soft wood and leaves off your Pelargoniums, pack them closely together in a box among dry earth, peat, or sand, and keep them anywhere free from frost and damp.——*Ipsa*—10, Great Marylebone-street, Wimpole-street, Cavendish-square.——*Inquirer*—Treat roots of Salvia patens during winter as you would Dahlias. You are possibly too far north for Walnuts to ripen, and perhaps your soil is wet. It cannot be the fault of the sort. The Tree Pæony will withstand ordinary winters without protection, especially if the soil is light and dry, and the wood well ripened. Keep roots of Tigridia pavonia in dry sand during winter.

SEEDLING FLOWERS.

AMARANTHUS—*L E*—Your seedlings are clear and decided in colour, but not surpassing a variety long cultivated.

FUCHSIAS—*J P S*—The form of your flower is very good, but it was too far gone to judge of its colours.——*B*—Of your flowers the light varieties are the best. 9 is a good and showy variety; 8 is pretty and elegant, but the sepals being large conceal too much of the corolla; 7 is also a good variety. In the darker sorts there is wanting that opposition of colour which gives brilliancy and richness, and generally the sepals are long and drooping.—2 and 3 we consider the best; they are all large and showy varieties.

VERBENAS—*H H*—The colour of your seedling is clear and delicate, but the corolla is too much indented; unless of dwarf habit, it will be no improvement upon some of the cultivated sorts.

ERRATUM—In Mr. Coudrey's Advertisement at page 674, col. *a*, the name was misspelt Condrey.

SEED WHEAT.

RED STRAW WHITE WHEAT, AND HOPETOUN WHITE WHEAT — Varieties whose excellence has been tested and acknowledged by very many farmers both in England and Scotland, —for Sale at

WHITFIELD FARM, WOTTON-UNDER-EDGE, GLOUCESTERSHIRE.

Price 37. 8s. per quarter, or 8s. per bushel, in quantities more than five quarters; sacks 2s. each. Orders must be accompanied by a remittance or a reference. JOHN MORTON.

TO BRICK AND TILE MAKERS.

THE AINSLIE PATENT TILE MACHINE COMPANY (James Smith, Esq., of Deanston, Chairman), invite attention to their improved TILE MACHINE, and to their new Patent Improved Kilns, for drying and burning Bricks and Tiles, by which a saving of from two-thirds to three-fourths of the fuel is effected, and all the articles are burnt equally without loss or damage. The Machines at work and a Model of the Kilns to be seen, and all particulars to be obtained from Mr. John Paton, Secretary, 193A, Piccadilly, London. Agents wanted.

ORNAMENTAL TILES for Floors, Walls, &c, of Greenhouses, Conservatories, Garden Terraces; Encaustic, Venetian, &c., in EVERY VARIETY. May be seen at Messrs. Parker and Wyatt's, Surrey-street, Blackfriars, London, Agents to Messrs. MINTON & CO., the Patentees, of Stoke-upon-Trent. Also Patentees of the PORCELAIN BUTTONS, cheaper and more durable than Mother-o'-Pearl, &c.

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton, Draining Engineer to Her Majesty, at Osborne, Isle of Wight; the Inventor of a Patent Tile and Pipe Machine (applicable to making Bricks); also a new Machine for taking roots and stones out of clay, both which are to be seen at the Royal Polytechnic Institution, Regent-street,—offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P.S.—Land drained at a fixed sum per acre, including every expense.

AGRICULTURAL DRAINING.—The attention of Agriculturists is respectfully directed to a simple and most efficient DRAINING LEVEL, price 28s. It can be sent to any part securely packed. It cannot well be put out of order, and a mere labourer can use it. To be had of the maker, John Davis, Optician, Derby.

FOR WHEAT, TARES, &c.

THE URATE OF THE LONDON MANURE COMPANY will be found a most valuable Manure for the above crops—it is permanent in its effects, and has stood the test of five seasons with increasing success each year. The Company also supply genuine Peruvian Guano, Gypsum, Superphosphate of Lime, Sulphate and Muriate of Ammonia, Charcoal, Bone Sawdust, Sulphuric Acid, and every Artificial Manure, at the lowest market price.—Edward Purser, Secretary, 40, New Bridge-street, Blackfriars.

POTTER'S GUANO FOR WHEAT AND ALL GRAIN CROPS. The Autumn season is particularly recommended for the application of POTTER'S GUANO for the above crops, as time is afforded for the due decomposition of the Manure in the soil, and it is thus prepared, when the plant feels the first genial warmth of spring, to afford the appropriate nutriment in a fit state for immediate assimilation.—Testimonials and all particulars at the Factory, 28, Clapham road-place, Kennington. *** A few respectable Agents wanted.

The Agricultural Gazette.

SATURDAY, OCTOBER 24, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Tuesday, Oct. 27—Agricultural Imp. Soc. of Ireland.
Wednesday, Nov. 3—Agricultural Imp. Soc. of Ireland. Highland Agricultural Society.
Thursday, — 4—Agricultural Imp. Soc. of Ireland. Belfast Flax Society.

LOCAL SOCIETIES.—Buckinghamshire—Maybole.

FARMERS' CLUBS.

Oct. 26—Newton — Ballintrea and Rockhg
27—Wingerworth — Belvoir — Ormy St. Mary — Bushel and Waltham — Richmondshire
28—Debenham — Lichfield — Wakefield — Hadleigh — [illegible] of Galloway — [illegible]ham
31—Cardiff — Northampton — Dartford
Nov. 2—St. Columb — W. Hereford Newark — Wem — Clerkenwell — Market Hill — Selby — Abergavenny
Nov. 2—Aylesbury — Wingerworth — Watford — Dukinfield — Yeoford — Jedburgh — St. Quintox — W. Market — Framlingham — Rockford Hundred — Nairnshire — Great Oakley — St. Peter's
4—Monmouth — Harleston
5—Hawick — Grove Ferry — Carlton on Trent
6—Tavistock — St. Germain's — Chelmsford — Claydon — Wadebridge
7—Collumpton — Darlington — Pobus — Winchcomb — Durham — Swansea

THE PRINCIPLES OF BOOK-KEEPING, as already sufficiently developed in publications on the subject, are just as applicable to the business of the farmer as to that of the merchant. The object in every case is to present as plainly and easily as possible the existing state of any business as regards its profits and losses. The sums received and paid, due and owing, invested and realised, are exhibited under the several headings or accounts in which they are recorded; and the totals of these being carried to the "balance sheet" at the end of the year, when considered in connection with the valuation, at the time, of the tenant's property in and on the land, *there* present an easily read picture of the financial position of the farmer.

The true object of keeping accounts is simply this, to let the business man know where his property is and how it is yielding; what his debts are, and for what incurred. And this object may be obtained in the case of so simple a business as farming with very little difficulty. If, however, it be desired to satisfy the *curiosity* regarding the profitableness of different experiments; of various modes or particulars in farm management; of the cultivation in the several fields of which the farm is composed—then the system may be made as complex as you will.

In the simple method which alone is *necessary*, a day book, in which to enter all the doings of servants, and all the money transactions of the master, with the money value of each; a journal, and this is hardly essential, wherein to transcribe in technical terms all the day-book entries; and a ledger in which to post all these statements in their proper position under the several headings or accounts which it is deemed advisable to open, are the only books required. And the complexity and labour of the system depends on the number of accounts in the ledger which it is considered necessary to keep. A farmer may keep his accounts in this manner simply enough, or he may adopt a method which shall occupy much of his time. He may open accounts only for grain sold, and cattle, sheep, and pigs; and these, with the landlord's account, and the inventory of effects taken at the beginning of the year and at the end of it, will sufficiently exhibit to him the amount of his property, where it is invested, and how it is yielding; or he may adopt a much more laborious and minute method. He may if he please consider himself, so to speak, as three single gentlemen (A, B, and C), rolled into one; each of them has his journal and ledger, exhibiting the condition of the business which he follows; A buys horses and keeps them, paying B for stabling, and for Oats, and for straw, and green food, &c., upon terms which may be agreed on; he lets them to B at so much per day, and as the dealings are here between only two parties, his accounts may be kept without much difficulty. B is the farmer; he pays the rent, he hires A's horses and pays for them; he employs workmen and directs their operations; he grows grain crops and green crops, and harvests them and sells them, the former to corn factors in various markets, and the latter, with the straw of the former, to C, to whom he lets certain buildings, sheds, and yards, in which to feed them, and from whom he buys manure. He has thus to keep accounts against the landlord, against A and against C. And as it is his humour to be very particular, he opens an account against the buildings, debiting them with a large portion of the rent he pays, and crediting them with the sums he receives for lodging to A's horses and C's stock; against each of his fields he also opens an account, charging on them the expense of horse labour, day labour, and manure, and giving them credit for the amount received for their produce; he has also to open accounts with all other parties with whom he has any dealings. And, moreover, he is often disposed to try the suggestions of agricultural improvers, and for each of his experiments an account is opened in the ledger. Lastly, C buys stock of such kinds as he considers proper, and he pays B for room in which to feed them; he pays him also for the green crops and other food to be consumed by them; he has to open accounts with B in all these matters, and he keeps accounts against the several descriptions of stock which he breeds or feeds, not to speak of certain experimental lots which he is feeding on various descriptions of food and under various modes of treatment; he has, moreover, to open accounts with those to whom he disposes of his beef, mutton, pork, or bacon, when they are fat, or of his breeding cattle, sheep, pigs, &c, as the case may be. Each of these gentlemen has to balance his accounts and take an inventory of his effects, and ascertain the results of the year's proceedings when the proper season comes round; if all of them show a favourable balance so much the better for the farmer. A's dealings not being very extensive *he* cannot be supposed to have made much. B's doings may be considered as the most important, and as likely to be most profitable. C also should be making money, but he is liable to the risk of disease and to the charges of the veterinary doctor; he buys his litter, which is against him, but then he sells his manure; and upon the whole, in a large arable farm, his business ought to yield a considerable income.

Upon the sum of the several balances, whether they be positive or negative, depends the income of the farmer; and whatever it is, we may surely assert that he has fairly earned it, considering the immense labour he has been at in keeping a proper account of it.

An immense labour, certainly—and one which altogether puts this complicated process of book-keeping out of the use of ordinary professional men, however much its minute detail may please the amateur. But the *principles* on which this method depends are those which must guide any intelligible system, though certainly they may be developed in a much more simple style.

We imagine that it can be hardly necessary to add to the above, which is intended as an introduction to two or three articles on this subject, any remarks on the importance of keeping true and particular accounts in farming. This is obviously advisable in any business—it is particularly so in that of the farmer. He is subject to so many casualties—to so many causes of loss that over and above the advantage which, in common with other professions, his would derive from a well and generally established system of book-keeping, it would benefit therefrom by the insight thus given into its working; losses would be checked before they had become serious, and profits would be increased by the *intelligent* skill which such a system would put in exercise.

How is it that agricultural estimates are so notoriously valueless, and that agriculture itself as a profession is so variable in its returns, doubtless, it is because the habit of observing and of recording observations is not yet general amongst agriculturists, and, therefore, they know of but few well established data on which to found either their calculations or their practice. How can this habit be general, and how can its effects in the *establishment* of agriculture as an art be looked for when the very first lesson it so unquestionably teaches—the necessity of keeping particular accounts has yet been learned so imperfectly, and is still being learned so slowly!

We shall, on an early occasion, describe in detail the books required in a system of farm accounts, and the particulars of their management.

Mr. Goodrif, of Granard, has favoured us with a communication on the subject of thorough drainage, which will be found in another column. In the course of it, he takes occasion to compare the systems of Messrs. Smith, Parkes, and others; and of the former he speaks as "shallow drainage," "furrow draining," &c.; in fact, the whole of his article tends to disparage it and the intelligence of its author. Now, our correspondent holding these opinions, it was very proper for him to present them at a time when one or other of these systems of drainage will be put into general practice during the ensuing winter in Ireland; and when the faults or the merits of either will thus be rendered in some degree permanent. But when he speaks of Mr. Smith's system being as opposed to one in which water is transmitted through the soil instead of over its surface, as one thing can well be to another, we must really add a remark or two, because we believe him to be in error.

Mr. Smith's system was designedly (it was announced to be) an imitation of Nature in *her* dry soils; and we may say of all the numerous agricultural engineers for whose labours we may safely assert that Mr. Smith's ability and energy has excited the demand—that this is the model on which all of them have been working. And with justice too; for Nature's deep dry land presents the *beau ideal* of a soil on which plants shall flourish. The name originally given to Mr. Smith's system was not intended to be descriptive of the principle on which it works—it was not "furrow draining," but "the frequent drain system;" and this name was given to it to distinguish it from Elkington's method of drainage, which consisted in tapping underground springs, and whose effects were often attained by the construction of a single conduit.

Our intelligent correspondent has doubtless given the true meaning in which "thorough" (as derived from *through*) should be used as applied to draining; yet we confess it is one in which we were not aware that it had been generally used. But Mr. Smith's draining, an imitation as we have said of Nature's system, was in effect and very probable in design also "thorough" draining in this, the correct acceptation of the term. It was never intended to act as a mere "grip" for the removal of surface water—from the first it was the *opponent* of the surface drainage, which till then had been prevalent.

The information which, since Mr. Smith commenced his labours, we have received on the relation in which our atmosphere stands to the art of cultivation, has doubtless thrown increased light on the theory of thorough drainage, but to Mr. Smith the credit is due of having, before the time of Liebig and others, perceived the value of inducing the rain water to proceed through the land, not off its surface.

Mr. Smith's labours in behalf of agriculture can hardly, as, indeed, Mr. Goodrif appears to be aware, be too highly rated. Whether or not in the *details* of his practice, or in the *merits* of it, he sees and acts upon the *whole* truth, we shall not here inquire; but to him, and his energy and ability, may be attributed that general feeling and intelligence on the subject which now exists, and to which most of our numerous agricultural engineers and drainers owe the means of their livelihood at the present day. This we contend for in spite of all the historical research displayed on this subject in the pages of the English Agricultural Society's Journal.

A true history of this branch of agriculture would certainly be interesting, and possibly useful, but let

it include those years in which it has attracted most attention. Commence with it as far back as the days of the Commonwealth if you will,* but do not stop short of the time when it would constrain you to pronounce a panegyric upon the labours of living men.

THE BEST MODE OF LETTING FARMS.

WITH A VIEW TO THE PERMANENT IMPROVEMENT OF THE LAND, DUE REGARD BEING HAD TO THE JUST RIGHTS OF BOTH LANDLORD AND TENANT.

[The following is a report of a discussion on this subject at the Richmondshire Farmers' Club.]

Mr. Wharton, of Skelton Castle, introduced the subject in a very clear and straightforward manner, and was listened to with the greatest attention. In the course of his address he said that his chief reason for suggesting this subject for discussion was the interest it had created among agriculturists generally, as shown by the attention given to it by other farmers' clubs, especially the parent one in London.

The present system of letting farms from year to year, as practised in this neighbourhood, is bad, radically bad. It is most objectionable for many reasons, but particularly on the ground of its preventing the tenant from expending money on improvements, as he has no security that he will reap the advantages they are intended to procure, and consequently has no interest in them. The moment they are made they are the property of the landlord, and the tenant might be deprived of his farm at the very next term. Under these circumstances it were unreasonable to expect extraordinary improvements from the tenants; and the landlords, as a body, were not in a condition to do much, for this reason: no class had so little ready money at command as landlords; he did not make this assertion lightly, but from his former connexion with a public office it was known to him that there was scarcely an instance of a large landed proprietor who did not die insolvent in his personal estate. [!!]

Hence, the necessity for giving security and encouragement to tenants of capital to invest their money. It is capable of proof also that tenant farmers can devise means to make improvements more economically than landlords; the latter have to procure everything necessary at the greatest cost, and often perform the work at unsuitable seasons, while the former go quietly about the business, and by the exercise of skill and care, and by doing the team work at vacant times, contrive materially to reduce the expense.

Landlords, when they lay out money for tenants, expect a per centage on the outlay, and gentlemen will admit that the tenant farmer should be remunerated for money expended by him in improvements. There are, however, improvable qualities in the land which are as much the landlord's as the tenant's.

To remedy the evils arising out of the present system of letting farms, two modes have been suggested, and successfully practised in different countries. First, the plan of letting farms for a long term, as adopted in Scotland; and, secondly, the system followed in Lincolnshire of repaying the tenant on his leaving the farm for the unexhausted improvements he has made upon it.

The objections to leases are many. It is more difficult to get a suitable tenant for a farm let on lease than it is when the farm is let under the Lincolnshire system; because, the former requires a man of superior judgment and large capital, as his improvements must be made early in his lease in order to ensure a full return, while the latter allows the tenant to proceed with his improvements according to his means, without binding him to any particular time.

Under a lease, too, it is difficult to prevent a bad tenant from injuring the land. If he does so the landlord has no redress; he may go away after some years, or, if he stay the full term, the farm is completely run out.

Again, when a tenant has a lease and is uncertain about getting a renewal of it, the temptation to take advantage towards its termination are very great. It would be well in leases of 21 years to have a covenant for renewal before the expiry of the term, thus holding out an inducement to the tenant to farm well, for although a higher rent might in some cases be exacted in consequence, the farm from its superior condition would in all probability be anything but a dear one.

Another great objection to a lease is that it may be agreed upon when corn is at a certain rate, and the rent calculated accordingly—a change may take place, corn may settle in price, and the tenant is liable to suffer loss during the remainder of his term. These objections seem to be avoided under the system of yearly tenancies with covenants for repayment for extraordinary improvements unexhausted on the farm—such as draining, stubbing old fences and artificial manures which ought to be paid for according to a scale previously agreed upon. In some parts of Lincolnshire it is customary to allow the tenant a certain number of years to repay him for improvements. Thus when he is about to drain he gives notice to the landlord or his agent that he is going to lay out a certain sum in draining on a particular part of the farm, the work is regularly inspected, and on its being satisfactorily completed, from 7 to 14 years is allowed as compensation for the outlay. If the tenant leave after only five years have elapsed he is entitled to claim $\frac{5}{7}$th or $\frac{5}{14}$th of this outlay, as the case may be, from the landlord or incoming tenant. These claims are generally taken up by the incoming tenant.

Other allowances are agreed upon in like manner; thus for lime four years is allowed, for marl six or seven years, for buildings when made entirely by tenant 20 or 21 years, for bones and artificial manures the custom varies, but for the former two or three years.

It is admitted that when stock have been fed on oil-cake the manure they make is of superior quality, and the advantage to the land from its use remains for some years—hence an allowance is made of $\frac{1}{3}$ of the cost of the cake for the first year and $\frac{1}{6}$ for the second year.

Mr. W. is inclined to lean to the Lincolnshire system; it is more easily engrafted on the plan now pursued in this district, and with a poor tenant, the landlord is in no worse situation under it than he would be if the present custom was continued.

In some places there is a clause introduced into the agreement to protect the landlord from dilapidations, which seems equitable, and in some cases may be absolutely necessary. It might happen that while a tenant made a great claim for compensation on some of the grounds already mentioned, he was himself liable for considerable sums for dilapidations.

He had been most anxious to hear this subject discussed rather than to have introduced it, but being urged to do so had consented, and now hoped to hear some valuable remarks from men of greater experience before he left the room.

A very interesting discussion followed Mr. Wharton's address, in which Mr. Jaques, Mr. Hartley, Mr. Outhwaite, Rev. W. Wharton, and the Secretary took part. The evils arising from the present system of letting from year to year without compensating covenants were unanimously admitted. The advantages resulting from the plan pursued in Lincolnshire were supported by parties who had seen their good effects to both landlord and tenant. The system of letting on lease, as followed in Scotland, was fully gone into by several of the members who had visited that country, and by one of them who had resided there for several years, the advantages of the system shown by a well cultivated country and a thriving tenantry, the application of corn rents to arable farms, recommended, and various other matters affecting the question. At the termination of the discussion the following decision was unanimously resolved upon:—

"That permanent improvement to the land can only be attained by security for outlay, and that this security is to be procured either by lease—as proved by the result of experience in Scotland—or by a system of repayment for unexhausted improvements, as is the case in Lincolnshire."—*H. J. Turner, Hon. Sec., Richmond, October* 14, 1846.

* See Mr. Parkes' lecture at Newcastle, published in the English Agricultural Society's Journal.

SCHEMES OF CULTIVATION FOR SMALL FARMS.

No. 1.—A Farm of about 60 acres, employing one pair of horses; of good deep soil, worth 2*l.* per acre as rental, including all parochial and other taxes.

Rotation Suggested.—1st year,* Wheat; 2d year, Clover; 3d year, Wheat; 4th year, Swedish Turnips; 5th year, Wheat; 6th year, Beans and Carrots, in what is called "double culture;" 7th year, Wheat; 8th year, Mangold Wurzel; 9th year, Wheat, winter Vetches, and Rye; and 10th year, Cabbages, transplanted on half the Vetch-stubble, and Turnips on the other half.

Each field to be six acres in extent, and we will suppose there are two acres over, which may be in Lucerne or Sainfoin, according as the soil is sandy or calcareous, loamy, or brashy.

The Produce of such a farm will be as follows:—

30 acres of Wheat at 36 bushels = 1080 bushels of Wheat.
6 acres, half of Beans = 3 acres at 40 bush. = 120 bush. of Beans.
6 acres of Clover (half-mown), 5 tons of Hay and the keep of 40 sheep for 6 months in summer.
6 acres Mangold Wurzel = 150 tons of Mangold Wurzel.
6 acres Swedish Turnips = 120 tons of Swedes.
6 acres half of Carrots = 60 tons of Carrots.
6 acres Vetches = the keep of 200 sheep for two months in spring and summer.
6 acres of Cabbages and Turnips = 120 tons of Turnips.

To recapitulate as regards Food for Stock, there will be:—

In Vetches, the keep of 200 sheep during May and June.
In Clover, the keep of 40 sheep from May till October, besides affording green food for the horses.

In Hay	.. ..	5 tons.
In Mangold Wurzel	.. ..	150 ,,
In Swedes	.. ..	120 ,,
In Carrots	.. ..	60 ,,
In Turnips and Cabbages	.. ..	120 ,,

The Stock which may be kept on this farm is:

1. *Two horses*, equal to the consumption of 1 a bushel of Oats per diem .. .. .. 180 bush. of Oats.
15 lbs. of hay per diem .. .. .. 2 tons of hay.
1 cwt. of Carrots per diem in winter .. 6 tons Carrots.
And a portion of Clover or Lucerne in summer.

2. *Sheep, &c.*—One sheep will eat, say 28 lbs. of green food, or 20 lbs. of green food and 2 lbs of hay, or 22 lbs. of green food and 1 lb. of oil-cake, Peas, or other grain. There are, taking out the Carrots needed for the horses, about 440 tons of roots and 3 tons of hay to be consumed between October and May. During that period a sheep will eat 3 tons of roots. This quantity of food will therefore require, for its consumption about 150 sheep. Now, a milch cow will eat as much as 10 sheep. The Clover, &c., supposed capable of maintaining 40 sheep during summer, will therefore maintain four cows, and to keep these during winter will reduce the number of sheep to 110. A three-year old ox will probably consume as much as eight sheep; if five oxen be kept during winter, and on till a portion of the Vetches be consumed in May and June, this will reduce the stock of sheep required to 60. But, supposing that oil-cake and other grain be given as food to the stock in the proportion of 2 lbs. to every cwt. of green food, that will involve a consumption of about 15 tons per annum, equal, in maintaining ability, to 90 tons of roots, or to the addition of one-fifth to the stock which may be kept. If any one will go through the calculation, he will find that the saving on cows, cattle, and sheep food, thus effected, will permit the keeping of 30 more sheep. These calculations proceed on the assumption that the sheep and cattle are kept under shelter; to be sure, a sheep so circumstanced will not consume 28 lbs. of Turnips daily, but there is so great a waste in cleaning them, &c., that this is a safe datum to found a calculation upon.

The farm will therefore maintain two horses and four cows all the year round; and five oxen and 90 sheep from October to June.

Let us now consider the Annual Cost of Labour on this farm.

30 acres of Wheat, drilled at 2*s.*	£3	0	0		
hoed, at 5*s.*	7	10	0		
harvested, at 10*s.*	15	0	0		
thrashed 135 qrs., at 5*s*	33	15	0		
				£59	5 0
3 acres of Beans, drilled, at 2*s.*	0	6	0		
hoed, at 6*s.*	0	18	0		
harvested, at 8*s.*	1	4	0		
thrashed, 120 bals., at 4*d.*	2	0	0		
				4	8 0
3 acres of Carrots, drilled, at 2*s.*	0	6	0		
hoed, at 15*s.*	2	5	0		
harvested, at 1*l.*	3	0	0		
				5	11 0
6 acres of Swedes, drilled, at 2*s.*	0	12	0		
hoed, at 10*s.*	3	0	0		
harvested, at 10*s.*	3	0	0		
				6	12 0
6 acres of Mangold Wurzel, dibbled, at 3*s.*	0	18	0		
hoed 3 times, at 10*s.*	3	0	0		
harvested, at 10*s.*	3	0	0		
				6	18 0
6 acres of Cabbages and Turnips—Cultivation, say 1*l.* 5*s.* per acre				7	10 0
Cultivation of Lucerne, 1*l.* per acre				2	0 0
Management of Clover; haymaking three acres, at 10*s.*				1	10 0
Management of cattle and sheep—One man all the year, at 12*s.*	31	4	0		
One boy in winter with him, at 6*s.* for thirty weeks	4	0	0		
				35	4 0
One [illegible] man, at 12*s.*				31	4 0
Say [illegible] lad all the year round at odd jobs, at 8*s.* [illegible] week				20	16 0
				£180	18 0

Cost of Food for Stock.

180 bushels of Oats, at 3*s.*	27 0 0
15 tons of cake or its equivalent	150 0 0
	£177 0 0
Rent for one year, at 2*l.*	£124 0 0

Cost of Seed.

30 acres of Wheat, say 50 bushels, at 7*s.*	£17 10 0
3 acres of Bean, say 6 bushels, at 5*s.*	1 10 0
6 acres of Clover, at say 1*l.*	6 0 0
3 acres of Carrots, 15 lbs., at 1*s.*	0 15 0
6 acres of Swedes, 30 lbs., at 1*s.*	1 10 0
6 acres of Turnips, 30 lbs., at 10*d.*	1 5 0
6 acres of Mangold Wurzel, 30 lbs., at 1*s.*	1 10 0
	£30 0 0

The following, then, is the Annual Expense on this farm:—

Labour	£180	18 0
Food	177	0 0
Seed	30	0 0
Rent	124	0 0
	£511	18 0

The Capital required for this Farm will be as follows:—Supposing it to be taken from a tenant who has pursued this system of cultivation, his manure and the cultivation in the land will have to be paid for. This will cost as follows:—

Half the cost of cultivating fallow crops of the previous year, including manure, 24 acres, at say 3*l.*	£72	0	0
Cost of Clover seed	6	0	0
Manure, say 1000 cubic yards, at 3*s.* 6*d.*	175	0	0
			£253 0 0

Implements.

One plough, 3*l.*; two pair of harrows, 5*l.*; two horse hoes, 4*l.*; one roller, 10*l.*; two carts, 20*l.*; one cultivator, 10*l.*; one Turnip cutter, 3*l.*; one steaming apparatus, 3*l.*; pails, &c., 3*l.*; stable and other implements, 2*l.*; hurdles, &c. 1*l.*				70 0 0
Stock.				
2 horses, at 30*l.*	£60	0	0	
4 cows, at 15*l.*	60	0	0	
5 oxen, at 12*l.*	60	0	0	
90 sheep, at 30*s.*	135	0	0	
				315 0 0
One year's labour, food, seed, and rent				511 18 0
				£1149 18 0

This is equal to £18:10*s.* per acre.

The Annual Cost of Cultivation on this farm will be

Labour, food, seed, and rent	£511 18 0
Five per cent. on capital	57 2 0
	£569 0 0

The following is an estimate of the Annual Returns of Cultivation:—

Wheat, 135 qrs., at 32*s.*	£351 0 0
Beans, 15 qrs., at 36*s.*	27 0 0
4 cows will each pay 8*l.* per annum	32 0 0
5 oxen will pay 6*s.* a week for their keep from Oct. 1 to June 30; 36 weeks, at 30*s.*	37 0 0
90 sheep will pay 6*d.* a week for their keep from Oct. 1 to June 30; 36 weeks, at 3*l.*	114 0 0
	£561 0 0

This just balances the expenses, hardly anything more. I give it just as the result (unforeseen) of the calculations on the data with which I started; but it is very obvious to any one that land farmed so highly as I have suggested will not stop at yielding 36 bushels of Wheat per acre, nor 20 tons of Swedes either. Land on which 3*l.* worth per acre of bought food for cattle is annually consumed, must increase rapidly in fertility, and the moderate crops which I have calculated on will soon be exceeded.—*M. S.*

ON THOROUGH DRAINING.

Before entering on the drainage of land to the vast extent it must be carried on this year in Ireland, the subject demands our most serious attention, our deepest consideration. Even by some of the cleverest of men its greatest and first principles are but darkly seen, while with others I must think erroneous views have not yet been entirely got rid of. In calling the attention of Irish landlords to the subject, I feel some diffidence, for it is, as though I said I knew better than others; which, although a very common failing, few like to appear to throw so far away the mask of modesty as to acknowledge it.

Some difference of opinion still exists as to the depths of drains, the areas of their porosity, and the distances at which they should be drawn, as the readers of the *Agricultural Gazette* are well aware. Mr. Smith, of Deanston—I might have said the deservedly renowned Mr. Smith—though still contending for the shallow draining and narrow distances he originally adopted, has been long in the transitory mood, and has abandoned, to a considerable extent, his original principle of the furrow drainage for the more modern one of Mechi, Parkes, Grey, &c., of thorough drainage; indeed, like all converts, I see he has taken the extreme *coté*, for he has become a renegade to his old friend the furrow, that nothing but the top of the ridge will now content him for his drain.

As I am not going to admit the superiority of his shallow drains, I shall first take the liberty of questioning his claim of superior experience over Mechi, Parkes, &c., in thorough draining. I do not dispute it in furrow draining, in this he has the right of invention, and from the length of time he practised it of experience too; but his experience of thorough drainage is but coeval with theirs, it is a thing of yesterday, the word itself has been but just taken in its present acceptance. Till very lately, furrow and thorough were used indiscriminately; and when a distinction began to be made, thorough was rather taken in the sense of complete, perfect (and I am inclined to think Mr. Smith is somewhat disposed to regard it still in that sense), than in its now derivative one of through.

To the principle of thorough (through) drainage, Mr. Smith's furrow drainage is as opposed as one thing can well be to another. The thorough drainage of Mechi, Parkes, &c., is a passage of the rain water through the unstirred subsoil into the drain, detained in the soil till it has parted with its ammonia, &c. The furrow drainage of Mr. Smith was the passage of rain water over, or but little under, the surface into covered drains in the furrows, from whence the system derived its name. And for this purpose the drains were directed to be filled in with light and porous materials, their original clayey earth being scattered over the ridges. For the former deep drains are evidently essential; for the latter shallow ones were as evidently best adapted, and their depth was therefore incidental to the depth at which it was intended the surface should be worked. By the former wide distances are effectually drained with sufficient expedition, and with a small area of porosity (an inch pipe); to the latter narrow distances were requisite to prevent the water of heavy rains running off along the tops of the furrows carrying with it the finer and richer particles of the soil; for the same reason a large area of porosity was also required.

To me Mr. Smith does not appear to have formed a conception of the distinguishing features of thorough and deep draining. He talks of a just medium for the depths of drains, by which he understands, I believe, such a depth as will place the upper part of the stone-filling some three or four inches below the stirred soil. Mechi's just medium is a balance between the expence and the depth of the drain somewhere between five and ten feet. But Mr. Smith says—"if the drains are made too deep"—and what is too deep?—"the water would remain longer in the soil than would be either necessary or useful." Now, letting alone that the advocates of deep drains affirm that the water runs quicker off from them, it is yet a problem how long it is necessary or useful for the water to remain in the soil before it is drained off. It should remain in it until it has parted with its ammonia, &c.; but how long this is will depend much upon the quantities of those matters contained in the soil; falling on a soil exhausted of the extraneous matters contained in rain-water and full of matter capable of being acted on by the acidifying principles it brings with it, the smallest possible space of time may be long enough; but if the soil is saturated with these matters and does not contain disengaged bases for the acidifying principles to act on, we can scarcely conceive (irrespective of the effects of excess of water on living vegetable tissue, and which does not here enter into consideration), that the rain-water can remain too long in the soil or percolate through too great an extent of earth.

Now, if drains act at 5 feet deep, and that they do so we have a vast preponderance of evidence and experience against Mr. Smith, they must drain the soil to that depth, and supposing on the hypothesis of Mr. Smith, but without acceding to it, that the rain-water descended as straight as it could go by force of gravitation, a soil drained to the depth of 5 feet would absorb a given quantity of water with greater rapidity than a soil drained only to the depth of 2 feet, and leave the surface sooner in a fit state to be operated on by man, let the draining from it be either quick or slow, for water cannot percolate so rapidly horizontally as it will descend perpendicularly by its gravity. The action of drains at 2 ft. 6 ins. below the surface, and at 5 feet must be very different—we shall see that their effects are so; for admitting with Mr. Smith that (with some trifling variation), in shallow drains the rain-water descends directly through the broken ground by its gravity, "and then along the surface of the subsoil which had never been mechanically moved, into the drains." Yet with deep drains this is not the case: true, we may suppose the water to descend perpendicularly through the broken soil a depth of less than 2 feet; but as upwards of 2 feet of the subsoil that has not been mechanically moved is made dry by the operation of the drain placed 5 feet below the surface, as there are 3 feet of rammed and solidified clay over the pipe in the drain, the rain-water cannot as in the shallow drains run along the surface of the mechanically unmoved subsoil into the drains, but must penetrate through it in concentrated radii to the drain-pipe, and this properly constitutes the great distinguishing feature of thorough, or as it ought to be called, through drainage.

The various fertilizing matters held in solution in the rain-water, and the acidifying principles it brings with it over and above those which it may have lost in its rapid passage through the broken soil; a soil probably already saturated with these matters and principles, are thus carried into and through every part of the subsoil, and there finding crude alkalies, earths, and metallic oxides, form salts, and in the course of a short time change this sterile and inert bulk of soil, 3 feet in thickness, into a nutritious and active earth.

The roots of plants now descend through this mechanically unstirred soil till they reach a still lower soil which has not been deprived of its surplus water. But as the growth of a plant above the surface always has a relative proportion to the growth of its root below the surface, we have in these deep drained soils a vegetation of far superior luxuriance to that of the shallow drained soils. We have then not only a saving of expense in the deep and wide apart system of drainage, but we obtain a fertile soil to the depth of four or five feet.

In calling the attention of the landlords of Ireland to this subject, I would also suggest to them, that as a difference of opinion may subsist between them and the Board of Works as to the system of drainage to be carried out, they have a just right, as being most interested, to stipulate for the one they think fit; the only interest of the Government is that the improvement effected be such as shall increase the value of the land to the amount of the outlay, and any system of drainage with reasonable care will do this.—*J. M. Goodiff, Granard, Oct.* 15, 1846.

Home Correspondence.

Compound Guano.—My attention has been called to an article in your valuable journal of the 3d instant, respecting a circular of mine which has come into your hands, upon "compound guano." In that article you invite me to solve certain propositions respecting the compound, which I now take the liberty of doing; and shall feel obliged by your insertion of this letter. In the first part of your article, you say, "that the inference you draw from my circular is, that you have been quite wrong all this time in looking sharp after the genuine article." This inference I consider quite foreign to any statement in my circular, and am at a loss to understand how you came to such a deduction. I state, most distinctly, that it is a combination of genuine guano. You next ask for enlightenment on this subject: "how the quality of anything can be affected by mixing with itself?" The answer to the question is so simple, that I wonder it should have been put. Perhaps you are not aware that the wine you drink after dinner is 19 times out of 20 mixed and compounded of different sorts to give it flavour and quality; and why? that the produce of different vineyards are distinguished for different flavours and qualities. It is the same with coffee and sugar grown in different parts of the world, each bearing a different feature as to quality and appearance peculiar to itself. And arguing from the same analogy in guano, is it an unreasonable deduction where the same is confirmed by experience and facts, to take advantage of the varieties of the different importations, and select from those that which bears the most opposite qualities, as in the case of the compound, namely, the Peruvian and Saldanha Bay guanoes, which are distinguished for different features—the one for richness in ammonia, the other for richness in the phosphates, both excellent peculiarities for fertilisation; and I assert, an admixture of these properly adjusted, forms a guano of great value as a fertiliser; and I am not singular in my opinion on this article, but am borne out by men of experience both as chemists and agriculturists. In conclusion allow me, in justice to myself and those connected with the article in question, to say, that I never in my life was a party, or had anything whatever to do with adulterating guano. I have been engaged in the guano trade from its commencement, and never sold nor was in any way connected with anything but a genuine article, which statement I am prepared to establish upon oath should such a course be deemed necessary.—*Geo. Jos. Ashton.* 82, *Mark-lane, London.*

Preparation of Manure.—You ask me to give you a £ *s. d.* estimate of the expense of carrying out my plan of manufacturing manure, in manure bin towers. Perhaps the fairest way of doing this will be to compare it with the present practice, as given in detail in an excellent article on Measure Work, at page 451, in the *Gazette*; and I will, in order to do this in a clear manner, place the two plans in juxtaposition:—

Expense as given in detail at page 451. These prices, if I understand them correctly, are charged on the manure in a manufactured state.	*d.*
1. Filling in yard, and carting to heap	2½
2. First turning	1½
3. Second turning	1
4. Loading and Carting	2½
5. Dividing in Field	—
6. Spreading	½
	7½

Expense in Manure Bin To crs. *My* prices as correctly as I can state them (without practical knowledge on the subject), are on the manure in a manufactured state.	
1. Annual charge on outlay for a bin to contain 500 cubic yards of manure in a manufactured state	3*d*
2. Labour in wheeling litter, &c. to the towers, and filling the bins	1½
3. Turning over or transferring the manure from one bin to another, with occasional pumping of liquid manure	1
4. Leading and carting the manure, and spreading directly upon the land	2
	7½

It would at first sight appear that my plan does not effect any saving in the manufacturing of manure; but such is not the case, as I will endeavour to show. In the first place, the manufactured manure in the bins would be more perfectly decomposed, and therefore occupy less space than such as is ordinarily carted out of fold yards, or, indeed, in any subsequent state before it is spread upon the land. This would effect a considerable saving in time, labour, and cartage. Secondly, there is the saving of cartage to the heaps, described as part of the first operation. Thirdly, the saving of time and labour in dividing the manure into heaps in the field, preparatory to its being spread broadcast or otherwise. It must be remembered that the manure as manufactured according to my plan, may be carted direct from the tower to the field, and there spread upon the land. These several savings would, in my humble judgment, amount to nearly one-half the total expence of the existing practice; then if so much can be saved in time and labour of man, horse, and cart, there must be a corresponding saving in horseflesh and wear and tear of cart, &c. The charge of 3*d.* per cubic yard on the manufactured manure in my plan, is made out of the interest on the outlay in erecting the tower, &c. Now I think that a good part of this 3*d.* might be very fairly set off against the wear and tear of that portion of cartage saved by my plan. You say, in remarking on my article at p. 652, that the doing away with the first cartage would be no saving, because the horses must otherwise be idle. But why should either man or horse be idle? At any period of the year could they not be employed in the transposition of soils on a farm where such a plan is practicable, or in leading road scrapings, &c., and the various materials to be procured in large towns? If, by judicious and skilful management, more and better manure could be made at home, and at less cost of time and labour than heretofore, could not such time and labour be employed in the manner described, or in such other description of work as would suggest itself to the mind of any intelligent man? I do not contemplate the necessity of leading manufactured manure at the busy season of spring, neither would it be profitable to do so with imperfectly decomposed organic matter; it might remain in the bins till wanted at the proper season of the year. In another part of the same article you say that it is doubtful if we can, by merely mechanical arrangement, wholly save the volatile parts of manure. Of course we cannot, because if a gas is once generated there is no other way of preventing its escape but by that of presenting a body with which it will combine, such, for instance, as those you mention; but my object is not to let the process get so far as to generate the ammoniacal gas. The heat necessary for the decomposition of the animal and vegetable matter if kept within certain limits, would not, I apprehend, have the effect of disengaging the gases to any wasteful extent; but if increased beyond those limits, rapid decomposition will take place, with great loss of elementary matter, which would be dissipated in the atmosphere unless converted into fixed substances by the acids, &c., usually employed for that purpose. I fear that I have not given a very satisfactory answer to your question of expense. Indeed it was not possible without an opportunity of doing it experimentally; but I trust that enough has been said to place the matter fairly before your readers. —*Henry Liddell, Beverley-road, Hull, Oct.* 14.

P.S.—What do you think of sprinkling litter, &c., as it is put into the bins, with a caustic solution of potash or soda (the latter would be the cheapest)? The lime employed in rendering the alkalies caustic might go in with the liquor. Of course there would only be so much of it used as was necessary to moisten the materials and excite fermentation. My object in suggesting the use of solutions of caustic alkalies is this:—I think they would probably in some degree effect the solution of the silica in the straw, and thereby destroy its organic structure. If this could be done, it would hasten the decomposition and reduce the bulk of the

manure; it would also make it more friable, and its effects too as a fertilizer would be improved. The temperature of the mass during decomposition would increase the action of the solution. Cold solutions would operate very slowly; but we know that boiling ones act very rapidly on animal matter. These of course are but crude ideas.—*H. L.*

To Harvest Roots, &c.—As the season for drawing Turnips is approaching, I shall feel obliged by your stating next week the best method of storing them. The practice here is to pile them in long rows, six or eight feet wide, and thatch over; but I think I have read in some of your papers a recommendation either to use hurdles, or raise wicker-work a foot or more in height, filling the spaces with straw some weeks after. Is this correct? Is it not also necessary that the bottoms of the rows should be quite dry? May the tops of Mangold Wurzel be now cut without injury to the root—though they are still very green and fresh? Do they require more careful storing than Turnips? Some time ago you had a communication from a correspondent, signed "Waterhouse, near Bath," advocating "Stall Feeding," and offering to state his practice and to furnish a plan of a cow house. Could you obtain this, as I am about erecting some cattle sheds, and am anxious to follow out house feeding as far as practicable? My cows have been in the house most part of the past summer, and their produce in milk and butter is fully equal to my neighbours—they were fed on Vetches and sown Grass in spring, and during summer on meadow Grass cut twice and three times—grown from tank liquid. I am about erecting a two-horse power (ordered at Newcastle, from Barrett, Exall, & Co) thrashing machine—not so much for the purpose of thrashing (on my farm of 110 acres) as for cutting hay and straw for my stock. Will you kindly inform me how far I may work this out to advantage,—especially with respect to horses. My stock consists of five horses and a pony, 19 milch cows, and 10 yearlings and calves. My intention is to keep 20 milch cows, and rear six or eight calves—feeding that number of my stock each winter. My farm is divided into 14 fields—two of them old meadow—two I purpose leaving in permanent pasture, and working 10 on a five course rotation of Turnips and Mangold, Wheat, sown Grass, one year's pasture, Oats. Please say if you consider this good practice, and oblige—*A young Farmer and Constant Reader, Whitehaven.*

[This is a very good rotation. The leaves of Mangold Wurzel, as long as they were green, fed the root, therefore, you should not remove them. Many thanks for your intention of reporting progress.]

American Farming.—In a late Number you give an account of Mr. A. Van Bergen's farming, from the *Albany Cultivator*, which mode of managing a farm must put all our first-rate farmers to the blush, on a farm of 700 acres, 500 of which are cleared, of which 300 acres are in mowing and 100 under the plough this year, and he has only three men and three pairs of horses, and their drivers, I presume; but the description states that "three men, under the direction of Mr. Van Bergen, have done all the hand labour on the farm from the opening of the spring to the 1st of June. The secret of accomplishing so much with so few hands, lies in the performance of much of the hardest portion of the work by improved implements drawn by horses." Now, as the British farmers have to meet this produce raised so cheaply by implements, and must anticipate a great advance of wages caused by the great demand for labour which there will be if only the railways go on for which bills have been obtained, he must have cheap and effective implements, and I should say every farmer's newspaper and magazine should give for the benefit of their subscribers, engravings of all prized implements drawn to a scale, so that it will enable a farmer to have them made at the cheapest rate (if they are not patented). You, in your Paper, used to give us drawings of useful implements, but your pages for a long time have not been graced with any; some time back you promised us a drawing of the Norwegian Harrow—as that is not a patented implement (only the way of raising the rowels out of the ground, has been registered to Mr. Richard Stratton, of Bristol, which may be as well done the way of the Uley Cultivator, and many others), please to draw it to a scale so that a common blacksmith may make one. In the "Journal of the Royal English Agricultural Society," there is a part of the prize essay on agricultural implements by Mr. J. Morton, published. Why the other part was not given, I am not able to say, but I should say it is to be regretted. As you have shown a desire to give every instruction to farmers, I am sure if you see this in the same light as I do, you will do all in your power to procure the desired information, and plans of implements for farmers. Can the *Albany Cultivator* be easily procured in England?—*Mona's Isle*

[In America, land is cheap and labour dear. Farmers there cultivate "extensively;" they occupy a large extent, and employ little labour. We know nothing of Mr. Van Bergen's farming, excepting what that paragraph told us, but from the general character of American farming (the unavoidable result of the circumstances in which it is placed), we imagine that there are few British farmers who need be put to the blush by Mr. Van Bergen. Our system is more "intensive" than his. Our circumstances justify the employment of more labour. We know not whether our correspondent's anticipations of cheap food and dear labour will ever be verified, but until they are, and until they are accompanied by an American cheapness of land (which we may safely assert that England will never see), Mr. Van Bergen's farming is no example for us to follow. We may mention by the way that whatever be its influence on individual profit, it is, perhaps, a national fault in the East Lothian Farming that it employs so little labour. Our correspondent's remarks on the value to all parties of improved agricultural machinery are nevertheless perfectly true, but although the immediate effect of good horse or steam power machines is to diminish the cost of farming, it ultimately acts not by throwing hands out of employ, but by increasing the produce of the farm. Improved machinery has always been, and will always be, part of a system which employs a greater amount of labour: not certainly, however, in the manufacture of the same quantity of produce. Its profitableness to all parties consists in this that its cheaper produce so extends its own market as greatly to increase its manufacture. We lately gave a cut of Stratton's implement, and, though other matter has hitherto occupied our columns, we have by no means lost sight of the series of articles on agricultural mechanics we have given in past volumes, and which still requires for its completion papers on the machines used in preparing our crops for food and for market. The *Albany Cultivator*, a very excellent American periodical, is published at Mr. H. Newman's, bookseller, No. 199, Broadway, New York City. We do not know any London agent.]

Societies.

STEWPONY AGRICULTURAL SOCIETY.

At the Stewpony Agricultural Association, W. W. Whitmore, Esq., made the following remarks at the annual meeting last week:—

One great means of improvement is drainage; indeed, it is the first and greatest; and, in regard to it, I have no hesitation in recommending, as my decided opinion, that draining to the depth of 4 feet with pipes, is infinitely to be preferred to the old shallow plan. The effect of the deep draining is much greater, the expense much less than the other; and, after ample experience, it is the unanimous opinion of my tenants that there is no comparison between the 4 feet draining system and the former plan of 2 feet 6 inches. I am carrying the new plan into effect to a great extent, on my own estate, and my mode of applying it is open to you all for examination, and I hope it may be found useful. I am also at present carrying on largely a system of irrigation conducted upon the most improved principles, from which I expect great results. It is right that I should mention that I have tried irrigation before without success, nay, even with injury; but then I never found out the way of applying it properly; and now that I have got hold of the proper mode, I have no doubt that I shall be amply repaid. Taught by former failures, now when I desire to practise any improved mode of husbandry, I look to that part of England where it is carried on. I am ready to admit that a great deal of information may be got from books; but you may read to all eternity without becoming practically acquainted with the matter. If you are to have a practical knowledge of the process you must go and learn it where it is practised. Accordingly I went to Kent to acquire my knowledge of deep draining, and I went for irrigation to the water mills of Dorsetshire, which are very beautiful works, and no one desirous of putting the plan in practice but will be repaid by seeing how it is carried on there. I am also of opinion that in carrying improvements into effect it is necessary to have some party who has been engaged in them where they are carried on; accordingly I have brought workmen to effect the improvement on my estate, and when the plan is fully in operation, and I have instances of it to show the members of the Stewpony Society, I shall then consider that I have been of some use. With regard to the manufacture and storing of manure, I have tried the system referred to in the report, viz., box-feeding, but on a small scale. I am convinced that it is an immense improvement on the usual plan of making and preserving manures. In box-feeding the animal is in no degree injured, nor its health in the least impaired, though perhaps it might look brighter in the eye when fed otherwise. You are aware that there is a cavity below the box which is fitted up with a grating, and becomes filled with dung. Now, although I have left that for six months without emptying, the animal has thriven and experienced no ill effect, nor shown a single symptom of disease. It is true the labourers who took it out felt it a little; it made their eyes water and their noses sneeze, but did no greater harm. I think it must be apparent that this dung not having been dried by the sun nor watered by the rain, but all its solid and liquid parts retained, must be vastly more efficacious than that collected on the old system. What is the usual system of manufacturing manure? The turning a few poor miserable animals into the straw yard, and when the straw is rotten you call that manure! It is nothing of the kind. I have seen straw actually thrown into the streets to be converted into something black and dirty, and then it is called manure. This is absurd; and I contend that a most material point in farming is the proper preparation and preserving of manure.

Mr. Baker: What depth do you drain, Mr. Whitmore?

The President: Four feet. The cost of applying irrigation I find to be from 12*l.* to 15*l.* an acre; but what is the result? Suppose my improvements in this way to be at all comparable to those in the rest of England, I shall obtain a bite of Grass in the month of March when it is nowhere else to be had, and I shall have an extra ton of hay to the acre, so that land that formerly let at 40*s.* an acre will be richly worth 80*s.* I think also that where agriculture is carried to a high pitch a system of double manuring goes on, and, provided your land is clean where that takes place, very large crops will be yielded. After some further remarks, the hon. gentleman concluded by saying that he hoped to see the farmers of England take that commanding station among the agriculturists of the world which her manufacturers had done; and if he could in any way promote so desirable a result he would feel that he had not lived altogether in vain.

WITHAM LABOURERS' FRIEND SOCIETY.

At the late annual meeting of this Society, excellent speeches were delivered by Messrs. Mechi, Hutley, Foster, and others. We give a report abridged from the *Chelmsford Chronicle*.

On the subject of deep drainage, Mr. Mechi stated, as far as his own experience went, he could state that he had a 13 acre field drained 5 feet deep, in a very strong loam, and put Wheat on it; he had the adjoining field of the same sort mole-ploughed 16 inches deep, and also put Wheat on it. The latter in the winter looked better, but he then said, "in the month of May that field will go to Halsted fair, for that is the trying time; when the roots want to descend they will find a check in the cold undrained soil—it will go back, and my deep drained field will go on unchecked." All his friends said no; but the deep drained field went on, and the Wheat was 6 feet high, while the other was only 4. At harvest his man expressed his surprise at the lightness of the sheaves on the latter; and he had more corn, from one to two quarters an acre, on the field that was drained than on the other. He was quite aware that there existed in this county a strong prejudice against deep drainage, and he was anxious that every one should try an acre in each field—if he was wrong convict him by facts and not taunt him by prejudices. Perhaps some gentlemen had done so, and could give him their opinion. He paused for an answer. None. He was sorry for it. It was not right certainly that a man would not drain an acre of land to convict him if he was wrong. He was more anxious upon the matter, because it was of national importance. They knew that farming was but a slow way of getting money, and he was quite sure, with ordinary management, in a wet season, on undrained land, it was a fast way of losing it. They were constantly hearing of agriculturists who were leaving their farms after three or four years of wet seasons; they constantly hear it said of such and such a person, "he is going away having lost his capital, poor fellow; he went in with a capital of three or four thousand pounds, and he has lost it," and if deep draining would prevent this, how important was it that it should be done. A wet season did no injury on deep drained land. He was quite sure that heaven's rains were the greatest blessings we could have, except just at harvest time; and it was the opinion of Mr. Pusey and others that when a farm was drained, the farmer could hardly have too much rain. So much for drainage. He should be happy to give his opinion at any time upon the matter, but he said, "Till you convict me of being wrong, do not taunt me." He must say that he was not satisfied with the agriculture of this county—he was not satisfied with his own, for he thought there was room for improvement; but there was more room for it amongst his friends. We had amongst us some eminent agriculturists, but they were not perfect. Mr. Hutley was one of the best agriculturists in the county, but he was not a real good one yet. Before he was a good agriculturist, he must save the strong tea, the best part of the manure of his farm, which was to be seen as black as ink standing before his house. He merely quoted him as an instance, because he had no excuse for doing so, for his buildings were in a straight line, and the works might be soon made by which the liquid manure might be easily saved; and further, he was not a good farmer in this respect, nor was any man, who used that barbarism called a waggon. No man could use a waggon without doing violence to his own conscience. (Laughter.) He acknowledged there was great antiquity about a waggon, and there might be a feeling of pride in the farmer who saw his four fine horses in a line leaving his yard with a great red waggon following, but it was not a satisfaction in the pocket. If they were to have the waggon—if the bulk was so important—he said "do away with that lumber at the bottom, put it on a pair of wheels on one axle with light shafts, and then you will see the difference." The facts relating to this question had been multiplied by the Royal Agricultural Society and others, and what was it but from prejudice that they continued the waggon? Altogether it was wrong and unprofitable, and he should be ready for a sweepstakes or anything that might be proposed to test the merits at harvest time. It could be easily done. He would send any farmer two or three carts, or he should send him two or three waggons, and it would be easily decided, so that it might be a settled question in the county. There was another question in this county—were they to disturb the ground deep or were they to plough it shallow? The impression he believed on the minds of the majority of the farmers was that it was wrong to plough or subsoil deep. They were right under the undrained circumstances of the case, for so long as deep drainage was not admitted to be good in a strong soil, they dare not subsoil; it would be dangerous to disturb the land deeper than the open furrow, unless

hey put drains to carry off the water. But he trusted the chairman would come to his farm and see the difference in the subsoiled and unsubsoiled part of a field. The crop was put in the same day, and after he had been absent from the farm some time, on returning, he met his man, poor old Mayne, who said "I am done now, I could not have thought that drainage would have made that difference." He (Mr. Mechi) told him he hoped many more in Essex would be done, and would follow out the plan. A gentleman had told him to-day that in his crop of Swedes there was a great difference between the part that was subsoiled, and that which was not. Therefore these three things must be added to Mr. Hutley to make him the best farmer in the county; and he believed that he was a man of that good common sense that would not allow his prejudices to get the better of facts. There was another subject that he was not satisfied with, that was the treatment of horses. They were not treated in the most profitable way. He believed it was wrong to turn them out at night, and to give them their food uncut. He believed it was the cheapest way to cut up all their green food, and mix it with straw cut into chaff; to give them a dry well ventilated stable, and keep them there when not at work, for exercise they got enough of when they went to plough. He had proved this by his own farrier's bill, which had not amounted to more than two shillings for eight horses. They often heard a person say that his horse had got the gripes, it turned to inflammation, and they lost their horse, and that arose from their being turned out, for if a man was turned out in the wet he would be likely to get inflammation too. Another question was, the quantity of seed to be sown. He had tried some experiments in this, and he was fully convinced that thin sowing must follow a perfect state of agriculture; drainage was again involved in the result of thin sowing; and the result of his own experience had been that more than one bushel of corn per acre had not produced a corresponding advantage in the crop, but he had grown as much from one bushel as from two or three, in fact he had grown more. There was his old bog, which had been considered good snipe ground, and never produced five shillings an acre to the tenant, on that ground he had grown twelve quarters of wheat, weighing 65 pounds the bushel, and he had five loads per acre of straw. Therefore the return per acre on that had been 22*l.*, selling the corn at 14*l.* a load, not at the present price; yet he was told that that was a job that would not pay, and even Pearson, who drained it, said it would not pay. If that could be done profitably in this case, it could be done in another; and they knew there were many bogs in Ireland, and in this kingdom, on which capital might be invested to the advantage of the country. A gentleman near him sowed thick because he was afraid of the wire-worm, but if they sowed thin, and had Crosskill's roller to crush the ground in the spring, there was no danger in that. Without that thin sowing would be wrong. He was quite convinced that a bushel of seed per acre was sufficient: he should not use more on 40 or 50 acres this year; but he was afraid to try less, though he had tried 3 pecks, and that had produced more than 9 pecks did. Then as to the form of buildings in this county they were disgraceful and discreditable to them. The rotten board and thatch that he had seen were very discreditable. Everything that was possible should be made of iron, and bricks, and slate, for board and thatch were unprofitable as a permanent investment. If they had not money to do it, of course that altered the case; but the principle carried out on railway works and buildings in the city would be the principle to be applied to farmeries if the means existed. He would not go into the question of hedge rows and timber; that was a delicate question. (Cheers). He felt a little hurt at that cheer. These gentlemen did not cheer him when he told them they wasted their liquid manure, nor when he told them their waggons were barbarisms. There was no doubt the fences were a disgrace to the tenantry, and the pollards and timber were disgraceful to the landed gentry. He was sure our fences were not to be compared with those of Norfolk or of Cambridgeshire. The fences here were some of them as high as that room, but there was no difficulty in getting through them. As to pollards it was actual barbarism. When they get them home they were not worth a shilling a-piece, and therefore he recommended the landlords to cut down the pollards and burn them on the spot with the headlands, which were disgraceful to the farmers, and should be made into heaps of burnt earth and carried on to the land. He was sure the landlords were not aware of the loss that pollards and timbers were to them. The people of this country were increasing at a rapid rate, and where was the food to come from? These things must come at last: we must cultivate our fields up to the very hedgerows, like the Chinese; and why should we not come to it at once? He said this because he was anxious for the improvement of farming; for his heart and soul were in it, and he felt that farming was a necessary and honourable profession, though not a very profitable one. He thanked them for the patience with which they had heard him, and he should be happy to enter on any experiment that he thought would benefit the agriculturist.

Mr. William Hutley: If the statement of Mr. Mechi went before the public that the difference in the two crops he had alluded to came from deep draining, they would be deceived, because the crop in the field where the light sheaves were was after Beans, while Mr. Mechi had fallowed and tilled his deep-drained land all the summer, up to sowing the Coleworts and Mustard, which were ploughed in. The crop of Beans was on the land till Michaelmas, and he saw a good many weeds there: therefore this was a second crop, and if he did get more on the other land, it was no more than he deserved to do, without deep draining. Mr. Mechi told him in the spring that one field was going off, and the other coming on, to which he (Mr. H.) observed the deuce was in it if it did not, for one crop had got nothing under it, while the other had.—Mr. Mechi: There was guano put upon the field where the Beans were, which he thought equalised them.—Mr. Hutley: State the tithe you gave them.—Mr. Mechi: I do not believe the land was ploughed above once or twice.

Mr. Hutley said, drainage seemed everything in Mr. Mechi's eyes; but there wanted something else besides that, and they must not attribute all to deep drainage. He had no doubt that the crop of Beans, &c., on the undrained field had paid as much in the market as the large crop of Wheat did. Mr. Hutley afterwards spoke of the discussion on tenant right at the London Farmers' Club. He said, if they could establish a good code of tenant rights, it would be a benefit not only to the occupier, but to the landlord; because if capital was laid out and property put on an estate, it would always be more valuable for any man to take. Now, if a man took a farm on a 14 years' lease, the object in the first seven years was to put as much capital on it as he could; and in the last seven years his object was to take it off. But this was not what they wanted. They wanted to grow as much as they could, and this could only be done by giving security to improvements partaking of a permanent character. He would give them an example of what he meant: the deep drains on his farm, which had cost him hundreds of pounds, would never be exhausted; and, as they were a permanent advantage to the estate, why should not the landlord pay for them if he left the farm? And so important were those improvements that he knew many farms where he could go and grow two quarters more per acre. Those who advocated the establishment of a clear code of tenants' rights, did not want to injure the landlord, but to obtain such security for the tenant that he could lay out his money in those permanent improvements, that another taking the farm would be ready to pay for. If this were not the case, a man would be scheming in all the ways he could to get out of it before the end of his term all that he had laid out upon his farm. The occupier wanted to know before the expiration of his lease whether he was to be continued or not; and if not, that he should be paid for all the improvements that he had made (permanent improvements, mind); and such would be the advantage of this, that it would be a benefit to the landlord, it would be a benefit to the tenant, and it would also be a a public benefit. (Cheers.) He knew many instances in which men had drawn their fortunes from their farms, because they did not like to pay an advanced rent on their capital; many men would leave when they should stop, because they had to get their capital back again, and should do it if they could—at least he should recommend them to do so.—Mr. Hutley said he believed Mr. Foster could give some information as to the damage done by pollards.

Mr. Foster: His landlord had offered to allow him to take down the pollards at a fair price, that was at 1*s.* 6*d.* each; he knew they were dear at that price, but he would give 5*s.* rather than they should stand. But the tree Mr. Hutley referred to was a small timber; it was worth about 6*s.*; he had known it there himself for 23 years, and he could state that it did 4*s.* worth of damage last year to his crop of Caraway. As to Mr. Mechi's deep draining with inch pipes, he drained with 1½ inch last year, and he did not find them large enough, for they ran full.

Mr. Mechi: How far apart? Mr. Foster: Two rods.—The President: What length were the drains? Mr. Foster: Sixty rods, and the depth of the drain 3 feet; they were completely full.—Mr. Mechi: I apprehend they carried all the water away, though. Mr. Foster: After a time.—Mr. Mechi: The access to the pipes depends upon the friability of the soil. I do not apprehend that any injury was done by the pipes running full if they carried off the water soon enough; it would make only a difference of a few hours. I do not apprehend that if the pipes had been bigger, they would have carried off the water quicker.—Mr. Foster: I think 3 feet draining is deep enough. In Mr. Mechi's stiff loam with sand in it, 5 feet may be necessary; but in our regular soil (a dry chalky loam), where you have to stab it up with a pickaxe, I do not think it acts so well. In cross drains and parallel drains, the cross drains seem to be the best, and to dry the land sooner.

Mr. Hutley said, the soil in which the draining was done to-day was as different from Mr. Mechi's as if it was not in the same country.

Mr. Foster: In a meadow that grew nothing but rushes, in 4 or 5 acres he put 5-feet drains, but the roots got in and stopped them up; then Pearson drained it at 11 feet, and it was now the best piece of land he had got. With respect to guano sown in spring, he had tried it with a crop of Wheat; it did it no good, but it did great good to the succeeding crop of Peas.

The President: Do you think it best to put the guano in with the Wheat, or to top-dress it in the spring? Mr. Pearson said he thought it best to put it in with the Wheat, and should this year put in with all his Wheat 2 cwt. of guano, or a quarter of a ton of Rape-cake, per acre.

Mr. Hutley said, he had put guano on, and he believed the straw would pay the whole cost of it, and that the produce of corn would be as large as the straw. The guano cost 1*l.* He had used guano for 100 acres of roots this year, and the effect was remarkable. He had also tried fish, at 25*s.* an acre, and the effect of this was extraordinary. This year he meant to use guano, for they could not grow too much; and with security of tenure (for that came in here again), the more vegetable matter they carried into the yards the more they could carry to market for sale; and they must look on themselves as number one. Talking here freely, as they did, he hoped would have a good and kind effect; for in the parishes where these things were carried out, the poor were better fed, better clothed, and better housed. The moment they wanted to make a man a Radical they must empty his pocket. For his part, when he had security of tenure, he never ceased laying out his money; he never kept any, for he had no doubt the land was grateful and would well remunerate the outlay; they might depend on it there was nothing so profitable as manual labour. Let them use manual labour to destroy the weeds, for they should never grow weeds; and he knew that land would pay for the use of money, and pay well.

Mr. Mechi: It seemed to be thought that to get rid of the water was the main object of deep drainage; that was not so. It was to give the share of the plough an opportunity of going deeper, and the deeper the root of a plant went the higher and stronger the stem grew. That was an established fact.

Mr. Dixon: As to what Mr. Mechi had said, he could state that all the work on his farm had been done by carts, but he had made the dung-carts do it, fitted up with large ladders. He had a cart from Bedfordshire; he believed the cart was the better implement; and though the men did not admire it at first, they now got on well with it. With respect to his land at Hatfield, he thought his average would hardly be sustained on a series of years. The land they farmed as high as they could in regard to expense, and the average of the last 14 years had been 5 quarters 5 bushels for Wheat. It had been Wheated repeatedly; and it struck him as out of the common way that it should yield Wheat repeatedly, the produce being as large in the latter years as at the beginning.

Mr. Mechi: Do you not think you would get more corn if you sowed less seed? Mr. Dixon: He sowed some after Mangold, and that was laid and damaged, and he believed he had less there from thick sowing; but from thick sowing he thought it was much cleaner than it would have been otherwise.

Reviews.

Experimental Researches on the Food of Animals and the Fattening of Cattle, with Remarks on the Food of Man. By Robert Dundas Thomson, M.D., &c., &c. Longman, Brown, Green, and Longmans.

We would direct the attention of our readers to this little work, not merely as it contains a full report of the experiments already referred to in our pages, which its author undertook on malt, Barley, and other substances, as food for cattle, but also as it contains a general view of the subjects of food and digestion, which it is of the greatest importance for farmers to be acquainted with. We shall have ample opportunity hereafter for considering many of the points on which Dr. Thomson has written, in the meantime we must content ourselves with an extract.

The following remarks on mastication point out very clearly the importance of reducing the food given to cattle, and especially to those which chew the cud, to as fine a state of division as possible.

"In the human species a morsel of food is grasped by the front teeth of both jaws, which are each supplied with 16 teeth, making 32 in all. In those animals which chew the cud, as they have only one row of teeth, the food is less firmly grasped by the jaws, and there is, therefore, a greater necessity that it should be of a soft and pliable nature. By the assistance of the lips, jaws, tongue, and auxiliary muscles, the food is conveyed into the cavity of the mouth, and by the aid of the tongue and lateral motion of the mouth it is placed between the opposing jaws, where it is masticated or ground to a proper consistence. But the action of the jaws in grinding the morsel introduced between them at the same time elicits the compressing power of the muscles of the cheek upon the parotid gland, which is situated in man in front of the ear, and expels its secreted fluid, the saliva, into the mouth, to assist in comminuting the nutritive matter. Besides this mechanical action, there is, however, a nervous sympathy called into operation. The masticated matter acts upon the tongue and adjacent parts, inducing a sympathy with the glands placed under the tongue, and causes them to pour out their copious contents. The object of mastication or chewing is, therefore, to reduce the food to such a consistence as shall fit it for its reception and proper digestion in the stomach. This is well illustrated in the instance of animals which are not supplied with teeth.

"The common fowl, for example, is destitute of these grinding apparatus, but it has a muscular mechanism, termed the gizzard, which powerfully compresses the introduced food, and by means of pebbles and stones, which are a necessary article of food with the class of animals referred to, an artificial substitute for the teeth is provided. In granivorous animals, we shall presently find that a substitute for the second row of teeth is provided in the operation of rumination, or chewing

the end. From attention to these facts, therefore, we are taught that the preparatory step of digestion consists in the fine division of solid food by means of the apparatus set apart in the mouth for this purpose, and its mixture with a certain amount of fluid saliva to render it more dilute.

"The importance of the proper grinding of the food, and of rendering it as soluble as possible, can be well appreciated by such individuals as have been the subjects of indigestion, from the eructation of morsels of food, of gases, and of acid liquors. It is scarcely necessary to remark, that similar rules are applicable to the inferior animals, and more particularly in the state of confinement to which most of them are more or less subjected when they are made to minister to the wants of the human species. The following comparative Table exhibits this fact in a sufficiently striking manner. Two cows were fed on entire Barley and malt, steeped in hot water; they were then fed on crushed Barley and malt, prepared in the same manner. The influence of the finer division of the grain in augmenting the product of milk places the importance of this position beyond all cavil:—

	BROWN COW. Milk in Periods of 5 Days	WHITE COW. Milk in Periods of 5 Days
	lbs	lbs.
Entire Barley and Grass	111½	106
	97½	94
Entire malt and Grass ..	96	98
	95	104
Crushed Barley, Grass, and hay	115½	109½
	105	109½
	110	110
Crushed malt and hay ..	97	106½
	96	107½
	98	111½

"An inspection of this Table shows, that with the entire Barley the milk diminished during the second five days of the experiment, while with the crushed Barley the milk had a tendency to increase during each succeeding period. In all such experiments there are continually occurring irregularities, of which we have no means of precisely appreciating the causes. These proceed often from atmospherical influences, as temperature, and frequently from the condition of the animal. We are, therefore, taking a legitimate view of an experiment when we direct our views to the tendency to improvement or deterioration in the course of the trial, rather than to the actual numbers obtained. In the preceding Table, the tendency to an increase of product is decidedly in favour of the finely divided grain. There are some anomalies, more particularly with reference to the brown cow, which was rather a fiery animal, and probably placed in peculiar physical conditions, as will subsequently be explained.

"The nature of the saliva, which is a fluid of the simplest constitution, as it contains 99½ per cent. of water, directs our attention to the nature of the fluid to be used in quenching thirst. It has become customary in towns to stimulate the systems of cattle, more especially of cows, after the fashion of human beings, by the use of alcoholic fluids, such as pot ale, under the idea of increasing the amount of milk. Now as the stimulating portion of this pot ale is alcohol, and contains no curd, or, if so, but an insignificant portion, it is evident that no increase of the nutritive constituents of the milk is thereby obtained."

Miscellaneous.

Report of Select Committee on Metropolitan Sewage Manure.—Mr. Harvey, a gentleman of Glasgow, has applied it (sewage water) to some Wheat land before the crop was sown, and he has had a luxuriant crop, more so than the other crops in the neighbourhood, and upon land which was rather cold, backward land.—*Evidence of James Smith Esq., of Deanston.*

Fairy Legends in Cornwall.—The Pixy Rider.—On the banks of the river Fowey, near Lostwithiel, there yet lives a farmer who, possessing intelligence beyond his neighbours, was regarded, thirty years since, as the Solon of his parish, St. Veep. With this person I was spending some holidays; and he kindly placed at my disposal a very beautiful little pony,—on which, day after day, I explored the cultivated glades and wild moors of the neighbourhood. The pony was regularly, after having been fed, turned out into a fertile meadow at night. One morning, this little creature was discovered to be ill. It revived, however; and was thought towards evening to be again quite well. Morning after morning "pony" was prostrate—suffering from some intermittent disease. The village farrier was called in; who at once declared that the pony was "*pixy ridden*,"—and it was resolved to watch the field at night. How the watch was kept I have forgotten; but well do I remember two men informing my credulous host,—who believed all they said—that they saw five little men like apes, the tallest of whom was not more than six inches high—go into the field and engage in wrestling. The contest was long,—and for some time very equally maintained, but at length one of these small men succeeded in throwing, *a fair back throw*, each of the other four. The victor was then described as jumping on the back of the pony—dancing in the most grotesque manner,—and singing very obscene songs; whilst the others, howling with wrath and pain, so terrified the poor animal that, in wild affright, it galloped furiously around the field for upwards of an hour—the little ape-like man in no respect diminishing his zeal, but continuing to dance most furiously until the poor beast fell panting, exhausted, beside the hedge. Such was the tale believed by a respectable,—and an education west in those days,—an educated farmer. The pony was kept in the stable at night—the door of the stable being fastened with a green sprig of the "scow" (elder tree) to keep out all unnatural intruders: the result of which treatment was, as might have been expected, the gradual abatement of a disease due entirely to cold and exposure.

Notices to Correspondents.

AMMONIACAL GAS-WATER—*W C S*—It varies exceedingly in its composition—with the nature of the coal. We have searched in vain for a quantitative analysis; but have understood it to contain generally about 1½ to 2 per cent. of ammonia.

ARE DRAIN TILES LIABLE TO TOLL IN THE FUNDHAM'S CASES?—*Inquirer*—We imagine that they are, but cannot refer you to a case.

BEANS AND CARROTS—*An Old Subscriber*—Our interval is alternately 2 feet and 5 feet 6 inches; the former between adjacent rows of Beans, and the latter affording the space in which the two rows of Carrots are sown 18 inches apart, leaving a space of 2 feet between adjacent rows of Carrots and Beans. These intervals permit a thorough horse-cultivation of the land during the growth of the crop. We sow the winter Beans now, and the Belgian Carrot towards the middle of April.

BONES AND SULPHURIC ACID—*W B*—Add equal weights or thereabouts. See a paragraph in another part of this Paper.

BOX FEEDING—*One Desirous, &c.*—A box should be 9 feet wide and 10 feet long. It should be fitted up with a corner trough, which may be reversed at pleasure, so that it shall not be dirted in the intervals of feeding. A series of such boxes on the south side of an east and west wall may be erected at various prices—from 10*s.* per box, when the landlord will supply you with materials in the rough, to 20*s* or 25*s* when you wish to thatch and roof over with tiles. Last year, having a great crop of roots, we erected such boxes for something like 8*s* 6*d.* apiece, Larch poles being the material, and stubble the covering.

CALVES—*Inquirer*—See page 29, 1844. Good cows may rear 3 calves apiece. The relative rates of steer calves at Michaelmas, when yearlings, 2-year olds, and 3-year olds, under circumstances when 2-year olds are worth 16*l.* apiece in the market, may be 8*l.* to 2*l.* 10*s*, 4*l.* to 6*l.*; 8*l.* to 11*l.*; and 14*l.* to 17*l.*, respectively.

COMPLAINT IN SHEEP—*H C*—The disease of which, in your district, is provincially termed "the complaint," is in ours, and in most others, called "the epidemic." It has certainly a fair title to either denomination, for it prevails so extensively, and spreads from one animal to another to such an extent (*ergo* epidemic), that we wonder not that it should be the subject of your *complaint* as well as that of others. The shepherds are not far wrong when they say "it must have its run," for it is in fact a fever which attacks the system, and which cannot be suddenly stopped, though it can be considerably moderated by proper treatment; and the festering of the feet is one (and the principle one) of its external manifestations; whilst with oxen the mouth is the local part chiefly affected. To moderate the fever give internally to each sheep one to two ounces of sulphate of magnesia, with half a drachm of ginger, dissolved in warm water. When matter forms in the feet, pare the horn sufficiently to give it a free exit, and apply hydrochloric acid and tincture of myrrh (equal parts) to the sore by means of a feather. This may be repeated, if necessary, in a few days after, when a milder application will suffice, such as sulphate of copper, sulphate of lime (burnt), sulphate of alumina, arminian bole, equal parts of each, in fine powder, and mixed together. This compound may be strewed on the sore daily. Above all, dirt and moisture must be kept from the feet, for this is the chief cause of the troublesome and protracted nature of the complaint. What can be the use of applying medicine one minute and washing it off the next? which is effectually done by turning the sheep on wet ground. *W C S.*

I'AAX SEED—*Aleph*—We will inquire, but we think your fear is groundless.

FOLDING SHEEP—*Constant Sub*—It is impossible to say what number of sheep per acre your land will carry without knowing the character of the soil. Probably you might fold 20 sheep per acre over it late in May, 10 sheep per acre over it next time which might be in July, earlier or later according to the season, and again 6 or 8 sheep per acre in September.

GRASSES—*R Robin*—We do not know Murphy's book. About your cow next week.

GUANO AND PEAT—*C W E*—A compost of the two will be a good manure. Apply it so that each acre of land shall receive 3 or 4 cwt of guano, for it is to that part of the compost that its effect will mainly be due.

LUCERNE—*Isaacus*—You should have cut it before; but if it is so long you may do it now.

MANGOLD WURZEL—*Anon*—Certainly it does give a peculiar taste to butter. Not a strong one, however, nor is it so disagreeable as that of the Turnip.

SMALL FARM—*W B H*—The cut of schemes commapped this day by our correspondent *M S*, will include your case very soon. Sawdust might be usefully applied as manure after being soaked in liquid manure, or it might be used along with a little straw as litter, and then used as manure.

SWEDES, &c.—*An Old Subscriber*—You may transplant in freshly turned up earth without much risk of failure, but you had better sow. Swedes may be piled up against a wall and covered with straw, they will keep better if you put some straw between them and the wall. You may plant Swedes on a winter Vetch stubble with perfect safety as to a crop, provided the weather permits you to obtain a plant. Winter Tares should be sown this month.

WATER HOSE—*Llandilo* asks what description of hose is cheapest? Manufacturers of the article will perhaps inform us. The purpose of it is to distribute liquid manure as recommended by Mr. Smith, of Deanston.

*** Communications reaching town after Wednesday cannot be answered the same week.

Markets.

SMITHFIELD, MONDAY, Oct. 19.—Per Stone of 8lbs.

Beasts, Herefords, &c.	4s	5s	6d	Beef, Long-prime	-	4s	5s 6d
Best Short Horns	3	3	4	Ditto (choice)	-	—	—
Second quality Ditto	3	10	3	4	Mutton and beautiful Lambs	4	5	6
Calves	4	4	4	8	Ditto (choice)	—	—	—
Best Pigmies & Half-breds	3	6	3	8	Lambs	-	-	5
Ditto (choice)	-	-	-	-	Pigs	-	-	3

Beasts, 2,040; Sheep and Lambs, 24,600; Calves, 127; Pigs, 440.

We have to say a very large increase in the supply of Beasts, many have arrived of inferior quality. Prime are better. The shorthorn Bullocks a little over, and single ones, the most selling Herefordians rather over to-day around 3*s* 10*d* to 4*s*. We have more Sheep; but the demand still demands, and the best quality fully maintains their value. Calves are not so plentiful, and we have a brisk trade. Trade for Pigs steady enough, the Abattoirs being kept, and the weather mild.

FRIDAY, Oct. 24.

We are again disappointed with respect to our foreign supplies, though the non-arrival of expected boats may do. We have, however, a large supply from each port coming forward, and the morning's trade is heavy, and a reduction of 2*d* per stone from the rates of yesterday must be submitted to. Sheep are expected on Monday next. Good Beasts, &c. [illegible] on Monday last. Sheep [illegible] on the 21st of the Second week in 24 rule 20. [illegible] We have very few Beasts in market, the best [illegible] to purchase. In sheep without change. Middling [illegible] Calves in demand, and [illegible] Pigs [illegible] Beasts, 2,300; Sheep and Lambs, 18,000; Calves, 261; Pigs, 420.

COVENT GARDEN, Oct. 24.—Vegetables still continue sufficient for the demand, but Fruit is not over abundant. Fine apples of excellent quality are plentiful, and may be bought at last week's prices. Grapes, both English and Foreign, are cheap and plentiful, more especially the latter, large importations of which continue to be supplied. They are well flavoured, and generally arrive in excellent condition. Apples and Pears have not altered in price since our last report. Oranges are scarce. Nuts are sufficient for the demand. English Walnuts are scarce; but foreign ones are plentiful, and very good in quality. There is little demand for Filberts. Lemons are scarce, and so are good English Melons. Of Vegetables, Cucumbers, Cauliflowers, &c., are good, and the latter extremely plentiful. Carrots and Turnips have altered but little in price. Peas are almost over for a season. Beans remain nearly the same as last week. Celery is good in quality. Good Potatoes are scarce, the greater part being affected by the prevailing disease. Lettuces and other Salading are good and plentiful. Cut flowers chiefly consist of Heaths, Jasmines, Pinks, Camellias, Pelargoniums, Gardenias, Cacti, Violets, Fuchsias, Azaleas, and Roses.

FRUITS.

Pine Apple, each, 2s 6d to 7s		Lemons, per dozen, 1s 6d to 2s	
Grapes, Hothouse, per lb., 2s to 4s		— per 100, 10s to 20s	
— Portugal, per lb., 2d to 1s		Almonds, per peck, 6s	
Apples, Pears, per bushel, 3s to 6s		— new, per bushel, 4s to 6s	
— Kitchen, 4s to 6s		Filberts, English, per 100 lbs., 20s to 30s	
Pears, per hundred, 2s to 10s		Nuts, Cob, per 100 lbs., 20s to 100s	
Melons, each, 1s to 2s		— Barcelona, 20s	
Oranges, per dozen, 2s to 3s		— Small, 12s to 16s	
— per 100, 12s to 20s		— Spanish, 14s	
Bullaces, per half-sieve, 1s to 2s		Walnuts, per bushel, 10s to 24s	

VEGETABLES.

Cabbages, per doz., 6d to 1s	Shallots, per lb., 4d to 6d
— red, per doz., 1s to 2s	Garlic, per lb., 4d to 6d
Brocoli, per doz., 2s to 3s	Spinach, per sieve, 1s to 1s 6d
Cauliflowers, per doz., 4s to 6s	Lettuce, Cos, per score, 2d to 1s 6d
Artichokes, per doz., 2s to 4s	Watercress, per bunch, 2d to 3d
— Jerusalem, per half-sieve, 1s to 2s	Endive per score, 1s to 1s 6d
French Beans, per half-sieve, 1s 6d to 2s 6d	Vegetable marrow per doz., 6d to 1s
Carrots, per half-sieve, 2d to 1s	Radishes, per 12 bunches, 1s to 1s 6d
Potatoes, per sack, 4s to 6s	Mushrooms, per pottle, 1s to 1s 6d
— per lb., fresh, 1d to 2d	Small Salading, per punnet, 2d to 3d
— Kidneys, per bushel, 6s to 8s	Fennel, per bunch, 1d to 2d
Turnips, per dozen bunches, 1s to 2s	Parsley, per bunch, 1d to 2d
Horse Radish, per bundle, 2s to 3s	Thyme, per bunch, 2d
Cucumbers, each, 2d to 6d	Watercresses, 1s per doz. bun. 6d to 1s
Leeks, per bunch, 2d to 3d	Parsley, per bundle, 4d
Celery, per bundle, 1s to 1s 6d	— Roots, per bundle, 6d
Carrots, per bunch, 2d to 3d	Tarragon, per bunch, 2d
Onions, per bushel, 3s to 7s	Mint, green, per bunch, 2d to 3d
— Spanish, per doz., 1s 6d to 2s	Marjoram, per bunch 2d to 4d
	Chervil, per punnet, 2d to 3d

HAY,—Per Load of 36 Trusses.

SMITHFIELD, Oct. 23

Prime Mead. Hay	70s	to 80s	New Hay	—	to —s	New Clo. —s to —s
Inf. New & Rowen	60	70	Clover	80	to 95	Straw 28 32

JAMES CORSTON, Salesman.

CUMBERLAND MARKET, Oct. 22.

Prime Mead. Hay	72s	to 80s	Old Clover	80	to 100s		
Inferior	48	64	Inferior do	60	80	Straw	30s to 34s
New Hay	—	—	New Clover	72	80		

JOSEPH JENKINS, Hay Salesman.

WHITECHAPEL, Oct. 23

Fine Old Hay	70s	to 80s	Old Clover	100s	to 110s		
Inferior Hay	—	—	Inf.	—	—	Straw	30s to 34s
New Hay	62	72	New Clover	84	110		

HOPS, FRIDAY, Oct 23.

We continue to have a good demand for all kinds of Hops, particularly Sussex. We hear the duty is likely to be about £35,000. Markets very firm.

PATTEN AND SMITH Hop-Factors.

POTATOES.—SOUTHWARK, WATERSIDE, Oct. 19.

In consequence of the disease prevailing more ally among Potatoes the supply in this market at present remarkably short was a very re; but it is expected that the quantity will improve. We are fully aware that many of your readers are desirous of seeing a statement of the Waterside Market, therefore we will furnish you with one as usual. There are a few small lots arrived coastwise from Yorkshire and Lincolnshire, and from Kent and Essex, and they are selling at the following prices:—Yorkshire Regents, 120s to 140s; do. Shaws, 100s; Kent and Essex R gents, 120s to 130s; do. Shaws, 60s to 100s; do. Kidneys, 140s; Lincolnshire Regents, 100s; do. Shaws, 100s to 120s.

MARK-LANE, MONDAY, Oct 19

There was a moderate supply of English Wheat from Essex, Kent, and Suffolk, this morning, which was cleared at fully the prices of last week. In free Foreign the business was not extensive, but our extreme quotations were realised.—Barrel flour is rather neglected.—Barley of every description is 2*s* to 3*s* per qr. higher. Beans and Peas were in small supply, and their value unaltered.—Oats met an improved demand, and are fully as dear.

BRITISH, PER IMPERIAL QUARTER.				s.	s.	
Wheat, Essex, Kent, and Suffolk	White	60	62	Red	62	62
—— Norfolk, Lincolnshire, and Yorkshire		54	64	White	54	62
Barley, Malting and distilling 32s to 33s Chevalier		32	33	Grind.	25	28
Oats, Lincolnshire and Yorkshire	Potlands	22	24	Feed	22	23
—— Northumberland and Scotch		27	31	Potato	23	25
—— Irish		22	26	Potato	22	22
Malt, pale, ship		—	—			
—— Hertford and Essex		—	—			
Rye		40	44			
Beans, Mazagan, old and new	32 to 41	Pitch	32	41	Harrow	32	42
—— Tigres, Heligoland	40 to 44	Winds	35	39	Tongued	32	42
Peas, White	30 to 32	Maple	32	42	Grey	32	40

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt	Oats	Rye.	Bns.	Peas
English	4776 Sks.	11098	6248	4181	6748	867	1168	718
Irish	—	—	—	—	2400	—	—	—
Foreign	—	670	160	—	7018	—	897	847

FRIDAY, Oct. 25.

The arrivals of grain and flour since Monday last have been moderate. Business in Wheat, either English or Foreign, is limited; but purchases cannot be made on reduced terms. Barrel flour has been extensively purchased at our quotations.—Barley continues in request at very full prices. Beans are unaltered. White Peas rather more inquired after.—The Oat-trade is a turn dearer.—In Indian Corn some large sales of floating cargoes have been effected fully 1*s* per qr. advance.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	6970	3092	940	3000 Sks
Irish	—	—	2200	—
Foreign	200	1200	1200	— brls

IMPERIAL AVERAGES.

	Wheat	Barley	Oats	Rye.	Beans	Peas.
Week to Sat.	58 8	32 7	22 7	36 6	34 11	35 7
"	58 8	32 7	22 7	36 7	35 1	35 4
"	58 8	32 7	22 7	36 7	35 3	35 7
"	58 8	32 7	22 7	36 7	35 5	35 7
"	58 8	32 7	22 7	36 7	35 6	35 7
"	57 8	32 10	22 7	36 8	35 6	35 7
6 weeks' Average, Sept.	58 2	32 8	22 7	36 6	35 0	35 11
Duties on Foreign Grain	0 0	1 0	0 0	0 0	0 0	0 0

Variations in last six week's Corn Averages.

Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Sept 20	Sept 20	Sept 20	Oct. 5	Oct 19	Oct. 19
28 10	32 7	22 7	36 7	35 1	35 4
58 8	32 7	22 7	36 7	35 6	35 7

SMITHFIELD, Oct. 9.

Country [illegible] Foreign, 4,000 at 2*l* to 11*l*

Carraway [illegible]

Clover, [illegible]

[illegible]

[illegible]

[

Sales by Auction.

IMPORTANT SALE OF 2000 CAMELLIAS, HYBRID RHODODENDRONS, AZALEAS, INDICA, &c., CONSIGNED FROM BELGIUM FOR PUBLIC SALE.

MESSRS. PROTHEROE AND MORRIS have received instructions to exhibit to public competition, at the Auction Mart, Bartholomew-lane, the middle of November, 1846, about 2000 CAMELLIAS, about 3 feet high, most of which are beautifully furnished with bloom-buds, and comprise all the esteemed varieties Also Rhododendron arboreum, Azalea indica, and other Greenhouse Plants. Catalogues may be had a week prior to the sale, at the Auction Mart; and of the Auctioneers, American Nursery, Leytonstone.

FOURTEEN ACRES OF NURSERY STOCK, Wandsworth Common, The Ground being required for building purposes.

MESSRS. PROTHEROE AND MORRIS are favoured to bring before the Public by Auction, on Monday the 26th day October, 1846, and following day, the superior STOCK of Mr. Read of Wandsworth Common Nursery, affording an excellent opportunity for Gentlemen to furnish their Pleasure Grounds and Gardens with Varieties of the choicest Deciduous and Ornamental Plants, and the Trade are respectfully invited, as this is incomparably one of the first class Stocks ever offered to Public Competition. It consists of every Variety of useful and Ornamental SHRUBS, EVERGREENS, FRUIT AND FOREST TREES, AMERICAN PLANTS, usually and unusually grown. Also two Stables of fine Old Meadow Hay, about 100 loads. May be viewed prior to the Sale. Catalogues (1s. each, returnable to purchasers), may be had on the premises of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone

TO NOBLEMEN, GENTLEMEN, MARKET GARDENERS, RAILWAY CONTRACTORS, AND OTHERS ENGAGED IN PLANTING, &c.

MESSRS. PROTHEROE AND MORRIS have received instructions to submit to Public Competition, on Monday, Nov. 16, and following days, at 11 o'clock, a large PORTION of the densely stocked NURSERY of Wm. Darwin and Co., King's-road, Chelsea, the ground being required for immediate building after Christmas. The stock Consists of 10,000 Aucuba-japonica, Irish Ivies, Hollies, large Privets, and an immense quantity of standard, half-standard, pillar and dwarf Roses, in great variety; the largest collection of prize Gooseberries ever grown, in upwards of 300 varieties, large fruit-bearing Apple, Pear, and Mulberry Trees, flowering Shrubs, Herbaceous Plants, &c. May be viewed three days previous to the Sale, and Catalogues had of the principal Seedsmen, on the premises, and of the Auctioneers, American Nursery, Leytonstone.

VALUABLE SOUTH AMERICAN PLANTS.

MESSRS. J. C AND S. STEVENS are instructed to sell by Auction, at their Great Room, 38, King-street, Covent-garden, on Wednesday, 4th November, at 12 for 1 o'clock, a consignment of VALUABLE PLANTS, being part of the Collections of Messrs. N. FORSTER, J. LINDEN, and L. CLAUSSEN, during their latest researches in the high Cordilleras of New Grenada, in the island of Cuba, and in the interior of the Brasils. They comprise magnificent specimens established in pots in perfect health, and most of them never before introduced into England.—May be viewed the day prior and morning of Sale, and Catalogues had of Mr. PAMPLIN, Botanical Bookseller, Frith street, Soho, and of the Auctioneers, 38, King-street, Covent garden

TO NOBLEMEN, GENTLEMEN, AND NURSERYMEN

Immense Collection of CAMELLIAS, RHODODENDRONS, AZALEAS, LILIUM LANCIFOLIUM, just received from Belgium.

MESSRS J. C. AND S. STEVENS beg to announce they will sell by Auction, at their Great Room, 38, King-street, Covent-garden, on Friday next, 30th inst, and following day, at 12 for 1 o'clock, 2000 CAMELLIAS, from 2 to 5 feet high, well grown plants in pots, and full of flower buds. Also a number of Hybrid Rhododendron arboreum, Azalea indica, and Lilium lancifolium, just received in fine order from one of the first growers in Belgium.—May be viewed the day prior and mornings of Sale, and Catalogues had of the Auctioneers, 38, King street, Covent-garden.

TO BOTANISTS—CLAUSSEN'S BRAZILIAN HERBARIUM.

MESSRS J. C AND S. STEVENS are instructed to sell by Auction, at their Great Room, 38, King-street, Covent-garden, on Wednesday, 4th November, at 12 for 1 o'clock, the very extensive HERBARIUM of BRAZILIAN PLANTS, collected by Mr Claussen in the various provinces of Minas Geraes and Santa Caterina, during his researches in the years 1840 to 1844, and comprising many thousand specimens. May be viewed the day before the sale, and Catalogues had of Mr PAMPLIN Frith-street, and of Messrs. J. C. and S. STEVENS, 38, King-street, Covent-garden.

CAPITAL AND SUPERIOR NURSERY STOCK, BROMLEY, KENT.

MR. T. BAXTER will Sell by Auction, on Tuesday, October 27th, 1846, and following days, on the Nursery Grounds, opposite the Swan Inn, and at Widmore Lane, the CAPITAL and SUPERIOR NURSERY STOCK, comprising a great quantity of the various sorts of Forest and Fruit Trees, Shrubs and Evergreens, American Plants, Quick, &c. May be viewed Seven days preceding the Sale, and Catalogues had of Messrs Wrench, Seedsmen, London-bridge, and of the Auctioneers, Bromley, Kent.

GREAT SALE OF TULIPS, at the Mart, by GEORGE GLENNY & CO., on Tuesday and Wednesday, the 27th and 28th October, A Splendid Collection, the property of Mr Baron, of Sutton, Surrey.—Catalogues at the Seed Shops and Gardeners' Gazette Office, 420, Strand, London

TO FARMERS, CONTRACTORS, AND NURSERYMEN.

FOR SALE, this autumn, about One Million of THREE-YEAR OLD QUICKSETS, price 10s. per 1000.

WANTED, also, to Purchase about the same quantity of Seedling Quicks, for bedding out this season. Samples of the above may be received and given towards the end of the present month.—At Mr. H. L. Chivey's Office, 161, Castle-street, Reading

TO BE DISPOSED OF.—About 4 tons of PIGEONS' DUNG it has been kept dry and free from heating during its accumulation; is quite pure, and in excellent condition for all the purposes to which it is applied.—Address, pre-paid, to Mr. BOWLES 241, Albany-road, Kent-road.

TO BE SOLD.—A CAPITAL FAMILY HOUSE, with TWENTY ACRES OF LAND, a few Miles from London.—Apply to Messrs. FIXON and SHERWOOD, Solicitors, 24, Moorgate-street, London.

TO NURSERYMEN, SEEDSMEN, AND OTHERS.—A RARE OPPORTUNITY FOR INVESTMENT.

TO BE DISPOSED OF, on very low Terms, an unexpired term of about 30 years in a Leasehold desirable NURSERY GROUNDS, containing about 3 acres of Land. There is no situation equal to it near London; it is within half an hour's ride from either of the Bridges on the Surrey side of the Thames. The coming in about 150l. There are a Cottage, Greenhouse, Stables, Shed, and other convenient premises.—For further particulars apply by letter to A. B., Mr. Hammersley's, 18, Aldermanbury, City.

FARM TO BE LET from Lady-day, 1847, consisting of 95 acres of very good ARABLE, MEADOW, and PASTURE LAND, with House and suitable Out-buildings, situate in the county of Worcester, by the side of a good road, 3 miles from Birmingham. The tenant will have the option of purchasing in a limited period.—For further particulars, apply to HENRY GRAHAM, Surveyor and Land Agent, Rednall Cottage, Northfield, near Birmingham.

WANTED to RENT, by a good Practical Agriculturist of Capital, A FARM of from 200 to 300 acres of good land, with a comfortable Farm House within 100 miles of London.—Apply by letter only, post paid, to T. M., 17 Carlisle-street, Soho-square.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 173, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 173, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory

BURBIDGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This COOKING APPARATUS possesses greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship, in fact the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus. B and H. can safely recommend it, from experience, as unquestionable superior to anything of the kind hitherto made May be seen in daily use at Greenwich Hospital; Craven Hotel, Craven street, Strand, and at their Manufactory, 130, Fleet-street. A Prospectus can be forwarded, upon application, detailing particulars and price.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS

ANTONY GIBBS AND SONS, LONDON:
WM. JOSEPH MYERS AND CO., LIVERPOOL;

And by their Agents,
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL;
COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 68, Dorset-street, Fleet-street, London.

GUANO, &c.

MARK FOTHERGILL begs to offer the following MANURES on the best terms, viz:

GUANO, PERUVIAN and AFRICAN, direct from Import Warehouses.
Ditto, PATAGONIAN and SALDANHA BAY. Ditto.
SODA ASH, for destruction of Wireworm.
SUPERPHOSPHATE OF LIME (See Royal Agri. Soc. Journal, Vol. vi. Part 2).
GYPSUM (Pure Sulphat of Lime)
BONE DUST and BONE POWDER.
SULPHURIC ACID. CHARCOAL
PETRE SALT and AGRICULTURAL SALT for Composts.
SILICATES of SODA and POTASH, and all other Manures.
No. 10, Upper Thames-street.
Agent for DINGLE'S HAND SEED-DIBBLE.

LAWES' PATENT MANURES.—Turnip Manure, 7l. per ton. Clover Manure, 14l. per ton. Corn Manure, 14l. per ton. Superphosphate Lime, 7l. per ton.

A Pamphlet on Artificial Manures will be forwarded to any person enclosing two postage stamps to Mr. WILSON, at Mr. Lawes' Factory, Deptford Creek, London.

KAGENBUSCH AND Co.'S REMEDY FOR THE POTATO DISEASE.—Pots. 6s. per packet, which ensures an acre of sound Potatoes and a large crop.

KAGENBUSCH AND Co.'S GERMINATING COMPOUND.—Price 5s. and 6s. per packet. The best Steep for Wheat and other Grain; Turnip, Clover, Onion, and all other Seeds and Potes. This is the gardener's best friend.

KAGENBUSCH AND Co.'S GERMAN SCIENTIFIC MANURE, which fertilizes the land without exhausting it, 1l. 10s. per acre for Meadows, once in three years, for Tillage 35s. per acre, and for Hops 40s. per acre, annually. Price 7l. 10s. per ton for Meadows and Tillage, and 9l. per ton for Hops. One ton an sufficient for 4 acres.

These articles are kept at Hibernia Wharf, London-bridge, and Mr. Joseph Edwards will deliver them to any one bringing the amount in cash.

Manufactured by KAGENBUSCH and Co., Agricultural Chemists, Leeds. Sold by JAMES and Co., Agents for the South of England, 55, King William-street, City; and PORTER, Rhodes-lane, Agents for the North, Cranford-court, Manchester.

N.B. Vessels of 80 tons, drawing 5 feet, load at the Works in Leeds, and can attend the creeks of every port in the Kingdom, so that Dealers or Farmers, and Landed Proprietors, shipping together, may be supplied direct, at a saving of expense.

A liberal allowance to the Trade.

WANTED.—A LARGE or SMALL QUANTITY of good MANURE for a light soil, it must be on or near the Southampton Railway.—Communications by letter, stating price per ton, to F. R., Mr. Taylor's, Woodbine Cottage, near Horsham, Surrey.

CHEAP AND DURABLE ROOFING.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, the Manufacturers and only Patentees of THE ASPHALTED FELT FOR ROOFING Houses, Farm Buildings, Sheddings, Workshops, and for Garden purposes, to protect plants from Frost

At the Great National Agricultural Shows, it is this Felt which has been exhibited and obtained the Prize, and is the Felt patronized by

HER MAJESTY'S WOODS AND FORESTS,
HONOURABLE BOARD OF ORDNANCE,
HONOURABLE EAST INDIA COMPANY,
HONOURABLE COMMISSIONERS OF PRISONS,
HER MAJESTY'S ESTATE, ISLE OF WIGHT,
ROYAL BOTANIC GARDENS REGENT'S PARK,

And on the Estates of the Dukes of Sutherland, Norfolk, Rutland, Newcastle, Northumberland, Buccleuch (at Richmond), the late Earl Spencer, and most of the Nobility and Gentry; and at the *Royal Agricultural Society's House, Hanover Square.*

It is half the price of any other description of Roofing, and effects a great saving of Timber in the construction of Roofs. Made to any length by 22 inches wide.

PRICE ONE PENNY PER SQUARE FOOT

*** Samples, with Directions for its Use, and Testimonials, of seven years' experience, with references to Noblemen, Gentlemen, Architects, and Builders, sent free to any part of the town or country, and orders by post executed

☞ The Public is respectfully cautioned that the only Works in Great Britain where the above Roofing is made, are

F. M'NEILL AND CO'S

Patent Felt Manufactory, Lamb's-buildings, Bunhill-row, London, where Roofs covered with the Felt may be seen as also the new Vice-Chancellor's Court, and the Passages and Offices at the entrance to Westminster Hall, and other buildings at the New Houses of Parliament, done under the Surveyorship of Charles Barry, Esq., R.A.

Note.—Consumers sending direct to the Factory can be supplied in lengths best suited to their Roofs, so that they pay for no more than they require

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

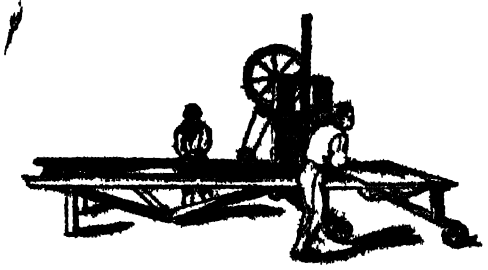
SIX THOUSAND SIX HUNDRED FEET OF

CROGGON'S PATENT ASPHALTE FELT have been used to roof the above Society's buildings, at Newcastle-upon-Tyne

PRICE ONE PENNY PER SQUARE FOOT

THOMAS JOHN CROGGON, 8, Lawrence Pountney-hill, Cannon-street, London

HATCHER'S BENENDEN TILE MACHINE.



Manufactured and Sold by

COTTAM AND HALLEN, 2, WINSLEY-STREET, OXFORD STREET, LONDON.

This is by far the simplest and most efficient Machine for the purpose of making Drain Tiles. Any shape Tile can be made by it. It requires but few hands to work it, namely, two men and two boys. With this amount of labour the produce will be as follows:—

1 in. diameter of Tile, 11,000 | 1½ in. diameter of Tile, 5,200
1¼ do. 8,000 | 2 do. 3,200

As stated by Thomas Law Hodges, Esq., in his communication to the Royal Agricultural Society of England

The Machine is quite portable and requires no fixing, but can be moved up and down the drying sheds, thus requiring no extra boys in carrying the tiles, nor are any sheds required in drying There is no charge for patent dues or license, the purchase of the Machine includes the free use of it

Price 20l., including four Dies of any pattern or size.

Spare Dies, of any shape or size, 5s each.

References can be had as above as to where it can be seen in actual use.

Improved Ring-mills, wholly of Iron	£16	10	0
do. Wood	10	10	0
Draining Spades, per set of three, with swan-neck scoop	1	1	0
Improved Drain Level for the use of workmen	2	5	0

COTTAM'S IMPROVED CLOD CRUSHERS.

The improvements made in these useful Implements consist in the division of the Roller into two parts, which greatly facilitates the turning and working of the Implement. The frames are made wholly of iron, and are therefore much more durable than those of wood. The prices of these Clod Crushers will be found considerably lower than those usually charged.

5 feet 6 inches long, 17l. 6 feet, 18l. 10s. 6 feet 6 inches, 20l.

Every description of Agricultural Implements including Grubbers, Ploughs, Harrows, Drills, Dibbles, Weighing Machines, Sup-live-cattle and farm produce, Chaff Cutting Machines, Churns, &c., and every description of Agricultural and Horticultural Implements, at the Agricultural Repository, Winsley-street, Oxford-street, London.

PHOSPHORIC RAT POISON.—This preparation is offered to the Public with the greatest confidence, being decidedly superior to all other poisons containing arsenic and other minerals It is most greedily eaten by rats and mice as long as it is offered to them, and invariably proves certain destruction. Prepared only by Edward Pursell, 60, Bridge-street, Blackfriars, London. Sold in pots, with full directions for use, at 1s., 3s., and 20s. each.

THE IMPROVED HYDRAULIC RAM,

Fixed by PEREMAN REE, Fountain Maker, 70, Strand, London, can be worked by a small stream of half-an-inch, where a fall of 2 feet can be obtained. The same Ram without the aid of a Tank or Cistern arranged to throw a Jet of Water constituting a Fountain with the head of water beneath.



ENGINES FOR DEEP WELLS OF ALL KINDS. DOUCHE AND OTHER BATHS. BUILDINGS HEATED BY HOT WATER. WATER WHEELS to work Small Pumps, from 15l.

Estimates given for the supply of Towns, &c.

A newly invented PORTABLE VAPOUR BATH, all complete for 4l.

NEW INVENTION FOR DIBBLING WHEAT.

Registered in pursuance of the Designs' Copyright



Amendment Acts, 6 & 7 Vic., c. 65, No. 469.

DINGLE'S HAND DIBBLING MACHINE,
FOR DEPOSITING ALL KINDS OF SEED

This Machine is confidently recommended by the Proprietors, which will at the same moment make the Hole, and deliver the exact quantity of Seed, with extreme regularity. It is simple in its construction, and not liable to get out of order.

THE DIBBLING POINT IS SO CONSTRUCTED THAT THE SOIL CANNOT CHOKE IT.

*** *The cups are of various sizes for discharging either Wheat, Mangold Wurzel, Barley, Beans, Peas, Potatoes, &c.*

Single .. .. Price 40*s.* each.
Double .. .. ,, 4*l.* 10*s.* ,,

Testimonials and Circulars, giving descriptions of its working, &c. can be had on application to

WILLIAM E. RENDLE and Co., Merchants.

☞ THE TRADE SUPPLIED.

Plymouth, Oct 24.

THE LATE DESTRUCTIVE HAIL-STORM.—A Public Meeting was held at the London Tavern, Bishopsgate-street, August 17, 1846 for the relief of the sufferers. His Royal Highness the DUKE OF CAMBRIDGE, in the Chair.

Her most Gracious Majesty	£20	0	0
H. R. H. Prince Albert	10	0	0
Her Majesty Queen Adelaide	25	0	0
H. R. H. the Duke of Cambridge	21	0	0
H. R. H. the Duchess of Gloucester	10	0	0
His Grace the Archbishop of Canterbury ..	10	10	0
His Grace the Duke of Northumberland ..	10	10	0
The Right Hon. the Lord Mayor	10	10	0
Miss Burdett Coutts	30	0	0

ADDITIONAL SUBSCRIPTIONS.

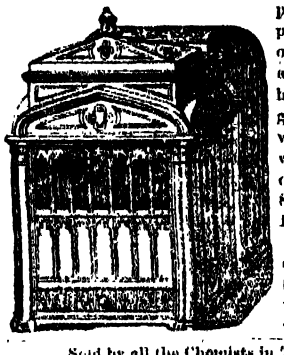
R S Holford Esq	£10	0	0	Lord Hyatt ..	£1	1	0
Z. G. (Regent's-park)	10	0	0	D. D.	1	1	0
A. Maclew, Esq. ..	5	5	0	Per Mr. Ivery ..	1	1	0
Proprietors of *Gardeners' Chronicle*, additional sub. ..	6	5	0	R. Wright, Esq. ..	1	0	0
—Frewer, Esq. ..	3	0	0	C. Lawrence, Esq. ..	1	0	0
Mr. A. Mackie ..	3	0	0	Miss Masters ..	1	0	0
R. F. Darbie, Esq ..	2	2	0	F. Davies, Esq. ..	0	10	6
Messrs. Minier & Co.	1	5	0	Rev. H Barber ..	0	10	0
J. E. Turner, Esq. ..	1	1	0	Mr. E. Low	0	10	0
				Mrs. A. B.	0	5	0

Subscriptions received by the following Bankers:—Messrs. Barclay & Co; Messrs. Coutts & Co.; Messrs. Cocks, Biddulph, & Co., Messrs. Jones, Lloyd, & Co.; Messrs. Scott & Co.; and Messrs. Young & Sons.

J. T. NEVILLE, Hon. Sec.

Committee Room, Horns Tavern, Kennington, Oct. 24.

NOTT'S PATENT STOVES FOR CHURCHES, HALLS, WAREHOUSES, &c.—The Patent having expired, the present Proprietors are enabled to offer these excellent Stoves at Three-fourths the price hitherto charged. Engravings of the patterns, with the reduced prices, will be forwarded on application to the Warehouse, 80, Great Queen-street, Lincoln's-inn-fields.



N.B. Hot-water Pipes can be attached to the Stoves for Warming distant Apartments, Conservatories, &c.

Sold by all the Chemists in Town and Country,
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No. 44—1846.] SATURDAY, OCTOBER 31. [Price 6*d*.

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Oct. 31, 1846.

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J. MYATT and SONS have selected from their stock of seedlings the following varieties, which are now ready for sending out:—

Myatt's Eclose, large and fine flavour, per 100	30*s*.
" Mammoth, very large .. .. "	30*s*.
" Prolific, early and great bearer "	21*s*.
Hooper's Seedling, early .. .. "	21*s*.

The above selection are quite distinct, and well worth the attention of growers.

Early orders will ensure strong plants for fruiting next season.—Manor Farm, Deptford, Oct. 31.

DRIED PLANTS FROM CHINA.—A few sets of the VALUABLE DRIED PLANTS collected in China by Mr. Fortune, may still be procured by applying to R. Heward, Esq., Young-street, Kensington, London. Among them are many new and rare species scarcely known to Europeans.

LOUIS VAN HOUTTE, Florist, Ghent, Belgium, begs to offer for sale Mr. J. Linden's (his partner for this operation) following novelties, in strong plants:—

PENTAPHIA CUBENSIS	3*s*. 6*d*.
DUCHARTREA ERECTA	3 6
CATESBÆA LINDENIANA	5 0
BERBERIS AURUHACENSIS	5 0
LOBELIA SERRATA	5 0
RHYTIDOPHYLLUM FLORIBUNDUM (Lobelia libanensis)	5 0
SIPHOCAMPYLUS NITIDUS	2 6

The usual discount to the Trade.

WHITETHORN.

N.B. By a typographical error in this advertisement last week, Mr. Linden was named as Mr. Van Houtte's *late* partner. Mr. Linden is alive, and we hope well, and Mr. Van Houtte's actual partner.

ROSES.—WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD and SON'S DESCRIPTIVE CATALOGUE OF ROSES. A New Edition, containing all the PROVED novelties of the season, may still be had GRATIS on application.

TO THE TRADE AND OTHERS.

Nurseries, Cheshunt, Herts, near the Waltham Railway Station.

A. PAUL and SON beg to call attention to their extensive stock of FOREST TREES, EVERGREENS, ORNAMENTAL TREES, SHRUBS, PLANTS, ROSES, &c. &c., of all ages and sizes, which cover upwards of 30 acres of ground. The whole are in the finest possible condition, and on sale at very moderate prices.

A. Paul and Son will be very happy to show the stock to any one who may honour them with a visit.

Priced Lists will be forwarded on application.

THE HUNTINGDON ELM.

ULMUS GLABRA VEGETA, THE HUNTINGDON ELM.—This is by far the most vigorous growing kind of ELM propagated in British nurseries, often making shoots from 6 feet to 10 feet in length in one season, and the tree attaining the height of upwards of 30 feet in ten years from the graft. Raised at Huntingdon about 1746, from seed collected in that neighbourhood by Mr. Wood, Nurseryman there.—*Loudon's Encyclopædia of Trees and Shrubs*, p. 723.

Of all the numerous varieties which may be procured in British nurseries, the best kind for cultivation for its timber appears to be the Huntingdon Elm.—*Ibid*, p. 715.

A large quantity of the above excellent ELM of all sizes is now on sale at the Huntingdon Nurseries, at the following prices:—

3 to 4 feet, per 100	12*s*.	6 to 7 feet, per 100	30*s*.*
4 to 5 do.	15*s*.	7 to 8 do.	40*s*.*
5 to 6 do.	20*s*.	8 to 9 do.	55*s*.*

(* These prices were misquoted last week.)

Also a large quantity of the Hertfordshire, a superior broad-leaved variety of the English Elm, at the same prices as the Huntingdon.

A large collection of Forest and Ornamental Trees, Flowering and Evergreen Shrubs, &c., a Catalogue of which may be had on application.—Address to S. Wood, Nurseries, Huntingdon.

MIMULUS CONDUCTOR.

MR. WOOD, Albert Nursery, Brentwood, Essex, begs to call the attention of the public to that beautiful new Seedling, MIMULUS CONDUCTOR; it is the most distinct of any yet sent out. Plants now ready 5*s*. 6*d*. each, with discount to the Trade, when six are ordered, strong blooming plants. Also the following unrivalled Seeds—Wood's fine Black-seeded Bath Cos Lettuce, Wood's Brentwood Cos Ditto, the finest ever grown, at 1*s*. per packet; Wood's Early Essex Cabbage, at 6*d*. per oz., or 5*s*. per lb.

J. W.'s Catalogues of Dutch and other Bulbs, Roses, Fruit Trees, and Ornamental Shrubs, Seeds, &c. &c., are now ready, on application.

DRIED PLANTS FROM GREECE, AND FROM SOUTH PERSIA.—A few Sets of the valuable Dried Plants collected in GREECE by M. Th. Heldreich, and those collected in SOUTH PERSIA by M. T. Kotschy, may still be procured by applying to Mr. PAMPLIN, Botanical Bookseller, Frith-street, Soho, London. The Plants in both collections are named; many of them are scarcely known in the English Herbaria, and some of them are entirely new species.

☞ The New ANATOLIAN COLLECTION of M. Th. Heldreich is expected to arrive shortly.

BASS AND BROWN have this season to offer the following. Their Autumn Catalogue of Ranunculuses, Bulbs, &c. is now ready, and may be had prepaid on application.

SUPERB NEW RANUNCULUSES.

These consist of very superior and first-rate flowers, which they have chiefly selected during the last four years from many thousands of seedlings. The following selections with names will be sent free by post, with printed directions for culture:—

50 varieties for 40s., or 1 pair of each, 70s.
25 ditto 22s. 6d., ditto 38s.

The above are particularly recommended for vigorous growth and prolific bloom.

50 fine older varieties, 10s., or 1 pair of each, 18s.
25 ditto 6s., ditto 12s.

Fine mixed Ranunculuses 5s. and 10s. per 100.

GLADIOLUS, 12 beautiful named varieties ..... 15s. 0d.
,, splendid mixed summer hybrids, per doz. .. 5 0
EARLY TULIPS, 12 beautiful varieties for pots or borders, 3 roots of each 12 6
6 varieties, 3 roots of each 7 0
DOUBLE TULIPS, 6 fine varieties, 3 roots of each .. 7 0
HYACINTHS, Imported Dutch, fine named, per dozen ..... 8s. to 15 0

GERANIUMS.

The following strong and well-established are now ready:—

25 superb show varieties 21s., or 12 for 12s.
25 very superior, newer var. 50s., or 12 for 30s.
Fine varieties, per doz., 6s. to 9s.

PICOTEES, 12 pair superior varieties, ... £1 4 0
CARNATIONS, 12 pair ditto 1 4 0
PINKS, 12 pair ditto 0 10 0
CHRYSANTHEMUMS, 10 superb new vars. 0 15 0.
A large stock of very fine GIANT RHUBARD, strong roots, per doz. 0 6 0
YOUELL'S EARLY TOROLSK ditto 0 6 0
BRITISH QUEEN STRAWBERRIES, p. 100 0 4 0

Carriage free to London; and for orders of 40s. and upwards extra plants or roots will be presented to pay expense of distant carriage. A remittance from unknown correspondents. Post-office orders to be made payable to WILLIAM BASS or STEPHEN BROWN.—Seed and Horticultural Establishment, Sudbury, Suffolk, Oct. 31.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN & OTHERS

ABIES CANADENSIS, OR HEMLOCK SPRUCE.

G. BAKER, NURSERYMAN, Bagshot, Surrey, having the Largest Stock in Europe, of various sizes and in fine condition, can with confidence recommend this noble tree to the notice of the public, at the following prices:—

1 ft.—Transplanted	at £0 12	0	per 100	
2 ,, ,, ...	,, 0 16	0	,,	
3 ,, ,, ...	,, 1 5	0	,,	
3 to 4 ft. ,, ...	,, 1 10	0	,,	

PICEA BALSAMEA.

1½ to 2 ft. ,, ...	at £0 8	0	,,	
2 ,, 3 ,, ...	,, 0 12	0	,,	

G. B. having a fine Stock of Flowering KALMIA LATIFOLIA, can supply them at the following low prices:—

9 to 12 inches	at £2 10	0	per 100	
12 ,, 18 ,, ...	,, 3 15	0	,,	
18 ,, 20 ,, ...	,, 5 0	0	,,	

Fine Specimen Plants from 3s. 6d. to 5s. each.

N.B.—Large purchasers will have considerable reduction.—The usual allowance to the trade.

NOW SENDING OUT.

BECK'S GERANIUMS OF 1845.—The set of five for 1l. 15s.; *namely*, Desdemona, Isabella, Zenobia, Mustee, and Margaret.

LYNE'S SEEDLINGS OF 1845.

The set of six for 1l. 15s.; *namely*, Marmion, Princess, Merry Monarch, Chaplet, Vampire, and Rosebud.

Customer's Selection of 12 *from the following list for* 50*s.*—Standard of Perfection, Edith, Lady Bulkeley, Miss Halford, Prince Alfred, King of the French, Camilla, Charles the Tenth, Gipsy Queen, Zanummaim, Cleopatra, Imogene, Leonora, Redworth, Sappho, Meteor, Pluto, Exquisite, Beauty of Salthill, Black Dwarf, Selina, Shield of Achilles, Cook's Hector, King of Saxony (Gaines), Titus, Champion, Mrs. Jephson, Magog, Repeal, Francis Bullin, Cornubiensis (Hockin), Princess Alice, Sarah Jane, Queen Phillips, Princeps, and Duke of Devonshire.

20 excellent Geraniums from 12s. to 20s.

All orders can be executed immediately for any of the sorts named above.

☞ *All orders above* 3*l. will be delivered (hamper, package, and carriage free) to London, Bristol, Exeter, Barnstaple, or Falmouth; or above* 6*l. to Liverpool, Dublin, or Cork.*

A remittance is not required from known Correspondents, or those who give reference in London.

Steamers from this Port three times a week to London, Cork, Dublin, Liverpool, and Falmouth.

Great attention is paid to careful packing.—All plants forwarded to long distances are packed in Fir Boxes, and firmly secured. WILLIAM E. RENDLE & Co.

Office, Union-road, Plymouth. October, 1846.

THE BEST CINERARIAS OF THE SEASON.—Henderson's Attraction, Exquisite, Illuminator, Formosa, and Duchess de Nemours, Jackson's Maid of Judah, Rose of Mowbray Vale, Amazon, Joan of Arc, and Countess of Zetland. Ivery's Noblesse, Pet, and Emperor of Russia. May's Usheri and Lady Constable, and Walter's Badud, at 2s. 6d. each, or 24s. per dozen.

Henderson's Cramoisie Supérieure, Standard, Tricolor, Meteor, and Black Knight. Ivery's Criterion, Captivator Fanny Elssler, Nonesuy, and Red Rover. May's Queen of May and Prince of Oldenburgh. Gaines's Brilliant, and Ivery's Beauty of Wonham, 1s. 6d. each, or 18s. per dozen.

MISCELLANEOUS PLANTS.

Torenia asiatica 5s.; Pentstemon gigantea elegans 2s. 6d., strong; Pentstemon gentianoides alba 3s. 6d.; Petunia Lord Talbot, fine, 2s. 6d.; Phlox alba purpurea violacea 2s. 6d., or 24s. per dozen; Oldenlandia Deppiana 2s. 6d.; Polygala Dalmaisiana, strong, 5s.; Chironia floribunda, strong, 3s. 6d.; Antirrhinum picta Iveryana 1s. 6d.; Siphocampylus coccineus 2s. 6d.; Rosa Queen of the Virgins 2s. 6d.; Cœnostoma Polyantha 1s. 6d.—The collection of 12 for 30s.

GEO. ROGERS, Florist, &c., begs to offer the above in good healthy plants, now ready to send out. No charge for hamper or package, when the order contains a remittance, and plants added to compensate for carriage.

Ettrick-r, Stamfordhill, Oct. 31.

COUNTESS OF CAMPERDOWN PANSY.

D. BUTLER having bought the stock of this very beautiful flower, grown by Mr. Bridges, of Hampton, near London, begs to offer fine strong healthy plants at 5s. per plant, with the usual allowance to the Trade, where three plants are taken. In offering this flower to the public, D. B. feels satisfied that he is offering a flower that will give general satisfaction, and ought to be in every collection. See Dr. Lindley's opinion in the *Gardeners' Chronicle* of May 2, 1846—viz. "PANSY—*A Constant Reader*—A fine large round flower of great substance, rich yellow ground, with bronzy purple upper petals, and broad belting of the same round the lower petals; eye fine. A bold and striking flower, well adapted for showing."

Widcombe Nursery, Bath, Oct. 31.

HEDENHAM ROSARY, BUNGAY, SUFFOLK.

AN ABRIDGED LIST OF A SELECTION OF THE BEST ROSES IN CULTIVATION,

PROPAGATED FOR SALE BY

ROBERT BENJAMIN BIRCHAM.—A Descriptive Catalogue sent on application. Carriage paid to London per Norfolk Railway.

Strong Dwarf Plants.	HYBRID PERPETUAL.	Height of Stem.	Price.
s. Pts.		Feet.	s. d.
2s. 0d.	Augustine Mouchelet	3to4	2 6
2 0	Aubernon, F. P.	2—3	2 6
	Baronne Prevost	2—3	3 0
	Clementine Seringe	2—3	2 6
1 6	Clementine Duval		
1 6	Comte de Paris, F.	2—3	2 6
2 6	Comte d'Eu, F.	2—3	3 0
7 6	Contesse Duchatelle		
2 6	Coquette de Bellevue		
2 0	Dr. Marx, F.	2—4	3 6
2 0	Duc d'Aumale		
2 0	Duchess of Sutherland	2—3	2 0
2 6	Earl Talbot	2—3	2 6
1 6	Fulgoria	2—3	2 0
	General Merlin	2—3	2 6
	Julie Dupont	2	2 0
5 0	La Bedoyère		
	La Bouquetterre	3	3 0
2 6	La Reine	2—3	3 0
	Lady Elphinstone	2—3	2 6
2 6	Lady Alice Peel	2—3	3 0
1 6	Lane, F.	2—3	2 0
	Louis Buonaparte	2—3	2 0
2 0	Madame Emma Dampierre ..		
	Madame Dameme	2—3	2 6
1 6	Madame Laffay, F.	2—4	2 0
2 0	Marquise Boccella	2—3	3 0
2 0	Melanie Gorin	2—3	2 6
1 6	Mrs. Elliot	3—4	2 6
1 6	Prince Albert	2—4	2 0
	Princesse Helene	2—3	2 6
2 0	Prince of Wales	1—2	2 0
	Reine de la Guillotiere	2—3	2 0
1 6	Rivers (Laffay)	2—3	2 0
2 6	Robin Hood		
2 6	Thibault		
1 6	William Jesse	2	2 0
	BOURBON ROSES.		
1 6	Acidalie	1- 2	2 0
1 6	Amenaide	2—3	2 6
2 0	Anne Beluze		2 6
	Bouquet de Flore	2—3	3 0
2 0	Ceres	2—3	2 6
2 6	Charles Souchet		
2 0	Comtes de Seine et Marne ..	2—3	2 6
2 6	Comte de Rambuteau	2—3	3 0
2 0	Comtesse de Resseguier ..		
1 6	Crimson Globe		
	Desgaches		2 0
2 6	Deuil Duc d'Orleans		
2 6	Duc de Chartres	2—3	3 6
2 6	Dumont du Courset		
3 0	Dupetit Thouars		
1 6	Edouard Desfosses	2—3	2 0
	Emilie Courtier	2—3	2 0
1 6	Enfante d'Ajaccio	2—3	2 0
2 6	George Cuvier	2—3	3 6
2 0	Gloire de la Guillotierre ..		
2 6	Gloire de Paris		
1 6	Gloire de Rosamene		
3 6	Henri Lecoq		
2 0	Imperatrice Josephine ..		
2 0	Lady Canning		
5 0	La Camée		
2 6	La Gracieuse		
3 6	Le Grenadier		
5 0	Le Marechal du Palais ..		
2 0	Madame Aubis	2—3	2 6
	Madame Lacharme	2—3	2 6
	Madame Nerard	2—3	2 0
2 6	Madame Souchet		
2 0	Paul Joseph	2—3	3 0
	Phœnix, F.	2—3	2 0
1 6	Pierre de St. Cyr	2—3	2 6
2 6	Pompon (Parfait)		
2 0	Princess Clementine	2—3	2 6
	Princesse de Modène	2—3	2 6
2 0	Proserpine	2—3	2 6
1 6	Queen, F. F.	2—3	2 6
2 0	Reine de Congres		
3 0	Reine de Vierges		
2 0	Splendens, F.	3—4	2 6
3 0	Souvenir de la Malmaison ..	2	3 6
	Thatfiste		2 6
2 0	Virgilo		

Dwarf, worked upon 4 to 9 inch stems.

Blanchefleur ..	1s 6d	Fanny Parisot ..	1s 6d
Christine de Pisan ..	7 6	Gloire d'un parterre ..	2 0
Cleopatra ..	1 6	Grandissima ..	1 0
Crested Provence ..	1 6	Guerin's gift ..	1 6
Duchess of Kent ..	1 6	Julie ..	1 6
Enchantresse ..	1 6	Rosa ..	2 0
Hypacia ..	1 6	Latour d'Auvergne ..	2 0
Laura ..	1 6	Madame Damoureau ..	1 6
La Volupte ..	1 6	Madame Duchesnoy ..	1 6
Madame Huet ..	1 6	Madame Henriette ..	1 6
Madame L'Abbey ..	1 6	Matthew Mole ..	1 6
Melanie ..	1 6	Modest Guerin ..	1 6
New Globe Hip ..	1 6	Nelly ..	1 6
Nicolate ..	1 6	Otillet Parfait ..	2 6
Pachot (fine) ..	2 0	Rien ne me surpasse ..	1 6
Pompone de Laqueue	1 6	Tom Jones ..	1 6
Princesse Clementine	2 0	Triomphe de Jausseins	2 0
Rose Devigne ..	2 0	Beauty of Billiard ..	1 0
Superb striped unique	2 0	Belle Marie ..	1 6
Boule de Nanteuil ..	1 6	Brennus ..	1 0
Brizaie ..	1 6	Charles Fouquier ..	2 6
La Ville de Brinxelles	1 6	Chenedole ..	2 0
Penelope ..	1 6	Comtesse de Lacepede	1 6
Pope ..	2 0	Decandolle ..	1 6
Semiflamie ..	2 0	Flora Mac Ivor ..	1 0
Cerise Superbe ..	1 6	Fulgens ..	1 0
Cicero ..	1 6	Hippocrate ..	2 6
Columella ..	2 0	Lord Nelson ..	1 0
Comtesse Almaviva ..	1 6	Madame Plantier ..	1 6
Cyntie ..	1 6	Madame Remeau ..	2 6
Dame Soi ..	1 6	Pagne Blanc ..	1 0
Dr. Diethmer ..	1 6	Prince Albert (Booker's)	1 6
Duchess of Buccleugh	1 6	Reboisin (Verdier) ..	1 6
Duc de Trevise ..	1 6	Triomphe de Luxembourg	1 6
Duc de Valmy ..	1 6	Unique d'Meaux ..	2 0
Duchesse de Beaudemont	1 6	Double Magnificent Hip	2 0
Duchesse d'Abrantes ..	1 6	Persian yellow ..	2 6
Eclatante	1 6	Queen of Denmark ..	1 6
Egle	1 6		

Hedenham, Oct. 31, 1846.

HYACINTHS, TULIPS, RANUNCULUSES, ANEMONES, AURICULAS, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, CRAYFORD RISE, near LONDON (removed from Walworth), by APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN; and to HIS MAJESTY THE KING OF SAXONY, begs to recommend to the attention of the Nobility, Gentry, and Amateurs, his extensive assortment of the above FLOWERS, which he can supply of the best quality. He begs to state that this is a good season of the year to make a selection of the various kinds.

25 HYACINTHS, in 25 fine sorts, named	£1	5	0
100 TULIPS, in 100 fine sorts, named	7	7	0
100 Ditto in 50 ditto ditto	5	5	0

Superfine Mixtures, per 100, from 10s. 6d. to 21s.

100 RANUNCULUSES, in 100 Superfine sorts, named	2	10	0
Superfine Mixtures, per 100 .. .. 7s. to	1	1	0
100 ANEMONES, in 100 Superfine sorts, named ..	1	15	0
A New Collection of 50 Superfine sorts	1	1	0
Superfine Mixtures, per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named ..	2	10	0
25 GERANIUMS, in 25 Superfine sorts ditto ..	3	3	0
Good kinds, per doz .. .. from 12s. to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each from 1s. 6d. to	0	5	0
,, PUNCTATUM, from 5s. to	0	10	0
,, SPECIOSUM (true) .. from 10s. 6d. to	2	2	0
A new collection of Hybrid Seedling Lilies 6 sorts for	1	16	0

H. GROOM begs to say his Catalogue of Bulbs, &c., is ready, and will be forwarded by post on application.

Foreign orders executed.

TO THE NOBILITY, GENTRY, AND PLANTERS GENERALLY.

ARTHUR MACKIE begs to announce that his List of prices for FOREST AND ORNAMENTAL TREES, FLOWERING AND EVERGREEN SHRUBS, &c., is now ready for delivery, and can be had on application.

A. M. begs to call the attention of gentlemen in the neighbourhood of London to the great facility afforded by the Norfolk Railway for the cheap and speedy transit of Nursery goods; and still further to meet the views of his London correspondents, he has made arrangements for the delivery of all packages of Ornamental Trees, Shrubs, &c., free to any part of London.

A. M.'s stock of Forest Trees is very extensive, and he confidently trusts that the rate of prices, and of carriage for them, will be such as will prove an inducement to those who have hitherto been restricted to a circumscribed market, to favour him with their orders. The freight by Norfolk Railway to London, 27s. 6d. per ton. The Ely and Peterborough line is expected to be opened shortly, which will give access to the midland counties.

A. M. has likewise a very extensive stock of fine Whitethorn and Blackthorn suited for Enclosures, Railway Fencing, &c., and well deserving the attention of contractors.

Norwich Nursery, Norwich.

CHOICE FLOWER ROOTS

CLARKE AND CO., SEEDSMEN AND FLORISTS, 86, High-street, Borough, beg to offer for Sale the undermentioned DUTCH BULBS, warranted true to name, which will be sent to any part of the United Kingdom at the following low prices, *viz.*—Hyacinths, fine named sorts for glasses, 6s. per doz.; Do. for pots or borders, 3s. per doz.; Jonquils, largest double, 2s. 6d. per doz.; Polyanthus Narcissus, 4s. per doz.; Parrot Tulips, splendid colours, 2s. per doz.; Gladiolus Psittacinus, 2s. 6d. per doz.; Do. Floribundus, 3s. per doz.; Crocuses, in 8 best varieties, 2s. per 100; Ranunculus, fine mixed, 4s. per 100; Do. beautiful named varieties, 1s 6d. per doz.; Anemones, fine double, mixed, 8s. per lb.; Lilium Longiflorum, splendid, 5s. per doz.; Narcissus Poeticus, and Double White, 4s. per 100; Van Thol Tulips, for pots, 6s. per 100; Late Tulips, for beds, 4s. per 100; Double Snowdrops, 2s. per 100.—N.B. All other sorts of Flower Roots at equally low prices. Catalogues may be had.

CEREUS MELDOMENSIS.

G. HASTINGS, FLORIST, having purchased the entire stock of the above beautiful CEREUS, for description of which G. H. begs to call attention to the *Gardeners' Chronicle*, May 17, 1845, page 332; and May 16, 1846, page 332, now beg to offer good rooted plants at 10s. 6d. each. No allowance to the Trade unless three plants are taken. A remittance requested from unknown correspondents.

Plumpton Rocks, near Knaresborough, Yorkshire, Oct. 31.

WILLIAM WOOD AND SON'S GENERAL CATALOGUE OF NURSERY STOCK.—NEW EDITION.

WM. WOOD AND SON, in returning their sincere acknowledgments to the numerous friends who have in past seasons favoured them with their commands, would wish especially to direct attention to their very extensive stock, extending over an area of 40 acres, and comprising a general collection of HARDY TREES AND FLOWERING SHRUBS, TRANSPLANTED FOREST TREES, CONIFERÆ, ORNAMENTAL TREES OF LARGER GROWTH, EVERGREENS AND AMERICAN PLANTS, FRUIT TREES, &c.

Also Greenhouse, Hothouse, and Herbaceous Plants, Camellias, Chrysanthemums, Petunias, Cinerarias, &c., all of which are in the finest possible condition, and will be offered on the most reasonable terms.

W. W. and Son also beg leave to remark that their immense stock of Roses, Standards and Dwarfs, and in pots, are exceedingly vigorous and fine this season.

Catalogues of the above may be had, GRATIS, on application.

Woodlands Nursery, Marsefield, near Uckfield, Sussex.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea, (by appointment to HER MAJESTY and H. R. H. PRINCE ALBERT).—ORNAMENTAL WATERFOWL, consisting of Black and White Swans; Egyptian, Canada, China, Barnacle, Brent, and Laughing Geese; Shieldrakes, Pintail, Widgeon, Summer and Winter Teal; Gadwall, Labrador, Shovellers, Gold-eyed and Dun Diver; Carolina Ducks, Call Ducks, &c., domesticated and pinioned; also Spanish, Cochin China, Malay, Poland, Surrey, and Dorking Fowls; and at 8, Half-moon-passage, Gracechurch-street.

White, Japan, Pied, and Common Peafowl, and pure China Pigs.

SEEDS.—CORNER OF HALF-MOON-STREET

THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

SUBSTITUTE FOR GARDEN MATS.—Transparent cover to give light and exclude frost from Greenhouses, Frames, &c., 1s. per yard, nearly 2 yards wide; Tarpaulings for keeping out rain, 1s. 2d. per yard, nearly 2 yards wide; both these articles are Waterproof, they will last much longer than mats, are not half the expense of carriage, are easily fixed, very little more in price than mats, and are warranted to outwear two mats.—DENNET RICHARDSON, Net and Tent Maker, 21, Tooley-street, Kent-road, London.

FOREST TREES, SHRUBS, AND FRUIT TREES.

WILLIAM E. RENDLE AND Co., of Plymouth, have this season an unusually large stock of FOREST TREES, SHRUBS, and FRUIT TREES, in the most luxuriant and healthy condition, having upwards of

500,000 LARCH FIRS.
200,000 SCOTCH FIRS.
150,000 PINUS AUSTRIACA.
400,000 THORNS.
20,000 LAURELS.

And all other kinds in equal abundance.

As the Lease of one of their Nurseries expires at Christmas next, they are determined to offer many of the leading articles at a very low price, in anticipation of a large demand, and to enable them to clear the ground at the appointed time.

Steamers are continually running from this port to London, Liverpool, Dublin, Cork, Southampton, Torquay, and Falmouth, at low freights.

Priced Catalogues are now ready, and can be had *gratis* on application to

WILLIAM E. RENDLE AND Co., Plymouth.

Office, Union-road, Oct. 31.

BECK'S, HOYLE'S, MILLER'S, AND FOSTER'S SEEDLING GERANIUMS OF 1845, at 2*l.* per dozen; Purchaser's selection, 3*l.*—BECK'S Marc Antony, Juno, Desdemona, Rosy Circle, Sunset, Isabella, Margaret, Zenobia, Mustee, Bellona, Arabella, Favorita, Bella.—HOYLE'S Augusta, Lord Morpeth, Josephus, Duke of Orleans, Alice, Revonge, Cid.—MILLER'S Egyptian Prince, Vesta, Veritas, Pallida, Aurantia, Miss Sebright, Sanye, Sunbeam.—CATLEUGH'S Merry Monarch, Clio, Duke of Wellington, Sunbeam, La Polka.—Drury's Pearl.—Foster's Orion.

Unknown correspondents must send cash with their orders.

N.B. Good strong established Plants are now ready for delivery.

All other new varieties at 1*l.* 1*s.* per dozen. See printed Geranium Catalogue, which can be had gratis.

Hybridized Geranium Seeds, 100, 10*s.*; 50, 5*s.*; 25, 3*s.*

WILLIAM MILLER, Providence Nursery, Ramsgate.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 31, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Monday, November 2	—	Entomological	8 P.M.
Tuesday,	3	Horticultural	2 P.M.
		Linnean	8 P.M.
Friday,	—	Botanical	8 P.M.

WE have to announce that Mr. FORTUNE has been appointed by the Society of Apothecaries Curator of the Botanic Garden, Chelsea, in the vacancy created by the death of Mr. ANDERSON; and that immediate measures will be taken to restore this classical spot to a state worthy of the enlightened body by whose funds it has for so many years been maintained.

SOME barrels of POTATOES have been received by Messrs. GIBBS, BRIGHT, and Co., of Liverpool, from Peru. We have seen one of the barrels opened, and can state that they are the real Golden variety, to which so much interest now attaches. There are two kinds, a yellow skinned, and a purple skinned, in excellent order, but sprouting, so that it will be necessary to plant them immediately.

ALTHOUGH it may be true that cooks are the most amiable of human beings, and worthy representatives of the great Monsieur SOYER, yet it does somehow happen that they and gardeners come unpleasantly in collision. We have heard indeed of cooks who vow that the garden furnishes nothing, and of gardeners who retort that the cook is insatiable; and then, when the quarrel has to be settled, the judge between the two contending parties has nothing upon which to form his opinion more precise than vehement assertions on both sides.

In all questions, and such as are culinary form no exception to the rule, it is useful to pin people down to facts, which, if on paper, cannot afterwards be gainsayed, and an intelligent correspondent, who has himself found his advantage in the practice, has sent us the following description of his mode of managing the *chef de cuisine*, and putting an end to the possibility of random assertions being brought forward in support of extravagant grumbling.

"It was sound advice which the late WALTER DICKSON, of Edinburgh, used to give every young man he sent out as a gardener, when he said, '*Sow thick; thin in time; and, above all, keep on good terms with the cook.*' The last injunction, I believe, is frequently the most difficult part to fulfil; and, from inattention to it, I have known some excellent gardeners, and deserving men, harassed and annoyed almost beyond endurance. Fortunately I have escaped these annoyances myself, but aware of the difficulties which others have had to contend with in this respect, I venture to submit the following plan, which, if adopted in every establishment where a gardener is kept, I feel confident would prevent a great deal of unpleasantness, and at the same time operate in some measure as a check against waste and extravagance in the kitchen, so far at least as regards the various things in which the gardener is interested.

"The plan I recommend is simply to have such a list of vegetables as the one I subjoin, *printed* on slips of coarse paper. Every morning one of these slips is marked by the gardener and taken to the cook, by the person whose business it is to serve the kitchen. The cook sees at once what vegetables can be supplied, and immediately makes a mark against such as may be required for that particular day. The list is then brought back to the garden, where, as soon as the articles are collected, the quantity of each is inserted and the record placed on a file.

"All this, perhaps, may appear quite unnecessary to those who '*canna be fashed*;' but to others of a different school, who may feel disposed to adopt the system I have pointed out, and successfully practised for many years past, I can truly say, they will find the little trouble it occasions amply compensated by the security it gives against unfounded complaints being made by persons who are often not over scrupulous in their statements.—*B.*"

(*Plan of the slip of paper above alluded to.*)

LIST OF VEGETABLES.

*Those marked with a * are fit for use.*

The Gardener's Mark.		The Cook's Mark.	The Quantity of each sent.
	Artichokes		
	——, Jerusalem		
	Asparagus		
	Beans, French		
*	——, Scarlet Runner	*	Dish
	——, Windsor		
*	Beet, Red		
*	——, White		
	——, Leaf		
	Broccoli		
*	Brussel's Sprouts		
*	Cabbage	*	1
*	——, Sprouts		
*	——, Red		
*	Carrots	*	16
*	Cauliflower	*	4
*	Celery	*	2
	Endive		
*	Garlic		
*	Horse Radish		
*	Leeks	*	2
*	Lettuce	*	2
*	Mint		
*	Onions	*	
*	Parsley	*	Bunch
*	Parsnips		
*	Peas	*	Dish
*	Potatoes	*	3 gallons
	Radishes		
	Rhubarb		
*	Sage		
*	Salsify		
*	Savoys		
*	Scorzonera		
	Scotch Kale		
	Sea Kale		
*	Shallots	*	12
*	Spinach	*	Dish
*	Sweet Herbs	*	Bunch
*	Tomatoes		
*	Turnips	*	10
	Vegetable Marrow.		

If all large establishments would adopt this rule, and it is in force in some of the very largest, it would save much annoyance to the gardener, some expenditure of breath to the cook, and, we may add, no small waste of money to the master.

IT is now some months since the *Freeman's Journal* acquainted its admiring readers, upon Parliamentary authority, that the commission which was appointed by the late Government in October last, to inquire into the Potato disease in Ireland, had cost the country *eighteen thousand four hundred pounds!*

As there is nothing too hard or too large for political *gobemouches* to swallow, this story was eagerly caught at by the opposition press, and the whole country from Lough Foyle to Cape Clear rung with exclamations at the infamous job thus perpetrated by the Government of Sir Robert Peel. From Ireland it passed to England, and at last has found a place in the *Times*, but with an improvement; for a Mr. C., one of the great obscure who are permitted to contribute to the "stuffing" of the corpulent pages of our contemporary, has accused the commissioners of "pocketing hundreds of pounds each, and of putting the country to the expense of as many thousands!" Only imagine three gentlemen, whose commission lasted about three weeks, and of whom one received no remuneration whatever for his services, pocketing or otherwise disposing of some hundreds of thousands of pounds in that short period. The Irish story which made them net 9200*l.* each, or three thousand pounds a-week, was rather startling; but it was not enough so for the sensible correspondent of the *Times*.

Need we say that the whole story is what is commonly denominated *fudge*—a mere fabrication, having no other truth to rest upon than the well-known fact that a short commission did issue, which commission must have cost something.

Nothing can more strongly show the degrading nature of party politics, than that tales like this should be propagated by men of respectability. Such a case is one of those sad exhibitions of malice and credulity which would be incredible if they were not of daily occurrence.

CULTURE OF THE PINE-APPLE.

IT will be readily conceded that the discussions which have from time to time appeared in the *Chronicle* have given a decided impetus to the culture of the Pine-apple; this, I think, cannot be disputed. It would be astonishing, indeed, now to see, even at provincial exhibitions, plump, full grown 2½ lb. Queen Pines; such things are, in fact, rarities in Covent-garden Market. They would be taken now-a-days, not for the production of our English Gardens, but for those fruit imported by the thousand from our West India Islands under that name. So completely and successfully has the attention of gardeners been driven to consider their position relative to the production of this fruit, that 5 and 6 lb. Queen Pines are as common now as fruit half that size were a few years back. It is true that many of the recommendations so stoutly insisted on to attain this end, savoured of the ridiculous, but it is nevertheless also true that those who had been plodding most faithfully and unswervingly in the school of culture prescribed by our grandfathers in the art, were induced to test the invulnerability of their recipes and maxims. The explosion of one of these, redoubtable as they appeared, and previously defended with so much boldness and energy, let in new light upon the subject, and dispelled the mystery which we were taught hung over a very mysterious art.

Some are foolish enough to imagine that no advance has been made in this branch of gardening, and that we have the recorded weight of Pine-apples quite as large produced years ago. We are not fastidious enough to cavil about this; but we contend that a mighty advance has been made in their *general* culture throughout the kingdom; that fine fruit, as proof of this, is now common; that every one who aspires to the cultivation of the Pine is convinced that unless he adopts such modern improvements as may seem applicable to his own peculiar necessities (such as have been from time to time urged in the pages of this Journal), he must content himself to be classed with the gardeners of the dark ages. The recent meeting of the Horticultural Society in Regent-street must have clearly shown how deeply involved the interests of practical men are in this question; for, instead of the exhibition of a single specimen of skilful culture during a season, leaving us afterwards to marvel over it for 12 months, they are now produced *absolutely in shoals*, and of such dimensions, too, that people begin to cry out, the perfection of Pine-growing has been accomplished: beyond this we cannot go! But I shall presently show that it is scarcely begun, and that what has been done is only the first effort to get out of the mud, and that the costly mode which has been adopted to get us out of this position, is, in itself vexatious, and in a great measure opposed to the natural principles upon which successful cultivation hinges.

The systems hitherto pursued have, in most instances, frightened every economical cultivator out of the field, and scores of Pine-growers are now content to fill their pits with Cucumbers or Melons, because common garden soil and stable litter were the chief adjuncts required in their cultivation. There were no bills for far-fetched manures—for charcoal, or for vats to double distill these. We shall, however, by-and-by enquire into the merits of such formidable and expensive materials in the culture of this fruit, and if I can show that the best example of Pine-growing as practised in any establishment in this country, is immeasurably distanced without the aid of these, my assertion will consequently be entitled to some credence and respect, however startling and vexatious it may be to those who have pinned their faith on these unsatisfactory and costly compounds. I shall, it is true, be lustily assailed for having disturbed the old beaten path, and thereby running foul of the prejudices of one or the favourite clap-trap of another. Regardless of this, however, I am assured that the true lover of gardening will hail with delight the simplification and improvement of any system of cultivation on which such heavy responsibilities have in times past depended.

The Queen Pine has been the favourite kind, and hence is more generally cultivated in this country than any other, and the variety of Queen called Ripley's is the most esteemed amongst gardeners. It is considered to swell better, the pips being more obtuse. This is the variety principally grown by Mr. Gabriel Pelvilain, at Meudon, one of the principal gardeners to the King of the French, and of whose success in the cultivation of this fruit we are about to speak in detail. Mr. Pelvilain also grows the old Queen, and has been successful in obtaining a most beautiful and very distinct variety, and equal to any of the Queens in point of form I ever saw. It is very handsome, and I was informed its quality was first-rate; but of that I have no personal knowledge. Mr. Pelvilain has at this moment a small pit of Pines approaching maturity, although as yet in a perfectly green state, and will, without the least doubt, attain considerably larger dimensions than those I am about to quote, as it is well known to gardeners that

they swell very rapidly just before changing colour. The size of these, however, will startle many a good grower and silence some of the noisy ones, who trumpet forth their own marvellous doings in these matters. The pit above alluded to contains precisely 40 plants. Mr. Pelvilain fruits his Pines in small pits; his object for doing so will presently be explained in connection with other matters relating to their cultivation. In order to obtain a pretty accurate estimate of the relative size of these 40 Pines I was induced to measure the two smallest and the two largest; but then this, without measuring every one, was a most difficult and perplexing business, as it was impossible by the eye to distinguish much difference in the whole lot, so perfectly equal and uniform were they. It is, therefore, just possible there may be some half an inch larger in circumference, and others as much smaller; but it is quite certain the disproportion does not exceed that.

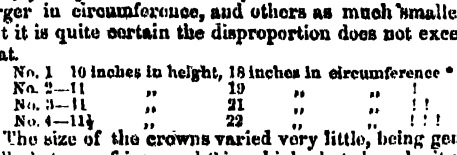
No. 1	10 inches in height,	18 inches in circumference			
No. 2—11	,,	19	,,	,,	!
No. 3—11	,,	21	,,	,,	! !
No. 4—11½	,,	22	,,	,,	! ! !

The size of the crowns varied very little, being generally between 6 ins. and 8 ins. high; but then, be it remembered, there were no mutilations by the application of tweezers here. The crown was as it ought to be with good cultivation, a handsome and perfectly natural production, and like the noble fruit that supported it, perfect of its kind. The pips were swelling out flat; none of them were lady waisted, or resembling an hour-glass. The form of every one in the pit was perfect; indeed, to an unpractised eye they appeared as if cast in the same mould. On a very careful and searching examination I could not discern an abortive pip, blemish, or deformity, of any kind whatever. These magnificent and princely fruit presented altogether the most transcendant exhibition of horticultural skill I ever witnessed. They are at all times opened to inspection; they are not beyond mortal gaze, as Mr. Pelvilain gladly and willingly permits any respectable person to inspect them, and with pleasure details his mode of culture. Having furnished your readers with four tolerably weighty reasons wherewith to back my opinion of Mr. Pelvilain's success in the art of Pine growing, I shall proceed in a future Number to detail his mode of culture, which I flatter myself will prove interesting.—*Mirabile dictu.*

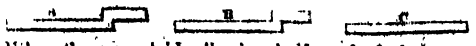
THE LAWS OF HEATING.

It appears from the remarks of several correspondents, that there is some difficulty in understanding how the plates, over which the air passes, are fixed, and how, as they form the roof of the furnace and the flue, all smoke and gas are prevented from passing through the joints, and mixing with the air of the chamber, and thus passing into the house. Now, as we have not perceived anything of the kind take place in the Pine stove, and as there are now plenty of persons who can testify to the healthy appearance of the vegetation in the house, and as it has been in operation for the last 10 weeks, it is fair to suppose that the means taken to prevent this accident are sufficient; and if so, we need not trouble ourselves with anything more complicated. At the same time, had anything of this sort occurred, there are numerous modes by which it might be prevented, and one or two which I shall presently notice, as, perhaps, worthy a trial by those persons who are fearful of trusting the simple expedient to which I have resorted.

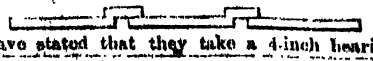
Your readers are aware that the stove is brick; it is formed of four walls of 9-inch work; the outside measure is 5 feet 5 inches long; 4 feet 4 inches wide (I speak of the actual stove, not the chamber); the internal measure, therefore, being 3 feet 10 inches long, and 2 feet 10 inches wide. Another wall of 9-inch work is carried up between the two ends, but not in the centre; it is 16 inches from the wall of the stove which stands nearest to the house, and, being 9 inches thick, of course leaves a space of 9 inches between itself and the farther wall. Thus, A is the wall next the



hothouse, B the centre one; and C the farthest. My plates are 3 feet 6 inches one way, by 1 foot 6 inches the other; and are three in number; so that, their length extending from A to C, they will take a bearing of 4 inches on the two outside walls (A and C), and, of course, will rest on the intervening wall (B); they are 1 foot 6 inches wide each; so that, when laid in their places, and half an inch allowed between each for expansion of the metal, they form a surface of 4 feet 7 inches by 3 feet 6 inches. This gives them a bearing of 4 inches on the brick-work all round. Two of these plates are cast with a 4-inch extending rabbit, which, by its extension over the joint, prevents the escape of smoke and gas. Thus:—



When these are laid, allowing half an inch between them for expansion, they will appear thus:—

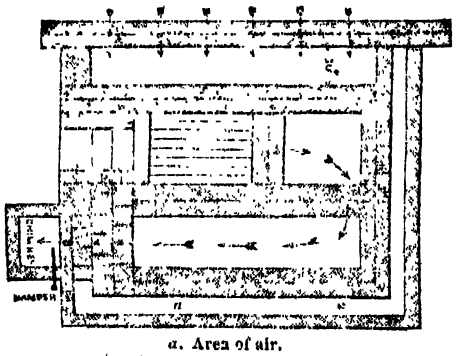


I have stated that they take a 4-inch bearing all round on the 9-inch work; at the two ends of the stove, the walls are carried up three or four courses higher, in 4½-inch work, thus forming a groove between the edges of the plate and the brick-work, half an inch wide, at the wall A. Only one course of (half thick) bricks is laid, for the purpose of making this groove; the wall C is also carried up similarly to end-walls; so that there is a groove half an inch wide formed all round the edge of the plating. This being filled with fine sand (which may be put on in larger quantities than just to fill the groove), makes a smoke-tight joint. Some sand is also strewed along the rabbit-joint. Thus the weight of the plates keeps them in place, while they are free to expand, by squeezing up the sand, which follows back as they contract. If they were bound in the brick-work, they would pull it all down in less than a twelvemonth, by their alternate contraction and expansion.

I had a chemical sand-bath some years back similarly constructed; it was in nearly constant operation for several years, and never required any repairs. The furnace is 3 feet high. This allows 3 inches for the paving of the ash-pit; 1 foot deep, for ash-pit itself; bars, 3 inches deep; and from top of bars to bottom of the plate (1 foot 6 inches) = 3 feet. The furnace is 16 inches wide, being formed by the walls A and B, and the bricks, used where these walls form the furnace, are Stourbridge fire-bricks, far more durable than Welsh lumps, and but little more expensive, and set in Stourbridge clay. The furnace occupies a distance of 18 inches from back to front; that is, the bars are 18 inches long. The accompanying will give an idea of the ground plan of the stove as it stands isolated in the chamber at all points except where it is supplied, and where the flue crosses to enter the chimney. This area or space is very small, the stove occupying the entire chamber except 2 inches; air being a very bad conductor of heat, no appreciable heat is given off to the outer brick wall.

Ground Plan of Stove.

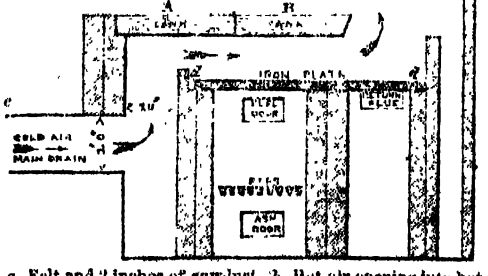
End wall of Hothouse under which cold air passes.



a. Area of air.

The tank is 4 feet wide and 5 feet long, with a longitudinal division, so that by calculation it will be found to take a 2-inch bearing on the outer 4½-inch work of the end walls of stove, which are carried up to bear it; and it is raised about 9 inches above the plating, so that, from its position, this tank not only contains a surface of water to supply atmospheric moisture, but its bottom forms a channel by which the air is compelled to traverse the plate and become hot, as is seen in the section;

Section.



a. Felt and 2 inches of sawdust; *b*. Hot-air opening into hothouse beneath the bark bed; *c*. Level of hot-house floor; *d*. sand joints.

tion; and then, on its way back to the house, becomes charged with moisture. It will be evident that, as the tank is divided, one side or both may be filled, and thus more or less moisture produced; but not only this, the side marked B, from being more over the source of heat, evaporates much more moisture; and at present, we are only keeping A full of water. For a greenhouse a very narrow tank will suffice, and a thin sheet of iron plating can be extended between the end walls of the stove, to secure the passage of the air over the plate; this will, of course, also lessen expense.

I trust these remarks will be of practical utility to your readers. If they are fearful of trusting to this plan, it would be easy to cover the entire plates with sand, then the air would blow over hot earth; surely, that will be natural enough to please the most fastidious. A little African desert, a Mediterranean sea, and a consequently moist sirocco, ought to please the inhabitants of the hothouse; at all events, it does so with the bare iron plate. Perhaps your readers will think so when I state that in the hothouse is a Cucumber plant, taken as a cutting barely five weeks past; it has nine fruit on it, one more than a foot long; till this week it has been growing in a pot, and has leaves on it measuring 17 inches in diameter, and 8 feet in circumference; in fact it is a perfect specimen of vegetable growth.

Another mode of preventing all chance of gaseous exhalation would be to have the plate cast with an edge projecting at right angles from the under surface to dip into a sand groove in the brick-work; thus allowing expansion. In truth, the ingenious mind will suggest many contrivances to obviate any exhalation; I can only say that, at present, any further precaution than I have taken seems unnecessary. In a late Paper I saw a question, by "A Constant Reader," which can only be answered by long and numerous experiments, and these most carefully repeated. I am asked, first, what proportion of heated surface there must be to a given quantity of air. I wonder it did not occur to your correspondent that this same surface might be heated extremely, or only just warm, and that the better point to seek to determine would be, the number of cubic feet of air a bushel of coals would raise to a given temperature; but even this would be influenced by numerous circumstances. I can only say that when we have had as much experience with this air-heating as we have had with water, we shall probably know as much about it! but it fortunately happens that, for practical purposes, it is of little consequence. I dare say that those who employ Polmaise will be content to adopt one principle, which those persons who have employed hot water have done, namely, to put up a machine of sufficient power, and then to regulate its force by the combustion of the fuel—a point especially necessary in such a climate as our own. With regard to moisture, there is a division in the tank, as above stated; of course, a conservatory will require a very small tank compared to a Pine-stove. It will be a practical improvement in the tank if it is supplied by a check cistern, leading by pipes into either division; and if the check cistern is furnished with a tap, the gardener can at all times procure chilled water. With regard to the bottom heat, your correspondent need not trouble himself with any contrivance; it keeps perfectly uniform for a considerable time. If the fire was made up very powerfully, or if it was allowed to go out, little or no change would be observed for many hours. This arises from the soil or plunging material being so bad a conductor of heat; another point illustrative of the wisdom of Providence (how truly does Polmaise prove the beautiful simplicity of Nature's means); and the uniformity of the bottom-heat, will be found another great recommendation of this system for forcing. Thus I trust your correspondent will be satisfied. The first point time alone can answer. The second is provided for, and the third unnecessary.

In the Paper of Oct. 3, are some further remarks of the Dean of Manchester, in my opinion calculated to mislead. He objects to my calling flues unsightly, because they might be ornamented with *bas reliefs* by Flaxman. I spoke of flues as they are, not as they might be. The wet blanket might be embroidered in floss silk with devices emblematical and allegorical, and some people might perhaps think it an object of beauty. However, the best proof that your correspondent really thinks with me on this point is, that he has taken especial care to put his flues out of sight, sacrificing much of the radiant heat from their sides; but surely your correspondent has forgotten the sound principles of economising fuel. A flue is a chimney, and it is only heated when more air is allowed to pass to the fuel than is necessary for the required consumption; and this leads me to notice an assertion, but for which I should not have noticed your correspondent's letter. He says that his objection to my plan is, "that with the same fire and attendance, three times the space might be heated." He believes six times; and then we are told how my chimney is to heat one house. But it is cold. I can make it hot, but only at the expense of fuel. A boiler on the top of my fire is to heat three more houses. Where is it to procure its caloric? Only at a further cost of fuel. Is it not most absurd to suppose that as a bushel of coals contains only a given quantity of caloric, it can do more than a given amount of work? If in my plan there is no appreciable waste of heat, how can I heat a greater space without a greater consumption of fuel, and then where will be the economy? However, truth is fast making its way. After having had to fight so hard a battle for the principle, it is quite refreshing to be asked about a few points of practice, and more information I shall be most happy to afford any person on the Wednesday afternoons.—*D. B. Mesh.*

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

(*Continued from p. 709.*)

Chemical Section.—*On the Application of the Principles of a Natural System of Organic Chemistry to the Explanation of the Phenomena occurring in the Diseased Potato Tuber*, by Dr. Kemp.—The object of the author was to urge the consideration of his views on the following grounds: 1st. That on the 24th February last, he announced to the Cambridge Philosophical Society, as one of the main deductions from his analyses, that the nature of the morbid affection in the Potato tuber consists in an abnormal tendency to premature germination. 2d. That the truth of this deduction has been proved to the very letter by the progress of the growth of the tuber subsequently; and that attention was drawn to the subject by Prof.

The accuracy of these measurements has been recently confirmed by a re-examination of the Meudon Pines.—*Ed.*

Lindley in the *Gardeners' Chronicle* on the 1st of Aug., simply on the grounds that this tendency to premature germination had become a matter of notoriety. 3d. That, by the application of the natural system of organic chemistry, the outlines of which were brought before the last meeting of the Association, it was in his power to establish an important principle, which had baffled the genius and resources of the Commission appointed by Government to investigate the subject. Some remarks followed, which all bore on the importance of autumn planting. Numerous striking instances were adduced in which healthy Potatoes had been grown from diseased tubers planted in the autumn.

Wednesday, Sept. 16.—The following letter was read from the Hon. Fox Strangways: "In the immediate neighbourhood of Alexandersbad, near Wansiedel, a few miles south of the road from Bayreuth to Eger, in the Fichbelgebirge, is a mountain called now the Louisenberg, formerly the Luchsberg, which is much visited by strangers on account of some of its natural curiosities. It appears not to consist of any mass of rock in *situ*, but to be an enormous heap of disconnected but rounded fragments of granite, thrown confusedly upon each other, and having arches, passages, and grottoes of various sizes wherever the interstices have not been filled up with smaller pieces. The whole is overgrown with wood, so that, excepting where paths are made, it is difficult to penetrate. One of the caverns or chambers, formed by a single flat block of granite resting horizontally as a roof on other masses, is nearly an exact circle of 60 feet English in diameter." Many that penetrate deeper into the mass of rocks are mere crevices, but they present a remarkable phenomenon, which is not observable in the more open ones. This phenomenon consists of a pale, but beautiful greenish yellow phosphorescent light, which, as the observer proceeds into the cave, becomes stronger and stronger, till it can only be compared to hundreds of glow-worms lying close together on the ground; and it is singular that, however strong this light may be, it does not assume the appearance of a sheet, but always seems to lie in spots, though close together. On taking up some of the mould on which this phosphorescence appears to rest, and bringing it to daylight, its own light (as might be expected) is overcome and disappears, nothing being seen in the hand but black earth, a little sand, some minute whitish cryptogamic powder, and a few fronds of a very small filmy Moss of a pale transparent green colour. On taking the mould again into the darkness the light reappears, but so much dimmed that it appears as if the slightest disturbance had a tendency to dissipate it. The traditions of the country have long pointed at this mountain as the repository of gold and silver and precious stones, and as the abode of evil spirits or Kobolds, who amuse themselves by tantalising credulous mortals with the sight of gems and riches without end, which, when touched, are turned into dross or vanish from the sight. The explanation given by this phenomenon to such a belief, current among a simple and imaginative people, is evident. The original name of the mountain itself, Luchsberg, *i.e.*, Lynxberg, is somewhat expressive of this splendid peculiarity.

Mr. Babington observed that the Moss, in this case, was undoubtedly the cause of the light, and it was probably the Schistostega pennata, which exhibited the same appearance in this country.

Some fibres of the Lavatera arborea were sent by Captain Peterson for the inspection of the section, with the suggestion that they might be useful for manufacture into cordage.

Mr. Duncan exhibited a fruit which he had observed to grow abundantly in Africa. The trees bearing it are found on the north bank of the Lagoon River, between Ahguay and Popoe, on the west coast of Africa, and also on the banks of the river Halio which runs into the Lagoon river in latitude 6° 20′ north, and longitude 1° 25′ east. This region has not before been explored by any European. The tree when growing resembles the Orange in nearly every respect, and is quite as abundant. The specimen exhibited having been gathered for two years had lost the pulpy substance with which the inside is filled in its fresh state. This substance is about the consistence of the interior of an Orange, and is used as soap by the natives, and considered superior to anything manufactured in England. Mr. Duncan also exhibited some candles made of Shea butter, and described at some length the tree which produces it. The butter is manufactured by boiling the seeds, and then putting them into a grass bag and pressing. The butter which is expressed is then poured into vessels about half filled with cold water; it then cools and hardens, and is ready for market. (*To be continued.*)

THE AMATEUR GARDENER.

On Bulbs.—(*The various methods of growing them*).—Having in a former paper treated on the growth of common bulbs in pots, for gracing the window and greenhouse during the winter and early spring, nothing need again be said on that subject, except to warn the amateur that his pots and glasses should now be all occupied, that an early stock of roots may ensure an early bloom. The writer wishes now to call attention to bulbs grown in the open air, as they ought to form a conspicuous part of every well regulated garden. This is the time for laying in a stock and planting; the latter operation, indeed, should be no longer delayed, for it is desirable every bulb should be well rooted before winter. Nature is a sure instructer in this duty of early planting; for keep them where you will, bulbs now give signs of life. Hyacinths, Tulips, and Crocuses, are developing their leaf-buds, and unless the formation of roots keeps pace with the growth of foliage, the future plant will suffer.

I have generally observed in gardens a great parsimony in reference to bulbs in the open air; they are planted too far apart, and there are too few of them to make a good display. Yet what can better repay all the labour and money expended on them? How dull will the garden be for many months if this interesting class of flowers is neglected. The growth of bulbs is indeed a winter and spring study, and a most beauteous style of gardening has been enjoyed and has disappeared before the beds can admit the tender exotics which are to adorn them in summer and autumn. My advice is, to be generous now. If you can afford to do so, buy Crocuses by thousands, and Tulips and Hyacinths by hundreds. Remember they are all very fond of increase, and with care your outlay will come back with interest. But be careful how you buy. Go to a respectable florist and not to auctions, and lay in a stock of healthy and sound bulbs, and next season you may calculate on adding 75 per cent. to your collection, without reckoning small offsets. Crocuses and Tulips multiply without much trouble; and I have found by some years' experience that Hyacinths may be successfully propagated here as well as in Holland. Quantity is indispensable if you would be a bulb amateur in the garden, and the outlay of a few pounds will make you the envy of your neighbours, and become a source of profound enjoyment to yourself. There are many other bulbs besides those I have mentioned, which ought not to be neglected, and the above kinds are only adduced as examples.

These bulbs may be grown in beds or in borders, according to room and circumstances. Have at any rate one bed appropriated to Crocuses, that your eyes and heart may be gladdened, when in January or February a kindly sun calls forth their gorgeous beauties. Let this bed, intended for early effect, have every advantage you can give it, sloping towards the south, well drained, and composed of friable, generous mould. Such a bed may have a few early Tulips and Hyacinths mixed with the Crocuses, that when the latter are off, it may still be attractive. But probably the borders will generally be preferred to separate beds, and then the following plan will be found advantageous. Let the outer row be composed of Crocuses, the next of Hyacinths, and the third, or inner row, of Tulips. You need not be afraid of planting too thickly, but let there be two or three inches space between each kind of bulb. The Crocuses will be off the bloom by the time the Hyacinths are in their prime, and the foliage, long and pendent, of the former will make a pretty fringed border for the latter. Oval or round beds have a fine effect when planted in this way; the beauty is prolonged, and the whole may be cleared away in time for the spring bedding-out of the greenhouse exotics.

In planting, dig a trench about four inches deep around the bed, and as wide as you require it. Let the bottom be well loosened, and then place the bulbs in order upon it. Cover with about half an inch of rotten leaf mould and sand, if you have prepared any such precious compost, and then return the mould first thrown out. During the winter be careful of the ravages of mice, for they often devour thousands of Crocuses and Tulips before they are observed. The Crocuses may be mixed, or planted in alternate rows of various colours. The same plan may be pursued with the Hyacinths. For planting in the open air, purchase the mixed sorts, sold at 3*s.* a dozen, single and double white, red, and blue. These mixtures generally contain many fine sorts. Snowdrops, Crown-imperials, Narcissus, &c., may be placed in clumps in various parts of the beds, bordered in the manner just described, and, thus furnished, wait with patience till the first warm suns of spring call your beauties above the ground.—*H. B.*

Home Correspondence.

Fairy Rings.—In your last Number are some remarks by Mr. Arthur Henfrey on my theory of fairy-rings. I am not surprized that this gentleman should have observed in the abstract of my paper a want of that consistency and connection which is inseparable from all truly philosophic researches. This, however, is the fault of the abstract (although quite as good as the ordinary specimens of such abridgments), and is not, I hope, a defect of the original paper. In my essay I have supposed it likely that some one would inquire why, if there was an abundance of phosphates in the soil, the Grass should not equally take advantage of them as the fungus? Mr. Henfrey's own statement of the extended underground development of this class of plants is only confirmatory of the justice of some such solution of the difficulty as I have there offered. I have pointed to the rapid growth of plants of this species, which in the case of the common Mushroom is so great that large and heavy specimens are formed in one night, as an indication of the powers of atmospheric assimilation which warrant us in ascribing to them a co-existent but equally unusual energy in seeking and obtaining mineral food. The remark was also made that the quantity of water which they are known to exhale is, in all probability, instrumental in introducing into the substance of these Agarics the large portion of alkaline phosphates they actually contain. The fungus possesses these two sources or means of mineral food which are not so fully enjoyed by the Grass—the extraordinary extension of its underground organs, and the great quantity of salt-laden water which is continually circulating in it. Many of your readers will I am sure agree with me that the natural top-dressing of phosphates to which the decay of the fungus gives rise, is amply sufficient to explain the luxuriant crop of Grass which occurs. In my paper (which is now out of my hands, and will be published entire in the next Number of the "Royal Agricultural Society's Journal,") I have said that the influence of the nitrogen must not be forgotten, but I have ascribed the principal effect to the phosphate of potash. In judging that the abundance of phosphates present in the soil as evidenced by the analysis of the fungus is opposed to the view of their beneficial effect on the subsequent crop of Grass, Mr. Henfrey has evidently overlooked a now acknowledged principle, that the abundant supply of food fitted by its solubility for the immediate use of plants exercises a most powerful and beneficial influence on their growth. If the whole phenomena connected with these singular rings can be satisfactorily explained on known botanical laws, as Mr. Henfrey intimates, then, indeed, have I intruded upon the domain of that beautiful science by attempting their elucidation through the agency of chemistry. This, however, I cannot understand to be the case.—*J. Thomas Way, Agricultural College, Cirencester, Oct.* 26.

Storing Potatoes so as to secure the Advantages of Autumn Planting.—In taking up a crop of Potatoes last July, which were planted early in spring, and ripened off without a speck of disease appearing on either the haulm or tubers, the middle sized portion were reserved for seed, and spread out to green in the open air protected from the midday sun by leafless branches. In a few days after being so exposed they all became diseased, whilst a portion of the same crop left undug remained perfectly safe from disease, and are so at this date. I intend to leave them in the ground till next spring, but have had them earthed over to a good depth. From the very different results I have experienced of autumn planting, I am not in favour of it on an extensive scale. When not attended with inconvenience, I would advise Potatoes to be left in the ground over winter (that is, the portion intended for seed), but to be earthed over a good depth. I have remarked that Potatoes left in the ground last winter, when dug out in spring were perfectly sound, whilst the same sorts stored carefully were much diseased. When not convenient to leave Potatoes undug, I would recommend the portion intended for seed (and those should be the middle-sized tubers) to be stored in the following way:—Choose a piece of ground in a dry situation; lay it off in beds 4 feet wide, with alleys of 2 feet between; on the surface of the beds lay an inch deep of peat; on this lay the Potatoes (having previously dusted them over with fresh slaked lime), so as not to touch each other; over them put another layer of peat as before, then let the alleys be trenched up on the beds, covering them in every part at least 12 inches deep, letting the top slope from the middle of the beds to the furrows. In this way they remain till the beginning of February, when they are to be planted. By this means all the advantages of autumn planting are obtained, and many of its risks avoided. I tried this plan last season, and it has been very successful; and seed thus managed and planted at the time mentioned was a far better crop than an autumn-planted one of the same sort of Potatoes.—*J. J. Geoghegan, Thomastown, co. Tipperary, Oct.* 22. [Compare this with a leading article, see p. 563 of the present volume of this Journal.]

The Season.—We this day gathered Pears perfectly matured on the same tree from which the first crop was taken in August last. The sort is the Paradis d'Automne.—*W. Mason, Necton, Norfolk, Oct.* 23.

Large Gourds.—At Mr. Ewing's window, in Exchange-street, Norwich, is a fine specimen of the club-shaped Gourd (Lagenaria clavata), a variety of the Bottle Gourd, a native of the East Indies. The following are the dimensions: Length, 4½ feet; circumference at the largest end, 1½ foot—in the middle, 1 foot—smallest end, 9 inches. Another, standing by the door, was nearly of the same size. They were shaped very much like clubs.—*E. Wilkins, Norwich, Oct.* 22.

Potato Disease not confined to any particular Month.—In your paper of 17th inst. (p 692) you extract the report of Prof Liebmann to the Danish Government relative to the all-engrossing subject of Potato-blight, and I observe one statement put forward with much confidence by him, viz., that the fungus which he assumes to be a cause, vegetated only for the first 14 days of August this year, and that its ravages were confined to that period. Now, this may be the case in Denmark; but certainly not in Ireland, as a case under my own eye will clearly prove. I raised a quantity of very fine Ash-leaved Kidneys in July, and in clearing the ground afterwards some small sets which had been overlooked were turned up and had budded, and seemed so healthy, that I was induced by way of experiment to plant them in a warm border, where they grew vigorously, and in the end of September were fine plants; but were attacked with the blight in the usual way, and have all faded away. From this it is manifest that the disease, be it what it may, is still as prevalent as at any time during the summer.—*John Montgomery, Belfast, Oct.* 27.

Hazard's Plan of Heating.—I have been for some time waiting Mr. Hazard's reply to Mr. Meek's letter, which appeared on the 19th September; the reason of his silence I am at a loss to conjecture, as he could, I am convinced, easily prove that the "icy winds" of a winter's night do not affect his stove in any way to

lower the temperature of the house. I should not have made these remarks but from a conviction that it is our duty, as practical men, to bear testimony to a system which, with a little variation, is one you have so ably advocated in your columns from time to time; with you it is known as Polmaise, but here as "Hazard's system of heating." When I first heard of Mr. Hazard's improvements in warming horticultural buildings in the year 1843, both Mr. Mayes and myself were strongly opposed to the plan of heating by hot air, as we thought in the first place it would not be congenial to the growth of plants; and secondly that no gardener would be enabled to keep anything like an equal temperature in severe weather by such a system, and in our own minds we pitied those who were about to adopt it; indeed, we felt so fully confident it would not answer, that whenever our opinion was required we invariably recommended the plan which we then considered best, viz., hot water either in tanks or passing through pipes within the house. Judge, then, our surprise one frosty morning in the winter 1844-45 when on visiting for the first time the stove-house at Somerset House, Clifton, heated by Mr. Hazard's patent apparatus, we found the temperature at 70°, although the gardener assured us that he had not touched the fire since seven o'clock the previous evening; the plants were in a most flourishing condition, and far superior in health to any in the neighbourhood. Being desirous of thoroughly testing the system we repeatedly called and also sent our foreman, and invariably found the temperature of the house from 60° to 70° during the coldest nights of that most severe winter. After this satisfactory result we were desirous of trying the system in our own establishment, and having at that time a house heated by flues we removed them and erected Mr. Hazard's patented apparatus, with its vapour appendage, in its stead. The house is in an exposed situation, has a slant roof with lights in front measuring 42 by 13 ft. in the clear. On each side and at the bottom of the house is a striking pit, with slate bottom, leaving a 2 ft. walk down the centre; the warm air passes in large quantities under the pit, which forms a good bottom-heat and makes its escape into the house through ventilators at the sides in such quantities as the gardener may require. Since its introduction we have used this house for forcing flowers in winter, such as Roses, American plants, Pinks, &c., &c., and can confidently state that we have never had them so fine under any other mode of heating, more particularly the Roses, which were exceedingly fine, many of the Moss producing from 20 to 25 flowers on each plant. When the forcing season is over we then fill the house mostly with Amaryllis to give them their summer's growth. Amongst these we place specimen stove plants, such as Allamanda, Dipladenia, Ixora, Pavetta, Clerodendron, Turnera, Iuga, &c., all of which flourish and produce abundance of flowers, far finer than in our other houses heated on the old principle of steam, fire-flues, &c. We also find some Orchids much improved since they were removed into this house, especially Cattleyas, of which we have now a handsome specimen of C. intermedia in fine bloom, and which has been so for these last six weeks. We have always been enabled to keep the house at an uniform temperature of from 60° to 75°, and the fire requires attendance merely night and morning; the cost of fuel does not exceed 3*d* per day. Such is our good opinion of this system over all others that we wish the whole of our houses were heated as this experimental one is. We shall be happy to show it to any one who may wish to inspect it.—*Garaway, Mayes and Co., Durdham Down Nursery, Bristol.* [If you will favour us with a plan of this house, and of the heating apparatus, not including the *details* of the stove, we will publish it.]

Culture of the Pine-apple.—Some inquiry having been made relative to remarks on this subject which appeared in our Calendar of Operations, it was sent to the writer of the Calendar, and the following is his reply:—"The observations in the Calendar of Oct. 10, ending 'these things will ere long be better understood,' were intended to refer to the unwieldy character of the crown in many instances. They will apply, however, to the whole course of Pine-culture, as it has been carried on in a majority of cases for the last 20 years. Your correspondent quoting Mills, Knight, Barnes, &c.—high authorities unquestionably—concludes with a remark on the contradictory character of his extracts with regard to the use of bottom-heat. I beg, however, to say that the chief contradiction lies between Mills and Knight, and that this is more apparent than real. Mr. Knight having so frequently witnessed the folly of enormous and unnatural bottom-heat, is led in the course of his remarks to repudiate it altogether—that is to say, to deny the necessity of using a fermenting body beneath as a medium. Now, be it remembered that Mr Knight gave little air and kept very high temperatures, especially when much solar light existed. By these means he obtained just what exists in nature—an advantage of a few degrees in the average of the bottom-heat over that of the atmosphere. Therefore it appears Mr. Knight did not deny the propriety of bottom-heat, but merely the capricious means by which it is generally obtained. Mr. Hamilton, after long practice, during which he has met with extraordinary success, approves of what is termed a very moderate amount of bottom-heat; about 80° in the summer, and not much more than 70° in the winter. Now, when we consider that an advantage of from 2° to 5° exists in nature in favour of the average temperature of the soil, as compared with the atmosphere; and that the average atmospheric temperature for Pines in a growing state under glass in Bicton, is something like 70° to 75°, or even 80°, we must come to the conclusion that Mr. Hamilton's practice is perfectly intelligible and natural. Dr. Lindley in his 'Theory of Horticulture,' p. 111, says—'The reason why it is necessary to plants in a growing state that the mean temperature of the earth should be higher than that of the air, is sufficiently obvious. Warmth acts as a stimulus to the vital forces, and its operation is in proportion to its amount, within certain limits. If then the branches and leaves of a plant are stimulated by warmth to a greater degree than the roots, they will consume the sap of the stem faster than the roots can renew it; and therefore nature takes care to provide against this by giving to the roots a medium permanently more stimulating, that is, warmer than to the branches and leaves." Thanks to the progress of science, we have the tank in lieu of the old fermenting matter; and when once this mode is well understood, and Hamilton's plan adopted, it will, I make no doubt, set hundreds more growing the Pine-Apple: then will that observation be found correct, viz., 'That it is easier to grow Pines than to force a crop of young Potatoes.' With regard to the Hamiltonian mode, my persuasion is, that three-fourths of the gardening world eschew it on account of its simplicity. This may appear very strange, but if true, it clearly points to the still immature state of gardening as a science or art. Your correspondent has a tank; if he can rely on producing 80° in the superincumbent body, in the height of summer, and 75° in the depth of winter, my advice is, plant out as soon as possible at 30 inches square apart. If the bottom is *thoroughly drained*, and composed of very porous materials, it is ten to one they will last him his lifetime, with very little trouble. Before I conclude, I may perhaps be permitted to observe that after all attempts to lay down principles for the proper regulation of bottom and atmospheric heat, it will be quite obvious to those who understand first principles, that all these matters are merely relative, and must ever depend on the great leading principle of light. Of what use can surcharged vessels be without a due amount of elaboration? The recognition of this principle will teach us to avoid many glaring errors."

Paulownia imperialis (see p. 693).—We have two long rows which were planted in the spring, when only about an inch high. The plants are now in fine robust condition, ranging from 8 to 10 feet in height. The leaves sent, it will be seen, are very fine, one of them measuring 28 inches across. They have, however, suffered from the late stormy and almost incessant rains. We have little doubt that this very handsome tree will attain a degree of hardihood in our rather fickle climate which will render it an object of interest and desire.—*H. Lane and Son, Great Berkhampstead, Oct.* 24.

Potato Disease caused by Atmospheric Influence.—The following facts may throw some light on this mysterious subject, and may induce somebody to investigate the elements of the atmosphere; for, although out of the power of man to alter natural laws, yet science may unfold some method of counteraction, whereby the disease may be averted or mitigated to such an extent that the Potato crop may again be cultivated as a profitable article of food. The following experiments were commenced on the 3d of September, and examined on the 13th inst. The Potatoes were all carefully selected, put into garden pots, with their several mixtures, covered over with Moss, and then buried about 1 foot 6 inches deep in the ground; except the Nos. 10 and 11, which were laid on the ground.

No.	Sept. 3.	Mixture.	Oct. 13.
1	5 sound Potatoes ..	Lime	All sound.
2	5 do., 1 diseased ..		5 do., 1 diseased.
3	5 sound do.	Charcoal ..	All sound.
4	5 do., 1 diseased....		5 do., 1 diseased.
5	5 sound do.	Soil	All sound.
6	5 do., 1 diseased....		4 sound, 2 diseased.
7	5 sound do.	Nothing mixed....	All sound.
8	5 do., 1 diseased....		5 do., 1 diseased.
9	.. 5 do.		All got worse.
10	5 sound do.	Open air. ..	5 sound.
11	5 do., 1 diseased....		5 do., 1 diseased.
12	5 do.	Carbonate of ammonia.	All very badly diseased.

The diseased Potatoes were all much worse.

In experiments Nos. 2, 4, 6, and 8, where a diseased Potato was placed in the midst sound ones, there was not the slightest indication of the disease being propagated by contact, except in No. 6 one Potato appeared a little diseased, but not at the point of contact with the diseased Potato; so that I imagine the disease had probably commenced before I selected them, but had escaped my notice; for I have had several instances quite as decisive as those now recorded, that contact with diseased Potatoes does not produce disease in sound healthy tubers. Those in No. 12, which were mixed with a small quantity of carb. of ammonia, were all much diseased, which leads me to suspect that the disease is caused by a superabundance of ammonia (in some state) in the atmosphere; and to test the correctness of my supposition, I had recourse to the following experiments. On the 13th inst. I put five sound Potatoes in a jar which had had carbonate of ammonia in it, and smelt very strongly of that substance: and also five sound Potatoes in a jar of the same size. I covered them both closely up, and placed them in a Pine stove. They were examined on the 17th inst.; and those in the jar with the carbonate of ammonia were all showing symptoms of disease, whilst those in the other jar were quite sound. At the same time I took two of the diseased Potatoes out of the jar of carbonate of ammonia, and laid them on a shelf in the Pine stove. At the same time I put green tops of Potatoes, quite healthy, into both of the jars, and examined them on the 19th, when those in the jar with carbonate of ammonia showed appearance of disease, while those in the other jar discovered no observable difference. On the 22d inst., those in the carbonate were all quite black, presenting just the same appearance as the Potato fields did in August and September; whilst the leaves of those in the sound jar only became of a yellowish hue, as might be expected from natural decay.—*J. P., Oct.* 23. [We are not able to answer the question in your private letter].

Durham Potato Markets.—The market town of Hartlepool is now plentifully supplied with good Potatoes; the best at 3*s.* per bushel. The Potato crop within many miles south and east of this port, with few exceptions, can scarcely be said to have suffered from the prevailing disease, like many other parts of the kingdom.—*Durham, Oct.* 24.

Wasps.—At the close of the fruit season, I sent some account of the way in which wasps hereabouts have been dealt with. I find that the number of nests taken from the 19th of June to the 1st of October, has been 88, but some remain which now will occasion no harm. The account of wasps taken in the glass traps (of which I send a specimen) consists of only 48 entries, and amount to 8634, on the average, 179 to each nest; but it is plain that the memoranda have not been kept in a satisfactory manner. I have been present on few occasions, and I have particulars only of the two last nests; of the one taken in the daytime on the 26th of September, the comb and grubs weighed 4½ lbs., and the wasps taken in the trap were 630; of the other nest, which was taken in the evening of the 1st of October, the comb and grubs weighed 3¼ lbs., and the wasps taken in the glass trap were 540. This last nest was attacked in the afternoon, but the squib having been put in a wrong direction from the nest, when the latter was uncovered by the spade, the wasps were all alive; the nest was then covered with a thin clod, and was left immediately, and the wasps made a fresh hole by the evening, when they were easily taken. These two nests were not selected as large nests, but I went to them on account of the shortness of their distance, and the latter was within a dozen yards of the garden. It is from a little attention to details, that you get at an estimate of the whole quantity of wasps produced in a season in a certain district; within half a mile of an acre of walled garden, is it too much to say in round numbers, that you might take a quarter of a ton of grubs, and 50,000 wasps, more or less; and I ask what quantity of valuable fruits might they be supposed to devour and injure?—*North Shropshire, Oct.* 22. [These are very nice glass traps, and are retailed by Gregory, of Oswestry, at 2*s* 4*d*. each.]

Potato Disease caused by Atmospheric Influence.—The produce of some Potato shoots picked off by a neighbour and thrown away on a dunghill, where they lay two hours in the sun, was excellent in size and quality, though few, and none diseased. The produce of the Potatoes, their parents, was small, and diseased partially. The haulm of some shoots of All-eyes which had been forced in a box on a hotbed, was from 6 to 7½ feet long and single; crop diseased. A garden-light placed over two plants in a row of Ash-topped Kidneys preserved them free, while the rest suffered. I took off the light, and the very next morning they were found spotted in the leaf, and followed their neighbours. (They were very late for Ash-topped Kidneys.) This experiment was repeated with the same effect on a later variety immediately afterwards. Another light was placed at 6 in the evening on two plants of the Bread-fruit variety, and taken off in the next day at 12; being purposely left off one night they were diseased before the rest of the crop. Did I communicate the disease? Every means was used by litte &c. to communicate a sudden atmospheric shock.—*G. K. F. Brigstock Vicarage, Thrapstone, Northampton.*

Manuring Potatoes (see p. 709.)—I am aware that not only in 1845, but also in the present year, some crops of Potatoes on unmanured land have suffered excessively. But they were generally of a late kind, or planted very late. [Those to which we alluded were Regents planted in the autumn of 1844.] To plant early, if the disease is to recur next August, is of the first importance, but to avoid using abundantly what is called strong manure, and especially not to place it in the rows with the sets, is the second thing to be attended to. Last autumn I planted some Potatoes with the manure incorporated with the whole of the soil, and others with the manure placed above and below the tubers. The former had not one decayed Potato in 50, the latter had at least one in 10. I have also the experience of more than 70 allotment tenants, every one of whom has this year had a spring planted crop of Potatoes. Some placed the manure with the sets, some in the whole soil, some both ways, and some purposely used no manure at all. The result has been decisively in favour of no manure, or mixing it with the soil. In one case the manure was spread over the whole ground, at one end of the rows, and at the other end placed with the sets in the trenches. The abundance of diseased Potatoes in the latter portion, when the crop was raised, showed to a foot where the different mode of cultivation commenced. And, *à priori*, would it not be expected that a tendency to decay would be increased by the contiguity of masses of highly azotised manure? You justly say, follow Nature, and plant in autumn. I would, I grant, for this

reason sow seeds in autumn in a bed of animal manure. The birds swallow and deposit them in this manner. But is it natural to set a tuber in the same way? Nature does not proceed thus. Mr. Grey, of Dilston, indeed, recommends the manure to be placed below the sets, but has he, by careful experiment, tested this method with the mode of manuring the whole ground equally; The Potato contains, and therefore requires, little nitrogen, I believe the least of any European crop cultivated, either for seed, root, or the plant itself. Let the manure, then, be used unsparingly for a previous crop of Beans, or anything to which strong manure may be advantageously applied, and the next year let Potatoes be planted without additional manure. It is thus that careful gardeners have always obtained palatable Potatoes, and it is thus that, if we have the disease again next August, we shall probably, with the indispensable addition of early planting, obtain a comparatively sound produce.—*Sigma.*

Foreign Correspondence.

Moscow, August 20, 1846.—The number of things which necessarily divided our attention during a fortnight's stay in St Petersburgh, and the rapidity with which one gets over the 500 miles between that capital and this one, have not admitted of much investigation into the agriculture of the country; but from all I have been able to see or learn, there is, undoubtedly, very much to be done for its improvement; great difficulties in the way of doing anything, but yet considerable efforts making on the part of the government, and of a few individuals. The cold, marshy, unproductive flats of the government of St. Petersburgh, are well known; and looking at the low stunted bushes, or miserable starved stag-headed trees of which many of the so-called forests are composed, the poor brown swamps which serve as pasture, and the open bleak fields of arable, either lying fallow, or bearing short thin crops of Rye; the soil and climate may be easily set down as hopelessly unproductive. It must also be taken into consideration, that all agricultural operations must be crowded into a short season of little more than four months, when the inhabitants of the country must either raise or earn food for the whole year, or find work for the remaining seven or eight months out of the fields, and that the uncertainty of seasons is so great that the same extent of cultivation, which in some years will not suffice to keep whole villages from starving, will in other years produce so great a superabundance that they cannot find a market for it. Yet, that all these difficulties may be overcome, and that the neighbourhood of St. Petersburgh may be made really productive, is proved by the success of a company of Quakers, to whom the Emperor Alexander conceded privileges of draining and improving some tracts of land, where, I am told, very fine crops of grain are produced, and whose hay (a most important article here, varying in price from about 3*l.* to about 10*l.* a ton,) always fetches a much higher price than any other, and often nearly double. Usually, when a tract of land being found naturally to be a little drier, or a little less poor than the rest is brought into cultivation, no attention is paid either to draining it or to providing any screen against the violent and bitter winds which cut everything up. In a wide unbroken plain you generally see one portion, often nearly a half lying fallow, whilst the rest is covered with contiguous patches of Rye or Oats, with here and there a very little Barley. But little manure can be spared for the fields. The plough is that simple instrument made after the old Roman pattern, so much in use in the south of Europe, which merely scratches the surface, and the whole culture is such that one is surprised to see the produce even so good as it is. The Government has, however, established schools of agriculture where peasants are taught the most essential principles and practice. Agricultural societies, exhibitions, collections of model instruments, &c, are formed or encouraged so as to give a taste for it amongst proprietors, and here and there we see an estate apparently well drained, with a few hedge-rows to break the winds, and rather less sameness in the cropping, where the standing crops look very much finer than elsewhere, yet the good example is very slowly followed, and if, as I am told, the country about Petersburgh is undergoing a very great agricultural change, it must be a long time yet before it is very perceptible.

Shortly after leaving St. Petersburgh the patches of arable land become very few and poor; they assume a better aspect and greater extent as we approach the old fallen tower of Novgorod, after which they again give place to vast plains thinly covered with brushwood (chiefly stunted Birches) or poor forests of Pine, Fir, and Birches. Among the Valdoi hills there is, again, a good deal of cultivation, and many of the valleys, if they may be dignified with that name, look as if they might easily be made productive. About Vishni Volotchok, a prosperous looking town on the great canal, connecting the Caspian with the Baltic, I saw really fine looking crops of Rye, and much land under the plough; though the villages between Valdoi and that place are the most ruinous on the whole road. The forests begin, also, to show a more vigorous growth. From Tver to Moscow, we still continue to see much arable land, and better forests; but the country, as we approach Moscow, is at present so much burnt up by the long continued heat and drought—that everything assumes the hue of the clouds of dust which rise in every direction from the sandy roads or fields. The grain crops this year suffered very much from the long-continued cold, wet weather, which lasted far beyond the middle of our June, much of the autumn sown Rye rotted, and the spring corn came up very badly; afterwards came on the very hot weather, which brought the weak plants and small ears rapidly to maturity; and the Rye harvest, which is now considerably advanced on the greater part of the road, especially near Moscow, is in many places light. However, this is partly made up by the beautiful weather, which enables them to secure well what they have got, and is fast ripening the Oats, which not long ago they feared would be surprised by the frost before the grain was formed. It is now generally considered that the Rye and Oat crops of the north will be a fair average. In the government of Pskoff, they have had two or three very bad years; the peasants have been in many places almost starved out, and it was feared that the same would happen again this year, but later accounts are much better, and it is said, that the accounts from the extensive grain countries in Little Russia are very satisfactory.

Barley appears to be very little grown between Petersburgh and Moscow, and I have not yet seen a Wheat field in Russia, scarcely any artificial Grasses, and no Buckwheat as yet, though that is so important an article of food among the Russian peasantry. Of Flax I have seen a good deal, especially after we passed the Valdoi hills, and as we approached Moscow. Near the towns and villages, where manure is more easily procured, particularly in rather richer soils near rivers, &c., an immense quantity of Cabbages are cultivated. This vegetable, Buckwheat, Rye, and the small Cucumbers, are the principal food of the peasantry. The Cabbages are either eaten fresh, as long as the climate will allow them to remain in the ground, or they can be preserved by hanging up; or more generally they are cut up and salted, and made into the kind of soup universally known under the name of *shtshi* (a word written in Russ with two letters only, one of which has no equivalent in western languages). The Buckwheat is made into a kind of pudding called *greshni cashia*, first boiled and then baked over in an earthen pot with (when they can get it) some butter or oil stirred in when hot; the Rye made into bread as black as one's hat; the Cucumbers preserved in salt (making a most excellent accompaniment to roast meat at any table). The cultivation of Potatoes is also getting more general amongst the peasantry, being very much encouraged by the Government. In this climate it is of the greater importance, as the summer vegetation is so rapid that there is still time to plant Potatoes when it is ascertained that the autumn sown corn has been killed by a prolonged winter. The Potato grounds this year look well, and the disease is as yet unknown; the Cabbages, especially about Moscow, have suffered a good deal from the drought.

The peasantry along the line of road we are come are a much finer race of men than I had been led to expect. Their hairy faces and their dress give them, it is true, a wild look, heightened in general by small but fiery eyes, and if you see them on the evening of a holiday, screaming and disputing under the influence of drink, or on a summer's night wrapped in their shoubs, sleeping in heaps outside their doors, their humanity does not look very exalted; but observe them well, and you will generally find tall, strong, well-proportioned men, their persons by no means so dirty as their dress, and especially in almost every case remarkably fine, regular sets of teeth. This is said to be owing partly to their living almost entirely on vegetable food, partly to the little prevalence of the habit of smoking, which destroys the teeth of all ranks in Sweden and Germany. Away from the great roads or large rivers the peasantry are said to be of a very inferior race, and in many places to suffer much from poverty, and some winters from actual starvation. In the vicinity of the towns and along the rivers, having any outlet into or communication with the Neva, they find winter occupation in cutting up wood for the Petersburgh market; when that resource fails them, they have scarcely any means of earning money during that long and dreary season.

The forests of the country are beginning to excite attention on the part of the Government. The price of fuel in Petersburgh and other large towns has been so low, the quantity required so enormous, and the supply from the forests considered as so inexhaustible, that the object has been the cutting them down in such a manner as to furnish the greatest quantity of wood for burning at the least cost. The consequence has been a wanton destruction of the best forests, which are again cut down before they attain maturity. Now the price of fuel in St. Petersburgh is rising every year, and still more so in Moscow; the timber or Pine logs with which the wooden houses are constructed is also acquiring more value, and if the present endeavours to regulate the cutting the forests are not well followed up, shelter from the rigour of the climate will soon become another of the necessaries of life, which the peasant may not always have the means of procuring, and it will be long before any railroads will render the coal-mines of the south of Russia available for the inhabitants of the north.

Reviews.

To the *Rose List's* previously noticed (p. 679) we have now to add those of Mr. Francis, of Hertford, and Messrs. Lane and Son, of Great Berkhampstead. They may each be advantageously consulted by the Rose buyer, and will bear comparison with any of their contemporaries.

Elæ Fries Summa Vegetabilium Scandinaviæ,—Part 1, is chiefly occupied by valuable critical remarks upon the species of the Scandinavian Flora; the author promises hereafter an explanation of the morphological system of botany, and some general observations on the vegetation of the neighbouring countries.

Ruprecht's Flores Samoiedorum cisuralensium is a most interesting account of the vegetation of the little-visited country, inhabited by the Cisural Samoiedes, a people hardly known as Europeans. The author boldly and successfully examined all that dreary inhospitable region, and has determined its physical relation to Lapland on the one hand and Siberia on the other. The paper, which forms the second part of the Beiträge zur Pflanzenkunde des Russischen Reichs is a very important contribution to botanical geography. The only Coniferous trees to be found are the common Juniper, the Scotch Pine, the blunt scaled Silver (Picea obovata), and the Siberian Larch. Ruprecht mentions a new Alder (Alnus fruticosa), a new creeping Willow (Salix reptans), and several herbaceous plants previously undescribed. Oaks are not mentioned. The only Rose is R. acicularis. Raspberries with fruit not worth eating were seen near the town of Mesen, but no brambles, which are replaced by the Rubi saxatilis, arcticus, and chamæmorus. Nevertheless pretty flowers are not wanting, for Mr. Ruprecht speaks of various Crowfoots, the White Alpine Atragene, Trollius, the fine tall Bee Larkspur (D. elatum), the yellow Aconite, and even a Pæony (P. intermedia), to say nothing of Violets, Parnassias, a Geranium, several Vetch-like plants, Potentils, the Mountain Ash, Bird Cherries, Saxifrages, &c.

We have also before us second editions of Neumann's *art de construire et de gouverner les serres*, noticed at p. 297, 1844; and the same author's *Notions sur l'art de faire les boutures*, formerly translated in those columns. We shall probably draw attention hereafter to some points in the former of these two works.

Dr. Wight's *Spicilegium Neilgherrense*, Vol. I., is a 4to of 85 pages of popular and scientific descriptions of the more remarkable plants found on the range of the Neilgherry Mountains, illustrated with 102 coloured plates. It is like all the author's works, full of useful information and critical views, which no botanist can dispense with studying. Among other points new to us is a reference to an opinion entertained by the late Mr. Griffith that the flowers of stellate plants consist in reality of nothing but a calyx limb. We fear that this speculation can hardly be entertained, unless some means can be found of explaining away the so-called calyx of Sherardia. Among the finest things figured by Dr. Wight is the Neilgherry Loranth, a parasitical plant with brilliant scarlet flowers. Is it not possible to import this charming species with the plant on which it grows? It would be a great acquisition, and might certainly be preserved if once obtained alive. Some of the Soneriias, too, are nice herbaceous plants, and might be obtained with less difficulty. A few packets of seeds in a letter, by the overland mail, would secure them.

A new Botanical Periodical, in 8vo, has made its appearance in Dutch, under the name of *Nederlandsch Kruidkundig Archief*, edited by De Vriese, Dozy, and Molkenboer. The first part, which is before us, contains some observations on the Flora of Sumatra, by De Vriese; the South Coast of Borneo, by Korthals; and some papers on the Flora of the Netherlands.

Miscellaneous.

Cause of Potato Rot.—It appears that the mischief rests between the air and the leaves When first attacked they have the appearance of being seared, as if the air was too corrosive for them; and the consequence is they cannot perform their function properly. The juices are therefore not matured, but deposited in the tuber in an impure state—the same state, or nearly so, as when taken from the earth. It is as if the blood of a man was conveyed to the various organs of his body without passing through the lungs—for the leaves are to a plant what the lungs are to a man; imperfect nutrition would follow, and the man die and putrify very soon. Does any correspondent know of Potato crops grown with guano, affected as much as those grown with farm-yard manure? A gentleman last year had a crop of Potatoes grown with guano, and with the exception of a few stitches, all were sound. To a solution of a diseased Potato which had a very offensive odour, a small quantity of carbonate of ammonia was added. The odour disappeared, and the ordinary smell of the Potato was substituted. Is it that on account of the seared state of the leaf sufficient nitrogen is not absorbed? And is it that the nauseous Potato liquor, to which the ammonia was added, received nitrogen from the ammonia, and so having received the required element, was restored to its proper condition and odour? And is it that the Potato crop grown with guano, received the sufficient amount of nitrogen by the root, and so compensated for not receiving it through its ordinary channel—the leaves. These cases bear upon the same point; and though they should not afford a solution of the matter, nevertheless may afford points to start from.—*A Correspondent of the Whitehaven Herald—abridged.*

A Species of American Aloe in Flower.—There is now in flower in the Botanical Garden of this University, a fine specimen of Furcræa cubensis or Cuba Aloe, raised from seed sent to the garden about 14 years ago, since which time it has been constantly kept in the stove. The first indication it gave of flowering was early in the month of August of the present year, and since that time the stem has made so rapid a

growth as to have attained the height of 2.4 feet, and has produced 28 branches, which are again divided into many branchlets, on which are suspended about 1400 buds and blossoms; these are of a greenish-yellow colour, and, when fully expanded, rather more than 2 inches in diameter, very fragrant; but, viewing each flower singly, by no means showy. Although this species was introduced into England so long ago as 1739, this is supposed to be the first time it has flowered in this country. Furcræa gigantea, a species very similar to the above, flowered in the autumn of 1820, in the garden of the Right Hon. Earl Powis, at his seat at Walcot, in Shropshire, and is figured in the "Botanical Magazine," v. 48, t. 2250. Another very fine plant of the same species has recently flowered in the Royal Botanic Garden at Kew.—*Oxford Herald, Oct.* 17.

Calendar of Operations.

(*For the ensuing Week:*)

Preparation for In-doors Work.—The time is at hand when ungenial weather will frequently drive the labourer in-doors, where a stock of work should now be provided. The tying of new mats, cutting and picking of shreds for the walls, cleaning old nails, drawing last or the next summer, arrangement of herbs, examining utores, making flower-sticks, labels, &c., washing and putting away all spare striking or other glasses, making straw or reed mats, protectors for tender plants, as well as making a stock of besoms and baskets for the ensuing year, are matters of as great consideration as out-door business, and should be got forward betimes. Gardeners or others should purchase a most liberal stock of Russian mats at this period—in fact, a twelve-month's supply; these will at once furnish a little in-doors labour. Willows should be instantly procured for basketing, and a good stock of cloth for shred cutting. All superfluous or dead things in pots should be emptied out, and the dirty pots from every part placed in a corner of the shed, ready for washing in bad weather. Plenty of broken pots should also be housed in a shed corner to be crushed and sorted in bad weather; they may be fairly reckoned amongst the most important things connected with the potting shed. Any one having old half-worn sashes without glass, may readily make a most useful straw cover of them, well adapted for covering Endive and other salads, Parsley, &c.; as also for placing over early crops of Potatoes, Radishes, Carrots, &c. We make these on a couple of tressils. The straw (Rye, if possible) is drawn through the lands in bunches, and laid across the longitudinal bars of the sash in a regular way. When covered equally, three or four long sticks or laths are placed on it in a line with the sash bars, and bound down to the latter in a few places by pitch cord. If housed when out of use, which is seldom with us, they will last a couple of years.

CONSERVATORIES, STOVE, &c.

Conservatory.—Attend to good arrangement, picking off decayed leaves, thorough ventilation, &c. Fine specimens of Chrysanthemums, late Salvias, with other autumn things, should be occasionally introduced from the other houses to the conservatory, removing occasionally inferior things for a while to make way for them.

Stove, Orchids, &c.—Plenty of sunshine and free ventilation are now the requisites here, observing much moderation in the use of artificial heat. Let the thermometer rise, however, to 80°, or more, on bright days.

Mixed Greenhouse.—Let every attention be given to a due regulation of the heat. Where everything is grown in one house it is of the utmost importance that heat observes a proper ratio to the light. In such a house the proprietor naturally desires to have flowers late as well as early, as far as such can be carried out. To effect this, fires must be in use occasionally, even at this period; and to those who are thus circumstanced I would say, beware of night heat; 55° is sufficient in such a structure for the present. Let the thermometer rise, notwithstanding, to 70° or more during sunshine, observing, if such is fitful, to drop to 60° in the day if dull weather take place.

KITCHEN GARDEN FORCING.

See to the linings in dung pits; keep up a day heat of 65° if possible, with a free circulation of air; more especially if they are to be wintered here. It is a pitiful economy, however, and frequently very painful to a gardener, to winter Pines in such pits without hot-water pipes or other means to raise the temperature and expel the damp. A gardener thus situated has no alternative but to make up a very unnatural amount of bottom-heat in November, in order to provide sufficient atmospheric heat. He has moreover to watch the stable yard closely, and whatever demands may occur in his frame ground or about his Mushroom beds, everything must give way to the Pine linings. These things, however, cannot endure much longer; a much better use will be found for manure. *Vineries.*—Keep the scissors at work amongst the late Grapes. Keep a lively fire for two or three hours in the early part of the day, and encourage free ventilation with it, leaving a little all night.

FLOWER-GARDEN AND SHRUBBERIES.

The flower garden is now so far robbed of its beauties, that steps may be taken immediately to secure a better arrangement in the next year; this is necessary before the flowers are decayed. Let all observations as to improper heights or misarrangement of any kind be made now. Coloured sticks might be made use of as to the arrangement of both colour and height. The colour of the stick would indicate the colour required to fill that station, whilst the name of the plant and remarks might be written thereon. Get all autumn bulbs planted without delay. Let all biennials be planted out soon; such plants as the Sweet William, Wallflower, &c., are of great use in flower borders, and may be planted three or four in a mass. Dahlias should be marked forthwith. Pinks may be planted out, and Carnation layers or pipings still potted to place in frames. Endeavour to soften the coarseness of autumn by frequent cleaning of borders, lawns, and walks.

KITCHEN GARDEN AND ORCHARD.

Prepare a plot of ground directly for the earliest Peas by thorough digging and manuring; they may be sown in the course of the first week in November. A few Mazagan Beans may also be planted at the same time. Seakale should now be introduced to a bottom heat for the earliest supply; those who force it where it grows may apply some hot manure round a few pots. Let all Carrots be taken up and stored away directly, likewise Beet; a few Parsnips for present use may be taken up, they will, however, keep well in the ground, and thus circumstanced, they may have a coat of manure spread over them for the next crop, and trenched out as wanted. I have found it a good plan to cut the head of the Carrots completely off, below the neck, thus checking their tendency to grow. They may then be put in pits like Potatoes, raising a sharp ridge over them to keep out the wet. It is time to think of forcing a little early Asparagus; the principles applied to the forcing of Seakale, &c., are in the main applicable to this delicious vegetable, except that the Asparagus requires abundance of air when growing through the soil. Proceed with pruning fruit-trees as soon as the leaves are fallen; let nothing of this sort remain till spring, which period will bring its own labours. Get all superfluous nails and shreds drawn soon, in order to furnish in-doors work, as stated in the commencement of this day's Calendar. Men do little good working out in bad weather, sometimes much harm, both to themselves and the land, by closing its surface.

State of the Weather near London, for the week ending Oct. 29, 1849, as observed at the Horticultural Garden, Chiswick.

Oct.	Moon's Age.	Barometer. Max	Min	Thermometer. Max	Min	Mean.	Wind	Rain
Frid. 26	3	29.851	29.654	55	39	42.8	W.	.19
Sat. 27	4	29.126	29.479	56	40	48.0	S.W.	.18
Sun. 28	5	29.274	29.087	53	41	47.0	N.W.	.08
Mon. 29	6	30.119	29.938	47	39	42.0	N	
Tues. 30	)	30.261	30.168	49	32	40.5	N.	.01
Wed. 31	8	30.211	30.103	42	29	40.5	N.	
Thurs. 32	9	30.121	29.971	50	45	47.5	S.E	.41
Averages		29.919	29.657	50.3	37.81	44.0		.44

Oct. 25—Fine but cool, clear; with slight frost at night
26—Overcast; fine; rain
27—Overcast; cloudy, partially overcast
28—Foggy; hazy; overcast
29—Hazy, fine, foggy
30—Foggy, dense throughout
31—Hazy, rain; overcast
Mean temperature of the week 3 deg. below the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Nov. 7 1846.

Nov.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest quantity of Rain	Prevailing Winds 1829	1830	1831	1832	1833	1834
Sun 1	54.1	39.3	47	11	0.381n	W	SW	S	S	W	S
Mon. 2	53.6	39.1	46.1	8	0.49	—	S	SW	W	W	SW
Tues 3	53.6	38.6	45.8	10	0.09	S	S	—	S	S	S
Wed 4	51.9	36.6	43.9	10	0.44	S	SW	SW	S	S	S
Thur 5	52.4	39.0	45.7	9	0.93	S	SW	—	SW	S	SW
Fri 6	51.4	38.5	45.0	11	0.76	W	W	W	W	W	W
Sat 7	52.0	37.1	44.6	13	1.03	—	W	W	W	S	W

The highest temperature during the above period occurred on the 3d and 6th 1831 therm. 63°; and the lowest on the 4th, 1846—therm. 21°.

Notices to Correspondents.

The *Fourth* Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each copy. An Index has been added. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 2*s* for 5*s*.

AMARYLLIS—*Cymry*—Plant your Brazilian bulbs immediately, and give them a nice bottom-heat. Lantana Sellowiana is a well-known species used for bedding out. We know nothing of the Ipomœa.

CINERES—*Pianthus*—The following will flower in March and April in a warm greenhouse:—Hardenbergia macrophylla and monophylla, Brachysema latifolium, Gompholobium polymorphum, Kennedya Marryattiæ, and K. prostrata.†

DAHLIA SHOWS—We cannot print anonymous communications; nor are we willing to admit even authenticated statements of florist shows unless we know who the reporter is, as well as his name and residence.

ELASTIC BANDS—*A Sub*—We doubt whether those now made are strong enough for securing the pods of Picotees and Carnations. Besides, they are sold in sets, of sizes, and only the smallest size could be employed.

GUANO—*A M*—Your *notions* about guano are absurd. You observe better than you reason. The appearances you describe are so obviously the result of bad cultivation, that we cannot understand how your own reason should not indicate your mistake.

INSECTS—*K S*—We cannot comply with your request; but if you will send your address to "Rusticola," at our office, you may probably gain the information required.

LOBELIAS—*F*—Take your plants up with balls and pack them closely together in a cold frame till spring. They will not bear frost. Give them plenty of air when the weather is favourable, otherwise they will suffer from damp.§

MOSS—*N E S*—The best and most effectual remedy for Moss on gravel-walks is labour. Sulphate of copper has been recommended, but the hoe is far more effectual.

NAMES OF PLANTS—*H R*—Jerusalem Artichoke and New Zealand Spinach.——*D L P*—The Tuberose.——*C B Saunders*—Oncidium crispum. We do not know to which work you refer; there are three, perfectly distinct in their nature: but none of them treating of cultivation.——*J Smith*—Your plant looks like a bit of Nicotiana suaveolens: but if you wish to know its name certainly, you must send up a good shoot, with the full grown stem leaves. The white Tobaccoes are much alike, and difficult to distinguish.——*J W*—Maxillaria pallidiflora.——*J R*—Your specimens are much broken, and difficult to name; but we will endeavour to do so next week.——*Erygium*—E. yuccæfolium.——*M D F*—It is not possible to name such a fragment of a very difficult genus. It looks like Euphorbia aleppica.——*J F*—Poinciana pulcherrima, a stove shrub.——*E Z*—Apparently Populus candicans.¶——*A B C*—1, Doodia caudata; 2, Aspidium coriaceum; 3, Cyperus alternifolius. Your other question next week.§——*J M S*—1, Oncidium ramiferum; 2 is a curious thing, apparently a new Grobya; cannot you send a better specimen, with the leaves and pseudo-bulbs?

ORCHIDS—*A B C*—Those generally cultivated are stove plants. They would not succeed well in a greenhouse, the atmosphere is too dry in summer, and the temperature too low in winter.§

POLMAISE—*A Cockney*—This is not *necessarily* connected with the exclusion of external air, as Mr. Meek has repeatedly shown. See the plan of his house.——*Henry*—Feed the furnace with fresh air exclusively through the ashpit. There *must* be a drain from the further end of the house, to cause the necessary current. Cannot you manage to build your house *exactly* on Mr. Meek's. Nothing can be more simple or efficacious.——*B*—What is the use of your boiler? Your house is easy enough to heat, but you must have a return drain.——*An Enquirer*—You mistake the principle of Polmaise, and we must beg you to turn back to two or three capital communications from Mr. Meek a few weeks ago. The admission of the external air to the interior is no part of the plan; it is a mere incident and may be employed or not, according to the object sought for. The principle is to throw heated air into a house, and at the same time to draw the cooler air out again; in the absence of the latter precaution, you will get no dispersion of heated air in the whole interior, but it will rise to the top of the house, and escape there if it can.—Antirrhinum (or Bulbine) alsoides is an old yellow flowered Cape biennial, or half perennial. It must be kept in a greenhouse, thoroughly aërated in winter, and at that season have very little water.

POTATOES—*Henry*—If *any* manure is used in autumn planting your Potatoes, it had better be applied above the sets. The manure should be "strawy."

PORTULACA SPLENDENS—*Portulaca*—We know nothing more of P. splendens than that it is an annual under ordinary circumstances. As, however, some of the allied species are marked biennial, this may possibly be so too. Yes; if your Jacobæas are now pushing, you must proceed as recommended.

ROSES—*Scrutator*—There is nothing said in the Horticultural Society's Schedule about showing Yellow Roses *in pots*, nor was it so intended. They are to be shown as Roses usually are; that is to say, cut. No rules are laid down, because it is a new head of exhibition, and it is not thought desirable to control the exhibitors in the first season.——*J F*—La Reine, Aubernon, Baronne Prevost, Comte de Paris, Madame Laffay, Rivers, Duchess of Sutherland, Dr. Marx, Duc d'Aumale, William Jesse, Lady Alice Peel, Laue, Mrs. Elliott, Louis Bonaparte, Lady Elphinstone, Madame Desprez, Acidalie, Bouquet de Flore, Pierre de St. Cyr, Edouard Desfosses, Alfred, Triomphe de Plantier, and Le Grenadier. These form admirable standards, and, with a little attention to summer management, may be made to bloom well, even late in the season.†

RIGHTS OF PROPERTY—*R J B* inquires whether as a gardener in a gentleman's family he may, without dishonesty, dispose to nurserymen of any choice annual or other seeds which he may have had the good fortune to save, as he has frequent opportunities of making a few shillings by doing so, without detriment to his employer. He says, "I have not, however, availed myself of these opportunities, as I have had some scruples on the subject; for although I do not see how my master would be any the worse for it, I have reflected that if the seed in the first instance might not have been his, still the pots and soil in which I raised the plants, the ground the plants were put on, and the time occupied in their care being all his, the produce could not be my property. If you would be kind enough to point out what is right or wrong in this matter, you would greatly oblige not only me, but also many of my fellow gardeners." [This is a very proper enquiry, and his manner does the writer credit. There can be no doubt, as we have often said, that a gardener has neither moral nor legal claim to the seeds raised in his master's soil, and sown and gathered by labour paid for by his master. "R. J. B." should ask permission of his master to sell his seeds, and it is not likely that he will be refused, if the request be as reasonable as he represents it to be.]

SEEDSMEN—*G M*—Excuse our saying that your complaint is childish.

SMALL GARDENS.—*J H N*—When you say "cultivate it," do you mean what crops to cultivate? Do you desire to plant fruit-trees in it? These things should have been explicitly stated. This being a dormant period, you had better see to thorough drainage in the first place, and to having the ground well trenched in the second. Let the operation be carried to the bottom of the good soil, introducing manure if the ground is poor, between the first and second spit. A portion may be planted immediately with Cabbage plants, and a quantity of Lettuce-plants may be got out in a sheltered corner. Peas and Beans also may be sown in a week, for the earliest crop.—*E*.

WORMS—*Boys*—The worms will do no great harm. Kill them with clear lime-water.

MISC.—*J O*—We regret that the name of your village should be misspelt; but, with much submission, we would represent that your writing is not legible. Ordinary words may be ascertained by the context, but proper names, if ill-written, must be mispirated.——*A Sub*—We know nothing about coins, except the current coin of the realm. We cannot answer questions not relating to the business of this journal.——*Tyro*—It is not unusual for some of the lower leaves of Pelargoniums to drop off during winter. The plants should be watered rather sparingly while in a state of rest. Cuttings of Salvia Grahamii struck early in autumn are preferable to keeping the old plants over winter. The latter may be treated precisely as you would a Pelargonium.§——*Delta*—Lonicera sempervirens is now generally considered a Caprifolium. It is the well known Trumpet Honeysuckle, which in mild seasons produces scarlet flowers all the year round.¶——*A B C*—Jasminum sambac is a stove plant. It will succeed in almost any sort of soil.§

SEEDLING FLOWERS.

CALCEOLARIAS—*H R Esser*—There appears to be nothing uncommon in your seedling; it possesses good substance and texture, but the colour does not leave off with an edge: it wants decision.*

CINERARIA—*R G W*—Your seedling is good, but not uncommon in colour: the petals are too narrow and flimsy: it is of little use in the present day. The same colour is combined with stouter and better formed flowers.*

FUCHSIAS—*W C*—No. 2 is a good flower; decidedly better than 1, which is coarse in the tube and sepals, and the latter do not expand sufficiently; in the former this part of the flower is much better exposed.*——*A C*—The best specimen among your seedlings is No. 4; the colours are well contrasted, and though similar in this quality to No. 2, the flower is better in form, and the corolla more exposed; 1 and 3 are similar to many varieties, and neither of them appear to expand the sepals sufficiently.*——*G H*—1 and 5 are the best among the dark varieties; this arises from the corolla being more exposed and possessing also a greater contrast of colour, with a better general form; 6 is very delicate and pretty; good also in colour, but with the sepals a little too large.*

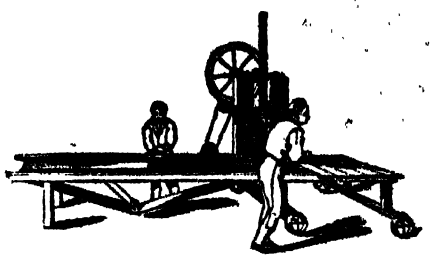
. As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ERRATUM—In Notices to Correspondents, p. 712, col. b, Insecta, for "wild bird seed," read "wild Bind-weeds."

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

SIX THOUSAND SIX HUNDRED FEET OF
CROGGON'S PATENT ASPHALTE FELT
have been used to roof the above Society's buildings, at Newcastle-upon-Tyne.
PRICE ONE PENNY PER SQUARE FOOT.
THOMAS JOHN CROGGON, 8, Lawrence Pountney-hill, Cannon-street, London.

HATCHER'S BENENDEN TILE MACHINE.



Manufactured and Sold by
COTTAM AND HALLEN, 2, WINSLEY-STREET, OXFORD STREET, LONDON.
This is by far the simplest and most efficient Machine for the purpose of making Drain Tiles. Any shape Tile can be made by it. It requires but few hands to work it, namely, two men and two boys. With this amount of labour the produce will be as follows:—

1 in. diameter of Tile,	11,000	1½ in. diameter of Tile,	5,800
1¼ do.	8,000	2½ do.	3,300

As stated by Thomas Law Hodges, Esq., in his communication to the Royal Agricultural Society of England.
The Machine is quite portable, and requires no fixing, but can be moved up and down the drying sheds, thus requiring no extra boys in carrying the tiles, nor are any shelves required in drying. There is no charge for patent dues or license; the purchase of the Machine includes the free use of it.
Price 25l., including four Dies of any pattern or size.
Extra Dies, of any shape or size, 5s. each.
References can be had as above as to where it can be seen in actual use.

Improved Pug mills, wholly of Iron	£16 16 0
,, Wood	10 10 0
Draining Spades, per set of three, with swan-neck scoop	1 1 0
Improved Drain Level for the use of workmen.. ..	2 5 0

COTTAM'S IMPROVED CLOD CRUSHERS.
The improvements made in these useful Implements consist in the division of the roller into two parts, which greatly facilitates the turning and working of the implement. The frames are made wholly of iron, and are therefore much more durable than those of wood. The prices of these Clod Crushers will be found considerably lower than those usually charged.
5 feet 6 inches long, 17l. 6 feet, 18l. 10s. 6 feet 6 inches, 20l.
Every description of Agricultural Implements, including Grubbers, Ploughs, Harrows, Drills, Dibbles, Weighing Machines for live cattle and farm produce, Chaff Cutting Machines, Churns, &c., and every description of Agricultural and Horticultural Implements, at the Agricultural Repository, Winsley-street, Oxford-street, London.

ORNAMENTAL TILES for Floors, Walls, &c., of Greenhouses, Conservatories, Garden Terraces; Encaustic, Venetian, &c., in EVERY VARIETY. May be seen at Messrs. PARKER and WYATT'S, Surrey-street, Blackfriars, London, Agents to Messrs. MINTON & CO., the Patentees, of Stoke-upon-Trent. Also Patentees of the PORCELAIN BUTTONS, cheaper and more durable than Mother-o'-Pearl, &c.

AGRICULTURAL DRAINING.—The attention of Agriculturists is respectfully directed to a simple and most efficient DRAINING LEVEL, price 28s. It can be sent to any part securely packed. It cannot well be put out of order, and a mere labourer can use it. To be had of the maker, JOHN DAVIS, Optician, Derby.

The Agricultural Gazette.

SATURDAY, OCTOBER 31, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Nov.	4	Agricultural Imp. Soc. of England. Highland Agricultural Society.
THURSDAY, —	5	Agricultural Imp. Soc. of Ireland. Belfast Flax Society.
—	12	Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.
Banffshire—Caddar—Bath—Glamorgan—Maybole.

FARMERS' CLUBS.

Nov. 3—St. Columb—W. Hereford Newark—Wenlock—Cirencester—Market Hill—Abergavenny—Selby
5—Axeleigh—Wingerworth—Watford—Yeaford—Jedburgh—St. Quivox—W. Market—Framlingham—Bocking Hundred—Nairnshire—St. Peter's—Great Oakley—Dorking
6—Monmouth—Hazleston
Nov 9—Hawick—Grove Ferry—Caistor-on-Trent
6—Tavistock—St. Germain's—Chelmsford Claydon—Wadebridge
7—Collumpton—Darlington—Frobus—Winchcomb—Durham—Swansea
9—Bakewell
10—Weeton Basset
13—Halesworth

"GIVE US THE REFUSE OF THE TOWNS, and you may do what you please with the Corn-laws," was the sensible remark of an enterprising agriculturist to a distinguished leader of the Protectionist party. "Give us the refuse of the towns and we will forgive you the repeal of the Corn-laws," might be the condition of reconciliation of the Protectionist party and their chiefs. Recrimination will not assist. The time for action is arrived. Providence by a mysterious visitation has deprived Sir ROBERT PEEL'S measure of its present terrors. It is in the power of the agriculturist to make it a matter of future indifference. But how? By economising all our domestic resources and by bringing to bear on the land all the resources of science and art. Among our domestic resources what so important as our domestic manure? And what source of wealth was ever the subject of such wilful and wicked waste? Look at our farmsteads. The ditch which stagnates at the road-side is full of valuable manure let flow to waste. Look at our towns. The rivers are literally black with the means of reproduction. You ship laden with solid guano from the tropics floats in water which is but a liquid guano in a diluted form. "Come hither and I will show you streams richer in the elements of wealth than the gold streams of Africa. Subterranean rivers of liquid guano, which common sense destines for the land, but perverse ignorance casts into the sea. Here, close to Vauxhall-bridge, is one of these guano streams, black and repulsive to the sense but to the eye of science a rich source of wealth and abundance." Hear what a distinguished chemist says of the properties of this dirty stream after a careful and accurate analysis. "The annual value of the chief constituents of the sewage water which at present passes into the Thames from the King's Scholars' Pond Sewer is 23,360*l.*; and of that which flows from all the sewers of London, on the supposition that the fluid they discharge is of equal strength, 433,879*l.* This is no tale of fiction, but the result of a strict and careful chemical analysis, presented to the Select Committee of the House of Commons on Metropolitan Sewage Manure. The ammonia, the potash, and the bone-earth, contained in this dirty water, to say nothing of other valuable constituents if they were extracted, in a state of purity would sell for this sum, whether for agricultural or other purposes. Is it not then a species of infatuation to allow this rich source of fertility—this mine of wealth—to be wasted, nay more, to become a means of pollution instead of a source of plenty; a bane to the town where it ought to be a boon to the country. The 23,360*l.* is the value of the liquid discharge of a *single* sewer in a single city of England. Can any one doubt that the wasted treasures of all our towns are more than sufficient to make amends to the agriculturists for the sacrifice of the Corn-laws. Against such gigantic waste of resources no protection can avail. Granted; but how are these guano streams to be turned to their right use? How are they to be conveyed to the country around? Why, as streams of pure water are conveyed to our towns; by machinery. They must be pumped out and brought to the farmers' very doors as pure water is now pumped in and laid on to our houses. There is no difficulty in that, and there is the greatest economy. "Yes, but will it pay?" Pay! Does it pay to supply the towns with clean water; and if so, can it fail to pay to supply the country with the same water enriched by the drainage of cattle-sheds which the farmer has not paid to build, and of cattle which he has not paid to feed—of cattle fed on the richest and best of food? What is a large town but a vast cattle-shed, and what is sewer water but the drainage of that shed, richer far than the richest manure, as he at present manufactures it, that the farmer can command, or than that fertilizing liquid, the strength of that manure which, blockheads as we are, we suffer daily to flow to waste in our road-side ditches.

This is strong and plain language; but such language is needed when we are speaking of wasteful extravagance. What is all want and misery but the waste of some obvious source of wealth; waste of time, waste of talent, waste of food, waste of manure? Waste is the parent of want; and we have now pointed out the most unaccountable of all extravagances.

If there is any one among our readers so ignorant as to doubt the efficacy of sewer water after what we have said as to the source from which it is derived, and of its high money value, we will simply tell him one fact, now familiar to all men of average information, that sandy land on the sea-shore near Edinburgh has been raised from 2*s.* 6*d.* a year, to 20*l.* or 30*l.* annual value, by this very sewer water which we are constantly wasting. If this does not suffice, we refer him to the evidence of the Select Committee of the House of Commons on metropolitan sewage manure, or to an analysis of that and other evidence published by the Metropolitan Sewage Manure Company, and to be had for the asking at their offices, 7, Waterloo-place.

If once convinced of the value of the refuse of our towns, let the farmer lose no time in petitioning the legislature that measures be taken without delay to apply the refuse of all towns to the purposes of agriculture. A system similar to that adopted by the French Government in the case of railroads, would soon secure the necessary capital. We repeat that if the Government will give us the refuse of towns, we will forgive the real or supposed enemies of the agricultural interest the repeal of the Corn-laws.—*G.*

MR. ASHTON assures us (p. 715) that he is an honest man; who denies it? And that he never had anything to do with adulterating guano; who said that he had? He adds that in fact his COMPOUND GUANO is a very good article, quite as good in its way as the mixed wine that we are sometimes doomed to drink at dinner. We have no doubt of it. The comparison of mixed guano and mixed wine is instructive. Port wine is often mixed with low Roussillon wines, or with coarse Colares; or, to suit some palates, with Ratanhy root and Pocan juice. Sherries are mixed with burnt sugar, boiled wine, and other trash. This is done in order to increase the profits of the seller, who humbugs the buyer into a belief that these beverages are the better for the adulteration—no, not adulteration! that word must not be mentioned to ears polite—for the mixture. Guano buyers will be mystified just in the same way if they do not take care. One dealer will fancy his guano too strong, and will reduce it; for which purpose Epping loam, or gypsum, or any other material that is cheap and handy, will be found useful; and that will be *his* Compound Guano. Another will mix off what he calls "fine" Peruvian Guano, rich in ammonia, and "fine" Saldanha Bay Guano, rich in phosphates, and *something else*, and that will be *his* Compound. All very honestly intended, no doubt; but having the unfortunate character of throwing the door wide open to fraud.

We should like to ask the advocates of this *Composition* (a word which a philologist will show you has much the same root as *Imposition*) *why they are so anxious to persuade the farmer to buy it?* Cannot they sell these excellent materials separately? Cannot they allow a man to have one ton of the genuine Saldanha Bay, and two tons of Peruvian? Why should a farmer not be permitted to mix these good things himself, if he be so minded? If Mr. ASHTON'S advice is taken, we shall next have a claim set up for the excellence of compound Parsnip seed, and compound Turnip seed, and compound bone-dust. Such things, indeed, are in the market already, as we very well know; the living and the dead being compounded in the one case, and limestone, plasterers' rubbish, and *quantum suff.* of bones representing the other.

No, no! we must have genuine articles if we can get them, and not dealers' mixtures. We must be permitted to compound our manures ourselves, if they are to be compounded; and with all possible respect for the good intentions of Mr. ASHTON, we must tell him plainly that the mere advocacy of any contrary practice has a very bad appearance.

SCHEME OF CULTIVATION
FOR SMALL FARMS.

No. II.—"W. B. H.'s" farm of 16 acres of pasture land, about his house, and 9 acres of arable in its neighbourhood.

Two cows are kept, and two horses. The meadow-land is "good," and is to remain in Grass. The tillage-land is in two fields; one, 4 acres, and the other, 5. The former is partly a very foul Wheat-stubble, and partly in Swedes and Potatoes; the latter is now sown to Wheat after fallow.

This is of a size fit for spade husbandry. If it be near a market-town, all the crops should be grown for sale, and manure bought. If otherwise, suppose a rotation to be selected of three years' duration, viz.:

1. *Grain crop.*
2. *Green crop for consumption.*
3. *Crop for sale.*

The grain crop may be Wheat: the green crop may be Swedes or Turnips, pulled, and the land immediately transplanted with Cabbages, to be removed before the selling crop is put in: and the selling crop, Carrots, or Beans, or Potatoes, or any other for whose produce a market may be obtained.

The Grass-land should be alternately fed and mown in successive [illegible].

The PRODUCE OF THE FARM will be—

8 acres mown=12 tons of hay.
8 acres depastured=the keep of 60 sheep during summer.
8 acres aftermath=the keep of 40 sheep during two months.
3 acres of Wheat=120 bushels.
3 acres of Carrots, or other crop, for sale=50*l.*
3 acres of Swedes, Carrots, &c.=60 tons.
3 acres of Cabbages=40 tons.

Valuing the Wheat crop at 52*s.* a quarter, the total produce of the farm is equal to about 90*l.*; besides, as food for stock, 12 tons of hay and 100 tons of green food, and the keep of 60 sheep during the first part of summer, and of 100 during the remainder. Suppose the two cows to be turned out to Grass during summer, that will diminish the keep to within the consumption of 40 sheep and 80 sheep respectively during the former and latter part of summer.

Suppose then sheep bought in May and again in August, they will then be fit for going on the Swedes in

October, and they (60 tons), along with say 3 tons of hay, which will furnish about 2 lbs. of hay daily to each of the sheep, will keep them till Christmas, when they should be in excellent killing order. Another lot of sheep may be bought in about March to consume the Cabbages, and these will then be ready to go upon the Grass.

There are 9 tons of hay left, and the calculation is not so strictly followed but that plenty of green food to be given along with the hay to the two cows may be furnished during winter off the Swede-land and the Cabbages. The cows and horses will eat ¾ of a cwt. of hay daily during 180 days in the year, which is equal to 6¼ tons, and the horses will during the remainder eat ¼ of a hundred weight daily, equal during the whole period to 2¼ tons. This about matches the quantity of food which the farm supplies to them.

The Annual Return on the Farm may be estimated as follows :—

Grain crop and green crop				£	90	0 0
40 sheep from March to Christmas—40 weeks at 6d.					40	0 0
40 sheep from Aug. to Christmas—20 weeks at 6d.					20	0 0
2 cows at 8l.					16	0 0
Cost of maintaining 2 horses, excepting their Oats					20	0 0
				£	186	0 0
The Annual Expenses may be—						
Rent of 25 acres				£	50	0 0
Labour and seed and manure, say 6l. 8s. p. acre on the arable land, or	£ 40	0	0			
One man all the year to look after stock, &c., at 10s. a week ..	26	0	0			
And 15s. p. acre on the pasture-land	12	0	0			
					78	0 0
Interest at 5l. per cent. on a capital of, say 12l. per acre—300l. ..					15	0 0
				£	143	0 0

Leaving some 43l. as profit.

—*M. S.*

AGRICULTURE, A CHEMICAL MANUFACTURE.

Will you oblige a constant reader by admitting to a place in your Paper the following reflections, which have been occasioned by perusing your Leading Article of the 17th inst. You there compare the labours of the farmer to the labours of the chemist, and you ascribe want of success on the part of the former to his want of knowledge and skill.

When the Romans commenced any undertaking of moment, they began by sacrificing to the gods. Their courage or caution was increased according to the favourable indications or otherwise which their victims presented. The Romans were successful in most of their undertakings, and every wise man will ascribe a large portion of their success to their religious feeling. Cicero did so ; for said he, addressing the Senate, "We may be what we like, Conscript Fathers, although we are inferior to the Gauls in strength, the Carthaginians in skill, the Spaniards in numbers, and the Greeks in arts ; because we excel all nations in religious feeling, and in the knowledge of the truth that all things are subject to a providence, and governed by the will of the immortal gods."

Of every eminently successful farmer or stock-master I have observed that he possessed a mind kindred in its nature to the Roman mind. He might be an immoral man or otherwise, but you recognised by his actions that his mind was ever ready to pay homage to the truth that all things are governed by an unseen agent. The character of his mind, indeed, is generally such that he would be accounted superstitious by the very intelligent writers whose ideas feed your columns. Yet, when we compare the results of such a man's life with the results produced by a Mechi, or some one of your other intelligent correspondents, who can deny that the superstition of the first is connected with far more valuable effects as to human happiness than the intelligence of the last.

These facts seem to indicate that an element is necessary to the success of the farmer's labours, of which no mention is made in your columns.

Again, there is an obvious relation between the moral condition of a man's mind (let its intelligence be what it may) and the fields which he cultivates. Of this fact any one may be convinced by considering the characters of a few of the farmers of a district. But if it is not sufficiently apparent in individual cases, let us take the case of a nation. Let us compare England with Ireland—ancient Judea with modern Palestine—Europe reformed with Europe unreformed, and we cannot doubt the fact that, altogether independent of skill and intelligence, the soil of every country under the sun, and everything that grows upon it, have a close and intimate relation to the moral condition of the human mind there. Elevate the human mind in any country, and you elevate everything else ; let the "light of life" be there, and the humblest labours of the farmer feels its influence, whether he understands chemistry or not. Let its lands be cultivated in the same manner as the Romans gained their victories, that is "by faith," and you have a truth stating the cause of its agriculture more powerful than any which the science of chemistry can reveal.

Is this, sir, a time to compare the labours of the farmer with the labours of the chemist, when the God of Nature is robbed of his honour, lets the mutterings of his wrath be heard, and blasts the fruits of our labours by diseases which modern intelligence can neither account for nor remove !—*John Russell, East Lothian.*

[Many thanks for your letter : there is much that is true in it ; and at the same time, in our opinion, some error also.

The general idea which it is calculated to excite is your opinion that agriculture is something more than a chemical manufacture—something even more than anything merely physical—something more than a series of processes whose results are the consequence of mere matter acting atom upon atom in virtue of the various affinities with which each is endowed. In this we differ from you. There is no doubt, much that is mysterious in every branch of human knowledge (and there is no advantage in creating more, or imagining it unnecessarily), and the practice of farming is not exempt from the general truth ; but mystery, wherever it has been examined and *removed*, has hitherto proved nothing more than the offspring of ignorance ; and this fairly suggests (and does it not justify ?) the opinion that all mystery in reference to *material* truth is the consequence of limited knowledge, not of any mental incapacity to understand. Is there anything wrong in endeavouring to lessen the amount of existing mystery ? We cannot think that you believe so.

The Potato disease, so mysterious at present, will one day, no doubt, be clearly understood as the consequence of laws which have existed since creation, and of circumstances (doubtless peculiar to the time), some of which it may be within human power to meet or to modify, and some of which, on the other hand, may, perhaps, be uncontrollable. Do you believe it irreverent to examine and investigate these subjects ? On the contrary, do you not think that all natural subjects are presented to us as fields for the exercise of the mental powers with which we are endowed ?

And now, as regards the influence of mental constitution on the practice of agriculture. So far from it being a point hitherto untouched upon in our columns, it is one which has been insisted upon. Our able colleague "C. W. H." has repeatedly urged that land should be cultivated by the mind, not by mere implements of husbandry ; and his meaning is precisely yours, that in all practice much depends not only upon intelligence and skill, but upon the energy and firmness of purpose which are the attributes of a well constituted mind.

And we include in our understanding of education not merely the means of storing the mind with facts—conferring upon it intelligence, but also of inuring and accustoming it to good habits—conferring upon it *quality* so to speak. Education is doubtless moral as well as intellectual, and no one will question the superiority of religious motives over all others in the former, its more important branch ; but why place moral excellence in *opposition* to intelligence. They are distinct but happily not opposed. Each has tended to the superiority of present over past times. Moral superiority could not have produced all this effect unaided by greater intelligence, any more than a better workman could exhibit all his superiority unaided by good tools.

And to add one more word, we cannot help thinking that you are not happy in your selection of cases to illustrate the superiority, which you insist upon, of moral character over mere intelligence as an element of agricultural success. It was unnecessary for your purpose to use Mr. Mechi's name in so uncomplimentary a manner ; and as it is, he by no means answers the end you aimed at, for he, if any, may be selected as the one among many, distinguished for his agricultural victory over untoward circumstances and intractable materials.

The superiority which in many districts of Scotland prevail over others in England as regards its cultivation, is, in our opinion, originally attributable to the national character, arising doubtless in part out of the strict moral and religious education there prevalent ; but also, and in great measure, from the intellectual education by which such intelligence and ability are conferred on so large a proportion of their inhabitants. We end as we began, by contending that the full theory of agriculture as of all other *material* arts, is to be found in the laws of *matter* as they are expounded in chemistry and natural philosophy.—Ed. *Ag. Gaz.*]

The following is another letter on this subject, received during the past week :—

I have read your Leading Article of the 17th inst. with interest and pleasure ; the more so, as I conceive it to be of the greatest importance, not only to individuals, but to the nation, that the farmer should be aided in his practice by science. It has been aptly remarked that "practice without knowledge is blind." This is especially true as regards agriculture, every operation in which, to be successful, requires to be conducted on scientific principles, as will be obvious to every one who reflects upon the nature of those operations.

It is worthy, then, of inquiry whether that knowledge is possessed by the agricultural body ; and if it be not, what means are to be used to afford it ? That it is not possessed is unhappily but too certain. What, then, is to be done ? Are we to acknowledge the deficiency without endeavouring to remedy it ? Are the higher and the lower classes exclusively to be regarded as meriting the attention in this respect of the Government and the country ? No—surely ! The prosperity and happiness of the nation depends upon the welfare of every class being duly promoted. Let then the education of the farmer be looked to as a national object, and let every one who depends upon or takes an interest in agriculture, lend a helping hand in establishing schools for the rising generation of farmers, upon a footing which shall make them available to the needy as well as the wealthy amongst us.—*B. S.*

ON THE DRILL HUSBANDRY OF TURNIPS.

The Mode of Cultivation pursued by Practical Farmers on the upper oolite formation in Gloucestershire.

As nine-tenths of the farmers in this district adopt the old mode of ploughing in the farm-manure, and sowing on the flat, their general mode of proceeding will be very briefly described. With regard to their old Sainfoin-land, of which there is a very large quantity yearly coming in, the modes of paring, burning, and ploughing are so similar to that already described, that it need not be again gone over ; but in far too many instances with this great defect, that the cultivator has neither pride nor spirit enough to pick up and burn the weeds shaken up by the harrows after the plough operations ; the invariable rule seems to be to leave them on the spot, to die or live as the season may prove dry or moist. The stubble-lands are ploughed over as soon as possible after finishing the corn harvest and Wheat sowing ; it is afterwards cross ploughed in spring, then dragged, rolled, and harrowed, and where Couch is very abundant, the rough part thereof is thrown into heaps and burnt. The manure, which has been put in heaps in the fields through the winter, or prepared in field, barn-yards, and in general turned once, is now carted out, and put on from 10 to 15 loads per acre. Sometimes the carting goes on for two or three days, the heaps of dung all the while drying nicely ; then it is about half spread, and, in saying so, I do not underrate the style in which the operation is performed ; too much care cannot be bestowed on this important part in the management of manures ; it ought, if practicable, to be broken or shaken into pieces not larger than an egg ; but when thrown carelessly about in lumps not less than a man's hand in its extended shape, many of them much larger, and perhaps allowed to dry another day before being ploughed in ; how then is it possible that such lumps can be covered by the ordinary process of ploughing, when the furrow is not above 3½ or 4 ins deep ? Much of the manure will be sticking out of the ground, and when the harrows proceed to cover the seed, a great portion must be pulled to the surface, and as I have said before, utterly lost to the crop.

Twelve or fourteen years ago the broadcast system of sowing was almost universal in this district ; but now drilling on the flat, with Suffolk or Berkshire drills has become general, and a few more years will drive the old fashioned mode out of this district, and out of the kingdom. The farmers begin to find the advantage of using bone-manure, and also ashes with the drills, a decided anxiety and stir being evinced in collecting ashes of one kind or other for the Turnip season, and I have no doubt that in a few more years pulverised manures of various sorts will be very generally and extensively used. It is impossible for any individual to present a succinct account of hoeing broadcast Turnips, the mode is indescribable, and frightful enough to unstring the nerves of the most robust north-countryman when he first witnesses the operation. What an alarming thing it is to witness a strong athletic navigator-looking fellow with his shirt-sleeves tucked up to his arm-pits, slashing away with an 18-inch stroke, making the dirt and slain plants fly at least a yard behind him ; while for every two strokes of the hoe, he plaits or doubles one leg over the other, and by this mode gets sideling along across the ridge towards one furrow, and when arrived there he changes hand and reverses the leg motion, and so returns to the other furrow. By the time our novice from the north witnesses this process for half an hour he will be horror stricken and tremble for the fate of the crop. At the termination of every draw of this powerful operator, a heap is formed of the mould, and removed plants, and perhaps a tuft or two of Couch inclosed, the plants left for stock appear also to be completely smothered, and altogether the ground presents a rough, uncouth, and woeful aspect. In wet weather all these little heaps spring into life, and when the time for the second hoeing arrives, it is impossible to know where the plants are which were intended for stock. The second hoeing is performed in a more moderate manner, cutting up as many of the weeds as possible, and levelling the lumps formerly made ; but to clean the land this way is utterly impossible ; therefore lambs must be put in the field in September, to bite the tops off the weeds for decency's sake, and in order to make the Squire believe when he rides along the road that Mr. Farmer Broadcast is a tolerably successful grower of Turnips, and also to persuade the honest farmer himself into the belief that his land is perfectly clean.

However, it is pleasing to have to admit that it is only a portion of the farms in the district alluded to which are so managed. Many agriculturists could be named who have their land in very different condition, being clean, and in as fine tilth before sowing as the most fastidious could wish ; these lands being clean, are kept so throughout the season. All these superior managers have discarded the broadcast system for some years, and now regularly employ drills. An excellent and economic mode of putting out manure on the land is adopted by several farmers, by means of wheel-barrows instead of carts. Heaps of manure of certain sizes are laid down at equal distances in order to have about 1½ or 2 acres surrounding them ; this is contracted for to be wheeled out and spread at 3*s.* to 4*s.* per acre. I have no objection to the mode than this—that the dung generally lies too long before it is ploughed in, and is never well spread ; thus in severe droughts losing more by evaporation than is saved by wheeling. The smallness of the heaps also exposes too

much surface to the sun. I do not know a dozen of farmers in the whole of this district who have followed the 27 inches wide ridge mode systematically for the last ten years (two cases excepted). However, of late years this plan is perceptibly advancing, and will ere long become general, being the only mode by which farmyard manures can be covered.

It is very difficult to estimate the average weight of Swedes and Turnips grown in this district; but from my own experience, and opinions expressed by others on this subject, I am pretty well convinced that there are three fields of Swedes to be found under 8 tons clean bulbs per acre, for one which will be over; therefore I am inclined to fix the average weight all over this district at 7 tons per acre, and common Turnips at 10½ or 11 tons.—*W. Fernie, Manchester.*

AGRICULTURE AS A PROFESSION.

WHAT is the reason that there is so much wealth amongst manufacturers, and so little among agriculturists? Who ever heard of an agriculturist as a millionaire? Who makes a fortune now-a-days by farming? and why should so many be made by manufacturers? What constitutes the difference? These thoughts have often occurred to me since circumstances have changed my residence from the country, and from the society of farmers, to this the stronghold of the manufacturers. Among many other reasons the following two may be adduced: education, and a proper application of capital. Suppose, for instance, a person has two sons to provide for, he determines that one shall become a merchant and the other a farmer. He has laid by, we shall suppose, to start them in business 4000*l.*, which he divides equally between them. If a farmer himself, he is now on the look out for the first vacant farm; we shall suppose the one adjoining his own becomes vacant—"450 acres; a little too large it is true for his capital, but such a fortunate circumstance; I shall have him near home, and such an opportunity seldom occurs." Without any weightier reasons than the above, off he starts to the landlord, secures the farm for his son, and a lease of 21 years. His son now enters on his duties; he was born and bred on his father's farm (rarely was from home further than the next market town), of course pursues the same course of management that his father did; his capital he finds barely sufficient merely to stock the farm; it is out of the question to attempt any improvements this year. "The crops are looking well," he says, "and I will put in some drains next year." However, the disease attacks his Potatoes, or the epidemic his sheep, and he must defer the draining till another year; and so he muddles on the best way he can, trusting to the seasons.

How different is the case of the son intended for a merchant? "Tom," says the father, "you must go and *learn* to be a merchant." Well! he takes him to Manchester; great care is taken to get him into one of the principal houses; he stays there, say five or six years, going through all the departments, seeing and taking a part in the whole system; he thus acquires business habits and gets an insight into details. For the next two or three years he becomes a paid servant, acting as salesman or buyer, taking a little of the responsibility on his own shoulders, and thus gets acquainted with the customers, &c. He will next, perhaps, be induced to go abroad as agent, and in this way he becomes acquainted with the tone of the foreign markets. He is in this way enabled to meet, being acquainted with, the wishes of customers; is thoroughly acquainted with the minutiæ of business, and has by this time acquired the necessary knowledge where and how he can invest his capital to most advantage. He will not purchase an article which will stand on his hand; but knowing what is most in demand, will link his capital at once in its purchase and will be enabled to turn over his capital several times in the course of the year. All this is the effect of education. Now contrast the two: the farmer embarks his concern without more knowledge than his father possessed before him, and thoroughly content. If his father be not a farmer, he acquires the supposed necessary knowledge by living a year, or at most two, with a friend who farms. The merchant begins early in life, and his first ten years is taken up with learning how to invest his money to advantage, and it would be strange if, after that time, he were not able to turn it to advantage. The farmer's capital is at once absorbed with purchasing the stock absolutely necessary for a farm which he has taken three times too large for him, leaving nothing for improvements.

Now, what is the remedy. Let the son, who is to be the farmer, be sent at as early an age to the Agricultural College (there will be more of these by-and-bye), and let his first three or four years be taken up with being grounded in those sciences which bear on agriculture; let him become intimately acquainted with the theory and practice of agriculture as unfolded in the lecture or seen in the field; let him put his hand to the various manual operations; get a knowledge in purchasing, rearing, and management of stock. After doing this, let him go abroad to the best farmed countries, see the operations carried out on a larger scale; then, being now intimately acquainted with everything bearing on the subject, let him take a farm in proportion to his capital, and start; and I am greatly mistaken if he does not double and treble the amount of interest, for his capital which he would otherwise obtain. It is as inconsistent for the farmer to start business without having thus acquired a knowledge of the theory and practice of his profession, as it would be for the merchant to embark his whole capital on an article which he has not first ascertained will meet the views of his customers. The farmer rarely considers the amount of capital necessary; he unhesitatingly enters on a farm three times the size of the extent of capital he possesses for its proper management; and thus, instead (as he should if his capital were sufficient) of putting the whole farm in the best possible position in the first year of his lease, he is contented to dawdle on doing bit by bit every year; his crops continue of the same average quality, and he thus realises no more than a low interest for his capital; whereas, if his farm had been in proportion to his capital, he might have, in the first two years, got all his improvements effected, and during the rest of the term be in the receipt of good crops paying him a high per centage for his capital. I would here remark that the expense of farming well-cultivated and improved land is no more than that necessary to farm land in which the improvements necessary to insure good crops have not been carried out; so that the expenses in both cases are similar, while the returns are in many cases double. This will illustrate the advantage of beginning to improve early in the term.

Men possessed of intelligence, and occupying land in proportion to their capital, would soon alter the state of our agriculture; and we would then become a nation as distinguished for its agriculture as it now justly is prominently so with respect to its manufactures.—*T. C. M., Manchester.*

Home Correspondence.

Wheat Sowing.—As the season advances I would recommend the advocates of thin sowing to be cautious as to how they proceed in that practice. The following is a brief account of some experiments on thick and thin sowing, which I was induced to make from the publication of a pamphlet which appeared a few years since, from Mr. Hewitt Davis. And I have now in my possession a letter from that gentleman, in which he recommends me to sow over [illegible]ole Wheat crop a quantity not exceeding three [illegible] per acre. I was desirous of giving his system a fair trial, and about the middle of October, 1843, I drilled in a ten-acre field, on a good loamy soil, three separate ridges of Spalding's Prolific. No. 1, 4 pecks per acre, 11 inches apart; No. 2, 8 pecks per acre, 6 inches apart; No. 3, 12 pecks per acre, 6 inches apart. The Wheat came up and looked promising through the winter. As the spring advanced No. 1 was well hand-hoed, and it had a most luxuriant appearance, but did not ripen till ten days after Nos. 2 and 3. It was much beaten down and mildewed, whilst No. 2 and 3 were a beautiful standing crop. The Wheat was threshed immediately after harvest; No. 1 produced 11 coombs 2 bushels per acre; No. 2, 13 coombs 2 bushels per acre, and No. 3, 14 coombs per acre. The quality of No. 1 was much inferior to No. 2 and 3, and the weight of straw considerably less. This was a dry and productive season, and had I followed the advice of Mr. Davis, by sowing my whole crop at the rate of 4 pecks per acre, I should have sacrificed a sum exceeding 200*l.*, and which is no trifling loss to a tenant farmer. In October 1844, I repeated the experiment, and the season proved the reverse of the former, being wet and unproductive. I drilled on a piece of rich land three other ridges; No. 1, 6 pecks per acre; No. 2, 9 pecks per acre; No. 3, 12 pecks per acre; width of drills in proportion to seed. No. 1 was again later in ripening than Nos. 2 and 3, the straw being slightly mildewed and more lodged. After threshing, No. 1 produced 8 coombs 2 bushels per acre; No. 2, 10 coombs per acre; No. 3, 8 coombs 1 bushel per acre. These experiments were strictly and impartially carried out, and I therefore concluded that upon a good deep soils a great sacrifice must, under all circumstances, ever attend a system of extreme thin sowing. And provided we could always insure dry seasons, it would be advisable on all deep soils to sow from 10 to 12 pecks per acre. I could give many instances in proof, and will relate one in particular. In the parish of Happisburgh, on the sea coast, in the county of Norfolk, was drilled, in 1843, a field of Spalding Wheat, 3 bushels per acre, on a Pea stubble. It came up very thickly. The winter was favourable, and in the spring of the year it presented a remarkable appearance. After the ear was fully developed it became the admiration of the surrounding neighbourhood—it was so extremely thick in the ground and had such a level and uniform appearance. Several bets were made amongst the neighbouring farmers as to the acreable produce, and those who ventured an opinion as to there being 20 coombs, or 10 quarters, per acre, were severely ridiculed by the knowing ones for their want of experience; but, however, all came short of the mark, for the real produce was 22 coombs 2 bushels per acre. This is a well authenticated fact, as many respectable farmers in the district can testify. It was published in several of the leading agricultural journals, and an analysis of the soil was given in the "Journal of the Royal Agricultural Society." Now, I would ask Mr. Davis, or any of his disciples, whether such an enormous produce could have been grown from his system of thin seeding? And I could, if requisite, adduce other examples of prodigious crops being grown in this neighbourhood (and under my own observation) from quantities of seed not less than 3 bushels per acre. But I know not of a solitary instance where a thin plant of Wheat was known to produce a very abundant crop. And I am more inclined to agree with the theory advanced by Von Thaer than that of Mr. Hewitt Davis—that in proportion to the depth of soil, &c., should the quantity of seed be regulated, for in a very deep soil the roots of plants have a greater inducement to penetrate in a perpendicular direction into the earth; while in those soils of a more shallow nature, the roots of plants spread more laterally, and occupy a greater proportion of the surface of the ground.—*W. Cubitt, Bacton Abbey, East Norfolk.*

Agreement between Landlord and Tenant.—I have perused the form of agreement between landlord and tenant, given at p. 697, and certainly I am more inclined to criticise its construction than its provisions. The words in the three first lines, "had made and concluded," and "in the year of our Lord," are superfluous, and only go to make up the folios of 72 words for each of which the lawyer pockets 1*s.* There is an omission in the 19th line of the words "with horses, carts, and other carriages," after the word "servants." But to come to the more important points. With regard to the holding, the term "legal notice" would, I presume, constitute a half-yearly one in the case of a yearly tenancy. A question arises whether such a notice would be sufficient to the tenant—whether a mutual yearly notice might not much more be advantageously adopted both by landlord and tenant. In such case I would substitute, after the commencing period of holding (the 29th September), these words, "subject to the determination of the tenancy by 12 calendar months' previous notice in writing to quit from either party." But, supposing this could not be agreed to, would it not be advisable for the tenant to get the period of tenancy to elapse, under the half yearly notice, on a particular quarterly day, *i. e.*, on Michaelmas-day, in preference to Lady-day, or *vice versa*. The state of his crops—the experiments he is adopting—or the improvements he is carrying out—may, on many accounts, render it prudent for him to guard against any uncertainty of his tenure. The following provision, added to the requirement of the notice in the 33d line, would in such case be effectual: "such notice to expire on the 29th day of Sept.," (or the 25th of March, as the case may be). There is a little inconsistency with regard to the time of payment of the rent: the tenancy commences at Michaelmas, and the rent is payable half yearly (at Lady-day and Michaelmas), although the first half-year's rent is not made to be payable until the Michaelmas following (not Lady-day). There is some ambiguity in the wording with respect to the cultivation of the land. It may be a question as to what constitutes "a good and approved system of husbandry." [That is specified in the succeeding clause.] I think, for many reasons, that the fire-office in which the property is to be insured should be named, as well as the sum to be secured. I have thus scantily adverted to various points which have arisen in my mind. There are, however, several clauses and conditions, not inserted in the agreement, and which may, or may not, be requisite on the part of the landlord, such as the power of re-entry in case of the non payment of rent (after sufficient demand, and not having been tendered), &c.; the power to enter and view the premises, and require improvements and reparations; and also for the tenant not to underlet or part with the possession of the premises without the landlord's consent. The memorandum attached to the agreement it would be safer to embody in it.—*Lex.*

Manures.—As guano has been used as manure for some years, most likely you have had an opportunity of judging of the state the land is left in where it has been applied two, three, or more times. I think it tends to exhaust, and produce more coarse herbage than before. Will bones and sulphuric acid act differently, or will any of the other artificial manures have a better effect? Your opinion and advice will oblige.—*A Tenant Farmer.* [The subject of your note deserves the attention of our readers. Can any one give their experience? We shall soon take the matter up in another part of the paper.]

Old Wheat as Seed.—I am satisfied from experience that old Wheat will yield a better crop than new Wheat when sown after fallow, Beans and Turnips, in the months of October, November, and December; but an old farmer assures me that it is not so well suited for sowing after Beans, because it is apt to imbibe too much water, which induces putrefaction; whereas new Wheat is not liable to such a casualty. But if I understand the "Theory of Horticulture" aright, there is a flaw in my friend's assertion which cannot be amended, and I should suppose that it is quite the reverse in every season. Last season was but an indifferent one for the sowing of Wheat in the Lothians, and yet I find that in every case the superiority of the crop grown from old Wheat over that grown from new Wheat in first-rate order, 64 lbs. per bushel, was most evident. Am I theoretically correct in my opinion of its superiority?—*Tuxus.* [We doubt it, but cannot decide. One thing is certain, Nature never sows *old* seed; though she permits it often to lie dormant for long.]

Are Plump or Lean Grains best for Seed? (see page 710, 1846.)—By this time the result of my experiment on the above point may be expected from me. I am, however, much disappointed at being unable to give it you this year, in consequence of one of those numerous ills which farmers are heir to, viz., the ravages of Nature's poachers, in the shape of small slugs; the field in which I had drilled the Wheat being infested with them in such numbers as to surpass belief. I had once or twice observed on the tardiness of the seed coming up, when on examining the ground one morn-

ing, I discovered a few of them not yet retired from view. The next morning, at three o'clock, I visited the field, and I witnessed a mass of destruction I should never have fancied possible. Myriads of slugs—three, four, and five upon each shoot—devouring it as it appeared above ground. These ravages had been going on for several days before I observed them, and had so weakened the plants that the whole crop has proved a failure. Heavy rolling and salt prevented the total loss of it; but only half a crop has been reaped. Circumstances prevented my cropping with Wheat the Bean lea I had intended, and I was therefore obliged to make a spring crop of it in another field, Navarre Wheat being the seed after two years' Clover. Hence the probable cause of the following ravages of the slug. I am at this moment putting my promised experiment in due force, and trust that nothing will happen again to prevent my reporting to you next year in a different strain to my present lament. I am, however, pleased to be able to send you a mirror specimen of the power of tailing (very lean) seeds, in producing an abundant crop. Last autumn I drilled an acre of good land with Vetches for stable use, and had one peck of tailing Navarre Wheat, the most inferior—chicken meat as it is called, that which is thrown to the fowls—mixed with it, as a leader or supporter of the Vetch plant. The Vetches turned out very badly; they were of an inferior kind. I had suspicions of them and did not sow any more. Not so the peck of tailing lean seeds, which flourished nobly. My experiment with the other tailing having failed, my attention was drawn to this, and I had it bagged, that is, the ears cut off, and thrashed soon after. It yielded 8 bushels less 1 peck. It may be stated as 8 bushels, for there was much more than a peck gleaned off the ground by the women. It is a good sample; a sack of it has been ground, and is making into bread for the use of my household. I will send you a sample if you desire it.—*Waterhouse, Oct.* 14.—[The Ulley Iron Works are discontinued. The engineer, however, still resides there, and takes orders, executing them elsewhere.]

Swedish Turnips.—The parish of Llanasa, in the county of Flint, may challenge all England in the cultivation of the above crop. Two tenant-farmers there gained the 1st prize for Turnips in their respective classes, at the meeting of the Holywell Farming Society last week. The weight per statute acre of the one was 46 tons 10½ cwt.; of the other 46 tons 8 cwt. This can be proved by the Secretary to the Society, and by the judges of crops. There are likewise two gentlemen farming lands in the same parish, one of whom obtained the medal, the other the 1st premium, for Turnips at the meeting of the Liverpool Agricultural Society, held on the 24th ultimo.—*E. M.*

Advantage of Early Planting, with respect to the Potato Disease.—Last year, bad as the Potatoes in the parish of L. (in Devon) generally were, I think I may safely say mine were the worst. This I attributed to the fact of their having been put in the latest of any in the parish. Accordingly, this season I determined to begin betimes. Some I put in in the autumn—whole Potatoes—early sorts. These shewed the disease in the haulm, but not in the tuber, and were a capital crop. Some were put in very early in the spring (the end of February and beginning of March), the tubers of these almost entirely escaped, though like the former, the haulm was diseased—a good crop proceeding onward. I found almost as a general rule that the crop was good and free from diseased tubers just in proportion to the early or late date that they were planted. Two of my men who planted in the same field, the same sorts of Potatoes, some weeks after me, had bad crops, much diseased. Later than the latest planted in the usual way, I put in eight eyes taken from one Potato: the haulm of these shewed the disease about the same time as the other haulm; but out-grew it and lived on in full vigour till a week or two ago. I dug these yesterday, and the produce was 49 large Potatoes, (weighing together no less than 27 lbs.), sound and only one diseased. At the same time I dug a small lot grown from sprouts only, the parent Potato being entirely thrown away. These were not put in the ground till the first week in August. The produce of course was not large; but what there was, was entirely free from disease. The haulm of these latter shewed symptoms of the infection, but did not die down. Such are the facts; it is for others to draw the inferences.—*J. E., Devon, Oct.* 24.

Can Fogs be the cause of the Potato Disease?—On the 10th May, 1845, I happened to be on a visit to my farm at Goudhurst, Kent, and whilst walking over it, between 11 and 12 a.m., a chilling, dense, and very peculiar fog came over, obscuring the sun, and apparently sweeping the very ground. It was of so very unusual a character that I regarded it with interest whilst it remained, which might be probably for the space of ten minutes, when it passed on towards the south west. A few days afterwards I learnt that the Hops had been considerably blighted, and subsequently the Potatoes, the disease, if I rightly remember, first making its appearance in this parish. On the 30th May, 1846, I again visited this farm, and it will be scarcely credible, yet it is true, that I again witnessed the same phenomenon about the same hour of the day. Having attributed in my own mind the Potato disease of the preceding year to the atmospheric cause I have described, I became anxious and curious to know what was the present condition of the Potato plant in the neighbourhood, and what was likely to be the effect of this renewed visitation. Opposite to the inn where I was quartered, a respectable tailor occupied a cottage, which was surrounded by a large garden, and I had often admired his attentive industry in cultivating it. I walked over to him on my return to my inn from the farm, and pointed his attention to this singular fog, and we carefully examined his Potatoes, which had the most vigorous and healthy appearance, without discovering the slightest trace of disease. About a week afterwards I again visited this part of the country, and again examined the tailor's Potatoes, when we had no difficulty in discovering the commencement of the disease, and ultimately they shared the common fate. I have lately been staying for some months with my family at Eastbourne, on the coast of Sussex. In that neighbourhood the Potato is one of the courses of field culture, and hence it happens, that whilst under other crops the plant cannot be eradicated, but remains visible in numerous patches amidst the stubble of the corn. In every instance where the plant has grown amidst standing corn (and myself and children have for the experiment dug up hundreds of them), I have found it to be free from the prevailing disease, both in the haulm and tubers, and for this exemption I can only account by the hypothesis, that the disease is produced by the chilling fog I have mentioned, but the plant being protected by the surrounding corn has so escaped the infection.—*R. L., London.* [This is a curious and interesting statement; but we cannot suppose that these fogs, *if mere fogs*, have been formed for the first time in 1845 and 6; the question still remains, *why have not Potatoes suffered from fogs in former years?*]

Potatoes in Jersey.—In 1845 I planted my winter stock of Potatoes in ground which had been in Grass for the four previous years. It had been skimmed in 1844, harrowed, and dug 18 inches deep throughout, and was planted in drills made by a deep hoe. The crop was a sad failure from the disease. I have the same ground now in Parsnips, Swedish Turnips, and Mangold Wurzel. The land which I reserved for my Potatoes this year had, in 1845, first, winter Vetches, and afterwards Bullock[illegible] Swedish Turnips as the land was cleared. My [illegible]ight; I got my seed from a stiff soil, and they were cut ten days before being planted. I found many among them diseased, which of course I rejected. I also planted separately some which I had saved from my own indifferent crop of the year before. My land is not divided by any hedge, and is uniform in its character. It was dressed with manure from Melon frames, the same as in 1845, and dug likewise 18 inches deep. My crop this year has turned out a fair average one in the ground where I tried the following method. Dibbled them in 12 inches deep, and left the holes open until the plants came above ground; then harrowed them to kill weeds, and afterwards earthed them up and treated them like other Potatoes. Some small whole Potatoes, the size of a large Walnut, have produced me the best crop by this treatment. The cut Potatoes second best; while those which were planted by drill in the same ground have turned out very indifferently. I attribute the increase of produce on the small Potatoes over the cut ones to the former going deeper into the holes. Those saved from my own seed have produced the same result as the small whole Potatoes, and I also found that the smaller cuts, which I planted separately from the large ones, have likewise produced the better crop. This I also attribute to their going deeper into the ground. Should not somebody try what effect could be produced by planting Potatoes, and after their coming up, by endeavouring to exclude the action of the air upon the young tubers, by means of putting wet clay over the land about half an inch thick?—*A. D. D., Le Haynais, St. Clement's, Jersey, Oct.* 22.

Societies.

FLAX IMPROVEMENT SOCIETY.

At the late monthly meeting of Committee the Treasurer's Report noted subscriptions and donations, since last meeting, amounting to 254*l.* 15*s.*, including 100*l.* from the Marquis of Downshire. The following letter was read from his lordship, giving a report of the result of the deputation that waited with an address, and samples of damask, cambric, and linen, on her Majesty the Queen:—

"*East Hampstead Park, Bracknell, Oct.* 2, 1846.

"My Lords and Gentlemen,—In obedience to your wishes, having obtained the promise of an interview, I presented myself (accompanied by your indefatigable secretary, Mr. James MacAdam), at Windsor Castle, on Wednesday last. His Royal Highness received us with his wonted courtesy; and, with unusual interest, made the minutest inquiries into the origin and course of the Flax trade, as well as into the affairs of the Royal Flax Improvement Society of Ireland. The beautiful specimens of cambric, linen, and damask next engaged his Royal Highness's attention, and were the constant subject of great encomium by him. After a protracted interview, we were led to believe that, in following out the interest shown by his Royal Highness, he would make, next spring, various experiments, both in sowing Flax, and, now, in stall-feeding on the seed, as recommended by Mr. Warnes. At the close of the interview, I was commanded by his Royal Highness to express the interest taken by her Majesty in the affairs of the Society; and to state her willing acceptance of the various articles of Irish manufacture. I cannot conceal from myself, or you, gentlemen, the important results likely to accrue to the Flax-growing population in all parts of Ireland from this interview; and I trust that no exertions will be omitted by the farmers generally to carry out the exertions of the Society, and merit the gracious patronage the Society has just obtained. I must be permitted to offer my thanks to Mr. MacAdam, for the clear details he brought to bear for the information of his Royal Highness; for, without him, I should have been totally unable, alone, to represent fairly the interests of the Society, which, on all occasions, I sincerely desire to do.—I have the honour, my lords and gentlemen, to be your obedient servant,

"Downshire.

"To the members of the Royal Flax Improvement Society of Ireland, Belfast."

These samples were those which had gained the Society's medals at the last annual exhibition. The damask was manufactured by Mr. Andrews, of Ardoyne; the cambric by Mr. Henning, of Waringstown; and the linen by Messrs. Thomas M'Murray and Co., of Dromore. They were all of the very finest quality, and manufactured, exclusively, of yarn made from Irish Flax. The present state of the agricultural interests, consequent upon the loss of the Potato crop, and the prospect of competition in grain with foreign countries, was inducing the landlords, in the South and West of Ireland, to turn their serious attention to the encouragement of Flax culture. They were selecting suitable ground on their estates for the purpose, and many had promised their tenants to procure the best seed from Belfast, in spring, so as to give them every advantage from the commencement and afterwards to have the Society's agriculturists to instruct them in the details of management. The Secretary stated, that he had intimation of the proposed erection of scutch-mills, to the number of 18 in all, in the counties of Mayo, Roscommon, Clare, Tipperary, Cork, Wexford, Carlow, King's County, and Meath, which would be a great assistance in inducing the cultivation of the crop.—The general impression seemed to be, that all the grain next year would be required for the food of the people, in the absence of the Potato crop, and that, consequently, the farmer must grow some other crop, to meet his rent and other engagements; and Flax was that which seemed to attract most attention, especially from being one which afforded so much employment.

PRESTON AGRICULTURAL SOCIETY.

At the annual meeting of this Society the other day the following remarks were made by Colonel Rawstorne. He said, that having been desired by the President to propose one of the toasts on the list, he should give "Liberal landlords and improving tenants." He had always considered that the interest of landlord and tenant was one and inseparable; that they were both bound together in one link, and that that link could not be broken without injury to both. He thought that the landlord had an important duty to perform, to watch over the interests of those tenants who were placed under him; and, on the other hand, the tenant was called upon not to go on in the old beaten track, which had now been nearly worn out, but to introduce all those improvements which modern days had discovered. He was able to recollect the time when the land in this neighbourhood was in a very different state from what it was at present, when the Grass land was all covered with Rushes and Thistles; but, though already much had been done, yet much remained still to be done, before we could be placed on an equality with some of the more improved farming districts. He would now more particularly advert to a particular branch of farming in this district, which was the breaking up of Grassland; and he was the more induced to do so, because there was an able article in the last Number of the "Royal Agricultural Society's Journal," on that subject, which was extremely applicable to ourselves. It was there stated, that there were in this kingdom, 16 millions of acres of Grass land, of which one quarter, or four millions, might be broken up to advantage; that an increase of rent might be made upon these of 8*s.* 2*d.* per acre; which would amount to 1,600,000*l.* increase of rent throughout the kingdom; but he (Colonel R.) thought the increase of rent would be infinitely beyond that in this neighbourhood. Go which way they would from this place, and they would find the Grass land in a miserable state; and which, by being broken up, would be capable of immense improvement. Mr. Palin, in his report of Cheshire farming, mentioned some poor Grass land of Lord Crewe, which the tenant desired Lord Crewe's assent to take off his hands, as doing him more harm than good. This land, being accordingly taken off, was converted into allotment ground, and in that state the crop upon it was valued one year at 9*l.* per acre. Now, a great part of the Grass land was capable of the same improvement.

The following is the report of the inspectors of crops:

"The inspectors of the Preston Agricultural Society beg leave briefly to lay before the meeting the result of their inspection over the district, for the Society. They would have felt happy to have done so under more extended entries for some of the premiums given by the Society on this occasion. One cause is certainly this—all crops are not of that weighty character we have witnessed on some former years, therefore the parties have not considered them premium crops; but where all are so nearly alike the competition is still the same.

"Again, the weeds of autumn have had so much tendency to gain the ascendant as to deter some from showing their farms or crops; this has been laid before us, together with the scarcity of labourers, as among the means of curtailing the entries of the present year.

"We have, however, met with a good amount of draining, viz., 62,000 yards on one farm, at 18 feet apart and 30 inches deep, well executed with tile and turf, and likely to be of signal service.

"The Swede and common Turnip, if not of that superabundant character met with on some occasions, are certainly a very ample and nutritive crop. We have met with some few crops of Swedes that had been affected with the rust, and exhibit signs of decay to some extent. We advise those farmers, where the rust has made its appearance to any extent, to look well to the matter, and endeavour by all means to avoid it, as pernicious to the nutriment and keeping of the root. It appears to us that early sowing, under a cold cultivation,

is serviceable to the disease; so we would recommend that the land be finely and deeply pulverised, and to delay the sowing until it is satisfactory under that head; and we feel confident that the most legitimate crop of Turnips is secured by having the land in a high state of cultivation, and not being too early with the sowing.

"We have also had the soiling of cattle brought under our notice, but as there was no competition, and being only partially carried out, the award has not been made; also in the stock of cattle, which although good, there being no competition, the premium has not been awarded on this occasion. We cannot dismiss the subject to which we have so often reverted without tendering our best wishes for the cause of agriculture in the district; and that sound outlays of improvement may be carried out, for the mutual good of landlord, tenant, and labourer; and in every locality connected with it, whatever be the laws, whatever be the adverse visitation of crops, a good feeling may be kept up, for ever ch to meet them in a legitimate manner."

Reviews.

The Science and Practice of Agriculture. By Thomas Skilling, agriculturist to the Board of Education, &c. Dublin: J. M'Glashan, 21, D'Olier-street.

A very sensible, practical, and useful little volume. Its object is the improvement of Irish agriculture, and its author aims at this in a manner very likely to be successful.

After considering in the first few chapters of his work the history of Farm Cultivation in various times and places, he comes to the condition of the art in Ireland at the present time; and in a series of well-written chapters he points out the errors chargeable on the system as it at present stands. These are: the numerous ditches and embankments suffered to encumber the land—the not sufficiently draining and drying the land—the not trenching and deepening the soil—exhausting the land by a succession of crops—the not following out a regular rotation of cropping—not cultivating green crops—not keeping a sufficient number of cattle—keeping too many horses—the not collecting and applying a sufficiency of manure—the suffering the land to be overrun with weeds—and lastly, as a climax to this calendar of bad farming, "our ignorance, indolence, and other bad habits."

Well! if Mr. Skilling shall succeed in correcting all these faults, his little book will certainly have worked wonders. And some of them it is well qualified to remedy; its readers, for instance, cannot plead "ignorance" as an excuse for their mismanagement.

As a specimen of the way in which the work is drawn up, we give an extract on an important subject:—

"*The Seventh Error—the not Keeping a Sufficient Number of Cattle.*—This subject is intimately connected with the last. Green crops and cattle ought never to be separate. We have before alluded to the importance of these crops as the best source of manure. We shall now be a little more minute upon the subject. It has been fully ascertained that a cow well fed through the year in the house, with the assistance of a pig or two, the solid and liquid excrements being properly mixed and preserved, will make 25 tons of rich dung. But this quantity is sufficient to manure a statute acre of land for almost any crop. Therefore, we estimate a cow to manure an acre. We shall presently show that the proper quantity of cattle on small farms where no horses are kept, ought to be, a cow to every two British acres; and in such case, one-half of the farm may be manured every year from its own resources. This will, of course, soon bring it up, and keep it in the highest condition. Green cropping and house-feeding, therefore, excels all other systems, so far as manuring and the condition of the land is concerned. Next, as to actual and direct profit, we shall show that it is equally excellent. From very considerable experience and minute observation, we have ascertained that an average cow, well fed in the house during the year, summer and winter, will produce eight quarts of milk in the day; and we cannot be far astray in estimating the value of the milk at 2*d.* per quart, whether it be sold new, churned for butter, or made into cheese. Now, at this rate the cow's produce in the year will be 24*l.* 6*s.* 8*d.*; and this we call an average sum. But any milch cow, fairly fed, will be worth 1*s.* per day—18*l.* 5*s.* per year. This is what we consider the lowest estimate. We have heard of 40*l.* per year; but these are exaggerated or extreme cases. There can be no question, however, that an uncommonly good cow, uncommonly well fed, will yield an astonishing produce in the year, perhaps all that has been stated; but these can only be rare instances. The lowest sum we have mentioned may be made in almost every case. Now, if a cottier or labourer can keep a cow on an Irish acre of land, which has been fully proved, and suppose he pays for that and his cottage 5*l.* annually, he can have no difficulty, by the sale of his overplus butter, to pay his rent; then, with the remaining produce of cow and field, with at least one good pig in the year, he and his family may live very comfortably, if they can obtain any out-labour at all, with fair wages. The additional advantages of a cow are to such a class a blessing, rather than being confined to the uncertain day's work, and low and precarious wages. But if the cow is worth 1*s.* per day, and if the man would only attend her and cultivate the acre, he would secure himself 7*s.* per week through the year. Under these circumstances we would ask, How could the condition of the labouring classes, the poor cottiers, be improved so readily and cheaply, as by giving every one of them an acre of land at a fair rate, on which they may keep a cow and a pig? and where will we find the extensive farm in Ireland, that there are not as many odds and ends, as many useless fences and waste about it as would give each of the necessary labourers this quantity without loss.

"But it will be said, If you do this, it will render them lazy and careless about further work; and then there will be a want of labourers for the large farms. This very common assertion we would distinctly deny. We never brutalise a man by rendering him comfortable and independent; we give him more exalted ideas and a desire to become more independent still.

"But to return to our subject. Let us take more than an acre of land, and where more cows are kept—say eight statute acres—on which, according to our estimate, four cows ought to be, and we shall take the lowest estimated value of a cow, 18*l.* 5*s.* per year; we get the sum of 73*l.* Divide this by the number of acres, and we have 9*l.* 2*s.* 6*d.* per acre from the cows alone,—not to speak of the crops that may be sold from land in such high condition, as it must be, when so much manure is continually being added. We put it to any cultivator of grain crops, whether it be in his power to produce any such acreable sum over the whole farm, as the cows alone will do in this case. This estimate, will hold good with all small farms, where the proper quantity of cattle and no horses are kept.

"It may be necessary here to remark, that these estimates are not taken in a loose, chancy, or incorrect manner; they are the results of experience and close observation during many years, in all of which time the produce and value were regularly noted down, under various circumstances, change of soil, food, and cattle at all times house-fed. These accounts are still forthcoming, if required. Farmers will say, that even 18*l.* is a large sum for a cow to make in the year. They think the thing incredible, because they have never experienced a well-fed cow or what she can produce. There is an essential difference between a cow milking about half the year, and another milking the whole year round. It is only the house-fed cow will stand to the pail through the year. When we speak of a cow to two British acres, we mean that to be the proportion where no horses are kept; but on large farms, where horses are necessary, or on any farm, the horses make an essential difference. As with regard to the stock of cows, every horse displaces two cows; and the ratio will then be as British to Irish measure; that is, on horse farms a cow to two Irish acres.

"Besides their manure and milk, there is another source of emolument arising from the keep and judicious management of cattle. When the cow becomes old she can be fattened, or sold at calving, and some of her progeny may take her place. There ought to be on every well-regulated farm a rotation of cattle as well as a rotation of crops. No farmer ought to lay out money on the purchase of cattle if he can at all avoid it. There ought to be, according to the size of the farm, a certain number of calves reared every year; the same number one year old, two years old, and three years old; the latter with calf, to take the place of the old cows disposed of, or to be sent to market for sale. The bullocks for the plough and the stalls. If such judicious management be carried out, even in a small way, with the addition of what is raised by the pigs, it will form a very important item in the farmer's profits. This ought all to find its way to the savings' bank to portion the daughters, or educate and advance the sons. The capability of keeping pigs will always depend upon the quantity of cattle; as whey and buttermilk will always form an important portion of their food.

"This great error—the want of cattle on the cultivated land, and of house-feeding—is by no means confined to Ireland; it prevails through the United Kingdom, and perhaps the world. In the best cultivated districts of England and Scotland there is a lamentable neglect on this head. The consequence is, the great poverty of the land, and the rage for foreign and extraneous manures; but those farmers will yet find out the error of their ways.

"As the entire success of the system we recommend depends upon the manner in which the cattle are fed, whether in the fields or in the house, and as great ignorance and difference of opinion prevail upon the subject, it may be necessary to offer a few remarks upon it here. Like most other matters of controversy, we find the party who knows least of the subject most pertinacious. This is particularly the case with the farmers of the old school, on the subject of house-feeding. They have not tried it, and yet they condemn it. Certain assertions, or what are termed arguments, have been advanced against house-feeding; but not a single fact to support them. It is only necessary to refer to a few of these statements to show their absurdity.

"'The house,' say these sages, 'is not the natural situation for cattle; they ought to be in the open air, in the open fields.' 'It induces delicacy and want of health, and consequently they must deteriorate in their milking and fattening properties;' and that, 'young cattle reared in the house are never so hardy and valuable as stock reared in the fields.' We shall take the first of these assertions: that a cow kept chiefly in the house is not in her natural state; and we would ask, what the natural state of a cow is? and who has ever seen the phenomenon? The wild cattle in Chillingham-park are not in their natural state; they are confined in an inclosure, on a particular soil and pasture; the only approach to the natural state is, that they have cover and shelter in the woods and plantations summer and winter. Our farmers have been used to treat their cattle in a certain common way, and this they call the natural state. By the pasture system they cannot remain in the open fields during winter with any advantage or profit. They have, in the best situations, only four or five months in the summer good and abundant Grass in the fields; in the autumn it fails; and they must be artificially fed in the winter, and housed. Even during the summer the immense majority of the cattle are badly fed; confined on poor pasture; tied perhaps by the horns or legs; frotting in a circle, in a half-starved condition; and in the winter and spring months, under the inclemency of the weather on a bleak hill side, eagerly searching over the bare fields and ditch sides for a scanty bite of unwholesome Grass or weeds. Surely this can be nothing approaching to the natural state or inclinations of these animals. Where we would suppose cattle to be found in their natural state, is in the immense prairies of the American continent; roving at pleasure amidst the most luxuriant herbage, with the cover and shelter of the magnificent forests at all times and seasons. And we will maintain that cattle properly house-fed approach nearer to this state than our half-starved pasture stock; the former having always plenty of good food, and shelter from the cold in winter and the sun in summer. The cow is an animal that requires very little exercise indeed; her structure and formation proves that; her better qualities will always be developed by food and rest.

"We come to the next objection against house-feeding, 'that it produces delicacy and bad health.' This is also a gratuitous assumption, which all experience and common observation negative. Of course, if an animal be delicate, it must be from want of health; some disarrangement of the organic structure, which will immediately show itself by the loss of condition. But house-fed cattle, of all others, rapidly acquire and show condition; the accumulation of flesh, fat, and milk, if the animal is in the latter condition, goes on more rapidly in the house than in the field; and what but health could induce such a state of things! What an enormous quantity of flesh has been added to the consumption of the United Kingdom by house-feeding! It is now admitted that a beast cannot be thoroughly fattened—finished off—on the best pasture without being for a time fed in the house. The first-rate cattle that are annually exhibited at the Smithfield and other shows are all house-fed. If, therefore, house-feeding be ungrateful to the animals, and induces disease, how do these things come to pass? It is the badly fed and kept pasture cattle that are in low condition, delicate, and liable to disease. For one complaint that is brought on and induced by house-feeding and high condition, ten arise from starvation and bad keep in the fields.

"There is a very common opinion abroad, not only among farmers, but it has been promulgated by theoretical writers, that a cow on pasture will give more milk and butter, and of better quality, than a cow house-fed. This idea, like the others, has arisen from ignorance—the not knowing what a house-fed cow can actually produce; or estimating from cases where the cattle in the house were not properly treated. But there is an old saying, and a true one, that, 'It is by the head the cow gives the milk;' or, in other words, her milking qualities will be in proportion to her food and treatment. A cow well fed in the house will do better than one badly fed out; and one well fed in the field will beat another badly fed inside. There are certain seasons when the feeding will be of very different qualities in respect of milk and butter. We believe there is no better food for producing these than the natural Grasses that spring up in dry ground in the months of May, June, July, and August. A cow pasturing upon these, and during this time, will beat a cow fed in the house on a worse description of food; but let the same description of Grass be cut and given to the cow inside, she will milk equally well. The cow, well fed on pasture, may run a-head of the cow inside during the summer months, but in the autumn and winter the latter will catch and distance her competitor.

"With regard to another opinion, that 'young cattle reared in the house are never so hardy or valuable as the same description reared and pastured in the fields.' There is more ground for this opinion than for any of the others, though it is formed in misconception. The fact seems to be, that they are equally good in their line. The house-reared cow is decidedly better for house-feeding afterwards, and more valuable than the cow reared at pasture; but by no means so useful or valuable if sent out to pasture, and on a worse description of food than it has been used to. It will go back, at least for a time, until it be inured to hardships, whereas the poorly fed young animal, if brought into the house, will thrive rapidly, on better food and treatment. It is on this principle that, in both the animal and vegetable creation, we bring animals or plants from a poor to a rich soil. We seldom succeed in an opposite course. The Connaught man brought to Hampshire, will thrive and swell out amazingly on the pudding and bacon; but the Hampshire man in Connaught, will shrink and shrivel up on the *lumpers*."

Miscellaneous.

Instance of Grass-land broken up.—Although the last party alluded to succeeded to his "heart's content," the following is a more signal instance of that success which, with favourable seasons and opportunity, reward the activity and perseverance of intelligent men. This farmer has in the years 1844 and 1845 broken up more than 40 acres of very poor pasture land, situated

on the forest-marble clay (some of very tenacious character), with a depth of 6 or 7 inches of soil on the top. These lands were first well drained at the expense of the landowner. The cost was nearly 4*l.* 4*s.* an acre, exclusive of hauling, which was performed by the tenant, who also superintended the workmen. He pared and burned and cropped the greater portion of it, after the manner of the last party referred to, and succeeded fully as well, if not better. A portion of this land, which here more particularly claims our notice, was managed otherwise, with complete success. Instead of letting it remain idle for a month, exposed to the atmosphere, he determined on sowing it, as soon as the sods were burnt, with white Mustard. This was done immediately, drilling it thick (16 lbs. to the acre), with a portion of the ashes, leaving a portion for the intended succeeding crop—half of the whole quantity, which was large, having been hauled away to other lands. The Mustard succeeded wonderfully; in less than five weeks it was ready for the sheep to eat off. The land was immediately ploughed up, dragged, and Turnips drilled with ashes. The Turnips were an excellent crop; they were, in their turn, eaten off with sheep in September and November; the land was then ploughed and sown with Wheat, which, as may be supposed, is very promising.—*Mr. Bravender, in Eng. Ag. Soc. Jour.*

Notices to Correspondents.

AGRICULTURE AS A PROFESSION—*A F*—Read Low's "Practical Agriculture," Stephens' "Book of the Farm," Johnston's "Lectures on Agricultural Chemistry and Geology," and above all, "T. C. M.'s" letter in another column.

A NEW PLAN, &c.—*Piedmont*—Thanks for your MS., which however we must return (if you will give us your address), unless its author will permit a very short abstract of it to appear.

BLOOD IN THE MILK—*R Robin*—The teats should be well fomented with warm water, milked with gentleness, and the following ointment afterwards applied to them,—Palm oil 3 ozs., yellow wax 1 oz., acetate of lead 2 drs., alum 1 dr. To be well incorporated together, and applied daily after milking. *W. C. S.*

CARBONATE OF AMMONIA—*W S*—The crystals you have been kind enough to send are certainly carbonate of ammonia. Their history is curious.

CHEMICAL MANURES—*T Spedding*—There can be no doubt of the accuracy of the principle on which you are to act. But how are you to apply it? Do you mean to say that an analysis costing only 5*s.* will give sufficient information about the composition of the soil? or do you think that there is sufficiently accurate information in existence regarding the composition of the crops to be grown? Whatever you may *profess* to do, we do not think that you will be able, on either of these heads, to carry out your own principle of action, which at the same time we acknowledge to be correct.

DISEASES IN PHEASANTS—*M S R* will probably find her inquiry answered in a series of letters which we shall shortly publish on the Diseases of Poultry. There is a little book, "Farming for Ladies," which would probably give her the necessary information.

DRILL, &c.—*F P B M*—About a drill, Mr. Hornsby, of Spittlegate, Grantham, would probably give you every information. Nos. 1, 2, and 4, of this year, contains the account of Whitfield. About threshing machinery next week.

FLAX AGENT—*Aleph*—You are entirely safe in applying to the party you name.

GRAIN CRUSHER—*A Subscriber*—J. Richmond, Salford; R. Clyburn, Uley, Gloucestershire; A. Dean, Birmingham; Bond & Co., Ipswich; and many others have implements whose efficiency has been certified in our columns. Of them we only know the second.

POULTRY—*E D S*—Many thanks for your paper, which shall appear.

REFUSE OF ALKALI WORKS—*A Young Farmer*—The refuse in the case of nitric acid is sulphate of soda—a valuable salt, which may be applied at the rate of 2 cwt. per acre. The refuse in the case of soda manufacture is sulphuret of calcium and carbonate of lime, which by spontaneous combustion become gypsum and carbonate of lime, and this may be applied broadcast at the rate of 2 waggon loads per acre. You may mix it with peat before sowing it; it will perhaps set the peat on fire if you mix it fresh from the works, and it would certainly partially burn or char it—no harm in that. Guano may be mixed with bulky materials, as peat or earth, in order to ensure its even distribution over the surface. Or you may sow it by itself broadcast in wet weather, and harrow it in at once.

SLAKED LIME—*Amateur Farmer*—Your land may require lime, and it may also require sulphate of ammonia. Do not apply them together. Put the lime on now and the ammonia in spring. You get no advantage by applying them together, even though the lime should by that time be thoroughly effete, and it is well to avoid the risk.

TOLLS—*W*—Chalk for use as a *manure* is not chargeable with toll.

WINTER PLOUGHING—*B C T*—It is generally bad policy to plough much rubbish down. Get it destroyed, pared, and either withered or burnt first, and then plough as deep as you please. There are many root weeds of which it is hopeless to attempt the destruction by deep ploughing and burying. The autumn ploughing ought to be the deepest you give.

*** Communications reaching town after Wednesday cannot be answered the same week.

Markets.

SMITHFIELD, MONDAY, Oct. 26.—Per Stone of 8 lbs.

Best Scots, Herefords, &c.	4s	0s	4s	4	Best Long-wools	4s	8s	4	10
Best Short Horns	3	10	4	0	Ditto (shorn)	—	—	—	—
Second quality Beasts	3	0	3	8	Ewes and second quality	4	2	4	6
Calves	4	0	4	8	Ditto (shorn)	—	—	—	—
Best Downs & Half-breds	3	0	3	8	Lambs	—	—	—	—
Ditto (shorn)	—	—	—	—	Pigs	3	8	5	0

The supply of Beasts is smaller, shorter, however, a fair average quantity. The weather being severe, trade is dull. The best Scots are still making 4*s.* 4*d.*, and some of the most selling Short-horns rather over 4*s.* Almost everything is disposed of. There is a small increase in the number of Sheep, and trade on the whole is rather worse; notwithstanding, some of the choicest Downs have made near 5*s.* 8*d.*, and some of the most saleable Long Wools about 5*s.* Trade is very slow for calves at rather lower prices. The supply of Pigs continues good, and trade exceedingly heavy.

Beasts, 3813; Sheep and Lambs, 26,080; Calves, 182; Pigs, 450.

FRIDAY, Oct. 30.

A large quantity having arrived from Holland and Germany since Monday, some of which ought to have been in for that day, the number of Beasts on sale this day is considerable, but a large proportion are of inferior quality. The choicest Scots—of which description we have but few—are making about 4*s.* 4*d.*, and best Short-horns, for the second-rate qualities are decidedly lower—a clearance cannot be effected at from 4*s.* to 4*s.* 4*d.* Although the supply of Sheep is small, the sale is exceedingly heavy at lower prices. Best Downs, from 5*s.* to 5*s.* 4*d.* Best Long Wools, 5*s.* 4*d.* to 5*s.* 8*d.* Ewes, &c., 4*s.* to 4*s.* 6*d.* There are a great many Calves, and the demand for them very small; it is difficult to make 4*s.* 4*d.* for a choice one. The supply of Pigs is steady, and prices remain about the same.

Beasts, 1138; Sheep and Lambs, 3,804; Calves 229; Pigs, 420.

81, West Smithfield.

COVENT GARDEN, Oct. 31.—Fruit and Vegetables are sufficient for the demand, which is far from being great. Pine-apples of excellent quality are plentiful, and the same may be said of Grapes both English and Foreign, especially the latter. Apples and Pears have not altered in price since our last report. Oranges are scarce. Nuts are sufficient for the demand. English Walnuts are scarce; but foreign ones are plentiful, and very good in quality. There is little demand for Filberts. Lemons are scarce, and so are good English Melons. Of Vegetables, Cabbages, Cauliflowers, &c., are good, and the latter tolerably plentiful. Carrots and Turnips have altered but little in price. Peas have lately been pretty plentiful, and have been selling as low as 2*s.* a peck. Beans remain nearly the same as last week. Celery is good in quality. Good Potatoes are scarce, the greater part being affected by the prevailing disease. Lettuces and other Salading are good and plentiful. Considerable quantities of Horse-radish are weekly imported from Hamburgh; the samples are good looking, but said to be inferior in quality to those of English growth. Cut Flowers chiefly consist of Heaths, Jasmines, Pinks, Camellias, Pelargoniums, Gardenias, Cacti, Violets, Fuchsias, Azaleas, and Roses.

FRUITS.

Pine Apple, per lb.,	4*s.* to 7*s.*	Lemons, per dozen,	1*s.* 6*d.* to 3*s.*
Grapes, Hothouse, per lb.,	2*s.* to 4*s.*	— per 100,	10*s.* to 20*s.*
— Portugal, per lb.,	9*d.* to 1*s.*	Almonds, per peck,	6*s.*
Apples, Desert, per bushel,	3*s.* 6*d.* to 8*s.*	Sweet Almonds, per lb.,	2*s.* to 3*s.*
— Kitchen,	2*s.* to 3*s.*	Filberts, English, p. 100 lbs.,	35*s.* to 40*s.*
Pears, per hf.-sieve,	4*s.* to 12*s.*	Nuts, Cob, per 100 lbs.,	95*s.* to 100*s.*
Melons, each,	2*s.* to 3*s.*	— Barcelona,	90*s.*
Oranges, per dozen,	2*s.* to 3*s.*	— Brazil,	12*s.* to 15*s.*
— per 100,	14*s.* to 21*s.*	— Spanish,	14*s.*
Barberries, per hf.-sv.,	3*s.* to 7*s.*	Walnuts, per bushel,	16*s.* to 24*s.*

VEGETABLES.

Cabbages, per doz.,	6*d.* to 1*s.* 6*d.*	Shallots, per lb.,	6*d.* to 10*d.*
— red, per d.,	1*s.* to 3*s.*	Garlic, per lb.,	6*d.* to 8*d.*
Broccoli, per doz.,	4*s.* to 12*s.*	Spinach, per sieve,	6*d.* to 1*s.*
Cauliflowers, per doz.,	1*s.* to 3*s.*	Lettuce, Cos, per score,	8*d.* to 1*s.*
Artichokes, per doz.,	2*s.* to 3*s.*	Tomatoes, per hf.-sv.,	3*s.* to 4*s.*
— Jerusalem, p. hf.-sieve,	1*s.* 6*d.* to 2*s.*	Endive, per score,	2*d.* to 1*s.*
French Beans, per hf.-sv.,	1*s.* 6*d.* to 2*s.* 6*d.*	Vegetable marrow, p. doz.,	6*d.* to 1*s.*
Sorrel, per hf.-sieve,	2*d.* to 1*s.*	Radishes, per 12 bunches,	1*s.* to 1*s.* 6*d.*
Potatoes, per load,	7*s.* to 9*l.*	Mushrooms, per pottle,	1*s.* to 1*s.* 3*d.*
— cwt.,	3*s.* 6*d.* to 4*s.* 6*d.*	Small Salads, per punnet,	2*d.* to 3*d.*
— bushel,	1*s.* 6*d.* to 2*s.* 6*d.*	Fennel, per bunch,	2*d.* to 3*d.*
— Kidney, per bushel,	3*s.* to 4*s.*	Savory, per bunch,	2*d.* to 4*d.*
Turnips, per doz.,	1*s.* to 2*s.*	Thyme, per bunch,	2*d.*
Red Beet, per doz.,	6*d.* to 1*s.* 6*d.*	Watercress, p. 12 sm. bun.	2*d.* to 3*d.*
Horse Radish, per bundle,	1*s.* to 4*s.*	Parsley, per bunch,	2*d.* to 6*d.*
Cucumbers, each,	2*d.* to 3*d.*	— Roots, per bundle,	2*s.*
Leeks, per doz.,	1*s.* 6*d.* to 2*s.*	Tarragon, per bunch,	2*d.*
Celery, per bundle,	6*d.* to 1*s.* 6*d.*	Mint, green, per bunch,	6*d.* to 9*d.*
Carrots, per doz.,	3*s.* to 6*s.*	Marjoram, per bunch,	2*d.* to 4*d.*
Onions, per bushel,	4*s.* to 8*s.*	Chervil, per punnet,	2*d.* to 3*d.*
— Spanish, per doz.,	1*s.* 6*d.* to 4*s.*		

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Oct. 31.

Prime Meadow	65*s.*	to	80*s.*	New	—	to	—
Inf. New & Rowen	50	to	65	—	60	to	70

OLD COVENT GARDEN.

Fine Old Hay	75*s.*	to	90*s.*	Old	0*s.*	to	0*s.*
Inferior Hay	—		—	Inf.	—	Straw	to 35*s.*
New Hay	60		75	New Clover	—		

HOPS, FRIDAY, Oct. 31.

We are now in daily expectation of the duty being officially announced which causes our Market to be quiet; it is thought by many persons the old duty will be about as follows:—

Rochester, &c.	£73,400	to £74,000
Canterbury	43,000	— 45,000
Sussex	65,500	— 66,000
Worcester	34,000	— 34,500
Farnham	15,000	— 15,500
Kingdom	4,500	— 4,700
	£237,500	£243,700

PATTERSON & SMITH, Hop-Factors.

POTATOES.—SOUTHWARK, WATERSIDE, Oct. 27.

The supply to this Market since our last report has been exceedingly small; but there have been a few small cargoes arrived coastwise from Lincolnshire and York-shire, and from Cromer and Essex. The various railways are daily contributing to supply the London Market; there are also some arrivals by the Hull steamboats; yet the weight is inconsiderable and consequently the prices high:—York Regents, 140*s.* to 160*s.*; Do. Shaws, 100*s.*; Lincolnshire Regents, 130*s.* to 140*s.*; Do. Shaws, 120*s.* to 130*s.*; Kent and Essex Regents, 140*s.* to 180*s.*; Do. Shaws, 120*s.* to 140*s.*; Do. Kidneys, 160*s.*

MARK-LANE, MONDAY, Oct. 26.

The supply of English Wheat from Essex, Kent, and Suffolk, this morning was moderate, and cleared tolerably early at the prices of this day se'nnight. Free Foreign was in limited demand, and the value unaltered.—Flour is a slow sale.—Malting Barley must be noted 2*s.* to 3*s.* per qr. Grinding qualities 1*s.* to 2*s.* per qr. dearer.—The show of Beans was rather larger than of late; but the extreme rates were nevertheless realised.—White Peas were fully as dear; Maples commanded 1*s.* per qr. more money.—The Irish accounts induced the holders of Oats to ask a considerable advance; but sales could not be proceeded with at more than 6*d.* to 1*s.* per qr. above our late quotations.—The demand for Indian Corn is less brisk than last week.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White	60	66	Red	54 60
— Norfolk, Lincolnshire, and Yorkshire		54	64	White	54 60
Barley, Malting and distilling		32	36	Grind.	26 30
Oats, Lincolnshire and Yorkshire	Potlands	22	24	Feed	22 26
— Northumberland and Scotch	Feed	27	32	Potato	30 34
— Irish	Feed	27	30	Potato	28 —
Malt, pale, ship		—	—		
— Hertford and Essex		—	—		
Rye		40	44		
Beans, Mazagan, old and new	Tick	38	44	Harrow	39 42
— Pigeon, new and old	Winds	58	70	Longpod	38 42
Peas, White	Maple	40	45	Grey	38 42

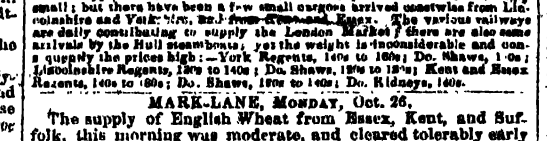
FRIDAY, Oct. 30.

We have been moderately supplied with Wheat since Monday, and the trade is heavy for either English or Foreign, barely supporting the rates of that day.—Flour is a dull sale, and can only be realised at a slight decline.—Of Barley 6720 qrs. have arrived from abroad, and prices are 1*s.* to 2*s.* lower.—The value of Beans and Peas is unaltered.—The Oat-dealers being unwilling to comply with the demand of factors, business was limited.—Malse is freely offered, and the turn of prices in favour of the buyer.

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Sept. 19 per Quarter.	61*s.* 8*d.*	36*s.* 1*d.*	23*s.* 7*d.*	42*s.* 0*d.*	41*s.* 6*d.*	40*s.* 8*d.*
— 26	58 1	36 10	23 7	39 7	42 7	42 0
Oct. 3	54 0	36 10	23 5	38 5	43 4	42 4
— 10	56 10	37 2	23 7	38 9	43 7	42 7
— 17	59 10	38 8	25 2	38 8	44 5	42 8
— 24	60 10	40 2	26 6	39 0	45 8	43 10
4 weeks' Aggreg. Aver	56 0	37 7	24 8	38 8	43 8	43 7
Duties on Foreign Grain	4 0	2 0	1 6	2 0	2 0	2 0

Fluctuations in last six week's Corn Averages.



SEEDS, Oct. 26.

Canary	per qr.	48*s.*	56*s.*	Linseed Cakes, Foreign, p. 000	10	11
Carraway	per cwt.	40	44	Mustard, White, p. bush.	7*s.*	8*s.*
Clover, Red, English	—	—	—	— Superfine	—	—
— Foreign	—	—	—	— Brown	3	11
— White, English	—	—	—	Rapeseed, English, per last	21	24
— Foreign	—	—	—	Rape Cakes	per ton	5*l.* 5*s.*
Coriander	—	10	12	Rapeseed, Foreign	—	—
Hempseed	per qr.	34	36	Tares, Essex, winter p. bush.	3*s.*	3*s.*6*d.*
Linseed	per qr.	45	48	— Foreign	—	4*s.*
— Baltic	—	41	43	Trefoil	per cwt.	16
— Cakes, Eng.	per 1000	12*l.*	13*l.*	Turnip-tree variable (no quotation).		

RICHARDSON AND LAY.

Sales by Auction.

IMPORTANT SALE OF 2000 CAMELLIAS, HYBRID RHODODENDRONS, AZALEA INDICA, &c., CONSIGNED FROM BELGIUM FOR ABSOLUTE SALE.

MESSRS. PROTHEROE AND MORRIS have received instructions to submit to public competition, at the Auction Mart, Bartholomew-lane, on FRIDAY, Nov. 13, 1846, at 12 o'clock, about 2000 CAMELLIAS, from 2 to 4 feet, most of which are beautifully furnished with bloom-buds, and comprise all the esteemed varieties. Also Rhododendron arboreum, Azalea indica, and other Greenhouse Plants. May be viewed one day prior to the Sale (at the Mart), where Catalogues may be had; and of the Auctioneers, American Nursery, Leytonstone.

FOURTEEN ACRES OF NURSERY STOCK, Wandsworth Common. The Ground being required for building purposes.

MESSRS. PROTHEROE AND MORRIS are favoured to bring before the Public by Auction on MONDAY, NOVEMBER 2, 1846, and seven following days, the superior STOCK of Mr. NEAL of Wandsworth Common Nursery, affording an excellent opportunity for Gentlemen to furnish their Pleasure Grounds and Gardens with Varieties of the choicest Deciduous and Ornamental Plants, and the Trade are respectfully invited, as this is incomparably one of the first class Stocks ever offered to Public Competition. It consists of every Variety of useful and Ornamental SHRUBS, EVERGREENS, FRUIT AND FOREST TREES, AMERICAN PLANTS, usually and unusually grown. Also some very fine Double White Camellias, beautifully furnished with bloom buds, and other Greenhouse Plants. May be viewed prior to the Sale. Catalogues (1*s.* each, returnable to purchasers), may be had on the premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS beg to announce that MONS. LOUIS VAN HOUTTE'S ANNUAL SALES will take place at the Auction Mart, Bartholomew-lane, on THURSDAY, Nov. 19, 1846, and following day. Particulars will be given in the next number of this Paper.

P.S. We beg to observe, that the Sales of this Gentleman are always made under his name, and not anonymously.

VALUABLE SOUTH AMERICAN PLANTS.

MESSRS. J. C. AND S. STEVENS are instructed to sell by Auction, at their Great Room, 38, King-street, Covent-garden, on Wednesday, 4th November, at 12 for 1 o'clock, a consignment of VALUABLE PLANTS, being part of the Collections of Messrs. N. FUNCKE, J. LINDEN, and L. [illegible], forwarded from the high Cordilleras of [illegible] and Brazil: the interior of [illegible] Many comprise magnificent specimens established in pots in perfect health, and most of them never before introduced into England. Also a very extensive Herbarium of Brazilian Plants collected by M. [illegible] in the various provinces of Minas Geraes, and Santa Catherina, consisting of many thousand specimens dotted to ultimate Botanists—May be viewed two days prior and morning of Sale, and Catalogues had of Mr. PAMPLIN, Botanical Bookseller, Frith-street, Soho, and Messrs. J. C. and S. STEVENS, 38, King-street, Covent-garden.

THE FINEST OPPORTUNITY OF PURCHASING FIRST-RATE HYACINTHS, NARCISSUS, RANUNCULUS, ANEMONES, and other Dutch Roots, will occur on THURSDAY and FRIDAY next, at the Auction Mart, when, for the first time, will be offered several thousand Picked Bulbs, including the finest varieties in cultivation. Selected for an order, but arrived too late. Mr. GLENNY has been instructed to let them go without the least reserve to the highest bidder. On view the morning of sale, and Catalogues to be had at the Mart and also at the Gardeners' Gazette Office, 420, Strand.

ONE THOUSAND TREES FOR SALE.—Consisting of LIME, ELM, ASH, BEECH, OAK, &c., from 10 to 18 feet high, calculated to give immediate effect to any Nobleman or Gentleman's Park or Grounds. The Trees have been planted out single for a few years, and may be moved with great safety. The ground being required to be thinned immediately, they will be sold a bargain.—Apply at the Cemetery, Gravesend, from whence they may be conveniently moved by water.

FISHING NETS, SHEEP NETS, RABBIT NETS, and all kind of FISHING NETS for Sea, River, Lake and Pond Fishing. Sheep Nets 4½*d.* per yard, nearly 4 feet high. Nets for catching Rabbits, and Cover Shooting on Cords, 50, 80, and 100 yards long each. Nets to inclose Pheasants, Fowls, &c.—ROBERT RICHARDSON, 21, Tonbridge-place, New-road, London.

GARDENERS' NEW CAPES, dressed with a solution of India Rubber, long enough to effectually protect a man at work when stooping down, 3*s.* each. The above are strongly recommended for Gamekeepers, Watchers, and others exposed to the wet. Capes, shorter, 2*s.* and 2*s.* 6*d.* each; also a large quantity of second-hand Policemen's Capes, 2*s.* each; Dog Cart Aprons, 10*s.* 6*d.* lined; Tarpaulin Coats, ditto of India Rubber, thin Capes and Coats for Gentlemen for Shooting, &c. Waggon Covers, 2*s.* per square yard.—ROBERT RICHARDSON, Net and Tent Maker, 21, Tonbridge-place, New-road, London.

FLOWER-POTS AND GARDEN SHAPES.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

GLASS MILK PANS.—In consequence of the increased demand for GLASS MILK PANS, owing to the incontestible fact of their being better adapted for obtaining Cream, throwing nearly 10 per cent. more than any other utensil hitherto used; and also to the extraordinary reduction recently made in the price; PHILLIPS & WELCH have the pleasure to announce that they have made arrangements with the manufacturer for a constant supply of the above articles, and are now ready to deliver them at the under-mentioned prices:—

	Each—*s. d.*		Each—*s. d.*
12 inches in diameter	3 4	18 inches in diameter	4 0
14 " "	3 6	20 " "	4 3
16 " "	3 9	22 " "	4 6

When a dozen are taken at once no charge is made for packages. British and Foreign Sheet and Horticultural Glass Warehouse, 12, Panton-street, Haymarket.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, of 100 and 200 feet each; also Glass Pantiles, 11*s.* per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at F. ELPHICK'S, 28, Castle-street, East, Oxford-street. *** For Ready Money only.

☞ PATENT VENTILATORS for Public Offices, Smoking Rooms, &c.

DUTY OFF GLASS.

GREEN AND HOTHOUSES, CONSERVATORIES, &c., made and fixed Complete in all parts of the Kingdom, at a considerable reduction. One, two, and three-light Cucumber and Melon Boxes, and Lights of all sizes, kept ready for use, packed and sent to all parts of the Kingdom; warranted best material. Two-light Boxes and Lights complete, from 1l. 5s. Garden-lights of every description, at JAMES WATTS's, Hothouse Builder, Claremont-place, Old Kent-road.

Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

GLASS DAIRY PANS.

EDWARDS AND PELL have on hand a supply of these cleanly and beautiful pans, of the following sizes and prices:—

12 inch diameter ..	3s. 4d.	18 inch diameter ..	4s. 0d.
14 ,, ..	3s. 6d.	20 ,, ..	4s. 3d.
16 ,, ..	3s. 8d.	22 ,, ..	4s. 6d.

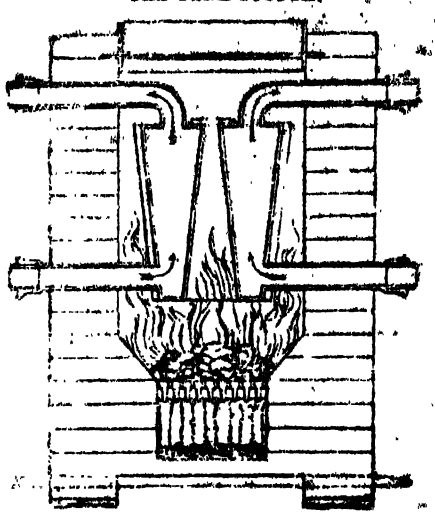
These pans being stronger than earthenware, and cleaning easily without the use of scalding water, are in every respect preferable to any other description of dairy pan, and with ordinary care will be found to be the cheapest in the end. They produce a larger proportion of cream, and the quality of the butter is decidedly better.

HORTICULTURAL GLASS.

EDWARDS and PELL have a very large and assorted Stock of 16 oz. Sheet Glass, suitable for Frames, Greenhouses, &c., from 2d. to 3½d. per foot, according to size.

15, Southampton-street, and 7, Maiden-lane, Strand.

THE TANK SYSTEM.



BURRIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURRIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places,—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—139, Fleet-street, London.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilineur houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER's superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

BENJAMIN FOWLER, 65, Dorset-street, Fleet-street.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.



J. WEEKS AND DAY, ARCHITECTS, &c., Gloucester-place, King's-road, Chelsea, HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, most respectfully beg to inform the Nobility, Gentry, and Horticulturists, that they have erected off their premises, for the purpose of inspection, a variety of Hothouses, Greenhouses, Conservatories, Pits, &c., where all the various known improvements of the day can be seen. Their Hot-water Apparatus is also erected, and kept in constant action in various Hothouses, Greenhouses, Pits, &c., where the whole principle of Top and Bottom Heating can be seen.

J. WEEKS & DAY warrant their Hot-water Apparatus to be efficient for every purpose to which heat is applicable. Boilers of all sizes; the largest is warranted to heat a range of Forcing-houses 800 feet in length, with a small quantity of fuel, and only to require attention once in 12 hours.

Models, Plans, &c., in great variety.

KAGENBUSCH AND CO.'s REMEDY FOR THE POTATO DISEASE.—Price 6s. per packet, which ensures an acre of sound Potatoes and a large crop.

KAGENBUSCH AND CO.'s GERMINATING COMPOUND.—Price 2s. and 4s. per packet. The best Steep for Wheat and other Grain; Turnip, Clover, Onion, and all other Seeds and Pulse. This is the gardener's best friend.

KAGENBUSCH AND CO.'s GERMAN SCIENTIFIC MANURES, which fertilise the land without exhausting it, at 30s. per acre for Meadows, once in three years; for Tillage 35s. per acre, and for Hops 40s. per acre, annually. Price 7l. 10s. per ton for Meadows and Tillage, and 9l. per ton for Hops. One ton is sufficient for 4 acres.

These articles are kept at Hibernia Wharf, London-bridge, and Mr. JOSEPH EDWARDS will deliver them to any one bringing the amount in cash.

Manufactured by KAGENBUSCH and Co., Agricultural Chemists, Leeds. Sold by JAMES and Co., Agents for the South of England, 57, King William-street, City; and POTTER, Brothers, Agents for the North, Cromford-court, Manchester.

*** Vessels of 50 tons, drawing 5 feet, loaded at the Works in Leeds, and can append the orders of every port in the Kingdom, so that Dealers or Farmers, and Landed Proprietors, clubbing together, may be supplied direct, at a saving of expence.

A liberal allowance to the Trade.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 65, Dorset-street, Fleet-street, London.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
WM. JOSEPH MYERS AND CO., LIVERPOOL;
And by their Agents,
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL;
COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

GUANO, &c.

MARK FOTHERGILL begs to offer the following MANURES on the best terms, viz:

GUANO, PERUVIAN and AFRICAN, direct from Import Warehouses.
Ditto, PATAGONIAN and SALDANHA BAY. Ditto.
SODA ASH, for destruction of Wireworm.
SUPERPHOSPHATE OF LIME (See Royal Agrl. Soc. Journal, Vol. vi. Part 2).
GYPSUM (Pure Sulphate of Lime).
BONE DUST and BONE POWDER.
SULPHURIC ACID. CHARCOAL.
PETRE SALT and AGRICULTURAL SALT for Composts.
SILICATES of SODA and POTASH, and all other Manures.
No. 40, Upper Thames-street.
Agent for DINGLE'S HAND SEED-DIBBLE.

FOR WHEAT, TARES, &c.

THE URATE OF THE LONDON MANURE COMPANY will be found a most valuable Manure for the above crops—it is permanent in its effects, and has stood the test of five seasons with increasing success each year. The Company also supply genuine Peruvian Guano, Gypsum, Superphosphate of Lime, Sulphate and Muriate of Ammonia, Charcoal, Bone Sawdust, Sulphuric Acid, and every Artificial Manure, at the lowest market price.—EDWARD PURKIS, Secretary, 40, New Bridge-street, Blackfriars.

POTTER'S GUANO FOR WHEAT AND ALL GRAIN CROPS.—The Autumn season is particularly recommended for the application of POTTER'S GUANO for the above crops, as time is afforded for the due decomposition of the Manure in the soil, and it is thus prepared; when the plant feels the first genial warmth of spring, to afford the appropriate nutriment in a fit state for immediate assimilation.—Testimonials and all particulars at the Factory, 98, Clapham-road-place, Kennington. *** A few respectable Agents wanted.

LAWES' PATENT MANURES.—*Turnip Manure*, 7l. per ton. *Clover Manure*, 14l. per ton. *Corn Manure*, 14l. per ton. Superphosphate Lime, 7l. per ton.

A Pamphlet on Artificial Manures will be forwarded to any person enclosing two postage stamps to Mr. WILSON, at Mr. LAWES' Factory, Deptford Creek, London.

NEW INVENTION FOR DIBBLING WHEAT.



Registered in pursuance of the Designs' Copyright Amendment Acts, 5 & 7 Vic., c. 65, No. 469.

DINGLE'S HAND DIBBLING MACHINE, FOR DEPOSITING ALL KINDS OF SEED.

This Machine is confidently recommended by the Proprietors, which will at the same moment make the Hole, and deliver the exact quantity of Seed, with extreme regularity. It is simple in its construction, and not liable to get out of order.

THE DIBBLING POINT IS SO CONSTRUCTED THAT THE SOIL CANNOT CHOKE IT

*** *The cups are of various sizes for discharging either Wheat, Mangold Wurzel, Barley, Beans, Peas, Vetches, &c.*

Single .. .. Price 40s. each.
Double .. .. ,, 1l. 10s.

Testimonials and Circulars, giving descriptions of its working &c. can be had on application to

WILLIAM E. RENDLE and Co., Merchants.

☞ THE TRADE SUPPLIED.

Plymouth, Oct. 31.

CHEAP AND DURABLE ROOFING.

BY HER MAJESTY'S  ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, the Manufacturers and only Patentees of THE ASPHALTED FELT FOR ROOFING

Houses, Farm Buildings, Sheddings, Workshops, and for Garden purposes, to protect plants from Frost.

At the Great National Agricultural Shows, it is this Felt which has been exhibited and obtained the Prize, and is the Belt patronised by

HER MAJESTY'S WOODS AND FORESTS,
HONOURABLE BOARD OF ORDNANCE,
HONOURABLE EAST INDIA COMPANY,
HONOURABLE COMMISSIONERS OF CUSTOMS,
HER MAJESTY'S ESTATE, ISLE OF WIGHT,
ROYAL BOTANIC GARDENS, REGENT'S PARK,

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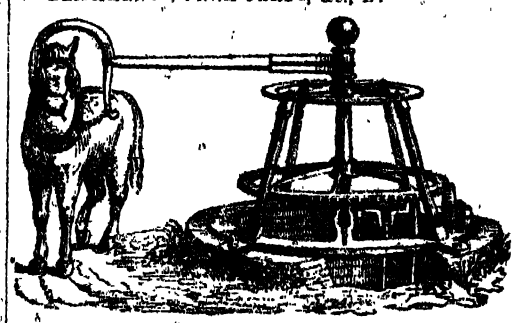
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The Railway Chronicle

Of Saturday, October 24, contains articles on

EVENTS OF THE WEEK.—SOUTH-WESTERN AND LONDON AND BRIGHTON—BIRMINGHAM AND OXFORD—ACCIDENT ON CENTRAL RAILWAY OF FRANCE—THE TREASURY AND IRISH RAILWAYS—RAILWAY PROFITS, ACTUAL AND PROSPECTIVE—FICTIONS CONCERNING THE STATE AND NATIONAL ROADS.

RAILWAY LITERATURE.—Geometricus's Round Rail *versus* T Rail—Greenhow's Exposition of the Danger and Deficiencies of the present mode of Railway Construction, *with Engraving*—The Edinburgh Review and its Article on Railways—Bradshaw's Monthly Guide.

REPORTS OF MEETINGS.—Rugby and Leamington—Lynn and Dereham—Dublin and Kingstown—Dublin and Belfast Junction—Dublin, Dundrum, and Rathfarnham—Edinburgh and Glasgow—Aberdeen—London and Blackwall—North British—Madrid and Valencia—Projected—Town Meetings.

OFFICIAL PAPERS.—Aberdeen, Engineer's Report—Dublin and Kingstown, Directors' Report—Namur and Liége, do.

Progress of Works—Redford Branch of the North-Western—Accidents—Law Intelligence—Iron Trade—Meetings—Tenders for Loans—Contracts—Dividends—Calls—Deposits Returned—Signature of Parliamentary Contracts—Transfer Books Closed—Correspondents—Traffic Table—Share Lists—Foreign ditto—Money Market—Paris Letter—Irish Railways a Practical Lesson—"Cato" thou reasonest [not] well"—Relative Distances by Rail and Coach Roads—Madrid and Valencia—Gossip of the Week.

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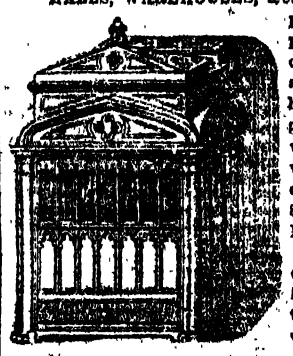
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THE GARDENERS' CHRONICLE
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AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 46—1846.] SATURDAY, NOVEMBER 14. [PRICE 6*d.*

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TO THE TRADE.

WILLIAM CRISP has 10,000 of the above RASPBERRY to offer in quantities not less than 500—they can be warranted genuine. See history of this Raspberry given by Mr. Rivers in the *Gardeners' Chronicle*, No. 46, 1844. The lowest trade price will be given on application.—Direct to WILLIAM CRISP, Filby Gardens, near Norwich, delivered free at Yarmouth.

SEVERAL THOUSAND STRONG MOSS ROSES well adapted for Potting, may be had for cash only, at 25*s.* per 100. A descriptive List of GERANIUMS, &c., for 1847, may be had by applying to N. GAINES, Surrey-lane, Battersea. P.S.—A new and choice Collection of CHRYSANTHEMUMS and CORREAS are now in flower.

BECK'S, HOYLE'S, MILLER'S, AND FOSTER'S SEEDLING GERANIUMS OF 1845, at 2*l.* per dozen; Purchaser's selection, 3*l.*—BECK'S Mare Antony, Juno, Desdemona, Rosy Circle, Sunset, Isabella, Margaret, Zenobia, Mustee, Bellona, Arabella, Favorita, Bella.—HOYLE'S Augusta, Lord Morpeth, Josephus, Duke of Orleans, Alice, Revenge, Cid.—MILLER'S Egyptian Prince, Vesta, Veritas, Pallida, Aurantia, Miss Sobright, Sunrye, Sunbeam.—CATTLEUGH'S Merry Monarch; Clio, Duke of Wellington, Sunbeam, La Polka.—Drury's Pearl.—Foster's Orion.

Unknown correspondents must send cash with their orders.

N.B. Good strong established Plants are now ready for delivery.

All other new varieties at 1*l.* 1*s.* per dozen. See printed Geranium Catalogue, which can be had gratis.

Hybridized Geranium Seeds, 100, 10*s.*; 50, 5*s.*; 25, 3*s.*

WILLIAM MILLER, Providence Nursery, Ramsgate.

ROSES.

MESSRS. LANE AND SON, Great Berkhampsted, beg to announce that their ROSE CATALOGUE may be had upon application, enclosing a 2*d.* postage stamp. They beg to add, that the two last pages of the Catalogue may be consulted with much advantage by those desirous of making a really good selection, as they contain the names of all the Roses which they have proved to be the very best for pot or greenhouse culture, and for covering trellis work, walls, poles &c. &c. Their potted plants are unusually strong and healthy. Nov. 14, 1846.

COUNTESS OF CAMPERDOWN PANSY.

D. BUTLER having bought the stock of this very beautiful flower, grown by Mr. Bridges, of Hampton, near London, begs to offer fine strong healthy plants at 5*s.* per plant, with the usual allowance to the Trade, where three plants are taken. In offering this flower to the public, D. B. feels satisfied that he is offering a flower that will give general satisfaction, and ought to be in every collection. See Dr. Lindley's opinion in the *Gardeners' Chronicle* of May 2, 1846—*viz.* "PANSY.—*A Constant Reader.*—A fine large round flower of great substance, rich yellow ground, with bronzy purple upper petals, and broad belting of the same round the lower petals; eye fine. A bold and striking flower, well adapted for showing."

Wildcombe Nursery, Bath, Nov. 14.

HYACINTHS, TULIPS, RANUNCULUSES, ANEMONES, AURICULAS, GERANIUMS, AND LILIUM LANCIFOLIUM.

H. GROOM, CLAPHAM RISE, near LONDON (removed from Walworth), by APPOINTMENT FLORIST TO HER MAJESTY THE QUEEN, and to HIS MAJESTY THE KING OF SAXONY, begs to recommend to the attention of the Nobility, Gentry, and Amateurs, his extensive assortment of the above FLOWERS, which he can supply of the best quality. He begs to state that this is a good season of the year to make a selection of the various kinds.

25 HYACINTHS, in 25 fine sorts, named	£1	5	0
100 TULIPS, in 100 fine sorts, named	7	7	0
100 Ditto in 50 ditto ditto	5	5	0
Superfine Mixtures, per 100, from 10*s.* 6*d.* to 21*s.*			
100 RANUNCULUSES, in 100 Superfine sorts, named	2	10	0
Superfine Mixtures, per 100 .. .. 7*s.* to	1	1	0
100 ANEMONES, in 100 Superfine sorts, named ..	1	15	0
A New Collection of 50 Superfine sorts	1	1	0
Superfine Mixtures, per 100	0	10	6
25 AURICULAS, in 25 Superfine sorts, named ..	2	10	0
25 GERANIUMS, in 25 Superfine sorts ditto ..	3	3	0
Good kinds, per doz. .. .. from 12*s.* to	0	18	0
LILIUM LANCIFOLIUM ALBUM, good bulbs, each from 1*s.* 6*d.* to	0	5	0
" PUNCTATUM, from 5*s.* to	0	10	0
" SPECIOSUM (true) .. from 10*s.* 6*d.* to	2	2	0

A new collection of Hybrid Seedling Lilies, 6 sorts for 1 16 0

H. GROOM begs to say his Catalogue of Bulbs, &c., is ready, and will be forwarded by post on application.

Foreign orders executed.

FAIRBEARD'S CHAMPION OF ENGLAND PEA.—A large blue Wrinkle Marrow, a few days earlier than the "Fairbeard's Surprise," an abundant cropper, of fine flavour; in height 4 feet. It is considered to be the best as yet offered, possessing the qualities of a Marrowfat, with the advantage of an early Pea.

May be had of the following Seedsmen at 5*s.* per quart:—George Charlwood, Covent-garden; J. Nutting, Cheapside; Minier, Nash, and Nash, Strand; Gray, Adams, and Hogg, Brompton, W. and J. Noble, Fleet-street; Hay, Anderson, and Sangster, Newington Butts; J. Wrench and Sons, Londonbridge; Hurst and M'Mullen, Leadenhall-street; Gordon, Thompson and Basket, Fenchurch-street.

Green-street, near Sittingbourne, Kent, Nov. 14.

THE FINEST CARNATIONS, PICOTEES, AND PINKS.

YOUELL & CO.'s Extensive and celebrated Collection of the above are this season unusually strong and healthy, and are now ready for sending out, in fine well rooted plants, to any part of the United Kingdom, or for exportation, at the following prices:—

25 pairs of finest first-rate show varieties of Carnations and Picotees	£5	0	0
12 pairs do. do. do.	2	10	0
25 pairs of very fine show varieties of do. do. ..	3	0	0
12 do. do. do. do.	1	10	0
25 do. of finest first-rate show varieties of Pinks ..	1	4	0

FINE CAMELLIAS.

YOUELL & Co. are now supplying very healthy plants of the above, comprising the finest varieties in cultivation, at 30*s.* per dozen.

NEW AND SUPERB CINERARIAS.—SPECTABILIS, 7*s.* 6*d.*—Very dark rich crimson, each flower being 1½ inch in diameter, and of the finest form.

BRILLIANT, 7*s.* 6*d.*—Rich puce, possessing all the properties of size, &c., of the foregoing.

ENCHANTRESS, 7*s.* 6*d.*—Pure white tipped with violet, large, and of fine form.

STANDARD, 5*s.*—Bright crimson, possessing all the properties of a first-rate Cineraria, of medium size, and very compact.

BEAUTY, 5*s.*—Bright puce, with light circle in centre of each flower; fine form, and very compact.

AGNES, 5*s.*—White, tipped with crimson, large, of fine form, and very compact.

The set of six will be charged 30*s.* The usual discount to the Trade when three sets are taken.

It is requisite to state the above are a set of Seedling Cinerarias that YOUELL and Co. can confidently recommend, as they possess that rotundity of form in the petals so desirable in this class of flowers.

TULIPS.

50 first-rate show varieties by name, 3*l.*; including Surpass Catafalque, Gloria Mundi, Coburg, Dutch Catafalque, Roi de Siam, Norwich Black Baguets, Dey of Algiers, Grotius, Violet Alexander, Maitre Partout, Pearson's Regent, Blanca, Bell's Best Rose, Triumph Royal, Thunderbolt, Georgius Tertius, Queen of Egypt, &c.

They also beg attention to the particulars of the following, which appeared in their advertisement of 17th Oct.

THE FINEST DUTCH HYACINTHS, &c.
CEDRUS DEODARA.
ARAUCARIA IMBRICATA, OR CHILIAN PINE.
GERANIUMS AND FUCHSIAS.
FUCHSIA CORALLINA, 5*s.*
TRUE FASTOLFF RASPBERRY.
PANSIES.

Extra fine first-class show varieties, 18*s.* per doz., fine do., 10*s.*

YOUELL'S EARLY TOBOLSK RHUBARB, MYATT'S VICTORIA Ditto. Fine strong Roots for forcing.

STRONG GIANT ASPARAGUS, 2*s.* 6*d.* per 100.

Steamers from this port to Rotterdam and Hull twice a-week, and to London daily.—Great Yarmouth Nursery, Nov. 14.

PINKS.

CHARLES TURNER can still supply strong plants of KIRTLAND'S LORD VALENTIA .. 5*s.* per pair, and HARRIS'S DAUNTLESS .. .. .. do.

Or one pair of each, free by post, on receipt of a Post-office order for 9*s.*

Catalogues of Carnations, Picotees, Pinks, and Pansies, may be had on application.—Chalvey, near Windsor.

ROGERS AND SON, NURSERYMEN and CONTRACTING PLANTERS, Southampton, in submitting the following List of NURSERY STOCK, beg to add, the whole are healthy, strong, and well rooted, growing on heath land, in exposed bleak aspects, and well adapted for extensive Forest or Waste land planting. From the extent of their grounds, and the fine growth of the past season, they are enabled to render at the low prices quoted, from which a deduction will be made if ordered in quantities of 100,000, delivered in London by railway, or coastwise by steam vessels:—

SEEDLING FOREST TREES, &c.

Ash	1 year 1*s.* 6*d.*	2 years 3*s.* 6*d.*	3 years 5*s.* 0*d.*	Per 100
Beech	.. ..	.. 4 6	..	
Birch	.. ..	.. 5 6	..	
Spanish Chesnut .. 10 0	..	.. 15 0	..	
Fir, Scotch .. 1 0	..	.. 2 0	..	
" Pinaster .. 3 6	..	.. 4 6	..	

" Sea Pine (Pinus maritima), excellent for exposure to the sea, one year, 7*s.* 6*d.*; two years, 10*s.* per 1000; and in small pots to plant out in very exposed situations, or thickening plantations quickly, 50*s.* per 100.

OAK, English.—The true "Durmast" of the New Forest (Quercus sessiliflora), the most valuable species, producing timber of the largest dimensions; one year, 7*s.* 6*d.*; two years, 10*s.* per 1000.

" Common English, three years, 3*s.* 6*d.* per 1000.

TRANSPLANTED FOREST TREES, &c.

	1 year.	2 years.	3 years.	
Alder	15*s.* 0*d.*	25*s.* 0*d.*	35*s.* 0*d.*	p. 1000.
Ash	7 6	12 6	25 0	"
Beech	12 6	25 0	40 0	"
Birch	10 0	20 0	40 0	"
Chesnut, Spanish ..	20 0	30 0	40 0	"
Elm, Wych, or Scotch	12 6	15 0	40 0	"
Fir, Scotch	10 0	15 0	25 0	"
" Larch	10 0	15 0	25 0	"
" Spruce	12 6	25 0	40 0	"
" Pinaster ..	10 0	15 0	25 0	"
" Sea Pine ..	20 0	30 0	40 0	"
Hazel	15 0	30 0	40 0	"
Poplar, Black	20 0	40 0	80 0	"
Oak, Eng. (Durmast)..	20 0	30 0	40 0	"
Sycamore	15 0	30 0	40 0	"

Willow (Come well), a new and valuable American species for Coppice or Hop Poles, of rapid growth; one year, 40*s.*; two years, 60*s.*; three years, 80*s.* per 1000.

Laurel	1 year, 20*s.*	2 years, 40*s.*	3 years, 80*s.*	p. 1000
Evergreen Privet	" 20	" 40	" 80	"

Elder, common black, excellent for sea embankments, 2 to 3 ft 8*s.* per 100.

The above Transplanted are from 1 a foot to 2 feet high. Plants of a larger size from 2 feet to 7 feet, for ornament or immediate effect, are from 25*s.* to 75*s.* per 100.

RHODODENDRONS.—Excellent for cover, and not subject to the depredations of game, 1 to 2 inches, 30*s.*; 3 to 4 inches, 60*s.*; 5 to 6 inches, 80*s.* per 1000.

" 1 foot, 15*s.*, 1½ to 2 feet, 30*s.* to 50*s.* per 100.
" ponticum roseum, 1 to 1½ feet, 40*s.* to 60*s.* per 100.
" Splendid hybrid, 1 foot, 50*s.* per 100
" Scarlet hybrid, 2*s.* 6*d.* to 5*s.* each.
" Seedling hybrids, 25*s.* per 100.
" arboreum album, 1 to 2 feet, 5*s.* each.

These Rhododendrons are all transplanted and well rooted.

Pinus (Abies) Douglasii, in 60 size pots, 2 to 3 inches, from seed, 60*s.* per doz.; and a few handsome plants in large pots, 3 to 4 feet, from seed, 42*s.* each.
Kalmia latifolia, ½ foot, 50*s*; 1 foot, 75*s.* per 100
Clematis azurea, 50*s.* per 100. Clematis flammula, 25*s.* per 100.
Bignonia radicans, 6*s.* per doz.
Aristolochia Sipho, 6*s.* per doz.
Common China Rose, 25*s.* per 100.
Perpetual Tree Violet, strong flowering plants, 50*s* per 100.
Neapolitan Violets, flowering plants, 30*s* per 100.
Flowering Thorns, three sorts, 40*s.* per 100.
Giant Irish Ivy, 12*s.* 6*d.* per 100.
Arbutus, bedded, 4 to 6 in. fine, 12 .. 6*d* per 100.
Cotoneaster microphylla, 8*s.* per 100.

HARDY ORNAMENTAL TREES, SHRUBS, AMERICAN HERBACEOUS, and GREENHOUSE PLANTS in extensive collection. Also a most superb collection of ROSES, including all the new sorts. Printed Catalogues and prices of which may be had on application at their Nurseries, Red Lodge, North Stoneham, or Floricultural Gardens, Southampton.

☞ If ordered in less quantity than the above quotations, the charges will be at retail prices.

*** Agents for Preston's Mushroom Spawn.

MITCHELL'S "ROYAL ALBERT" RHUBARB.

The above valuable variety having been grown by WILLIAM MITCHELL, of Enfield Highway, for the last four years, has enabled him to supply Covent-Garden Market with open-ground RHUBARB earlier than any other grower, it being two to three weeks before the Tobolsk, or any other sort ever introduced to the horticulturist. A splendid red colour, most prolific bearer, and allowed by the best judges to be the finest flavoured sort in use at the present time. It is pronounced by Mr. Myatt, sen., of Deptford, to be the best EARLY RHUBARB grown. Large roots will be sent out the first week in December, at 5*s* each, and no wholesale orders will be received after the 7th December.

An early application is necessary, as the stock is limited. Prepayment is requisite with all orders (which will be executed in strict rotation) payable to W. MITCHELL, Enfield, or to the Sole Agent, CHARLES FARNES, Seedsman, 122, St. John-street, London.

STRAWBERRY PLANTS.

J. HALLY, Nurseryman, Blackheath, begs to announce that he has a quantity of well-established strong plants of that much approved early STRAWBERRY, the "ALICE MAUD." This variety is essentially distinct from Keen's Seedling both in habit and fruit, being much earlier, larger, firmer, and better adapted for market. Plants of the above 3s. 6d. per 100, or 25s. per 1000. Also the following kinds, which having been early bedded out, and carefully selected, are strong and well established, and can be warranted true:—

Elton	2s. 6d. per 100,	20s. per 1000.
Myatt's Eliza	3 0 ,,	25 ,,
British Queen	3 0 ,,	25 ,,
Prince Albert	3 6 ,,	30 ,,
Keen's Seedling	2 6 ,,	20 ,,
Downton	3 6 ,,	
Swainston	3 6 ,,	
Roseberry	2 6 ,,	20 ,,
Scarlet Pine	2 6 ,,	20 ,,
Turner's Late Pine		3s. 6d. per 100.
Alpine		2 6 ,,
Cole's Early Prolific		40 0 ,,
Myatt's Globe		6 0 per dozen.
,, Mammoth		6 0 ,,
,, Prolific		4 0 ,,
Hooper's Seedling		4 0 ,,
Comte de Paris, Salter's		3 6 per plant.
Princesse Royale ,,		5 6 ,,
[illegible] ,,		1 0 ,,

The usual allowance to the Trade.

CHOICE FLOWER ROOTS.

CLARKE AND CO., SEEDSMEN AND FLORISTS, 86, High-street, Borough, beg to offer for Sale the undermentioned DUTCH BULBS, warranted true to name, which will be sent to any part of the United Kingdom at the following low prices, *viz.*—Hyacinths, fine named sorts for glasses, 6s. per doz.; Do. for pots or borders, 4s. per doz.; Jonquils, largest double, 2s 6d. per doz.; Polyanthus Narcissus, 4s. per doz.; Parrot Tulips, splendid colours, 2s. per doz.; Gladiolus Paciticus, 2s. 6d. per doz.; Do. Floribundus, 3s. per doz.; Crocuses, in 8 best varieties, 2s. per 100; Ranunculus, fine mixed, 4s. per 100; Do. beautiful named varieties, 1s. 6d. per doz.; Anemones, fine double, mixed, 8s. per lb.; Lilium Longitiorum, splendid, 5s. per doz.; Narcissus Poeticus, and Double White, 4s. per 100; Van Thol Tulips, for pots, 6s. per 100. Mixed Tulips, from named flowers, for beds, 10s. per 100; Commelina Coelestis, splendid blue, 8s. per doz.; Lilium lancifolium album (to bloom), 1s. 6d. per root.

All other sorts of Flower Roots at equally low prices. Catalogues may be had.

DUTCH FLOWER ROOTS.—The present being the most favourable season for general planting, J. CARTER begs to submit the following extract from his Catalogue of such articles as he can particularly recommend:—

	s. d.	
Hyacinths, for pots or water, 6s., 9s., and	12 0	per doz.
Polyanthus Narcissus, various	5 0	,,
Paper-white Italian Narcissus	3 6	,,
Double Roman do.	3 6	,,
New early Soliel d'Or do.	3 6	,,
Double White do.	1 6	,,
Poets' or Pheasant-Eye, crimson border	1 0	,,
Sweet-scented large Dutch Jonquils	1 6	,,
Crocus, 1000 in 10 extra fine sorts	20 0	,,
Fine mixed Dutch ditto, for borders	1 6	per 100.
Extra fine late Tulips, from named sorts	10 6	,,
Iris, English, 100 extra fine sorts	60 0	
Ditto 50 ditto	30 0	
Ditto 50 commoner sorts	15 0	
Very fine mixed English Iris	3 0	per doz.
Iris, Spanish, 100 extra fine sorts	20 0	
Ditto 50 ditto	10 0	
Very fine mixed	5 0	per 100.
Anemones, finest new Dutch, named	6 0	per doz.
Ditto finest Scarlet	2 6	,,
Ranunculus, extra fine, named	27 6	per 100.
Ditto very fine mixed	7 0	,,
Turban Ranunculus, finest Scarlet	2 6	,,
Ixias, beautiful mixed, 2s. per doz.	16 0	,,
Sparaxes, ditto, 2s. ditto	16 0	,,
Gladiolus cardinalis, extra large	5 0	per doz.
Ditto ditto smaller	2 6	,,

VICTORIA REGINA, a new and splendid Stove Aquatic, four seeds, 1*l*.

JAMES CARTER, Seedsman and Florist, No. 238, High Holborn, London.

CUTHILL ON CUCUMBER GROWING.—On the 1st of December, Printed Directions, substantiated by 20 years' successful experience in Cucumber Growing (the last 7 years extensively for Covent Garden Market), will be sent with a packet of seed of his Black-spine Cucumber, for 2s. 6d.

Passingham's Victoria Green Flesh Melon, per packet, 2s.

Cuthill's Early Scarlet Flesh Do., 2s. per packet.

Seed of the Lisianthus Russellianus, with directions for growing, 2s. per packet.

Cuthill's Scarlet Clove, and a French Yellow Picotee, at 12s. per dozen.

The British Queen and Keen's Seedling Strawberries in pots for Forcing.

J. CUTHILL, Florist and Early Forcer, Denmark-hill, Camberwell, London.

TO NURSERMEN, GENTLEMEN, NURSERYMEN & OTHERS.

ABIES CANADENSIS, OR HEMLOCK SPRUCE.

G. BAKER, Nurseryman, Bagshot, Surrey, having the Largest Stock in Europe, of various sizes and in fine condition, can with confidence recommend this noble tree to the notice of the public, at the following prices:—

1 ft.—Transplanted		£0 12	0	per 100
2 ,,	,,	0 16	0	,,
3 ,,	,,	1 5	0	,,
3 to 4 ft.	,,	1 10	0	,,

PICEA BALSAMEA.

1½ to 2 ft.	,,	£0 8	0	,,
2 ,, 3 ,,	,,	0 12	0	,,

G. B. having a fine Stock of Flowering KALMIA LATIFOLIA, can supply them at the following low prices:—

9 to 12 inches		£2 10	0	per 100
12 ,, 18 ,,	,,	3 15	0	,,
18 ,, 30 ,,	,,	5 0	0	,,

Fine Specimen Plants from 3s. 6d to 5s. each.

N.B.—Large purchasers will have considerable reduction.—The usual allowance to the trade.

GENERAL CATALOGUE OF NURSERY STOCK. NEW EDITION.

WM. WOOD AND SON, in returning their sincere thanks for past favours, beg leave to inform their friends that they have just published an Enlarged CATALOGUE OF HARDY TREES AND SHRUBS, CONIFERÆ, CLIMBERS, AND EVERGREENS; also Fruit, Forest, and Ornamental Trees, with a selection of Plants suitable for Forcing. Part the Second contains a selection of all the most esteemed Herbaceous and Alpine Plants, Chrysanthemums, Strawberries, &c. &c.

Copies of the above, also a Descriptive Catalogue of Roses, may be had, gratis, on application.

Woodlands Nursery, Heresfield, nr. Uckfield, Sussex, Nov. 14.

JERSEYMAN ROSARY, BUNGAY, SUFFOLK.

AN ABRIDGED LIST OF A SELECTION OF THE BEST ROSES IN CULTIVATION,

PROPAGATED FOR SALE BY

ROBERT BENJAMIN BIRCHAM.—A Descriptive Catalogue sent on application. Carriage paid to London per Norfolk Railway.

Strong Dwarf Plants.	HYBRID PERPETUAL.	Height of Stem.	Price.
In Pots.		*Feet.*	*s. d.*
2s. 0d.	Augustine Mouchelet	Std	2 6
2 0	Auberron, F. F.	2–3	2 6
	Baronne Prevost	2–3	3 0
	Clementine Seringe	2–3	2 6
1 6	Clementina Duval		
1 6	Comte de Paris, F.	2–3	2 6
2 6	Comte d'Eu, F.	2–3	3 0
7 6	Comtesse Duchatelle		
2 6	Coquette de Bellevue		
2 0	Dr. Marx, F.	2–4	3 0
2 0	Duc d'Aumale		
2 0	Duchess of Sutherland	2–3	2 6
2 0	Earl Talbot	2–3	2 6
1 6	Fulgorie	2–3	2 0
	General Merlin	2–3	2 6
	Julie Dupont	2	2 0
5 0	La Boloyere		
	La Bouquetiarre	3	3 0
2 6	La Reine	2–3	3 0
	Lady Elphinstone	2–3	2 6
2 6	Lady Alice Peel	2–3	3 0
1 6	Lane, F.	2–3	2 0
	Louis Buonaparte	2–3	2 0
2 0	Madame Emma Dampierre		
	Madame Dameme	2–3	2 6
1 6	Madame Laffay, F.	2–4	2 0
2 0	Marquise Boccella	2–3	3 0
2 0	Melanie Cornu	2–3	2 6
1 6	Mrs. Elliot	3–4	2 6
1 6	Prince Albert	2–4	2 0
	Princesse Helene	2–3	2 6
2 0	Prince of Wales	1–2	2 0
	Reine de la Guillotiere	2–3	2 0
	Rivers (Laffay)	2–3	2 0
1 6	Robin Hood		
2 6	Robin Hood		
2 6	Thibault		
1 6	William Jesse	2	2 0
	BOURBON ROSES.		
1 6	Acidalie	1–2	2 0
1 6	Amenaide	2–3	2 6
2 0	Anne Bebuze		2 6
	Bouquet de Flore	2–3	2 0
2 0	Ceres	2–3	2 6
2 6	Charles Souchet		
2 0	Comice de Seine et Marne	2–3	2 6
2 6	Comte de Rambuteau	2–3	3 0
2 0	Comtesse de Rosseguier		
1 6	Crimson Globe		
	Desgarches		2 0
2 6	Deuil Duc d'Orleans		
2 6	Duc de Chartres	2–3	3 6
2 6	Dumont du Courset		
3 0	Dupetit Thouars		
1 6	Edouard Desfosses	2–3	2 0
	Emile Courtier	2–3	2 0
1 6	Enfante d'Ajaccio	2–3	2 0
2 6	George Cuvier	2–3	3 6
2 0	Gloire de la Guillotierre		
2 6	Gloire de Paris		
1 6	Gloire de Rocamene		
2 6	Henri Lecog		
2 0	Imperatrice Josephine		
2 0	Lady Canning		
5 0	Le Camée		
2 6	La Gracieuse		
2 6	Le Grenadier		
5 0	Le Marechal du Palais		
2 0	Madame Aubs	2–3	2 6
	Madame Lacharme	2–3	2 6
	Madame Nerard	2–3	2 0
2 6	Madame Souchet		
2 0	Paul Joseph	2–3	3 0
	Phœnix, F.	2–3	2 0
4 6	Pierre de St. Cyr	2–3	2 6
2 6	Pourpre (Fuffait)		
2 0	Princess Clementine	2–3	2 6
	Princesse de Modène	2–3	2 6
2 0	Proserpine	2–3	2 6
1 6	Queen, F. F.	2–3	2 6
2 0	Reine de Congres		
3 0	Reine de Vierges		
2 0	Splendens, F.	3–4	2 6
3 0	Souvenir de la Malmaison	2	3 6
	Thaffait		2 6
2 0	Virgile		

Dwarf, worked upon 4 to 9 inch stems.

Blanchefleur	1s	6d	Fanny Parissot	1s	0d
Christine de Pisan	7	6	Gloire d'un parterre	2	0
Cleopatra	1	6	Grandissima	1	6
Crested Provence	1	6	Guerin's gift	1	6
Duchess of Kent	1	6	Julie	1	6
Enchantresse	1	6	Kean	2	0
Hypsida	1	6	Latour d'Auvergne	2	0
Laura	1	6	Madame Damoureau	1	6
La Volupte	1	6	Madame Duchesnoy	1	6
Madame Huet	1	6	Madame Henriette	1	6
Madame L'Abbey	1	6	Matthew Mole	1	6
Melanie	1	6	Modest Guerin	1	6
New Globe Hip	1	6	Nelly	1	6
Nicolate	1	6	Œillet Parfait	2	6
Pashat (fine)	2	0	Rien ne me surpasse	1	6
Pompone de Laqueue	1	6	Tom Jones	1	6
Princesse Clementine	2	0	Triomphe de Jaussens	2	0
Rose Devigne	2	0	Beauty of Billiard	1	0
Superb striped unique	2	6	Belle Marie	1	6
Boula de Nanteuil	1	6	Brennus	1	0
Brisets	1	6	Charles Fourquier	2	6
La Ville de Bruxelles	1	6	Chenedole	2	0
Penelope	1	6	Comtesse de Lacepede	1	6
Pope	2	0	Decandolle	1	6
Semiramis	2	0	Flora Mac Ivor	1	0
Cerise Superbe	1	6	Fulgens	1	0
Cicero	1	6	Hypocrate	2	0
Columella	2	0	Lord Nelson	1	0
Comtesse Almaviva	1	6	Madame Mantier	1	6
Cyntie	1	6	Madame Remeau	2	0
Donna Sol	1	6	Magna Rosea	1	0
Dr. Diettham	1	6	Prince Albert (Hooker's)	1	6
Duchess of Buccleugh	1	6	Richelieu (Verdier)	1	6
Duc de Trevise	1	6	Triomphe de Laqueue	1	6
Duc de Valmy	1	6	Coupe d'Hebe	2	0
Duchesse de Baudemont	1	6	Double Marginated Hip	2	0
Duchesse d'Abrantes	1	6	Persian yellow	2	6
Eclatante	1	6	Queen of Denmark	1	6
Egle	1	6			

Bedenham, Nov. 14, 1846.

MOSS ROSES.

RICHARD PERRY, of Broom House, Fulham, begs respectfully to inform the public that he has a large quantity of fine strong MOSS ROSE PLANTS, at 20s. per hundred. They have been bedded out two seasons, and now in excellent order for potting. He has also a great quantity of Moss Roses in pots that have been potted one season, and now fit for forcing, which he will sell at a very reduced price.

THE ARBORETUM, QUEEN'S ELMS, FULHAM-ROAD, BROMPTON.

D. A. RAMSAY begs to inform the Trade and others that he has a quantity of Two-year Bedded SWEET BRIAR, in prime condition for potting, 15s. per 1000; also a quantity of Three-year Bedded QUICK 13s. per 1000, and GREEN HOLLIES, from 1½ feet to 2½ feet, 20s. per 100, with an assortment of Standard Cytisus, Acacias, Robinias, Poplars, Ash, Willows, Thorns, Roses, &c. &c., of all sizes, on equally moderate terms.

Orders carefully packed and sent to any part of the Country.

Plans and Estimates submitted for the carrying out all kinds of Ornamental Groundwork and Planting in any part of the Kingdom.

GERANIUMS AND ROSES.

JAMES WALKER is now sending out the following Six choice GERANIUMS for 1*l.* 5s., including hamper, &c., in strong healthy plants, *viz.* Foster's Orion, Ardens, and Doctor Lindley, Drury's Pearl, Garth's Magog, and Bainbridge's Camilla. A selection of Twelve from the following varieties for 18s., customer's selection 1*l.* 1s., including hamper, &c.—*viz.* Hoyle's Titus, Champion, Pompey, Sarah Jane, Unique, and Amelia. Lyne's Princess Alice, Imogene, Princess, White Perfection, and Coronet. Foster's Duke of Devonshire, Nabob, and Shield of Achilles. Garth's South-Western. Cock's Hector. Gaines's King of Saxony and Duchess of Leinster. Catlough's Juliet and Plantagenet. A selection of Twelve good pot Roses for 9s. to 15s.

A Post-office order will be required from unknown correspondents.

A Catalogue of choice Auriculas, Polyanthuses, &c. &c., may still be had on prepaid application.

Rhodes, Middleton, near Manchester, Nov. 14.

VINES FROM EYES IN 6-INCH POTS, FOR WALLS, VINERIES, OR POT CULTURE, 3s. 6d. each.

1. August Muscat, or Muscat d'Aout, black.
2. Black Prolific.
3. Black Hamburgh.
4. Black Hamburgh, Wilmot's.
5. Black July.
6. Black Prince.
7. Black Damascus.
8. Cambridge Botanic Garden, black.
9. Chasselas Musqué, white.
10. Early Black Cluster, Wilkins's
11. Esperione, black.
12. Frankenthal.
13. Frontignan, black.
14. Frontignan, grizly.
15. Frontignan, red.
16. Frontignan, violet or purple
17. Hatiff de Jura, black.
18. Muscat of Alexandria.
19. Muscat, Cannon Hall.
20. Muscat of Fontainbleau, black.
21. Mignonne, white cluster.
22. Muscadine, Royal, white.
23. Pitmaston White Cluster.
24. Saint Augustine, black.
25. Scotch White Cluster.
26. Saint Peter's, black.
27. Saint Peter's, West's, black
28. Sweetwater, white.
29. Sweetwater, Dutch, white.
30. Sweetwater, Knight's, white.
31. Sweetwater, Grove End, or Early White Malvasia.
32. White Riesling.
33. White Tokay.

THOMAS RIVERS begs to offer the above varieties of VINES, all of which can be warranted true to name, two years old (with the exception of Nos. 19, 26, and 27), with well ripened shoots from 3 to 6 feet high: Nos. 1, 2, 5, 9, 16, 17, 20, 21, 22, 23, 25, 28, 29, 30, 31, and 32, are all very early sorts, ripening in most seasons on walls with a south-west, south, or south-east exposure; Nos. 8, 11, and 24, are large black Grapes, ripening on walls only in favourable seasons; No. 1 is a new and very early sort, with the Frontignan flavour. The remaining are all well known varieties for Vineries.

To save carriage, the plants can be taken from the pots and their balls of earth sent entire.

Sawbridgeworth, Herts, Nov. 14.

SELECT NAMED SHOW TULIPS.

WILLIAM MAY, F.H.S., having a select collection of fine named TULIPS in 200 varieties, comprising most of the winning flowers, begs to offer them at 5*l.* per hundred, or at the same rate for less quantities down to 20 sorts. The present is a proper season for their being planted.

Hope Nursery, Bedale, Yorkshire.

DOUBLE LILIES OF THE VALLEY.

J. BROWN, successor to MARNOCK and MANLEY, begs to offer the above beautiful variety. They are perfectly double, sweet scented, and prolific bloomers, at 6s. per dozen. The Trade supplied with the usual allowance.

J. B. also begs to say that he can supply Seeds of that very superior early Cabbage called MARNOCK'S QUEEN VICTORY, formerly advertised at 2s. 6d. per 6x., now 1s. 6d.

J. B. begs to add, that he is selecting with great care his collection of Vegetable and Flower Seeds, both of the best quality and true to name; the latter varieties are chiefly his own saving this year.

True Stow House Cucumber Seed, 2s. 6d. per packet.

Nursery, Hackney, London, Nov. 14.

HERTFORD NURSERIES.

E. P. FRANCIS'S NEW LIST OF ROSES AND PRICED LIST OF FOREST TREES, EVERGREENS, &c., are now ready for delivery, and will be forwarded gratis.

E. P. F. has a large stock of the following leading articles:—Upwards of One Million of strong 3-year and bedded QUICK.

English Oak	3—4 feet.	Huntingdon Elm	5—6 feet.
Ash	3—4 ,,	Laurels	2—3 ,,
Spruce Fir	3—4 ,,	Do.	3—4 ,,
Huntingdon Elm	3—4 ,,	Do.	4—5 ,,

Berberis aquifolium, 1 to 1½ feet, strong, 25s. per 100.

Do. do. 1½ to 2 feet, very strong, 40s. per 100.

This plant is highly recommended for planting in woods, being very hardy and impervious to the attacks of hares and rabbits.

Carriage of all goods paid or delivered in London.

SCARLET PELARGONIUMS.—12 Plants of the above, in 12 of the best and most distinct varieties in cultivation, are now offered for 1 guinea, basket included, viz.:—

Shrubland superb	Prizefighter improved
General Tom Thumb	Mrs. Mayler
Comet	Honeymoon
Vivid	King of Scarlets
Victoria	Huntsman, true
Goliah	Queen

Also seeds collected from the above, mixed, in 2s. 6d. packets per post or otherwise.—PHILIP CORWAY, Old Brompton, Nov. 14

FOREIGN SHEET GLASS, GLASS TILES, &c.

C. JARVIS has a quantity of cases of various sizes of the above article, of the stoutest kind, which he is enabled to offer at a considerable less price than he has hitherto done, in consequence of a favourable purchase, and another reduction in the import duty, at his old established Window Glass Warehouse, 33, Great Castle-street, a few doors from Regent-street, where every description of British manufactured Glass can be had on the lowest terms for ready money only.

HORTICULTURAL SOCIETY OF LONDON.—Notice is hereby given that the EXHIBITION OF FLOWERS AND FRUIT in the Society's Garden, in the ensuing season will take place on the following Saturdays viz, May 8 June 13 and July 18, and that Tuesday April 30, is the last day on which the usual privileged Tickets are issued to Fellows of the Society

BECK informs the Public that the various Articles manufactured by him in Slate for Horticultural purposes, may be seen in use at Worton Cottage, Isleworth, upon application to the gardener (*Sundays excepted*)

DRIED PLANTS FROM CHINA.—A few sets of the VALUABLE DRIED PLANTS collected in China by Mr Fortune may still be procured by applying to R Heward 181 Young street Kensington London Among them are many new and rare species scarcely known to Europeans

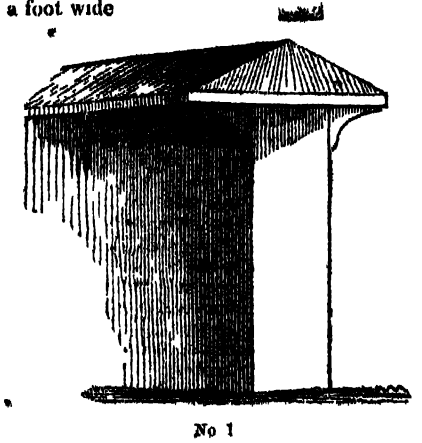
The Gardeners' Chronicle.

SATURDAY, NOVEMBER 14, 1846

The Coping of Garden Walls is a matter of no small importance to those who desire to have fine wall fruit, and we should wish to see it taken up by correspondents of known practical ability for the discussion it deserves It is well understood that the opinions of our best writers on gardening, from Miller down to those of our own day, are at variance respecting the utility of a wide or narrow coping, and it appears to us that an inquiry conducted by those who are capable of estimating the relative merits or defects of copings with different degrees of projection, would be exceedingly useful to the practical gardener, and interesting to the general reader

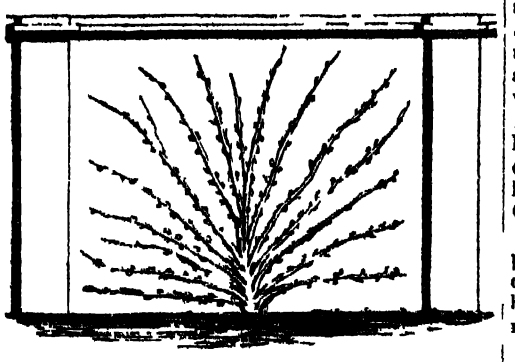
The main use of a coping is to protect the masonry from wet, and thereby enable it the better to resist the action of the weather Were it not for a protection of some kind or other, newly built walls of the very best materials would soon be injured by exposure to the rain and frosts of winter and fall into decay For this reason a coping becomes absolutely necessary, and such being the case it is desirable to ascertain how far it is of service, or otherwise, to fruit trees trained against the wall

The object sought to be attained by planting trees against a wall is to accelerate their growth so as to enable them to mature their fruit-bearing wood, and afterwards by the aid of the increased heat and shelter which the wall affords to stimulate them to produce fruit that shall be of superior size and excellence It is worthy of remark however that it is not always the trees most favourably situated in these respects that are the most healthy and fruitful, on the contrary we often find them more liable to disease and the attacks of insects The cause of this may be sometimes owing to the soil, but it may possibly also proceed from the coping being made to project further than it ought in consequence of which the leaves are deprived of the advantages they would obtain during the growing season from the genial rains of the day, or the heavy dews of night Some persons argue that unless the coping project so far as to carry off the drip from the trees, it is worse than useless Others contend for a coping that shall only project one or two inches and a few have advocated copings of a foot or more in width Between these opinions it is difficult for one who is not conversant with such matters to determine which plan is the best Were he to adopt the practice usually followed in cases of doubt and choose a middle course, it might happen that in doing so he had committed as great an error in fixing on a coping of six inches as on one a foot wide



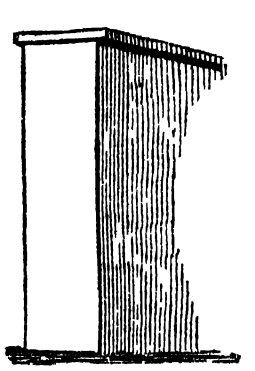
No 1

So far as our experience goes, we believe that the advantages of a wide coping have been much over-rated, and that the drip which falls on the trees from a narrow one is not by any means so injurious as has been imagined. We admit that in spring, when the trees are in blossom, a wide coping may be useful; but it ought to be temporary, and removable immediately after the fruit is fairly set The accompanying sketches may serve the purpose of drawing attention to the subject. No 1 we consider one of the worst copings for a garden wall that can be used, although, no doubt, excellent crops have been grown under such a structure It is only met with in those districts where suitable materials for coping are either very expensive, or very difficult to be procured. The harbour it affords for all sorts of vermin is a great objection to it For the same reason we are averse to recesses in garden walls, or to the training of trees

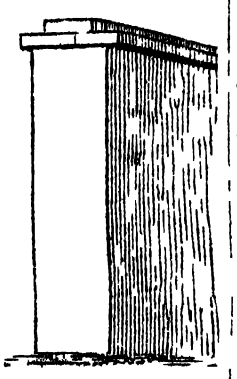


No 2

between two piers, as shown in No 2, especially if the coping is a wide one Piers may occasionally be introduced for effect, but it is not desirable to have more of them in a garden than are necessary

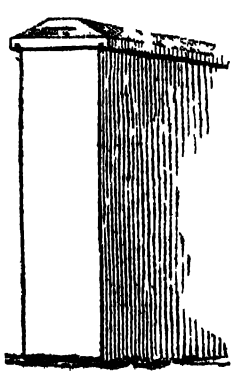


No 3

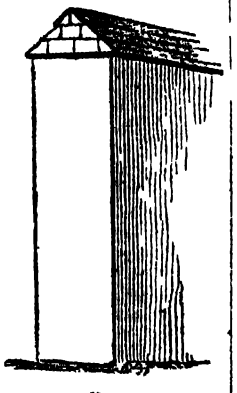


No 4

No 3 is the sort of coping in general use where thin stone or slate are plentiful It answers the purpose effectually if care be taken to keep the joints well filled with cement A small groove underneath the edge would be an improvement In fact no coping can be said to be complete without a groove, or some other contrivance to prevent the water from running down the wall No 4 is probably the most common way in which garden walls are coped and when well done it will stand for many years provided the brick are laid in cement To obviate the necessity of a groove in this case, the inner end of the bricks is to be bedded a little thicker, so as to cause them to incline outwards, but not so much as to be observable



No 6



No 5

unless to the practised eye. No 5 is a mode of coping frequently resorted to where stone, or large slate, cannot be obtained, and answers very well A thin wall plate of wood is laid along the edge, to secure the first row of slate The middle of the wall is then ridged up with small pieces of stone and lime, into which the other rows of slate are made fast by small wooden pins and the whole secured by a row of tiles on the ridge The latter is sometimes coloured to resemble slate, or coated with coal tar No 6 is one of the best forms of coping, and may be either of stone or cement. The latter is the cheapest, and may be moulded to various forms by an experienced workman If the materials are good, and the right proportions of sand and cement used, a coping of this kind will last a number of years, and successfully resist the action of the weather Several moulds of the proper length and shape are first prepared A certain portion of cement and sharp fresh-water sand are then wetted up and thoroughly incorporated, no more being made at one time than is considered sufficient to fill one of the moulds The mould before using must be completely coated with oil. A layer of cement is then spread equally over it, into which two or three flat tiles are placed across and embedded Some more cement is added, and a couple of tiles placed lengthways along the middle, for the purpose of strengthening it, as well as to save the cement The whole is then filled with the remainder of the cement and smoothed off In a few minutes it hardens sufficiently to be knocked out of the mould, and is afterwards placed on a level dry spot until it is dry This was the late Mr Atkinson's plan, and is that in use in the Garden of the Horticultural Society

To those who may be about to erect walls, the preceding remarks may be useful, they will, however, be more so if they induce others who are better acquainted with the subject, to give us the result of their experience —*M I H*

From the very beginning of the Polmaise discussion we have been persuaded that in the commencement it would be attended by as much failure as success, and on different occasions we have said so We were led to this conclusion by our knowledge of the difficulties inseparable from the first practical application of any novel theory of the mistakes that unskilful persons necessarily fall into as to the theory itself and of the numerous errors even now committed in the construction of hot-water apparatus by the most experienced men In attempting to apply natural laws to any artificial purpose, it is necessary that *all* the conditions of these laws should be equally observed it will not do to observe nine laws and neglect the tenth, for that tenth will interfere with the working of the remainder It is therefore not with surprise, but with gratitude for the information and admiration of its candour that we have received and hasten to lay before our readers the following interesting letter from Mr Mills —

'It has come to my knowledge this afternoon from personal communication, that two separate parties one near Coventry the other near London, have each attempted to heat a house on the Polmaise principle and have both failed the one partially, the other totally The former a clergyman, had previously sent his builder to see the plan in operation at Nutfield, the latter, a nurseryman (thoroughly convinced of the soundness of the principle), had carried out his own plans in a cheap form They have each heated the chamber to a very high degree, the former boiled the water in his tank, though there was a stratum of 8 inches of air between it and the plate, the latter states that he could bake a joint of meat In the former case there is a partial flow of hot air in the latter none at all both chambers are air-tight as regards the external air, in the latter case it is placed within the house, the doors only being external It is therefore evident that in Polmaise, as in other things, there are certain conditions to ensure success and that if these are neglected, failure will be the result And more valuable instruction will be derived from investigating the causes of failure than from studying the plan where successful

'This afternoon the parties in question have both inspected the hothouse at Nutfield they have both gone away completely convinced that the plan can be made to answer, they have seen a bottom heat of from 80° to 90° Fahr, they have both seen the action of the cold draughts and the hot upon the flame of a candle, they have both satisfied themselves that in an extremely short space of time a puff of Tobacco-smoke blown into the most distant cold air drain passes to the hot air opening (on one trial almost instantaneously), the distance traversed being more than 32 feet, and thus while the temperature of the house was at 70° Fahr they saw a thermometer suspended in the hot air opening where it returns to the house, standing at 140° Fahr and the leaves of a Cucumber plant, 1 feet above this, agitated freely by the motion of the air and yet they have failed, and I take this earliest moment to tell your readers of their failure lest from motives of personal consideration towards myself they should not do so and others should find themselves equally disappointed Now in the latter case of total failure, I have every reason to think the cause pointed out is the cause of so many failures in hot water apparatus the cold drain rises, instead of inclining downwards, and it is a singular circumstance, that the same party some years back erected a hot water apparatus with the same defect, and the same results, the circulation is necessarily impeded the cold drains are formed of draining tiles, these lead into one drain which is also far too small (I think the main should

not be less than two-thirds the combined area of the feeder); these and the main are laid on a level, till the latter approaches the hot chamber, but *before passing into it*, it rises, and of course the cold air (for it cannot yet have felt the warmth) lies stagnant in the bottom; for why should it ascend? The drains of my own house are perfectly level till they enter the chamber. I doubt not the circulation, good as it is, would be greatly accelerated by a gradual descent towards the chamber, so that the heaviest air should flow down-hill. The other case of failure arises partly from the same cause, and partly from the area of the main being very disproportionate in size to the branches, or having a very long flat passage to the chamber.

"I trust these remarks will not be lost on those who are now erecting apparatus of the kind, and I trust that especial care will be taken to secure the stove from any gaseous leakage, especially at the plating, and that those who have applied the principle, or are about to apply it, will communicate the result of their own individual experience. Few now question the principle; practical knowledge can only come with time, and by the experience of many.—*D. B. Meek, Holmesdale House, Wednesday Evening.*"

At last the new Botanic Garden at Cambridge has been commenced. The Vice-Chancellor planted the first tree last Monday, and 20 men are hard at work trenching seven acres for the reception of trees for the Arboretum. Now that the good work has begun, we look with no apprehension to the result. We understand that the Curator is quite ready to receive assistance in plants, and we have no doubt that they will be furnished in abundance.

We extract the following from the *Freeman's Journal*; it serves to complete the contradiction already given in our columns of Oct. 31.

THE POTATO COMMISSION

"*Dublin, November* 5, 1846.

"My dear Dr. Gray,—My attention has been recalled to the the totally unfounded statements regarding the cost of the scientific commission to inquire into the nature and extent of the Potato disease, on which I was associated with Professors Lindley and Playfair, which statements you put forward in the *Freeman's Journal* and afterwards forgot to contradict, although I had explained their inaccuracy to you.

"Those statements taken from the *Freeman's Journal*, have lately furnished the basis of some articles and letters in the *Times*, and also have been spoken of at the meeting of the British Association and my colleagues, as well as I myself have felt that we have been treated with gross injustice by such statements being published without foundation.

"It is stated that the Potato commission cost 18,400*l*. Now, the fact is, that the commission did not, as far as I or either of the other commissioners are aware, cost so much as the odd 400*l*. of the sum stated. I gave my services on that occasion perfectly gratuitously. My colleagues, as they had to leave their families and other business, were paid three guineas (5*l*.) a day and their travelling expenses. There were some incidental expenses for our secretary, Mr. Bullen and materials for our experiments, but the entire outlay on the inquiry was between 300*l*. and 400*l*.

"Under these circumstances the deliberate charge made in so respectable a journal as yours, and purporting to be extracted from a Parliamentary paper, that the scientific men employed on the Potato commission had pocketed 18,400*l*. of the public money, will, I am sure, be at once corrected and withdrawn, and I shall feel personally obliged if you will have the goodness to insert this letter.

"I believe me to be, dear Gray, truly yours, —Robert Kane.

"Dr. Gray, *Freeman's Journal*."

"[We hasten to lay before the public Sir Robert Kane's contradiction of a misstatement which, owing to the prominence given to it when copied into our journal, he seems to suppose we originated. Not wishing to allow a publication to issue with us giving the contradiction, we print Sir Robert Kane's letter without waiting to refer to the files of the London journals to ascertain from which of the London morning journals we took the statement. We remember, however, with the utmost distinctness that a table purporting to be a reprint of a Parliamentary paper was printed in a London journal, and that from that table we copied the erroneous figures."—*Freeman's Journal.*

CULTURE OF THE PINE-APPLE.

(SECOND NOTICE.)

Some of the unskilful practitioners of this branch of gardening will, by this time, have found out their deficiency—their want of system. But they are not the only class that may have made such a discovery. The boasters, who have come out with their wisdom on the strength of a 5 or 6 lb. Queen, ill grown, and badly coloured, will find they must stretch their tape considerably before they can take the circumference of the Meudon Pines. No doubt they will attribute the success of Mr. Gabriel Pelvilain to the discovery of some wonderful stimulant; or they will conjecture that he must have hit upon loam with hidden virtues, and as much superior to the famous Norwood or Wormwood Scrubs material, as his fruit unquestionably excel all others in cultivation; for it will readily be believed, had he rested his reputation upon his soil, and set about importing it in casks to this country, he might shortly have driven the excrementitious dust of the South Sea Islands out of the market. There are other and equally important considerations in the production of these fruit besides the compost, although this also is important, if such a thing as compost is at all used at Meudon, and has produced the astonishing Pine-apples formerly described.

Mr. Pelvilain's system is, as I before said, altogether a model of simplicity; and it would be wonderful indeed, had he to ransack one of the French provinces to find a compost fit for his Pines. I dare say some of the knowing in these matters will stare when I tell them that it is all dug from one spot, and that spot near the garden, neither is it enriched with deer's dung, sheep's dung, or the emptyings of pigeons' cotes, nor any other cotes; nor does it require, in order that the air may circulate freely through it, to be stuffed with Heath, Furze, or long Grass. Those wonderful gases, too, of which we have heard so much, must be totally excluded, although these, in conjunction with the brown stout, have been called into requisition to produce the sharp-pointed dingy-coloured gentlemen, of which we have heard enough. How these mysterious gases get at the roots of the Meudon Pines, I will leave others to guess; for the soil used by Mr. Pelvilain is precisely such as an English propagator would desire to pot into thumb-pots of rooted cuttings of New Holland plants. It is, in fact, nothing other than a fine peat with a considerable portion of silver sand in it. This is dug and carted into the garden and thrown into a heap under a hedge near the Pine pits, and used without any turning or preparation whatever. It is in this kind of soil the Queen Pine reaches 11½ inches high and 22 inches in circumference. There is no trickery in the affair, for I thrust my hand actually into the bed amongst the roots to confirm what appeared almost incredible, and what will appear quite so to many of our modern Abercrombies, who maintain the old code of instructions with almost religious fidelity.

Having satisfied myself that here the soil was a very simple affair, of course I naturally enough inferred that some potent beverage, brewed with much care, from materials containing marrow and fatness, and clarified with isinglass, was not only abundantly supplied to the roots, but in fact dashed all over them. I looked in vain for the brewhouse, until Mr. Pelvilain satisfied me that his Pines had taken the pledge, and drank nothing but pure water! Here was indeed a great fact: Pine-growing done upon a scale of excellence hitherto unknown amongst gardeners, by means so simple, may well set us a thinking, and necessarily compel us to examine into the expenses attending the production of fruit, not, like many of ours, to be mistaken for the production of mere offsets, when we have the result of the Meudon practice before us. Surely, a lesson is to be learned here, if it can be learned anywhere; upon an expensive branch of horticulture, a great deal of labour is dispensed with, besides procuring manures and bringing soils from distant localities, which always involves considerations of a very serious nature. Now, it struck me very forcibly that, where peat cannot be had without alarmingly running against the old rock—expense, leaf mould, which is abundant in many places where peat-soil is not, unless at much outlay, may be judiciously, and, I may add, advantageously resorted to. Indeed, in all gentlemen's grounds, whether great or small, this material is less or more plentiful; add to it some silver sand, and the substitute will approximate pretty closely the principle at Meudon; and I can see no reason why success will not attend the use of such material, provided all other appliances are in conformity with the mode of culture under notice.

I am quite certain that a different soil from this was expected to have been employed in the growth of such fruit, because our habits and prejudices are decidedly opposed to pure peat and pure water. Such, of course, cannot go down with the quacks in gardening; those who rummage for recipes, and who reckon the value of their compounds by the number of ingredients of which it is composed. The Meudon compost is too cheap and too simple; it does not imply mystery enough to be swallowed by those who delight to deal in the hidden virtues of patent medicines. It wants four ounces of this or four barrowsful of that to make it palatable to those who hate plain things, and they are a goodly number, who value such only as are wrapt up in mystery and obscurity, forgetting that all good gardening is done by means and appliances the most easy in their acquisition, and the most simple in their application, as we shall presently show, and as is exemplified in the culture of the Pine-apple at Meudon. —*Mirabile dictu.*

UTILITY OF THE FRENCH BEAN.

(*See p.* 709).

On the subject of the utility of the French Kidney Bean, and its fitness for increased cultivation and use, I described it as prolific, easy of culture, and highly nutritious, qualities it must be admitted which render its successful culture a consideration of great importance. To procure the proper development of its first-named recommendation, good soil and situation are indispensably requisite. The land intended for this crop should be well dug and manured, a light loamy soil is the best; the drills should be from 2 feet to 2½ distant, and the seed dropped 2 inches apart, or perhaps thicker, to supply failures. April is the best month for sowing, though in some seasons it is necessary to defer this operation until May. The kinds most commonly cultivated in this country, are the Dun-coloured, the White seeded, the Battersea, and Canterbury White Dwarfs, but for employing in the usual French manner, some of the common French sorts are to be preferred, as they yield a smaller and more delicate Bean.

I am informed that the French Agricultural Society has obtained a new variety from Riga, which they call Haricot Beurre, the Butter Bean, which is greatly esteemed, and which I hope to obtain. In gathering in the Bean crop a quantity of green pods is often found; these should on no account be wasted, they may be preserved for winter consumption by simply placing them in layers in a large jar, adding a little salt to each layer; the jar should then be filled with water, which must be boiled and cooled before use.

It might almost be supposed that the English cherished the same superstitious fear of Beans, as, it is said, the Egyptian priests and ancient Romans did. I think we might with more reason place our suspicions on the Potatoes!

The Kidney Bean has long had advocates in this country. Gerard speaks of it and says, "The fruit and pods of Kidney Beans boyled together before they are ripe, and buttered, and so eaten with their pods, are exceeding delicate meate, and do not engender winde as the other pulse doe." This medical herbalist adds, "they are gently laxative, and engender goode bloode." —*W. J., Windsor, October* 29.

THE JERUSALEM ARTICHOKE A SUBSTITUTE FOR THE POTATO.

Early in the season I furnished an article on the value of Helianthus tuberosus as an article of food to supply the place of the Potato, and it is with satisfaction that I now bring under notice the character of the substitute, which I am happy to state is found to be superior to the principal.

I forward a few roots, just as they were dug, with the tubers still attached to the stem, so that it may be seen what cultivation can accomplish with this much neglected plant; and, as an instance, of a plant actually grown in Britain by labouring men on poor soil far surpassing the Potato, for the following reasons:—The haulm of the Potato has always appeared to me to be an immense drawback from its importance as a profitable crop; not so with the Helianthus, for if it produced no tuber at all, it would still be the most valuable fodder-plant grown in this country, far surpassing, in weight of green food, Bokhara Clover or the like. Now, this is no hasty saying; for I have carefully weighed one square yard of the stems of the Helianthus and found them to be 32 lbs weight, and this square yard was a fair average of the crop, and taken out of the middle of a piece not richly manured or highly cultivated, but that had come up from the small sets left in the land after the last year's crop had been gathered in. This circumstance is of considerable value, as showing to the agriculturist the important fact, that this plant wants no scientific tillage to produce a crop, and requires no small pains to prevent it from growing, and that most luxuriantly, in any reasonable locality.

Now, only consider the following simple fact, and compare the amount with other fodder:—30¼ yards, or one pole, yield 968 lbs. of green food; that is, nearly half a ton from one pole of land, and gives in clear weights 69 tons to the acre, or about three times the weight of a good crop of Swede Turnips; and this, be it remembered, is altogether free of the tubers or main crop, and is merely the haulm, which, in the Potato, would be offal. I have given the leaves of the Helianthus to the goat, the pig, and the ass, and these three agree that it is good, and eat it with avidity. When the cottager kept a pig, and grew Potatoes, he was obliged to give the pig the tubers, which tubers were the only eatable part for man or pig; but in the Helianthus there is a line drawn of distinction, at the surface of the ground; the upper part is food for the brute, while the under-ground stem contains flour (mulme) for man.

As regards the various modes by which the stems of this plant may be prepared and preserved for the food of animals, that is not in my department, although I could point out chaff-cutters or Turnip cutters that would slice them into sections as thin as wafers, and steaming apparatus that would reduce them to a jelly. I prefer leaving that, however, to the proper parties, as I have neither the means nor the leisure to carry the subject beyond my own line, namely the line of cultivation. I have picked out the sample sent from those that were most compact, and would beg to state that the rich, deeply-trenched land, caused the Helianthus to run to strong stems, thick and branching, and the tubers from such stems were placed deep and wide in the earth, and by no means equalled in weight of crop of tubers the less luxuriant plants. The plants on the very poorest soil grew just the reverse, and the tubers were nearly globular in form and grew close to the stem, whereas the rank stems produced elongated tubers on very long stolons. The sample is from neither of these, but from the medium quality of land, or what would be called good light Potato land, one spit deep on the new red sand-stone. The plants were grown on demidykes or raised beds, as recommended and shown by an engraving in "Forsyth's Brochure," and stood in proportion to the land thus:—Two rows to every 6 feet, and the plants stood about 10 inches apart in the row, and supposing the whole field to be equal to the medium soil which produced the sample, there would be about 15 tons to the acre of good usable food for men; and when we compare the analysis given by chemists of the Helianthus and the Potato, we shall find a heavy balance in favour of Helianthus, as being more nutritious in proportion to its bulk than Potatoes. And lest the taste or the cookery should prove a stumbling-block to the introduction of this auxiliary to the Potato in the eye of the household matron, I must remark in passing that Helianthus is second to none in making an "Irish stew," and this auxiliary to the Potato (for I have not so far given up the Potato as to speak of its successor as its substitute) will not only yield the tuber to make the Irish stew as the Potato does, but it will yield fodder to fatten the mutton or,

other flesh meat to form the chief ingredient, namely, the flesh, which I regret to state has been too thinly strewn in Irish soups for many years, and this is a feat that the fodder of the Potato never could achieve. —*Alex. Forsyth, Alton Towers, Oct.* 26.

THE AMATEUR GARDENER.

Evergreens.—The present season of the year is a kind of *experimentum crucis* of the taste and foresight of the possessors of gardens, especially small ones. It is easy to make a plot of ground look well in the absence of John Frost; but when that cold-blooded man begins his operations, beauty, which is only skin-deep, will speedily disappear. Nothing can be more striking than the contrast between some gardens in September, and the same in November. In the former period they literally glow with the beauty of Dahlias, Fuchsias, Calceolarias, Verbenas, and Scarlet Pelargoniums. In the latter month they exhibit the most meagre desolation. Even if the ruins of the cold have been removed, and the broom has done its best to make the garden *simplex munditiis*, the change is still very remarkable. What are called fanciers are sad hands in this way, since they too often neglect the general appearance of their gardens. Caring for nothing but concentrated beauty, in the form of a Tulip bed or a collection of Picotees, when these favourites are withdrawn, their domains are as innocent of verdure as an Arabian desert.

Such is the garden of those who have not the bump of picturesqueness, or a taste for general effect. How different is the appearance presented at this season of the year by the grounds, whether large or small, of those who have an eye for natural beauties in winter as well as summer. Now all this difference is produced by a judicious use of Evergreens. As the objects contemplated by works on Floriculture is to combine good taste with skill, the present paper will be intended to subserve this important purpose. This is the proper time for making alterations in the general arrangement of your gardens. I hope to persuade some of my readers that winter may be made interesting and delightful, by availing ourselves of Nature's varied riches. The most desolate spot can, on this side Christmas, be made to assume the features of verdure and pleasantness, without interfering with beds intended for florist's flowers; and all seasons can thus be laid under contributions for "wreaths and posies."

And first, what garden should be without a portion of well-shaven and velvety Grass, which, green all the year round, is specially green among the russet hues of winter. This is Flora's mantle, found everywhere, and always pleasing to the eye and heart. How conspicuous is the difference between beds of flowers cut out of turf, and others surrounded by gravel. Grass, well cultivated, will heighten the beauties of a garden in summer, and confer upon it a double charm in winter. By all means, then, introduce as much turf as you can, and incur extra expense and labour to have it good. Almost any Grass may by care and constant mowing be brought, in time, to some degree of fineness; but it is far preferable to have it good at first. It should rest on a hard subsoil, and be very mathematically level. It is common to lay the turf on chalk or brick-rubbish, and perhaps, to secure fine Grass, a very rich soil should be avoided.

In connection with the Grass-plot, introduce as large a variety of Evergreen shrubs as your space will permit. The Laurestinus is invaluable for small gardens, as its growth is slow, and it forms round compact bushes of great elegance. Its flowers are never looked upon without great pleasure, being intrinsically beautiful, and set off by the green of the shrub, and the season of the year. Varieties of Arbor-vitæ, Phillyrea, and Aucuba japonica will furnish every shade of green requisite for effect. Let all your shrubs be taken up under your own superintendence from the nursery-ground, with the roots uninjured, and as much earth as possible adhering to them. Tread the soil well in, and tie them to stakes, if large enough to be blown out of their places by the wind. You will have the benefit of these shrubs immediately, and if they are well watered in the dry season of spring, they are sure to flourish.

I have often wondered that the winter garden is so neglected, capable as it is of being brought to a high degree of beauty, and being, when properly managed, confessedly so attractive. Wild nature has its ornaments in the coldest seasons, and many vegetable productions are never seen to advantage till the deciduous trees are denuded of their foliage. When, therefore, art is brought to our aid, there is no reason why winter should not be highly attractive to the gardener, as indeed it is to all thorough amateurs. The almost talismanic power of variety, unknown in tropical climates, exerts its spell in these colder regions. Unbounded wealth and power once made ice tributary to luxurious greatness, and hyperborean frosts were compelled to exert their gelid sinews in the construction of a palace. Although the Russian Czarina did not probably intend her winter masonry to teach such lessons, we may look upon it as emblematical of the power given to all of us, of making the most unfavourable circumstances tend to our convenience, and giving even the dreary months of winter an inexpressible charm.

> "I saw the woods and fields at close of day
> A variegated show; the meadows green
> Though faded; and the lands where lately waved
> The golden harvest, of a mellow brown,
> Upturned so lately by the forceful share.
> I saw far off the weedy fallows smile
> With verdure not unprofitable."—Cowper.

—*H. B.*

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

(*Continued from p.* 726.)

Dr. Lankester, the Secretary, then read the following Paper *On the Development of Vegetable Cells, by* Arthur Henfrey, Esq., F.L.S.—In some observations which I had the honour to lay before this section at Cambridge last year, I brought forward certain views I had adopted in regard to the multiplication of vegetable cells by division, which, I then stated to be to a certain extent hypothetical, that is to say they were rather the only probable explanation of the phenomena I had observed than conclusions from an unbroken series of examinations of the process in its successive stages.

I then gave it as my opinion that the division of the parent cell into new cells, is affected by the gradual folding inward of the primordial utricle, which organ, in virtue of its peculiar function, secretes the septum within that fold, the circular constriction thus produced arriving finally at the centre, the septum consisting of a double layer of cell-membrane becomes complete.

It is chiefly with the view of confirming and substantiating this opinion and of supporting it by a reference to the evidence in its favour which has since been furnished by other and independent observers, that I have been induced to submit the present remarks to your consideration.

It may be remembered that I acknowledged last year that my investigations had been directed in the channel which led to the conclusions at which I had arrived by the elaborate observations on the primordial utricle published by its discoverer, Prof. Mohl.

Toward the close of last year I was not a little gratified to find that the further researches he had instituted into the office of this structure had led him to adopt precisely the same view of the process of cell-division in certain plants, which I had ventured to propound as of general occurrence.

In the memoir on the structure of vegetable cells in which he first described the primordial utricle, Professor Mohl stated that, in the Conferva, this organ, in cell-division, became constricted by a septum growing inward from the walls, which finally separated it into two; but at that time he thought it probable that this was a process totally different from that which took place in the Phanerogamia, where he believed that the primordial utricle separated into two before the production of the septum commenced.

In a paper on the "Division of the cells of Conferva," published in 1835, before the discovery of the primordial utricle, Professor Mohl affirmed that the septum grew inward, directly from the cell-wall, and thus divided the cell into two.

In the collected edition of his memoirs, published last year, he has re-written this latter paper, correcting it in several important particulars, in consequence of a new series of observations, he was induced to undertake to investigate the theory of cell-development advocated by Nägeli.

He there describes and figures the process of cell-division in Conferva glomerata, and shows the production of the septum by the primordial utricle exactly in the manner which I had indicated as occurring in the hairs of the stamens of Tradescantia.

M. Müller, in his remarks upon the development of Chara, declares that cell formation is effected by two different and apparently very distinct processes. Some of the cells, he says, are produced from cytoblasts in the manner described by Schleiden, from whom, however, he differs in some respects, since he regards the membrane developed from the cytoblast as identical with Mohl's primordial utricle, and, therefore, not as the permanent cell wall.

In other cells multiplication takes place by division, and the figures in which he represents the condition of the primordial utricle in various stages of its division, agree perfectly with the appearances observed by Prof. Mohl and myself.

With respect to the production of cells from cytoblasts, I do not think the evidence he has offered conclusive; one of his figures, indeed, which he owns that he cannot explain, rather inclines me to believe, not that the cytoblasts are the efficient causes of the development of new cells, but that their presence, in certain cases of multiplication of cells by division, has led Müller, like Schleiden and others, to a misconception of their function.

I will not venture an opinion as to the real function of the cytoblast, but this much I may state, that it is generally present at a very early period of cell-life, and usually of the full size. Now, cell-division often takes place, or rather commences, at an epoch when the cytoblast completely fills that portion of the primordial utricle which is about to form a new cell on the subsequent expansion of the utricle its walls retreat from the periphery of the cytoblast or nucleus, which then remains suspended in the cavity or attached to the wall. This may be observed in the moniliform hairs of Tradescantia.

It is evident that we have here an appearance similating the development of membrane from a cytoblast as described by Schleiden; and since I have never been able to see the production of cytoblasts themselves by the aggregation of the granules of the mucilage, I think is most probable that it has been a misinterpretation of similar phenomena which has given rise to Schleiden's theory.

Müller has represented a cytoblast or nucleus cut into two portions by the fold of the primordial utricle. The same division of the perfect nucleus by the septum of the cell has been observed by Unger. This is a different thing from the original division of the nuclei which is said to occur at the earliest epoch of the life of the cell, but it is direct evidence against the assumption that the cytoblast is the active agent in the production of the new membrane. One thing at least is certain, that the cytoblast has nothing to do with the production of the permanent cell-wall, since it is always within the primordial utricle, either adhering to its walls, or at earlier periods suspended in the cavity by mucilaginous filaments.

In the course of my investigations, to satisfy myself of the correctness of the view I had taken of the agency exercised by the primordial utricle in cell division, I have observed the process in several plants Cryptogamous and Phanerogamous. In no case have I been able to trace the gradual progress of the formation of septa so well as in Achimenes grandiflora. This plant produces a great number of axillary buds or bulbels, on the scales of which are found many capitate hairs. I examined these hairs in young buds of from about half a line to a line in length, possessing at that period only six or seven scales. By dissection these scales were isolated and brought under the microscope, the hairs which fringed the margin of the scales were thus presented free throughout their whole length, and being very transparent afforded an admirable opportunity of examining the cells in their different stages in a perfect and uninjured condition, an important point, which cannot be secured in sections of growing tissues.

In the earliest stage the nuclei were perfect and distinct one from another; in the next the transverse lines indicate the commencement of the unfolding of the primordial utricle; that the lines are not septa is seen by the appearance of hairs which had been kept in spirit several days. In these the primordial utricle, detached from the lateral walls, is continuous throughout the whole length of the hair.

Different stages of the unfolding, that is, the progress of the fold toward the centre, were seen by the constrictions exhibited by the mucilaginous cell-contents. When treated with iodine, the septa were incomplete in the upper part of the hair, but the lowest septum was perfect, the primordial utricle, with the cell-contents, having become retracted from it. In this septum the two new layers may be traced from the lateral walls, intimately united toward the centre so as to appear like one layer Such an examination shows that the layers forming the septum are continuous, with a new layer deposited over the inside of the lateral wall. Mohl states that each layer of new matter grows from the circumference to the centre, and that the septum is not produced by a succession of layers, each projecting a little beyond that preceding it. This point I have not yet been able to determine for myself. In the perfect cell the primordial utricle, with the nucleus, undergoes dissolution.

These views which I have adopted of the nature of the process of multiplication by division are not sufficient to explain all cases of cell development. I allude particularly to the production of free cells in the cavity of a parent cell, such as occurs in the formation of spores and pollen. Supposing that this is not effected in the way described by Schleiden, namely by development from nuclei, it is necessary to suppose either with Nägeli that the primordial utricle divides into distinct portions, and becomes detached from the cell wall before it begins to secrete membrane, or that the new cells, formed within the parent cell, subsequently become free by the solution of those layers of membrane deposited immediately upon the primary wall.

This is a subject of considerable difficulty, especially as an internal formation, such as is implied in all these theories, throws no light upon the external markings which are produced in definite arrangements on pollen grains, spores, &c. These points remain for future investigation.

MUMMY WHEAT.

At page 653 mention is made of an ear of Wheat having been exhibited at the Newcastle Farmer's Club, which was supposed to have been grown from a seed found in an Egyptian mummy case. Statements of the same general character have been put forth elsewhere; and I lately met with one in a little work called "Botanical Rambles," published under the direction of a committee of the Society for promoting Christian Knowledge. Two figures are there given of the kind of Wheat alluded to, and an interesting and very marvellous inference is drawn from the presumed accuracy of the facts detailed. It is asserted that in Egypt of old it was no more uncommon to meet with seven ears of corn growing on one stalk, than seven kine feeding together in one meadow! On two or three occasions I have received specimens of this supposed "Mummy Wheat," and in the *Gardeners' Chronicle* for 1843, p. 787, you have also stated that several had been sent to you. The variety has proved to be nothing more than an old and well known kind of "Revel Wheat," called "Egyptian Wheat," and which I have occasionally seen cultivated in this neighbourhood. I presume this variety has been so called in allusion to Pharaoh's dream, when he fancied he saw the monstrous fact of one stalk bearing seven ears. This variety does not in reality bear more ears than usual, namely one only, but it has several of the spikelets so much elongated that they bear more grains than usual. It is this circumstance that gives it the appearance of a cluster compounded of several ears. It is a monstrosity which

occasionally returns, under culture, to the more ordinary conditions of the case, neither is it, when most prolific, considered to be a variety of any great value Now it is the mere name of this variety which has misled many to suppose it identical with the kind of Wheat that was raised in the celebrated experiment you have recorded in the *Gardeners' Chronicle* for 1843, but which is there stated to have been the "Belle Vue Talavera" of Colonel Le Couteur I can fully confirm this because I had six grains from the specimens raised by Mr Tupper, and grew them in company with several varieties of Wheat in my garden Among these were plants of the "Belle Vue Talavera," and I had ample opportunity of comparing them with the descendants of the "Mummy Wheat" This variety was specially remarkable for exceeding in length of straw, and for flowering much earlier than any of the other varieties in my garden In this, and in all other particulars, I could not observe the slightest difference between the Belle Vue Talavera and the Mummy Wheat Both, also were attacked more vigorously than the rest by rust and mildew If, then, the single seed reared by Mr Tupper was really deposited in the catacombs during the time of the Pharaohs, the Wheat of Egypt was not (our) Egyptian Wheat, so far as this experiment may be considered decisive But I have long suspected the possibility of a flaw in the testimony upon which this one grain is supposed to have been so old as Mr Tupper and Sir G Wilkinson believed it to be Application was once made to Sir G Wilkinson for specimens of Mummy Wheat in order that it might be tried among a series of experiments "on the vitality of seeds" which have been in progress for a few years, under the superintendence of a committee of the British Association The gentleman who had been requested to apply to Sir G W was furnished with a sample by himself Upon his proceeding to share the grains among the parties experimenting, he was surprised to find them intermixed with grains of Maize (a plant of the new world!) This, of course, led to further inquiry, and the conclusion arrived at was, that the sample had most certainly been tampered with before it came into Sir G W's possession Without presuming to deny the possibility of Mummy Wheat retaining its vital powers for 3000 years, I must consider the above fact, coupled with the strange misapprehension that has arisen respecting the mummy origin of our "Egyptian Wheat," to throw an amount of suspicion upon the accuracy of the results which Mr Tupper considered he had obtained, which makes it necessary the experiment should be repeated before we can feel satisfied that a grain of Mummy Wheat has really germinated in our own times —*J. S Henslow, Hitcham, October* 3

Home Correspondence.

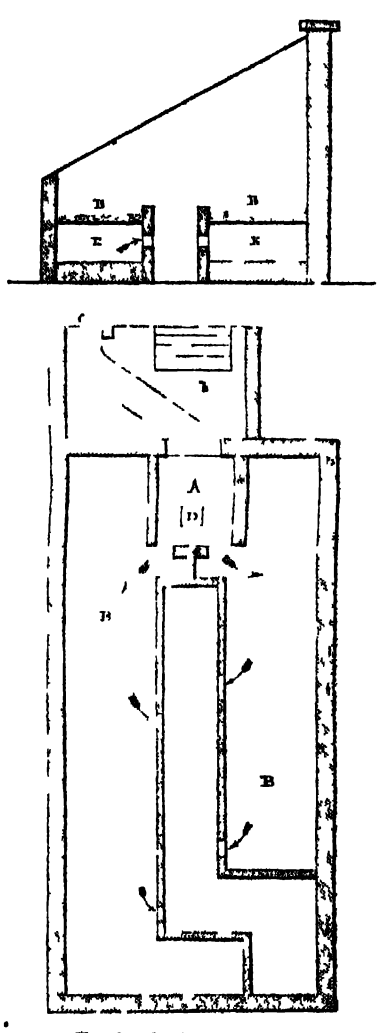
Snowdrops —An amateur gardener myself, I read the articles of "H B" with much interest He complains (p 739) of the difficulty of keeping a stock of Snowdrops, and speaks of the broad patches of them that may be now and then seen in old orchards where no care is taken of them I was long ago aware that they would not stand in flower beds, where they are subject to frequent disturbance, I therefore took the hint of the aforesaid plenary supply of old orchard growth, and placed patches on my lawn so near to the stems of Arbor vitæ, Judas tree, and other lawn standards, as to secure them from the sweep of the scythe, so long at least as the foliage was necessary for the annual recruit of the bulbs When the leaves wither the tufts are cleared away with the long Grass, and the flowers spring, and are fully enjoyed in the spring, before the mowing season begins Old orchards are depastured and seldom mown, and the other hiding places of the Snowdrop are seldom disturbed It is thence to be inferred that its bulb will not bear frequent removes, or, if so, that we have yet to learn how it is to be tuned —**

Bulbs —Your correspondent "H B," (p 739,) complains of difficulty in cultivating the Snowdrop I never experienced such difficulty, but having formerly collected the roots from places in which they apparently grew wild I can tell him that they delight in a deep moist, tenacious soil especially a black marly loam resembling pond mud In this they increase abundantly but the roots are seldom found within six inches of the surface and I suspect do not like to be often disturbed As far as I have observed Amaryllids, bulbs — including Narcissus — prefer strong alluvial soils It is somewhat remarkable that Fritillaria meleagris is rarely found wild except in meadows subject to floods, and I have noticed that it abounds most in those parts which are most frequently flooded I have also found that Gladiolus natalensis (psittacinus) does not flourish except in strong loam My whole stock dwindled and died on being removed to a sandy soil Two years ago I planted some weak bulbs in a strong soil and this year they have flowered in great luxuriance I mention this because Gandavensis and other hybrids will probably possess the same habits and if treated like the more delicate African Gladioli will probably perish Iris Xiphium also is never seen in perfection except in a strong alluvial loam. I wish lovers of gardening could be persuaded to take some trouble with the Chalcedonian Iris Many roots are annually imported, but how rarely is it seen in flower! I suspect the tubers are so weakened by removal that they will hardly flower till the second year —*J. Rogers*

Roses in Pots —Mr Rivers will find it much easier to bloom Roses in paragraphs than in pots, and I recommend him and every one else not to put up an erection covered top and sides with canvas for blooming this favourite flower under, in the way we do Tulips, &c, for it will not answer It is very well to have such an erection to place them in when the flowers are just expanding and then they must not be there many days, for they do not like it Mind I am speaking of canvas for a covering—not glass, the latter answers well I wish Mr Rivers would favour us at the exhibitions When I go up, and I do to all the Metropolitan shows, I see no contributions of his in this way, and until I witness what he can do in pots, I do not care to read what he can do on paper Mr Rivers is a thorough Englishman, and will take this in good part —*Cultivator, North Wales, Nov* 9

Brugmansia Knightii —If I am correct in believing that the new double Datura is the plant figured under this name in the "Botanical Magazine," it will prove a valuable ornament to the conservative wall It was planted against mine last spring, and has succeeded admirably, having grown vigorously, and produced an immense number of its large, fragrant blossoms during the summer, and is still covered with flowers and buds which, unless we have unusually severe weather, are likely to open in succession till Christmas, when it will be slightly protected —*A Devonian Kingsbridge, Nov* 7

Hazar's Heating —We have received from Messrs Garraway and Co the following plan of the house mentioned in their communication of Saturday Oct 31 (see p 725) —



A Chamber for Apparatus
B Pit
C Entrance Cold Air Drain
D Termination of Cold Air Drain
E Space under slate for Warm Air
F Stoke hole

Polmaise Heating —To my communication on this subject (p 741), you append the enquiry "How do you propose to provide against back draughts?"—I think that a very light valve or door, hung by its upper edge, in the air passage to the ash pit, with a slight tendency to close by being hung a little out of the perpendicular, would not obstruct the draught to the fire, and would effectually prevent any back draught from it Or if an increased height to the chimney would be not objectionable, an effectual draught would be secured by that means But, as there are very great objections to stove roasted air, I think where a little addition to the first expense is not an object, that the method of warming and ventilating the Reform Club-house, (as described by Dr Ure in the "Supplement to his Dictionary of Arts, Manufactures, and Mines," where 11,000 feet of air heated from 75° to 85° is thrown in per minute, using two cwt of coals in 12 hours) would be preferable to almost any other —*Utor*

How to decoy and destroy Ants in Dwelling-houses —When practicable place as near the end or passage on a level, a basin or bowl filled with dry mould; then put a bone or bones of fresh meat in the bottom (such as are discarded from the dining-room). You will soon find your tenements congregate thousands strong; for I assure you they are first-rate bone-polishers: Forty years ago, when a boy, whenever I wanted a particular bone of a duck or goose polished, I always found the ant-hill the best manufactory: Have in readiness a strong solution of boiling salt and water, and when you perceive your enemies beginning to retreat cover them with it Salt and water cold will destroy them poured into their haunts; but the better way is to decoy them out of their strongholds. It will be good policy to wash out the basin or bowl, and fill it with fresh mould previous to a second decoy, as it will be perceived salt is not a favourite. It appears that previous to the ants making their appearance in the houses at the west end of London (see Newspaper department of the *Chronicle*, p 340) they were infested with beetles, and doubtless they were tempted by damp, but the houses, now become drained and dry, and means used for their destruction, the ants, fond of a dry place, took possession, and like all other beings, live by feeding on the dead, and as long as the remains of the beetles lasted they did not intrude further Gardeners may take the hint of the bowl or basin among their pots or plants.—*B A C K*

Clement Hoare's Vine Pillar —I have three Vines growing upon two of Clement Hoare's Vine Pillars, now looking, as they have done all the summer and autumn, very healthy I hope the plan will not be discarded, as it only wants care to make it answer.—*C J A Lloyd, Whittington, Oswestry, Nov* 3.

Select Pelargoniums —The following, from their beauty and colour, are well adapted either for greenhouse cultivation or for the purpose of showing, being arranged according to colour, a selection may be made to suit various tastes Fine flowers in the class of whites, rosy crimson, and purples are still much wanted, and certain flowers are retained which are deficient in form, till improved varieties equal in colour shall drive them from the field —

White	*Flowers of a fully petaled, but not double character*
Drury's Pearl	Foster's Pallidum
Beck's Susanna	Beck's Muster
Catleugh's Lumina	Desdemona
Sarah	Zenobia
Lyne's White Perfection	Hedge's Oberon
	Lyne's Imperial
Pink or Light Rose	Cyrus Superb
Foster's Matilda	
Sylph	*Crimson*
Beck's Isabella	Foster's Lucretia
Gaulth's Magog	Sultana
Nestor	Otho
	Cyrus's Duchess of Leinster
Rose	Thurtell's Julia
Beck's Rosy Circle	Lyne's Duke of Cornwall
Favorite	Foster's Cardinal Patrician and Archbishop Sterigo
Cocks's Hector	
Miss Sauvage	*Purple Crimson*
Foster's Nymph	Foster's Ariadne
Curtis's Queen Philippa	Thurtell's Ida
Magog	Hedge's Diamond
Rose with White Centre	Catleugh's Agrippina
Beck's Arabella	
Foster's Luna	*Purple*
Nabal	Foster's Sir Robert Peel
Garth's Constellation	Beck's Purple
Unit	Silverlock's Emperor Nicholas

Referring to the reports of the Horticultural and Botanic Societies exhibitions, it will be found that the following varieties have received prizes, and have been tested as two years old flowers —

Beck's Aurora	Hoyle's Mount Etna
Bacchus	Beck's Patriotism
Competitor	Resplendent
Hebe's Lip	Cocks's Monument

—*

Rabbits —I was once informed that rabbits have a dislike to treading upon newly turned up soil, I thought I would give the thing a trial. Five rows of young Cauliflower plants were put in where rabbits were known to be, the plants were allowed to remain undisturbed for the first two nights after they were planted, on the third morning a few plants were destroyed, on the evening of that day the ground was disturbed with a Dutch hoe, the next morning when they were examined, all the plants were safe, the hoeing was continued for some time, until the plants were well taken with the ground, and when that is the case, they are seldom eaten by rabbits, unless they are very numerous and provision short. The hoeing may be done in a few minutes in the evening, and, besides keeping off the rabbits, is a benefit to the plants —*Peter Mackenzie*

Conifers at Bury Hill —Pinus insignis, planted in June 1840, out of a 6 inch pot, and then 15 in high, measures now, Nov. 1846, in height 20 ft, diam of branches, 13 ft.; girth of stem at 3 ft from the ground, 1 ft. 10 in. Last year at this time it measured 14 ft in height, having grown exactly 6 ft during last Summer Near it is a plant of Abies Douglasii, planted in 1833. It measures in height, 40 ft, diameter of branches, 30 ft; girth of stem at 3 ft from the ground, 2 ft 11 in. A Deodara planted about the same time, measures in height, 21 ft.; diameter of branches, 17 ft; girth of stem 3 ft. from the ground, 1 ft 9 in.—*W. Scott, Bury Hill, near Dorking, Surrey, Nov* 9.

Clianthus puniceus as a Creeper.—Those who have not seen this trained as a creeper can form no correct idea of the splendour of this truly beautiful plant The Clianthus in the conservatory here extends about 35 feet, on the next rafter is Glycine (or Wistaria) sinensis, and at the top of the house both creepers are turned to meet and intermingle their flowers in festoons, the effect of which is very good. Both plants flower twice in the season. By being forced, or rather for-

weeded in February and March, they bloom the latter end of March and in April, and again in September.—*J. L. Snow, Swinton Park, Bedale, Yorkshire.*

Gardeners' Education.—In the present day, when gardeners are not only required to act, but also to think and examine, I have often thought that you might render them a great service if you would point out to their employers the necessity of furnishing their gardeners with the instruments requisite to enable them to prosecute their studies and investigations. I allude to useful books, the globe, and microscope. I need hardly mention that the majority of gardeners are too ill-paid to be able to procure such things, although they may have sense enough to use them if they had them, and would feel grateful for such helps, whether they were bestowed on them as rewards, or only supplied to them during the time they continued in their situation. I am satisfied a word or two would do much good.—*C.* [If masters would do this, they would not only confer a direct benefit upon their men; but an indirect advantage upon themselves.]

Silk-Worms, &c.—At p. 709 you allude to the introduction of silk-worms, by Mrs. Whitby, of Newlands. The writer of this being in Paris in the year 1837 or 1838, heard the late M. Audouin, professor at the Jardin des Plantes, state that after repeated attempts, he had at last succeeded in procuring from the southern parts of the United States, a gigantic species of silk-worm (averaging six or seven inches French in length), at that time unknown in Europe, much hardier than the common silk-worm,—particularly as to its food. Could you inform me if any attempt has ever been made to introduce it into this country? Might I also ask if any attempt has been made to introduce the Vicugna? for the writer of this recollects well hearing M. St. Hilaire express himself strongly on the great superiority of its wool to that of the Alpaca, and his entertaining no doubt of the possibility of introducing it to Europe. Lastly,—you stated some time since, that Mr. Barker had sent to this country from Suaedia (I believe at the mouth of the Orontes), a kind of Peach (Nectarine) entirely unknown in this country, the peculiarity of which appeared to be a total absence of hydrocyanic acid in the pulp or seed. Is it possible that our common Peach might have originated in the bitter Almond, and this Peach in the sweet?—*Καρποφιλος, Nov.* 3. [We must trust to our kind correspondents for answers to these enquiries.]

Foreign Correspondence.

Odessa, October 6, 1846.—Since our arrival here, we have made a 10 days' excursion to the south coast of the Crimea, so celebrated in this country as the "Italy of Russia." Landing from the steamboat at Yalta in the centre of the most beautiful part, we proceeded first to the westward, visiting Prince Woronzow's gardens at Alounta, and along the new post road, crossed the ridge to Baidar Balaclava and Sevastopol, thence eastward behind the mountains through Bagtchi-sarai to Sympheropol, then turning southwards round the Tchatir-Dagh, came down upon the coast again at Aloushta, and back to Yalta, passing the government botanic garden of Nikita; a tour of about 180 miles through all the different varieties of soil, aspect, and climate of south Crimea, except perhaps that farther to the eastward the valleys are said to be rather more open. The mountains which border the south coast form a narrow ridge of bold rocks, rising to the height of 2000, 3000 and 4000 feet, or in some places to above 4700,* mostly calcareous, but often also schistous or porphyritic, with a very steep slope towards the sea, and sinking rather more gradually to the north, first into rocky wastes, like the garrigues of the south of France, but soon passing into steppes, like those of the main land. All this country behind the mountains is cold, barren, and uninteresting, either in an agricultural or horticultural point of view, however rich some parts may be to the geologist. The Tartar inhabitants, though a fine race of men, picturesque in their dress, healthy in their looks, with many really handsome women; yet in idleness, ignorance, and filthiness of habits and habitations, are to the Little Russians what these are to the true Russian mujiks. If the Russians possess these qualities in a positive degree, the Little Russians enjoy them in the comparative, but the Crim Tartars in the superlative degree. Such at least is the report of them we universally heard, and we could not but believe it, whether we saw the townspeople sitting on their shopboards cross-legged, or squatting smoking their pipes in the Tartar capital of Bagtchiserai; or the country people lazily crawling to the Sympheropol market in their rude oxen carts, in the construction of which no iron is used, and of which the wheels are never greased, or beating out the corn for the day's gruel with a wooden kind of club. In the great works carrying on for the dockyard and arsenal at Sevastopol, when the soldiers who worked at them were wanted for the Caucasus, and the completion given out by contract, the contractors found it hopeless attempting to employ the Tartars of the country as labourers, and imported a large body of Little Russians. With such a population, and nothing in the Crimea north of the mountains to induce proprietors to fix their residence there, it will probably be very long ere the rich soil of these steppes will be made really productive. In the market at Sympheropol, which is a very large one, the quantity of Water Melons, much as I had heard of them, exceeded what I could have imagined. Very fine ones were selling at 1*d.* and 1½*d.* a piece, and excellent Melons at about the same price; Grapes, notwithstanding the proximity of the south coast vineyards, few and not good; Cabbages the principal vegetable. One peculiarity in the market was the enormous quantity of cart wheels in pairs, with their axles. We had passed the day before long trains of them, a pair of oxen drawing each a little waggon, in which sat, or rather lay, the driver, and each cart dragging after it from four to ten pair of wheels, rudely attached with wooden poles and pegs. No iron enters into the construction of either wheels or carts, the parts all being connected by wooden pegs, the tire not of one piece, as in the greater part of Russia, but of about half a dozen felloes, neither accurately shaped nor well put together, so that few wheels are an exact circle, and, altogether, lines of 20 or 30, or more, of these carts, with 100 to 150 pair of wheels, all squeaking on their ungreased axles, had a most singular effect. They come mostly from Kokkoz, a village in the wooded part of the mountains, said to contain 300 wheelwrights, who make above 18,000 wheels per annum, and in the whole village is but one blacksmith's forge.

The higher parts of the chain of mountains, though very abrupt to the south, and but a few miles broad to the north, are in many parts densely wooded, and where the trees are not mutilated by the destructive manner in which they are cut for use, they attain a considerable size. The Oak is considered as of very superior quality for shipbuilding, when it can be procured large enough. I was surprised when I heard this at Sevastopol, for I was told it was the south coast Oak, which is all Q. pubescens, but on further inquiry I found that what was used for shipbuilding came from the woods of the Tchatir-Dagh, and on going through them subsequently, I found the Oak there to be entirely Q. sessiliflora, a very smooth variety, with long footstalks to the leaves. This is the first time I had seen that species in Russia. The Polish Oak, much used in south Russia, but reckoned very inferior to the Crimean, is all Q. pedunculata. The Q. pubescens of the south coast is generally a stunted tree, or (from frequent cutting) a mere bush; I saw one tree of some size at Nikita, and they say that the wood of a large tree is so hard that no axe will penetrate it. There is a considerable quantity of Pinus sylvestris on some mountains, but I did not see them. On the south coast, but at a considerable elevation, there is a good deal of Pinus Pallasiana, growing out of the chinks of the rocks exactly as it does near Vienna, where it is the P. austriaca or nigricans; I have no doubt the two are the same: the wood is not much esteemed, but not much is known about its qualities. There is on the south coast another tree which, on account of the excessive hardness of its wood, is considered by Mr. Upton as capable of supplying very good sheaves for blocks, in place of Lignum vitæ; it is a Pistacia, very much like the P. terebinthus of the south of France, but forming a tree instead of a bush, and having some other botanical characters upon which Fischer has distinguished it as P. mutica. The Ash of the mountains is F. excelsior, which lower down towards the coast is mixed with Fraxinus oxycarpa, as in the south of France. There is also towards the coast a great quantity of Carpinus orientalis generally a stunted shrub. On the whole, if the mountain woods were taken any care of, they might furnish much valuable timber.

* The *Ilabayan*, very near the sea, has been ascertained by Engelhardt and Parrot to be 787 fathoms, or 4722 feet, but the worst I have with me do not tell me what feet; probably Russian, which are nearly the same as English.

Societies.

STAMFORD HILL, CLAPTON, AND STOKE NEWINGTON GARDENERS' ASSOCIATION FOR MUTUAL INSTRUCTION.

Oct. 20th.—Mr. C. Tant in the chair. The Rev. W. Hincks, F.L.S., delivered a Lecture on Vegetable Teratology. He commenced by observing that many present might not understand from the subject announced to what branch of botanical science he intended to call their attention. He explained that Teratology (discourse concerning wonders or anomalies) is the name now given to the science which explains the nature and causes of abnormal developments, and applies them to the explanation of peculiarities regularly occurring in certain tribes. He noticed the mistake of the Linnean naturalists in despising and neglecting monstrosities, and gave some instances of their manifest importance. He then laid down the theory of the flower as consisting of several circles of transformed leaves, differently developed according to their position; showing that each part had been found in particular cases changed into a leaf, and into each of the other parts, and that each of the parts had been found imperfectly produced from leaves when not in a proper flower. He observed that increase or diminution of the number of circles, and of parts in each circle, and of the circles in respect to each other, and equal or unequal distribution of the nourishment, with the primitive distinctions of structure and number of parts which mark the great classes of the vegetable kingdom, explain all the differences among flowers, and anomalous cases constantly occurring illustrate the tendencies on which these differences depend. Mr. Hincks then exhibited and commented upon a portion of his collection of monstrosities, and illustrated the structure of some curious and beautiful flowers by reference to the principles they established.—*W. Sherwood, Hon. Sec.*

Erratum.—It was omitted to be mentioned in the report of the Horticultural Society last week, that a Banksian Medal was awarded to Mr. Smith, gr. to the Hon. J. Norton, for his Cannon-Hall Muscat Grapes.

Reviews.

Report on the Disease of the Potato Crop in Scotland, in the year 1846. With an Appendix.

This is a pamphlet of 112 pages, and consists of various letters on the Potato disease of 1845, obtained by the Highland Society from its correspondents. It is a very valuable collection of data, and forms an example of the manner in which such an enquiry should be conducted by a public body. The secretary of the Society, by whom the capital analysis of the contents of the letters has, we presume, been prepared, has executed his task with such skill, as to give much additional importance to what would in its absence be but an *indigesta moles*. The pressure of other matter prevents our adding, for the present, more than that the conclusions deducible from the Scotch evidence is not in any essential respect different from that which has been gradually collected by ourselves.

New Garden Plants.

52. Leschenaultia arcuata. Drooping Leschenaultia. *Half-shrubby Greenhouse-plant.* (Goodeniads.*) Swan River.

A singular and truly handsome species, exceedingly different from every other known one, having copious, spreading, decurved branches, with innumerable branchlets, almost every one of which is terminated with a large red-purple and yellow flower. Raised by Messrs. Lucombe, Pince, and Co., of Exeter. The flowers have a good deal the appearance of those of the large shrubby Polygalæ of South Africa. Flowers in August.—*Botanical Magazine.*

53. Scutellaria incarnata. Flesh-coloured Skull-cap. *Greenhouse Plant.* (Labiatæ.*) Quito.

From Messrs. Veitch. I was led on the first investigation of the plant to consider it the same with the S. coccinea of Humboldt, but a stricter comparison soon convinced me of this error; and I now refer it with little hesitation to S. incarnata of Ventenat. I am, however, disposed to think that author has confounded the S. coccinea, or some other species, with this. S. incarnata differs from S. coccinea in its narrower and more membranous leaves, borne on short footstalks, in the larger appendage to the calyx, deep-rose (rather than flesh-colour), with a shorter tube of the corolla, more dilated upwards, and in the almost entire upper lobe of the limb. It is readily increased by cuttings, and will doubtless be a great ornament to our flower-borders, if an entire bed is devoted to it. Flowers in July and August.—*Botanical Magazine.*

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

Calendar of Operations.

(*For the ensuing Week.*)

Planting and Selecting Fruit-trees for the Kitchen Garden.—In a late Calendar, I promised to give a few words of advice on this head to those not well versed in the subject. In the first place, I consider it of great importance so to prepare the soil that the trees shall be as far as possible independent of extreme seasons, whether of moisture or drought. In the second, to take care that they do not make superfluous wood, thereby giving much extra trouble to the pruner, inducing an immature condition, and choking the surrounding vegetables or flowers. To accomplish this, I find, by long experience, that limitation of the root is absolutely necessary, more especially as to depth. High planting also tends to the same purpose, but this in itself is not complete, inasmuch as it cannot provide against the vicissitudes of climate, which provision, as I before observed, should be the key-stone of the arch. Thorough draining, I need scarcely say, is the first step, provided the soil harbours moisture. This being properly accomplished, some good strong loam should be provided if possible, be the soil what it may (unless a new garden and of a loamy character), in order to mix with and refresh the old soil, which, in the majority of gardens, is what we term effete or worn out, however imposing its colour or consistence may be. I am no friend to concrete, or other impervious bottoms; however, I have never used them, and therefore cannot be regarded as fair evidence. I consider 18 inches of sound soil, for the average of fruit-trees, better than a greater depth, provided top-dressings are made use of in very dry and hot periods. This with me is placed on a mound, 6 feet square, of brickbats or broken stones, covered with a coating of cinders or coke, to keep the drainage perfect. The limits of a Calendar will not allow me to say more on this head; I will, however, enumerate a few of the most useful fruit trees according to my experience, and which ought to find a place in small as well as large gardens, merely premising that the list is not to be considered complete in itself, but merely as furnishing a few hints. Of Pears procure the Jargonelle, Dunmore, Marie Louise, Aston town, Althorpe Crassane, Fondante d'Automne, Passe Colmar, Winter Nelis, Glout Morceau, Ne plus Meuris, Beurré Rance. Peaches—Pourprée Hative, Royal George, Noblesse, Bellegarde, Late Admirable. Nectarines:—Elruge, Violette Hâtive, Old Newington. Apricots:—Breda, Royal, Shipley's, Moorpark. Plums:—Précoce de Tours, Orleans, Reine Claude Violette, Washington, Ickworth Imperatrice. Cherries:—May Duke, Downton, Elton, Bigarreau, Late Duke, Morello. These stand nearly or quite in the order of their ripening. In addition to these, of Apples procure the Early Harvest, Kerry Pippin, Hicks' Fancy, Ribston Pippin,

Pearson's Plate, Pitmaston Nonpareil, Old Nonpareil, Starmer Pippin, Lamb Abbey Pearmain; all table fruit. As kitchen Apples, Mauks and Keswick Codlings, Bedfordshire Foundling, Blenheim Orange, Dumelow's Seedling, Wheeler's Russet, Northern Greening. To these might be added many others of most excellent character; any one, however, desirous of planting a moderate sized garden would do well to obtain these kinds.

CONSERVATORIES, STOVE, &c.

Conservatory.—As last Calendar. *Flower forcing pit.*—Now the leaves are falling fast, it will be easy for those who have a pit at liberty to make it up for flower forcing. The leaves should have a portion of well wrought dung mixed with them, if to spare; this will bring the leaves into perfect action immediately. About nine inches of tan may be placed over the leaves in order to facilitate the plunging. Let the glass have a thorough cleaning. As soon as this is completed, flowers for forcing, if in proper condition, may be introduced immediately; such as the various Rhododendrons, Azaleas, Moss and Provins Roses, Persian Lilacs, Sweetbriars, Camellias, &c., taking care, at this period especially, to introduce nothing unless it has gone through a proper course of culture during the summer, such course consisting of early made and thoroughly ripened wood, for unless their condition is such, it will be in vain to attempt early forcing. The Hyacinths and Narcissi, potted in S ptember, may now be examined, and may be introduced successively in small quantities to this pit, when their buds are two inches long. They should be plunged overhead at the front or darkest part of the pit, covering them four inches with old tan.

KITCHEN GARDEN FORCING.

Pines.—Keep a high temperature during sunshine, but be very moderate at night, and during dark weather. Syringing may now be almost entirely dispensed with, provided plenty of atmospheric moisture can be supplied. A little through the stems of the fruitors once a week will, however, prove beneficial.—Vineries and Peach-houses at rest should have the remaining dead leaves stripped away, and be thoroughly cleaned out. Any pruning necessary should be performed directly. Early pruning is of more importance than people commonly imagine. These should have plenty of air day and night. Vineries and Peach-houses, for early forcing, having been prepared as described in last week's Calendar, may now have their temperature raised slightly by fire-heat. It is an excellent old plan to introduce a body of fermenting matter within the house if convenient: this will assuredly cause the trees to "break" with more regularity. See that the wood is dressed, if not already done, with the soft soap liquor. Mr Paxton recommended lime in addition, I think—a recommendation from such a quarter is well worthy of notice. Look well to the borders. Interior arrangements are of a secondary character as compared with the exterior.

KITCHEN GARDEN AND ORCHARD.

As full grown Coleworts turned into head, like young Cabbages, are rather impatient of frost in a severe winter, I make a point of taking them up at this period and heeling them near the frame ground as thickly as they can lay together. I cover them up as soon as slightly frozen, with new straw, laying a few stakes on them to prevent the wind removing the straw. By this plan I throw the ground at liberty for trenching, and preserve with certainty fine young Cabbages all through the winter. See that Mint, Sorrel, &c., is potted for forcing. Plant Shallots on raised beds; dig plenty of manure in, burying it deep, and surround the bulbs with sand on raised drills, putting the bulb just overhead. Get some straw covers or old lights on the prime Parsley bed, for fear of snow; also on the Normandy Cress. See well to winter salads. I will say something about these in next Calendar. *Orchard.*—I must beg attention to the early part of this day's Calendar.

FLOWER-GARDEN AND SHRUBBERIES.

All things liable to injury from severe weather, and which are requisite for another year, should be got under protection without delay. Such as Fuchsias, Lobelias, Pelargoniums, Shrubby Calceolarias, Salvias, Tigridias, &c., will require this treatment. Modes of storing these away differ in different situations; some can afford pits, some even can spare house-room, and some are driven to the cellar. Whatever mode be adopted, let it be borne in mind, that confined damp is nearly as prejudicial as frost. A lean-to shed is a very good place; and plants with a ball of earth dried on them, after the manner of Dahlias, will keep very well here plunged in coal-ashes, with the addition of an old mat and a little straw over the shed during very severe weather.

State of the Weather near London, for the week ending Nov. 12, 1845, as observed at the Horticultural Gardens, Chiswick.

Nov.	Mean's Attg.	Barometer. Max	Barometer. Min	Thermometer. Max	Thermometer. Min.	Thermometer. Mean	Wind	Rain
Frid. 7	17	30.169	30.106	46	40	43.0	S.E.	—
Sat. 8	18	30.260	30.228	44	42	43.0	S.E.	—
Sun. 9	19	30.337	30.303	47	41	44.0	E.	—
Mon. 9	20	30.440	30.400	43	34	38.5	E	—
Tues. 10	21	30.444	30.404	49	36	42.5	E.	—
Wed 11	22	30.525	30.250	51	36	44.5	E	—
Thurs. 12	23	30.245	30.213	51	43	47.0	N.E.	—
Average		30.324	30.297	47.3	39.4	43.3		00

Nov. 6 Fogey; hazy throughout
7—Foggy; hazy; overcast
8—Foggy throughout
9 Hazy; cold and dry; partially overcast at night
10—Dusky clouds; cold and dry; clear at night
11 Dusky clouds; fine, but cold with a brisk east wind, clear at night
12—Hazy clouds; fine; overcast; clear
Mean temperature of the week 1 deg. below the average.

Space of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Nov. 22, 1845.

Nov.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun 16	46.3	41.2	43.7	11	0.82 in.	1	4	2	2	4	5	1	1
Mon. 17	48.1	42.4	45.2	8	0.41	2	2	1	1	4	6	2	1
Tues 18	48.1	42.3	45.2	9	0.40	2	4	1	1	3	6	2	1
Wed 19	46.3	42.6	45.4	13	0.41	1	4	1	1	2	6	3	2
Thur. 20	46.1	43.5	44.8	12	0.87	1	3	2	2	2	7	2	1
Fri. 21	46.2	40.2	43.7	6	0.35	2	3	1	—	1	3	6	6
Sat. 22	46.8	40.0	43.4	12	0.36	2	3	2	2	1	3	4	1

The highest temperature during the above period occurred on the 21st, 1833, and 17th, 1844—therm. 59° ; and the lowest on the 16th, 1841—therm. 15°

Notices to Correspondents.

BACK NUMBERS OF THE GARDENERS' CHRONICLE.—The publisher has one copy left of the Volume for 1844, bound in cloth, price 1*l.* 10*s.* The Volume for 1845 is out of print. The following Numbers in the respective years can also be had. Any Subscriber who will forward post-office stamps equivalent to as many Numbers as are requested, will have them sent free by post.

1841—1, 2, 4, 7, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 34, 47, 52.

1842—1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27, 30, 31, 32, 34, 38, 39, 40, 41, 42, 43, 44, 45, 50, 51, 52, 53.

1843—10, 11, 12, 13, 14, 16, 17, 18, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 51, 52.

1844—All but Nos. 46, 47, and 50.

1845—1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 31, 39, 40, 41, 42, 43, 44, 47, 49, 50, 51, 52.

1846—1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 35, 37, 39, 40, 41, 42, 43, 44, 45.

ACHIMENES—*T B*—When the plants have done blooming, withhold water gradually from the roots, and let them have plenty of air to ripen the tops. When the latter have become brown, cut them off within an inch or two of the surface of the soil, and remove the pans (soil and roots) to some cool place out of the reach of frost and damp. In this situation they may remain all winter, and when you wish to start them a portion may be taken out of the pans, and the remainder left for successions. If the roots are started early in January, they will flower in May, and once a month afterwards is quite often enough for keeping up a good succession.—No. 2 is out of print; the other Nos. may be had.‡

BEES—*H R B*—Remove the glasses from your hives, make them tight at top, and thus follow the example of the bees. The "rears" may remain under the hives, provided there is not room above for the bees, but not if o herwise; for be it known that they require much less space during winter than summer. The pure combs in both the glasses and underhives will be of much use when the bees begin to work afresh in them the next season. *W.*

BOOKS—*Sub*—"Hamilton on the Pine-apple."‡

CURRANTS—*Z Z*—No White Currant possesses the flavour of the Black. There is a worthless dingy thing called the sooty Currant, and sometimes the "White Black" Currant, which may have occasioned your enquiry.‖

ELDER TREES—*R A J*—May be propagated by seeds, cuttings, or suckers. By cuttings is the mode generally preferred; now or in February, like Currants.‖

ENDIVE—*R A J*—This will not bear to be blanched in trenches like Celery. It requires dryness in winter.‖

EXOTIC FERNS—*T V*—Your plants will succeed much better in a box plunged in Moss than on a dry stage. The mode of potting, and also the soil recommended by Mr. Cameron, p. 660, are very good, but as to whether such plants will do better in a greenhouse than in a stove is, I think, rather doubtful. I never saw Ferns do so well in exposed situations as under partial shade, and it can scarcely be supposed that plants from warm countries, surrounded by a humid atmosphere, should do better in a greenhouse than in a stove, whose atmosphere more closely approaches that provided by nature.§

FRUIT-TREES—*J B, Penrith*—Wall S.S.W., Pears: Winter Nelis, Passe Colmar, Glout Morceau, Thompson's, Bacon's Incomparable, Knight's Monarch; Greengage and Reine Claude Violette Plums; Moorpark Apricot; and May Duke Cherry. Wall S.S.E., Royal Apricot and Elton Cherry. Wall E.N.E., Jargonelle Pear, Morello and Kentish Cherries; and Orleans Plum.‖——*A Constant Reader*—Your trees intended to be moved from walls will be better trained as espaliers than as open dwarfs. Commence by throwing out a trench 8 feet from the stem, clearing it to the full depth of the roots; then work in on the level, loosening the earth from amongst the roots with a fork as you proceed. As the roots are set at liberty, tie them in bundles with matting. Follow the same plan with your Vine; and now is the time. Train the roots *almost horizontally, covering them with a foot depth of good* soil, and over that plenty of mulching. The latter will protect the roots from frost in winter; and in summer it will encourage the formation of roots near the surface. Plant your espalier trees from 15 to 20 feet apart.‖

FRUIT-TREE BORDERS—*J B, Penrith*—The bottom being dry, 2½ feet of good soil will be shallow enough; any depth of lime rubbish as the bottom. Chop and mix your turf with the soil. Espaliers not exceeding 8 feet in height will not affect the wall trees. Espaliers have been deprecated because the trees against them have been too generally unproductive through bad management.‖

GAS v. PLANTS—*C D*—However pure gas may be it is very doubtful whether the air of a room lighted by it will not be deleterious to plants; because if not contaminated by the gas it is at least too much dried by it for their healthy existence.‡

GLASS—*R T*—The case is scandalous, but it can only be settled by legal remedy, from which we fear that you are barred by your own act. Pray give us the name. Plant Potatoes now, 6 inches deep, earth them up well, and break down the ridges in the spring when frosts are gone; no manure; but, if you like, a dressing of charcoal dust or gypsum when planted, with 2 cwt. per acre of sulphate of magnesia broadcast in the spring. The sets are unimportant; no one can tell good from bad.

HEATING—*George*—Your chimney must be very badly constructed. There is no remedy for the nuisance except pulling it down and rebuilding it, unless you substitute coke, which makes no smoke, for coal.——*Alexander the Little's* letter will be laid before the proper authorities. It is not worth building one on purpose.

INSECTS—*J W*—The Scolopendra you were so obliging as to send was destroyed for want of a cork stopper at the ends of the quill, to secure the animal, and prevent its being crushed by the post. *R.*——*J L*—Thanks for the maggots, which no doubt are from the Onions, and we can add nothing to the advice already given. *R*——*Entomologicus, Junior*—No. 1 is Cristallis tenax; 2, Scatophaga stercoraria; 3, Helomyza (?) 5, Campoplex, a parasitic Ichneumon; 6, Pteromalus puparum. Will not your Caterpillar change next year to the Dagger-moth? We do not recommend you to purchase the article. *R.*

LEADEN PIPES—*H C Z*—Mr. Osborne is right. They ought never to be used for the conveyance of water to be consumed by living beings. We have no means of judging of the cause of your well-water becoming offensive. The inconvenience may perhaps be remedied by throwing down a quantity of coarse charcoal, well freed from dust.

MAGNOLIAS—*T B*—We adhere to our statement. It is not right to judge from exceptions; such a summer as the last is capable of producing results that we can seldom look for. If you are desirous of trying the experiment you had better order *all* the hardy kinds you can get. One is nearly as well suited to your purpose as another; the deciduous kinds must go.

MAIZE—*Maïs*—The M. da dos Meses is the Italian 60 days corn, a small dwarf sort, and probably the same as Cobbett's corn. It is grown in the north of Italy. We have no idea that any kind of Maize can be profitably grown in Ireland; it requires a *hot dry* summer, like that just past, which you know seldom visits us. Seeds can be had from the Fellows of the Horticultural Society. The Haricot Bean is only a variety of the common Kidney Bean, Phaseolus vulgaris. It requires the same treatment. You will find some account of it in another column.

NAMES OF FRUIT—*J P L P*—1, Blenheim Pippin; 3, Shepherd's Newington; 4, Crimson Queening; 5, Ross Nonpareil; 6, Easter Pippin; 8, White Nonpareil; 9, Golden Reinette; 10, Worthless; 11, Chaumontel; 12, Parry's Pearmain; 13, Pearson's Plate; 14, White Crofton; 17, New Golden Pippin; 18, French Pippin; 19, Anis; 20, Lemon Pippin.‖——*C C N*—Blenheim Pippin.‖——*R A B*—Beurré Diel; the Apple Turk's Cap.‖——*C C N*—Blenheim Pippin.‖——*R A B*—No. 188, Passe Colmar; the other unknown.‖——*G U*—The new, not the true Golden Pippin; the other a Russet Nonpareil.‖

NAMES OF PLANTS—*J M Stansfield*—The plant is a Rhizomorpha.——*W E R*—We are unable to name solitary flowers with no sort of information about them. The two you have sent look like some variety of J. Sambac.——*C R*—2, Rondeletia odorata; 1, Nerine rosea.——*Amateur*—1, Andromeda racemosa; 2, ? some Azalea; 3, Vaccinium stamineum; 4, Andromeda Mariana.¶——*Cooper*—Teucrium fruticans.——*J A*—We cannot undertake to name collections of Chrysanthemums.‡——*Bywell*—Your specimen has unfortunately been lost; can you send us another?‡

PEACH-HOUSE—*J B, Penrith*—Peaches can be grown to good perfection in a house with a south-south-east aspect. The smoke will prove little annoyance, if you have a well constructed furnace and a good stoker.‖

PEARS—*J B*—The Beurre d'Amalis somewhat resembles a Brown Beurré, but is hardier. The Comte de Lamy is described *G. C.* 1846, p. 20. The Forelle is middle sized, obovate, speckled like a trout, ripe Nov.—Jan.‖——*A Subscriber*—Protect the blossoms in spring, and attend to the directions for summer pruning.

PEAS—*A Borderer*—Early Frame and Early Charlton, well saved. Knight's Dwarf Marrow, and Groom's Superb Dwarf rank amongst the best dwarf varieties.‖

PLANTING—*A Constant Reader*—All the *Pines* will thrive upon your sandy land; but none of the Firs, except the Deodar, and perhaps the Douglas Fir; but they are unattainable in quantity and at a low price. Beech, Sycamores, Upland Alders, and Cumulean Willows are almost the only trees that will thrive except the Birch. You may perhaps get Limes to grow, but they will not make good timber.

PLUMS—*An Old Sub*—Chapman's Prince of Wales is of the nature of the Orleans, but of more vigorous growth. It was advertised by Mr. Chapman, Brentford End.‖

POLMAISE—*R A J*—Mr. Meek has some observations on church heating nearly ready. Your letter is sent to him, as containing suggestions. As to stoves, if you use them, we must beg you to apply to the makers; we cannot undertake to recommend one over another; only beware of all "tales of a stove." You will learn the dimensions of any part of Mr. M.'s opening by measuring, the plan is drawn to a scale; so that, knowing one dimension, you have the others. As to the gentlemen who, you say, are trying to trip up Polmaise, we shall bear them in mind; and are obliged for the information. If it should be necessary, we shall take measures that will be effectual enough. The *only* person we at present recommend is Mr. Plumridge, of Bletchingly, who constructed the Holmsdale house. We begin to fear that dealers in hot-water apparatus are not the persons to consult about Polmaise.

SHRUBS, &c., which diffuse their odour—*A B*—Chimonanthus fragrans, Calycanthus floridus, Daphne cneorum and pontica, Philadelphus coronarius, Ribes aureum, Caprifolium gratum, Jasminum officinale, Clematis flammula, Syringa persica, Azaleas, *Crataegus*, Violets, Hyacinths, Scillas, Mimulus moschatus, Enotheras, Phloxes, and Tussilago fragrans. We never recommend dealers.¶

THE ARBUTUS—*J W R*—Its fruit is made into a sort of wine in some parts of the Mediterranean; but we never tasted it. It is slightly narcotic and diuretic. If you wish to sow the seed, mix the berries with sand for the winter, and in the spring rub them out and sow them like Rhododendrons.

THE VINEGAR PLANT—*A L*—We have heard of this production, and there was a notice of it last week in the *United Journal*; but the vague and unintelligible accounts given of it by yourself and others convey no sort of information; not even enough to show that it is a plant at all. If a good specimen is forwarded to us we will look to it. Whatever the substance may be, it evidently acts by exciting rapid fermentation.

VINES—*Old Tull*—Having erected a greenhouse 8 or 9 feet from the ground over other buildings, and heated on the Polmaise plan, you may rear Vines and introduce them with propriety at the height mentioned; but you must take care to protect the stems, when they would otherwise experience a temperature much different from that of their shoots inside. The sloping area is immaterial, provided you make sufficient drainage at the bottom of the wall. By planting at the end you could not furnish your house so soon, and training across the rafters would too much shade your greenhouse plants.‖

MISO—*G I*—Bassella fruit is edible, certainly, but not worth eating. You can no more make it fit for the table than you can the worst of our harmless wild berries. The plant has nothing to do with Phytolacca.——*A B*—Your leaves are attacked by Torula fumago, a parasite, or black mildew. They testify to dirty gardening. Wash them with a sponge and lime water.——*A Constant Reader*—They are all from Van Diemen's Land, and some nice things are among them, especially 7, 8, 21, 26, 46, 47, 57, 68, but many of the others are not worth sowing. Consult the Index of the "Vegetable Kingdom;" the natural orders will guide you pretty well: quite well if you *study* them.——*Lex*—Employ gypsum in your compost if you please, but not road grit. An eighth part if you please, not more.——*Lady L E L* will find an answer to her inquiry in another column.——*C F W*—Taxodium sempervirens is figured in Loudon's "Arboretum Britannicum;" its leaves are distichous and linear, much stouter than those of T. distichum. It is evergreen, and a native of California. There is no such thing as T. sempervirens pinnatum.——*J H*—The description and plan about which you inquire have been given at p. 663 of the current volume.‡——*H D*—To get rid of worms, put some quicklime into a tub of water, stir it well; and after the lime has subsided, water your Grass plot with the clear liquor. It will be as well to give your autumn-planted Potato ridges a little additional covering.‡——*A G*—Directions for the management of Hyacinths in glasses have been given at p. 703 (1845).‡

SEEDLING FLOWERS.

FUCHSIA—*W D*—Your seedling appears to be a well-formed and very pretty flower; but not surpassing many of the cultivated varieties.*

ERRATA—Page 741 *a*, line 24, *for* "there," *read* "then;" line 53, *for* "ten," *read* "two."

KAGENBUSCH AND Co.'s REMEDY FOR THE POTATO DISEASE.—Price 6s. per packet, which ensures an acre of sound Potatoes and a large crop.

KAGENBUSCH AND Co.'s GERMINATING COMPOUND.—Price 2s. and 4s. per packet. The best Steep for Wheat and other Grain; Turnip, Clover, Onion, and all other Seeds and Pulse. This is the gardener's best friend.

KAGENBUSCH AND Co.'s GERMAN SCIENTIFIC MANURES, which fertilise the land without exhausting it, at 30s. per acre for Meadows, once in three years; for Tillage 35s. per acre, and for Hops 40s. per acre, annually. Price 7l. 10s. per ton for Meadows and Tillage, and 9l. per ton for Hops. One ton is sufficient for 4 acres.

These articles are kept at Hibernia Wharf, London-bridge, and Mr. JOSEPH EDWARDS will deliver them to any one bringing the amount in cash.

Manufactured by KAGENBUSCH and Co., Agricultural Chemists, Leeds. Sold by JAMES and Co., Agents for the South of England, 55, King William-street, City; and POTTER, BROTHERS, Agents for the North, Cromford-court, Manchester.

*** Vessels of 50 tons, drawing 5 feet, load at the Works in Leeds, and can ascend the creeks of every port in the Kingdom, so that Dealers or Farmers, and Landed Proprietors, clubbing together, may be supplied direct, at a saving of expence.

A liberal allowance to the Trade.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
WM. JOSEPH MYERS AND CO., LIVERPOOL;
And by their Agents,
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL;
COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

LAWES' PATENT MANURES.—Turnip Manure, 7l. per ton. Clover Manure, 14l. per ton. Corn Manure 14l. per ton. Superphosphate Lime, 7l. per ton.

A Pamphlet on Artificial Manures will be forwarded to any person enclosing two postage stamps to Mr. WILSON, at Mr. LAWES' Factory, Deptford Creek, London.

GUANO, &c.

MARK FOTHERGILL begs to offer the following MANURES on the best terms, viz:
GUANO, PERUVIAN and AFRICAN, direct from Import Warehouses.
Ditto, PATAGONIAN and SALDANHA BAY. Ditto.
SODA ASH, for destruction of Wireworm.
SUPERPHOSPHATE OF LIME (See Royal Agrl. Soc. Journal, Vol. vi. Part 2).
GYPSUM (Pure Sulphate of Lime).
BONE DUST and BONE POWDER.
SULPHURIC ACID. CHARCOAL.
PETRE SALT and AGRICULTURAL SALT for Composts.
SILICATES of SODA and POTASH, and all other Manures.
No. 40, Upper Thames-street.
Agent for DINGLE'S HAND SEED-DIBBLE.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

FOR WHEAT, TARES, &c.

THE URATE OF THE LONDON MANURE COMPANY will be found a most valuable Manure for the above crops—it is permanent in its effects, and has stood the test of five seasons with increasing success each year. The Company also supply genuine Peruvian Guano, Gypsum, Superphosphate of Lime, Sulphate and Muriate of Ammonia, Charcoal, Bone Sawdust, Sulphuric Acid, and every Artificial Manure, at the lowest market price.—EDWARD PURSER, Secretary, 40, New Bridge-street, Blackfriars.

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton, Draining Engineer to Her Majesty, at Osborne, Isle of Wight; the inventor of a Patent Tile and Pipe Machine (applicable to making Bricks); also a new Machine for taking roots and stones out of clay, both which are to be seen at the Royal Polytechnic Institution, Regent-street,—offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P.S.—Land drained at a fixed sum per acre, including every expense.

CAUTION.

CHANNEL ISLANDS CATTLE. — Information having been received here that numbers of French Cattle, chiefly the small Brittany breed, have been sold lately in England, as Channel Islands, purchasers are earnestly requested either to write to friends, or to the officers of the Agricultural Committee, who will direct them to respectable dealers. Obtaining animals of our marked superior breed is of equal interest to the buyer as to the seller.

N. LE BEIR, } Honorary Secretaries.
J. S. LAINE. } R. A. S. G.

Guernsey, October 28, 1846.

The Agricultural Gazette.

SATURDAY, NOVEMBER 14, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Tuesday, Nov. 17—Agricul ural Imp. Soc. of Ireland.
— 26—Agricultural Imp. Soc. of Ireland.
LOCAL SOCIETIES.—Gloucester—Shropshire and Gainsboro.
FARMERS' CLUBS.

Nov. 16—Botley	Nov 25—Binfield and Waltham—Richmondshire
17—Bromsgrove	27—Wrentham—Lichfield—Hadleigh
25—Plympton St. Mary—Newton	28—Hereford—Northampton
26—Otnry St. Mary	

A FEW weeks ago one of our correspondents, speaking of THE REPEATED APPLICATION OF GUANO as a manure, said—"I think it tends to exhaust" the land. That, we imagine, was his meaning. And the same idea had been before frequently broached in our columns. Now, the fact is, that land cannot be exhausted by the application of manure; the idea is altogether a mistake. The exhaustion, if it takes place at all, is due, not to the manuring but the subsequent disposal of the crops grown. Apply guano to your land; you cannot by *that* exhaust it, and neither can the heavy crops which it may thus be made to yield, provided they be consumed on the land again.

This complaint resembles that which is sometimes heard—*e. g.*, of the Mangold Wurzel, as being more exhausting than the Turnip, which no doubt is perfectly true, for the weight of the former crop taken from the soil is generally greater than that of the latter. But this is about as fit a subject for complaint as would be the double crops of ordinary land in a favourable season. In all these cases the crop is greater, and in all the consequent exhaustion of the soil is necessarily greater also; in the first, the cause is artificial—the application of manure; in the second, it is partly natural—the growth of a plant of greater natural vigour; in the third, the cause is wholly natural—the fertilising influence of favourable weather. Can the differences, however, in the several instances hinder us, in any of them, from welcoming the result which is characteristic of all? The larger crop, let its cause be what it may, is just what you want; sell it off the land, and no doubt you exhaust the soil more than if it had been smaller; but consume it on the land, and the fertility which it represents will be made permanent. On the mode of its disposal will depend its influence on the land from which it is taken.

Where the crops are always sold off the farm, there is no doubt that those grown after one kind of manure may exhaust the land more than those which have been raised from another, and this will appear the more clearly in cases where the *same* manure has been repeatedly used. Unless a manure contain in the right quantities and proportions all the substances needed by the plant, a partial exhaustion of the soil must always follow the growth of a crop, for the matters which the manure cannot supply must be taken from the land. And one manure may be worse than another in this respect in two ways—1st, by its greater deficiency in substances required by the plant, and which must therefore be supplied by the soil—and, 2dly, by a composition, deficient in some respects, but, including such substances in such condition as shall tend to induce an extraordinary vigour of growth in the crop. The greater crop in this instance will be obtained at the expense of a greater loss by the soil of those matters in which the manure is deficient. Now, if the truth regarding guano be as our correspondent states, then its explanation is probably to be found in the latter of these suggestions. Guano is not a perfect manure, and, therefore, on some soils, the great vigour of growth it induces in the crop to which it is applied, is obtained at the expense of an extraordinary abstraction of the substances on which their natural fertility depends. The proper policy to pursue where the crops are always sold off the land is to change the manure as much and often as possible, so that the deficiencies of one kind may be made up by the superfluities of another. But in most cases correct farming should maintain itself; where the crops are consumed on the land, the heavier they are the better; for the matters thus taken from the soil are thus returned to it again; and to whatever fertility may be owing, a degree of permanence is thus conferred upon it. To be sure, even here there is a certain amount of loss to which the soil is liable, and especially where heavy crops are grown; but the substances contained in the grain crops and live-stock grown on the farm and sold off it, of which the soil is thus deprived, may be, and often are, profitably returned to it by the use of bought food for stock, such as oilcake, &c. It is only in cases where the system of selling all the produce prevails, that the land is liable to injury from the use of imperfect manures.

DISCREPANCES IN THE PRACTICE OF LAND-DRAINING CONSIDERED.

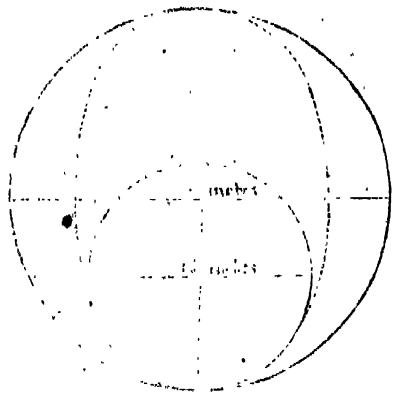
By J. H. CHANNOCK

HAD time and opportunity permitted, it was my intention, in common with many others, to have offered some remarks to the consideration of the meeting, after the lecture on drainage at Newcastle; and I believe it is doing no more than justice to the almost unanimous feeling of that large and intelligent assembly, to express the deepest regret that any circumstances should have interposed to prevent the full discussion of the subject; for, however competent and desirous parties may be by subsequent communications (as was suggested) through the medium of the agricultural press, to elucidate the whole truth, yet in such an assemblage, composed as it was of practical and scientific men from all parts of the kingdom, for the express purpose of acquiring and imparting information, it could not have failed but that a most valuable mass of practical and scientific evidence had been collated, and such probably as can never be arrived at in so compressed and desirable a form by any other means. Perhaps there hardly ever was an occasion when the agricultural interest of all classes manifested so eager a desire for correct information; and subsequent events have shown not only the desirableness of acquiring, but the positive necessity for putting it into practice; for no reflecting man can disregard, in the face of our increasing millions of population, the present fearful, and it may be but too well-founded, apprehension of impending scarcity.

There is no one who has been at all practically conversant with, or paid any general attention to the subject of land-draining, but must have marked the rapid and steady progress it has made within the last few years, not only as respects its more extended application, but also as regards its more scientific and economical execution—of which indeed the other is a consequence. The Duke of Richmond's Act for facilitating the operation on entailed and settled estates; and the still more accessible and comprehensive Act of the last session, for authorising the advance of public money for works of drainage, sufficiently indicate the importance which the legislature attaches to its extension, and will, no doubt, be the means of bringing large tracts of land into a tenantable state, and fitted for profitable cultivation. Great as has been the progress, however, there is yet ample room for further efforts; and I, for one, poor as my services may hitherto have been, hope still to be able to add my mite towards the attainment of so desirable a result. Seeing then the facilities which are now offered both to owners and occupiers of every grade, it becomes more than ever essential to the best interests of all parties, that the work of thorough-drainage (and I use the term in its most comprehensive sense) should be executed in the most permanent and effective manner, and at the same time with due regard to economy:—that "practice with science" should be realized in application, without the introduction either of crude novelties on the one hand, or of a prejudiced adhesion to obsolete practices on the other. It must not, however, be inferred that I wish in the slightest degree to undervalue scientific theory, any more than to over-estimate mere practice, for I know full well that the one without the other very much resembles the mariner steering without his compass: nevertheless, it not unfrequently happens that men in their zeal to establish theories, good in themselves, are apt to press them beyond their legitimate application into extremes which, practically, are neither desirable nor useful; and thus those discrepances arise which it is our present purpose to guard against, and, if possible, direct the attention towards the acquisition of that "practice with science" in the art of thorough-draining, which may most securely attain the object.

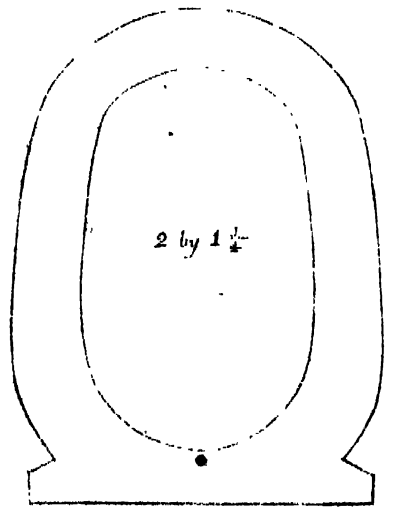
The leading features which we desire as briefly as possible to impress are, permanency of execution, completeness of effect, and consistent economy; in considering which it will also be necessary to speak of the details of depths, distance, pipes, &c. If any additional argument were needed, beyond that which pecuniary interest supplies, to convince proprietors of the necessity for drainage being executed in a permanent manner, it is to be found in the general tenour, as well as the several provisions of the two Acts before referred to. In the first, which is mainly for the removal of certain disabilities, whilst the benefit of improvement is given to the present possessor, especial care is taken to protect the interest of those in remainder, by requiring proper and effective execution; and in the latter Act (which proceeds a step further in encouragement, by authorising the advance of public money for the purpose, repayable by instalments, with interest, in 22 years) provision is not only made for effective execution at the first, but all the drains and outfalls are to be subject to supervision, and must be yearly certified to be in proper order; so that whilst it is incumbent upon those intrusted with the execution of the Act to be assured of the substantial character of the work, it will equally behove both owners and occupiers, for their common interest, to acquiesce in securing the most safe and permanent system. This will necessarily ensure the most approved plans wherever the drainage is done under the Act, and will also conduce to a better and more uniform practice generally, and finally abolish, it is to be hoped, that worst of all arrangements, yet too often persisted in, of the landlord finding the tiles or pipes, and leaving the tenants to do the work as it suits their notions or convenience. Hitherto, with some exceptions, I cannot but think that permanency has been too little regarded, whilst cheapness of first cost has been unduly considered. Take, for example, the apparent saving which is effected by the use of the smallest pipes, and what is the practical truth? Simply this: that by using the minimum size, about 1 inch calibre, instead of a pipe of double that sectional area, or 2 inches internal diameter, you may, perhaps, save in the prime cost of the pipes the paltry sum of 5*s.* or 6*s.* per statute acre; but, considering the practical objections of easy displacement, inability of the workmen to lay them firmly, and several others which might be given to so small a pipe (to say nothing of the acknowledged truism that all extremes are objectionable), this temporary saving but very poorly compensates for the additional risk that must be incurred in effective durability. I do not say that the smallest size of pipe may not be effective for a time (as, indeed, would be the drain itself, if merely refilled with the material taken from it, without any pipe or tile being laid), and even, perhaps, in many situations permanently so; but I cannot think that practice is to be regarded as either generally safe or

scientific which incurs such a risk for so insignificant a saving. The difference in price between a pipe of 1 inch internal diameter, and 2 inches, is not more than from 2*s.* 6*d.* to 3*s.* per 1000; and the little saving in weight and carriage is not worth a thought, between the two. That I may not be misunderstood in this matter, I will undertake that in any works I may be engaged in, the cost of a drain-pipe of full 2 inches internal diameter shall not exceed the cost of a similar pipe of 1 inch diameter by more than 3*s.* per 1000. Having given this assurance, I wish to demonstrate a little more fully by the accompanying figure (No. 1), the advantages of a larger sectional area.



No. 1.

The inner and smaller circle represents a pipe of 1¼ inch diameter, and the outer and larger circle one of 2 inches drawn in juxtaposition at A to show that, as the water in both will flow at that point, the difference in its compression be ween the larger and the smaller pipe is not material, since in either case the advantage of a due degree of compression will be ensured by the circular form. But as it is an advantage to obtain this compression, particularly when the run of water is small, the same figure will suggest that by converting the smaller circle into an oval, as shown by the dotted lines, probably the most perfect shape for the purpose will be obtained, with the additional advantage of a more suitable area. The 2d figure (No. 2) is a full-sized section of this oval pipe, and such as most people will, I believe, adopt in preference certainly to the smallest circle, and even, perhaps, to the 2 inch pipe. The flat foundation to the oval form has also, I conceive, some advantages.



No. 2.

In closing this portion of our subject I think it necessary to speak a little more in detail of the difficulties which a small pipe presents; and in so doing I would have it remembered that the object is not so much to prove their total inefficiency as to show that practically and under the majority of circumstances, they are neither so permanently safe or so consistently economical as the larger pipes. Where drains are cut in sound clay without interruption from stones, sand, &c., there is no difficulty in making use of the inch pipes, because the workman is able to form a clean and uniform cut, both in width and depth, for their reception, and it is then simply requisite to place them in it with the instrument for the purpose. But let stones and other impediments occur, as they more frequently do, to a greater or less extent, so as to render the sides and bottom of the drain partially uneven either by their extraction or protrusion (and how very little would suffice to prevent the proper laying of an inch pipe), and it then becomes indispensable that the pipes should not only be laid by the hand, but that when so placed the workman should stand upon them as he proceeds in order to their being securely bedded by the pressure to one uniform line. This, however, is impracticable with inch pipes, because the width is not sufficient to admit the foot. If, then, such care is requisite to secure good workmanship with only occasional interruptions, how much more essential must it be in the rougher substrata. As respects the formation of the drain itself I hesitate not to say that a good workman will cut a 3 or 4 feet drain for the proper reception of a 2 inch pipe, with full as great facility, if not with greater, as he will one for laying an inch pipe. To dwell upon the extreme liability of the small pipe to disarrangement would be tedious—it is a sufficiently self evident truth.

INFLUENCE OF MIND ON AGRICULTURE.

The discussion to which you have invited me is likely to take such a direction as to render you averse to admit it to your columns. The turn of the expression in which Mr. Mechi's name occurs is far from being a happy one. But that gentleman ought not to consider it as disrespectful to himself to be selected as a type of the intelligence which the *Agricultural Gazette* contains.

We are both agreed as to the relation which exists between the condition of men's minds and the land they cultivate. You recognise in that relation only the connection of cause and effect. Believing in all that you believe, I perceive in it a farther connection of simple concomitance. The following illustration will explain what I mean:—In harvest the grain is ripe and the straw is dead at one and the same time. No doubt the hardening of the straw has an effect upon the ripening of the grain. But the connection which exists between the hardened straw and the ripened grain is more a relation of simple concomitance than one of cause and effect. A remoter cause holds them both equally within its grasp. Again, if I ask any one what that is which causes the seed to vegetate when winter is past, the answer will be that it is the approach of spring. And the approach of spring is determined by the position of the heavenly bodies. Here again is a simple relation of concomitance. The same cause that operates upon the atmosphere and the soil also operates upon the seed, and has the power of a parent to make them all work in concert.

The concomitance which I have endeavoured to illustrate is eminently true with respect to the relation which exists between men's minds and the lands they cultivate. The same cause which gives skill and intelligence also operates otherwise than through that skill and intelligence upon the business which is to be the subject of them.*

I am also at one with you in the belief that regarding the material world alone, atom acts upon atom in agriculture, precisely the same as it does in chemistry. But the mystery springs out of the connection of the human mind with the material world. And I cannot but regard as most mysterious, that silent and secret influence which the human mind exercises over the atoms of physical nature.

I will again endeavour to illustrate what I mean. If I ask an intelligent mind what that was which enabled the Maid of Orleans to place the crown upon the head of a King of France, I will fix it in a dilemma from which it cannot easily escape; and the more reflection it gives to the subject it will feel the more inclined to fall in with my belief and to ascribe the maiden's power to that which we understand by the word "faith." When I consider the victories of Julius Cæsar, and more particularly when I consider them in connection with his celebrated encouragement to the boatmen, "Quid times? Cæsarem vehis," I recognise in the mind of Cæsar an attribute which is also characteristic of the mind of Joan of Arc. I therefore take up this idea of "faith:" I find many events in the history of the world anomalous and inexplicable. I bring them and my idea in contact, and find that like a key it unlocks the whole. I go down among the most ignorant of my fellow men—a class whom the intelligence of the newspaper press never reaches, and becoming every year more circumscribed (I had almost said unfortunately). I say I go down amongst these men, and I find an idea in their minds corresponding to the idea in my own. I find this idea characteristic of certain individuals in all ages and among every people, and the wiser the period or the people, the more prominent does the idea become. For example: Cromwell stood at Dunbar; the rays of the rising sun slanted across his shoulder, and as he saw them reflected from the armour of the descending Scottish army, he exclaimed, "The Lord hath delivered them into our hands." Cromwell here ascribes his victory to the power of "faith." We consider Cromwell as a fanatic. But what wise man does not see that Cromwell was a giant in intellect compared with the pigmy race who now speculate upon the affairs of nations. But I find the idea not only at the head of an army; I find it also by the domestic hearth, overcoming the trials of life. If it was with the murmuring Israelites upon the shores of the Red Sea, when they received the command "to go forward," it also brought relief to the mother of the young Ishmaelite, after she had cast her child under a bush in the wilderness and sat down over against him a good way off, as it were a bowshot.

I contend, therefore, that I have ample evidence for believing that this "faith" has power over the material world. I have better evidence for my belief than the philosopher has for believing the lunar theory. And in arriving at my belief my mind has gone through precisely the same process of reasoning that the mind of the philosopher passed through before he arrived at his conclusion that the sun and moon are the controlling causes which regulate the tides of the ocean.

If, then, this "faith," is a reality, it is not always at the head of an army—neither is it always crowning a king nor slaying a giant. It may be, and no doubt is, a living and acting principle, although its deeds are not recorded by the historian, nor sung by the poet.

Now suppose that you have got, in one country, people capable of acting upon the principle of this "faith," and these bring the energies of their mind to the cultivation of land, you have a power of creating wealth greater than any that chemistry can give you, and a means of conferring human happiness limited only by the range of the mind in which it is found.

Last century we had more frequent instances than now of men capable of acting upon these principles. But in proportion as skill and intelligence have increased these have left the field. We think now of bringing no other qualities of mind to the cultivation of land than those which a woman brings to superintend the arrangements of her household. We have become a skilful careworn race. At the time that Hume and Gibbon wrote, very many of our forefathers were farming in the spirit of Christianity. We now cry down Hume and Gibbon, but we have adopted their ideas of life, and in spite of ourselves our practice confirms their estimate of it.

I cannot think that I have been unfortunate in contrasting England with Ireland. Let a man go down amongst the poor of both countries, and put himself on a level with their condition. He will soon find that speaking in the aggregate there is that among the poor of the former country which is not to be found among the poor of the latter. In England, he may find frequent instances of this faith which gives freedom to the human mind, and, as from a centre, radiates an influence within whose range alone the intellect and the affections can be brought into harmonious exercise. In England he will be able to appreciate the value of "all for the love of Christ." Among the poor of Ireland, on the other hand, whose religion is a religion of terror, he will find an abrogation of all faith in the famine-stricken cry, "What are words to us; it is bread we want."

In England, you have many men whose minds are cognisant of a truth of which Solomon's was not cognisant when he wrote "All is vanity and vexation of spirit." In Ireland, you have a reprint of the text upon the countenances of her poor, even at that period of life to which his estimate of its good is most applicable.—Vide Eccles. ix., 7—10.—*J. Russell, East Lothian, Nov.* 6.

* [It is on this point that we suppose we must agree to differ. No doubt, the motives which spring out of this "faith" are real and efficient agents in whatever a mind actuated by them sets itself to do; but, that they can not otherwise then through the skill and intelligence with which that mind is endowed, we cannot conceive. Is it well to imagine any mysterious relationship between a cause and its result, when one, which is plain and obvious, is quite sufficient to account for all the circumstances of the case? We think not.]

POTATO DISEASE.

ENQUIRY INTO ITS CAUSES AND PROBABLE REMEDIES.

[We have received the following from Mr. Prideaux, of Plymouth, by whom it was published originally in the *Plymouth Herald.*]

The views of this subject to which I was led last winter, by a studious comparison of the recent reports, with the history of the diseases and treatment of this plant from its first extensive culture in this country, appear to be corroborated by your reports of this season, and by the comprehensive and elaborate one published in the "Highland Society's Journal" of this month; and may be summarily expressed as follows:—The question is, whether atmospheric and other exciting causes, have not operated on a plant, predisposed (by yearly inoculation with dung juice) to putrescent disease; vitiating its sap, and often generating fungi, capable of communicating the infection from plant to plant, and from season to season? They are here given interrogatively, both in deference to others who avow their inability to detect the cause, and with a view to elicit such facts and well grounded inferences in opposition to them, as may, in correcting them if erroneous, help to elicit the truth.

A.—Is it not extraordinary that a subject so broadly open to every-day observation, should, for 18 months remain one of uncertainty and dispute? and has this not been partly occasioned by this very openness? a cause attested by one observer, having been met by a different one, from another, and thus both rejected in seeking for a single cause, whilst in truth each had excited the disease in a plant predisposed for it?

B. *Atmospheric Influence.*—Have we not abundant evidence of this exciting cause: 1. In the numerous cases where the stalks have been blighted, and the tubers remained sound? 2. Where whole fields, and even parts of fields, have been blighted on one aspect; whilst those contiguous, in a different aspect, continued to flourish? 3. The places of shade and shelter often distinctly marked out from the surrounding growth; by the healthy appearance of one, while the other has withered? 4. The blight appearing suddenly and widely along the track of offensive fogs and peculiar atmospheric changes? 5. The very general outbreak of the disease last year, upon a particularly sunless season; and its restraint this bright summer till the rain set in? And 6, must not the Danish Report (*Gard. Chron.*, 17th Oct. 1846) and those of Holland, France, and Belgium, have weight also in this query?

C.—Have we not equally sufficient evidence of *tendency to disease* in the plant? 1. In the numerous cases of its appearance in the tubers, whilst the stem and leaves were flourishing; and even in the pits and heaps after the crop had been stored sound? 2. In its not less frequent beginning at the tap root, or just above the old set? And 3, often at a critical period of growth; just when the flowers were forming; so that where

several kinds grew on contiguous plots, each showed the disease at this period, though weeks sometimes intervened? 4. In the remarkable tendency to precocious growth distinguishing the disease? wherein tubers in the very act of putrefaction, throw out strong and luxuriant shoots?

D.—Have we not further evidence that *this predisposition is putrescent*? 1. In the increasingly rotting character of the diseases of this plant for the last 15 or 20 years? 2. In the increasing care required for some years past to prevent the tubers heating in store? 3. In the rapid rotting of the tuber (as noticed above) while throwing out shoots apparently vigorous; as if manuring them? 4. Is not the success of autumn planting due to the shoots acquiring strong roots in the soil while the set is destroying, and thus gaining the means of more wholesome nutrition before spring growth? *And* 5. Is not this what might naturally be expected from inoculating the plant with dung juice (by the raw surface of the set) yearly for nearly a century, until the composition of the sap is in a state of unstable equilibrium susceptible of any putrefactive excitation, and thus ready to act the part of dung upon its own shoots, as above noticed?

E. *Putrescent Manures.*—Although open to more exceptions, is there not a sufficient preponderance of evidence of the recent ill effects of fresh and rank dung? 1. In the Scotch reports, and in those of the *Gardeners' Chronicle*? 2. In the virulence of the disease in Holland and Belgium, where night-soil is largely used? 3. In its not much less virulence in the Irish lazybed culture, under the rankest of manure? 4. In the comparatively mitigated damage where soot and charred materials have been substituted for dung, and where the plant has been grown upon undunged peat, which is antiputrescent? (until this season, when the spawn of last year's fungi may be supposed to be carried in the sap.)

F. *Fungus* (and infection).—The agency of fungi in originating the disease is also much questioned. 1. In this country the majority of cases where the tubers are first affected, would probably be against it; while, 2, those in which it appeared first in the leaves, would give the predominance to fungi; and if we add, 3, the Belgian and Danish reports, in which the disease is attributed entirely to fungi, the majority will be large on that side. On the other hand, 4, it is certain, that in many cases the decay has appeared before, and even without fungus of any kind; nor can the tendency to precocious growth (C. 4) be attributed to fungus. The results of investigation into the *infectious* character of the rot are not less conflicting, so far as regards the tubers; but in the leaves and stems, 5, it has often appeared first in small patches, extending, more or less rapidly, in all directions; 6, other plants allied to the Nightshade family, though without tubers (as the Tomato, &c.), have taken the disease this season; nor is it confined even to such species. Will not a general review and comparison of the cases (rather too complex to sum up in one sentence) lead to the inference that the fungus is generated by the disease in the struggle between the vital and material forces; that it thus becomes a symptom, and a medium of infection by contact, and even aërial communication?

G. *Soils.*—Last season the disease appeared worst on rich, wet, and heavy soils, and least on those which were dry, gravelly, and peaty; but this year, when the infectious spawn is likely to have been carried in the sap we hear less of this distinction. The facts, however, as well as reason, warrant us in regarding dry and antiseptic soils as least disposing to putrefaction.—*J. Prideaux.*

Home Correspondence.

Guernsey Cattle v. those of Brittany.—May I beg to draw your attention, and, through your valuable paper, that of the English press, chiefly that of the south of England, to the enclosed advertisement [see our advertising columns], cautioning English purchasers from being taken in by unprincipled dealers in French cattle. It can be no object to the Guernsey or Jersey breeder whether the English purchaser fancies French cattle; but it is of much interest to him that those cattle should not pass under the name of his own long-known valuable breed. The Brittany breed, somewhat like our own in shape, are totally different in dairy qualities; their milk is thin and blue, ours yellow and rich; seven quarts have sufficed to yield a pound of butter; they may average half a pound of butter a day some time after calving, ours one pound at least. In the last "Guernsey Agricultural Report" is an account of a cow of Sir W. Collings' having given from her first calving, in July, 1843, to July, 1845, 804 lbs. of butter; whilst others have been ascertained to give for a few months 16 and 17 lbs. a week. This subject is of the more interest to the Channel Islands, as previous to the late changes in the tariff, our high privilege as English subjects of exporting our products duty free in England, without costing more than his own to the English purchaser, was a source of wealth to the islands; now, however, that these protections are removed, there is hardly anything remunerative to the producer here but the sale of our famed cattle, a good cow fetching up to 20*l.*, but yet cheaper at that rate to the buyer than the Brittany, which may be bought in France for about 4*l.* On the whole we would strongly press on our English friends the mutual interest there is in preventing this fraud in cattle dealing.—*N. Le Bas, Hon. Secretary, R. A. S. C.—Guernsey, Oct.* 28.

On the Drainage of Lands.—I read with a good deal of interest the discussions on deep and shallow draining, carried on by Messrs. Parkes and Smith (of Deanston) at the meeting of the British Association, as well as the letters on draining with inch-pipes, which have appeared from time to time in your Paper from the pen of Mr. Mechi; and I must say that the facts adduced by the latter gentleman appeared to me to be sufficient to convince any one who was unbiassed by preconceived notions. But a discovery I made the other day has staggered my faith in the sufficiency of inch-pipes in many cases; and as the objection raised by that discovery applies equally to Mr. Smith's mode of filling drains with broken stones, I will relate what I saw, and shall be glad to learn from those who have long experience in draining with pipes or broken stones, that they have not found that to be a serious objection to these methods, which to me appears to be so, to those who are draining in a limestone soil. My men are now draining a pasture with drains 4 feet deep, 45 feet apart, the subsoil of which is a stony clay, containing many limestone boulders. Their course required them to follow an old main drain—they found it in many places almost entirely choked up by a calcareous deposit, the side stones and covers of the drain being in many instances cemented into one mass, and coming out of the drain as one stone, and where there were stones at the bottom of the drain to serve as nuclei, the deposit was frequently 2 inches thick, and the drain so completely choked up that the water had found its way over the top of the cover before it could get a passage. Now, as many persons are, no doubt, preparing to drain, who will be induced by the deservedly high reputation of Messrs. Smith, Parkes, and Mechi, to adopt their suggestions about draining, I will thank any of your correspondents who may have drained limestone or chalky soils, either with pipes or broken stones, to reply to the following questions. How many years' experience have they had of these modes of draining? have they ever examined any of their pipe or broken stone drains which have been made more than seven years? do they find that the old drains made in this way run as well as the new ones? do they use lime extensively as a manure? The last question I consider the most important, because, although lime is extensively deposited by all brooks and springs in limestone districts, and of which any one who has been at Malham and Gordale and ascended the gorge at the latter place must have seen a striking specimen in hundreds of tons of calcareous deposit which have there accumulated from the mere spray of the waterfall. Yet the deposit of lime must be far greater where quicklime is extensively used in limestone soils, as it is here. It is well known that carbonate of lime is very sparingly soluble in pure water, whilst water containing carbonic acid dissolves a large quantity; now if quicklime be added to water containing carbonate of lime in solution, it immediately seizes the carbonic acid, and the lime is precipitated; this property of quicklime was made the subject of a patent some years ago by a gentleman whose name I believe was Clarke, who entertained the idea that he would realise a fortune by purifying the water of London in this manner. I never heard that his expectations were realised; in fact this had long been acted upon by the calico printers in this neighbourhood, who require pure water for many of their processes. I shall be glad to have your opinion as well as that of some of your correspondents, on this matter, because it appears to me that small drains, like those made with broken stones or inch pipes, would in such circumstances be very soon choked by calcareous deposits, and if so, it behoves persons intending to drain to consider whether they are so situated, and rather incur the expense of making a wide drain than run the risk of having it soon choked.—*T. G., Clitheroe.*

Fogs and the Potato Disease.—I can fully corroborate the observations of "R. L." on this subject. In the early part of August, 1846, there was not a diseased Potato to be found in the North Riding of Yorkshire. Late in August, I think on the 25th, a very thick dense fog prevailed. The air was not, however, at all chill; but the heat and closeness was most oppressive. This continued all night, and anything similar to it I never before saw with so high a temperature. It occurred on the following night. On the morning after the fog the whole of the Potato-fields had precisely the disorganised appearance they have after a night of frost, they were dark green and semi-transparent. They soon became black, and the disease followed in a very few days. I was making a valuation for a railway, and drove over a light land district every day in various directions, and the destruction was awful. As soon as the sun set the smell of the Potato-fields was so powerful that we could detect them several yards before we came opposite to them, and we did not observe one single field which was not affected—one the least so had a north aspect. There was a very striking circumstance, however, also alluded to by "R. L." I observed a field which had had Potatoes sown with Barley, and several of the ungathered plants had grown in the corn, and not a single plant of these, even in the slightest degree, diseased. I drove past this field until the Barley was cut, and they entirely sustained their character of freedom from disease. I profess not to explain this, nor to build any theory whatever upon it; but I mention it as a curious and interesting fact, and if every writer on the Potato disease would accumulate and publish facts, one of these would be worth ten thousand theories. My firm opinion is that no one has, so far, approached to accounting for the disease, and if they would investigate rather than theorise, some progress might be made. I have mentioned the facts above to many persons, most of whom noticed the peculiar fog.—*M. M. Milburn, Thorpfield, Thirsk.*

Drainage, &c.—I am going to drain a field whose soil and subsoil together is about 18 inches deep, and lies on a cold clay bottom. I have been accustomed to lay the tiles about 2 feet deep, but this is not half the depth advocated in your Paper. What advantage will accrue to me if I lay the tiles deeper, seeing that I now drain the soil and subsoil? If I must go deeper, how much? A tenant farmer in Flintshire, says the *Chronicle* for last week, has grown 45 tons of Swedish Turnips per statute acre! No one about me can grow, or rather I should have said does grow, more than half the quantity, and many not a third. Can you inform me how they were grown, what manure was used, and what quantity thereof per statute acre, and what kind of seed was used? [Perhaps our Flintshire correspondent may furnish these particulars.] I would not have troubled you to do this, but the heavy losses farmers about me have sustained in growing Potatoes have rendered it necessary for them to cease growing Potatoes, to lay land down in Grass, to keep more cows, and grow crops of Swedish Turnips for their cattle in the winter.—*A Subscriber.* [Your drains should be deeper than 18 inches—they ought to be at least 3 feet—because that depth, according to Mr. Parkes's theory, gives you a greater height and therefore force of water above the drains (in wet weather) with which to overcome the difficulty it finds in penetrating the clay subsoil. It thus requires a deep drainage, and especially in clay soils, to make an efficient one. About sulphuric acid and bones you may see a paragraph in last week's Paper.]

Guano as a Manure.—Two questions are asked in the last Number. 1st. If guano being used three or four years as manure, does it appear to exhaust the land and cause a coarse herbage? I answer that I have top-dressed my lawn the last three or four years, the beginning of March, on a moist day, at the rate of 5 cwt. per acre, and found great improvement in the quantity and quality of the Grass, and no appearance of the ground being exhausted. I have used Mr. Potter's, Mr. Brain's, and foreign Guano; all answered very well. The 2d question is—Have Potatoes planted with guano alone suffered in the same way as those with farm-yard manure? I answer they have, as I had both in the same field last year. They were a very fine crop to all appearance when raising them on the 30th September; but on examining they were found infected. They were carefully pitted, but all rotted very quickly. I have now planted a quarter of an acre in drills, whole Potatoes, 13 inches asunder. I first put on each Potato a little coal ashes, and having drawn a little earth over them, strewed guano all along over them, and closed the drills with a covering of 7 or 8 inches. The seed was sound. Time only can tell the result, as I was always of opinion (from constant observation of the unaccountable manner in which the finest and most healthy looking fields of Potatoes were in 24 hours seriously attacked and infected), that no human knowledge can account for the cause, let learned men say what they please.—*A. Rust, Westgrove, Clonmell.*

Erratum in last week's "Calendar of Operations."—In the comparative experiments on cattle-feeding, recorded in p. 749, there is said to be a loss of 9*s.* on the three heifers:—

"Total cost	£18	10*s.*
152 stone of beef, at 6*s.* 6*d.*, was	49	8
Resulting in a loss on the lot of ..	0	9"

instead of a profit. There was an exactly similar blunder about a year or more ago, where a profit was stated as a "loss." In both these instances it appeared as though the experimenter was predetermined that there should be a loss, and inverted his calculations accordingly. If it were worth while I could dilate on the uselessness of nine-tenths of recorded experiments; there is scarcely one in which some material item is not omitted or mis-stated. I fear farmers are not yet sufficiently unbiassed in their experiments, which often seem rather intended to support a preconceived theory than to arrive at truth for its own sake.—*From a Correspondent.* [The error was an accidental republication. There can be no scope for any available exercise of "predetermination" in a case where the balance for or against the favourite practice is so small as to be greatly exceeded by the influence of the other circumstances affecting the experiment, as constitutional differences in the animals tried, &c.]

Action of Soap-ashes on Potatoes.—This year Mr. Stevens, a farmer living at Ealing, near the Green Man, on the Uxbridge-road, planted some Potatoes in land manured with soap-ashes, the other part of his land being manured in the common way. Half of the Potatoes that grew on this latter part were diseased, and unfit for use and the remaining half were very inferior, and boiled badly. On the other land (in the land manured with the soap-ashes), only one-third of the Potatoes were affected at all, and the unaffected ones have turned out excellently, boiling mealy and well, and being in every respect as good as any he ever had. The soil is very stiff and heavy, and Mr. Stevens attributes the result in this last case to the effect of the soap-ashes on the land.—*T.*

Beet-Root for Sugar.—Will any of your correspondents oblige me by the information, how the apparatus and workmen are employed, whilst the crop is growing? If I am not mistaken, the Beet-root becomes deteriorated for the purpose of making sugar, as the spring of the

year advances, by losing a considerable portion of its sugar. If this be the case, there will be about seven months during which the manufactory must stand still. —*Lunor.*

Potatoes.—Soon after the disease appeared my Potatoes, which till then had been growing most luxuriantly, were mown, and when the tops were removed I observed that the lower surfaces from which they had been severed bled profusely. This might seem to favour the notion that the disease arose from an excess of fluid rupturing the cells, but this cannot be a *vera causa*, for it will not account for all the phenomena. The disease manifested itself in some places during the dry weather, and in dry soils; and in the spring some plants here in a hotbed frame showed it, which had never been watered from the time when the sets were planted. They lived in an artificial atmosphere, and could not be affected by any variations of temperature or humidity. If the operation of mowing, which has been so strongly recommended, was at all useful to the crop (upon which I can give no opinion yet, because it is still in the ground), it was not by cutting off the connection between the root and the diseased foliage, but merely by draining off the excess of moisture, and preventing its regurgitation upon the tubers, for I pulled up many scores of stalks which the scythe had left, and uniformly found disease in the root or underground part of the stalk; however healthy and solid, and green and sound it might appear above the surface, it was always more or less hollow, and generally inhabited by various insects, plant-bugs, earwigs, the Julus pulchellus in abundance, and two or three other sorts, so minute and active that I could not secure them for examination; it is clear, however, that this was not the cause, but the effect of the disease; for I have sometimes observed it without any insects discoverable by a powerful magnifier. The animals resorted to the diseased tubers either for concealment or for food. I may take this opportunity of mentioning that the whole Cabbage tribe here has suffered material injury from a little beetle which Mr. Curtis has obligingly informed me is not, as I imagined, the Haltica nemorum, or Turnip-fly, but an allied species called Obscurella. It drills so many holes in all the leaves that they look like sieves. But my main object in entering upon this subject at all is to add my testimony to those which you have already published in favour of early planting. I began the experiment last year in the first week of November, and followed it up by planting an equal quantity in the first week of every month as far as April. They were all of the same sort, called here the Shipley White, and all were whole tubers of a moderate size. The ground occupied by each set was 42 yards; and the produce was as follows:—

Planted in—	Weight of Sound.		Weight of Diseased.	
	lbs.	oz.	lbs.	oz.
November	163	..	23	..
December	151	..	30	..
January	182	8	28	..
February	151	..	45	..
March	161	..	55	..
April	149	..	60	..

Thus the first planted produced the greatest quantity of good, and the smallest of bad Potatoes, with the exception of January, for which I cannot account. With the last planted it was just the contrary; with the same exception the increase of disease is uniformly progressive. The good Potatoes are better than they were last year.—*L. V. H.*

Societies.

TRING AGRICULTURAL ASSOCIATION.

Permanent Improvement of entailed Estates.—The following is a report of the speech of James A. Gordon, Esq., at the late meeting of this Society. He said: "In the year 1844 he had stated to them that unless farmers could obtain leases, they could not venture to make expensive experiments, such as would be necessary to enable them to improve their land. Since that period he had been borne out in his opinion by several eminent persons. A noble lord in Staffordshire, he meant Earl Talbot, had stated the very same thing at a meeting the other day, and he would take the liberty of reading to them an extract from a speech made by Mr. Bickham Escott to a meeting in Somersetshire supporting the same view. And now let me say what I believe to be the first duty of landowners, and what would be, in my opinion, a permanent remedy for the distress among agricultural labourers. That which I believe is to be the remedy for present distress—not only the remedy in '46, but what is in future years to prevent, as far as human foresight can prevent, a recurrence of those distresses which for the last five-and-thirty years I have witnessed, and heard lamented from time to time—is that landlords should take care that in letting their estates, they, in the first place, let them to men who have the character of industry and application to business; and in the next place they should see that their tenants have not only energy and activity, but capital to manage the land entrusted to them. I know not one farm either of my own or any of my neighbours, in which one-third more labour might not be employed, profitably to landlord, tenant, and labourer. Now, I lately propounded that opinion at a party of farmers not so large as this, and of different grades, some men of wealth and others of comparatively small means. One and all admitted the truth of what I said; and I do not believe there is a man at this table, or in this large assembly, but who agrees in that opinion. Well, gentlemen, if that be so, some may say, 'than the farmers are in fault; why do they not, if they are to put money into their pockets by employing three where they now employ two, why don't they do it?' What is the reason they do not employ more labour? It is this. They have not got security for laying out their money. (Loud and long-continued cheering.) Give them that security which other capitalists have, and you will find that if they can employ three men with advantage where they now only employ two, they will very soon do it. And their doing so, gentlemen, will be the remedy for that agricultural distress which people are very apt after a good dinner to ascribe to other causes. Farmers had not sufficient security at present to enable them to carry on their improvements. He had ventured upon the former occasion also to say to them that Scotland was 50 years in advance of this country. Since 1844 very great improvements had been made in England, but they wanted some new laws in the country to relieve them from the fetters which hung upon their energies. They wanted to have new laws made to relieve the condition of entailed estates. He was himself the possessor of an entailed estate in England, upon which he could not grant a lease. He had also an entailed estate in Scotland, but there he was under no such restriction, for the Montgomery Act gave the requisite relief. The consequence was, that whilst his Scottish estate had quadrupled in value within a few years, his English estate, although it had increased, had not held anything like the same ratio. It had not doubled. He therefore repeated what he said in 1844 in favour of the leasing system. The next point to which he would refer, was the subject of drainage. He had alluded in 1844 to the failure of an act brought in by Mr. Pusey, the member for Berkshire, for the purpose of facilitating the drainage of entailed estates. He had predicted that measure would be a failure, and so it had been. In five years, only 11 persons availed themselves of its provisions. The Duke of Richmond had then taken up the matter, and, knowing what had been done on his Grace's own estates in Scotland, through the operation of the Montgomery Act, he had turned his attention to the subject, and Mr. Pusey, with the consent of the whole agricultural world, gave up the entire management of it into his Grace's hands. At that time he (the chairman) did not think that there was a person more fitted to conduct the affair to a happy termination than the Duke of Richmond. He had himself ventured to draw up a bill for the purpose of facilitating the drainage of entailed estates, and he had taken the liberty of submitting it to his Grace, who approved of the principles, but differed about the details. He showed the bill to another nobleLord, who considered that it would be a very great boon to the country. The Earl of Devon laid his hand upon it at Exeter, and said it was the very bill he thought necessary. And in the Irish report, it was found that at the very same time the commissioners recommended a similar bill for Ireland. It had also met the approbation of Lord Brougham, as he had heard. Shortly after his interview with the Duke of Richmond, his Grace moved in the House of Lords for leave to bring in a bill upon the subject, and in his speech, which was a *very* bold one, he had stated that by the Montgomery Act farmers were enabled to drain their lands in Scotland; that Mr. Pusey had brought in his bill for the purpose of giving somewhat similar facilities in England, but that it had failed, in consequence of its driving those who wished to avail themselves of its provisions into the Court of Chancery. The noble duke carried his motion for a committee, and 21 of the ablest men in the House of Peers were placed upon it, before whom he (the chairman), as well as many others, were examined. He had recommended in his bill the working-out of its provisions by commission. He had, in fact, recommended its working out under the Tithe Commutation Commission; but the committee resolved not to use that commission for the purpose. He was not listened to. He held the report in his hand, and the meeting would perceive by some of the names what important evidence had been laid before the committee. Amongst the witnesses were Mr. Smith, of Deanston Park, the engineer, the Duke of Richmond's own agent, Lord Ducie, Lord Beaumont, and 23 leading characters of the agricultural world, Mr. Pusey amongst others. What, then, was his (the chairman's) surprise to find that the Duke of Richmond's Act rendered necessary an application to the Court of Chancery. He could not account for such a departure from all the duke's own knowledge and experience, except by supposing that he had been overruled by the committee. But so it was. Under Mr. Pusey's Act only 11 persons had taken advantage of its provisions. Under the Duke of Richmond's *not a single one applied*. And there there they were, with 19-20ths of the whole land of England either church property or entailed estates, and consequently unable to carry out improvements for want of a relieving act of easy access and ready application. The Lords' committee reported, and after speaking favourably of the principles of drainage, and making several recommendations, they, amongst others, recommended the appointment, early in the following session, (the past one of 1846), of a committee to consider and report whether it would not be proper to confer general powers for the before-named purposes in order to enable persons having limited interest in land to drain. The Parliament assembled in January, and all were aware how deeply important were the topics under discussion by eminent persons at the time. He did not wish to mention names, but there were two individuals of whom they must all have heard under the designations, the one of 'the apostate,' or the 'arch apostate' (laughter), and the other of 'the assassin.' However, all knew how deeply important were the matters under discussion in the cabinet, and of what great and thrilling interest was the statement about to be made to the House and the country of the measures decided upon. Parliament assembled on the 22d. of January. Two days before that he (the chairman) had taken the liberty, so deeply important did he consider the matter to be, of addressing the highest person in the cabinet upon it, and stating that unless the Drainage of Entailed Estates Bill should be worked by commission its provisions would be utterly useless. On the morning of the very day, in the evening of which he had to make that most thrilling and important statement in the House of Commons, of the entirely new policy about to be adopted by the cabinet, the minister forwarded a note in reply to his (the chairman's), which showed that in the midst of all his business he had continued to read attentively the three sides of paper on which the letter had been written. The Inclosure Act Commission was prepared upon the principle suggested by him (the chairman), and provision was made in the past session for lending out 3,000,000*l.*, viz., 2,000,000*l.* for England, and 1,000,000*l.* for Ireland, under that bill. What was the result? Why, that application had been made to the commissioners for the loan of 46,857*l.* 3*s.* 8*d.* to be expended upon 58,256 acres; and, besides, there were 25 applications from the county of Caithness, whilst from the county of Hertford there was not a single one. They would thus see that Scotland was 50 years in advance of them. He warned the aristocracy and landed gentry to take the sting out of the entails, or they would lose both it and primogeniture by the outcry that would be raised."

Farmers' Clubs.

BOTLEY.—This Society has published its annual report for 1845-6. The following are extracts:—"At the first meeting, Mr. T. Twynam opened the subject for discussion, viz., 'On the best Method of Draining Land as applicable to the mixed Soils of this County.' His observations tended to show that four methods of draining had been practised in this part of the country. Alder, or bushes, appear to have been the first materials used in draining land; indeed, some of the writers in the 'Farmers' Magazine' attempt to prove the practice to be more than 100 years old, and it is still very generally adopted in the strong clay lands of Norfolk and Suffolk. Mr. R. Baker, in his prize essay, in the 'Journal of the Royal Agricultural Society of England,' gives a very good account of it, preferring Alder to bushes, and showing the cost per rod to be 4*d.* to 5*d.*, or about 2*l.* 4*s.* 8*d.* per acre. But, as few Alder drains will stand more than six or seven years, such a method for thorough draining land cannot be for a moment recommended; although, if some tiles or good stones were laid in the main drains, very considerable advantage might accrue from it, when better materials cannot be had. Stones appear to have been next resorted to as a means of draining land, and when they can be obtained within short distances, appear to answer well, more particularly when roots of trees or hedge-rows are to be passed, as we often find tiles, or almost every other material, closed by the root entering or filling up the drain. A very good account of stone draining will be found in the 'Farmers' Magazine,' reported by the steward of the Hon. Henry Clive, wherein he states the expense to be from 3*l.* to 5*l.* 10*s.* per acre, varying according to the distance of carriage of stone. The expense may be fairly calculated to be at least 10*d.* per rod when stones are on the land, and they ought to be of considerable size to answer the purpose well; 110 to 120 rods will do an acre. Mr. T. next presented a model of what is termed a wedge turf drain, which owes its origin in this part of the country to Mr. Charles Osborn, of Fareham. This plan he had himself found to answer very well upon strong clay pasture lands, having drained a pasture of about 12 acres on Stoke-park Farm, 14 years ago, which is now as perfectly dry as when first done. The plan adopted was first to lay in a main drain of large tiles, heading all the arms or branches with it by cutting the turf wedge shape, and well ramming, taking care to place one or two tiles at the end of every branch, to empty itself fairly into the main drain, which being placed so as to give a quick draught, carries off all the sediment from the branches. Particular care should be taken not to place the arms so as to give too quick a run; for, should any part of the soil be sandy, or less tenacious than the rest, it will cause a washing of the soil, which will collect at the mouth of the drain, and destroy it. The cost of this description of drain would be about 55*s.* or 3*l.* per acre, say at one rod distance:—

160 at 4*d.* per score	.. ..	£1	12 0
Say 20 rods of tiles, at 1*s.*	..	1	0 0
Carriage of materials and exposes	..	0	5 0
		£2	17 0

This method can be practised with little advantage on arable land, although it is sometimes resorted to on very strong clays, as a very fair wedge can there be formed.

"The last method of draining considered was that of tile draining, the greatest improvement that has ever taken place in strong clay farming. Upon level land, where it is difficult to find which way the water will draw, it can be of little consequence whether the drains are put in the furrows or across them; but when the lands are uneven and sloping, Mr. T. considered it by far the best method to put the drains across the fur-

rows, and to place each drain on ascending the hill side, that the top of the first drain should be just above the bottom of the second, and so proceed until the top of the field is reached. Professor Johnston, in his address to the Durham Agricultural Society, has given a similar opinion, as well with respect to the depth at which drains ought to be placed in strong land, which he considered should be 30 inches. This plan is now much questioned by, Mr. Parkes and others, who contend that drains can be advantageously placed at a depth of 3 feet or more, and thereby require a less number of drains; this, however, must depend much upon the soil to be acted on, and would little suit the great proportion of lands in this neighbourhood, where the practice now more generally adopted is, to place the drains at one rod apart on very strong lands, varying a little according to the subsoil. Experience has shown that when drains are placed at too great a distance, water will sometimes run over, and the land not get sufficiently dry. The expense of draining an acre of land can be best ascertained by reference to a table published by the Marquis of Tweeddale, in his 'Essay on Draining,' wherein he gives the relative expense of draining an acre of land, varying according to depth and distance. An acre of land drained at one rod apart, 30 inches deep, with tiles 15 inches long, will cost 7*l.* 7*s.* 9*d.*; but if you save half a rod, and put them at 1½ rod, it will only cost 4*l.* 12*s.* 4*d.*, thereby showing the great advantage of increased distance where practice and experience has shown the land can be thoroughly drained by so doing. With these observations Mr. T. came to the following resolution:—

"That the best method of draining lands in this neighbourhood is with tiles and soles, the drains being put across the furrows at (in very strong clay subsoils) not more than 1 rod or 18 feet from each other, and not more than 30 inches deep: but when the subsoil is more open and porous, we consider 1½ rods from each other will effectually drain the land."

"The Chairman said that at a former period he should have supported the proposition of Mr. Thomas Twynam, as he did at that time entertain precisely the same opinions upon the subject as those which Mr. T. had just now advanced; and although he had laid down a great extent of draining upon different farms, upon heavy soils, at the depth and distance between the drains recommended in Mr. T.'s proposition, yet within these few years he had altered his opinion very materially as to the propriety of shallow draining in strong and level land, and had taken up a number of drains and laid them deeper, in some cases to the depth of 4 feet, with a beneficial result in every case. He would invite Mr. T. to alter his proposition, and substitute the depth of 40 inches for 30, with a corresponding greater distance between the drains, which should be placed in the furrows at right angles to the main drain. It would be found that, in draining strong land, increased fertility would result from the removal of water to a greater depth below the surface. It has been stated that water will not readily find its way in strong clay to the depth of 40 inches. Now, this may be true in clay land undrained, but, after deep drainage, capillary attraction is diminished, and the clay thereby so altered as to allow water to percolate freely to the drains; independent of this, the deep drain produces a greater body of absorbent earth capable of receiving a greater quantity of rain before any is given off to the drain. To prove the correctness of these views of the subject, let a hole 4 feet in depth be dug in a field, drained at 4 feet deep midway between the drains, and the water will be found standing at about 3 feet below the surface."

WICKHAM MARKET.—At the late annual meeting of this Club, Mr. Mechi made an excellent speech. After dwelling on drainage, waste of manure, cumbrous implements, straggling hedgerows, &c., he said—

"The curse of this agricultural country is prejudice. It is the greatest enemy the farmer has. I go from county to county, and what do I hear? 'Oh, our pigs are the best, I would not give a halfpenny for the Essex pigs!' Another in Essex says, 'I never saw such pigs as yours, your Suffolk pigs are not worth looking at!' And so you go on from one district to another, each of which claims its pigs to be the best. Now what is that but prejudice? I hope to see the time when intelligent agriculturists will have sufficient ingenuousness to allow to your county the merit it deserves—that they will have the merit of being able to discern their weak points and of avoiding them, and also to discover the strong points and appropriate them to their own use. I do not think, gentlemen, that the farmers of this country apply sufficient capital to the land, that is to say, I think they take too much land in proportion to their capital. The consequence is, the best use is not made of that capital. I do not believe that any man can farm to the utmost extent of profit in these days, without purchasing artificial manures—guano, for instance, for his distant fields, thus avoiding cartage; and a larger quantity for his near fields with deep cultivation, and better agricultural implements. Mr. Hutley, a great authority in our county, who farms 2000 acres in a most profitable manner, said at our Witham meeting, that he considered guano paid itself in the straw alone besides the crop, and that he has now 100 acres of Wheat dressed with 2 cwt. per acre of guano. ('He sells his straw.') No, he does not. And I can tell you further, he never feeds off a piece of Clover, or a piece of fine Rye-grass or Tares, without giving his sheep one pound of oil-cake per day. It appears to be a great expense. But what is the result? Enormous crops both of roots and of Wheat. And his system is profitable, because every two or three years he hires an additional farm. Gentlemen, the question of deep cultivation is so important that I must not leave it. I know that the majority of agriculturists consider that subsoiling is not a profitable thing, or a proper thing. Now that is one of the greatest mistakes that ever was made in agriculture. If you find a farmer ploughing his ground 5 inches or 6 inches, you will find him digging his garden to 15 inches or 20 inches depth. If you ask him why, he says, 'I can grow better crops in my garden by deep cultivation.' How inconsistent then! If the one operation be right, the other is wrong. Besides, if increased depth of cultivation be injurious, you must carry out the principle and say that two inches are better than three inches, and that one inch is better than two inches; and thus you must go backward, and in course of time there would be no cultivation at all. I say you must carry out the principle of deep cultivation. What is there magical in the 'favorite' depth of six inches, except in the power of a pair of horses to draw the plough and do an acre a day? Will any man say if his horses can take 18 inches with a pair, he would not do it? I have a proof on my farm at present which will astound you as showing the effects of deep cultivation, and it may assist you in coming to a proper conclusion on the subject. I ploughed one part of a field of Mustard with Smith's subsoil plough, 15 inches below the other, which went nine, that is 24 inches deep altogether. The other part of the field was ploughed in the usual manner. Both were done on the same day, and both were treated in the same way as to manure. My bailiff prognosticated that I had ruined one side of the field, and that we should grow nothing—that was the part of the field subsoiled, my man remarking that 'diving down into that nasty subsoil would be the ruin of the crop.' Now I had occasion to come into Suffolk. On my return, I asked my bailiff, 'Well, how goes on the Mustard?' He said, 'Oh, I am done now!' 'Done now?' said I, 'what is the matter—does subsoiling answer?' 'Oh,' said he, 'I am wholly done!' I said, 'I am glad of it, and I hope that many farmers who come to see the crop will be 'done' too, and alter their minds.' Many farmers have seen the result with their own eyes. In the one case the crop was 4 feet in height, and as thick as it could be; in the other case the height the crop attained was but 18 inches. The Secretary of the Debenham Farmers' Club, Mr. Green, has seen the crop, and he therefore is a witness to the difference. Whether I shall see the same difference in the Wheat crop to follow I don't know. I have subsoiled in other cases, and I have uniformly found it answer the desired purpose of increasing the crops. But, gentlemen, woe betide the unfortunate wight who does this without deep drainage! If he subsoil without drainage, he will make his land like the bottom of a pond, and ruin his crop. That is a distinction which should be particularly attended to, because many farmers have condemned subsoiling when they ought to have condemned themselves for not having previously drained the land.——Gentlemen, these societies are certainly very useful, but they are not what I should like to see them. In Yorkshire there are several societies which select a committee to go round and inspect the various farms belonging to the various members, and they then report to the general body, to whom the prize is awarded for the best farming. They in detail state where the strong points are, saying nothing of the weak ones; but they state where the strong points are, so that others who choose to follow the example may do so. Now, gentlemen, I should be happy to see this carried out in our societies, because I am quite sure it is more satisfactory to see the general management of a farmer, than it is to see a few isolated Turnips. And there is no doubt it would tend to good fellowship—it would tend to stimulate improvement, because though the visitors might not find fault with anything, there is no doubt, if I expect visitors, I should rather look around me to see what they would be likely to find fault with, and I should very likely amend it. If this practice could be introduced into your Society—it is done in Yorkshire with great advantage—if this feature could be added to your Society, I have no doubt it would tend greatly to promote improvement. Gentlemen, on the subject of draining I have had a great deal to combat with—a great difference of opinion, and a great deal of prejudice, amounting, in some instances, to a disbelief of facts. I have had gentlemen, who, upon seeing me cut the drains, and upon observing the opposite drains running, have said, 'You will never make me believe the water can get through this strong soil.' That is a very curious remark, but it has been made more than once. I don't think that you here would do so. I am sure you would not; but, gentlemen, deep drainage must be the basis of agricultural improvement. If earth be the food of plants, the more you give them of it, the better they will grow. It is a mistaken notion to suppose that the roots go down but a short distance; we have constant evidence that they will go down many feet, but not into undrained heavy cold subsoil. When roots come to stagnant water, or if heavy rains come they are absolutely turned up like fish-hooks to avoid it. They have instinct if they have not common sense. They search for food wherever they can find it, and I am quite sure from the result of my practice, that deep drainage has made a difference in one field of a quarter of Wheat and a load of straw per acre in the past very dry season. I have two fields which some of you, gentlemen, saw last year that were growing Wheat this. One was drained with the mole plough 18 inches and well manured; the other was drained five feet with 1-inch pipes, 33 feet apart, a very strong brick clay. The Wheat in one case was nearly six feet high; in the other it was little more than four. The difference in the quantity of corn was what I have stated—one quarter per acre and a load of straw. The shallow-drained field looked the best all the winter; having had the most manure. I said to my man, 'This is only temporary, it will go to Halstead fair in the month of May.' 'No,' he said, 'Sir, this is the Wheat for the' and everybody said, 'That was the Wheat for them.' When May came, the shallow drained turned out yellow naturally enough, for the roots wanted to go down, they wanted to move, but they refused to do that which neither you nor I would do—they refused to go down into stagnant air and stagnant water. What was the result? The Wheat in the other field having the advantage of deep drainage, became the better crop of the two. Which is the cheapest drainage? The deep drainage. It is cheaper than the shallow. I drained my clays actually 33 feet apart, 5 feet deep, with 1-inch pipes: the cost of this was 3*l.* 2*s.* 6*d.* per acre. I have reason to believe that the interest this will pay will amount to at least from 50 to 60 per cent. on the investment annually. Well, gentlemen, then I ask should it not be done? I believe some of you saw the drainage last year, and I am happy to say that every drain runs freely—that the water all passes through the land—except in the particular case of a very heavy shower—for the pipes run like pumps. What is drainage to do? To carry off the water we see? That is a very small part of its operation. Water we have always considered our enemy; an abundance of water has always been considered our enemy on heavy land. Now I am prepared to prove that water is the very best friend we have, and that, if our land be thoroughly and deeply drained, we never can have too much of it, except at harvest. I am prepared to prove—and it is well known by chemists—that water is the richest manure we have. We know practically that irrigation is coveted by everybody for their meadows, and that it is exceedingly beneficial. What are the rains from heaven but the best of irrigation, providing we allow them to perforate the soil. They come down charged with ammonia, carbonic acid, and other gases, and disunited the subsoil descend and form new chemical combinations. And there is another most particular use in the descent of water through the soil, and that is, that it is the only carrier of heat downwards. Nothing you can get to carry heat downwards excepting water. Therefore it robs the air of its heat, the top soil of its heat, and warms the subsoil. That is one of the most important operations of water. In summer the surface of the ground is often 120°, the subsoil at the depth of 4 ft. is about 46°. But the water falling on well drained land passes down to the drains, leaving behind it the heat it contained. That is a well-known scientific fact, and we all know the warmer our subsoil is the better our crops grow. Well, then, gentlemen, what a sin and what a folly it is to make water furrows open furrows on the top to carry it away, instead of making drains below—furrows which not only carry away the heavenly rains, but a great deal of the soluble parts of our manure that lie near the top. I know perfectly well that, on undrained land, if you put a top-dressing of soot, and there happens to come in the course of the day a very heavy "shot" of rain, as it is called, you have the mortification to find next morning that soot travelling down your ditches rather faster than you like to see it. But if the land be thoroughly drained and porous like a sponge, the particles of manure find their way down; the roots go in search of this manure, and up they bring it by capillary attraction. We all know that vegetation has great capillary power. We know it by the great trees. You observe a dry season; wherever you see a large tree in a field he drains the moisture around from the roots of his weaker neighbours, the corn. The consequence is that your returns in the present season are not near so large as they proved to be the year before. Gentlemen, the subject of draining is a vital one to agriculture, and I have laboured hard to satisfy the minds of agriculturists, and to remove their prejudices. I have done 33 acres myself, 5 feet deep; it answers perfectly, and I therefore recommend you to do the same. I think, last year, some of you promised me you would try half an acre. I consider you are bound by your own interest, and by the interest you feel in this Society, to make the trial. I should state that the 5 feet drains are opened only 18 inches wide on the surface, and that there is no particular difficulty in reaching a depth of 5 feet with only an 18-inch opening at the top. The cost of that is, in honest clay, where no pickaxes are to be used, 6*d.* per rod workmen's labour. I have opened some drains in a field recently called a light sandy field. I knew from the appearance of the crops that there was something wrong below. It was in vain I was told that it was a hot dry field; I knew it was a cold wet one. I began my drains and got down as far as 4 feet. Everything was dry. "There was no water," the man said. Very well, we got down another foot, and at the depth of 5 feet up sprouted a beautiful spring, which is now running, and which will run no doubt for the next century. I cut another drain; in the last foot there was another spring. Now, if I had left off at 4 feet, where would be the spring rising up by capillary attraction, and not showing itself except in the case of bad crops? It is different from top-water draining so called. But you will find very often that in cutting five-feet drains for top-waters, you will bleed many springs that have been your enemies unknown for years. While speaking of draining, we will now allude to bog draining. I have had some experience in that, and I will communicate it because it may be useful to many gentlemen here who, I can say, in passing by, have land of a boggy nature—rushes growing on the top of a rich soil but wet. Now, the only way to get rid of that water, is generally to cut into the hill above that sort of land. But mind! 5 feet are not enough here. You must go down at least 8 or 9 feet. You must make a hole first 9 feet deep; and the chance is when you have made it, in the course of that or the following day, you will find the water rise in it until it stands within 1 or 2 feet of the surface. You will then have to make three or four such holes at various points, where it is proved from the appearance of vegetation that there is water. These holes will also most likely fill. Well, gentlemen, now we want to get rid of that water. To do this, you must cut a drain in the hill above these holes and below their level. And when you find that the water flows into your drains and that the holes do not hold any more water, you may then conclude safely that you have done the business as it ought to be. Gentlemen, there is some difficulty in laying pipes in these boiling sands, which they very often are. The only way to do it in difficult cases, is to have a skeleton arch, or some such protection; then lay a yard of pipes; put some straw in first, and then load them with earth to keep them from being forced out of their position by the water; then put fresh pipes down of smaller length; go on making them secure, and thus at the successive stages, placing hay or straw underneath and earth above, I think you will render your work so durable that you need not trouble yourselves about it for many years to come. Boggy soil is like sponge—it has an extraordinary tendency to draw up and to hold water. You will find that shallow drainage in boggy ground is like shallow drainage in sponge—the water will not leave the sponge to pass into the drain, but will remain in the sponge, by capillary attraction. You find it you put a drain into a bog at 10 or 11 feet depth, when the water has left that bog and you have covered it, as you ought to do with heavy earth, you will find that the drain instead of being 10 feet from the surface, will probably be at only 6 feet. The bog dries as a sponge dries. A dry sponge is always more shrunken and smaller than a wet one. That takes place in boggy ground and in strong clays, but only in a smaller degree, because it is the expansion of particles by stagnant water which gives that tenacity to clay we so often see. When you remove the water from the clay by a deep 5 feet drain, you will find not only that the roots take possession of the soil, but that the worms will go down and bore ten thousand little holes, which will serve as pipes for the water to the top. They are looking to the lower clay, as if they were aware of the change of air and water. The result is that stiff land instead of being like brick loam or putty, breaks up like a piece of short cake. That is the case with mine now. But I am fearful of going further, lest I trespass upon your patience. (Shouts of 'Go on,' and applause.) I am very glad to see that you burn so much earth; I have burnt a good deal, and I can conscientiously say with profit to myself. But the effect of agricultural improvement is not confined to the farmers' pocket. There are a great many classes dependent on the farmers. There are first the landlords. We know sometimes that good landlords don't get their rents. A kind feeling towards tenants sometimes causes them to give up a portion of what is really their right. I have known instances of it; but at all events, the better the farmers are off, the better rents they can afford to pay: Then there are the tradesmen; the better the farmers are off the better they are off. And last, but not least, there are the labourers. It is a delightful consideration that as labour is applied in improvements it is the happy means of affording the labourer future employment, with cheaper bread, and there is no doubt better wages. I believe they form the basis on which society rests. There is nothing so large in amount as agricultural produce; there is no other occupation in which one quarter so much capital is invested. Bad, gentlemen, will it be then for this country when its agriculture ceases to be remunerative; because I need not tell you that the want of remuneration drives away capital; and as the converse of the proposition, the more profit that is made, the more readily is capital attracted. Gentlemen, it is the losses on heavy lands by three or four successive wet seasons that ruins many a farmer, and is not his also a national loss? Who are benefited by the money he has lost? None. In railway projects and Stock Exchange speculations, the loss of one is the gain of another. But when a farmer on wet land in bad seasons has to fall back on the capital with which he started, and to part with the little he has at his command, why every one connected with him, and everybody in the country, feels it alike. Before I sit down, I must allude to the protection I consider the farmer ought to have when he invests his capital in improving the land of another. I am sure the effect of a well-regulated code of valuation as regards incoming tenants, would be the means of calling forth a large amount of capital for agricultural improvements, that is now held back. I believe I may say that with great truth. (Hear, hear.) Gentlemen, I believe that the landlords by granting leases and such valuations, would ultimately improve their property very considerably. They would get a better class of men, for you may depend upon it that men of large capital and independent spirit will not run the risk of being turned out of their occupations. Why? Because they have laid out their money upon such occupations. His Grace the Duke of Bedford, who is a noble example to his country, and who is managing his land with great profit to himself, grants long leases at corn rents, determinable on the average value of wheat and barley; he drains all his tenants' lands and charges them six per cent. on it; and too happy are they to pay that rate of interest upon the capital so expended. He does not allow any obstinate man to say he will not do it, because he makes him do it by the terms of the lease. ('It's a pretty good per centage,' from a voice.) It is not too much. I am sure every farmer can afford to pay his landlord six per cent. for such improvements as are com-

prised in a good system of drainage. ('It is a fair per centage,' from a voice.) Yes, it is not a bit too much. What is the result? His income is increasing annually. By doing away with the old trees and fences you and I talk about, he is doing a service to his country, and everything is progressing in a satisfactory manner. The fields are straight, and the fences are straight, and there are no short lands. But there is also another part of the question. I must say that tenants very often neglect their farming buildings. I would decidedly insert in the lease, under heavy penalties, a clause that when a tenant has got good and substantial buildings he should be bound to keep them in good and substantial, not tenantable, repair. Fair play is a jewel. If landlords do all that is necessary to their tenants, the tenants are bound to do all that is right for the landlords. I think, gentlemen, I have now finished my long story. I can only say, if you do me the favour to come over again to Tiptree Heath to watch my proceedings, when the crops are growing, I shall be very happy to see you. I feel that the public eye is upon me, and that if I make a mistake, I shall not only deserve but receive severe public censure. I know, and I say it with sorrow, that there are—but not in this assembly—old-fashioned farmers who would rejoice to see me fail in my undertakings. (Hear, hear.) Fools that they are!—Fools that they are! Have I not offered to instruct them so that they may grow more and make more profit? But you know there are a few ignorant, conceited, antiquated individuals, who would rejoice to say that I had failed in my undertakings. But gentlemen, I am happy to say I have not failed. I am happy to say that the roots and crops this year have shown themselves to be as good as when I showed some of you, my friends, over Tiptree heath."—*Ipswich Paper.*

Notices to Correspondents.

ADDRESS WANTED—*H C*—Will you be kind enough to give us your address? A correspondent of ours wishes to communicate with you

CURE FOR THE SHEEP-ROT—*T J dl*—Your announcement should be made as an advertisement.

FIFTY-ACRE FARM—*R A T*—If not in a bleak situation, the hedges should certainly all be levelled, and the ditches, with a drain first placed in each, all filled up. The land need have no open ditches, unless there be a natural stream through it too large to make subterranean

GAS LIME—*A Constant Reader*—If you will look back you will find repeated answers on this subject. Two waggon loads per acre applied after an exposure of some months to the air is a useful application under any circumstances, and especially so to soils so destitute of earthy or calcareous matter as peaty soils.

GRASS SEEDS—*J B*—Sow in April, over a young Barley crop just as it comes through the land, and brush-harrow them in. What is your purpose—a two-year old or a permanent pasture? Pray, inform us.

GUANO BIRDS—*R S*—Yes; if they will dissolve in sulphuric acid, they will be the better for the addition, and it will reduce them to a form convenient for application.

JERUSALEM ARTICHOKES—*H B*—You cannot make 2*s.* 6*d.* per bushel of them by fatting pigs on them therefore you had better sell them and buy Swedish Turnips, Barley-meal, Pollards, &c.

LUCERNE—*T M W*—You may cut it again before winter, if now 10 inches high.

MILK PANS—*H L Lawton*—We have never heard of iron milk pans, and should consider them quite out of the question. About churns, we do not profess to know the best: a very good one is made by Messrs. Attwood, of Lewes, but it is small.

PIPE DRAINING—*R A T*—The pipes have no "percolation holes," they merely join on to one another. And to hinder the passage of earth there, the earth should be rammed down into the trench, not laid loosely. Pipes have been down a sufficient number of years thoroughly to test their efficiency.

POTATOES—*A Subscriber*—Has any one any experience of greaves from the chandlers as food for pigs? Also, "how should antimony be given to fatten pigs?" We imagine it should not be used at all. Buckwheat is not so good as Barley per lb. as food for pigs, probably by one-fifth. Swedes will do very well, they should be given boiled or steamed. Your observation on the present crop of this root is, we fear, very extensive; correct

SALT MILK—*Piedmont*—Your dairymaid "tells" you. You should have personal evidence of so singular a fact. We imagine there must be some error. As regards tolls, the course to pursue is to pay under protest and summon the gatekeeper. Consult your lawyer next.

SCHEME OF CULTIVATION, No. 2—*R A T*—"W B H's" two horses are, we understand, carriage horses, not employed in the farm work. We believe spade husbandry in a populous district to pay better on small farms than horse husbandry would, and therefore we think "M S" is right in recommending it. One digging per annum, for about 22. 10*s.* per acre, should suffice for the land. In addition to this, seed and harvesting, the use of the hoe, &c., are included in the 4*l.* 8*s.* Your farm will be taken up by "M S" soon. About fences, we have given directions for wood-cuts.

SHORT-HORNED STEERS—*Inquirer*—At 30 months they *ought* to be fully grown, and they will readily become fit for the butcher in 6 months when put up on roots and good hay.

SPECIFIC GRAVITY OF HAY—*A Subscriber*—From 8 to 12 cubic yards will weigh a ton. One cubic yard in the bottom of a rick will often weigh as much as three in the top

TO FEED A COW—*Dorking*—You must give her some dry food along with the Mangold Wurzel—he, for instance—say 6 lbs. of hay chaff daily; and then you may give some brewers grains in addition. Your 4½ acres of pasture would, if broken up, keep three or four cows stall-fed

TOP-DRESSING GRASS LANDS—*R A J*—If with farm manure, in autumn. If with soluble manures, in spring.

*** Communications reaching town after Wednesday cannot be answered the same week.

Markets.

POTATOES.—SOUTHWARK, WATERSIDE, Nov. 9.

The supply to this Market during the past week was very moderate; but, in consequence of the abundant supply of vegetables, and the liberal supply to the town markets by railway, this market was excessively heavy, and there was little or nothing done, except for some of the best samples. Interior samples were offered at reduced prices, but few sales were effected. Trade was dull at the following quotations:—

York Regents, 120s to 140s	Kent and Essex Regents, 140s
Do. Shaws, 120s	Do. Shaws, 120s
Lincolnshire Regents, 130s to 140s	Do. Kidneys, 130s to 140s
Do. Shaws, 120s	French, 110s to 120s
Do. Kidneys, 110s	

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Nov. 12.

Prime Mead. Hay	70s to 80s	New Hay	— s to — s	New Clr.	— s to — s
Infr. New & Rowen	60 65	Clover	70 100	Straw	30 35s

Inner Country, Salesman.

WHITECHAPEL, Nov. 13.

Fine Old Hay	80s to 90s	Old Clover	105s to 110s		
Inferior Hay	— —	Inf. —	— —	Straw	24s to 32s
New Hay	70 75	New Clover	80 105		

CUMBERLAND MARKET, Nov. 12.

Prime Mead. Hay	70s to 80	Old Clover	95s to 105s		
Inferior	60 65	Inferior do.	80 95	Straw	24s to 32s
New Hay	— —	New Clover	— —		

Inferior Parcels, Hay 2*l.* per ton cheaper.

HOPS, FRIDAY, Nov. 13.

There is an extensive demand for all kinds of Hops at late prices, [illegible]

COVENT GARDEN, Nov. 14.—Both Fruit and Vegetables are plentiful, but trade is far from being brisk. Pine-apples are sufficient for the demand; but Grapes both English and Foreign are somewhat scarcer. Apples and Pears have not altered in price since our last report. Oranges are becoming more plentiful. Nuts are sufficient for the demand. Walnuts are scarcer, and there is little demand for Filberts. Lemons are scarce. Of Vegetables, Cabbages, Cauliflowers, &c., are good, and the latter plentiful. Carrots and Turnips have altered but little in price. Beans remain nearly the same as last week. Celery is good in quality. Good Potatoes are scarce. Lettuces and other Salading are good and plentiful; considerable quantities of Horseradish continue to be imported. Cut Flowers chiefly consist of Heaths, Jasmines, Camellias, Pelargoniums, Gardenias, Cacti, Violets, Fuchsias, Azaleas, and Roses.

FRUITS.

Pine Apple, per lb., 4*s* to 7*s*	Lemons per 100, 10*s* to 20*s*
Grapes, Hothouse, per lb., 2*s* to 3*s*	Almonds, per peck, 3*s*
— Portugal, per lb., 1*d* to 1*s*	Sweet Almonds, per lb., 2*s* to 3*s*
Apples, Dess., per bush., 3*s* to 8*s*	Filberts, English, p. 100 lbs., 35*s* to 36*s*
— Kitchen, 4*s* to 6*s*	Nuts, Cob, per 100 lbs., 30*s* to 100*s*
Pears, per hf.-sieve, 4*s* to 12*s*	— Barcelona, 90*s*
Oranges, per dozen, 2*s* to 4*s*	— Brazil, 1*s*. a 16*s*
— per 100, 14*s* to 24*s*	— Spanish, 14*s*
Barberries, per hf.-sv., 3*s* to 7*s*	Walnuts, per bushel, 16*s* to 24*s*
Lemons, per dozen, 1*s* 6*d* to 3*s*	

VEGETABLES.

Cabbages, per doz., 6*d* to 1*s* 6*d*	Garlic, per lb., 6*d* to 8*d*
— red, per doz., 1*s* to 3*s*	Spinach, per sieve, 1*s* to 1*s* 6*d*
Brocoli, per doz., 2*s* to 12*s*	Asparagus, per 100, 3*s* to 6*s*
Cauliflowers, per doz., 1*s* to 3*s*	Sea-kale, per pannet, 2*s* 6*d* to 3*s*
Artichokes, per doz., 2*s* to 3*s*	Salsify, p. bundle, 1*s* to 1*s* 6*d*
— Jerusalem, p. hf.-sieve, 1*s* to 2*s*	Scorzonera, 1*s* to 1*s* 6*d*
French Beans, per hf.-sv., 1*s* 6*d* to 3*s*	Horseradish Sprouts, per hf.-sv., 1*s* 6*d* to 2*s*
Sorrel, per hf.-sieve, 6*d* to 9*d*	Lettuce, Cos, per score, 2*s* to 4*s*
Potatoes, per ton, 4 to 8*l*	— Cabbage, per score, 1*s* to 1*s*
— cwt., 3*s* 6*d* to 6*s* 6*d*	Tomatoes, per hf.-sv., 3*s* to 4*s*
— bushel, 1*s* 0*d* to 3*s* 6*d*	Endive, per score, 6*d* to 1*s*
— Kidney, per bushel, 3*s* to 4*s*	Radishes, per 12 bunches, 1*s* to 1*s* 6*d*
Turnips, per doz., 1*s* to 2*s*	Mushrooms, per pottle, 1*s* to 1*s* 3*d*
Red Beet, per doz., 6*d* to 1*s* 6*d*	Small Salads, per punnet, 2*s* to 4*s*
Horse Radish, per bundle, 1*s* to 4*s*	Fennel, per bunch, 2*d* to 3*d*
Cucumbers, each, 6*d* to 1*s* 6*d*	Savory, per bunch, 2*d* to 4*d*
Leeks, per doz., 1*s* to 2*s*	Thyme, per bunch 3*d*
Celery, per bundle, 6*d* to 1*s* 6*d*	Watercress, p. 12 sm. bun. 6*d* to 8*d*
Carrots, per doz., 3*s* to 6*s*	Parsley, per bunch, 1*d* to 3*d*
Onions, per bushel, 4*s* to 8*s*	— Roots, per bundle, 1*s* to 1*s* 6*d*
— Spanish, per doz., 1*s* 6*d* to 4*s*	Tarragon, per bunch, 3*d*
Shallots, per lb., 6*d* to 10*d*	Mint, green, per bunch, 6*d* to 8*d*
	Marjoram, per bunch 3*d* to 4*d*

SMITHFIELD, MONDAY, Nov. 9.—Per Stone of 8 lbs.

Great Scots, Herefords, &c.	4*s*	0*s*	4*s*	4	Best Long-wools	4	8 to 5 0
Best Short Horns	3	10	4	0	Ditto (shorn)	—	— —
Good quality Beasts	3	0	3	8	Ewes and second quality	4	2 4 6
Calves	3	8	4	6	Ditto (shorn)	—	— —
Best Downs & Half-breds	5	0	5	4	Lambs	—	— —
Ditto (shorn)	—	—	—		Pigs	3	8 5 0

Beasts, 4035. Sheep and Lambs, 22,750; Calves, 81; Pigs, 290

The supply of Beasts, although rather less than last week, is still large as to numbers; but of fident as to weight of meat. The choicest Scots, &c., consequently make 4*s* 4*d* in most cases, and the best Short-horns a little, but nothing quotable over 4*s*. The arrivals from Holland and Germany are very extensive comprising nearly 1,000 head of cattle, and also 400 sheep. The supply of sheep is rather short; trade, however, is by no means brisk, but the scarcity of this description of stock keeps the prices high. There are very few calves on offer to-day, and the demand exceedingly limited—4*s* 8*d* is an extreme price for the choicest qualities. The weather being good, trade is rather improved for pigs.

FRIDAY, Nov. 13.

The supply of Beasts is considerable, a large number, however, are foreign, there being 3*l* from Holland and Germany, and 3*l* from Spain. The weather being good and dead trade improved since Monday, there is a disposition to purchase the best qualities freely at fully late prices, the best Scots making 4*s* to 4*s* 4*d*, and best Shorn-horns, 3*s* 10*d* to 4*s*. Second-rate, however, are not so readily disposed of, and prices for this description 3*s* to 3*s* 8*d* are with difficulty maintained, and several remain unsold. The number of sheep is small—especially when we take into consideration the run of the scanty supply on sale to-day. 1680 are from Holland and Germany—a great many of these are of very inferior quality, and several of them remain unsold but our own country sheep mix with a very ready sale at late prices. The best Downs readily made 5*s* 4*d*, and Long Wools, 5*s*. Ewes, 3*s* 6*d* to 4*s* 6*d*. The trade for calves has improved—the best qualities make fully 4*s* 8*d*—a very choice one reached more, several rose 4*s* 6*d* to 4*s* 8*d*. Pigs are not so plentiful, and the weather being good, realise about 3*s* 8*d* per 8lbs. sunk.

Beasts, 1174; Sheep and Lambs, 5810; Calves 165; Pigs, 500.

41, West Smithfield

MARK-LANE, MONDAY, Nov. 9.

The supply of English Wheat by land carriage samples was moderate this morning; factors were nevertheless compelled to accept a reduction of 2*s.* upon the White, and 3*s.* per qr upon the Red, at which a part remained unsold late in the day. Free Foreign was a slow sale at a decline of 2*s.* per qr. upon the nominal prices of Monday last. Bonded was inquired after for France at 55*s.* to 57*s.* per qr., the former being offered for Red Wheat. Barley, all but the very finest quality, must be written at 1*s.* per qr. cheaper.—Old Beans, in consequence of a large supply, were 1*s.* to 2*s.* and new 1*s.* per qr. lower. English White Peas declined 2*s.* per qr.; but Foreign maintained their former value, and were in fair request. Oats, particularly Irish, must be quoted 1*s.* lower, with a dull sale.—In barrel flour little doing.—Indian Corn is variously offered, but buyers are only to be met with for floating cargoes on reduced terms.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White	60 64	Red	52	57
— Norfolk, Lincolnshire, and Yorkshire		54 60	White	54	60
Barley, Malting and distilling 47*s* to 49*s*	Chevalier	62	49	Grind.	35	39
Oats, Cumberland and Yorkshire	Polands	29	34	Feed	26	30
— Northumberland and Scotch	Feed	27	30	Potato	32	35
— Irish	Feed	19	20	Potato	26	32
Malt, pale, ship		—	—			
— Hartford and Essex		—	—			
Rye		40	44			
Beans, Mazagan, old and new	36	41	Tick	36	43	Harrow	36	45
— Pigeon, Old and new	44	49	Winds	55	70	Longpod	38	45
Peas, White	50	54	Maple	42	45	Grey	38	42

FRIDAY, Nov. 13.

There was but little English Wheat fresh up for this day's market, for which Monday's prices were barely supported; the demand for free Foreign is very limited, and the value of secondary qualities being upon a par with bonded, they are being taken for export to France, for which latter the demand increases.—Barley is a slow sale, and all but the very finest qualities are the turn lower.—Beans are unaltered. White Peas neglected at our quotations.—Foreign Oats meet an improved request, at about the same rates; Irish are rather cheaper.—Flour remains a dull sale.—Indian Corn is less inquired after, unless arrived or on the coast.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats	Rye.	Beans.	Peas
Oct.	8 per Quarter.	54*s* 9*d*	36*s* 9*d*	24*s* 3*d*	35*s* 5*d*	40*s* 4*d*	42*s* 4*d*
—	10 " "	56 10	37 2	24 7	35 2	43 7	44 7
—	17 " "	59 10	38 5	25 8	40 8	46 5	47 3
—	24 " "	59 10	40 2	26 6	39 0	45 9	48 10
—	31 " "	61 9	41 8	27 0	41 1	46 1	50 8
Nov.	7 " "	62 3	44 8	27 5	41 6	46 1	50 11
4 weeks' Aggreg. Aver.		59 8	40 0	25 10	39 6	45 1	48 3
Duties on Foreign Grain		4 —	2 0	1 6	2 0	2 0	2 0

Fluctuations in last six week's Corn Averages.

Quarter.	Oct. 5	Oct. 10	Oct. 17	Oct. 24	Oct. 31	Nov. 7.
62*s* 3*d*	..	..	..	..	..	..
61 9	..	..	..	..	..	..
60 10	..	..	..	..	..	..
59 10	..	..	..	..	..	..
58 10	..	..	..	..	..	..
57 10	..	..	..	..	..	..
56 10	..	..	..	..	..	..
54 0	..	..	..	..	..	..

SEEDS, Nov. 9.

Canary	per qr.	40*s* to 61*s*		Linseed Cakes, Foreign, p ton	9*l* to 11	
Caraway	per cwt.	40 48		Mustard, White, per bush.	7*s* 8	
Clover, Red, English	— —	— —		— Superfine	— —	
— — Foreign	— —	— —		— Brown	3 4	
— White, English	— —	— —		Rapeseed, English per last	21*l* 23*l*	
— — Foreign	— —	— —		Rape Cakes per ton	— £4	
Coriander	—	10 16		Saintfoin	— —	
Hempseed	per qr.	36 38		Tares, Eng., winter, p bush.	3*s* 5*s*	
Linseed	per qr.	51 52		— Foreign	— 4*s* 6	
— English	—	49 46		Trefoil	per cwt.	16 19
— Baltic, Eng. per 10 qrs.		£13 5		Turnip (according to quotations)		

KINGSMILL AND LAY.

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, MARKET GARDENERS, RAILWAY CONTRACTORS, AND OTHERS ENGAGED IN PLANTING, &c.

MESSRS. PROTHEROE AND MORRIS have received instructions to submit to Public Competition, on Monday, Nov. 16, and following days, at 11 o'clock, a large PORTION of the densely stocked NURSERY of Wm. Isaacs and Co., King's-road, Chelsea, the ground being required for immediate building after Christmas. The stock consists of 10,000 Aucuba japonica, Irish Ivies, Hollies, large Privets, and an immense quantity of standard, half-standard, pillar and dwarf Roses, in great variety; the largest collection of prize Gooseberries ever grown, in upwards of 300 varieties; large fruit-bearing Apple, Pear, and Mulberry Trees, flowering Shrubs, Herbaceous Plants, &c. May be viewed three days previous to the Sale, and Catalogues had of the principal Seedsmen, on the premises, and of the Auctioneers, American Nursery, Leytonstone.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition, at the Auction Mart, Bartholomew-lane, on Wednesday, Nov. 18, 1846, at 12 o'clock, a first class collection of DUTCH BULBS, comprising very fine double and single Hyacinths, Narcissus, Crocus, Snowdrops, Iris, Anemone, Ranunculus, Gladiolus, &c. Also a splendid Assortment of Standard and Dwarf Roses, consisting of all the leading varieties; Rhododendrons, and Azaleas well furnished with bloom buds, &c.—May be viewed the morning of sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

2500 CAMELLIAS, 200 GHENT AZALEAS, 50 RHODODENDRON ARBOREUM, 50 REINE CLAUDE DE BAVAY PLUMS, AND 600 FINE STANDARD ROSES, CONSIGNED FROM BELGIUM FOR ABSOLUTE SALE.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition, at the Auction Mart, Bartholomew-lane, on Thursday, Nov. 19, 1846, and following day, at 12 o'clock (by order of M. Louis Van Houtte, Nurseryman and Florist to the King of the Belgians), about 2500 CAMELLIAS, fine healthy plants, consisting of all the approved varieties, beautifully furnished with bloom-buds. Also Ghent Azaleas, Rhododendron arboreum, Reine Claude de Bavay Plums, fine Standard Roses, &c.—May be viewed one day prior to the Sale (at the Mart), where Catalogues may be had; and of the Auctioneers, American Nursery, Leytonstone.

ROSE TREES, CHESNUT PLANTS, &c. &c.

MR. W. TOMPSETT has received instructions from Mr. Hooker to Sell by Auction, on FRIDAY, NOVEMBER 27, 1846, upon his grounds, at RAINGLEY, KENT, the remainder of the ROSE TREES and other Plants which were left unsold last year, in consequence of the wetness of the days appointed for the sale. The plants consist of 3000 Standard and Half-standard Rose Trees, 4000 Dwarf Roses, 400 large Portugal Laurels, 60 000 very strong Seedling Chesnut Plants, 2 and 3 year old Seedling Quicks and Oaks, 200 Firs of rare kinds, and other plants. The Standard Rose Trees are a selection of the most beautiful kinds, which will be sold in dozens, each dozen containing 12 different sorts. The Dwarf Roses in fifties, of various sorts. The other plants will be divided into small Lots. The sale will commence exactly at 10 o'clock. The grounds are 7 miles from Tunbridge Wells, and 3 from Paddock wood Station of the Dover Railway.

TO LET a NURSERY—Great Bargain.—The Proprietor of the Edmonton Nursery being compelled shortly to leave the business in consequence of an engagement elsewhere, is induced to offer it at the following very low terms. The whole of the Glass Erections—about 4000 feet; about 3000 Plants in pots, the remaining Stock of Evergreens, &c., Lease, Fixtures, Tools, Cart, &c., for 750*l.*, and immediate possession granted and rent, &c., paid up to Christmas next. The rent, including Cottage, Shop, and about two acres of land, 50*l.* per annum. Unexpired term of lease 21 years. The land is stocked with Fruit-trees, which on an average produce nearly the amount of rental. For further particulars apply to Messrs. H. Low and Co., Clapton Nursery, or to the Proprietor on the premises.

Edmonton, Middlesex, Nov. 14.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, of 100 and 200 feet each; also Glass Pantiles, 11*s.* per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at F. ELLIOCK'S, 28, Castle-street, East, Oxford-street. *** For Ready Money only.

PATENT VENTILATORS for Public Offices, Smoking Rooms, &c.

GLASS MILK PANS.—In consequence of the increased demand for GLASS MILK PANS, owing to the incontestible fact of their being better adapted for obtaining Cream, throwing nearly 10 per cent. more than any other utensil hitherto used; and also to the extraordinary reduction recently made in the price; PHILLIPS & WELCH have the pleasure to announce that they have made arrangements with the manufacturer for a constant supply of the above articles, and are now ready to deliver them at the under-mentioned prices:—

Each—*s. d.*		Each—*s. d.*
12 inches in diameter .. 3 4	18 inches in diameter .. 4 0	
14 " " .. 3 6	20 " " .. 4 3	
16 " " .. 3 9	22 " " .. 4 6	

When a dozen are taken at once no charge is made for packages. British and Foreign Sheet and Horticultural Glass Warehouse, 12, Panton-street, Haymarket.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

ORNAMENTAL TILES for Floors, Walls, &c., of Greenhouses, Conservatories, Garden Terraces; Encaustic, Venetian, &c., in EVERY VARIETY. May be seen at Messrs. PARKER and WYATT'S, Surrey-street, Blackfriars, London, Agents to Messrs. MINTON & CO., the Patentees, of Stoke-upon-Trent. Also Patentees of the PORCELAIN BUTTONS, cheaper and more durable than Mother-o'-Pearl, &c.

TO THE NOBILITY, GENTRY, AND PLANTERS GENERALLY.

ARTHUR MACKIE begs to announce that his List of prices for FOREST AND ORNAMENTAL TREES, FLOWERING AND EVERGREEN SHRUBS, &c., is now ready for delivery, and can be had on application.

A. M. begs to call the attention of gentlemen in the neighbourhood of London to the great facility afforded by the Norfolk Railway for the cheap and speedy transit of Nursery goods; and still further to meet the views of his London correspondents, he has made arrangements for the delivery of all packages of Ornamental Trees, Shrubs, &c., free to any part of London.

A. M.'s stock of Forest Trees is very extensive, and he confidently trusts that the rate of prices, and of carriage for them, will be such as will prove an inducement to those who have hitherto been restricted to a circumscribed market, to favour him with their orders. The freight by Norfolk Railway to London, 27s. 6d. per ton. The Ely and Peterborough line is expected to be opened shortly, which will give access to the midland counties.

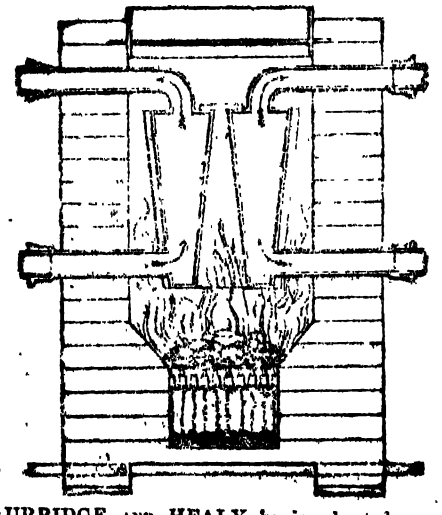
A. M. has likewise a very extensive stock of fine Whitethorn and Blackthorn suited for Enclosures, Railway Fencing, &c., and well deserving the attention of contractors.

A. M. begs to call the attention of the Trade and those largely engaged in planting, to the subjoined list of a few articles in which he abounds:—

	Per 1000.	If 20,000 are taken.
	s. d.	s. d.
Chesnuts, Spanish, 1 to 2 feet	35 0	25 0
,, ,, 2 to 3 feet	50 0	45 0
,, Horse, 1 to 2 feet	20 0	..
,, ,, 2 to 3 feet	40 0	..
Fir, Spruce, 6 to 12 inches	7 6	6 0
,, ,, 1 to 2 feet	25 0	18 0
,, ,, twice transplanted, bushy, and well suited for Shrubberies, 2 to 3 feet, 12s. per 100	100 0	..
Ash, 1 to 2 feet	12 6	10 0
,, 2 to 3 feet	20 0	15 0
,, 3 to 4 feet	30 0	25 0
Hazel, 1 to 2 feet	20 0	17 6
,, 2 to 2½ feet	30 0	25 0
Hornbeam, 1 to 2 feet	25 0	20 0
,, 2 to 3 feet	40 0	.
Maple, to 2 feet	20 0	.
Oak, common, 1 to 2 feet	27 6	25 0
,, ,, 2 to 3 feet	40 0	35 0
,, ,, 3 to 4 feet	60 0	.
,, Levant or Turkey, 1 to 2 feet	40 0	.
,, ,, ,, 2 to 3 feet	60 0	.
ORNAMENTAL TREES & SHRUBS.	Per 100.	Per 1000.
Gleditschia triacanthos, 3 to 4 feet	25 0	.
Junipers, 9 to 12 inches	8 0	50 0
Laurel, common, 1 to 2 feet	14 0	80 0
,, ,, 2 to 3 feet	20 0	120 0
,, ,, 3 to 4 feet, very fine	40 0	.
Box-tree, 1 to 2 feet	10 0	80 0
,, Portugal, 1 to 2 feet	30 0	4l2
Red Cedars, 1 foot	25 0	£8
,, 2 feet	50 0	£20
,, 3 feet	65 0	.
Oak, Fulham and Lucombe, 2 to 3 feet	150 0	.
Privet, Evergreen, 1 to 2 feet	6 0	40s. 0d.
,, ,, 2 to 3 feet	12 0	70 0
Rhododendron ponticum, 9 to 12 inches	25 0	£8
Arbor-vitæ, Tartarian (pyramidal)	25 0	£8
,, Chinese	25 0	£10
Roses, Standard, good sorts (left to my choice)	100 0	.
,, Dwarf, good sorts (left to my choice)	80 0	.
,, Dwarf, mixtures	20 0	£7

Norwich Nursery, Norwich.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. Mayle's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER's superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brick work, may be seen in action upon the premises.
BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

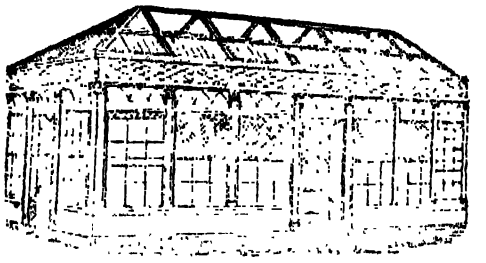
D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.

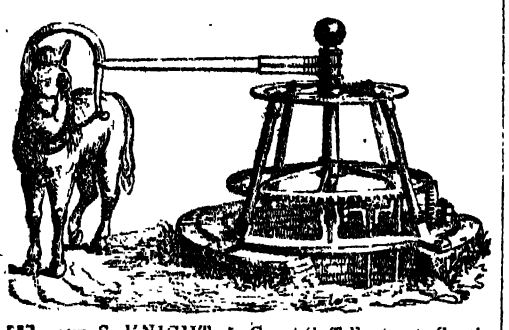


J. WEEKS AND DAY, Architects, &c., Gloucester-place, King's-road, Chelsea, HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, most respectfully beg to inform the Nobility, Gentry, and Horticulturists, that they have erected on their premises, for the purpose of inspection, a variety of Hothouses, Greenhouses, Conservatories, Pits, &c., where all the various known improvements of the day can be seen. Their Hot-water Apparatus is also erected, and kept in constant action in various Hothouses, Greenhouses, Pits, &c., where the whole principle of Top and Bottom Heating can be seen.

J. WEEKS & DAY warrant their Hot-water Apparatus to be efficient for every purpose to which heat is applicable. Boilers of all sizes, the largest is warranted to heat a range of Forcing houses 300 feet in length, with a small quantity of fuel, and only to require attention once in 12 hours.

Models, Plans, &c., in great variety.

WATER RAISED FROM ANY DEPTH TO ANY HEIGHT FOR THE SUPPLY OF MANSIONS, PUBLIC ESTABLISHMENTS, FARM-YARDS, &c.



T. AND S. KNIGHT, 5, Great Suffolk-street, Southwark, beg to call the attention of the Nobility, Gentry, Agriculturists, and all who are desirous of having a supply of Water on their own premises, either for domestic or ornamental purposes, to their HYDRAULIC MACHINE, adapted for Horse or Manual Labour; also Water-wheels, Water-rams, Garden and Street Pumps, &c.

Many years experience in fixing Hydraulic Machines, enables T. and S. KNIGHT to do so on the most simple and economical plan.

Estimates furnished upon the particulars of the quantity of water required, situation, depth of well, &c., being forwarded to the above address, where machines of various descriptions may be inspected.

Conservatories and other Buildings heated with Hot Water on scientific principles, combined with economical arrangement.

CHEAP AND DURABLE ROOFING.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, the Manufacturers and only Patentees of THE ASPHALTED FELT FOR ROOFING Houses, Farm Buildings, Sheddings, Workshops, and for Garden purposes, to protect plants from Frost.

At the Great National Agricultural Shows, it is this Felt which has been exhibited and obtained the Prize, and is the Felt patronised by

HER MAJESTY'S WOODS AND FORESTS,
HONOURABLE BOARD OF ORDNANCE,
HONOURABLE EAST INDIA COMPANY,
HONOURABLE COMMISSIONERS OF CUSTOMS,
HER MAJESTY'S ESTATE, ISLE OF WIGHT,
ROYAL BOTANIC GARDENS, REGENT'S PARK,

And on the Estates of the Dukes of Sutherland, Norfolk, Rutland, Newcastle, Northumberland, Buccleuch (at Richmond), the late Earl Spencer, and most of the Nobility and Gentry; and *at the Royal Agricultural Society's House, Hanover Square.*

It is half the price of any other description of Roofing, and effects a great saving of Timber in the construction of Roofs. Made to any length by 32 inches wide.

PRICE ONE PENNY PER SQUARE FOOT.

*** Samples, with Directions for its Use, and Testimonials, of seven years' experience, with references to Noblemen, Gentlemen, Architects, and Builders, sent free to any part of the town or country, and orders by post executed.

☞ The Public is respectfully cautioned that the only Works in Great Britain where the above Roofing is made, are

F. M'NEILL AND CO.'S

Patent Felt Manufactory, Lamb's-buildings, Bunhill-row, London, where Roofs covered with the Felt may be seen, as also the new Vice-Chancellor's Court, and the Passages and Offices at the entrance to Westminster Hall, and other buildings at the New Houses of Parliament, done under the Surveyorship of Charles Barry, Esq., R. A.

Note.—Consumers sending direct to the Factory can be supplied in lengths best suited to their Roofs, so that they pay for no more than they require.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

SIX THOUSAND SIX HUNDRED FEET OF CROGGON'S PATENT ASPHALTE FELT have been used to roof the above Society's Buildings, at Newcastle-upon-Tyne

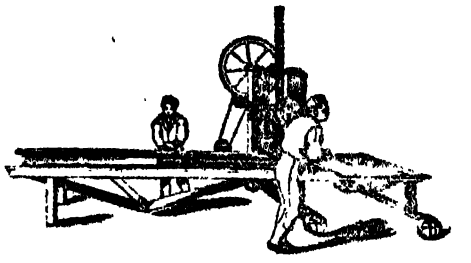
PRICE ONE PENNY PER SQUARE FOOT.

THOMAS JOHN CROGGON, 8, Lawrence Pountney-hill, Cannon-street, London.

TO BRICK AND TILE MAKERS.

THE AINSLIE PATENT TILE MACHINE COMPANY (JAMES SMITH, Esq., of Deanston, Chairman), invite attention to their improved TILE MACHINE, and to their new Patent Improved Kilns, for drying and burning Bricks and Tiles, by which a saving of from two thirds to three-fourths of the fuel is effected, and all the articles are burnt equally without loss or damage. The Machines at work and a Model of the Kilns to be seen, and all particulars to be obtained from Mr. JOHN PATON, Secretary, 193A, Piccadilly, London. Agents wanted.

HATCHER'S BENENDEN TILE MACHINE.



Manufactured and Sold by

COTTAM AND HALLEN, 2, WINSLEY-STREET, OXFORD STREET, LONDON.

This is by far the simplest and most efficient Machine for the purpose of making Drain Tiles. Any shape Tile can be made by it. It requires but few hands to work it, namely, two men and two boys. With this amount of labour the produce will be as follows:—

1 in. diameter of Tile,	11,000	1½ in. diameter of Tile,	5,800
1¼ do.	8,000	2 do.	3,200

As stated by Thomas Law Hodges, Esq., in his communication to the Royal Agricultural Society of England.

The Machine is quite portable and requires no fixing, but can be moved up and down the drying shed, thus requiring no extra boys in carrying the tiles, nor are any shelves required in drying. There is no charge for patent dies or license; the purchase of the Machine includes the free use of it.

Price 25*l.*, including four Dies of any pattern or size.

Extra Dies, of any shape or size, 5*s.* each.

References can be had as above as to where it can be seen in actual use.

Improved Pug-mills, wholly of Iron	£16 16 0
,, ,, Wood	10 10 0
Draining Spades, per set of three, with swan-neck scoop	1 1 0
Improved Drain Level for the use of workmen	2 5 0

COTTAM'S IMPROVED CLOD CRUSHERS.

The improvements made in these useful Implements consist in the division of the roller into two parts, which greatly facilitates the turning and working of the implement. The frames are made wholly of iron, and are therefore much more durable than those of wood. The prices of these Clod Crushers will be found considerably lower than those usually charged.

5 feet 6 inches long, 17*l.* 6 feet, 18*l.* 10*s.* 6 feet 6 inches, 20*l.*

Every description of Agricultural Implements, including Grubbers, Ploughs, Harrows, Drills, Dibblers, Weighting Machines for live cattle and farm produce, Chaff Cutting Machines, Churns, &c., and every description of Agricultural and Horticultural Implements, at the Agricultural Repository, Winsley-street, Oxford-street, London.

USE DINGLE'S HAND-DIBBLING MACHINE FOR DIBBLING YOUR WHEAT.

Prices:

For Dibbling a single row	£2 0 0
Ditto double row	4 10 0

For Circulars, Testimonials, &c., apply to
WILLIAM E. RENDLE and Co., Plymouth.

PHOSPHORIC RAT POISON.—This preparation is offered to the Public with the greatest confidence, being decidedly superior to all those poisons containing arsenic and other minerals. It is most greedily eaten by rats and mice as long as it is offered to them, and invariably proves certain destruction. Prepared only by EDWARD PURSER, 40, Bridge-street, Blackfriars, London. Sold in pots, with full directions for use, at 4s., 8s., and 20s. each.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea (by appointment to HER MAJESTY and H. R. H. PRINCE ALBERT).—ORNAMENTAL WATERFOWL, consisting of Black and White Swans; Egyptian, Canada, China, Barnacle, Brent, and Laughing Geese; Sheldrakes, Pintail, Widgeon, Summer and Winter Teal; Gadwall, Labrador, Shovellers, Gold-eyed and Dun Diver, Carolina Ducks, Call Ducks, &c., domesticated and pinioned; also Spanish, Cochin China, Malay, Poland, Surrey, and Dorking Fowls; and at 3, Half-moon-passage, Gracechurch-street.
White, Japan, Pied, and Common Penfowl, and pure China Pigs.

POTATO EPIDEMIC.
To AGRICULTURISTS, GARDENERS, & OTHERS.
PARKER'S ENTYROPROLEON, OR CHEMICAL COMPOSITION MANURE, for destroying the Wireworm, Grub, Mole, Insects, and Vermin inimical to the growth of all kinds of grain and vegetable productions, and for assisting vegetation.

W. and S. B. PARKER in offering their Composition Manure to the notice of Farmers, Gardeners, and others interested in agricultural pursuits, do so with the perfect confidence that it will be found fully to effect all the objects intended, and to be a desideratum long and anxiously looked for by all classes of persons for whose benefit it is now offered. This Manure will be found most effectually to destroy the fly in Turnips, to preserve corn and other seeds and grain from insects without injuring or affecting the seed; while, at the same time, it materially assists and promotes vegetation. It will be found highly beneficial in cold and wet corn lands, keeping the young plants warm, and contributing essentially to their growth and nourishment. On meadow land, also, its beneficial qualities will be readily perceived, and it cannot fail to be appreciated as a rich, cheap, and invaluable Manure.

The extraordinary disease affecting the Potato is now become an object of serious consideration, not only to the grower, but to the consumer; and any expedient or specific to stop or diminish the malady, must be considered of the utmost importance to the community. Notwithstanding the experiments, observations, and opinions of scientific and practical men, no satisfactory solution of the origin or cause of the disease has been suggested, or any efficacious specific or remedy proposed, and the alarming extent of the mischief, justifies and requires the adoption of any reasonably proposed preventive or mitigant. With this view the proprietors of the Chemical Composition Manure, confidently recommend its adoption as a perfect specific against the prevailing epidemic. The limits of an advertisement do not allow the opportunity of giving a scientific exposition of the subject, or the reasons for the great efficacy of this Manure, otherwise the proprietors flatter themselves their explanation would be perfectly satisfactory. It seems to be the opinion of many, and particularly of one gentleman, evidently of great practical experience and observation, and who has written a pamphlet on the subject, that the disease originates in the leaf, from the appearance of blotches on the leaves of those plants where the Potato was found diseased, but it is apprehended this opinion rests on most fallible grounds, as the blotches may as probably be the effect as the origin or cause of the disease. It is submitted, however, that the disease, whether the effect of an insect, of fungus, or of some peculiar state of the atmosphere, or other undiscoverable cause, must originate in an effect on the tuber in the ground, and whilst on, or after it attains its mature growth, the proper remedy therefore must be applied to the soil, and the destructive effect of this manure on all kinds of insects affecting the roots and germs of vegetable products, and its stimulative and nourishing qualities, seem to leave little doubt of its efficacy against the Potato epidemic. The proprietors consequently, from their own experience, and the observations of other parties, strongly recommend the dressing of the land with their Manure previously to planting, being confidently assured it will be found a perfect preventative of this fatal disease, as also in other respects a cheap and fertilising manure.

Sold in casks of any size at 6l. per ton, with directions, &c., for use, by W. and S. B. PARKER, Sole Manufacturers, Chemical and Colour Works, Deptford, Kent; where also can be had Prospectuses with Testimonials.

Sold by all the Chemists in Town and Country.
Patronized by HER MAJESTY, His Royal Highness PRINCE ALBERT, and Her Royal Highness the DUCHESS OF KENT.
MR. CLARKE, SURGEON DENTIST, 28, SACKVILLE-STREET, PICCADILLY.

CLARKE'S TINCTURE, for instantaneously curing the Tooth Ache, without the least pain or danger, price 2s. 6d.—Also Mr. CLARKE'S SUCCEDANEUM, for Stopping Decayed Teeth, however large or small the cavity: all persons can use it themselves with ease, as full directions are enclosed, price 5s.—Mr. CLARKE'S LOTION, for strengthening and purifying the Gums, and destroying all feverish sensations in the Mouth, price 4s. 6d.—Also Mr. CLARKE'S TOOTH BRUSHES, in cases containing three different kinds of Brushes necessary to be used for Cleaning the Teeth, price 4s. 6d.—CAUTION, none are genuine unless each packet is sealed with the inventor's name and profession. Any of the above Articles can be sent to all parts of the United Kingdom, on receipt of Post Office Order.—LOSS OF TEETH supplied, from one to a complete Set, on his new system, which has procured him the approbation of SIR JAMES CLARK, Bart., and Dr. LOCOCK.
MR. FREDERICK CLARKE, Surgeon Dentist, 28, Sackville-street, Piccadilly.

WARMING AND VENTILATING CHURCHES, LARGE BUILDINGS, GENTLEMEN'S ENTRANCE HALLS &c., &c.
CUNDY'S PATENT STOVE for these purposes, is the most efficient and economical yet introduced to public notice. The price of No. 1 Stove, calculated to Warm and Ventilate Buildings from

	5,000 to 10,000 cubic feet, is	15l.
No. 2. from	10,000 to 50,000 do.	20l.
No. 3, from	50,000 to 100,000 do.	25l.

Ample testimony can be adduced. They may be seen in daily operation at the PANKLIBANON IRON WORKS, the Great Western Emporium for Stove Grates, Kitchen Ranges, Fenders, Fire Irons, &c. Where is also the largest assortment in the Kingdom of General Furnishing Ironmongery, in Tinned Copper, Tin, and Iron Cooking Wares, best Sheffield Plate and Table Cutlery; Japanned Paper and Iron Tea Trays; Bronzed Tea-Urns; Baths of all kinds; Brass and Iron Bedsteads, Wire Trellis Work; Garden Ornaments, Verandahs, &c. &c.
THORPE, FALLOWS, & Co., Panklibanon Iron Works, 58, Baker-street, Portman-square.

AGRICULTURE AND HORTICULTURE.—It has long been a matter of surprise that in Edinburgh—the Capital of a country which has attained such eminence among European nations in Agriculture and Horticulture—there should exist no Newspaper peculiarly devoted to those subjects, and to the discussion and practical application of those principles of science which are becoming universally the feature of the Farming of the present day. Both England and Ireland are far ahead of this country as far as regards the Press. In London alone there are several able Journals, which, while they afford ample information on these subjects, combine at the same time all the desirable requisites of a Family Newspaper, thus rendering themselves acceptable to every member of a household. The Scottish Farmers and Horticulturists are sensible of a want of something of the same kind: and this deficiency the Proprietor of the

EDINBURGH WEEKLY JOURNAL

is anxious to supply, without trenching on the space usually devoted to News, Literature, and Art. He has, therefore, determined to ENLARGE the Sheet by ONE-FOURTH, *without raising the Price:* the additional space to be occupied by Original Agricultural Articles adapted to the Progressive Improvement of the times—Extracts from the ablest Periodicals on the same subject—Reports of the proceedings of Local Societies—and Accurate Quotations of the Markets up to the hour of publication.

At the same time additional talent has been engaged for the Departments of News, Literature, and the Fine Arts: so that THE JOURNAL cannot fail at once to recommend itself as

THE BEST FAMILY NEWSPAPER IN SCOTLAND.

The First Number of the Improved Series was Published on Wednesday, October 7, being the commencement of the Quarter. Communications to be left at the Publishing Office, No. 2, Hunter square, Edinburgh. Those who propose subscribing for the Quarter, or any longer period, will be so good as to enclose a Post-office order, made payable to THEODORE WILLIAMS, the Proprietor. Published every Wednesday Morning—Second edition in the Afternoon. Price 5s. per Quarter, to be paid in Advance; Single Copy, 4½d.

THE GAME LAWS.
Now ready, 8vo, cloth, price only 3s., comprising 600 pages,
THE INFLUENCES OF THE GAME LAWS.
Being classified Abstracts of the Evidence taken by the Committee on the Game Laws, with Observations and Notes.
By R. G. WELFORD, Esq.
With a Dedication to the Farmers, by JOHN BRIGHT, Esq., M.P.
London: GROOMBRIDGE and SONS, 5, Paternoster-row.

This day is published, price 3s.
LIEBIG'S QUESTION TO MULDER, tested by Morality and Science.
By Dr. J. G. MULDER, Professor of Chemistry in the University of Utrecht
Translated by Dr. P. F. H. FROMBERG.
With an Introduction by JAMES F. W. JOHNSTON, M.A., F.R.SS. L. & E., F.G.S.
WILLIAM BLACKWOOD and SONS, 45, George-street, Edinburgh; and 37, Paternoster-row, London.

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Elegantly printed, with Illuminated Frontispiece and Title,
FERIÆ SACRÆ; OR NOTES ON THE GREAT FESTIVALS OF THE CHURCH.
WITH CHANTS AND HYMNS APPROPRIATE TO THE SERVICES APPOINTED FOR EACH.
Compiled and Edited by the
REV. T. TUNSTALL HAVERFIELD, B.D.
Rector of Goddington, Oxfordshire.
Price, to Subscribers, 15s.; to non-Subscribers, 21s.
JOHN OLLIVIER, 59, Pall-Mall.

ROSES IN POTS.
OBSERVATIONS ON THE CULTIVATION OF ROSES IN POTS, including Forcing, Propagating, &c.
By WILLIAM PAUL, of the Nurseries, Cheshunt, Herts.
SHERWOOD & Co., Paternoster-row; or from the Author, free by post, on receipt of 22 postage stamps.

THE HORTICULTURAL MAGAZINE, Price 1s. contains 6 Illustrations and 96 columns of really useful and practical information on the cultivation of Flowers, Fruits, and Vegetables, and the general management of Gardens, Greenhouses, and Farms. An illustrated specimen will be forwarded, postage free, to every part of the kingdom, by the Publishers, HOULSTON and STONEMAN, 65, Paternoster-row, on receipt of 4d. or postage-stamps.

IMPORTANT TO FAMILIES.—THE POPULAR REMEDY.
PARR'S LIFE PILLS.—A mild, safe, and most effectual cure of Indigestion, Bilious, Liver, and Stomach Complaints, Sick Head-ache, Costiveness, &c. &c. Their composition is truly excellent; they are compounded entirely of vegetable products, freed from all irritating and deleterious matters, which renders their operation mild and agreeable; they do not require the least confinement or alteration of diet, and may be taken by the invalid with perfect safety; as an occasional dose in all nervous and debilitated cases, recoveries from protracted diseases, &c., they will be found highly valuable, imparting vigour and tone to the system when emaciated by disease.

Their value as a general tonic and restorative of the impaired stomach and biliary system, is daily manifested to the Proprietors, by their increasing rapid sale, and the numerous Testimonials forwarded by those who have proved their efficacy. The following has just been communicated by Mr. G. BATTERS, Agent for the sale of PARR'S LIFE PILLS, Nottingham.

"Sirs,—The many thousand boxes I sell in the course of a year fully testify the superiority of PARR'S LIFE PILLS over every other Patent Medicine. Old and young, rich and poor, all acknowledge the great benefit they derive from taking them; many ladies and gentlemen of high standing in society, and numerous respectable families have adopted PARR'S LIFE PILLS as a family medicine; and thousands have given me full proof verbally of the cures which PARR'S LIFE PILLS have effected. I remain, Gentlemen, yours, obediently, G. BATTERS, June, 1846."

BEWARE OF SPURIOUS IMITATIONS.
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Sold in boxes at 1s. 1½d., 2s. 9d., and family packets at 11s. each, by all respectable medicine vendors throughout the world.

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RAILWAY LITERATURE.—Macneil's Tables for the Calculation of Earthwork, &c.
OFFICIAL PAPERS.—Lease of the South Wales to the Great-Western.—Rouen and Havre, Engineer's Report.—Law Review for November.—Railway Register for November.
Progress of Works.—Accidents.—Law Intelligence.—Patents.—Iron Trade.—Meetings.—Tenders for Loans.—Contracts.—Dividends.—Calls.—Deposits Returned.—Signature of Parliamentary Contracts.—Transfer Books Closed.—Correspondents.—Traffic Table.—Share Lists.—Foreign ditto.—Money Market.—Paris Letter.—Hull and Barnsley.—North Devon.—Newport, Abergavenny, and Hereford.—South-Western Management of Isle of Wight Traffic.—Liverpool, Crosby, and Southport.—Reform in Parcels Transport.—Gossip of the Week.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 47—1846.] SATURDAY, NOVEMBER 21 [PRICE 6d.

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FREDERICK WARNER, SEEDSMAN, 28, Cornhill, London having purchased the above stock, regrets from the shortness of the crop he will not be enabled to send any out this season —28, Cornhill Nov 21.

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25	AURICULAS, in 25 Superfine sorts, named		2	10 0
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Do small plants	18 0

For 4 pounds and New Holland plants 5l per 100

Standard Dwarf superior Fruit Trees of all kinds

Messrs J and H Brown will forward their List of Garden Seeds by post to noblemen and gentlemen or their gardeners, on application Albion Nursery Stoke Newington London

CHARLES DAVY AND SON beg to inform the Trade and the Public that they will have seed beds ready to turn out at 4s 6d per 1000 2 years transplanted 9s per 1000 1 year ditto very fine, 6s per 1000 3 years seedling Scotch Firs 1s 6d per 100), 3 years seedling Spruce Firs and Larch 1s 6d per 1000, 3 years seedling Blackthorn, 20s per 1000 3 years seedling Ash, 1s 6d per 1000 Common Laurel 1 foot 1s per 1000, Portugal ditto, 3s per 100 Laurustinus 18s per 100 Irish Ivy broad leaved 3s per 100 Irish Yews 1½ foot 4s per 100, 2 feet 6s 3 feet 1s 6d each 4 to 5 feet 4s each Rhododendrons good furnished plants 4s each Evergreen Privet, 2½ feet 1s 6d per 100 Variegated ditto, 1 to 1½ 2s per 100, Double Dark red Primrose, 2s per 100 Double White ditto 3s per 100, 1 year seedling Laburnum fine 4s per 1000 7 to 9 feet, twice transplanted, well furnished 40s per 100 Limes 3 to 4 feet 8s per 100 5 to 6 feet 20s per 100 Carolina Poplar 3 to 4 feet 1s 6d per 100 4 to 6 feet well furnished, 3s per 100 Canadian Poplar 4 to 6 feet, 1s 6d per 100 Alder, 4 feet, 6s per 1000 6 to 8 feet 15s per 1000 All kinds of Willow cheap A quantity of Basket rods for sale cheap Freight of Thorn Quick to be paid to Liverpool or Glasgow Parties wanting credit would do well to name some respectable seed merchant in London whom they would pay the amount to when called on as value may be taken in seeds from them —Calcrain, Nov 21

FAIRBEARD'S CHAMPION OF ENGLAND

PEA —A large blue Wrinkle-Marrow a few days earlier than the "Fairbeard's Surprise," an abundant cropper, of fine flavour; in height 4 feet It is considered to be the best as yet offered, possessing the qualities of a Marrowfat, with the advantage of an early Pea.

May be had of the following Seedsmen at 5s per quart — George Charlwood Covent garden J Nutting, Cheapside Minier, Nash and Nash Strand, Gray Adams, and Hogg, Brompton W and J Noble, Lent-street May, Anderson, and Sanpster Newington Butts J Wrench and Sons, London bridge Hurst and M Mullen Leadenhall-street, Gordon, Thompson and Basket Fenchurch street

Green street near Sittingbourne Kent Nov 21

Sawbridgeworth Herts, Nov 21

THOMAS RIVERS begs to submit the following List of PLANTS on the Quince Stock, and CHERRIES on the Cerasus Mahaleb Carriage of all packages paid to London

PYRAMIDAL PEAR TREES ROOT PRUNED AND FULL OF BLOOM BUDS ON THE QUINCE STOCK 8s 6d each

Archduke Charles	Dunmore
Bellissime d'Hiver (baking)	Fortune (Parmentier)
Beurré Amanlis	Glout Morceau
Beurré Armenberg	Gratioli of Jersey
Beurré Brown	Jargonelle
Beurré de Capiaumont	Louise bonne of Jersey
Beurré Diel	Marie Louise
Beurré Easter	Napoleon
Beurré Mare	Passe Colmar
Catillac (baking)	Rousselet de Rheims
Chaumontel	St Germain
Citron des Carmes	St Lezin (baking)
Colmar	St Michael the Archangel
Colmar d'Et	Sans Pepin
Crassane	Soldat Laboureur, or Orphelin
Dovenne blanc	Summer franc real
Doyenne gris	Van Mons Leon le Clerc
Doyenne d'Ete	William's Bon Chretien
Duchesse d'Angoulême	

The above are from 3 to 4 years old 4 to 5 feet high They are eminently adapted for small gardens and will bear a crop of fruit the first season after planting if the blooming season is favourable For descriptions see Descriptive Catalogue of Fruits which will be sent on receipt of four postage stamps

DWARF TRAINED PEAR TREES FOR ESPALIERS OR WALLS ON THE QUINCE STOCK 8s 6d each

Beurré Amanlis	Glout Morceau
Beurré Capiaumont	Hacons Incomparable
Beurré Diel	Jalick
Beurré Easter	Jargonelle
Chaumontel	Louise bonne of Jersey
Colmar	Napoleon
Comte de Lamy	Passe Colmar
Crassane	Princess Royal
Doyenne Sterkmann	St Germain
Duchesse d'Angoulême	Winter Nelis
Fortune (Parmentier)	Urbaniste

These trees will form very handsome trees they may be planted at a much less distance apart than Pyramidal Pears on the Pear stock

DWARF CHERRIES ON THE CERASUS MAHALEB STOCK 3s 6d each

Archduke	Early May, or Cerise Indulle
Belle de Choisy	Elton
Bigarreau des Jaunes	Florence
Bigarreau	Guigne de Chaux
Bigarreau de Jaboulay	Knight's Early Black
Bigarreau de Schreckenstein	Knight's Late Black
Bigarreau grosse Noire	Late Duke
Bigarreau Napoleon	Louis Philippe
Black Eagle	May Duke
Black Tartarian	Monstreuse
Buttner's Black Heart	Morell
Buttner's Old Pink Heart	Reine Hortense
Buttner's Yellow	Royal Duke
Carnation	Spanish Hawk's Honey
Downton's Early	Tardive de Mezel
Downton's Late	Transparents
Early Amber Heart (Silvers)	Waterloo
Early Purple Gnoll	White Early Black

The above are all very handsome trees they may be planted at a much less distance apart than Pyramidal Pears on the Pear stock

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Just published

THE MINIATURE FRUIT GARDEN, or some directions for pruning Hints for the Cultivation of the Pear on the Quince Stock and the Cherry a Dwarf Bush on the Cerasus Mahaleb By Thomas Rivers of the Nurseries Sawbridgeworth Herts Sent by post free on receipt of 12 postage stamps Published by Longman & Co price 6d

BAKER'S PHEASANTRY, Beaufort-street, King's road Chelsea (by appointment to Her MAJESTY and H R H PRINCE ALBERT) ORNAMENTAL WATERFOWL consisting of Black and White Swans Egyptian Canada China Barnacle Brent and Laughing Geese Shelldrakes Pintail Widgeon Summer and Winter Teal Gadwall Labrador Shovellers Gold eyed and Dun Diver, Carolina Ducks Call Ducks &c &c now attached and pinioned also Spanish Cochin China Malay Polish Surrey and Dorking Fowls and at 3 Half moon passage Gracechurch street

White, Japan, Pied and Common Peafowl and pure China Pigs

FOREIGN AND BRITISH SHELL AND CROWN GLASS Horticultural and Plate Glass to be had in boxes as imported Lead and Oil for each also Glass Lantles 12s per dozen Engraving and all kinds of Horticultural Glasses Oil Colour Brushes &c of the best description at wholesale at TIPPETTS, 28 Castle-street East Oxford street Ready May only

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BRITISH AND FOREIGN SHELL AND HORTICULTURAL GLASS WAREHOUSE

12 PANTON STREET HAYMARKET

PHILLIPS and WELCH having on several occasions been applied to for the price of vashes and frames, have now added that branch of the business to their establishment thus affording the public an opportunity of obtaining at once anything in the most perfect Sashe and Frames Greenhouse and Conservatory lights &c fit for immediate use, with weights and lines complete and have pleasure in submitting their prices

SASHES AND FRAMES COMPLETE

1½	inch Ovolo single hung	1s 4d to 1s 5d.	per foot
1½	" double	1 5 to 1 6	"
2	" single "	1 5 to 1 6	"
2	" double	1 6 to 1 8	"

Glazed with good Crown Glass, suitable for sitting rooms

GREENHOUSE HOTHOUSE AND CONSERVATORIES

1½	inch Greenhouse lights	9½d to 10½d.
2	"	10 to 11½

Glazed with stout Sheet Glass

Packing and Cartage at a moderate extra charge No charge for Painting

STRONG HORTICULTURAL PLATE GLASS

HETLEY and SON are supplying 16 oz. SHEET GLASS, in boxes of 100 feet each, at prices cheaper in every respect to the foreign, and well adapted for Horticultural and general glazing purposes, at the following reduced prices for cash A reduction on 1000 feet.

Sizes.			Per 100 feet Box
Inches	inches.	s d.	£ s. d.
6 by 4	and under 7 by 5	at 0 2½	1 0 10
7 5	" " 9 7	0 2½	1 2 11
9 7	" " 10 8½	0 3	1 5 0
10 8½	" " 14 16	0 3½	1 7 1
14 10	" " 24 super	0 4½	1 9 2

Other sizes of every substance and quality equally low

Inches	s d	per dozen according to
GLASS TILES, 14 by 10 from	9 0	substance, thinnest
" SLATES, 20 by 10	2 6	being 16 oz sheet.

WHOLESALE GLASS SHADE, Sheet, Crown, and Patent Plate Glass Warehouse, 35, Soho-square, London

TO NURSERYMEN, FLORISTS, &c.

GLASS —Any quantity of 16 oz Sheet Glass, in small sizes, packed in boxes, containing 100 feet each, from 2d to 3½d per foot according to size

Every description of Horticultural Glass, from 13 to 32 oz to the foot

GLASS DAIRY PANS, the same size and strength as earthenware from 3s 4d to 4s 6d each

Improved Garden Hand lights

EDWARDS AND PELL, 15 Southampton street, Strand

SEEDS —CORNER OF HALF-MOON-STREET.

THOMAS GIBLS and CO,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

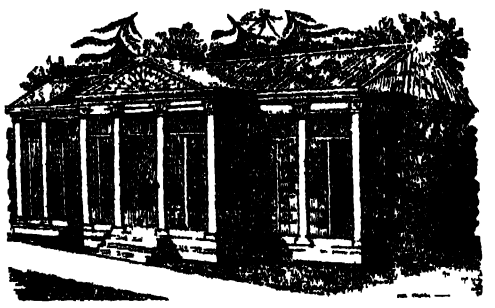
Beg to remind the Members of the Society, and Agriculturists in general that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY London as for the last Fifty Years

Priced Lists of Agricultural Seeds are always ready, and may be had on application

FLOWER-POTS AND GARDEN SEATS

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours and solicits an early inspection Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash —250, Oxford-street, near Hyde-park

HORTICULTURAL BUILDING AND HEATING BY HOT WATER



GRAY ORMSON, AND BROWN, HOTHOUSE BUILDERS AND HOT WATER APPARATUS MAKERS CHELSEA Duke's-street Chelsea respectfully solicit the attention of the Nobility Gentry and Gardeners to their superior manner of Erecting and Heating every description of Building connected with Horticulture Extract of a letter from Mr Tranquet Gardener to His Grace the Duke of Marlborough Blenheim gardens —

GENTLEMEN —I am happy to say that the Heating Apparatus erected here by you answers well I am perfectly satisfied it is the most complete and powerful I have seen I shall be happy to answer any questions from parties whom you may refer to me"

Plans and Estimates furnished free and then Works seen at the principal London Nurseries

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.



J. WEEKS AND DAY, ARCHITECTS, &c, Gloucester-place King's-road Chelsea HOTHOUSE BUILDERS and HOT WATER APPARATUS MANUFACTURERS, most respectfully beg to inform the Nobility Gentry, and Horticulturists that they have erected on their premises, for the purpose of inspection, a variety of Hothouses Greenhouses Conservatories Pits, &c where all the various known improvements of the day can be seen Their Hot-water Apparatus is also erected and kept in constant action in various Hothouses, Greenhouses Pits &c, where the whole principle of Top and Bottom Heating can be seen

J WEEKS & DAY warrant their Hot water Apparatus to be efficient for every purpose to which heat is applicable Boilers of all sizes the largest is warranted to heat a range of Forcing-houses 300 feet in length, with a small quantity of fuel, and only to require attention once in 12 hours

Models, Plans, &c, in great variety

BURBIDGE AND HEALY'S COOKING APPARATUS combining Sylvester's Patents —This COOKING APPARATUS possesses greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship, in fact the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel without destruction to the apparatus B and H can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made May be seen in daily use at Greenwich Hospital, Craven Hotel, Craven street, Strand, and at their Manufactory, 190, Fleet-street A Prospectus can be forwarded, upon application, detailing particulars and price

BECK'S SEEDLING PELARGONIUMS, 1845.—The following varieties can be had, good plants in 4-inch pots, delivered free in London for pre-payment only, by Post-office orders on Brentford:—

Aurora	...	£2 2 0	Resplendent	...	£1 1 0
Competitor	...	1 11 6	Gigantic	...	0 10 6
Hoby's Lip	...	1 11 6			

Five good plants of Bacchus at 1*l.* 11*s.* 6*d.*, and a few of Sirius at the same price, but smaller.

VARIETIES OF 1846.

Arabella	...	15*s.* 0*d.*	Rosy Circle	...	15*s.* 0*d.*
Desdemona	...	15 0	Mustee	...	15 0
Isabella	...	15 0	Favorite	...	7 6

Usual Allowance to the Trade.

E. BECK'S Descriptive Catalogue of Seedling Pelargoniums, with directions for their cultivation, blooming, &c. E. B. finds he has about 40 copies of the above undisposed of, which may be had in exchange for four postage stamps.

HORTICULTURAL SOCIETY OF LONDON.—Notice is hereby given, that the EXHIBITION OF FLOWERS AND FRUIT, in the Society's Garden, in the ensuing season, will take place on the following Saturdays, viz., May 8; June 19; and July 17; and that Tuesday, April 20, is the last day on which the usual privileged Tickets are issued to Fellows of the Society.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 21, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

SATURDAY,	Nov. 28—	Royal Botanic	4 P.M.
MONDAY,	— 30—	Botanical (Anniversary)	8 P.M.
TUESDAY,	Dec. 1—	Horticultural	2 P.M.
		Linnean	8 P.M.
WEDNESDAY,	— 2—	Society of Arts	8 P.M.

It is doubted by some Pine-growers whether the MEUDON PINES, to which we have lately directed attention, *can* be of the weight, and size, and beauty that has been stated. Peat, sand, and water, are thought to be incapable of producing such results. One learned correspondent, of whom we had hoped better things, doubts indeed everything; he doubts whether *Mirabile dictu* is a Pine grower at all; whether he knows anything about Pine-growing; whether he knows a "Queen" when he sees one; whether he has not been dreaming all this while, fancying Cayennes to be Queens! and so on. Reasonable men should be ashamed of such cavilling. However, for the satisfaction of our friends, we have procured one of these Pines from Meudon; the best that remained when our order reached Paris (the finest had been cut), and we shall leave it for a day or two in the office of this Paper for the inspection of the curious. It is a nice *little* Queen, which weighed about 8lbs. avoirdupois when first cut; and now that it has lost some of its weight, is far heavier than the finest Queen ever grown in this country.

At a Meeting of the HORTICULTURAL SOCIETY on Tuesday, November the 3d, Mr. MITCHELL, of Brighton, produced some BLACK HAMBURGH GRAPES, for which a Silver Banksian Medal was awarded. They were not Grapes of wonderful size, either in the berry or the bunch; the latter, indeed, was small, as all bunches should be which are grown for market; but the berries were handsome, black, perfectly ripe, and excellent. Why, then, do we mention them thus? seeing that as fine Black Hamburgh Grapes have this autumn been common as Blackberries. We mention them because of their history, which involves some curious as well as highly important facts.

Mr. MITCHELL'S Grapes were a part of a very heavy *second* crop, succeeding a fair crop which had ripened in the spring. It appears that he had intended to destroy a house of Vines, which were scrambling, out of condition, and more inclined to run to wood than to fruit; that for this purpose he began to force in the autumn of 1845, and managed to secure a ripe crop by the middle of February. By that time we may suppose that the Vines were sinking to rest. By the middle of March the crop was all gathered; the Vines were then allowed to remain undisturbed for six weeks, when, instead of throwing them away, Mr. M. determined, like a wise man, to endeavour first to get another crop out of his houses. He therefore on the 1st of May pruned them hard; the sap was rising, and the Vines bled excessively, so that the floor of the house was deluged. Notwithstanding this, however, the buds broke well; a fine show of fruit appeared, the crop was left, and finally ripened off in perfection in October, the Grapes above alluded to having formed part of the produce. What is more, the wood for next year is so hard, well ripened, and furnished with plump buds, that Mr. MITCHELL has changed his mind about destroying the Vines, and intends to force them again next year, but not early, nor more than once. The fact is, he has tamed their over-luxuriance, and the reason for their removal is withdrawn.

There are two circumstances in this experiment which more especially deserve consideration. The first is that the Vines had not more than a six weeks or two months' rest, between the first and second forcing. It is clear, however, that the Vine could not have been much exhausted by its winter growth, for on the 1st of May the sap was in motion and followed every wound. The natural season for the growth of the Vine had in fact returned; the stimulus of long days and bright light, and a warmer soil, produced its customary effects, which the Vine obeyed notwithstanding the shortness of its previous slumbers. It may, therefore, seem that this plant does not demand so long a period of rest as is supposed; that its vitality is such as to render it indifferent to exertion; and that the "accumulated excitability" of which physiologists speak as so indispensable to all plants, and for which they regard winter as the natural provision, is a thing of imagination, not of reality. Such is not our opinion. It is to be remembered that these Vines were over-luxuriant, and demanded a check; it does not quite follow, because Mr. MITCHELL'S rampant Vines could be thus "run out" with impunity, that everybody's can be treated in the same way. Vines in their ordinary state might not bear it. We are, however, by no means sure that any very *strong healthy* Vines might not be forced to the same extent; a continuance of such treatment would kill a plant; but an occasional effort may be borne. A strong man will bear the loss of rest for a night without inconvenience; but keep him awake for several successive nights, and his nature will sink prostrate under the effort. So with the Vine. Mr. MITCHELL, it will be observed, has no intention of renewing the experiment immediately: he will now give his Vines a long winter's rest; but it is worth inquiry whether healthy Vines cannot be forced to bear three crops in two years as a matter of course. Those who have the means would do well to make the attempt and report the result.

The second point is the little injury sustained in this experiment from excessive bleeding. The pruning was necessarily performed when the sap was flowing freely; it was May-day; all the agencies that excite vegetable life were in full activity. The loss of sap was enormous; yet an ample and excellent crop was obtained. Are we to ascribe this result to the over-luxuriance of the Vines already alluded to? or is the bleeding of the Vine, in truth, an event of so little importance? For ourselves, we believe that both propositions may be assented to, with a limitation. Had the Vines been less luxuriant and scrambling, the bleeding to such an extent would have been dangerous; yet the bleeding of the Vine in spring is not so serious an event as is generally believed. The latter is well known to be the opinion of practical men, and they are certainly right; for the rising sap of the Vine consists mainly of water, carbonic acid and ammonia, all derived from the soil, and therefore from a source of inexhaustible supply. If no other matters were present the Vine would be of the nature of a slender water-pipe, through which this fluid passes in its way to the leaves; but it is not so. On the contrary, the rising sap also dissolves in its passage all soluble matters with which it is brought into contact, among which are, especially sugar and gum, the organisable matters out of which the future leaves and fruit must be prepared. Now, a plant cannot obtain these substances from the soil; they lie in its own tissues and there only, and it is obvious that if they are all washed out by the passage of an enormous quantity of watery matter through the plant, most of which is wasted, there can be no formation of leaves, flowers, and fruit. Theoretically, therefore, bleeding is a dangerous circumstance, and may be fatal.

But in truth Nature is so prodigal of all means or materials required for the security of life that exhaustion is by no means easy. Infinitely more of everything is provided than is really required, on purpose to compensate for accidents. A tree is loaded with countless flowers; a hundredth part of them, when changed to fruit, is more than the plant can bear; they, therefore, drop off by thousands and strew the ground to the alarm of the inexperienced gardener, who is afterwards surprised at the appearance of an abundant crop. Strike a Fir tree in the spring, and forthwith the air is filled with myriads of millions of pollen grains, provided for the fertilisation of a few dozen Fir cones; some hundreds of seeds receive the influence, the rest of the pollen grains fly to waste. A calculation proving this is to be found in the "Botanical Register," where the editor shows that 27,000,000,000 pollen grains were provided on one plant of Glycine sinensis, in order to ensure the fertilisation of 4,050,000 seeds, or about 7000 pollen grains to each seed.* And so it is with everything. The starch, gum, or sugar lodged in a plant is no exception. Some of those substances must be present: but they are provided in such prodigal abundance in the teeming bosom of Nature that common accidents can hardly exhaust them.

We would not, however, advise gardeners with weak Vines to disregard their bleeding; an ailing old man will perish from what a stout boy would laugh at.

* The number of bunches was about 9000, and of flowers 675,000. Each flower consisting of five petals, the number of those parts was 3,375,000. Each flower contained 10 stamens, or the whole mass of flowers 6,750,000. Each ovary contained about seven ovules, so that preparation was made for the production of 4,050,000 seeds, for the purpose of fertilising which the anthers, if perfect, would have contained about 27,000,000,000 pollen grains. Had all the petals been placed end to end they would have extended to the distance of more than 34 miles.—*Botanical Register*, 1840, *misc. p.* 42.

CHINESE METHOD OF DWARFING TREES.

On the termination of the late Chinese war, our neighbours, the French, who shared in the interest so generally excited by the event, sent a mission to China, to form, if possible, a treaty of commerce with the Celestial Government. Confident hopes were entertained of the success of this mission; the finest silks and choicest wines formed part of the cargo of serious argument provided by these delegates of commerce. I believe Messieurs les Chinois were inaccessable to the above mentioned reasonings. *La mode Parisienne* only excited their merriment, and the wine their unequivocal dislike. However, it is not my present purpose to speculate on the commercial possibilities of this mission. In a short history of the voyage, by one of the party, I have found an amusing account of the method pursued in dwarfing trees, which perhaps may be more interesting to horticultural readers.

Immediately preceding the details of the dwarfing system, is an account of a fête day in Canton; that part which introduces and suggests the history of the dwarf trees, may, perhaps, without impropriety, be added here.

The *attachés* of the mission were very much astonished one morning to find the appearance of the two principal streets of Canton completely changed. Before each house was set a kind of stand or altar, of considerable size; upon the different steps of these stands were placed figures in porcelain and cardboard; by the side of these they remarked vases planted with fruit trees, scarcely a foot in height, the branches of which, twisted and distorted, bent under the weight of their fruit, which was of their natural size.

The figures of cardboard and porcelain, the most eccentric the brain of a Chinaman could invent, were in continual movement. Here a Mandarin, of the first class, rolled his haggard eyes, and gesticulated his arms, there a soldier sabred nothing right and left, further on a Chinese lady raised tenderly her languishing eyes, and fanned a large-headed man, who each moment hung out an immense tongue. Time after time the fantastic images stopped as if fatigued with their exercise, but then the proprietors of the stands gave them some strokes with a whip, and immediately the pantomime recommenced with renewed activity. There was enough in this to astonish the curious spirit of the French travellers. What caused these images to march to the tune of the whip? And these little trees, so contemptible in appearance—the height of a foot!—carrying, each Orange-tree, 20 enormous Oranges? And each Apple-tree, 20 or 30 large Apples? For the images the explanation was not difficult to find. The Chinese had introduced into the interior of them one or two mice, which, on being stirred, struck some wires, and communicated thus the movement to the limbs expressly jointed to produce this effect. When the mice slept, a cut of the whip aroused and affrighted them, and so redoubled the vivacity of the gestures of the images. As for the dwarf trees, there was in that a mystery of horticulture, or rather sylviculture, to divine. M. Renard had noticed, on visiting the apartments of the Mandarins, similar little trees of the height of some few inches, pitiful to look at, unhealthy, distorted, and covered with excoriations without number, and a thing which astonished him,—the little foliage which ornamented the extremity of the branches, belonged to kinds that ordinarily attain an enormous size, such as the Elm, the Bamboo, and the Cypress. M. R. arrived at the following solution of these eccentricities:—That for the Chinese nothing is beautiful but that which is hideous; that a stunted shrub without leaves is a wonder that is worth all the forests in the universe; and so the principal occupation of the Chinese nurserymen is to combat Nature in everything that is beautiful and rich.

The cultivation of the dwarf trees is divided into two parts—that of the fruit and forest trees. That of the fruit trees rests upon a process already partly known in Europe; but of which the application is different. At the moment when a tree is in flower, the Chinese cultivator chooses a branch. It is well understood that he selects that which presents the most fantastic forms; he makes two circular notches, in a manner to raise a ring of bark of the length of about an inch; upon the part uncovered he applies fresh earth, that is held to it by means of a piece of cloth; each day he moistens the earth; soon the bark at the incision throws out roots, the branch becomes a tree, its fruit swells and ripens. Then the gardener cuts the branch at the end of the packet of earth, and plants it in a pot to send to the market. It is rare that this

operation does not obtain a complete success. The fruit trees raised in this manner are in general the Litchi (Dimocarpus litchi), the delicious fruit of China; the Carambol, with octagonal fruit; the Lon-gan, a kind of Plum; the Orange, the Apple, Pear, Ficus indica, and a tree sacred in the pagodas, of which the fruit, a kind of Citron (C[illegible]), called by the Chinese Hand of [illegible], because it has the form of hand that the bonzes give to their gods. The dwarfed trees are destined in general for the pagodas, and the shops of the merchants on holidays. The cultivation of the forest trees, dwarfed, demands more care. It is not only in this case to get ready a branch, but it is a struggle they undertake with Nature, which consists in making hideous that which Nature has created beautiful, to lame and deform that which she has made straight and well looking, to render mean and unhealthy that which she has produced vigorous and robust. The trees submitted to this system of stunting are generally the Bamboo, the Cypress, and the Elm; the same as with the fruit trees, they choose a little branch as knotty and twisted as they possibly can find; they raise a ring of bark, and surround it with vegetable mould; at the same time they prune the tree of its handsomest branches, only preserving those which are zigzag; they then cauterise the wounds with hot iron. This first operation terminated, the gardener devotes all his care to his work, up to the day that he is satisfied of the presence of some roots. This success obtained, his kindness is changed to cruelty; from this day he refuses water to his charge, and it is only when he sees it nearly perishing, when its leaves fade, and turn yellow, that he consents to moisten a little the earth which keeps it alive; he cuts off the leaves, and only allows a few at the extremity of the branch to remain.

The tree thus treated, rests between life and death; it shrivels and bows its head, until the return of the sap; at this moment its state appears likely to be ameliorated; it is watered each day, its health is about to return; but, alas! for the tree, these attentions are but preliminary to further cruelties. The sap flows in abundance, and then the Chinaman makes at various distances transverse incisions, some almost circular. These cuttings continued, stop the ascent of the sap, which coagulating upon the wounds, causes swellings of bark frightful to behold; but which rejoices the eye of the Chinaman. When the time of the sap is passed, they put the shrub in *régime*. They then make new notches upon it, but perpendicular this time. They raise with a knife the bark near these notches, and introduce in the one honey, in the other sugar, in some colours, and even acid. Attracted by the smell, thousands of ants and flies come and gnaw, and prick the bark of the tree, while on the other side the acid burns and destroys wherever it touches. At length, after this treatment, when the branch has become a veritable monstrosity, covered with lichens, lumps, and deformities, and it is recognised as capable of supporting its pitiful existence, they detach it from the tree; they shake away the earth that surrounds it, to place in a vase having the form of a large square jam-pot; the earth is then replaced by little gravel stones, that are just in number sufficient to maintain the tree straight in its pot. All the care necessary for the future is to moisten lightly the stones, when the plant appears to suffer.

The trees stunted in this manner are very much prized by the mandarins, and are sold at a high price; but what is surprising is the extreme longevity they acquire. It is not rare that they attain 100 and 200 years. They are often transmitted by inheritance.

On some dwarfed trees that were sent to Her Majesty from China, in addition to the inflictions described in the account, were found numerous ligatures of wire, and the branches twisted and bent by the agency of the same material.—*W. I., Windsor, Oct. 26th.*

THE AMATEUR GARDENER.

Clearing up for Winter.—In the excellent directions to gardeners, furnished by the weekly calendar of the *Chronicle*, allusion is often made to the necessity of neatness, especially at this season of the year, when the best gardens are deprived of so many of their attractions. There may be abundance of evergreens and winter flowers, and yet the garden may present a very repulsive appearance. Grass-plots literally rough with worm-casts; dead leaves crowding into every corner, as if for the purpose of keeping themselves warm; what were once flowers, dangling from the stakes which supported them like criminals in chains; and numerous dry stems, rattling with a very ominous sound in every wind;—such are the sights and sounds too often seen and heard in really good gardens in the winter months, to the scandal of good taste, and the disgrace of the owners. This is especially the case where a gardener is not kept constantly, but one is employed a day or two in the week. Other matters must be attended to, and the clearing up is neglected until Nature calls too loudly to be longer neglected, and the appearance of Snowdrops and Crocuses infuse new energies into the before torpid proprietor.

Now the fact is, this clearing up is the work of every day, and cannot be neglected even for a day with impunity. As advancing autumn strews the lawn and the gravel walks with leaves, let them be removed at least three times a week. It is commonly said "Oh it is of no use sweeping away leaves, for they will fall again, and our labour will be thrown away!" Now this is an exclamation of ignorance, for neatness is not the only object contemplated by the frequent removal of rubbish. Leaves when suffered to lie, injure the Grass, and generate damp and Moss on the gravel. Then, the act of sweeping is beneficial, and can scarcely be performed too often at this season, for it removes worm-casts and destroys the incipient Mosses which will otherwise soon turn the yellow gravel into a smooth sheet of green. If this clearing process is continued until "the forests are chilly and bare," the garden will preserve throughout a healthy appearance, and confer pleasure upon its possessor. The turf should receive a final mowing in November, and be frequently rolled when the weather permits. Its edges should be neatly clipped, and everything done that can give the idea of cleanliness and symmetry.

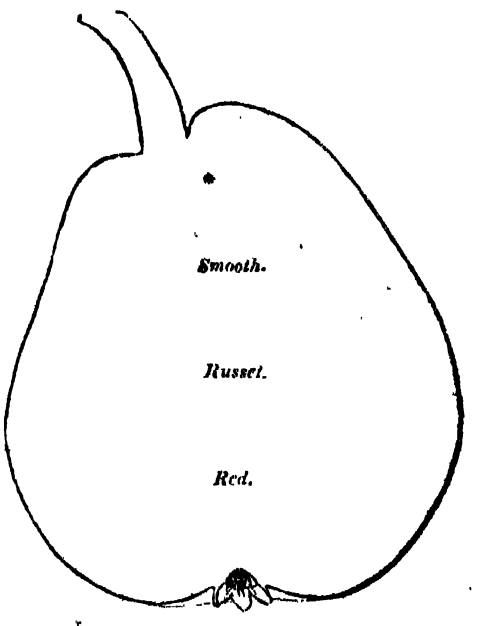
The stems of shrubs and flowers should be cut down as soon as decayed, and the beds be raked over once a week. Rose trees may now be pruned, and everything in short be put into the position it is to occupy until the spring. If you have marked the habitats of bulbs, &c., the borders may be dug with advantage, taking care to incorporate with the soil some leaf-mould, or very rotten dung from an old pit or frame. But this must be deferred till spring if you do not know the positions of underground roots, for it is vexatious in the extreme to bring up with the spade the mutilated remains of Tiger Lilies and Crown Imperials. A strong stake, projecting about three inches from the surface should always be inserted to mark the spots which the spade must not touch. Some gardeners use short iron rods, the effect of which is more certain.

As a stimulus to exertion in this clearing operation, the amateur should remember the great value of the heap to which he conveys the leaves and other reliquiæ of his garden. For recruiting flower-beds, this refuse vegetable matter, where thoroughly rotted, is invaluable. The heap should be turned about Christmas time, and then allowed to remain as it is until next autumn, when it will be converted into leaf-mould; or it may be more quickly made available by saturating the heap with the ammoniacal liquor from gas-works, by which decomposition will be hastened. The shrubby stems of Hollyhocks, &c., will all add to this heap, and by its assistance the amateur will be able to secure a more efficient growth, both in pots and in beds. I may as well mention here, that a heap of the rotten dung from an exhausted Cucumber bed, should be put aside in some retired spot, as, for floricultural purposes, it will be better for remaining another year before it is used.

Reference was made above to those who do not keep a gardener constantly. Now, one of the luxuries of gardening is the exercise it furnishes to its devoted servants, the glow of health and the buoyancy of spirits it produces. If you have a group of children under your control, shivering at an east wind, and blowing their hands to make them warm, try the effect of leaf-gathering, and other similar operations at this season of the year; by working among them yourself, you will insure their discharging their duties with life, and they will all confess that the cold they dreaded was only a phantom of the imagination.—*H. B.*

THE RED DOYENNÉ PEAR.

Synonymes.—Doyenné Gris, Doyenné Roux, St. Michel Doré, Beurre Rouge (of some), Rothe Herbstbutterbirne, Rothe Dechantsbirne, Gray Doyenné, Gray Beau's, Red Beurré (of some).



Of the above names, the Red Doyenné is proposed as the most appropriate. Although Duhamel designated it the Doyenné Gris, yet experience has proved that such name is not the most distinctive for the type of this Pear; the White Doyenné, or old White Beurré, may be as aptly so called when it assumes a somewhat russeted appearance, grown as a standard. In fact, it has been obtained in various instances with this name. But however much these two Doyenné Pears may resemble each other when on the trees, a decided difference ensues. The White becomes paler and paler as it approaches the period of being fit for use; the other, on the contrary, acquires a brighter red. The author of the "*Jardin Fruitier*," remarks that the epithet of red is more proper than gray for the Pear in question, because at the period of maturity it is in reality red.

The accompanying outline is that of a fruit from a standard. The flesh is white, melting, buttery, and sugary, with a rich cinnamon flavour. In perfection in October and November, succeeding the White Doyenné. Shoots vigorous, bright chesnut, with a sprinkling of small pale-brown spots. Leaves middle-sized, oval, slightly serrated; petioles slender. Flowers small, opening rather early; petals oval, inclining to obovate; stamens shorter than the styles.

The tree is a good bearer; and the fruit generally acquires a richer flavour than that of the White Doyenné; but like it is best from a standard.—*R. T.*

Home Correspondence.

Coping for Walls.—I have found, by experience, that the top of walls should be finished in the same way as the ridge at the top of a house. If tiles are used instead of slates, this plan will be found more convenient for a ladder, as a thin slate is more likely to be broken than a thick tile. With respect to projecting copings, I beg to refer your readers to Clement Hoare's book on "Vines on Open Walls," 2d edition, pp. 75, 76, 77. But I will briefly mention. He states that if a wall be not 4 feet high, and if it face the south, the coping ought not to project at all, but if 4 feet high, then the coping may project 4 inches, and 1 inch additional for every foot in height. But he recommends "moveable wooden copings," and gives directions as to the time of using them for Vines.—*C. A. A. Lloyd, Whittington, Oswestry.*

Polmaise Heating.—Mr. Meek's able exposition of the laws of heating as they bear on the Polmaise system, and the simple and effective manner in which he applies them, will I hope do much to extend the adoption of this method of heating. There is one point, however, and it is a practical one of much importance, in which I think Mr. M. mistaken: this is the supposed small loss of heat by the flue or chimney. In former communications I expressed the opinion that there is a very considerable loss of heat by the flue or chimney in the Polmaise method, as well as stated at some length the grounds on which this opinion rests, and I recommended the adoption of certain arrangements for recovering and appropriating the heat so wasted. Mr. M. in the *Chronicle* of the 31st ult. says, in reference to an observation made by the Dean of Manchester, that his chimney is cold. I do not know by what experiments he has arrived at this conclusion: but if it is intended to be inferred from it that no unappropriated heat passes into the chimney from the stove, I would beg him to consider the physical incompatibility of such an inference with the structure and conditions of his stove as he has given them to your readers. If I rightly understand the construction of Mr. M.'s hot chamber and stove, it consists of a small (sunk) projection behind the back wall of the hothouse, within which wall the chimney is built. The stove occupies the whole area of the chamber except a small space of 2 or 3 inches all round; I shall, perhaps, be not much out therefore in supposing that a horizontal line drawn from the nearest edge of the top plate of the stove to the interior of the chimney will not exceed 12 inches. Mr. M. will allow that the temperature of the gases inside the four walls of his stove must at least be as great as that of the plate which they contribute to heat, and by which the current of air is heated in its turn; how then can these gases, having so high a temperature within the stove, be expected to have lost any considerable portion of their heat on entering the chimney, not more than a foot distant from it, unless by being absorbed in the materials of the chimney, and so lost or wasted? No doubt, by careful and judicious management, the combustion may be so regulated that there shall be a *minimum* escape of heated gases into the chimney. But what is this *minimum*? If combustion is to be maintained at all, a certain portion of air must be admitted to the stove, and a corresponding volume (greater, indeed, on account of their dilatation by heat) of mixed gases, resulting from combustion, consisting of 79 parts of nitrogen and 21 of carbonic acid, for every 100 parts of atmospheric air admitted, must be permitted to escape into the chimney, which they will enter (in Mr. M.'s plan) at a temperature little short of what they had in the stove. In ordinary practice, however, it is not to be expected that this nicety of regulation will be habitually observed by gardeners and their assistants. More air than is necessary will often be admitted, and a brisker fire and more rapid draft will be produced; consequently, a more abundant flow of heated gases and smoke into the chimney, which is equally so much heat lost, whether we regard it as absorbed by the materials of the chimney, or dispersed in the atmosphere. The general correctness of the view I have taken of the great loss of heat sustained in this way is confirmed by the fact mentioned by Mr. Hazard in a late *Chronicle*, that having the flue of a stove carried through an adjoining room, he found that its temperature was raised 12 degrees higher than that of the room in which the stove itself was placed. I should not, however, have thought of occupying your space with these observations, if it were not with the view of rendering them subservient to a practical purpose. Being convinced, whatever be the form or kind of stove employed in the Polmaise method, that a great deal of heat passes unused beyond the limits of the hot-chamber, I regard the appropriation and utilising of this heat as a matter of importance in the economy of the system; and I offer the following arrangement for

this purpose as likely to be effectual, and capable of being easily engrafted on Mr. M.'s or any other stove. It is merely that a thin iron flue should be carried from the stove along the cold-air drain, and then returning back in the same channel, be let into the chimney in the back wall of the house. The heated gases issuing from the stove would thus have to pass along a considerable extent of thin flue, of good conducting material, the external surface of which is traversed by the current of cold air; and the greatest portion of their heat must necessarily be abstracted and appropriated by the air before they could reach the chimney.—*J. H. H., B—k, Nov.* 14.

Strawberries.—In a late number a plan for planting Hautbois by mixing a regular proportion of male with female plants, is mentioned. If I am not mistaken, I was the first to call attention to the fact that it was necessary to plant in the above manner; at any rate I never read any account of it till I published my method of practice in one of the early numbers of the "Gardeners' Magazine." So certain was I of the necessity of such a method of planting, that I always kept a bed of each on purpose to plant from, and also to supply my friends, who were glad to accept plants of the two sexes, seeing that mine succeeded so well. I have continued to keep them separate till the present time; but what has happened with them this year should teach us a lesson not to be too confident in what we believe to be correct. I had two beds planted out last spring, one from each of the old male and female beds. The situation they occupy, receives very little sunshine at any time, in consequence of high trees; but the ground being trenched and in good condition, they have grown very fast, and at this moment they have a full crop of fruit on them. I believe there is not one plant in both the beds that is not well furnished with fruit like those enclosed, which I have just gathered indiscriminately from each bed. Can you account for this after the treatment they have received with regard to separation, for about 20 years?—*B.* [We presume there has been some mistake in planting.]

Cottage Gardens.—I have to express my thanks for your advice offered to cottage gardeners last summer, that they should fill up the vacancies in their borders caused by the drought, by a late sowing of Mangold Wurzel. I tried the experiment, and though planted late, I am now housing an excellent crop of that root. I am desirous of knowing if I may pack them in a heap in a cattle-shed exposed to the south, or if they ought to be covered with litter or buried in clamps. The former plan is the most desirable as least laborious.—*Durus Arator.* [Pack it in long heaps and cover it well with straw. All that is necessary is to keep away frost; that is indispensable, and is the only circumstance to attend to.]

Portugal Cabbage.—"O. P. Q. R." thanks Mr. D., of Fulham, for his Braganza Cabbage. It is the most delicate of its kind; the outside leaves are as good as the heart. "O. P. Q. R." recommends Braganza Cabbage as an autumn crop from the middle of August to November. —[This is nothing but the *Couve Tronchuda*, or Portugal Cabbage, called by the French Chou à grosses côtes blond. It deserves all that is said of it.]

Snowdrops.—"D. S." begs to inform the "Amateur Gardener" that in an obscure corner of the rectory garden at Spetisbury, near Blandford, Dorset, the Snowdrops, both single and double, propagated themselves most profusely. The soil was a cold clay upon chalk. The spot shady and undisturbed. It is very probable the present incumbent with his grand gardener may have eradicated them altogether. An instance of bulbs flourishing for ages under Grass may be found at Gatton-park, where, in the time of the writer's grandfather, to whom it belonged, the double White Narcissus was growing in large patches in a sort of lawn near the house, which has probably once been a flower-garden. They were still there not many years ago when the writer visited the place.

Potato Disease.—In the candid and impartial notice of my work in a former Number (Oct. 17, p. 691), it was stated that the theory proposed by me did not explain the fact that at Oporto, Graham's Town, and in Bermuda, the disease appeared exclusively among imported Potatoes. I did not reply to this query at the moment; in the first place, because I waited to see if other objections were made to this theory; and in the next because I was anxious to ascertain if more precise information could be obtained on this particular point. Although neither of these expectations have been realised, I am induced in consequence of your having again referred to the subject in a late Number (p. 739), to trespass on your indulgence, while I attempt to explain the cause of this apparent anomaly. As you rightly observe, it may be "that the disease, in the cases alluded to, is not the same as has attacked the great mass of the crops of Europe and North America." This, possibly, is the fact; but I am not anxious to take refuge under this supposition, for the contrary may be the case. We will, therefore, look at the question simply as it stands, and presume that the disease is identical, and that it has not extended to other or indigenous roots. I am ignorant of the locality whence these Potatoes were imported, as well as of the important circumstance whether any other portion of the crop from which they were taken was attacked with the prevailing epidemic. Knowing, however, the general prevalence of the disease both in America and in England during the last two years, we may presume that such must have been the case. If so, we ought not to be surprised that the produce of these imported roots was affected, notwithstanding that other or indigenous plants remained free from disease. Although convinced that a disease like this is not and cannot be propagated from root to root, it may happen nevertheless that the produce of diseased Potatoes will be more liable to become affected by various external causes than plants raised from sound roots. It is true that healthy plants have been produced from diseased tubers. It would, however, be contrary to all reason and analogy to suppose that the portion from which the stem grew was unsound when the germ first received its vitality. When Potatoes have been left in the ground because they were diseased, or if they have been planted in that state, and have afterwards produced healthy plants, we may presume that the decay either goes on until the root is entirely destroyed, or else that the process of decomposition is arrested by Nature's own efforts before the whole substance of the root has become diseased. If, therefore, but a single eye be left, and that portion of the root from which the young shoot grows be perfectly sound, there is no reason why it should not produce a vigorous plant and healthy offsets. This result is more likely to be obtained with roots left in the ground during the winter, not only because there would be more time for this remedial process to be perfected, but also because the exclusion of the external air is known to be one of the best means for arresting the progress of the disease. But with Potatoes left out of the ground some months before they are planted, not only is this remedial change less likely to be accomplished, in those actually diseased, but gangrene or decay is more certain to attack those roots which are apparently sound when dug up, by bringing them in contact with the oxygen of the atmosphere, the presence of which, as is familiar to all, favours decomposition in plants and animals. Hence the loss among store Potatoes, although they manifested no symptoms of decay when first taken up. As, also, the symptoms of disease do not always manifest themselves immediately, and, occasionally, not until months after, we must infer that the roots not only imbibe the seeds of the disease before they are dug up, but that they also retain them for long periods after. If so, it would seem impossible to say positively that Potatoes imported from a country where the epidemic had previously prevailed were in a sound state at the time they were planted. As, also, such roots would necessarily be planted in the spring, there might not be sufficient time to arrest the progress of the disease before the young shoots sprung up, particularly in warm latitudes. Although this state might not be such as to produce actual disorganisation, and I have inferred that the disease cannot be propagated from root to root, still if there were only a partial change or alteration in the texture or juices of the old Potatoes, it might render the plants produced from them weaker and more susceptible of any morbid impression to which it may be subsequently exposed—a result constantly witnessed in the offspring of animals whose parents are diseased or sickly. Now, without waiting to inquire whether the same cause as that productive of the disease in other parts of the world has been in operation in the above-mentioned places or not (for this can only be ascertained hereafter), I have merely to add that there is no situation, not even the coral formation of Bermuda, where deleterious agents are not given out from the soil. If, therefore, the Potatoes imported from England and America into the above island and other places contained within them the seeds of disease, although not actually developed at the time they were planted, we can understand why the plants produced from them might be influenced by causes which had no effect on plants derived from other seed—no matter what that cause was, whether the agent productive of disease in other parts of the world, that universal but invisible poison termed *malaria*, or some other local and deleterious substance. That such, or even slighter circumstances than these, would be sufficient to account for the effects under consideration, we may learn from what is sometimes observed in the human species, for in consequence of certain peculiarities or idiosyncrasies as they are termed, we find particular epidemics attacking particular individuals, and sometimes even whole nations, to the exclusion of all others. Thus the Sudor Anglicus, or sweating sickness which appeared in 1483, and continued to prevail from time to time, until 1551, was confined almost exclusively to the English, leaving foreigners resident in England exempt from the disease; and what is more singular, attacking Englishmen in countries and at a time when the natives were unaffected. That the immediate cause of the attack was external and not internal, we may conclude from the fact that this disease was unknown before this period, and could not, therefore, have been latent in the constitution of the persons thus attacked; while also it appears that in subsequent visitations, the natives of other countries in Europe were attacked the same as the English. Not only, therefore, would I infer that vegetables, like animals, may acquire certain peculiarities or susceptibilities which render them more obnoxious to the operation of certain deleterious agents than before; but I would also infer that the blight and decay which has been previously confined to the produce of imported Potatoes, will hereafter extend to other and indigenous roots. Such at least are the conclusions at which I should myself arrive; whether they are considered satisfactory by others yet remains to be seen. I will, therefore, only add that although it is not necessary for the establishment of this theory, any more than that of others, to explain all the anomalies that may occur—for the exceptions sometimes confirm rather than destroy the rule—still, I think it right to offer an explanation of those phenomena that seem to admit of a reasonable and proper elucidation. I trust that the present will be regarded in that light by you and your numerous readers.—*J. Parkin, London, Nov.* 16.

Bees.—In Notices to Correspondents, p. 760, "W" says, "the pure comb in both glasses and under hives, will be of much use when the bees begin to work afresh in them next season." Now I do not question the use of the comb to the bees, but I do the advantage of letting it remain to the bee keeper. I think the consequence will be, that where the glasses ought to be fit to be taken next year filled with honey, many of the cells instead of containing honey will be filled with young brood, whereas if the comb be cut out, so that the bees have to make it entirely afresh, such will not be the case. At least such has been my experience, and also the experience of a much older bee keeper than myself. It matters not how pure the comb; it is, I have found, best cut out.—*A Bee keeper, Ipswich.*

Pine-apples (see p. 756).—Of peat and silver sand for Pines I have no experience; but with respect to a mixture of leaf-mould and sand, I am perfectly convinced of its superiority over every other material. Until last August I grew the Pines as others did, in the best loam; but at the above date I had a pit which is formed over a hot water tank, cleaned out and filled up with leaf-mould and sand to the depth of about 20 inches. The plants were turned out of the pots, and have done well; their growth and general appearance far surpassing anything I had ever seen before.—*Morris Todd, Gardener to Sir Edmund Filmer, East Sutton, Nov.* 18.

Jerusalem Artichoke a substitute for the Potato.—I am surprised at Mr. Forsyth speaking of the Jerusalem Artichoke producing about 15 tons of the root per acre, but which I believe it may do, and a very good nutritious root I believe it to be; but when he speaks of 69 tons per acre of good fodder, and compares it with Swede Turnips, as being three times the weight of a good crop of them, he may be correct again so far; but what cattle will he expect to eat them, or fatten on them after the root is fully ripened? He must know there is then no nourishment in those stalks; in fact he can have but one crop, and therefore he ought not to mislead your readers by calculating on bringing both crops to perfection.—*James Wellman, Reading, Nov.* 16. [Our own crop has this year produced 673 bushels, or 14 tons 8 cwt. an acre; but much of it was overhung by trees; the part that was fully exposed yielded nearly 20 tons per acre. Of tops, when withered, we found only 14 tons; and if such a weight as Mr. Forsyth mentions is to be obtained, it must, we presume, be quite green; in which case it will consist of two-thirds water, or it must be cut once, in July or August, in addition to the final cutting. The tops should certainly be finally cut while green and before drying up; if that is done, they may be as nutritious as hay or Lucerne; but we find no good analysis of them in that state.]

Fly Water.—Some time since a correspondent, (Emily) enquired after a method of destroying house flies. Although it is not likely she will be troubled with them much more this season, she will, on the return of the flies next summer, find the following effectual, and, besides, unattended with the risk of poison, to which the fly waters in general use are liable. Make a strong decoction of quassia chips, and add as much sugar as will overpower the extreme bitterness of the decoction, and form a thin syrup; this exposed in broad, shallow vessels, will soon be found filled with dead flies,—indeed, I found them this autumn, literally "heaps upon heaps."—*Lusor.*

Artificial Light as necessary as Heat in Early Forcing.—What gardener has not exclaimed in the dark days of winter and early spring, something to the following effect: "Oh these sunless days! what will become of my poor Cucumbers! Of heat I can manage to afford them a tolerable supply; but as to light, their leaves are absolutely turning yellow for the lack of it. What will become of them!" It is rather remarkable that when so many improvements in heating are constantly being made, that no provision should be effected to afford an increase of light to plants under a course of excitement by heat. By some it may seem somewhat anomalous to attempt to supply the deficiency of natural by artificial light; and they may despair of success in the attempt; but reasoning from analogy, we are bound to conclude that artificial light might be used with equal propriety and chance of success as artificial heat. The indispensability of the latter is never questioned; but of its twin sister, "oh no, we never mention her." Every gardener knows that heat and light in all horticultural operations should act in unison with each other. The day may come, how soon we cannot calculate, when the gardener's operations will be conducted (that is as far as the imitation of a natural climate by artificial means consists) not only by a thermometer and hygrometer, but the trio will be made up by an instrument for indicating the intensity of light. For years the only instrument of a scientific character which the gardener had was the thermometer. Time rolled on, and as science became wedded to his art, the want of a vapour measure was felt, and straightway he ornaments his forcing-house with an hygrometer. The connection of heat and vapour in his operations is now dwelt on, and their combined action is found to require regulation so as to produce beneficial results. The importance of light no gardener will question; but as to

its quantity, or more properly intensity, the subject seems totally neglected. But if the given amount of heat and moisture which any series of plants require demands attention as to the quantity of each, surely light must be admitted as an equal candidate for our favour. In houses where plants are, after their season of excitement, allowed a period of rest, the dark days of winter can of course be met by a corresponding depression of temperature in the regulation of our heating apparatus. But on the other hand, in forcing-pits in full operation at that unfavourable season, where a high temperature is constantly stimulating the vegetable inmates into a rapid action of root, the deficiency of solar influence is severely felt. As heat is the stimulating agent whereby the root is made to absorb rapidly, and to pass the fluids so absorbed into the trunk and branches of a plant, so light is required to exert its chemical agency upon the fluid so absorbed, in order that the plant may be kept in a state of health, and in order that the individual may perpetuate its species, which is the true end and object of all vegetable life. To enter into a dissertation on the mode in which light and heat are subservient in the vegetable economy, would be to write an essay on vegetable excitability. In fact it would require an exposition of several branches of vegetable physiology clearly to pursue the subject in all its bearings. But as every gardener is or ought to be acquainted with the principles of that science, for the present it must suffice to observe, that light is one of, if not the most important, of the three indispensables (heat, moisture, and light) in plant growing. When we compare the clumsy and unnatural attempts at heating in the early days of gardening, with those now in use, we are tempted to smile at our ancestors for their lack of knowledge in those matters. But we have no qualifications for so doing. What gardener 20 years ago dreamt of regulating the dampness of his stove atmosphere by an hygrometer? And though it may raise a smile on the cheek of some, and a sneer of ridicule on the lip of others, we may yet live to see all large horticultural establishments furnished with an apparatus for furnishing light, looked upon with equal importance with a conical boiler or a Polmaise stove.—*G.*

The Sunflower.—The common Sunflower (Heliant us annuus), may have its seed greatly increased in size, quantity, and quality, by suffering only the uppermost bud to remain on the plant. A seed head was exhibited at the Colchester Horticultural Show measuring 3 1 et in circumference, with several others very little smaller, all of which were grown in common soil. There is a much larger proportion of firm seed in them than is to be found in heads grown in the usual way. There can be little doubt that continued attention to experiments in its cultivation will be ultimately crowned with profitable results, as there is not a part of the plant which may not be applied to some useful purpose, and principally so by the agriculturist (see Mechi's letters). Watering the plants with a weak solution of saltpetre has been found much to promote their growth, and the seeds, after such treatment, have been found to contain very much of it. A slight top-dressing might, however, be less trouble, and answer the purpose better, as by occasional rains it would be more gradually communicated to the plants. A farmer at Earl's Colne grows it for the purpose of feeding young pigs, which are found to thrive well upon the seeds —*R. B. P.*

Fuchsia Serratifolia.—Nothing certainly but too generous and careful treatment can have gained for this beautiful species the character of being a shy flowerer. In the spring of this year, a healthy plant was turned out in the bed of my conservatory, and has bloomed in the most profuse manner, from the end of May, and grown proportionally. The only fault I had to find with it was, that the individual flowers were not so large as those first produced in the greenhouse of the successful raisers, and that the petals were of a pale, watery red, instead of the fulgent scarlet which is their true character. This, I am induced to think, has been caused by the extreme heat of the past season, as since we have had cool autumnal weather, they have assumed their proper tint, and are much larger; they are still produced in abundance on the young wood, and if the plant receives no check it will probably flower through the winter.—*A Devonian, Kingsbridge, Nov. 7.*

Mildew.—I have this year been much troubled with mildew, not only out but also in-doors. I have tried to get rid of it, and in some cases have all but succeeded, when it would re-appear almost as bad as ever. In others the remedy has been nearly as bad as the disease. In one instance, that of Vegetable Marrows of two different kinds, growing on the same bed, under exactly the same circumstances, running all about, one among the other, the one sort was covered with mildew to such an extent as to have nearly all the leaves white; while the other could be traced threading its way among them in the greatest luxuriance, and as green and clean as possible. As I did not much care whether I killed or cured the mildewed plants, I stripped off their leaves: still they lived, and the next growth was just the same. I left them to their fate till we had a change of weather from hot and dry to cold and wet; when all of a sudden I perceived that those leaves which had before been white, assumed a healthy green colour and so continued till a few days ago, when I had all cleared away. I thought this might furnish a hint as to future management under artificial treatment with regard to atmospheric moisture and temperature; but here again I was brought to a standstill, as this was the only instance of recovery from a diseased state, for not the slightest change was effected on the out-door Cucumbers, which continued to get worse until they became entirely spoiled. I did not consider the loss of these things of much importance, as being only annuals I hoped to lose the disease with them; but such is not the case, for a quantity of Verbenas struck and potted off for spring use, which I carefully kept away from any mildewed plants, and which to all appearance were doing well, are exhibiting signs of it on most of them. I have been recommended to dust with flowers of sulphur and with sulphur vivum. Now what difference is there in the two kinds of sulphur?—which is the strongest, and may I dust the plant with a pepper-box without danger, for having had some experience in their use, I have sometimes seen plants killed by it. Some of my attempts to get rid of this pest may perhaps not be quite useless, and should such be the case I will give the results.—*A.* [Flowers of sulphur are sublimed sulphur; sulphur vivum is the refuse remaining after purification; use the former.]

Maclura aurantiaca.—This tree, in common with Paulownia imperialis, is deserving of a more frequent place in our ornamental plantations than it at present has. It is true it can scarcely be considered as thoroughly hardy, for in severe winters the young wood is frequently killed back a foot or 18 inches. Still, however, it is believed much may be done in warm localities by a little care and attention in the way of acclimatisation, such as planting in sheltered situations, and assisting as much as possible the early ripening of the young shoots. If the main stem be kept clear of branches from 3 to 4 feet from the ground as the tree grows, it will, in about three or four years, form a very beautiful head, and in this state it is an exceedingly handsome lawn tree; but if the branches are allowed to remain as they are produced, the growth of the tree becomes irregular; and in this case, its habit being straggling, it does not by any means form so graceful a tree. In the "Encyclopædia of Trees and Shrubs," it is said that Maclura aurantiaca is increased "by cuttings of the roots, layers, or grafting on the common Mulberry;" and as it would thus appear that its propagation is easy, it is hoped that hereafter it will be more generally found in the nurseries, and in the course of time freely introduced into our pleasure-grounds and shrubberies.—*Ortolano, Oct.* 24.

Sounds made by the Toad.—The usual sound emitted by the toad differs greatly from that of the frog. It is an acute note, not loud but plaintive, sounding like coo-coo, which it utters, I think, only in the evening, and at pairing time. It does not appear to make any cry of distress, like the frog. During the last summer my attention was attracted one day by sounds like the cries of a young child; they proceeded from behind a tree, close to a wall, where I discovered a frog attacked by a weazel. It is well known to husbandmen what piteous cries poor frogs make when unavoidably injured by the scythe of the mower. Toads in both circumstances would probably utter no cry. It is well ascertained, however, that besides the noise above described, the toad has a note very different and more musical. Mr. St. John mentions that in France he was startled one evening by sounds like the tinkling of small bells, which the inhabitants assured him proceeded from toads. This is corroborated by the testimony of a friend, who kept several pet toads in his room for years together, and paid great attention to all their habits and peculiarities. He observed that sometimes in an evening he had been surprised at hearing a toad make a very peculiar tinkling noise, which seemed closely to correspond with the sounds noticed by Mr. St. John. It resembled the sound of a small bell at a distance, or the sharp note of something striking against an empty glass. He was perfectly sure that the sound was uttered by the toad, though he could not discover how or on what account. The habits, indeed, of this much abused reptile, which is usually considered so unsightly, are very little understood; because few have taken any pains to ascertain them. Our natural histories repeat one after another the same unfounded and absurd stories concerning it. For instance, some of our leading writers assert that the spawn of toads is rendered prolific as it is deposited in the water. This cannot be the fact; for I have had tadpoles produced from spawn, which I took myself from a toad which I had first killed. From much careful observation, I am inclined to believe that fertilization is effected through the pores of the skin. My friend, however, who has had much experience of the habits of toads, considers it the result of mere compression, having many times observed a female toad oppressed by the adhesion of several males at the same time, but all in different positions. The same laws appear to apply to frogs, though they are much more rarely to be observed in those circumstances, and always complete their office a fortnight before toads. Many people, too, are still obstinately persuaded that the toad is venomous; that it ejects a poisonous liquid; that it feeds on Strawberries, and is a noxious reptile. All these notions are utterly unfounded; but people imbibe them from childhood, and grow up with an abhorrence of the poor toad, which prevents them from studying its habits, and doing justice to a very useful and entirely harmless creature.—*J. Wighton, Cossey Hall Gardens, near Norwich.*

Mowing Machine.—Where lawns are extensive, every one must know how tedious an operation it is to mow the whole extent after the ordinary manner. This, too, must be the more felt by those gardeners who have scarcely sufficient assistance afforded them. On paying a visit to a suburban residence a few days since, where there is a good extent of lawn, but an inadequate supply of hands, I saw one of the mowing machines in use, and it appeared to answer perfectly. Two men were employed in using it, but in the end there must be a considerable saving of labour and expense, as the machine cuts, collects, and rolls the Grass at the same time. It is scarcely possible for any lawn to look more smoothly and nicely than the one to which I have alluded; and on inquiry, I found that from the assistance which the gardener is allowed being so disproportionate to the amount of labour required, it would be impossible to keep the lawn in so good a condition by the scythe. To amateurs who direct their own gardens, if their lawns have a nearly even surface, this machine would, I should think, prove very useful.—*Ortolano, Oct.* 24.

Foreign Correspondence.

Odessa, Oct. 7, 1846.—There is a great deal of Tobacco cultivated in the Crimea, and it is reckoned far superior in quality to that of Little Russia. It is all the tall pink flowered kind (N. tabacum), whilst that of Little Russia is the smaller green flowered species (N. rustica).

The Vineyards of the south coast are gradually increasing in extent, although not near so much is planting now as a few years ago, when the Crimea was all the fashion. They are generally planted as in the south of France, but staked, and in several places I saw them as full of Grapes as in the ordinary run of Vineyards in the south of France, and the quantity produced in good situations is nearly as great. In quality I tasted some excellent red wines, nearer to those of Montpellier than any other, and good table wines would probably acquire a good reputation, and become very profitable. Unfortunately most of the growers have the mania for making Champagne, Muscat de Lunel, Bordeaux, Sauterne, &c., &c., which are no more like the wines whose names they assume than our Gooseberry mixtures, whilst several of them, if they bore their own names, might be reckoned very fair. The most considerable and best vineyards are now to the east of Yalta, and might be much extended; but the whole south coast is so narrow that it can never become a very great wine-growing country. A few particularly favoured spots admit of Olive grounds, but that tree is of too slow a growth for the landowners to care for planting much, and it is doubtful whether they ever would be profitable. Mulberries, Chesnuts, and perhaps Almonds, might be much better worth planting, especially the Mulberries, which succeed also very well about Odessa, notwithstanding the intense cold of January and February. I am told that several persons about here are making silk of excellent quality.

The gardens of Aloupta are laid out with a good deal of taste, are of considerable extent, thickly planted with trees and shrubs, especially evergreens, to which Prince Woronzow is very partial, and present all the beauties which a steep rocky declivity directly opposed to a burning sun admit of. There are some good springs which are conducted into fountains; some exceedingly pretty, and in one place made to irrigate a Grass-plot which is green even now. There are also some ravines where the vegetation looks vigorous, but in general the garden partakes too much of the aridity of the season. The celebrated crater in the upper garden is a fine wild rocky scene; some of the covered walks, caves, &c., look cool and fresh, and are well adapted to the kind of ground. The terrace in front of the palace has a very pretty parterre, with two beautiful marble fountains, and a splendid sea view, and in the lower garden are some most luxuriant Oleanders, full of flower; and against the wall Oranges, Lemons, &c., planted in the open ground; altogether this lower garden really reminds one of those of Italy.

Nikita Botanic garden is in a very warm sheltered spot, not far above the sea. I was disappointed in not finding Mr. Hartwiss, who was absent for his vintage, but was shown over by the very intelligent head-gardener, Mr. Denner. The great aim is collections of trees, and especially useful trees for propagation on the south coast. Young Olive trees are given to those who will plant them, and many others are grown for sale; but the soil is not so favourable as the climate, being very poor, and like the whole of the steep coast, liable to be washed away, as they have not yet got the art of terracing. Some of the young trees were very vigorous. I observed especially some handsome Sterculia platanifolia, a good Gymnocladus, a Pinus leiophylla, a couple of grafted Pinus Sabiniana, very luxuriant; also Taxodium sempervirens, Juniperus oblonga, and a very healthy young Abies Nordmanniana (from the Caucasus) which has a good deal the aspect of A. Webbiana, but between that and A. pectinata. There are a number of Oaks, Q. virens, Q. ballota, Q. Turneri, &c., which have taken well, grafted on Q. pubescens, and Mr. Denner has been raising several very handsome Passifloras by crossing the P. racemosa with other species. On the whole the garden appears to be doing as well as limited means and a poor soil, with a burning sun, will admit of.

I do not know whether I have mentioned the botanic garden here under the direction of Professor Nordmann. It is, in fact, a vast nursery, established mainly for the purpose of encouraging as well as giving the means of planting some of the steppes about the town. The extent is about 200 acres, almost all in nursery ground, though now a small portion is converting into a botanic collection. There is also a school of gar-

deners in the garden, where lectures are given by several Professors of the Lyceum. The tree which is most planted, and said to bear the drought the best, is the Robinia Pseud-Acacia, next to that the Ash, the Sycamore, and Maple. The spring vegetation in this black steppe soil is most vigorous; but all is now sadly burnt up, and the generality of gardens are only fresh-looking by comparison with the dusty town. Some, however, are really good, and the garden of Mr. Yeames, our Consul-general here, retains even now a good deal of verdure, and shows what might be done with good gardening.

I close this now (Oct. 12) on the point of starting for Constantinople. The merchants here are delighted with what they call the "good news" from France and England (the prospect of scarcity!) which makes corn rise here, and gives an extraordinary activity to the port.

Reviews.

An Easy Introduction to Chemistry. By George Sparkes. 12mo. Whittaker. Second Edition.

We like this little book. It seems better suited to teach young people chemistry than most of those before the public; or rather it is better suited to enable them to teach themselves; for it appears 27*s.* will buy all the articles required for purposes of experiment. We like, too, the arrangement of the matter, which is that of the old chemists, who took common things for the first examination, and proceeded by degrees to more complicated bodies till they reached the more recondite elements. There is no intellect which will not seize the nature and properties of ponderable bodies more easily than that of the imponderables. Metals are more easily examined and understood in the beginning than gases, which long remain an impenetrable mystery to the mind of the young.

Acting on this principle, Mr. Sparkes takes metals for the first examination, metallic oxides next, and so on, till at last he touches on vegetable substances, animal chemistry, and vital functions. The highest praise which is applicable to elementary books is that they are perspicuous and logically arranged. This praise is eminently due to Mr. Sparkes, and we heartily recommend his little work to our young readers. His style is clear and unaffected, as will be evident from a couple of short extracts.

He thus defends the alchemists, whom it has been the fashion of the ignorant to decry.

"In whatever manner we pursue our inquiries into the nature and composition of various bodies, we finally arrive at certain substances which resist all attempts at decomposition, and are, therefore, regarded as elementary. Those, indeed, which were anciently so considered, viz., fire, air, earth, and water, have successively been removed from their proud position, but their places have been amply supplied by others; and modern research seems always tending still further to increase the list. Ridge after ridge has been scaled, but the peaks which bound the horizon appear only the loftier and more numerous. Nor have we any security that the substances now considered as simple, may not some day be decomposed: and this leads me to remark, that the ridicule which is heaped upon the alchemists is quite inconsistent with sound philosophy. By alchemists I do not mean those jugglers who, under pretence of transmuting the baser metals into gold, imposed upon the credulity of the middle ages; but students of chemistry, who believed in the possibility of such transmutation, and endeavoured to effect it. This belief was founded on the supposition that some of the metals might not be simple substances; and surely we are making our own ignorance the test of truth, when we deny the possibility of such transmutation; or in other words, deny that the metals are compound bodies, merely because we are unable to decompose them. Thus much, however, let us say for these fathers of our science, that in labour they were indefatigable; that their discoveries were invaluable; and that the apparatus which they invented and bequeathed to us is almost perfect. So peace be to their ashes, and honour to their memories."

The account of the metallic oxides is commenced in the following clear and concise manner.

"If a bright surface of lead be exposed to the air, it soon becomes dull, and is at last covered with an earthy coating. If melted over an ordinary fire, this effect is produced immediately; and by continuing to remove the crust as it arises, the whole of the metal may be converted into the same substance. By exposing it to a further heat, it gradually turns yellow and then red: in short, it is converted into red-lead. To obtain it as brilliant as we meet with it in commerce, it is necessary to operate on large quantities, and with proper precautions; but if you simply heat a globule of lead for a short time, just beyond the outer flame produced by the blow-pipe, and allow it to cool, you will generally observe it surrounded by a yellow or a reddish powder.

"One would naturally suppose that the metal had, by this process, been burnt, and in part destroyed; but upon weighing the product, it is always found that the crust, or calx, is considerably heavier than the original metal. How mere ashes could weigh more than the substance from which they were obtained was for ages a problem, the solution of which forms a new era in chemistry."

"An account of the following very interesting experiment will furnish the best explanation. A quantity of lead was place in a glass vessel, called a retort, which was then hermetically sealed; that is, closed by melting the aperture, and the whole apparatus accurately weighed. Upon heating it, a small quantity of crust was formed, but no increase of heat produced any further change. It was then left to cool, again weighed, and found neither to have gained nor lost weight. Upon breaking it, a rush of air was heard, and the retort and its contents were found to have become heavier.

"From this it was evident that the lead, when melted, had absorbed air, and that its increase of weight was owing to this cause."

A useful little account of the manner of *growing Cucumbers* for Covent-garden Market is circulated gratuitously by Mr. Cuthill, to his customers for Cucumber seed.

We have also to announce the second volume of *Vegetable Substances used as Food for Man.* It has been previously noticed, and loses nothing of its value as it proceeds. As we have before observed, this edition is a very great improvement upon its predecessor.

New Garden Plants.

54. Vanda Batemanni. Crimson and Yellow Vanda. *Stove Epiphyte.* (Orchids.*) Moluccas.

The honour of discovering this splendid thing is due to M. Gaudichaud, who met with it in the Moluccas; of introducing it to this country, to Mr. Cuming, who sent it from the Philippines; of first flowering it to Mr. Bateman, with whom it produced its magnificent sceptre in the stove at Biddulph Grange, in June and July last. It is a very large erect plant, with remarkably thick aerial roots, produced after the custom of its kindred, sword-shaped curved two ranked hard leaves averaging 2 feet in length, and a still longer spike of some score of flowers, each full 2½ inches across, flat, leathery, and long enduring. But it is not alone for their size that these flowers are so especially worthy of notice. Their colour is indescribably beautiful. If you look at them in face, they are the richest golden yellow spotted all over with crimson; but when seen from behind, they are wholly a vivid purple, fading away at the edges into the violet of Cereus speciosissimus. So that, regard them which way you will, there is nothing but the gayest and richest colours to be seen. What could possibly have led M. Gaudichaud to compare this Epiphyte with the terrestrial Lissochilus we are unable to imagine, for there is only the slenderest resemblance between the two. His name is, however, on record, and the strict rules of botanical nomenclature seem to forbid its change. But, as has often been observed, *Summum jus summa injuria*; and it is so manifestly absurd to retain for a plant a name that has originated in some misconception, that we venture, for once, to disregard rules for the sake of common sense. In doing so, we cannot but associate with this noble plant a gentleman whose knowledge of the order, and whose skill in the cultivation of it, have gained him a deathless name.—*Botanical Register.*

55. Torenia concolor. Spotless Violet Torenia. *Warm Greenhouse Trailer.* (Figworts.*) China.

This plant is probably regarded in herbaria as T. asiatica, but living specimens forbid its union with that species. Its leaves are roundish ovate, or even cordate, and by no means ovate-lanceolate; their serratures are much smaller. The flowers have no side spots; and the tooth of the larger filaments is far shorter, and more blunt. T. concolor was sent to the Horticultural Society by Mr. Fortune, from whom we have the following memorandum:—"This plant was found growing in marshy ground, on the mountain of Hong-kong, nearly 2000 feet above the level of the sea, and reached the garden of the Horticultural Society in July, 1844. In China, it flowers in the autumn. After the flowering season is past, the dry weather sets in, and the stems and leaves shrivel up, and remain in this state during the winter months, when the temperature is sometimes down very near the freezing point. During the hot and damp summer months, it grows again with great vigour, and forms its flowers in great profusion. In this country it should be treated as a half stove plant, and grown in a moist atmosphere during the summer. As it is a trailing plant, it requires a trellis. After the flowering season is past, it may then be kept rather cool and dry during the winter months. It grows readily in any free soil, and is easily multiplied by cuttings."—*Botanical Register.*

Garden Memoranda.

Mr. E. Beck's, Worton Cottage, Isleworth.—Growers of Pelargoniums and Roses would do well to visit this place for the purpose of observing the winter treatment of these beautiful tribes; for never have we seen plants in better condition. A lean-to house, 26 feet long, 11 feet wide, and 10½ feet in height, was filled with specimens intended for exhibition next May. Among other varieties were Aurora, Hebe's Lip, Rosy Circle, Arabella, Mustee, Isabella, Desdemona, Resplendent, &c., all seedlings of 1844-5. Some idea may be formed of the health of the plants when we mention that not a single spot or decayed leaf was observable among them; on the contrary, the foliage was of the deepest green, and to the touch as stiff as that of a Holly bush. The plants were in 11-inch pots, placed thinly on the stage so as to allow light and air to play freely amongst them. The house was heated by hot-water flowing in 4-inch iron pipes from one of Burbidge and Healy's boilers, which also heats a span-roofed house adjoining it. The latter erection is about 11 feet in height, 28 feet in length, and 15 feet in width, with a table in the middle, covered with seedling Pelargoniums, which, although standing thickly together, were strong and healthy, with leaves broad and green, without spot or blemish. This house was chiefly filled with seedlings which have been shown at the late metropolitan exhibitions, and whose merits are again to be proved in the forthcoming season. We next entered a span-roofed Rose-house, 11½ feet in height, 12 feet wide, and 24 feet in length. It had a passage down the middle, on each side of which the Roses were arranged on movable shelves above a wooden tank, which was covered in with slate, with a bed on the top, filled with sawdust, in which the pots might be plunged when necessary. The plants were all in 11-inch pots; they consisted of some of the best Teas, Bourbons, Chinas, and Noisettes, and being unpruned, many of them were putting forth vagrant blossoms, not unacceptable at this season. These plants are intended to be exhibited in May, and in order to have them finely in bloom by that time, it is contemplated to stimulate them a little by fire heat in spring, our variable seasons being hardly to be depended on to accomplish that object without artificial assistance. The top of the house is glazed; but the under portion is fitted up with sliding shutters 3 feet high, which are removed altogether in summer, and their place supplied with canvas which serves as a shelter against gusty winds, and at the same time admits a sufficiency of air. The hardier sorts in pots, such as Mosses, Perpetuals, Hybrid Chinas, &c., are kept through the winter in the open ground, in trenches 18 inches wide, whose sides are lined with slate slabs and filled with sawdust sufficiently deep to cover the pots nearly 2 inches. The latter stand on two bricks placed in the trenches, so that a vacancy is formed below the pots, and thus perfect drainage is not only ensured, but no inducement is offered for the roots to pass beyond the pot—a point of considerable importance; and it will also be perceived, that although worms can get out, they cannot enter the pots. Besides the glass-houses already mentioned, there is a range, 150 feet in length, leaning to a south wall; one third of this range is heated with Stephenson's iron tanks, one-third with wooden tanks, and the remainder with slate tanks. The latter compartment is used for a propagating-house in summer, and for preserving stock in winter, it was filled with seedling Pelargoniums of the present year, together with the few remaining plants not sent out of the sorts advertised for sale. A stage of five shelves in the next compartment was filled with specimen Pelargoniums in most admirable condition, both as regards health and cleanliness; the latter a point of no little importance at all times, but more especially at this season. We now come to the last division, or that heated by Stephenson's iron tanks; this was filled with Orchids, and other stove plants. Three slate shelves are fitted up over the tanks, each 15 inches wide, and rendered capable of holding water by means of slate margins, an inch in depth, screwed down on cement. Besides their durability, these shelves have a very clean and neat appearance. The greater portion of the plants were in slate pots painted green; but in contrast with the beautiful shades of foliage we cannot help thinking the natural colour of the slate would be preferable to the green painting which they exhibit. Some of the plants were also in ornamental green slate baskets similar to those figured at p. 35. The house, as all Orchid houses should be, is in two divisions, as has already been mentioned (see p. 820, 1845); the warmer end is furnished with a thermometer, and two of Simmon's hygrometers, both of which work together almost to a nicety; thus means are provided not only of ascertaining the amount of heat, but also of moisture, the latter a point the value of which is now universally appreciated. The temperature now and during winter is kept about from 60° to 75°, and the moisture from 25° to 50° of Simmon's hygrometer, the cooler division being about 5° lower, with moisture in proportion. Standing at right angles to this range is another house 40 feet long, filled with seedling Pelargoniums, and in addition to this there is a long range of cold frames for sheltering Roses and bedding-out stock in winter. The bottoms of these frames are slate, on which the plants stand, affording perfect drainage, and preserving the wood-work of the frames from decay. All the houses were well ventilated, and provided with large slate tanks for collecting rain water from the roofs. In justice to Mr. Dobson, Mr. Beck's gardener, we are bound to mention that besides the luxuriant vegetation everywhere observable, everything looked clean and neat; arrangement and economy being conspicuous in every department; the latter are all-important with the amateur.

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

Miscellaneous.

Walcheren Broccoli, or Cauliflower.—A few genuine seeds of this most valuable production was presented by Mr. Legge, gardener, Bishopsthorpe, by whom the variety was first produced. The heads are large, firm, white, like a very fine Cauliflower, which in fact it closely resembles in appearance, except that the leaves are not so plain as those of the Cauliflower. The difference in constitution must, however, be very considerable, for it not only stands the winter cold, but likewise the summer drought much better than Cauliflowers do; scarcely a head of the latter could be obtained in the dry hot summer of 1844, and at the same time a quarter of Walcheren Broccoli formed beautiful heads of uniform closeness. The following are notes respecting it

from Mr. Legge:—"For the supply of a family, sow the third week in April, middle and end of May, the middle and end of June, and the middle and end of July. This attention will give a regular supply till the end of the year. I had a regular supply last year till 21st January. For the purpose of sowing seed, I recommend to sow my Walcheren Broccoli at the time that the winter Cauliflower is sown, say about the 25th or 27th of August, and winter the plants under hand-glasses as Cauliflowers. Give them good soil, not too light, nor leave more than three or four plants under each glass, and let them be well attended to with respect to air." Those who have the means ought to take the greatest possible care to save this variety from degeneration; for it is more deserving of attention than all the races of sulphur, purple, and cream-coloured Broccolies put together; some amongst these may be good as regards size and quality, but the colour is always objectionable, and no one would certainly think of using any except white, if he could help it. There is now no necessity in almost any case, for by timely sowings the Walcheren will afford a long and excellent supply equal in quality and appearance to Cauliflower.—*Journal of Horticultural Society.*

Viviparous Melons: A marvel reversed.—They have announced at Bremen a wondrous phenomenon, such as never before was seen, but which was evidently produced by the unusual warmth of the summer. Dr. C. H. Schmidt, of the Museum of that place, produced a Melon, the seeds of which were in full vegetation inside the fruit, and produced roots one to two inches long, a stem one inch long, and green leaves two inches and a-half long; this was thought very extraordinary, considering that the growth took place without either light or air. The editor of the "Botanische Zeitung," however, remarks that it is much more extraordinary that such a well-known fact as that seeds will germinate in the inside of fleshy fruit, should be mentioned with so much astonishment, and that anybody should talk of want of light and air inside a fleshy fruit like a Melon, while lying in the sun.

Calendar of Operations.

(*For the ensuing Week.*)

The Compost Yard.—This most important adjunct of good gardening is, I doubt, in many cases, still behind the improved practices of the present day, in point of good management. Such is not always the fault of the gardener, but frequently arises from an inadequate supply of labour at certain periods. I do not wish it to be inferred that I am an advocate for complicated mixtures; for I am well assured that such will not of themselves produce any great results, without attention to the great first principles which Nature has established. I must still, however, plead for a little loam, and some other matters in the compost-yard. At this period one o the most important points in this department is to see that the drenching autumn rains have every facility for escape. The best of soils, be they ever so well harvested, will become soured in a very short period, by the lodgment of stagnant waters. A good compost yard on this account should be a steadily-inclined plane, and the soils or composts should invariably run the way of the descent in parallel ridges. Now, although the special mixing of soils a long time beforehand, is by no means to be recommended, though dignified by the title of "compost;" yet, it so happens, that in general gardening, much surplus soil or vegetable matter, comes to hand in the course of the year. Such in all cases cannot and need not remain separate; for in a mixed state there will soon arise a demand for it—if only in repairing the beds of the flower-garden. Those who have not harvested their loam should lose no time; for assuredly a little should be obtained annually if possible. Having delivered my ideas on the best mode of storing loams in the Calendar for the 15th of August, and added some remarks at p. 548 of the same date, on the platform mode of planting fruit-trees bearing on this subject it only remains for me to repeat, that not only should such soils be kept clear of standing water, but that provision should be made to prevent the rain from entering. Those who are procuring loam now, may let it remain on the ground where dug until hard frozen; it may then be carted away without destroying its texture.

CONSERVATORIES, STOVE, &c.

The winter-blooming Correas, Epacrises, Polygalas, Acacias, Pimeleas, &c., will now begin to make a charming addition to the other inmates of the conservatory. Take care to give every attention to judicious watering, more especially to such as the Epacrises; it will not do to trust this process to inexperienced or neglectful workmen. *Stove and Orchids.*—Continue former directions—hardening growths, and endeavouring to promote a quiet atmosphere, somewhat dry. Keep down all unnatural night heat. *Mixed Greenhouse.*—Let all bulbs arousing from their lethargic state, such as the Amaryllis tribes, the Lachenalia, Oxalis, with others, have very moderate supplies of water until the leaves are somewhat expanded. Keep down all decaying leaves, and observe the utmost cleanliness. If any of the stock appear too much crowded, endeavour to weed out inferior or half-hardy things, transferring them to the pits or frames, or, in case of severe need, to a shed or outhouse, provided they are of the hard-leaved class, or decidedly deciduous. *Cold Pits or Frames.*—Give all the air possible, day and night; barely keeping out slight frosts. Do not give water until the inmates actually flag, and then in the morning of a fine day.

KITCHEN GARDEN FORCING.

Pines.—Give air all night to those in dung-pits, and withhold entirely all root watering or syringing until January. *Vinery.*—Where forcing has actually commenced, let the wood be frequently moistened by the syringe. Proceed with much steadiness and caution for two or three weeks, giving the sap time to apportion itself in an equable way. *Late Grapes.*—Use fire-heat every morning, if only for a couple of hours; leave a little back air, and also a front current all night, unless the atmosphere out-of-doors is overcharged with humidity. *Peaches.*—Proceed with the same circumspection here as in the Vinery; the principles at the commencement of forcing are few and simple. One piece of good advice is—do not be in too great a hurry at first.

FLOWER-GARDEN AND SHRUBBERIES.

Little now can be added here at present. Where lawns have not been well attended to, through pressure of business, another mowing and rolling may take place. The bulk of the dead leaves should be removed immediately preparatory to a general cleaning. If the shrubs require a compost it is a much more cleanly plan to bring back some decayed vegetable matter when a digging occurs.

FLORISTS' FLOWERS.

After so fine an autumn, during which period all bulbs have been got well into the ground, and the Tulip grower especially has commenced his labours under favourable auspices, we would advise that every bed, however small, be properly and substantially hooped over, so that by covering with a number of Russian mats sewed together, the whole length and breadth of the bed or beds, the collection may be safely defended from an excess of either rain or frost. Most amateurs were taught a severe lesson last season, the serious effects of which on their most choice bulbs will be for some time severely felt. Beds of choice Pansies ought also to be protected, and in mild weather traps should be set for snails, which even at this season of the year will cause great detriment to plants. *Polyanthuses.*—Perhaps the best bloom of these beautiful spring flowers which we have of late years seen, was grown in a pit facing the north-east (built of turves cut from a pasture field) and planted in a compost of decayed leaves, loam, and sheep manure; the plants during the spring months were robust in the extreme, and the bloom of first rate excellence. We would advise our readers to try a turf pit against one made with brick, at least those of them who are about commencing the cultivation of the Polyanthus, it will be found more impervious to frost, and decidedly more congenial to the habits of the plants than growing them in pots in frames. *Carnations, Picotees, and Auriculas* must be kept clean, and the pots not allowed to get saddened with wet; in fact, the less water the better, compatible with health.

KITCHEN GARDEN AND ORCHARD.

Now winter is at hand, I beg again to remind the readers of the *Chronicle* of the importance of having a stock of keeping roots at hand in the vegetable shed. Carrots, Parsnips, Turnips, Jerusalem Artichokes, Horse-radish, Beet, Scorzonera, and Salsafy, should be at hand here. If the vegetable shed is as it ought to be, several feet below the ground-level, and possessing a close-fitting door, the above vegetables may be merely laid in heaps. If they are apt to shrivel, things of this kind will be better in layers with clean sand. Let all remaining Cabbage plants still in the seed beds be pricked out forthwith. If any spare time, get the Rhubarb, Seakale, Horse-radish, &c. planted now, instead of the spring. In all these cases be sure to trench deep and loosen the bottom of the ground on the subsoiling principle. Some early-frame Radishes may be sown in a week or so. I plant Kidney Potatoes now, on raised beds; soil them 6 inches deep, and sow early Radishes on the surface immediately: the straw covering necessary protects both crops at once. *Orcharding*—Let the Figs be protected immediately. Nothing is better or more simple than tying wisps of new straw successively along the stems, each one overlapping the last. Let all superfluous nails be drawn from wall-trees, and proceed at every opportunity with general pruning; the nailing hammer following the knife, with the exception of south walls; these had better remain until the end of January, as the buds are apt to become unseasonably excited.

COTTAGERS' GARDENS.

The cottager should now trench every spare yard of ground, and throw it into sharp ridges. Weeds and vegetable matter of all kinds should be got together, in order to increase the manure heap. Let damp soil have early attention in the way of drainage wherever materials can be procured.

State of the Weather near London, for the week ending Nov. 19, 1846, as observed at the Horticultural Garden, Chiswick.

Nov.	Moon's Age.	Barometer.		Thermometer.			Wind.	Rain
		Max.	Min.	Max.	Min.	Mean		
Frid.	13	24	30.364	30.301	47	44	E	
Sat.	14	25	30 271	30.210	49	37	N.E.	
Sun.	15	26	30 169	30.132	48	40	E.	
Mon.	16	27	30 138	30.068	48	39	S.E.	
Tues.	17	28	29 902	29 843	51	39	S.	.02
Wed.	18	●	29 836	29.487	50	44	S.	.03
Thurs.	19	0	29 810	29 79?	50	48	S.W.	
Average			30.063	29 97?	51.0	41.?	46 5	.08

Nov. 13—Hazy; overcast throughout.
14—Foggy; cold south east wind.
15—Partially overcast; cloudy.
16—Overcast; cloudy and fine; overcast.
17—Cloudy; densely overcast; slight rain at intervals.
18—Cloudy; very fine; overcast; rain at night.
19—Cloudy and damp; very fine; cloudy.
Mean temperature of the week 5 deg. above the average.

State of the Weather at Chiswick during the last 30 years, for the ensuing week ending Nov 28, 1846.

Nov.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun	22	49 0	36.0	12.8	13	0.6 Min.	2	2	4	1	2	5	1
Mon.	23	47 8	35.4	41.4	6	0.3	—	4	3	1	3	5	3
Tues	24	47 5	37 7	40 1	6	0.01	3	3	2	1	2	2	2
Wed	25	48 6	33 1	39.2	9	0.25	3	2	3	2	1	4	2
Thur.	26	47 3	34 2	40.3	8	0.05	—	1	6	1	2	7	2
Fri.	27	47 6	36.2	41 0	10	0.08	—	2	3	1	4	7	2
Sat.	28	49 1	39.0	44.0	12	1.21	1	1	3	2	3	4	1

The highest temperature during the above period occurred on the 28th, 1828—therm. 60° 1 and the lowest on the 29th, 1836 and 26th, 1839—therm. 21°.

Notices to Correspondents.

ASPHALTINE—*J S Davies*—Unless this material can be made to lose its smell, we should not like to apply it to plants. If it does lose it, it would then be useful, but is scarcely warm enough. Send 20 yards to 21, Regent-street; we will give it a trial, and return you a Post-office order for the value.

BOILERS—*A W*—We have no practical acquaintance with it, but we see more evil than good in it.

CHARCOAL—*Durus*—Use it to your Onion and Potato crop in preference; but it suits everything. Its being in fine powder is of no consequence. Cannot you saturate it with chamberley before using? It is much improved.——*X Y*—The only reason why half-burnt wood when plunged in water is not so good as charcoal is—1, that it perhaps is not charred through; 2, that there is not so much of it; 3, that some of the saline matter will be washed out. Charcoal should be made without access of air, except just so far as is required to maintain a very slow combustion. When reduced to powder it suits all kitchen-garden crops, especially Onions, Potatoes, and root-crops.

EMPTY LETTER—A letter-cover with the post-mark of Hay, and having the registered number 507, has been received; but it was empty.

FUCHSIAS—*J J L*—You will find a good variety in the following sorts:—Kentish Bride, Smith's Venusta, Dr. Jephson, Cleopatra, Lowryi, and Cassandra.*

INSECTS—*T C*—Your Cabbages are covered with the Aleyrodes proletella. When first discovered, the infested leaves should have been destroyed. If the winter does not kill the insects, there will be no remedy but ceasing to grow Cabbages for a season. *R.*——*C C B*—The ants drowned in the honey jar are named Formica brunnea. *R.*

JERUSALEM ARTICHOKES—*Sigma*—The stalks when dry contain starch and sugar, and may be used in a chaff cutter; they are, however, better used before they become naturally dry. They are eaten by any animals to which cut straw is suitable. They also make useful fuel, and excellent manure when well trampled down. The best time to use them is in July and August, when they may be cut half way down.

NAMES OF PLANTS—*J W L*—The Beet leaves are attacked by a kind of rust called Uredo Betæ; it is well known to botanists, and is a beautiful microscopical object when the powder is mixed with water.——*Este*—Leycesteria formosa, a hardy shrub from the Himalayan Mountains; it is a Caprifoil. *W*—We are unacquainted with the use of salt to Raspberry plants, and would rather that our neighbours tried it first.——*M E*—The fruit of Xylopia aromatica.——*C A A L*—If the Buffalo Berry is Shepherdia argentea, then it is a hardy shrub, handsome when in fruit; but you must take care to have a female plant. The nurseryman who told you it was Ribes americanum was a very ——— no matter what; there is no such plant——*W Wood*—German Millet, Setaria germanica, an annual Grass, grown in warmer countries than this, for the sake of its small grains, which are eaten.

PINE-APPLES—*D C H*—Grow Queens, and study "Hamilton on the Pine." You ask us for a treatise.——*M*—It is in preparation: we cannot hasten our correspondents.

PLANS—*An Old Sub*—Your employer must apply to an architect. It is unreasonable to require gardeners to give in plans of villas.

PLANTING—*Jas Y*—Many thanks. It shall have place as soon as possible.

POLMAISE—*G G*—Both the failures have become successful—of course. Have you so little confidence in truth that you would abandon it the moment that it is affected by error? True principles cannot mislead.——*R A J*—The return flue is the cold-air drain; you will see where it commences by referring to the plan given at p. 563, it conducts air over the iron plate, then back over the tank, and then into the house. We fear you have not yet mastered the principles of the thing, and yet nothing can be more simple. We presume 9 may be a misprint for 7; it is not material.——*J D W*—The Church Question is about to be brought forward. If you do not want the ground you had better lay your rampant Broccoli on its side without taking up the plants; but if the ground is in request, then you may take up the plants and lay them in trenches by the heels with advantage.‡

POTATOES—*M A G*—We must decline inserting your obliging communication. The subject is exhausted, as far as old ideas are concerned. You have now adopted the view originally taken by ourselves, and which we, upon more full information, have abandoned.——*J B*—We readily excuse your expression of regret that so much room should be occupied by the Potato question. Let us hope that you in return will excuse our expression of regret that any one should fail to perceive the importance of surrounding this great national question with all the evidence that can be collected. Food is paramount to all things. Portugal Carobs are excellent cattle feed; but they *will not pay*; they cost too much money.

STRAWBERRIES—*J R*—There is nothing in the papers you mention which calls for your remarks. We cannot treat, or permit others to treat, intelligent correspondents with incivility. We do not at all approve of the *tone* of your letter.

VINES—*W V*—Your plan must succeed, and will doubtless be universally followed now that glass is to be had for 4*d.* a foot. We have for some time past been intending to recommend such a measure, but other things have stood in the way.

MISC—*Preston*—Do as your mistress desires, and don't have fancies. She objects to pond-water because it produces green Algals, in which she is right; and you ask whether clear spring-water is so good, which is not the question.——*Thomas*—Not a plant; some marine animal production.——*Silverther*—We cannot undertake to recommend one newspaper before another.——*J J L*—Loudon's "Encyclopædia of Gardening:" there are *many* species of Nepenthes, but only three or four in cultivation.——*Llandovery*—An excellent article on the formation and management of the shrubbery-border has been given in our first number for this year, by Mr. Errington.‡——*E Dodwell*—Apply to the respective Secretaries at 21, Regent-street, London, and Ebenezer-house, Peckham.‡——*W H*—Dahlia roots may be stowed away in any place free from frost and damp. A greenhouse floor is not essential; any place will do where the latter evils can be avoided.‡——*Rose Amateur*—Prune your Roses in March, early or late, according to the forwardness of the season.‡

SEEDLING FLOWERS.

CHRYSANTHEMUMS—*Z Z*—Your purple seedling is a very good flower, large, and full of petals, which being incurved, the small disk in the centre is hidden, as far as we can judge from the specimen sent (which is rather a stale bloom). It will make a good addition to this class of no cure.*

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those correspondents, the insertion of whose contributions is still delayed.

POTATO EPIDEMIC.

To AGRICULTURISTS, GARDENERS, & OTHERS.

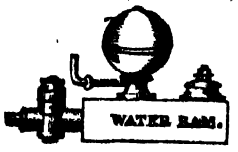
PARKER'S ENTYKOPROLEON, OR CHEMICAL COMPOSITION MANURE, for destroying the Wireworm, Grub, Mole, Insects, and Vermin inimical to the growth of all kinds of grain and vegetable productions, and for assisting vegetation.

W. and S. B. PARKER in offering their Composition Manure to the notice of Farmers, Gardeners, and others interested in agricultural pursuits, do so with the perfect confidence that it will be found fully to effect all the objects intended, and to be a desideratum long and anxiously looked for by all classes of persons for whose benefit it is now offered. This Manure will be found most effectually to destroy the fly in Turnips, to preserve corn and other seeds and grain from insects without injuring or affecting the seed; while, at the same time, it materially assists and promotes vegetation. It will be found highly beneficial in cold and wet corn lands, keeping the young plants warm, and contributing essentially to their growth and nourishment. On meadow land, also, its beneficial qualities will be readily perceived, and it cannot fail to be appreciated as a rich, cheap, and invaluable Manure.

The extraordinary disease affecting the Potato is now become an object of serious consideration, not only to the grower, but to the consumer; and any expedient or specific to stop or diminish the malady, must be considered of the utmost importance to the community. Notwithstanding the experiments, observations, and opinions of scientific and practical men, no satisfactory solution of the origin or cause of the disease has been suggested, or any efficacious specific or remedy proposed, and the alarming extent of the mischief justifies and requires the adoption of any reasonably proposed preventive or mitigant. With this view the proprietors of the Chemical Composition Manure, confidently recommend its adoption as a perfect specific against the prevailing epidemic. The limits of an advertisement do not allow the opportunity of giving a scientific exposition of the subject, or the reasons for the great efficacy of this Manure otherwise the proprietors flatter themselves their explanation would be perfectly satisfactory. It seems to be the opinion of many, and particularly of one gentleman, evidently of great practical experience and observation, and who has written a pamphlet on the subject, that the disease originates in the leaf, from the appearance of blotches on the leaves of those plants where the Potato was found diseased, but it is apprehended this opinion rests on most fallible grounds, as the blotches may as probably be the effect as the origin or cause of the disease. It is submitted, however, that the disease, whether the effect of an insect, of fungus, or of some peculiar state of the atmosphere, or other undiscoverable cause, must originate in an effect on the tuber in the ground, and whilst on, or after it attains its mature growth, the proper remedy therefore must be applied to the soil, and the destructive effect of this manure on all kinds of insects affecting the roots and germs of vegetable products, and its stimulative and nourishing qualities, seem to leave little doubt of its efficacy against the Potato epidemic. The proprietors consequently, from their own experience, and the observations of other parties, strongly recommend the dressing of the land with their Manure previously to planting, being confidently assured it will be found a perfect preventative of this fatal disease, as also in other respects a cheap and fertilising manure.

Sold in casks of any size at 6*l.* per ton, with directions, &c., for use, by W. and S. B. PARKER, Sole Manufacturers, Chemical and Colour Works, Deptford, Kent; where also can be had Prospectuses with Testimonials.

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ENGINES FOR DEEP WELLS OF ALL KINDS, DOUCHE AND OTHER BATHS, BUILDINGS HEATED BY HOT WATER, WATER WHEELS to work Small Pumps, from 15*l.*

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The Agricultural Gazette.

SATURDAY, NOVEMBER 21, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

THURSDAY, Nov. 26—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, Dec. 2—Agricultural Society of England
THURSDAY, — 3—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.—Gloucester—Shropham and Guilleross.

FARMERS' CLUBS.

Nov. 25—Plympton St. Mary — Newton
26—Ottery St. Mary—Bideford and Waltham
Nov 26—Richmondshire
27—Wrantham—Lichfield—Hadleigh
28—Hereford—Northampton

The meeting of the AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND, referred to in another page, has since been held; the Society has resolved by a large majority, to suspend the operation of their 14th rule, which provides "that no question shall be discussed at any of its meetings of a political tendency, or which shall refer to any matter to be brought forward or pending in either of the Houses of Parliament;" and their first step in consequence with reference to Government doings in Ireland, has been to "constitute themselves a committee, to sit from day to day, to take such measures as may appear advisable for obtaining accurate information respecting the extent of benefit to be derived from the present mode of providing employment, and the deficiencies of the same; to report on such amendments as full deliberation should indicate to be desirable, and respectfully to submit to the consideration of the proper authorities from time to time such representations as those inquiries may supply, thus embodying the collective experience and observation of the Society at large."

Now, on this point we must express our acquiescence in what Mr. LA TOUCHE stated. He doubted their power to abrogate the fundamental principles on which the Society has been constituted, and he thought that however important the subjects might be which it was proposed to bring before them, their discussion there would inevitably lead to division. We believe him to be quite right, and that that will be the result of this movement. The proper business of that Society is the improvement of the *art* of Agriculture; and with the subject of "Famine-assessments," let its importance be what it may, this has nothing to do. There is scope enough in the department which does belong to it for the useful exercise of all its energies; and no other matter, however momentous, should have been allowed to intrude.

The considerations which famine brings cannot be put away; nor do we for one moment suggest that they should; but members of the Agricultural Improvement Society should attend to them in their individual, not in their official capacity; or if it be true that greater effect results from combined effort, another Society specially for acting up to these considerations should have been constituted. In a country where political feelings have the strength of passion, it cannot be otherwise than dangerous to the stability of a non-political Society to admit for discussion subjects the consideration of which must of necessity bring these feelings into play.

AN interesting discussion took place at the late MEETING OF THE LONDON FARMERS' CLUB: we give a report of it in another column, abridged (with corrections) from that which appeared in the *Mark Lane Express*.

It is curious to observe the great want of confidence prevalent among agriculturists, as among the professors of all *manual* arts, in the truth which has been so extensively proved, that USE OF MACHINERY is always part of the system which employs the greatest number of hands. "The introduction of threshing-machines might be 'economical,' but it could not be 'good'—not merely because of its work not being so perfect, but because, in a country like ours, with so large a labouring population, it is necessary to avoid all that lessens our means of employing them." That was the spirit of much that was spoken the other night at the Farmers' Club house. The motive that was insisted on is doubtless good, but it will never lead an intelligent man to reject threshing-machines. The way to find employment for labourers is to improve agriculture in all its details. No doubt so far as the preparation of grain is concerned, the employment of machines diminishes labour; but as regards the whole art of farming, of which this is but one small item, the result is very different. Everything which cheapens any of the processes, and therefore the products of any business, tends, by increasing the demand for those products, to attract capital to their manufacture; and the invariable result of that is to give increased scope for the employment of labour.

This is a real chain of cause and effect; and worthy of more confidence than it generally receives.

OUR readers will have seen (p. 718) that the Council of the English Agricultural Society have instructed their Lecturer at the ensuing annual meeting in London to confine himself to explanations and illustrations of the chemical and physical properties of the elementary substances referred to in works on Agricultural Chemistry. He is to avoid speculation on the methods of improving agriculture which may suggest themselves to one acquainted with the sciences of Chemistry and Vegetable Physiology; he is simply to use the opportunity given him so as to impart to his audience a greater ability than many of them may possess for the due understanding and appreciation of scientific works on Agriculture.

The object he is to aim at is well worthy of the best efforts of any man—the lectures to be delivered by Dr. RYAN* with a view to its attainment will no doubt be highly interesting and useful. If the instructions issued for the guidance of that gentleman be intended merely to ensure a full discussion of the particular points to which, on the present occasion, it has been resolved, as a matter of special importance, to direct the attention of the members, no objection can be taken to them. But they are liable to be understood, or, we hope, misunderstood, as signifying the mind of the Council that the speculations referred to are of comparatively small value. We cannot believe that so wide a departure will ever be made from the Society's motto as this would imply. To judge thus would be to cut off one of the two great sources of agricultural improvement. For this can only be looked for in one of two ways, either by applying the skill which practice has already conferred, or by experimenting in accordance with the known laws of Chemistry and Natural Philosophy. The latter is that to which scientific men necessarily confine themselves; their speculations have already in many instances been eminently useful; and for agriculturists to think meanly of them is not only ungrateful and unjust, but in the highest degree impolitic.

* In the theatre of the Polytechnic Institution on the 9th and 10th of December next.

EXPERIMENTS WITH ARTIFICIAL MANURES, &c.

FEELING that agriculturists need rather the spur than the rein, in running their course of improvements, it is not without some reluctance that I enter upon the details of failures and disappointments in submitting theory to the test of practice; but as, in navigation, a chart would be of no use unless it laid down the shoals which a ship must avoid, so in agriculture the progress of knowledge cannot be secured unless the dangers are pointed out that await the cultivator, and the difficulties which impede his march. Facts will spring up from time to time which require explanation, and objections which demand an answer; and they should not be kept out of sight or pushed aside, but boldly confronted. The evidence on both sides, both for and against any particular practice, should be fairly balanced, and since two opposite conclusions cannot both be true, inquiry should be stimulated to detect the fallacy involved in that which we reject, and so we may discover more certain rules to insure success. Guano is known by general experience to be a very active fertilizer of the soil, and many would be ready to say, in order to feed a greater quantity of stock, why do you not increase the productiveness of your meadows by manuring them with guano; no doubt it will pay you well? I have tried it this year as a top-dressing, but entirely without success, as the subjoined experiments will show:—

	Weight of Hay.			Cost of Manure.		Loss.	
	Tns.	cwt.	lbs.	*s.*	*d.*	*s.*	*d.*
1. Without manure, p. acre.	1	8	64				
1½ cwt. of Guano and 3 bushels of Charcoal ..	1	10	106	15	9	0	8
Ditto	1	9	85	17	7½	12	10½
2. Without manure	1	9	5				
1½ cwt. of Guano and 3 bushels of Charcoal ..	1	11	48	14	7½	5	1
3. Without manure	1	8	61				
1¼ cwt. of Guano and 3 bushels of Charcoal ..	1	10	53	13	6	5	11
4. Without manure	1	10	106				
1½ cwt. of Guano	1	13	37	13	6	4	0
5. Without manure	1	7	42				
1¼ cwt of Guano	1	9	58	13	6	4	11
6. Without manure	1	4	5				
1½ cwt. of Guano	1	7	29	13	6	0	8
7. Without manure	2	7	29				
1½ cwt. of Guano	2	9	98	13	6	5	0

In this calculation it is assumed that the price of hay is 4*l.* a ton. The weather being showery in the spring, when the manure was applied, was as favourable to the experiment as could be wished, and the ground chosen for comparison in each case was immediately adjacent to that where the manure was laid. For the variation in the amount of produce on the unmanured parts shows that no reliance can be placed upon single comparisons of detached portions, and that a very erroneous estimate might be formed of the proportion in which it is efficacious. It cannot be said that the soil had reached that maximum point of fertility beyond which it cannot be stimulated; neither can it be said that the guano was effete and powerless, for portions of three different cargoes were tried, and though they were not minutely analysed, yet I ascertained that they were not adulterated with the earths, and that they abounded in ammoniacal salts. I can only conjecture that the carbonate of ammonia, of which it smelt very strongly, being volatilised and diffused through the air, was carried down by the rains upon the Grass, for which it was not intended; and perhaps this conjecture is in some degree countenanced by observing the superior efficacy of sulphate of ammonia, which is a salt so much less volatile than the carbonate, in two instances; indeed out of five there was a trifling loss; in the first not more than 9*d.*, and in the second 5*d.*; but the others gave ample compensation. In the third case the gain was 2*s.* 1*d.*; in the fourth, 5*s.* 10*d.*; in the fifth, 6*s.* 10*d.*; but the most remarkable success was that obtained by a manure which every farmer should preserve with the greatest care, for it is within his own premises, and needs only to be conducted into a tank to be constantly ready for use. 640 gallons of the drainings from the cow-house, mixed with 40 lbs. of sulphuric acid, to convert the carbonate of ammonia which it contained into the sulphate, the cost being 4*s.* 2*d.*, produced an increase of hay to the value of 1*l.* 6*s.* 3*d.* per acre. With respect to corn, my attention has been directed this year to ascertain by weight and measure the merits of different modes of cultivation, and also to the means of obtaining successive crops of Wheat, year after year, upon the same ground. First, then, upon comparing the produce of three lands, one of which was dibbled, the second broadcast, and the third drilled, it appeared that the dibbled gave half a bushel more than either of the others (36 bshls. 4 galls.),

besides the saving of more than a bushel in the seed. The straw was less by three trusses. It has been deemed almost an axiom in the cultivation of plants that loosening the soil about their roots is beneficial to them, by giving the atmosphere access to their fibrils. The following experiments seem to be in contradiction to that opinion:—

	Corn.	Straw.	Weight per bushel.
	Bshls.	Truss. lbs.	lbs.
1. Drilled Wheat, hand-hoed	32	69 24	63½
,, once horse-hoed ..	32	68 —	63½
,, twice horse-hoed ..	24	56 4	63½
2. Drilled ditto and not hoed	38	77 12	64
,, hand-hoed	36	76 16	64
3. Drilled ditto and horse-hoed ..	40	76 12	64
,, not hoed	42	87 20	64
,, broadcast.....	47	102 14	64

The first of these experiments furnishes, I think, a key to explain the whole. The plants have been hoed too unmercifully, and though the rows were 9 inches asunder, the hoes have been too broad, which is most visible where the operation was repeated; for there it is evident that it was injurious both to the quality and quantity of the produce, probably by cutting off the tender fibres, the effect being the same as that which is produced upon a fruit border by digging the earth instead of forking it, and that effect may of course be equally produced by an improper use of the hand-hoe, especially if the labourer was anxious to make his work as effectual as that of the horse-hoe; but where that implement is wielded more carefully I have now to produce some strong evidence that it will do good instead of harm to Wheat, as well as to other plants. In pursuance of the plan which I adopted last year, I have again been trying whether the plant can be sufficiently supplied with food in the shape of nitrogen, or one or other of the morganic ingredients, in which the soil may be defective by steeping the seed in certain salts, or watering it afterwards with the solution. The same plots of ground which were tried last year and the year before, were tried exactly in the same way this year. All the seed was steeped, but only one-half was watered. Four of the salts were sulphate of soda, phosphate of soda, muriate of ammonia, and nitrate of potash. The space which each occupied was divided into eight parts, one half of which was hoed and the other left untouched. The produce both in grain and straw was weighed, and these are the results—

Water, with Quarter lbs.	Sulphate of Soda	Four times hoed	Not hoed	Three times hoed	Not hoed	Phosphate of Soda—	Hoed four times	Not hoed	Hoed three times	Not hoed	Muriate of Ammonia—	Hoed four times	Not hoed	Hoed three times	Not hoed	Nitrate of Potash—	Hoed four times	Not hoed	Hoed three times	Not hoed	Not watered—	Hoed four times	Not hoed	Hoed three times	Not hoed	Bsh.	lbs.	oz.	lbs.
1																										6	14	
																										6	15	
																										6	12	
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In all these cases the hoed crops have the advantage over those that were not hoed, though not always in proportion to the number of hoeings. I say in all, because the nitrate of potash is only apparently, and not really an exception to the rule; for the straw which was hoed maintains its superiority in weight, and the ears were remarkably full and strong, and therefore were more pecked by the birds. Indeed the difference throughout is really greater than it appears, for the hoed crops invariably suffered more from the depredations of the birds than the unhoed. But the other object that I had in view was to compare the produce of this year with the produce of last year; the soil being the same, the manure the same, the treatment the same, and the crops the same. The account of grain stands thus:—

Sulph. Soda. 1845.	Phos. Soda. 1846.	Phos. Soda. 1845.	Mur. Amm. 1845.	Mur. Amm. 1846.	Nit. Potash. 1845.	Nit. Potash. 1846.
lbs. oz. lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.
56.10	60.2	59.6	60.10	51.8	62.10	40.6	68.2

It will be observed that all the crops of this year were better than those of last year, although the difference in the total weight of straw was not more than two ounces. Another experiment, with the same object, and also with a view to ascertain whether Art can correct the defects of Nature, was repeated this year. The same ground was sown again, one half with good grain, and the other with bad or tailing Wheat. Each of these was divided into four parts, as before. 1, left for the third time to take its chance; 2, manured with 4 lbs. of phosphate of potash; 3, with 2 lbs. of phosphate of potash and 2 lbs. of sulphate of ammonia; 4, with 4 lbs. of sulphate of ammonia. The produce of these, too, must be compared with last year—

	Corn. 1845.	Corn. 1846.	Straw. 1845.	Straw. 1846.
	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.
Good seed 1	14 6	13 8	28 —	28 14
,, 2	17 4	12 12	34 8	26 10
,, 3	11 2	18 10	26 12	24 2
,, 4	11 4	15 8	25 8	24 2
Bad seed 1	11 6	11 10	23 8	22 14
,, 2	14 9	10 14	22 12	23 6
,, 3	11 1	17 8	26 8	30 14
,, 4	11 2	16 10	24 12	24 6

Upon the whole there is more corn this year and less straw than last year. The phosphate of potash, which was most productive last year, is the contrary this year; but the bad Wheat in two instances yields not only much more than last year, but considerably more than the good grain of this year, for which the only cause that I can assign is one that seems at first sight not to be very favourable to the victor. It came up ill, and partly perished in the winter, and the ground was so bare in the spring that it was necessary to take up a large proportion of the survivors and transplant the divided roots to fill up the vacant spaces. Thus nearly the whole was moved and well trodden in the spring, and, by way of compensation, the new plants, when they had taken root, received a fresh dose of their own manure; but this will not account for the unmanured part being better than last year. And now that I have shown what wonders may be effected by assisting Nature, I must conclude with a proof that she will not bear forcing beyond a certain point. In an Oat field the ground where the Turnips in the preceding winter had been fed off by sheep, produced 93 bushels per acre; but that from which they had been removed, and which consequently lost so much manure, produced 94 bushels, which certainly is a very large crop, but not the better on that account; on the contrary, the quantity injured the quality. The weight was not more than 33½ lbs. per bushel, which is much below the average.—*L. V. Harcourt.*

ON SHED-FEEDING SHEEP.

It is certainly one of the greatest negligences of British husbandry, that our flocks are not more carefully and considerately attended to than they are. We profess to be the first agriculturists in the world—to conduct even the smaller details of farm management upon scientific principles; and the press is making known to us the results of the investigations and discoveries of learned men, by which we may sometimes turn even the very minutiæ of our business to more advantage. Your own Journal—amongst the varied subjects on which it treats—is constantly insisting upon the "advantages of heat in the production of animal substance"; enforcing by the evidence of facts the efficacy of a practice founded upon the physiological principles explained to us by men of science like Liebig, Johnstone, Playfair, &c. But, notwithstanding all the information gained, both from theory and experience upon this subject, how few are the examples of shed-feeding to be found. In other countries, with climates much warmer, or, at any rate, less subject to the vicissitudes of cold and damp, than our own—where agriculture is at a very low standard, the farmers poor, and the animals of a very inferior kind—large airy sheep-houses are deemed indispensable; but here, in our changeable and excessively wet climate—where agriculture is pursued as a science as well as a business—the sheep, though of a far better and more valuable kind, are left exposed in the open field to weather every storm. If the farmers generally will not believe, in spite of so many successful trials, that the saving of food is immense—if they cannot be induced to try the system of shed-feeding altogether, they must see that nothing conduces more to the healthy and profitable condition of a flock, both in rearing and fattening, than warmth and dry lairs. To what a pitiable condition has a beautiful flock of southdowns, quiet Leicesters, or still quieter long-wools, been often reduced by being left unsheltered from the cold blasts of winter; every flock-master's mind must be impressed with bitter recollections of the severity of his losses. No one can fail of perceiving the importance of erecting shelters for their sheep during the winter, and the reason why it is not more generally practised, seems to be because of some fallacious idea of its unremunerative costliness. The fact is that the cost of putting up a shelter is a mere trifle compared with the advantages gained. We have been, for some years, in the habit of erecting the shelters, and find them so cheap, so easily constructed, and the benefit derived so great, that a short description may perhaps induce others to imitate them. Our sheep are now upon Rape; not Rape as it is known in some parts of the kingdom, but grown upon ridges, 25 inches apart, the plants being about 4 inches from each other, and from 2½ to 3 feet high; the stalks, in which the principal nutriment of the plant consists, thus attaining to 1½ inch in thickness. The shelters, which are placed in the different folds, are square, the sides being made of what we call bullock-trays, that is, large hurdles with five bars about 7 feet long, and heads 4½ feet high. These are driven into the ground, leaving a space on one side as an entrance for the sheep; a few light poles are laid across the top, above them old or broken hurdles, long thorns, or branches; the whole being covered in with straw, ditch-roadings, &c., 1½ foot thick, and secured by poles, spits of earth, &c., to prevent their being blown away. Some common hurdles are then set round the shed, about a foot from the larger ones; the intervening space is filled with refuse straw, and the place well bedded. Thus, with a few hurdles, poles, and a little straw, without nails or frame-work, we have a cheap, commodious, and very comfortable shelter. When the sheep are put upon the Turnips, they will have the same lodgings, which are readily and expeditiously moved, and the roots will be cut and consumed out of troughs standing breast high. In consequence of this winter sheltering, the lambs, more especially, are in the spring in advance of other flocks around; this fact is apparent to the most casual observer, and the marvel therefore is that the provision is not more generally made.

One thing is obvious, that this department of agricultural procedure loudly calls for improvement; and, in such stirring times as these, when we cannot hope to succeed in any undertaking without pushing a little in advance of our fellows, and when this is to be done by pursuing some improvements hitherto neglected by others, we cannot doubt that this simple and advantageous practice will become more approved the more it is known and adopted.—*I. A. C.*

TURNIPS OR POTATOES?

It is a disputed point whether Turnips or Potatoes are the most beneficial crop, and great difference of opinion exists among persons holding large clay land farms, where carting off Turnips poaches the ground, and also among those who make a trade of fattening cattle upon a large scale, who have in several instances preferred the latter; but whatever idea the large farmer or the cattle-feeder may entertain, it appears to me there can be but one opinion upon the superiority of the Turnip-crop as regards the small farmer. In the first place the saving of fuel is a material recommendation. Likewise the late period of the year at which they can be sowed, which admits of their succeeding Rape, winter Vetches, Rye-grass, Annual Clover, or early Cabbage. The Malta Turnip and White Globe may be sown at any time in July, with the prospect of a full crop, and if the season turns out favourable, with plenty of manure and good cultivation, a good crop of Yellow Bullock and Dale's Hybrid may be obtained. Thus, it is clear that three crops may be obtained in two years, Turnips being one; besides this, it is to be considered that the principal use of the Turnip crop to the small farmer, is the support of his regular stock, and the supply of milk and manure. Now a stone of Turnips will yield as much milk and manure as a stone of Potatoes, and the same land will yield 5 stones of the former at least for one of the latter. Again, when they are applied to fattening and compared with Potatoes sold in the market (which is the usual mode of disposing of them by small farmers), it must not be forgot that the expense and loss of time in driving a fat cow to a fair, is nothing compared to the labour of attending the market with a horse and cart, day after day, to sell a quantity of Potatoes, when both the farmer and his horse might be both advantageously employed at home in the business of the farm, and that in the former case he gets his money in a lump, whereas the Potato-seller receives payment in small sums, which perhaps may be frittered away before it accumulates to any amount.*

It should also not be overlooked, that even if only half the Potatoes were planted which the family might require in order to make room for such crops as would produce food for one or more cows, the value of the milk which would be thus obtained would buy more than twice the quantity of Potatoes which the ground taken would have produced; and where there was little land, it might be very profitable farming to plant only early Potatoes where there was a good market at hand, to sell the whole off in the end of July, and sow the land with Rape and stubble Turnips for winter and spring feeding. The value of an early crop of Potatoes is very often superior to a late one, and the owner would have the money to lay in his supply in November, and would have besides all the winter and spring feeding, and the milk and manure which the after-crop would yield. A judicious farmer should not consider himself bound to raise the Potatoes he will consume himself on his own farm. His object ought to be to manage his land in such a way as to produce him most money, which will always supply him with what he may want.

Acting upon this principle, it appears to me that the man who cultivates green crops largely, and is able to buy extra stock when wanted to consume them, will

* The force of these arguments appear to me still stronger now than when originally written, for the experience of 1835 has shown that the Wheat produced has so far exceeded the demand, that the price fell so low as to make it a losing crop to the farmer; although formerly it was that upon which he most relied to make up his rent. This was so generally the case, that the land was turned to the growth of Oats and Barley to such an extent that, with the aid of but an indifferent harvest, the quantity of Wheat has been so reduced as to restore the price to a remunerating rate; but I have no doubt that from the improvement of agriculture, more grain of all kinds will be raised in average seasons than there will be found consumption for at profitable prices. If this be a true view of the case, it is quite evident that you should turn your chief attention to cattle crops. It appears clear in ordinary cases we can do without any importation of foreign grain, but we have never yet been able to do without an importation of foreign butter, which on the contrary has been annually increasing. This shows what is most wanted, and what is most wanted will always pay him best who has it to sell; and accordingly you will find on calculation that an acre of Clover, or Rye-grass, if applied to house feeding, will yield you, upon an average, a larger return in the value of the milk and butter it will give, than any average produce from grain, the gain upon which latter I fear will yearly become less until the quantity at market shall be reduced by turning a larger portion of the soil to Flax, Hemp, butter, fallow, &c., which might easily be done by the Legislature giving those crops the same protection as grain now enjoys.

make more of his farm than in any other way. For example, suppose an acre of Rape put in after winter Bere or spring Vetches, the land to be well manured and the plants dibbled in by the second week in August, it will be ready to cut to great advantage when the Clover falls in the middle of October, and would enable the owner to pay himself well by vealing calves, after which it will be ready to cut again in April following, and will feed 10 to 15 head of cattle for a month or 5 weeks;* and supposing that springers have been laid in in low condition to calve about the first week in May, they will by that time be so much improved, and being also just ready to calve, they will sell at an advance of 25*s.* to 30*s.* each. But to take everything at the lowest, say 8 cows sold at 25*s.*, profit amounts to 10*l.*, leaving the ground and the manure ready for Turnips, an acre of which will fatten four head of ordinary sized cattle, which should yield a profit of 3*l.* to 4*l.* per head, but calculated at 50*s.* will produce 10*l.* more; that is 20*l.* gained by the acre, without calculating anything on the October cutting, which is worth 5*l.* an acre more, leaving the land in good heart for sowing Barley and Clover; or he might put in spring Vetches, and after feeding them off in the same way, prepare the ground for Wheat. Now, after making the largest allowance for seed and labour, and some hay for the cattle when fattening, the manure being supposed to pay for the straw, it is evident there will be more clear profit remaining than any single crop would produce; and of course if a man has money to deal in this way, it will be his interest to do so, and with the money so gained buy the Potatoes or other produce he may require. I have selected as an instance a crop of Rape to begin with, as it comes in earliest, and cattle generally give a larger profit laid in about the end of March or beginning of April, than at any other season. Mr. William Dougan of Lisdrumcher, has followed this plan this last season, and has realised a much larger profit; but at all seasons, springers bought in poor, and well fed for a month or five weeks, and sold when ready to calve, are sure to leave a handsome profit, perhaps more than vealing calves as recommended in October. But the benefit of having a large supply of Rape, Swedish Turnips,† or Mangold Wurzel for spring, is also of great advantage where there are large grazing farms, as it enables the stock to be kept in the straw-yard until the Grass rises, which by the shelter it affords, draws up a succession of young shoots, and produces a growth of Grass that cannot be eaten down by the stock, which would have been half starved upon the same ground if they had been more early turned out upon it. Some of you, however, may perhaps say as I have often heard it urged, that your land would not bear this constant turning and ploughing for so many crops in succession. But there seems to be a great mistake in this opinion. If repeated ploughing was to do the land so much injury, how does it happen that it produces such crops after a fallow, when it has been ploughed perhaps five times, with scarcely any intermission?—The truth is that it is not the constant ploughing but it is the constant grain crops you put in when you do plough, that does the harm,‡ and you need have no fear whatever about hurting your land in that respect, if you only pursue the proper rotation of crops, taking care to introduce Vetches, Italian Rye-grass, and Clover, between your grain crops, which refreshes the land more in one year than lying out to rest in a poor state would do in three or four, as I have already said.—*Mr. Blacker's Essay on Small Farms.*

* The cutting in October prevents the crop in April being so heavy as it otherwise would be, or it would do more than this, if let come into blossom without previous cutting.

† It is a singular distinction between the Swedish Turnip and all others, that it seems to suffer very little in the quality of the root by being allowed to stay in the ground and shoot up to seed, which gives a cutting like Rape, and yet the root will afterwards remain sound and sappy, and fit for cattle feeding until the end of June. When this plan is pursued the ground should be afterwards sown with late spring Vetches, to cut in October or November.

‡ It seems to me that the increased fertility of fallowed land is mainly attributable to that very turning which is sometimes complained of as an evil. By this every part of the soil is exposed to the action of the atmosphere, the effects of which in promoting fertility may be estimated by observing the barrenness which follows from excluding its influence. Examine the ground under the back of one of the newly-levelled ditches, or what is called the seat of the ditch. Now, when the ditch was originally made, this was the surface productive soil, and the stuff thrown out of the gripe to form the back was perfectly barren till. But now you will find the case exactly reversed,—what was then the fruitful surface soil is now rendered barren by being excluded, by the back of the ditch being heaped over it, from the action of the atmosphere, and the back which was then barren, is now rendered fruitful by being exposed to it.

Home Correspondence.

Agriculture as a Profession.—In your Notices to Correspondents of the 31st ult., you very justly commend "T. C. M.'s" letter on this subject. To the truthfulness and force of his arguments no exception can be taken; but in the remedy proposed, the circumstances of farmers generally would seem to have been overlooked. It is true that many who as yet pay but little regard to the education of youths intended for agricultural pursuits, possess the means to place them at Cirencester College, but lack the inclination. With very many more, however, the case is widely different. So soon as their sons can render assistance upon the farm, as plough-drivers or otherwise, they are of necessity, under present circumstances, required to do so. To tell these parties of the importance of education, and of the advantages to be derived from the institution above-mentioned, whilst they do not possess the means necessary to give either the one or the other to their children, is only to make them feel the more sensibly their unenviable position. Most farmers, however limited their means may be, object, naturally enough, to send their sons to our national schools, where the children of their labourers and others of the humbler classes are educated; and being unable to place them elsewhere for a sufficient length of time, their minds receive but little cultivation, the consequences of which are but too well known to those who are acquainted with the condition of most farms and the systems of management (if, indeed, such they may be termed) which prevail amongst us. Doubtless we depend on the blessing of God upon our endeavours, whatever be our occupation, business, or profession, as intimated by "J. Russell;" but shall we on this account refuse to avail ourselves of the aid to be derived from scientific knowledge? I apprehend not. We have talents given us to employ in tilling the ground, as in other things; and as, in consequence of the curse upon all terrestrial things, the farmer has many evils to remedy, a knowledge of chemistry, geology, animal and vegetable physiology, and of other sciences, cannot but be of importance to him; and if they be, his better education requires to be immediately and energetically promoted, and I know of few objects more worthy of attention. Let our farmers be well educated, and the employment of insufficient capital, neglect of drainage, want of economy in labour, and the maintenance and fattening of cattle, waste of manures, &c. &c., shall soon cease to exist to the extent at present complained of; involving, as they do, most serious consequences. Should we not do well to have a society formed for the accomplishment of what I have mentioned. No injury need be apprehended as regards the college of Cirencester; quite the contrary. I would wish to have schools subordinate to that excellent institution. A farm would be indispensable to all of them; but the extent need not be considerable; on the smaller spade husbandry exclusively might be adopted.—P.S. Since I wrote the above, I have received your Number of the 7th inst. The school at Holwyl is similar to what I wish to see in England. They would, when once established, support themselves; and no difficulty ought, I think, to be experienced in procuring the land and erecting the buildings. Every large landowner might, with advantage to himself, place a sufficient farm at the disposal of a society, were one established, for the purpose of a school for the children of his tenants, and those of the less wealthy around him; and, surely, the Government would make grants towards the erections. Shall we not make the experiment?—*B. S.*

Boiling Malt Liquor.—The great waste which must necessarily ensue from the boiling of malt-liquor, has induced me to try the method which I will here detail for the benefit of your readers and the public, who may not be acquainted with it, and which has been followed with perfect success by an acquaintance of mine in brewing his beer for the last 16 years. It consists in the first place of the usual operation of mashing; the first time the liquor is drawn off it is put to cool; the second drawing off is boiled with Hops in the usual way, both are mixed together when cool, and the balm is then put on. This, you will observe, saves one half the liquor from being boiled; but we have tried a barrel without any boiling, the hops being mixed with the malt, and the result is most satisfactory; for when a pitcher is drawn from the cask, it literally "foams with mild ale," and this is the case even to the last pint in the cask. When we again brew we intend to boil the Hops in the water before it is put upon the Malt, as to our taste the beer is rather short of Hops. You shall have the result from—*A Craven Grazier.*

Influence of Circumstances on Farming.—Many persons (landlords and others) think and say that tenants cannot keep too much stock. To keep plenty of stock, and consume all your produce at home, you must be a good farmer, and do well too. Now we will take A. and B.; B. lives, say 6 miles from the Bridges; A. lives, say 30 miles from London; B. can get from 20*s.* to 30*s.* per ton for all his root crops, and 25*s.* to 36*s.* per load for all his straw; he can get in return good London dung from 2*s.* to 3*s.* per load for one horse (about 1½ ton). Can he make as cheap and as good, and as much of his root crops by consuming them at home? I think not. Then it, like many other things in farming, holds with "what is good in one place is not good for another." But landlords do not always think of this. A., who lives 30 miles from London, cannot make much more of his straw (to sell it) than 15*s.* to 20*s.* per load. His root crops he often gives away to be fed off, because he has no stock of his own; if he sells them, it is at a low price. I think here he does wrong; he should keep stock and plenty of it; but not in the way as many do keep them in the winter—turn them out into the yard up to their knees in straw, and call what they make dung, and what little goodness is in it is allowed to run away into some pond or brook near; and this you will see, I think, as much or more in Buckinghamshire than anywhere else. Perhaps Surrey is as bad.—*Brutus.*

Effect of Manure on the Potato Disease.—In the end of May, 1845, I planted a portion of a very poor and almost perpendicular brae-face which had just previously been cleared of old Whins, with "American Early" Potatoes. Being very busy in autumn the crop was half forgotten, and the upshot was, that in May, 1846, it was still untouched. Good seed was scarce in my neighbourhood; but on examining our brae-face crop, we could hardly find a tainted Potato, and we started at once to dig them up, leaving however one small one at each shaw for another crop, and covering it with the foot. At this present time I am eating Potatoes from the unmanured worthless land, which, when steamed, fall before the fork like balls of flour; whilst the crop on the well-drained, high-rented, and liberally-guanoed field close at hand, is so much affected by disease as not to be worth lifting. Feeling pretty sure that the plant has, generally speaking, been too highly cultivated, I for my own part look for good Potatoes next season from the plan I am at present adopting. I have about a week's consumption dug at once, and direct the workman to leave one for seed at every shaw, covering it as well as he can with his foot and the fork.—*North Exile.*

A Plan for furnishing Employment to all Professions and Trades in the Kingdom.—[The following is a short abstract of a long paper introduced to us in the following letter]:—I received the enclosed from a working man of this neighbourhood; it was written some years ago. I simply transmit it to you, supposing that by its aid there could be a system presented through your columns which would or might be patronised by such as are desirous of supporting or forwarding measures tending to employ the labourers of Ireland.—*Piedmont.* "Great Britain and Ireland, as one whole nation, perhaps never was in such a state of distress for want of employment as it was in 1841-2. This could then easily be proved, for we needed only to have looked at our highways and byways, and there might have been seen our own countrymen, of all ages, begging their bread. The case may be paralleled in Ireland at the present time. Is there no cure for this sad state of things? I think there is. Let the cultivation of the commons and waste lands be encouraged, and whoever claims them, let them divide them into farms of 200 acres each, and let farm buildings be erected upon each division, and let them be rented at such low rents as merely to pay the interest of the cost of such division, inclosing, and erections for the first 21 years; or if the landlord would rather let those who erect their own buildings go rent free (excepting for a mere acknowledgment for the said 21 years): thus take in all the waste lands. It would furnish work for every hand and bread for every mouth. If there be 30 millions of acres of waste land in the United Kingdom, perhaps there might be 10 millions of acres that would scarcely pay for inclosing, cultivating, and draining. Let the 20 millions of acres be divided into farms of 200 acres each, for that is enough for any farm (great farms are great evils to a nation); there would then be 100,000 new farms. If 5000 new farms were cultivated every year, for every 40 farms to form a parish, and for every 50,000 acres, or 250 farms, to have a market town, so that every year, for at least 20 years to come, there would be 5000 new farm-houses, 80 villages, and 20 market towns, to build; every village to contain about 100 houses, and every town about 2000. At this rate, in the newly inclosed land, the number of houses in towns, villages, and farms would be 53,000 yearly, 120 churches, and, perhaps, as many chapels; 1000 schools; besides all other public buildings; and, to effect all this, 130 lime-kilns, 1100 stone quarries, 20 slate quarries, 1500 brick-yards, 20 plate and bottle-glass houses, 250 corn-mills, 25 saw-mills, 50 steam engine factories, 20 coal-pits, 15 iron forges, 20 potteries, 20 tan-yards, 10 paper-mills, 4000 tile-sheds, to furrow drain the land and fence it in, to construct railways and turnpike roads. What a revival of trade and commerce would this improvement of the empire cause, both by land and sea! It would make Britain a little China, where in many parts of it every inch of land is in the highest state of spade cultivation, to supply the wants of their hundreds of millions of people. It would annually bring into the field an increase of 10,000 ploughmen, and as many carters: then what a demand for horses, carts, and ploughs; and with respect to the house-timber trade, on an average each house would require 5 loads of timber, and ships, to bring 200 loads each, and to go two voyages in the year; it would employ 1000 ships; it would require 100 new ships annually to keep up the fleet, and would employ 50,000 seamen, 2000 ship builders, &c. &c.; and the agricultural and business department would be nearly as follows every year:—Ploughmen 10,000, lime-burners 1300, &c. &c. Certainly the capital required for this great national improvement would be enormous at first, but not larger than the united energies of this large and wealthy empire could bring forward. When capital is rightly embarked, business, commerce, and profits follow; the annual profits of the United Kingdom which would arise from the following four leading sources of all trades; namely, the mineral, the agricultural, the manufacturing, and the shipping interests. It is by the toil of Britain's sons that profits are gained; then let her annual profits or spare money still be embarked to employ her destitute and rapidly multiplying people, it certainly will yield at least two-fold satisfaction to the capitalist to see his poor neighbours at work, and families fed and clothed, and his own wealth increase. But some may say, if the enclosure and cultivation of all the waste lands in the three kingdoms were made the law of the land, it would put a stop to the tide of emigration; the answer is, it would not do so, for one tenth part of the increase of population, or not 40,000, emigrate; but would it not be wisdom instead of so many men transporting themselves 10,000 miles off to cut down trees and hoe up their roots to make land in the uttermost parts of the earth, to keep them at home, and with the spade and the plough to cultivate the millions of acres of waste land in our own country. I would by no means prohibit emi-

gration, but by all means I would encourage home cultivation first. Let us first renovate and make strong the mother country, lest we make our colonies too powerful for us, and they rise up as enemies and declare themselves independent of us, as the Americans did. Some may argue that these moors are useful; they grow food for grouse, bees, sheep, and cattle; but the same piece of ground that will only feed a sheep in its present state, would feed a couple of oxen in its improved condition. Many that have taken in farms on moor-borders 20 or 30 years ago, have now got rich. Is it not a pity that so much land should lie waste in this country where it is so much wanted and so well situated, all within the temperate zone, and not an acre of it elevated to the region of perpetual frost and snow. It is to be hoped that the sun will not shine, nor fruitful showers drop their fatness in vain on these wilful wastes much longer. Which is the prayer of my country's well-wisher.—*N. C., Parham, Oct.* 29, 1842. [Our friend is doubtless somewhat enthusiastic in his anticipations; but there can be as little doubt of his accuracy in the principle on which he argues—that the thorough cultivation of our cultivable waste lands would add vastly to the *wealth* of the nation—in his broadest acceptation of the word.]

Tenants' Rights.—I mark with interest the letters which, from time to time, grace your columns on the subject of tenant rights, and perhaps you will allow me to throw out a few hints on the same subject. The spirit of revolution, which is so active at this moment in every branch of our constitution and civil policy, is evidently taking a direction towards property, and landed property in particular. The ordinary rights of property which heretofore were settled by contract and usage, must now be determined according to some of your correspondents (and no doubt there are many of the same kidney as "Clodhopper," who lately figured in your columns) by legislative enactment, or in other terms, a landowner shall no longer be permitted to make his own bargain with his tenant, when he lets him his land, but that it shall be settled by Act of Parliament what allowances an offgoing tenant shall receive from his landlord, and whether the latter has contracted to make them or not. There is a great similarity between this sort of doctrine and that which is just now preached upon the subject of titles and conveyances of property. These also are to be settled by legislative enactment; land is to be made as transmissible as money or goods, and at as little expense, and that it may become so, the rights and privileges of ownership are to be narrowed, so that no one shall be at liberty to sell or convey a limited interest in land, either by way of annuity, or for a life estate, in order that titles may not be embarrassed and the exquisite simplicity of the scheme interfered with. That I do not overstate I would refer you to a correspondent in the *Times* journal, who has the hardihood to subscribe himself as a solicitor. Now let me administer to "Clodhopper," *et id genus omne*, a few words of caution how he and they meddle with the tenant right question. They will find it a two edged sword—landlords know to their cost that no investment makes so poor a return as land; that in their dealings with tenants they are overmatched, and must ever be so; and that where the contract between them is broken it is rarely on the landlord's part. They know likewise; or ought to know, that every shilling their tenants possess has come from the soil, for their ancestors were anciently but serfs and indebted solely to the landlord for the little capital employed on land. Let them then take these facts into their remembrance before they talk of tenants' rights being settled by Act of Parliament, and complain, like "Clodhopper," of having to pay rent and taxes for the land covered with the landlord's timber, which is not true; and complain with equal absurdity of not being allowed the tops and branches by their landlord when he removes this very timber of which they complain. Finally, let me remind them, that legislative enactments, such as they propose, would have only this effect, viz., to render the landlord more cautious how he commits his land to a tenant; and to displace numbers who, like "Clodhopper," have lost that loyal affection for, and dependance on their landlord, which have hitherto, or, perhaps, I might more justly say, until lately, distinguished the British yeoman, and has been returned, in the case of the old landed proprietor at least, by a generous protection and affectionate good will; and that if this system is to undergo a change and to be assimilated to the mercantile one, landlords will hardly be content with a return of 3 per cent. for their land, or to confide in a tenantry guided by such principles, so long as they can manage their lands themselves, or commit them to their sons and immediate dependants for cultivation.—*R. L.* P.S. What do you say to an incoming tenant being compelled by a valuer to pay for guano on land from which a crop of Wheat had been taken. I objected on behalf of my tenant, but was told that it was the custom of the country. I had foolishly thought that legally a custom must have the sanction of time, which implies acquiescence. [We would say, that, if a portion of the guano remained in the soil unexhausted by the crop of Wheat which had been taken, both justice and common sense require that the next tenant should pay for it.]

Potato Disease caused by Atmospheric Agency.—I planted a plot of the Long Red Kidney variety (merely as a trial), so late as the 20th of August. The old tubers being quite sound and pretty well sprouted, and the weather being particularly warm, they were above ground in about 10 days. I daily watched their progress to see if they would withstand the disease. All went on well till about the 15th of September, when in one night the hitherto hopeful plants were attacked, the brown speck appearing on every leaf, on the axils of the leaves, and latterly on the stems, which were about 1 foot high at the time. The young tubers were about the size of good large Beans. The leaves and stems decayed by degrees, and were almost gone by the 1st of October; but on examination I observed the greater portion of the stems quite fresh near the ground, and pushing new shoots again. On taking up the tubers the old Potato was quite sound, and the young tubers likewise, which remain so up to this date. I may mention the tubers were planted whole; the stem is quite sound at its junction with the Potato. I am inclined to think that the above Potatoes were attacked by some atmospheric agency, as the same sort produced a good crop, free from taint or disease, in the month of June, when the atmosphere might not have been charged with the same combination of gases; and, moreover, at the time the disease began to show itself (about the 28th July), I observed the following plants, amongst many others, infected with apparently the same disease as the Potato, viz., Senecio, Aquilegia, Campanula (alba flore-pleno), Bishopsweed, Tansey, Beans, Peas, Oaks, Elms, and many other trees and shrubs; this was never observed in this quarter before. As both old and new tubers of the above Potatoes seem to be quite sound, I intend to let them remain, earthed deeply up, where they are till they sprout next spring.—*Alex. Walker, Mayen House, Banffshire.*

Societies.

AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

At the weekly meeting of council on Nov. 5, the Secretary read a requisition from the members of the provisional committee on reproductive works and labour, who had met in the course of the week, to the following effect, viz.:—"We, the undersigned, hereby request the council to call a general meeting of the Society forthwith, in order to take the sense of the Society at large, under the existing circumstances of the country, as to the policy of suspending the 14th general rule, which prevented them for entertaining any question of a political tendency at their meetings, or which would be likely to be brought under the consideration of Parliament, so far only, however, as to enable the Society and its members to express their opinions as to the questions of profitable employment of the people—thorough-drainage, subsoiling and levelling, and clearing land, and the production of food at the present crisis.

(Signed)	D. J. Wilson,	Thomas Ball,
	Pierce J. Blake,	Charles W. Hamilton,
	J. B. Bankhead,	William Stewart Trench,
	Daniel O'Connell,	Christopher Fitzsimon,
	Charles Roper,	Charles James Trench,
	Pierce Mahony,	Wm. Jones Armstrong."

It appeared that considerable discussion took place in the provisional committee, as to whether it would be more advisable to call upon the Society to modify and suspend the provisions of the above rule, so far as was contemplated, under the peculiar circumstances of the present case, so as to enable the council to entertain the question in full, and to make the necessary inquiries, and adopt the requisite measures for communicating their views, and the result of their inquiries to Government, from time to time, pursuant to the intention of the original requisitionists; or whether it would be better to establish a separate body altogether for the purpose, outside and distinct from the Society, and totally independent of it. The general opinion of the committee, however, appeared to be against the existence of two separate bodies; that they would naturally interfere with each other, and they felt confident that the peculiar circumstances of the present eventful period would, on consideration, induce the Society at large, when assembled, to sanction the original resolution of the council, and to relax the rule as far as they were called upon to do so. Accordingly it was ordered that the Secretary be directed to call a general meeting of the Society for Wednesday, the 11th inst., to take the above subjects into consideration.

Farmers' Clubs.

London, *Nov. 2: The Best and most Economical mode of Thrashing Grain Crops.*—Mr. Hales, of Writtle, the Chairman, said—The point will resolve itself into two heads, namely, the "best mode" and the "most economical mode" of thrashing; and they will be found to be perfectly separate parts of the question; for that mode which is the best is not always the most economical, neither is that which is the most economical always the best. The great recommendation of thrashing with the flail is that it affords employment for the labourer when there is no other for him, and that there is less waste of straw and chaff. The chaff is also much better. There are some kinds of grain which cannot be thrashed in any other way than by hand, without injuring it; this is especially the case with Barley which is intended to be used for malting; and I know that many maltsters will not buy Barley thrashed by machine, or, if they do, only at a considerable reduction in price, as they assert that the action of the machine injures the sprouting powers of the grain. With regard to the economical branch of the question, I think the cost of thrashing varies very little whether we use the hand, or whether we employ horses, or steam, or wind, or water power. So far as my calculations go, I think the cost of thrashing by machinery rather more than the cost of doing it by the flail; but if we take the long period which this mode occupies, and the depredations to which we are liable from the labourer—for, however watchful we may be, we are liable to great depredations in this way—of that fact we have the evidence of numerous instances in which robbery has been carried on to a great extent without exciting the least suspicion, until all at once the truth has burst upon the conviction of the sufferers. The slowness is a great objection no doubt. At this time of the year, for instance, when all the labourers that can be mustered are wanted for getting in the seed, a thrashing-machine becomes absolutely necessary to enable the farmer to obtain a sufficient quantity of corn thrashed. But then, with regard to thrashing by machinery, I think that throughout the eastern counties it would be almost impossible to adopt it without extending the buildings; and as the buildings for hand-thrashing are already formed, and machinery is not in general use, I do not know how far it might be advantageous. Our general custom, when we do not use the flail, is to have a portable machine, which is taken about from place to place by the hour. There are two descriptions of machine; the horse-power machine, and the hand thrashing-machine, which has lately come into use. The horse-power machines, I think, are very inefficient; and there are very few of them but what injure the straw. Some of them not only injure, but absolutely destroy it, for every marketable purpose; and they, moreover, injure the grain. I have myself lately been thrashing by machine, and I am quite satisfied that the grain was considerably injured. If the machine was not placed sufficiently close, then the grain was not thrashed out of the ear; and, if it was, then the grain became broken. It is a great point that these machines should be so constructed that they shall not break the grain, and yet thrash it out clean. The machines recently constructed were without rollers; now, he recollected that when rollers were used, the machines thrashed much better than now. It might be that the rollers held the straw long enough to thrash all the grain out. They did not thrash quite so much per day as the modern machines; but, as the latter frequently depreciated the value of the grain 50 per cent. (!) and the straw 20 per cent., he thought the comparison was greatly in favour of those with rollers instead of beaters. It must be remembered, also, that in Essex we have a greater redundancy of labour than in other counties; the labourers have not been absorbed by railways and other works in this county as in some parts of England. The employment of horse-labour has in many instances deprived the labourers of their ordinary sources of employment in the winter months; and, in consideration of this state of things, many farmers have discontinued the use of the horse-power machine, and adopted the hand-power machine, by which, with two men, they can thrash from 4 to 6 qrs. of corn a day, with as much advantage as when they formerly used the horse-power machine. There is this great advantage attending the use of the hand-machines: that in wet weather you can set a number of men to work at it, and you cannot very well do that with the flail or the fixed horse-power machine. Again, if you want the men to work in the fields, they can discontinue their thrashing at any period; and the hand-machine being placed in the barn, there is no injury done to the Wheat by the humidity of the atmosphere; which often, under other circumstances, renders it much depreciated for marketable purposes. This small machine, moreover, is so constructed that it does not break the straw so much as the larger descriptions of machine do. The question is, "the best and most economical mode," and I certainly hold that thrashing by horse or steam-power is the most "economical;" but whether it is the "best" is another thing. I think the best is that which is conducted by manual labour; for I have never found any plan to succeed so well as the common mode of thrashing with the flail (that is to say, when you can attend to the men yourself, and see the work well done). But if you cannot do this, why the loss which you sustain, either by their not thrashing out sufficiently, or by their taking part of the grain home with them at night, will prevent its being the most economical mode. I confess that my corn rises better from the machine than from the flail, although it certainly does not rise in quite so clean a condition. The greatest of all objections to the use of the flail is, perhaps, the opportunities which it gives for depredation.

Mr. Atchinson said, I do not quite agree with the remarks of our Chairman, to the effect that the grain rises cleaner from the flail than from the machine; for I have taken it up and rubbed it, for the purpose of ascertaining, and I have found it more clean from the machine than from the flail. At the same time, I admit that it is our bounden duty to employ the labourer as much as we can. I agree with our Chairman in what he says of the advantages of being able to tell our labourers to leave their work in the field in wet weather, and go to threshing. But when I consider the cost of the machine (and I charge myself with the same amount as any one would be willing to pay me for doing it), I think that flail-thrashing comes as cheap in the end as machine-thrashing. After I have thrashed out the Wheat, I have the straw bound 4oo; the men are bound to tie it up in trusses. I put four men, for instance, to work in this way, and I find that they will not bind me more than 36 lbs. to a truss, so that they earn me but 18d., while I pay 2s. for it. If therefore I take it to market, I must lose 6d. per truss. My principle, however, is to cut it up and feed the cattle with it; in fact, when I compare thrashing with the hand-machine and thrashing by manual labour, I find that the former profits me nothing; and straw which has been thrashed by machine will not fetch so much in the market by 4s. as that which has been thrashed by flail. No one, I think, if he could afford to wait, could do better than employ the labourer to thrash by flail. But there are times and seasons when prices fluctuate, and it becomes the farmer, like other people, to take advantage of the markets; and if he can thrash out four times as much by the machine as he can by hand, why of course he is perfectly justified in doing so. We must, nevertheless, come to this question at last, "How are our labourers to live?" and in order to apportion the labour to the mouths which have to be fed, we had better use machinery as little as we can, if we consider the general good of society.

Mr. Hutley: For my own part I am not a machine-man; on the contrary, all the corn I grow I have thrashed with the flail, and I can certainly speak more in favour of the flail than of the machine. I think by using the flail I can thrash corn far more economically than by any other means. In fact, I find manual labour the cheapest. With regard to the employment of horse-power machinery for thrashing, I look upon it that the horses can be employed to much greater advantage in other ways; for if you take 9 or 10 horses away from your farm, for the purpose of thrashing, you do not know what injury may be done to the land in the meanwhile. My conviction is, that you can thrash a great deal cheaper with the flail; and I am satisfied that if you go into the figures of the question, you will find it to be so. A friend of my brother has a machine which goes with eight horses, and at the time he erected it, he fancied his neighbours would bring their corn to him to be thrashed; but, unfortunately, he forgot to make any calculation about the expense of carrying back the straw. The consequence is, that his corn, which might be thrashed for about 1s., costs him double that sum. Now, economy is everything. To employ horse-power just at seed time, when you want the horses upon the land, will never answer. If you can erect a steam-power, then machinery is all very well; but if you cannot, why then it must be injurious to use machinery at all. In some cases it is found that at certain times we cannot get labour, and therefore it is necessary. For my own part I always protect myself; I never want to go to the labour-market; I always have recourse to my own labourers, because I always have them in my barn; but I know that, with many persons, it is found difficult to obtain labourers, as, from the new and different modes of cultivation, from the vast sources of employment open to them in the railroad and mining districts, they get away from the old agricultural districts; in fact, they are forced to think and act for themselves. Taking all the circumstances of the question into consideration, I am disposed to think that thrashing with the flail, or manual labour, is the best.

The Chairman.—I think it costs about the same money, in one case or the other, namely about 3s. per eight bushels, and a shilling a load more for binding the straw.

Mr. Atchinson.—Why I am paying at this moment 4s. a quarter for thrashing, and 1s. 6d. a load for binding.

The Chairman.—I was speaking of the average cost of thrashing.

Mr. Bell.—I have just been paying for 13 days' labour to one man, who has thrashed and dressed 14 quarters of Wheat: that is equal to 22s. or 23s. a week.

Mr. Morton.—I am quite convinced, with regard to this subject, that the most economical mode is the best, and the mode which I have adopted is that of doing it by steam-engine. After reckoning five per cent. on the cost of the machinery, besides the amount for repairs, the cost of coals, and the wages of the men, women, and boys; my cost for thrashing Wheat has been about 1s. 3d. per quarter. The engine consumes 70lbs. of coals an hour, and it takes an hour and a half to get the steam up. I employ three men, five women, and two boys; with these I thrash clean and sack the grain. The most I ever did was 46 sacks in 7½ hours. I have already thrashed 400 quarters, and it would have been quite impossible to do that with the flail. I only thrash when the weather is dry, and it is done as fast as it can be carried into the barn close by.

During the conversation which ensued, it was stated that this corn is stacked at the end of the barn in two rows of ricks, with a railroad between them. The Wheat is grown on 120 acres. The labourers constantly employed on the farm are equal to 20, viz., 12 men, 6 women, and 4 boys.

Mr. Bell.—I can fully bear Mr. Morton out in all he has said of the advantages of employing the steam-engine for the purpose of thrashing; for I have had plenty of opportunities of observing them. The steam-engine is very generally used in Lincolnshire; I have followed the same mode as that alluded to, of getting the steam-engine up by the side of the stack, and thrashing out the corn. I have thrashed 120 quarters of Wheat in 26 hours. One great consideration is the extent of work which can be done without the aid of horses.

Mr. Fisher Hobbs.—I am very glad that this discussion should have taken the direction which it has; for I was afraid it would go forward to the world that this Club was recommending the farmer to go on in the old jog-trot way in the use of the flail. I have always found that those who used machinery as much as possible, and not those who used it as little as possible, as some gentlemen have been recommending to-night, were those who employed the greatest number of labourers. There are many advantages in the mode of thrashing by machinery over that of the flail. For you not only get the corn cleaner—decidedly cleaner—but it also gives the opportunity of selecting the most suitable period for thrashing out that corn and sending it to market. It also gives us the power of thrashing out a large quantity in a short period. I know of one machine which will thrash out 50 quarters of Wheat in a day; in fact, I am acquainted with two instances of machines where eight horses are used, which will thrash out upwards of 50 quarters in a day; and with regard to damage done by breakage, that will not happen with the more modern and improved machines. I admit the chaff and straw are not cut in the same time. The argument which was used just now with regard to one's not always being able to get labourers for flail-thrashing, I think is one of some force; for it is no doubt true that it often happens that one cannot get men to carry out the operations of the farm. In these operations we always want one or two skilful and honest men, upon whom we can depend, to place over the mere casual labourers; in that case we can employ young men, or, as Mr. Morton says he does, even women. But in Essex we cannot employ women; they won't work.

Mr Atcheson.—A great deal of the injury which is done to the corn in the way of breakage, and is attributed to the action of the machines, I have no doubt is caused by the men walking over it with their heavy hob nailed boots or shoes; and this is easily obviated by making them wear slippers while engaged in this work. The loss which sometimes ensues from this cause is nearly ten per cent.

Mr. Oakley.—I think that we ought to bear in mind the different positions of different farmers before we call this the best system or that the best system. For instance, I was driven to the use of machinery in this way: I am farming in the neighbourhood of Chatham dockyard, in which there has of late been so great a demand for labourers as to take all our surplus labour. Last Michaelmas I lost ten very good labourers, who left me because they could get 9d. a day more in the dockyard than I could pay them. They were perfectly justified; of course we should all do the same. But I was driven to defend myself, and I did so by the adoption of machinery. Mr. Garrett succeeded in constructing a machine which would thrash the corn without injuring the straw. This I use, and my straw goes to market as fast as it can be tied up.

The Chairman said—I think we can come to no conclusive resolution upon the relative merits of thrashing by machinery and thrashing with the flail, as the mode must always be adapted to circumstances. With regard to the question of economy, there appears to be little difference between the cost of thrashing by horse-power and thrashing by manual labour; but if you are in a position to avail yourselves of the steam-engine as Mr. Morton proposes, then there is doubtless a great saving of expense; but, unfortunately, it so happens that the majority of tenant farmers are so situated with regard to their tenure, that it is impossible, or if not impossible it would not be prudent, to go to the expense of 200*l.* or 300*l.* in erecting machinery; and they do not find the landlords willing to do it for them.

Mr. Fisher Hobbs proposed the following resolution, which was seconded by Mr. Oakley:—"That it is the opinion of this meeting that the application of machinery by water, steam, or horse-power, to the general purposes of thrashing corn, is more economical and advantageous than the common mode of thrashing with the flail by manual labour."

Farm Memoranda.

Agricultural Institute of Wurtemburg.—The estate and castle bearing the name of Hohenheim, were appropriated to their present use in 1817. They had previously been in the possession of noted families, and at one time, that of the Grand Duke Charles. Royalty had planned and executed with no small measure of taste, the division of the grounds, and the Institution of Agriculture commenced. Few estates could have been selected combining so many advantages for the purposes to which this was destined. 788 English acres are spread irregularly over a broad mound, and through a valley upon one side, the whole length of which is traversed by a stream sufficiently large for milling purposes. Near the top of the mound stands the castle and connected buildings, which, with the court-yards, have a length of 1600, and a depth of 540 feet. The various apartments of this immense establishment furnish abundant room for the residence of the faculty, pupils, and labourers; also rooms for instruction, for the mineralogical, zoological, model, and other collections—the housing of stock and grain, fruit, and other farm produce—for the carrying forward the different kinds of manufacture—waggons, ploughs, machines, &c., with the sugar, alcohol, starch, and vinegar production. Its distance from Stutgart is about 6 miles; sufficiently near to enjoy all the advantages of a ready market, and command at the same time a prompt supply of the wants of the institution. The whole farm is cut into several lesser divisions, each bearing another name. These are again subdivided and numbered. There being no hedges, the limits are furrows between monuments at the opposite extremes. The lots given to experiments, contain each precisely one-fourth of an acre (Wurtemburg); and every fact relating to the development of each crop, especially the amount of seed, manure, and labour bestowed, and each return, are noted. Besides these fields, upon which almost every variety of crop is grown,—if not in the same year, in successive years,—nurseries of fruit and exotic trees, orchards, flower and kitchen gardens, pasture lands, pleasure grounds, and in general, all the usual, and even unusual features of the best farms to be met with. In the cultivation and improvements, the implements esteemed in the institution the best, are employed. The stock consists of sheep about 1100; cattle, mostly cows, nearly 100; breeding mares, 10; besides a number of working cattle and horses. The sheep are Merino and Saxon—looking finely. They are under the control of one principal shepherd and several assistants, each of whom has one or two dogs. The flocks are pastured in summer, but housed regularly at night through the whole year. Each sheep is numbered by a system of ear-marking of great simplicity, and its fleece is every year weighed. The whole flock, at intervals of a few weeks, is weighed in a Fairbank's scales. The cows are of the Seminthal breed from Switzerland. They are said to have certain excellences; though their appearance in the stall was altogether indifferent. They are stalled through the year. I have already mentioned, if I remember right, that the herd of cattle is considered as a manure manufactory, and in this light subserving as important, if not indeed a more important end, than in their daily supplies of milk. I find it difficult to appreciate this statement made to me, though it is obvious that every source of manure is gleaned with a care of which, in the generally (as yet) rich lands of the new world, we know nothing. The cow stable is a hall of more than 100 feet in length, and at least 20 feet high. The cattle stand facing each other from opposite sides of a cut-stone platform, about 2½ feet in elevation. They are chained to a manger immediately attached to the platform. Their fodder is spread before them, and by no possibility comes to the floor of paved stone. Several cows, steers, and yearling heifers, were fed each apart from all the others, the fodder being weighed before, and the excess gathered up after eating, also weighed. These cattle are severally weighed at certain intervals, and in this manner the value of different kinds of fodder is ascertained. The amount of milk from each cow is measured once a month. Indeed the whole system is arranged with a great degree of scientific purpose. The breeding mares are good selections, I understand, from the common stock and English crosses. The foals, through the generosity of the present king, are derived partly from thorough Arabian stallions, and partly from valuable native stock. The stalls for the dams are about 15 feet square, in which the occupants remain the early part of the day and night untied. The colts and fillies occupy larger pens where several are together. All the results of the different schemes of experimenting, in growing roots, grains, fruits, exotic woods, in the treatment of stock, and in the determination of the value of fodder, are published in a weekly agricultural paper, edited by one of the faculty. . . . .

The faculty consists of a

Director, who lectures upon the productions of the animal kingdom, and the general plan of agriculture pursued at Hohenheim.
Professor of Agriculture.
Professor of Forest Science, who supervises the forest lands belonging to the estates. There is in this department an assistant.
Professor of Mathematics and Physics.
Professor of Chemistry and Natural History.
Professor of Technology and Instructor in the Technical Laboratory.
Teacher of Farriery.
Teacher of Field Labour, Ploughing, Hoeing, Spading, &c.
Teacher of Nursery and Orchard Culture.
Teacher of Machine Drawing.
Assistant to the Cashier, Book-keeper, &c.
Gardener and Smiths.

The course of instruction is upon the plan of a German university. The professor gives lectures which are attended as largely or as indifferently as the students please. Having decided at the commencement of a term, however, which lectures they will attend, these they are required to hear, and, at the conclusion of the course, to sustain a rigid examination upon them, and the general subject upon which they treat, in order to secure their diploma. As there are 94 lectures, weekly, in winter, and 85 in summer, it is obvious that less than a 3 years' course would be imperfect. Candidates, as the students are called, are admitted for less periods—for a term, I think. Their qualifications at universities, before entering, will naturally render some of the courses unnecessary. Most of them have completed what would be considered a college course, with us, and many have completed an university course, previous to entering. They must be 18 years of age. The practical illustrations of the farm and its appendages are witnessed in the course of the year. Manual labour of no description is required, though instruction in the different kinds of handiwork is practically received. . . . .

In general, in the French and German institutions, one of the schemes of professional life is to furnish facilities for scientific advancement. The world is thus benefited, and though the sphere of instruction may thereby be more limited, the knowledge imparted will be proportionally more profound. This feature, to this moment characterising scarcely an institution in America, is not kept in view in the apportioning of duty among the departments of instruction at Hohenheim. Were one to ask what has roused universal attention in the last 20 years to the subject of directing all processes of art by science, and in the last 8 years of improving agriculture by drawing aid from the same source, the answer would come from a few professional chairs, where men of capacity, industry, and energy, have been provided with conveniences for prosecuting scientific research.—*K. N. Horsford, in the Albany Cultivator.*

Miscellaneous.

Experiments concerning the Theory of Manures. By M. Frederick Kuhlman.—The author has undertaken a series of experiments with a view of resolving the following questions:—1. Does the nitrous portion of a manure, independent of its mineral agents, determine the degree of activity of this manure on vegetation? What are the circumstances under which this proportionality does not exist? 2. When nitrates are employed as manure, do they owe a portion of their action to the base, or must their degree of influence be referred exclusively, or, at all events, in great part, to the nitrogen of their contained nitric acid? 3. Seeing that the intervention of phosphates in vegetation cannot be denied, inasmuch as they invariably exist in the ashes of vegetables, and sometimes in great quantity, must it be concluded that these salts, in a separate condition, are active fertilising agents, or is this property only exercised when they are in combination with nitrogenised products? 4. In various organic manures commonly in use there are found various non-nitrogenous matters. Do these play any important part in fertilization? or, in other words, do there exist manures formed of non-azotised organic matters, which are yet endowed with any energy of action? For example, does the oily portion of Linseed-cake contribute towards the activity of a manure? 5. Does the beneficial influence of ammoniacal salts and nitrates extend to a period after the first crop? What is the limit of duration of these salts' action: Experiments adapted to the resolution of the foregoing questions have given the following results, which are arranged in a tabular form:—

Nos.	Nature of Manure employed.	Quantity per Hectare.	Result obtained. In Hay.	Result obtained. After grass.	Result obtained. Total.	Surplus from the Manure. In Hay.	Surplus from the Manure. After grass.	Surplus from the Manure. Total.	Nitrogen in 100 parts of Manure.	Exceeding the Result furnished by 100 parts of Nitrogen contained in the Manure.
1	Any (?) Nil manure	250	2427k	1193k	3620k	(?)				
2	Ammoniacal liquor of Gas-works, saturated by hydrochlorate of lime, containing in sal ammoniac (*)	250	6511	3879	9995	5163k	1969k	6963k	26.4	6916
3	Sulphate of ammonia (*)	250	3047	1617	5664	1520	224	1744	20.96	4152
4	Nitrate of soda (*)	250	3467	1838	5305	1440	450	1890	15.74	3710
5	Dry nitrate of lime (*)	250	3017	2030	5747	994	1577	2571	17.00	
6	Chloride of calcium	250	2447	1413	3860					
7	Cryst. phosphate of soda	250	2602	1693	4295					
8	Bone ash	250	2855	1680	4535					
9	Bone Gelatine (†)	250	4180	2290	6685	1761	910	2563	16.51	3104
10	Guano of Peru	250	4090	2270	6360	1463	877	2340	4.98	8500
11	Guano of Peru	500	6440	3600	10040	1011	5738	1549	4.98	10,595
12	Linseed Cake	250	4459	2519	6978	590	940	1530	5.20	1442
13	Oil of colza	250	2447	1413	3860	250	250	500		
14	Oil of colza	500	2602	1693	4295					
15	Pecala	250	2855	1680	3753					
16	Pecala	500	4180	2290	6685					
17	Glucose	250	4090	2270	6360					
		500	6440	3600	10040					
		250	2447	1413	3860					
		500	2602	1693	4295					
		250	2855	1680	3753					
		500	4180	2290	6685					
		250	4090	2270	6360					
		500	6440	3600	10040					
		250	2447	1413	3860					
		500	2602	1693	4295					
		250	2855	1680	3753					
		500	4180	2290	6685					
		250	4090	2270	6360					
		500	6440	3600	10040					
		250	2267	1586	3853					
		500	3333	1114	3447					

* Calculated from the mean weight of Grass obtained from unmanured plots.
† Representing 65 per cent. of pure and dry salts, &c.
‡ Representing 30 per cent. of dry gelatine.

The author, having obtained the results indicated above, and made his deductions from them, finishes his task with some economical considerations. "When," says he, "the question is examined of the utility of ammoniacal salts and nitrates as manures, due regard being had to their price, the following results are arrived at:—The sulphate of ammonia is worth in commerce, at the present time, 52 francs per 100 kilogrammes; hence, as 250 kilogrammes of this salt, having cost 130 francs, yield an excess of result of 1520 kilogrammes in hay and 221 kilogrammes in the after crop; and regarding the hay as at 7 francs, and the after-crop at 100 kilogrammes, the product is arrived at of 115 fr. 36 c., a result which shows a loss of 14 fr. 64 c. 250 kilogrammes of nitrate of soda, of which the price is 45 fr. per 100 kilogrammes, have yielded an excess of result of 1440 kilogrammes of after-grass, which, at the price above-mentioned, would yield a product of 118 francs, and, consequently, a loss of 2 francs. It is scarcely necessary to remark, that these calculations are susceptible of a variation commensurate with the fluctuation in price of saline

matters, the above deductions merely relating to the actual conditions of the time present. It is, however, an important conclusion, deducible from these experiments, that the time has nearly arrived when sulphate of ammonia will be available as a manure, even for crops of little value.* With sulphate of ammonia at 46 francs per 100 kilogrammes, the excess of result in hay and after-crop would pay the price of the salt. There can be no doubt that in a little time the development given to the manufacture of sulphate of ammonia from putrifying urine, or gas liquor, will bring down the price of the salt to this rate, and then there will be no limits to the employment of this article. Until that period arrives, the liquid condensed in our works must supply agriculture with the salt. To this end the above-mentioned liquid may be saturated by an acid, decomposed by plaster, by chloride of calcium, chloride of manganese, &c. In this manner I have prepared for many years active and economical manures. As it regards nitrate of soda, I have demonstrated that we are already nearly arrived at those limits when the result will counterbalance the expense of its employment—a result which is due, in great measure, to a proceeding which has been taken by Government, and concerning which I had strongly solicited the Director-General of Customs, relying on the results of my experiments. I proposed the suppression of duty altogether, as a measure that would be completely effectual. However, the duty has only been remitted to the extent of one-half, this advantage being exclusively conceded to products directly transported from the South Sea in French vessels. In this resource there is a double object—a favour accorded to our flag, and also an encouragement to agriculture. But the results will not be very profitable until the duty is removed altogether, for then no longer will our vessels transport merely two or three millions of kilogrammes of nitrate, but double that quantity, nay, perhaps, triple. Then only will agriculture profit by this salt, and will open an application of it that will be next to unlimited. The Director-General of Customs, having seen the bearing of my demand, made me understand that I might calculate on his support towards accomplishing my object, namely the untaxed importation of nitrate of soda for the purposes of agriculture alone; and the suggestion was thrown out that it might be mixed before importation with some substance that would render its employment in the manufacture impossible. The substance which occurred to me as available for this substance was common salt, ten parts of which added to 100 parts of nitrate of soda would render the latter unfit for the manufacture of sulphuric and nitric acids. Of the former, because it it would destroy the leaden chambers and platinum vessels used in this operation; and by the latter, because the salt added would not only yield hydrochloric acid as a contamination, but would effect the decomposition of a portion of nitric acid, sufficiently considerable to prevent altogether the employment of nitrate of soda for this purpose. On the other hand, the operation of separating the two salts by the process of crystallization, in order that they might be separately employed, would be attended with many difficulties, the benefit of this operation being already diminished by the actual reduced duty of the nitrate, namely 7f. 50c. the 100 kilogrammes; moreover, the operation is attended with certain difficulties due to the little difference between the solubility of the two salts. In short, there seems no reason why the fraudulent use of nitrate of soda in manufactures might not be altogether prevented by the addition of charcoal or tar, in the proportion of one or two per cent to the mixture of nitrate and common salt.—*Compt. Rend. Acad. des Sciences, Séance Août* 17. *Quoted in the Pharmaceutical Times.*

Metropolitan Sewage Manure Company: *Analysis of Evidence.*— *Mr. Dickinson's evidence before the Select Committee on Metropolitan Sewage Manure*:—It (the liquid manure from the stable) is conveyed to this tank, from which it is pumped into a water-cart, conveyed and mixed with two parts of water, if the temperature is as to-day; but if it were lower, we should mix it with one part of water; and in the winter season, we should put it on neat, to raise the temperature of the earth; the result of which has been, that I grew, the year before last, nine or ten crops of valuable Grass. Upon the same ground the soil was a surface of clay, with a subsoil of clay, so bad that the Norfolk man said, "I would not have your farm as a freehold;" and the Lincolnshire man said, "I would not give you 12*s.* an acre for it, if it was at my own door." The first was less than three quarters of an acre; that was mown nine or ten times the year before last, in the course of 12 months. The Grass increased in height as the temperature of the atmosphere. Some of these crops were 3 feet high, some of them more than 3 feet. They varied from 10 inches or a foot, up to 3 feet 6 inches high. In the present year, in January, was cut the first crop, which weighed 21lbs. per yard, upwards of four tons per acre. The crop has increased in height every cutting since. The fifth is now growing upon the ground; the fourth is cut. I should say the second cutting was nearly 20 inches high. I did not weigh that; I should think it twice the weight of the other, or more than eight tons of the green Grass. The third and fourth have been greater still. Both in May and June the quantity of cuttings was beyond eight tons each time. If I were to state 12 tons, I should be within the truth, I am certain. This matter is so often disbelieved that I am rather cautious of saying what really does take place. They (the Oats and Tares) were so wonderful after the Grass, that I took them as samples to the agricultural show at Bewerley; and the Yorkshiremen were astonished beyond measure at the Grass report. Their argument was this: "You have exhausted your soil." I said, "I was aware that you would say so, and therefore I have brought the plants of the Tares and the Oats." The number of grains was astounding, so that there might have been in the earth the remains of the power of this urine used to the Grass before. From 3000 to 3500 gallons of water are sufficient for an acre. I calculate 1100 gallons of urine and 2200 of water. Four acres kept 100 horses in Grass-food till I was obliged to shut up my Grass for seed. I have grown a yard of Grass in 21 days.

* All the experiments having been made in an argillaceous soil, the conclusions drawn from them only apply absolutely to land of this nature. It will easily be comprehended that a chalk soil may occasion a more rapid decomposition of ammoniacal salts with the evolution of ammoniacal gas.

Notices to Correspondents.

BLACKSMITHS' CHARGES, *&c.*—*Barnard*—We pay 7*l.* and the hauling of a load of coals for every pair of horses, and for that the blacksmith shoes, and keeps a plough and pair of harrows, and horse hoe and stable fork in repair. The saddler's bill may be compounded for at 1*l.* per pair of horses. Ten per cent on carts and other wooden implements will keep them good. These things ought to have been attended to by "M. S." in his first scheme. The second being a spade husbandry farm did not need such outlay. As regards your bailiff's salary, it must be charged or not upon the farm according to your object. If you wish to ascertain the *profits* of your farming, his salary, the market value of the skill requisite to the management of the business, must be deducted. If, however, you merely wish to ascertain the amount of your income as farmer, then his salary should not be deducted on the ground which he himself urges. Very many farmers never see any *profit*, and they get very poor *remuneration for their skill*. This may, however, in some instances, be because of the little skill there is to be remunerated.

DRAUGHT OXEN *J B Warren*—They are "brought under the yoke" by exercise along with experienced hands. We will endeavour to get information for you.

EARLY PEAS—*S Fisher*—Apply to any wholesale seedsman. See our advertising columns. Sow in March about 2 bushels per acre, in rows wide enough to permit a thorough hoeing of the land, say with an interval of 1 foot, and you may expect to harvest your crop in July; if a good one upwards of 30 bushels per acre.

ILLUSTRATED ADVERTISEMENTS. *T I M* The difficulty lies in want of room

LINCOLN *versus* ESSEX—*G W R*—The former no doubt owes more to art for her agriculture than the latter. Look now at her fens, wolds, and heaths of former days.

LINSEED AS FOOD—*D and S*—See an article on this subject in another column—by Mr. Glover, Secretary, Newcastle Farmers' Club. We grind the Linseed and boil it to a mucilage in water, and then throw it over hay or straw chaff for cattle, first mixing an equal weight of Bean-meal with it. They relish it much; we have never given it to horses.

PLOUGHING MATCHES. *Amicus*—Sorry we have no room for your report, it is very proper for a local paper, not for one which has no *local* interests to look after.

POULTRY. *Liphdale* may succeed in inducing her hens to lay by giving them a *warm* house, and also, some say, by giving them hot things to eat, as Peppercorns, &c

SUNDRIES—*Inquirer*—The prices quoted as those of Smithfield are *estimated*. Newgate prices do not include the offal.—We would sink the drains deeper notwithstanding that the water entered freely at a depth of 6 inches, because it would benefit the subsoil if we could induce the rain-water to go through it instead of over it.—Rooks may be poisoned by doctored seed, but you may thus poison pheasants and partridges too.—Grease is the best thing to apply to the friction parts of the Utey cultivator; it will not drop and waste like oil. —After harrowing a Clover lea, unless it has been particularly well ploughed—and with a skim coulter, too—there will always be scraps of turf lying about. They will do no harm. —There is no advantage in cutting Swedes too small for cattle. Gardener's cutter cuts them too small. We once saw a cutter which turned either way, and cut in the one case slices for cattle, and in the other strips for sheep. Swedes are best given to pigs when boiled.

WHEAT-SOWING. *F B A*—The Turnip blades will entirely wither away in about a fortnight. It matters not *then* whether you plough them in or not. If your land is already too loose and rich, and you cannot wait till the leaves wither, you had better remove them.

ERRATUM. In the article on "Diseases of Poultry," page 746, "D. S. E" intended in the sentence commencing "This extreme susceptibility, &c." to state that the cause of this susceptibility in his opinion is their "extraordinary plethoric habit" rendering them liable in every climate in which he has travelled to inflammatory and catarrhal complaints.

** Communications reaching town after Wednesday cannot be answered the same week.

Markets.

POTATOES.—SOUTHWARK, WATERSIDE, Nov. 16.

The supply to this Market is still moderate, yet the demand is very limited; but it is generally believed that the Potatoes from the Midland Districts, which have liberally supplied the Town Market of late, are nearly exhausted, in that case there is but little doubt but our prices will improve shortly.

York Reds, 140s to 150s	Do Kidneys, 120s
York Regents, 120s to 160s	Kent and Essex Regents, 160s to 170s
Do. Shaws, 110s to 130s	Do. Shaws, 120s
Lincolnshire Regents, 120s to 140s	Do. Kidneys, 140s
Do. Shaws, 120s	French, 110s to 140s

RICHARD HARRIS.

SMITHFIELD MONDAY, Nov. 16.—Per Stone of 8 lbs.

Ross Beasts, Herefords, &c.	4s	0	to	4s	4		
Best Short Horns	3	10		4	0		
Second quality Beasts	3	0		3	8		
Calves	4	0		4	10		
Best Downs & Half-breds	5	0		5	4		
Ditto (shorn)	—			—			
Best Long-wools	4s	8	to	5s	0		
Ditto (shorn)	—			—			
Kwes and second quality	4	2		4	6		
Ditto (shorn)	—			—			
Lambs	—			—			
Pigs	4	0		5	0		

The supply of Beasts to-day is again very large, and no improvement in the average quality; consequently the choicest descriptions maintain late prices. Second-rate ons are very heavy sale, and although a reduction of fully 2*d* per 8 lbs. was submitted to towards the close, a clearance could not be effected. We have had quite as many Foreigners—the number from Holland, Germany and Sweden, being about 700. There is an increase in the supply of sheep, but the demand is larger; prices, therefore, are not lower. Calves are very plentiful—trade for them is better—a choice one makes very nearly 5*s* Pork trade continues steady.

Beasts, 4089; Sheep and Lambs, 26,880. Calves, 98; Pigs, 813.

FRIDAY, Nov. 20.

The number of Beasts in the Market is large, and trade is exceedingly heavy. Some of the choicest Scots—this description being scarce—make nearly 4*s* 4*d*. Best Short-horns, 3*s* 8*d* to nearly 4*s*. Very little business doing in middling qualities, and many remain unsold—what are disposed of range from 4*s* 10*d* to 3*s* 4*d*. We have more Sheep on offer—trade very dull at a reduction of nearly 4*d* per 8 lbs. Best Downs are making about 5*s*, and Best Long Wools about 4*s* 8*d*. Kwes, &c., 4*s* to 4*s* 4*d*. The supply of foreign Stock is still considerable—comprising nearly 500 Beasts, about 4140 Sheep, and 12 Calves. Calves are lower—5*s* is distinctly the make 4*s* 10*d*—a choice one the general price being 4*s* to 4*s* 4*d*. Trade for Pigs is very slow at late rates.

Beasts, 1665; Sheep and Lambs, 4010; Calves, 190; Pigs, 310.

G. WEST, Smithfield.

COVENT GARDEN, Nov. 21.—A proof of the unusual mildness of the season has lately been exhibited in the Market in the shape of several dishes of Raspberries. These had not been forced; but were samples of a second crop from plants growing in the open air near London. Other fruits as well as Vegetables are plentiful; but trade is far from being brisk. Pine-apples are sufficient for the demand; but Grapes, both English and Foreign, are somewhat scarcer. Apples and Pears have not altered in price since our last report; the latter are rather more plentiful. Oranges are also brought in greater abundance. A few Spanish Melons may yet be obtained. Nuts are sufficient for the demand. Walnuts are scarcer, and there is little demand for Filberts. Lemons are scarce. Of Vegetables, Cabbages, Cauliflowers, &c., are good, and the latter plentiful. Carrots and Turnips have altered but little in price. Beans remain nearly the same as last week. Celery is good in quality. Good Potatoes are scarce. Lettuces and other Salading are good and plentiful; considerable quantities of Horseradish continue to be imported. Cut Flowers chiefly consist of Heaths, Jasmines, Camellias, Pelargoniums, Gardenias, Cacti, Neapolitan Violets, Luculia gratissima, Bignonia radicans, Roman Narcissus, Allamanda cathartica, Fuchsias, Azaleas, and Roses.

FRUITS.

Pine Apple, per lb.,	4s to 7s	Lemons per 100,	10s to 20s
Grapes, Hothouse, per lb.,	3s to 5s	Almonds, per peck,	6s
— Portugal, per lb.,	0*d* to 1s	Sweet Almonds, per lb.,	2s to 3s
Apples, Dess., per bush.,	2s 6*d* to 8s	Filberts, English,	100 lbs., 80s to 90s
— Kitchen,	4s to 6s	Nuts, Cob, per 100 lbs.,	90s to 100s
Pears, per hf.-sieve,	4s to 12s	— Barcelona,	90s
Oranges, per dozen,	2s to 3s	— Brazil,	15s to 16s
— per 100,	14s to 20s	— Spanish,	14s
Berberries, per hf.-sv.,	3s to 7s	Walnuts, per bushel,	16s to 24s
Lemons, per dozen,	1s 6*d* to 3s		

VEGETABLES.

Cabbages, per doz.,	6*d* to 1s 6*d*	Garlic, per lb.,	6*d* to 8*d*
— red, per doz.,	1s to 2s	Spinach, per sieve,	1s to 1s 6*d*
Broccoli, per doz.,	6s to 12s	Asparagus, per 100,	2s to 6s
Cauliflowers, per doz.,	1s to 3s	Scakale per punnet,	2s 6*d* to 3s
Artichokes, per doz.,	2s to 3s	Salsify, p. bundle,	1s to 1s 6*d*
— Jerusalem, p. hf sieve,	1s to 2s	Scorzonera,	1s to 1s 6*d*
French Beans, per hf.-sv.,	1s 6*d* to 2s	Brussels Sprouts, per hf-sv,	1s6*d* to 2s
Sorrel, per hf.-sieve,	6*d* to 9*d*	Lettuce, Cos, per score,	6*d* to 1s
Potatoes, per ton,	4*l* to 8*l*	Tomatoes, per hf.-sv.,	2s to 4s
— cwt.,	3s 6*d* to 4s 6*d*	Endive, per score,	6*d* to 1s
— bushel,	1s 6*d* to 2s 6*d*	Radishes, per 12 bunches,	1s to 1s 6*d*
— Kidney, per bushel,	3s to 4s	Mushrooms, per pottle,	6*d* to 1s 6*d*
Turnips, per doz.,	1s to 2s	Small Salads, per punnet,	6*d* to 9*d*
Red Beet, per doz.,	6*d* to 1s 6*d*	Fennel, per bunch,	3*d* to 6*d*
Horse Radish, per bundle,	1s to 4s	Savory, per bunch,	3*d* to 6*d*
Cucumbers, each,	6*d* to 1s 6*d*	Thyme, per bunch,	3*d*
Leeks, per doz.,	1s to 2s	Watercresses, p. 12 sm. bun.	6*d* to 8*d*
Celery, per bundle,	6*d* to 1s 6*d*	Parsley, per bunch,	1*d* to 3*d*
Carrots, per doz.,	3s to 6s	— Roots, per bundle,	1s to 1s 6*d*
Onions, per bushel,	5s to 6s	Tarragon, per bunch,	3*d*
— Spanish, per doz.,	1s 6*d* to 4s	Mint, green, per bunch,	6*d* to 8*d*
Shallots, per lb.,	6*d* to 10*d*	Marjoram, per bunch,	3*d* to 4*d*

HAY.—Per Load of 36 Trusses.

SMITHFIELD, NOV. 19.

Prime Mead. Hay	70s	to	80s	New Hay	—	to	—
Infr. New & Mowen	50		65	Clover	90		95
				NewClr.	—	to	—
				Straw	30		32s

JOHN COOPER, Salesman.

WHITECHAPEL, NOV. 20.

Fine Old Hay	74s	to	80s	Old Clover	100s	to	108s
Inferior Hay	—		—	Infr	—		—
New Hay	65		75	New Clover	90		100
				Straw	26s	to	32s

CUMBERLAND MARKET, NOV. 18.

Prime Mead. Hay	75s	to	80s	Old Clover	92s	to	92s
Inferior	55		65	Inferior do	80		85
New Hay	—		—	New Clover	—		
				Straw	28s	to	34s

JOSHUA BARNS, Hay Salesman.

HOPS, FRIDAY, NOV. 20.

The Market continues firm without alteration either in demand or prices since last week.

PATTERSONS & SMITH, Hop-Factors.

MARK-LANE, MONDAY, Nov. 16.

The supply of English Wheat this morning was exceedingly small, and taken off at fully the prices of this day se'nnight. Free Foreign met a retail demand at late rates. For Bonded the inquiry has in some degree subsided.—Barley, excepting the very finest, must be written 1*s* per qr lower than last Monday; some of the Foreign being pressed for sale to avoid demurrage.—Beans sell slowly, and the same may be said of Peas of all descriptions.—The demand for Oats has rather improved, but they cannot be quoted higher.—Flour continues in very limited request.—Maize is less inquired after than it has been of late.

BRITISH, PER IMPERIAL QUARTER.	*s.*	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk, White	60	64	Red	52	57
—— Norfolk, Lincolnshire, and Yorkshire	54	60	White	54	62
Barley, Malsing and distilling 27*s* to 28*s*	Chevalier	42	48	Grind.	26	28
Oats, Lincolnshire and Yorkshire	Potands	28	34	Feed	20	29
—— Northumberland and Scotch	Seed	27	30	Potato	22	25
—— Irish	Feed	22	30	Potato	22	24
Malt, pale, ship		—	—			
—— Hertford and Essex		—	—			
Rye		40	44			
Beans, Mazagan, old and new	36 to 41	Tick	32	42	Marrow	38	45
—— Pigeon, Heligoland	44 to 48	Winds	55	70	Longpod	39	45
Peas, White	40 to 44	Maple	42	46	Grey	38	42

ARRIVALS IN THE RIVER LAST WEEK.

Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English 4388 Sks. — Brls.	2907	4168	4732	672	260	380	864
Irish — „ — „	—	—	—	—	—	—	—
Foreign — „ 595 „	10322	13039	—	21934	—	1647	3931

FRIDAY, Nov. 20.

The supplies of all Corn during the week have been moderate. Wheat, both English and Foreign, meets an improved inquiry at Monday's prices.—Flour is held more firmly, but there is not much doing.—Barley barely maintains late rates.—Beans are unaltered in value; Peas a dull sale.—Oats fully support our quotations.—Maize: Floating cargoes of Galatz are in request at 49*s* per qr., and there is some demand for spring shipment.

ARRIVALS THIS WEEK.

	Wheat.	Barley.	Oats.	Flour
English	3490	2980	1890	2150 Sks
Irish	—	—	120	—
Foreign	5770	1580	9340	— brls

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Oct. 10 per Quarter.	55s 10*d*	37s 2*d*	24s 7*d*	34s 9*d*	42s 7*d*	42s 7*d*
— 17	59 10	38 3	26 3	35 3	43 6	47 3
— 24	60 10	40 3	27 6	39 0	45 9	48 10
— 31	61 3	41 9	27 0	41 1	46 1	50 8
Nov. 7	58 3	44 3	27 3	41 5	46 6	50 11
— 14	61 5	44 5	26 9	42 4	46 10	50 10
6 weeks' Aggreg. Aver.	59 3	41 1	26 3	39 3	45 3	49 3
Duties on Foreign Grain	6 0	3 0	1 6	2 0	2 0	3 0

Fluctuations in last six week's Corn Averages.

Pass.	Oct. 10	Oct. 17	Oct. 24	Oct. 31	Nov. 7	Nov. 14
62*s* 3*d*	..	..	..	..	..	..
61 9	..	..	..	..	..	..
61 5	..	..	..	..	..	..
60 10	..	..	..	..	..	..
59 10	..	..	..	..	..	..
56 10	..	..	..	..	..	..

SEEDS, Nov. 16.

Canary	per qr	60s	to 61s	Linseed Cakes, Foreign,	p. ton	9*l* to 11
Caraway	per cwt	40	42	Mustard, White, per bush		7s 8s
Clover, Red, English	—		—	— Superfine	„	— —
— — Foreign	—		—	— Brown	„	9 11
— White, English	—		—	Rapeseed, English, per last		21*l* 24*l*
— — Foreign	—		—	Rape Cakes	per ton	— 6*l*
Coriander	—	16	16	Rapeseed,		
Hempseed	per qr.	34	36	Tares, Eng., winter,	p. bush.	4s 5s6*d*
Linseed	per qr.	51	52	— Foreign	—	4s6*d* 5s
— Baltic	—	49	46	Trefoil	per cwt.	16 19
— Cakes, Eng.	per 1000	£13	5	Turnip (too variable for quotation)		

KINGSFORD AND LAY.

Sales by Auction.

VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE and MORRIS have received instructions to submit to Public Competition by Auction on the premises, Paradise Nursery, Hornsey-road, about the 2d week in December, 1846 (by order of Mr. Pamplin in consequence of the ground being required for other purposes), the whole of the NURSERY STOCK, consisting of the finest Evergreens, Flowering Shrubs, &c.; also some Greenhouse Plants, comprising choice Camellias, Erica, Epacris, Azaleas, &c.—American Nursery, Leytonstone.

TO GENTLEMEN, FLORISTS, and Others.

MESSRS. PROTHEROE and MORRIS will submit to Public Competition, at the Auction Mart, Bartholomew-lane, on Wednesday, November 25, 1846, at 12 o'clock, a first class collection of DUTCH BULBS; comprising very fine double and single Hyacinths, Narcissus, Crocus, Snowdrops, Jonquils, Anemone, Ranunculus, Iris, Gladiolus, &c.; also a splendid assortment of Standard and Dwarf Roses, consisting of all the leading varieties, Rhododendrons and Azaleas well furnished, with bloom buds, &c.—May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

ROSE TREES, CHESNUT PLANTS, &c. &c.

MR. W. TOMPSETT has received instructions from Mr. Hooker to Sell by Auction, on FRIDAY, NOVEMBER 27, 1846, upon his grounds, at BRENCHLEY, KENT, the remainder of the ROSE TREES and other Plants which were left unsold last year, in consequence of the wetness of the days appointed for the sale. The plants consist of 3000 Standard and Half-standard Rose Trees, 4000 Dwarf Roses, 400 large Portugal Laurels, 60,000 very strong Seedling Chesnut Plants, 2 and 3 year old Seedling Quicks and Oaks, 200 Firs of rare kinds, and other plants. The Standard Rose Trees are a selection of the most beautiful kinds, which will be sold in dozens, each dozen containing 12 different sorts. The Dwarf Roses in fifties, of various sorts. The other plants will be divided into small Lots. The sale will commence exactly at 10 o'clock. The grounds are 7 miles from Tunbridge Wells, and 3 from Paddock-wood Station of the Dover Railway.

TO BE LET, EDMONTON NURSERY—Great Bargain—Seven Houses, Pits, &c.; containing about 4000 feet of Glass, about 3000 Plants in pots, remaining Stock in ground, Lease, Cart, Pots, Tools, Fixtures, &c.; for 450l. Term of lease, 21 years; rent of Cottage, Shop, and above two acres of Land, 30l. per annum.—For further particulars apply to Messrs. H. Low, & Co., Clapton; or on the premises.

TO BE DISPOSED OF, the Lease of the CALEDONIAN NURSERY, Caledonian-road, Islington, 27 years unexpired, with Greenhouse, Forcing-house, Pits, Frames, Sheds, Stock, &c. The Ground contains an acre and a half, part of which is let off for more than the rent. The Dwelling House contains three rooms and shop, with a good Seed Business, and an excellent connection of jobbing.—Apply on the premises, or if by letter, post paid.

STEPHENSON and CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority, or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilineur houses to horticulturists, and can refer to the Conservatory attached to the Ranelagh as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,
ANTONY GIBBS and SONS, LONDON;
Wm. JOSEPH MYERS and CO., LIVERPOOL;
And by their Agents,
GIBBS, BRIGHT, and CO., LIVERPOOL and BRISTOL;
COTSWORTH, POWELL, and PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

LAWES' PATENT MANURES.—Turnip Manure, 7l. per ton. Clover Manure, 14l. per ton. Corn Manure 14l. per ton. Superphosphate Lime, 7l. per ton.

A Pamphlet on Artificial Manures will be forwarded to any person enclosing two postage stamps to Mr. WILSON, at Mr. LAWES' Factory, Deptford Creek, London.

GUANO, &c.

MARK POTHERGILL begs to offer the following MANURES on the best terms, viz:
GUANO, PERUVIAN and AFRICAN, direct from Import Warehouses.
Ditto, PATAGONIAN and SALDANHA BAY. Ditto.
SODA ASH, for destruction of Wireworm.
SUPERPHOSPHATE OF LIME (See Royal Agri. Soc. Journal, Vol. vi. Part 2).
GYPSUM (Pure Sulphate of Lime).
BONE DUST and BONE POWDER.
SULPHURIC ACID. CHARCOAL.
PETRE SALT and AGRICULTURAL SALT for Composts.
SILICATES of SODA and POTASH, and all other Manures.
No. 40, Upper Thames-street.
Agent for DINGLE'S HAND SEED-DIBBLE.

KAGENBUSCH and Co.'s REMEDY FOR THE POTATO DISEASE.—Price 6s. per packet, which ensures an acre of sound Potatoes and a large crop.

KAGENBUSCH and Co.'s GERMINATING COMPOUND.—Price 2s. and 4s per packet. The best Steep for Wheat and other Grain; Turnip, Clover, Onion, and all other Seeds and Pulse. This is the gardener's best friend.

KAGENBUSCH and Co's GERMAN SCIENTIFIC MANURES, which fertilise the land without exhausting it, at 30s. per acre for Meadows, once in three years; for Tillage 35s. per acre, and for Hops 40s. per acre, annually. Price 7l. 10s. per ton for Meadows and Tillage, and 9l. per ton for Hops. One ton is sufficient for 4 acres.

These articles are kept at Hibernia Wharf, London-bridge, and Mr. JOSEPH EDWARDS will deliver them to any one bringing the amount in cash.

Manufactured by KAGENBUSCH and Co., Agricultural Chemists, Leeds. Sold by JAMES and Co., Agents for the South of England, 55, King William-street, City; and POTTER, BROTHERS, Agents for the North, Cromford-court, Manchester.

*** Vessels of 50 tons, drawing 5 feet, load at the Works in Leeds, and can ascend the creeks of every port in the Kingdom, so that Dealers or Farmers, and Landed Proprietors, clubbing together, may be supplied direct, at a saving of expence.

A liberal allowance to the Trade.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 68, Dorset-street, Fleet-street, London.

FOR WHEAT, TARES, &c.

THE URATE OF THE LONDON MANURE COMPANY will be found a most valuable Manure for the above crops: it is permanent in its effects, and has stood the test of five seasons with increasing success each year. The Company also supply genuine Peruvian Guano, Gypsum, Superphosphate of Lime, Sulphate and Muriate of Ammonia, Charcoal, Bone Sawdust, Sulphuric Acid, and every Artificial Manure, at the lowest market price.—EDWARD PURSER, Secretary, 40, New Bridge-street, Blackfriars.

NEW INVENTION FOR DIBBLING WHEAT.

Registered in pursuance of the Designs' Copyright



Amendment Acts, 6 & 7 Vic., c. 65, No. 469.

DINGLE'S HAND DIBBLING MACHINE,
FOR DEPOSITING ALL KINDS OF SEED

This Machine is confidently recommended by the Proprietors, which will at the same moment make the Hole, and deliver the exact quantity of Seed, with extreme regularity. It is simple in its construction, and not liable to get out of order.

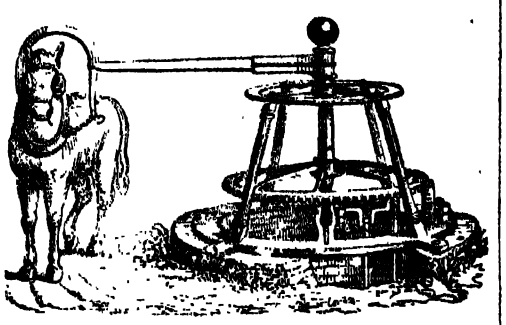
THE DIBBLING POINT IS SO CONSTRUCTED THAT THE SOIL CANNOT CHOKE IT.

*** *The cups are of various sizes for discharging either Wheat, Mangold Wurzel, Barley, Beans, Peas, Vetches, &c.*

Single .. .. Price 40s. each.
Double .. .. " 4l. 10s. "

Testimonials and Circulars, giving descriptions of its working &c. can be had on application to
WILLIAM E RENDLE and Co., Merchants
☞ THE TRADE SUPPLIED.
Plymouth, Nov. 21.

WATER RAISED FROM ANY DEPTH TO ANY HEIGHT FOR THE SUPPLY OF MANSIONS, PUBLIC ESTABLISHMENTS, FARM-YARDS, &c.



T. and S. KNIGHT, 5, Great Suffolk-street, Southwark beg to call the attention of the Nobility, Gentry, Agriculturists, and all who are desirous of having a supply of Water on their own premises, either for domestic or ornamental purposes, to their HYDRAULIC MACHINES for raising water from deep wells, ponds, rivers, &c., by manual or horse-labour, or where a fall of water can be obtained by self-acting water wheels or Hydraulic Rams.

Many years' experience in fixing Hydraulic Machines, enables T. and S. KNIGHT to do so on the most simple and economical plan.

Estimates furnished upon the particulars of the quantity of water required, situation, depth of well, &c., being forwarded to the above address, where machines of various descriptions may be inspected.

Conservatories and other Buildings heated with Hot Water on scientific principles, combined with economical arrangement.

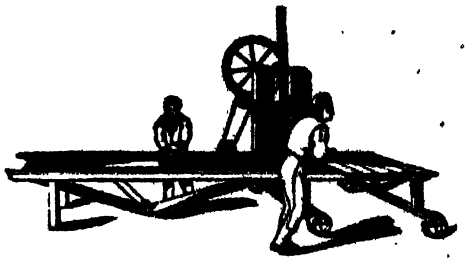
J. LEGG'S IMPROVED SELF-ACTING HYDRAULIC ENGINE.—A Machine to convey water 100 yards, conducting pipe included, 20l. Do. do., 600 yards, 30l. Towns, Fountains, &c., situated on eminences, can be supplied by the above machine. Also HYDRAULIC RAMS on improved principles. An efficient Ram, with supply pipe, and 100 yards of conducting pipe, 15l. Do. do., 500 yards, 40l.; and so on in proportion. Deep-well PUMPS on an improved principle.—N.B. All machines warranted.

Apply to J. Legg, 9, St. Philip's-street, Cheltenham.

TO BRICK AND TILE MAKERS.
BRICK AND TILE MACHINES.

THE AINSLIE PATENT TILE MACHINE COMPANY (JAMES SMITH, Esq., of Deanston, Chairman), invite attention to their improved TILE MACHINE, and to their new Patent Improved Kilns, for drying and burning Bricks and Tiles, by which a saving of from two-thirds to three-fourths of the fuel is effected, and all the articles are burnt equally without loss or damage. The Machines at work and a Model of the Kilns to be seen, and all particulars to be obtained from Mr. JOHN PAYON, Secretary, 123A, Piccadilly, London. Agents wanted.

HATCHER'S BENENDEN TILE MACHINE.



Manufactured and Sold by

COTTAM and HALLEN, 2, WINSLEY-STREET, OXFORD STREET, LONDON.

This is by far the simplest and most efficient Machine for the purpose of making Drain Tiles. Any shape Tile can be made by it. It requires but few hands to work it, namely, two men and two boys. With this amount of labour the produce will be as follows:—

1 in. diameter of Tile,	11,000	1½ in. diameter of Tile,	5,800
1¼ do.	8,000	2½ do.	3,200

As stated by Thomas Law Hodges, Esq., in his communication to the Royal Agricultural Society of England.

The Machine is quite portable, and requires no fixing, but can be moved up and down the drying sheds, thus requiring no extra boys in carrying the tiles, nor are any shelves required in drying. There is no charge for patent dues or license; the purchase of the Machine includes the free use of it.

Price 25l., including four Dies of any pattern or size.

Extra Dies, of any shape or size, 5s. each.

References can be had as above as to where it can be seen in actual use.

Improved Pug-mills, wholly of Iron	£16 16 0
" " Wood	10 10 0
Draining Spades, per set of three, with swan-neck scoop	1 1 0
Improved Drain Level for the use of workmen.. ..	2 5 0

COTTAM'S IMPROVED CLOD CRUSHERS.

The improvements made in these useful Implements consist in the division of the roller into two parts, which greatly facilitates the turning and working of the implement. The frames are made wholly of iron, and are therefore much more durable than those of wood. The prices of these Clod Crushers will be found considerably lower than those usually charged.

5 feet 6 inches long, 17s. 6 feet, 18l. 10s. 6 feet 6 inches, 20l.

Every description of Agricultural Implements, including Grubbers, Ploughs, Harrows, Drills, Dibbles, Weighing Machines for live cattle and farm produce, Chaff Cutting Machines, Churns, &c., and every description of Agricultural and Horticultural Implements, at the Agricultural Repository, Winsley-street, Oxford-street, London.

CAUTION

CHANNEL ISLANDS CATTLE. — Information having been received here that numbers of French Cattle, chiefly the small Brittany breed, have been sold lately in England, as Channel Islands, purchasers are earnestly requested either to write to friends, or to the officers of the Agricultural Committee, who will direct them to respectable dealers. Obtaining animals of our marked superior breed is of equal interest to the buyer as to the seller.

N. LE BEIR, } Honorary Secretaries,
J. S. LAINE, } R. A. S. G.

Guernsey, October 28, 1846.

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton, Draining Engineer to Her Majesty, at Osborne, Isle of Wight; the inventor of a Patent Tile and Pipe Machine (applicable to making Bricks); also a new Machine for taking roots and stones out of clay, both which are to be seen at the Royal Polytechnic Institution, Regent-street,—offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P.S.—Land drained at a fixed sum per acre, including every expense.

LOOMES' PORTABLE CYLINDRICAL STEAM COOKING APPARATUS, for Cooking Roots, Chaff, Corn, Linseed, &c.

Registered According to Act 6 and 7 Vic., Chap. 25.

This Apparatus is remarkable for its compactness, being fixed upon one frame; for its convenience, being portable, and having the steam pan so arranged that whilst not too high to fill, the contents can be discharged into any vessel without first emptying upon the floor; for its economy, from the superior construction of the furnace, and the capability of using any description of fuel; and its simplicity is so great as to render it impossible of derangement.

Price of apparatus capable of cooking one sack, delivered at London and Peterborough, 7l. 7s. Made and Sold Wholesale and Retail, by Mr. STANLEY, Ironmonger, Peterborough.

THE MECHIAN TABLE CUTLERY, warranted, and manufactured by MECHI, No. 4, Leadenhall-street, (fourth house from Cornhill), London. Prices: 3l. 10s. the set of 50 pieces, in balanced ivory handles, full size, and 4l. 10s. in elegant transparent ivory handles, "as per catalogue, gratis." An immense stock of table steels, dish covers, tea trays, cruet frames, decanter stands, tea and coffee pots, real Sheffield plate and German silver articles, desks, dressing cases, work boxes, tea caddies, and plated fruit knives, at a very considerable saving on the old prices. Every article warranted, or the money returned if not approved.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

LIGHT, CHEAP, AND DURABLE ROOFING.

THOMAS JOHN CROGGON, of 8, Laurence-Pountney Hill, Cannon-street, London,
Begs to call the attention of Noblemen, Gentlemen, and the Public, to his

PATENT ASPHALTE FELT, FOR ROOFING,
As adopted by Her Majesty's Woods and Forests, and by the ROYAL AGRICULTURAL SOCIETY OF ENGLAND, on their buildings at Newcastle-on-Tyne, and Hanover-square, London; also, by the leading members of the above and other Agricultural Societies of England, Scotland, and Ireland.

The Price of the Felt is only ONE PENNY PER SQUARE FOOT, being considerably less than half the price of slates, Tiles, Thatch, &c. There is also a very great saving in the wood-work, as the Felt, from its lightness does not require half the weight of timber that slates or tiles do. The Felt can be manufactured of any required length, by 32 inches wide.

THOMAS JOHN CROGGON, 8, Laurence Pountney-hill, Cannon-street, London.

Of whom also may be had Railway Felt, Sheathing Felt for Ships' Bottoms, and Dry Hair Felt for covering Boilers, Steam Pipes, &c.

PHOSPHORIC RAT POISON.—This preparation is offered to the Public with the greatest confidence, being decidedly superior to all those poisons containing arsenic and other minerals. It is most greedily eaten by rats and mice as long as it is offered to them, and invariably proves certain destruction. Prepared only by EDWARD PERSER, 40, Bridge-street, Blackfriars, London. Sold in pots, with full directions for use, at 4s., 8s., and 20s. each.

TODD'S PATENT PROTOXIDE PAINT.—The properties of this Paint are peculiar for preventing iron from oxidation, wood from decay, and masonry from damp; it neither cracks nor blisters with the hottest sun, and is therefore most valuable for Railways, Boilers, Steam, Gas and Water-pipes; Hothouses, Forcing-houses, and for Shipping. Its adhesion is so great to iron and wood that the hardest friction will scarcely remove it. It prevents vegetation on stuccoed buildings, and is not affected by spray of sea water.

PROTOXIDE PAINT is sold ground in oil, and compared with white lead its property of concealing is as 75 to 50, so that one hundred weight is equal to one and half of lead. It works well under the brush, and forms with oil an unctuous and cohesive mixture. If blended with other paints it has a softer tone than white-lead. For houses painted during occupation it is most preferable, being perfectly innocuous. Manufactured by CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

CHEAP AND DURABLE ROOFING.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, the Manufacturers and only Patentees of THE ASPUALTED FELT FOR ROOFING
Houses, Farm Buildings, Shedding, Workshops, and for Garden purposes, to protect plants from Frost.

At the Great National Agricultural Shows, it is this Felt which has been exhibited and obtained the Prize, and is the Felt patronised by

HER MAJESTY'S WOODS AND FORESTS,
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A few Advertisements will be inserted. By Advertisers sending immediately, they will secure a place.

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The Railway Chronicle

Of Saturday, NOVEMBER 14, contains articles on

EVENTS OF THE WEEK.—OPENING OF THE TRENT VALLEY—NEGOTIATION BETWEEN LONDON AND NORTH-WESTERN AND YORKSHIRE COMPANIES—ROUEN AND HAVRE RAILWAY—GAZETTING NEW RAILWAY BOARD—MR. HEYWORTH'S TEMPERANCE LECTURE — EXPERIMENTS ON WROUGHT IRON HOLLOW BEAMS FOR RAILWAY BRIDGES (*with Engravings*)—FIGHTING IN THE AIR ON ACCOUNT OF AN ATMOSPHERIC LINE EXECUTIVE APTITUDE OF GOVERNMENT.

REPORTS OF MEETINGS. Eastern Counties—Newmarket and Chesterford—Wear Valley—Bishop Auckland and Weardale—Herefordshire and Gloucestershire Canal—Wharfdale—Dunstable—Scottish Central—Tours and Nantes—Projected Lines.

OFFICIAL PAPERS.—Actual Working Cost of the Croydon Atmospheric—Evidence before the Select Committee on Railways—Alphabetical List of New Railways for next Session.

Progress of Works—Accidents (with Statistical Tables)—Law Intelligence—Progress of Railway Law—Irish Railway Business for the next Session—Iron Trade Meetings—Tenders for Loans—Contracts—Dividends—Calls—Deposits Returned—Signature of Parliamentary Contracts—Transfer Books Closed—Correspondents—Traffic Table—Share Lists—Foreign ditto—Money Market—Paris Letter—South-Western and Brighton—Amalgamation of the Chester and Birkenhead, and Birkenhead, Lancashire, and Chester Junction—The *Times* blowing hot and cold—New Brunswick—Demerara—Barbadoes—Gossip of the Week.

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CONTENTS OF THE NUMBER FOR SATURDAY LAST, NOVEMBER 14, OF

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Spanish Drama: Lope de Vega and Calderon. By G. H. Lewes.
Rome, Papal and Pagan.
A Poet's Bazaar: from Danish of H. C. Anderson. By C. Beckwith, Esq.
Canada and Canadians in 1846. By Sir R. H. Bonnycastle.
Physical Atlas. By H. Berghaus, and A. K. Johnstone.
German Mythology. [Deutsche Mythologie.] By J. Grimm.
Fauna Antiqua Sivalensis. By Hugh Falconer and Captain P. T. Cautley. Part I. Proboscidea.

Original Papers.—Ballad—Folk Lore (Nisses of Scandinavia and Kobolds of Germany, &c.)—The Logic of Chemistry.

Our Weekly Gossip.—Edinburgh Philosophical Association—Meeting of Health of Towns Associations—Proposed New Bridge over the Thames—Schonbein's Gun Cotton—Sword worn by Nelson at Trafalgar—Rectorship of Glasgow University—Duke of Northumberland's Donation to Durham Observatory—Destruction of "Abbey of Dissentis"—Honours of M. Leverrier—Chinese Work presented to Paris Academy of Sciences—New Journal of Literature, &c., at Rome.

Societies.—ARCHÆOLOGICAL INSTITUTE (Sir R. Westmacott "On Ancient Carving in Ivory, &c.")

Fine Arts.—Guildhall Statues—Monuments in Westminster Abbey.

Fine Art Gossip.—Duke of Wellington's Statue and the Arch—Essays of Mr. Eastlake—The Nelson Column—Large Window in Chapel of Eton College—Provincial Exhibitions—Grand Duke of Weimar's Cabinet of Oriental Coins, &c.—Album presented to Duchess of Montpensier by Royal Family of France.

Music and The Drama.—The Drama in France—Drury Lane (Loretta)—Princess's—Olympic—Surrey.

Musical and Dramatic Gossip.—Mdlle. Fanny Elssler and Roman Pontiff—Rumoured New Theatre for Mr. Macready—Windsor Amateur Choral Society—M. Jullien's Quadrilles—Engagements of Foreign Artists—Foreign Gossip—New Concert Room to Berlin Grand Opera House—Death of Dr. Ries at Bonn.

Miscellanea.—Paris Academy of Sciences—Coincidence connected with Atmospheric Wave—New Houses of Parliament—Five Sovereign Pieces—St. John's Gate, Clerkenwell—Opening of Runic Barrows in Sweden.

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Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their office in Lombard-street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, whereof all Advertisements and Communications are to be addressed to the Editor.—Saturday, November 21, 1846.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 48—1846] SATURDAY, NOVEMBER 28. [PRICE 6d.

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,	Porcelain Sceptre, ditto	7	6
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The TRUE FASTOLFF RASPBERRY, unequalled for its size and flavour and originally sent out by FORTIN and Co can be supplied by them in large or small quantities of the same stock they had the honour of furnishing the Royal Gardens at Windsor and most of the nobility, as well as two awards by the London Horticultural Society They can also supply fine budded Peaches Nectarines, Apricots Plums, Cherries Pears and Apples of the most esteemed kinds warranted true to name

STRAWBERRIES—Dickson's Royal Pine 15s per 100 Prince Alice Maud 10s per 100 British Queen 5s per 100

HARDY STANDARD ROSES 18s to 24s per dozen

FUCHSIA CORALLINA 1s per plant, post free

DAHLIAS fine sorts by name 6s per dozen

LILY OF THE VALLEY 5s per 100, very strong, for blooming next spring

CINERARIA HERBINA SEED from the late extensive collection 1s 6d per 100 seed

FUCHSIA DITTO, DITTO 2s 6d per 100 seeds

For the particulars of their extensive collection of Carnations Picotees and Pinks Camellias new seedling Cinerarias, Tulips Hyacinths China Primulas Auriculas Indian and Chinese Azaleas Fuchsias &c they beg to refer to their Advertisement of the 14th inst as well as to that of the 7th of May

Seamless Pots from Fairyard to Rot Cotton and Hull twice a week to the London Pots

YOUELL and Co Nurserymen Great Yarmouth

THE ARBORETUM QUEENS ELMS FULHAM ROAD BROMPTON

D. A. RAMSAY, NURSERYMAN and LANDSCAPE GARDENER begs to inform Noblemen Gentlemen and the Public in general that he is now taking the Management of GENTLEMEN'S PLEASURE GROUNDS SHRUBBERIES ORNAMENTAL TURF and KITCHEN GARDENS and small Nurseries in the Kentish and Surrey districts

Plans and Estimates submitted for the carrying out all kinds of Ornamental Gardenwork and Planting in any part of the Kingdom

SHOWY HERBACEOUS PLANTS

WOODLANDS NURSERY, MARESFIELD, UCKFIELD, SUSSEX

WM. WOOD AND SON having for several years paid particular attention to the cultivation of HARDY HERBACEOUS PLANTS, during which time they have spared no expence in obtaining all the newest and most esteemed Species and Varieties, they have now the pleasure in offering well assorted collections on the following advantageous terms, when the selection is made by themselves, viz.—

Good showy kinds, all distinct	25s	50s	100s
Superior do	50s	100s	200s
Extra superb and new do	100s	200s	400s

Catalogues of the above are just published, and may be had, GRATIS, on application

Plants packed with each order so as to defray the expenses of carriage, &c.

TYSO AND SONS, Wallingford, Berks, beg to offer of the best quality

TULIPS, 100 Extra fine named sorts	7s.	to 21s.	0 0
*RANUNCULUSES, 100 Ditto	5s.	—	5 0 0
ANEMONES, 50 Splendid Double Ditto	12s.	—	1 1 0
IRISES, 25 fine sorts	12s.	—	1 1 0
CARNATIONS, 25 Superb sorts, in pots	7s.	—	3 0 0
PICOTEES, 25 Ditto	7s.	—	3 0 0
PINKS, 25 Ditto	7s.	—	3 0 0
*RANUNCULUS SEED, in papers	4s.	each,	0 10 0

The articles marked thus * can be forwarded by post.

Descriptive Priced Catalogues for 1847 forwarded on receipt of two postage stamps.

BECK'S SEEDLING PELARGONIUMS, 1845.—The following varieties can be had, good plants, in 5 in pots, delivered free in London, for prepayment only, by Post-office orders on Brentford:—

Amelia	£2 2 0	Resplendent	£1 1 0
Competitor	1 11 6	Gigantic	0 10 6
Hebe's Lip	1 11 6	Sanchus, five plants	1 11 6

Sirius five plants, but smaller, 1l 11s. 6d.

VARIETIES OF 1844.

Arabella	15s 0d.	Rosy Circle	15s 0d.
Desdemona	21 0	Mentor	15 0
Isabella	15 0	Favorite	7 6

Usual Allowance to the Trade.

Worton Cottage, Isleworth.

INVENTORS.

JOHN SUTTON AND SONS having true stocks of the under-mentioned useful kinds, entirely free from disease (owing to their being housed very early before the disease appeared this season) beg to offer them at the following prices —

TRUE ASH-LEAF KIDNEYS	2s 6 per peck
TRUE WALNUT-LEAF KIDNEYS	2 6 ,,

J. S. and Sons take this opportunity of announcing that their crops of Hoxie Grown GARDEN SEEDS, consisting of all the new and improved kinds of Peas, Lettuces, Broccolies, Cabbages, &c. &c., are now ready for delivery and can be had separately at moderate price, or in collections at 2l 2s, 2l 2s, and 1l 1s.—Reading, Berks Nov 28

ROGERS AND SON, NURSERYMEN and CONTRACTING PLANTERS, Southampton, in submitting the following List of NURSERY STOCK, beg to add, the whole are healthy, strong, and well rooted, growing on heath land, in exposed bleak aspects, and well adapted for extensive Forest or Waste land planting. From the extent of their grounds, and the fine growth of the past season, they are enabled to render at the low prices quoted, from which a deduction will be made if ordered in quantities of 100,000, delivered in London by railway, or coastwise by steam vessels :—

SEEDLING FOREST TREES, &c.

Ash	1 year 1s. 6d.	2 years 3s. 6d.	3 years 5s. 0d.	Per 1000.
Beech		,, 4 6		
Birch		,, 5 0		
Spanish Chesnut	,, 10 0	,, 15 0		
Fir, Scotch	,, 1 0	,, 2 0		
,, Pinaster	,, 3 6	,, 4 6		

,, Sea Pine (Pinus maritima), excellent for exposure to the sea, one year, 7s. 6d.; two years, 10s. per 1000; and in small pots to plant out in very exposed situations, or thickening plantations quickly, 50s. per 100.

OAK, English.—The true "Durmast" of the New Forest (Quercus sessiliflora), the most valuable species, producing timber of the largest dimensions; one year, 7s. 6d.; two years, 10s. per 1000.

Common English, three years, 3s. 6d. per 1000.

TRANSPLANTED FOREST TREES, &c.

	1 year.	2 years.	3 years.	
Alder	15s. 0d.	25s. 0d.	35s. 0d.	p. 1000.
Ash	7 6	12 6	25 0	,,
Beech	12 6	25 0	40 0	,,
Birch	10 0	20 0	40 0	,,
Chesnut, Spanish	20 0	30 0	10 0	,,
Elm, Wych, or Scotch	12 6	15 0	40 0	,,
Fir, Scotch	10 0	15 0	25 0	,,
,, Larch	10 0	15 0	25 0	,,
,, Spruce	12 6	20 0	40 0	,,
,, Pinaster	10 0	15 0	25 0	,,
,, Sea Pine	20 0	30 0	40 0	,,
Hazel	15 0	30 0	40 0	,,
Poplar, Black	20 0	40 0	80 0	,,
Oak, Eng. (Durmast)	20 0	30 0	40 0	,,
Sycamore	15 0	30 0	40 0	,,

Willow (Cone well), a new and valuable American species for Cricket or Hop Poles, of rapid growth; one year, 40s.; two years, 60s.; three years, 80s. per 1000.

Laurel ..... 1 year, 20s. 2 years, 40s. 3 years, 80s. p. 1000

Evergreen Privet .. .. 20 ,, 40 ,, 80 ,,

Elder, common black, excellent for sea embankments, 2 to 3 ft. 8s. per 100.

The above Transplanted are from ½ a foot to 2 feet high. Plants of a larger size from 2 feet to 7 feet, for ornament or immediate effect, are from 25s. to 75s. per 100.

RHODODENDRONS.—Excellent for cover, and not subject to the depredations of game, 1 to 2 inches, 30s.; 3 to 4 inches, 60s.; 5 to 6 inches, 80s. per 1000.

,, 1 foot, 15s.; 1½ to 2 feet, 30s. to 50s. per 100.
,, ponticum roseum, 1 to 1½ feet, 40s. to 60s. per 100.
,, Splendid hybrid, 1 foot, 30s. per 100.
,, Scarlet hybrid, 2s. 6d. to 5s. each.
,, Seedling hybrids, 25s per 100.
,, arboreum album, 1 to 2 feet, 5s. each.

These Rhododendrons are all transplanted and well rooted.

Pinus (Abies) Douglasii, in 60 size pots, 2 to 3 inches, from seed, 60s. per doz.; and a few handsome plants in large pots, 3 to 4 feet, from seed, 42s. each.
Kalmia latifolia, ½ foot, 50s.; 1 foot, 75s. per 100.
Clematis azurea, 30s. per 100. Clematis flammula, 25s. per 100.
Bignonia radicans, 6s. per doz.
Aristolochia Sipho, 6s. per doz.
Common China Rose, 25s. per 100.
Perpetual Tree Violet, strong flowering plants, 50s per 100.
Neapolitan Violets, flowering plants, 30s. per 100.
Flowering Thorns, three sorts, 40s. per 100.
Giant Irish Ivy, 12s. 6d. per 100.
Arbutus, bedded, 4 to 6 in. fine, 12s. 6d. per 100.
Cotoneaster microphylla, 8s. per 100.

HARDY ORNAMENTAL TREES, SHRUBS, AMERICAN, HERBACEOUS, and GREENHOUSE PLANTS in extensive collection. Also a most superb collection of ROSES, including all the new sorts. Printed Catalogues and prices of which may be had on application at their Nurseries, Red Lodge, North Stoneham, or Floricultural Gardens, Southampton.

☞ If ordered in less quantity than the above quotations, the charge will be at retail prices.

*** Agents for Prestoe's Mushroom Spawn.

HYACINTHS.

H. HUNT'S IMPROVED REGISTERED HYACINTH POTS AND SUPPORTS, are far more conducive to the well-being of the Bulb, more convenient, and much more elegant than glasses. See *Gardeners' Chronicle*, Nov. 30; "Paxton's Magazine of Botany," for Feb.; "Gardeners' Gazette;" "The Art-Union," for Dec., &c. From 1s. 6d. each, of most Seedsmen and Florists, and at H. HUNT'S, Wholesale Garden Ware and China and Glass Depôt, 20, Queen's-row, Pimlico.

THE CUBA BAST, OR MATTING FOR HORTICULTURAL PURPOSES.—This article, imported from the Island of Cuba by J. Cook, Esq., of Brooklands, and highly approved for its strength and neatness by Sir W. Hooker, Dr. Lindley, and the numerous eminent Gardeners and Nurserymen who have seen it, may still be procured, in either 6s. or smaller packets, from WM. POUIT AYRES, Brooklands, Blackheath-park, Kent, or any of the under-mentioned Nursery and Seedsmen, who have kindly undertaken to keep it in stock :—

Henderson & Co., Pine Apple-place, Edgeware-road.
R. Glendinning, Chiswick.
F. Fraser, Lea-bridge-road, Leyton, Essex.
Fairbairn, Clapham.
W. Catleugh, [illegible]-place, Sloane-street, [illegible].
Flanagan & [illegible] Conservatory-house-street.
G. Charlwood, Covent-garden.
Westmacott & Co., 156, Cheapside.
Willmot & Chaundy, Lewisham.
Garraway, Meye, & Co., Bristol.
Dickson, Chester.
Fisher, Holmes, & Co., Sheffield.
A. Pontey, Plymouth.
Veitch & Son, Exeter.
T. D. Watkinson, Manchester.
R. F. Darly, Cirencester.
J. C. Wheeler, Gloucester.
Backhouse & Son, [illegible].
A. Stewart, Kelso.
Burgess & Kent, Penkhull, Newcastle, Staffordshire.
Smith, Worcester.
Sutton & Son, Reading.
T'Anson & Finney, Gateshead.
Joyes, Northampton.
G. Cunningham & Son, Liverpool.
W. J. Epps, Bower Nursery, Maidstone.
Cattell, Westerham, Kent.
M. Waterer, Knaphill, Bagshot.
W. E. Capons, Newark, Nottinghamshire.
Little and Ballantyne, Carlisle.
Lawson & Son, Edinburgh.
Urquhart & Son, Dundee.
Ballantyne & Son, Dalkeith.
Roy, Aberdeen.
Dickson & Turnbull, Perth.
Scott Brothers, Belfast.
Drummond & Son, Dublin.
F. Farrell, Dublin.

A 6s. packet of the Cuba Bast will yield as much tying material as 6 ordinary mats. Samples may be obtained by enclosing two postage stamps to Mr. AYRES. A liberal discount to the Trade.—Nov. 28.

WANTED, from 10 to 20 STANDARD PORTUGAL LAURELS, with clear straight stems, about 4 to 5 feet, and good round heads. Any person having the above, and will address a line to A. B., 25, Bishopsgate-street, stating price and particulars, will meet with a purchaser.

WANTED, EARLY SEED POTATOES.—State names of the varieties, quantity, quality, and price per cwt., f. o. b., or delivered free at Leith.
Address A. C., Post-office, Edinburgh.

TO THE NOBILITY, GENTRY, AND PLANTERS GENERALLY.

ARTHUR MACKIE begs to announce that his List of prices for FOREST AND ORNAMENTAL TREES, FLOWERING AND EVERGREEN SHRUBS, &c., is now ready for delivery, and can be had on application.

A. M. begs to call the attention of gentlemen in the neighbourhood of London to the great facility afforded by the Norfolk Railway for the cheap and speedy transit of Nursery goods; and still further to meet the views of his London correspondents, he has made arrangements for the delivery of all packages of Ornamental Trees, Shrubs, &c., free to any part of London.

A. M.'s stock of Forest Trees is very extensive, and he confidently trusts that the rate of prices, and of carriage for them, will be such as will prove an inducement to those who have hitherto been restricted to a circumscribed market, to favour him with their orders. The freight by Norfolk Railway to London, 27s. 6d. per ton. The Ely and Peterborough line is expected to be opened shortly, which will give access to the midland counties.

A. M. has likewise a very extensive stock of fine Whitethorn and Blackthorn suited for Enclosures, Railway Fencing, &c., and well deserving the attention of contractors.

A. M. begs to call the attention of the Trade and those largely engaged in planting, to the subjoined list of a few articles in which he abounds :—

	Per 1000.	If 20,000 are taken.
	s. d.	s. d.
Chesnuts, Spanish, 1 to 2 feet	35 0	25 0
,, ,, 2 to 3 feet	50 0	45 0
,, Horse, 1 to 2 feet	20 0	
,, ,, 2 to 3 feet	40 0	
Fir, Spruce, 6 to 12 inches	7 6	6 0
,, ,, 1 to 2 feet	25 0	18 0
,, ,, twice transplanted, bushy, and well suited for Shrubberies, 2 to 3 feet, 12s. per 100	100 0	
Ash, 1 to 2 feet	12 6	10 0
,, 2 to 3 feet	20 0	15 0
,, 3 to 4 feet	30 0	25 0
Hazel, 1 to 2 feet	20 0	17 6
,, 2 to 2½ feet	30 0	25 0
Hornbeam, 1 to 2 feet	25 0	20 0
,, 2 to 3 feet	40 0	
Maple, 1 to 2 feet	20 0	
Oak, common, 1 to 2 feet	27 6	25 0
,, ,, 2 to 3 feet	40 0	35 0
,, ,, 3 to 4 feet	60 0	
,, Levant or Turkey, 1 to 2 feet	40 0	
,, ,, 2 to 3 feet	60 0	
ORNAMENTAL TREES & SHRUBS.	Per 100.	Per 1000.
Gleditschia triacanthos, 3 to 4 feet	25 0	
Juniperus, 9 to 12 inches	8 0	30 0
Laurel, common, 1 to 2 feet	14 0	80 0
,, ,, 2 to 3 feet	20 0	120 0
,, ,, 3 to 4 feet, very fine	10 0	
Box-tree, 1 to 2 feet	10 0	80 0
,, Portugal, 1 to 2 feet	30 0	4 12
Red Cedars, 1 foot	25 0	£8
,, 2 feet	50 0	£20
,, 3 feet	65 0	
Oak, Fulham and Lucombe, 2 to 3 feet	150 0	
Privet, Evergreen, 1 to 2 feet	6 0	40s. 0d.
,, 2 to 3 feet	12 0	70 0
Rhododendron ponticum, 9 to 12 inches	25 0	£8
Arbor-vitæ, Tartarian (pyramidal)	25 0	£8
,, Chinese	25 0	£10
Roses, Standard, good sorts (left to my choice)	100 0	
,, Dwarf, good sorts (left to my choice)	80 0	
,, Dwarf, mixtures	20 0	£7

Norwich Nursery, Norwich.

POTATO DISEASE. — SMEE'S APHIS VASTATOR, the cause of the Potato Disease, now on sale, at Messrs. HORNE, THORNTHWAITE, and WOOD'S (successors to E. Palmer), 123, Newgate-street, Pocket Magnifiers and Microscopes, especially adapted for the investigation of the Potato Disease, within the reach of all agriculturists.

ROBERT BENJAMIN BIRCHAM, Hedenham Rosary, Bungay, Suffolk, begs to offer the following superior BOURBON ROSES, strong plants, well established in pots :—

	s. d.		s. d.
Ameuaide	1 6	Madame Desgaches	2 6
Comte de Ravebuteau	2 6	Paul Joseph	2 0
Crimson Globe	1 6	Proserpine	2 0
Comte d'Eu	2 6	Princess Clementine	2 0
Comice du Seine et Marne	2 0	Pierre de St. Cyr	1 6
Dupotit Thouars	3 0	Queen of the Virgins	2 6
Duc de Chartres	2 6	Souvenir de la Malmaison	2 6
Edouard Desfosses	1 6	Virgile	2 0
Gloire de Paris	2		
Gloire de la Guillotierre	2	NOISETTE.	
Le Grenadier	3 0	Cloth of Gold	3 0
La Gracieuse	2 6	Solfaterre	3 0
Madame Souchet	2 6		

Superior varieties of Show Roses, strong plants, upon 6 to 9 inch stems, at 24s. per dozen.
Extra fine do. do. 18s. per dozen.
Fine Bourbon Roses, upon 2 feet stems, at 20s. per dozen.
Superior kinds of Perpetual Roses, good dwarf plants (own roots), at 18s. per dozen.

R. B. B. having a large stock of the following kinds, can offer them to the *Trade* upon advantageous terms—the plants are *strong* and *good* :—Persian Yellow, dwarf, and 2 feet stems; La Reine, dwarf (own roots), and 2 to 3 feet stems; Lady Alice Peel, 3 to 4 feet; Gillet Parfait, 1 to 2 feet stems; Solfaterre, Noi., dwarf, own root; Reine de Vergis, and Souvenir de la Malmaison, own root.

Carriage paid to London per Rail.—Hedenham, Nov. 28.

BAKER'S PHEASANTRY, Beaufort-street, King's road, Chelsea (by appointment to HER MAJESTY and H. R. H. Prince ALBERT).—ORNAMENTAL WATERFOWL, consisting of Black and White Swans; Egyptian, Canada, China, Barnacle, Brent, and Laughing Geese; Shieldrake, Pintail, Widgeon, Summer and Winter Teal; Gadwall, Labrador, Shovellers, Goldenged and Red Diver; Carolina Ducks, Call Ducks, &c., domesticated and pinioned, also Spanish, Cochin-China, Malay, Poland, Surrey, and Dorking Fowls; and at 3, Half-moon-passage, Groundsmith-street.

White, Japan, Pied, and Common Peafowl, and pure China Pigs.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN & OTHERS.

ABIES CANADENSIS, or HEMLOCK SPRUCE.

G. BAKER, NURSERYMAN, Bagshot, Surrey, having a large stock in Europe, of various sizes and in fine condition, can with confidence recommend this noble tree to the notice of the public, at the following prices :—

1 ft.—Transplanted	.. ..	at £0 12	0 per 100
2 ,,	,, ..	.. ,, 0 16	0 ,,
3 ,,	,, ..	.. ,, 1 5	0 ,,
3 to 4 ft.	,, ..	.. ,, 1 10	0 ,,

PICEA BALSAMEA.

1½ to 2 ft.	,, ..	.. at £0 8	0 ,,
2 ,, 3 ,,	,, ..	.. ,, 0 12	0 ,,

G. B. having a fine Stock of Flowering KALMIA LATIFOLIA, can supply them at the following low prices :—

9 to 12 inches	.. ..	.. at £2 10	0 per 100
12 ,, 18	,, ..	.. ,, 3 15	0 ,,
18 ,, 20	,, ..	.. ,, 5 0	0 ,,

Fine Specimen Plants from 3s. 6d to 5s. each.

N.B.—Large purchasers will have considerable reduction.—The usual allowance to the trade.

DOUBLE PRIMROSES, WHITE WATER-LILIES, AND HOLLYHOCK SEED.

J. FOWLE, FLORIST, Sudbury, near Harrow, Middlesex, begs to announce that he has strong plants of the first-named favourite spring flowers to dispose of at the following prices :—

	s. d.		s. d.
Double dark purple velvet, per doz.	0 0	Double lilac or peach, per doz.	3 0
Do. yellow, per doz.	9 0	Do. crimson velvet, per plant	1 0
Do. white, per doz.	6 0	Rose and Rose, per doz.	3 0
Single blue, per doz.	6 0		

A few strong plants of the WHITE WATER-LILY, two for 5s, or one for 3s. 6d.

J. F. has likewise selected Seeds from the best Double Flowers of the HOLLYHOCK, the colours yellow, mulberry, paper white, scarlet, crimson, and roses with fine shades, 12 packets distinct for 5s. The same varieties mixed in single packets 2s. 6d.

Orders for the above will be sent free of expence to London. Post-office orders payable at Harrow.

MITCHELL'S "ROYAL ALBERT" RHUBARB.

The above valuable variety having been grown by WILLIAM MITCHELL, of Enfield Highway, for the last four years, has enabled him to supply Covent-Garden Market with open-ground RHUBARB earlier than any other grower, it being two to three weeks before the Tobolsk, or any other sort ever introduced to the horticulturist. A splendid red colour, most prolific bearer, and allowed by the best judges to be the finest flavoured sort in use at the present time. It is pronounced by Mr. Myatt, sen., of Deptford, to be the best EARLY RHUBARB grown. As the Stock is being rapidly bought up, those wishing to possess it must order before the 7th December, after that day no wholesale orders can be executed. Large Roots, 5s. each.

An early application is necessary, as the stock is limited. Prepayment is requisite with all orders (which will be executed in strict rotation) payable to W. MITCHELL, Enfield, or to the Sole Agent, CHARLES FARNES, Seedsman, 128, St. John-street, London.

TO NURSERYMEN, FLORISTS, &c.

GLASS.—Any quantity of 16 oz. Sheet Glass, in small sizes, packed in boxes, containing 100 feet each, from 2d. to 3½d. per foot, according to size

Every description of Horticultural Glass, from 13 to 32 oz. to the foot.

GLASS DAIRY PANS, the same size and strength as earthenware, from 3s. 1d. to 4s. 6d. each.

Improved Garden Hand-lights.

EDWARDS AND PELL, 15, Southampton-street, Strand.

BRITISH AND FOREIGN WINDOW GLASS, AT JARVIS'S old-established Window Glass Warehouse, 38, Great Castle-street, a few doors from Regent-street, where the best quality and stoutest kind can be had at a much lower rate than any other house in the Trade, for ready money only. Glass Tiles equally low in price

Country orders promptly attended to.

GLASS MILK PANS.—In consequence of the increased demand for GLASS MILK PANS, owing to the incontestible fact of their being better adapted for obtaining Cream, throwing nearly 10 per cent. more than any other utensil hitherto used; and also to the extraordinary reduction recently made in the price; PHILLIPS & WELCH have the pleasure to announce that they have made arrangements with the manufacturer for a constant supply of the above articles, and are now ready to deliver them at the under-mentioned prices :—

	Each—s. d.		Each—s. d.
12 inches in diameter	.. 3 4	18 inches in diameter	.. 4 0
14 ,, ,,	.. 3 6	20 ,, ,,	.. 4 3
16 ,, ,,	.. 3 9	22 ,, ,,	.. 4 6

When a dozen are taken at once no charge is made for packages. British and Foreign Sheet and Horticultural Glass Warehouse, 12, Panton-street, Haymarket.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, of 100 and 200 feet each; also Glass Pantiles, 11s. per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at F. ELPHICK'S, 28, Castle-street, East, Oxford-street. *** For Ready Money only.

☞ PATENT VENTILATORS for Public Offices, Smoking Rooms, &c.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.



J. WEEKS AND DAY, ARCHITECTS, &c., Gloucester-place, King's-road, Chelsea, HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, most respectfully beg to inform the Nobility, Gentry, and Horticulturists, that they have erected on their premises, for the purpose of inspection, a variety of Hothouses, Greenhouses, Conservatories, Pits, &c., where all the various known improvements of the day can be seen. Their Hot-water Apparatus is also erected, and kept in constant action in various Hothouses, Greenhouses, Pits, &c., where the whole principle of Top and Bottom Heating can be seen.

J. WEEKS & DAY warrant their Hot-water Apparatus to be efficient for every purpose to which heat is applicable. Boilers of all sizes; the largest is warranted to heat a range of Forcing-houses 300 feet in length, with a small quantity of fuel, and only to require attention once in 12 hours.

Models, Plans, &c., in great variety.

HORTICULTURAL SOCIETY OF LONDON.—Notice is hereby given, that the EXHIBITION OF FLOWERS AND FRUIT, in the Society's Garden, in the ensuing season, will take place on the following Saturdays, viz., May 9; June 19; and July 17; and that Tuesday, April 30, is the last day on which the usual privileged Tickets are issued to Fellows of the Society.

In the Press, to be published early in the spring,
In one vol. 8vo, to bind with the SCHOOL BOTANY,
THE ELEMENTS OF BOTANY, STRUCTURAL, PHYSIOLOGICAL, SYSTEMATICAL, AND MEDICAL;
With a Copious Glossary of Botanical Terms.
Being a Fifth Edition of
THE OUTLINE OF THE FIRST PRINCIPLES OF BOTANY.
By JOHN LINDLEY, PH. D. F.R.S.
London: BRADBURY and EVANS, Whitefriars.

NEW IRISES, ANEMONES, &c.—

30 beautiful distinct hardy Irises, by name	..	10s. 6d.
50 new large Double Anemones, by name	..	12 6
12 fresh imported Hyacinths, finest known	..	10 6
50 fine show Ranunculuses, by name	..	12 6

The above may be had at the low prices annexed, and are confidently recommended by the Importers, JOHN SUTTON and SONS, Reading Nursery, Reading, Berks.
*** Carriage free to any part of London, or any station of the Great Western Railway between London and Bristol.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 28, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY,	Nov. 30—	Botanical (Anniversary)	8 P.M.
TUESDAY,	Dec. 1—	Horticultural	2 P.M.
		Linnæan	8 P.M.
WEDNESDAY,	— 2—	Society of Arts	8 P.M.
FRIDAY,	— 4—	Botanical	8 P.M.
MONDAY,	— 7—	Zoological	8 P.M.
WEDNESDAY,	— 9—	Microscopical	8 P.M.

A CORRESPONDENT calling himself a *Five-foot Farmer*, reproaches us for allowing ADVERTISEMENTS which are mere traps for the incautious to appear in our columns. We have received the same complaint on former occasions; and, therefore, it is as well that we should at once declare that we are in no way responsible for the value of the articles which may be offered for sale by advertisement. The advertising department of a newspaper is as distinct from the editorial part as a landlord's household from a tenant's. The one is in no way concerned with or answerable for the other. Advertisements stand upon their own ground; they are to be judged of by their intrinsic probability, and by the character of the advertiser himself. Fraudulent advertisements appear in all places; and there is no help for it. A stage-coach conveys a cutthroat by the side of an honest man; a French novel and a Bible in the same box; is the coachman to blame? Such things are inevitable in all public conveyances, and a newspaper is but a public conveyance of information, just as a stage-coach is of passengers and parcels.

But it may be, and is, argued that in the case of advertisements, there is a certain class which are on the face of them impositions, and that they should be excluded. But who is to be the judge of this? If they are *obviously* fraudulent they can do no harm, for men of common sense avoid them; and no amount of watchfulness will guard a fool against his folly. If they are frauds in disguise how are they to be detected?—who is to distinguish them? The thing is impossible; and the public must decide for itself.

For ourselves we feel that no man can impute to us the least unwillingness to expose fraud if we know it to be so; we have attacked it over and over again, and we have not the smallest intention of relaxing our vigilance. Advertisers exercise no power over us. But we must have a clear case. We cannot act upon surmise. We must be sure before we strike, or the blow would recoil on ourselves, as indeed it ought. Let us for example take an instance. Our "five foot" friend points to something advertised under the name of "Entykoproleon," which professes to be a manure of wonderful efficacy. Now *we know nothing of this material*; we have no information as to its qualities; it may be valuable or it may be rubbish. For ourselves we are free to confess that the name has too much the look of quackery to invite our good opinion, and when we see what the composition professes to do our doubts are not diminished. But although it is plain to any man of common sense that this Entykosomething cannot cure all sorts of disorders, and do all sorts of things, it does not follow that it is of no value; that is a point we cannot touch. Man must in such matters use the sense which God has given them; and if by long disuse they have permitted it to grow rusty, they must polish it again by wasting their money in running after the chimeras which adventurers will always be ready to "find" for their chase. In short, gardeners and farmers, like other people, must help themselves, and not be always crying to Hercules to pull them out of the swamps into which their own blindness may have led them. We are perfectly willing to lend them a hand; it is, indeed our vocation, and our duty, as we freely acknowledge; but they must also do their duty to themselves.

Of all simple matters important in gardening, the most easily well done, and the most generally ill done, is the securing an abundance of PURE WATER, that is to say of water absolutely free from deleterious ingredients. This, the first necessary of animal and vegetable life, is provided by Nature of the utmost purity in boundless abundance at every man's feet; but he, with that perverse ingenuity for which he is often so remarkable, does all in his power to contaminate or waste it. Instead of catching the virgin fluid as it falls from heaven, he lets it run to waste, and then digs holes, which he calls wells, in order to obtain it back again, after being defiled by the impurities it meets with in the earth. Or, if he makes a reservoir to hold it till wanted, it is ten to one but he takes zinc, or lead, or wood, in which to keep it, or through which to convey it.

All these materials are more or less unsuited to the preservation of water in its pure state; and most especially the metals, which are in the most universal demand. These substances form poisonous salts which freely dissolve in water, and are thus allowed to sap the lives of animals or plants. Most especially is this true of lead, which was, a few years since, found to be the secret poisoner of royal hounds, and to whose deadly action on human life many unsuspected deaths are, beyond all doubt, to be ascribed; and if that is so, how much more destruction must have been committed among plants, which are injured by the very same poisons as are fatal to animals, *so identical in its essence is animal and vegetable vitality*. It is notorious to physiologists that whatever will poison a plant will poison a man, and in the same way.

We are drawn to this question by the numerous inquiries of correspondents, who have recently had their attention directed to it by a paper on the subject read by Mr. OSBORNE before the British Association at their late meeting at Southampton. This gentleman *demonstrated* that numerous cases of sickness or death in the neighbourhood of Southampton were traceable to the presence of lead in the water, and were assignable to no other cause.

"MR. WARE, a medical gentleman of this town, was attending some patients residing at Shirley, about two miles off, who were labouring under symptoms resembling those produced by the absorption of lead, although none of them had been exposed to the fumes of paint, or to the absorption of lead in any form that could be accounted for."

Analysis showed that the water they drank was impregnated with lead. Another patient was attacked by distressing symptoms,

"Accompanied with atrophy, and loss of muscular power of the upper limbs. Dr. OKE suspected these symptoms to arise from the poison of lead, and procured some of the Burley water for me to test. Upon examination, I found a large quantity of lead in solution."

"Mr. SHELLEY, whom I have already mentioned, informed me that his father and two of his brothers died of the same complaint that he was labouring under when he applied to Dr. OKE for advice. This complaint has been traced to the poisonous effects of the impregnation of lead in the water of Burley; and I have no doubt that the loss of many, perhaps hundreds of lives, has been caused in a similar manner, not only in this part of the country, but in many parts of England."

Nevertheless, Mr. OSBORNE stated that in the face of this evidence, and in defiance of the most undoubted facts, some landlords where this mortality occurs

"Have refused to remove the leaden pipes in their houses and to substitute iron; even when families inhabiting them have actually been under medical treatment, for the effects of the impregnated water; and that they have even gone so far as to insinuate that the medical attendant had an object of his own in mentioning the subject, and to threaten the tenants with an action for saying that their illness was attributable to this cause."

We advise the authorities of Southampton to try the effect of a coroner's inquest in the very next case which arises. A verdict of Wilful Murder, or even of Manslaughter, would probably bring these landlords to their senses.

It has generally been supposed that the action of water on lead is owing to the presence in it of carbonic acid which forms carbonate of lead, a soluble poison. But Mr. OSBORNE has shown that atmospheric air, even when free carbonic acid is absent, is a powerful solvent of lead, and that in some waters, as that of Southampton, the evil is increased by the presence of chlorine, which forms a chloride of lead, another poisonous salt, soluble in water. It is, therefore, clear that lead pipes should never be employed for the conveyance of water to be consumed by man, beast, or plant. It is very true that water naturally impure—as for example, spring water impregnated with lime, is said not to act rapidly on lead, in consequence of its throwing down an earthy crust, which guards the lead from the solvent action of the water; but it is by no means clear that this preservation is as effectual as is supposed, and at all events it can only operate after a time. We therefore entirely agree in advising all persons to avoid the use of water brought through leaden pipes. Glass is quite unobjectionable, and iron nearly so; and we see no reason why the prediction of Sir ROBERT PEEL that glass water-pipes would soon be laid down should not be immediately verified. Green bottle-glass is cheaper than iron, and Mr. OSBORNE, as well as others, distinctly advises that it should be employed for purposes of conveyance.

REMARKS ON PLANTING AND THE MANAGEMENT OF WOODS.

No branch of rural economy is of more importance than the growth of timber—whether we look to the indispensable use and application of it to almost every necessary and ornamental purpose of life, to the beauty it contributes to the landscape, or the amelioration it affords to any country, whether hot or cold, by its shelter or its shade.

As the production of timber is then so absolutely necessary for the comfort and the convenience of the community, as well as for the improvement of the country, the science of arboriculture ought surely to command the attention and become the study of every landed proprietor; to whom his woods should be, if properly managed, as sure a source of revenue as his land set apart for the production of cattle or corn. It is much to be regretted, however, that this very important subject has received so little attention, is so little understood, and even worse practised. Agriculture and horticulture although far from being perfectly understood, are in a progressive state, and have long been practised in this country on rational principles. Every farmer knows that certain systems of culture must be adopted on certain soils and situations. He would not attempt to introduce green-crop husbandry on strong clay soil in a low moist situation; nor would he try to produce Wheat and Beans on a light sandy soil, in a high altitude. Neither would he sow 10 bushels of grain on an acre and expect a better crop than if he had sown four; or leave his Turnips unthinned for the purpose of sheltering one another, and expect a heavy crop of bulbs. Yet such is the ignorance that prevails on the subject of planting and management of woods, that the very opposite of the practice adopted in the culture of horticultural and agricultural plants is almost universally followed, and that to a ruinous extent.

1*st*: *Adaptation of trees to soil, climate, &c.*—Every tribe of plants, and indeed almost every individual of a tribe, has its own peculiar habitat or soil, climate, and situation, congenial to its nature: and the first thing, therefore, that ought to be attended to in planting is the adaptation of the plants to the several soils, situations, and climates, that may occur in the ground to be planted (for these may be very various in a small extent of ground), and here the first error is generally committed which is obvious to a very casual observer. In travelling any of our roads, he will at once discover in passing a plantation that the planter has been at a loss to know what his soil would best produce, and therefore to secure a crop he has planted a mixture of all sorts; and very frequently the varieties to which the soil and climate is most uncongenial are those most abundantly planted, and thus some of our most valuable sorts of timber-trees have got into bad repute—for example, the Larch, which for many years was indiscriminately planted in every soil and situation, and hence when a succession of severe winters and springs occurred, such as 1837-8 and 1839, in all humid situations the plant was so injured in its health that thousands of acres in Great Britain were entirely destroyed. This evil might by a little study be, if not altogether, at least very much avoided. Almost all the varieties of our useful forest-trees have been long cultivated in the country, and a little careful observation will soon enable a person of ordinary abilities to discover the character of the soil and situation in which each species or variety best thrives. For instance, of the Pine tribes, the Scotch Fir luxuriates on a heathy soil incumbent on pervious subsoil, on a high altitude. Larch on sharp brown loam, on dry subsoil, high situation and sloping banks. Spruce and Silver Firs, soft loam or peaty soil, low moist situation.*

Of hardwood trees the Oak is the most accommodating as well as the most valuable; it will grow in almost any soil and situation, under 800 feet above the level of the sea; but thrives best and attains its greatest magnitude in clayey loam on a rather retentive subsoil and on gently sloping ground. The Ash and Elm are more particular in the choice of their habitat than any of our hardwood trees, a sharp gravelly loam on gravel or sand, is the soil in which they thrive best, and on an altitude under 500 feet above the level of the sea. Plane will grow well 100 feet higher than Ash or Elm, and on soil and subsoil much more retentive in its character. The Beech is rather singular in its nature; it is often met with in great luxuriance on strong retentive clay, in a low damp situation, while it is much more frequently found in excellent health and great size on dry gravelly soil on rather a high situation; the

* Although these varieties (the Spruce and Silver Fir), thrive better in soils of this character than any of our other sorts, it is not to be understood that they will not grow in any other for it is well known that they do also succeed well on dry soil; on a pretty high altitude.

latter is certainly the natural habitat of the plant. These instances are sufficient to show that by a little study there is no difficulty in selecting and adapting the proper sorts of our more useful timber trees, to different and suitable soils and situations.

2*d*: *Distance, plant from plant.*—The second error committed in planting, and it is even greater than the first, and quite as universally adopted, is, furnishing the ground with at least four or five times as many plants as it is able to support. This practice displays a greater want of correct information than the former, and they generally go together, which only augments the evil. It is not a little surprising that this error has not been abandoned long ago, when it is considered that it affects so materially the proprietor's purse, an appendage which, when touched, almost every person feels so sensitively. Various are the reasons assigned, and the excuses made, for the practise of this worse than useless expenditure of money.

One of the most frequent is, that the situation is exposed, and the trees must be thickly planted, to afford shelter to one another, that they may get quickly up. A little consideration will show the futility of this reasoning. At what stage of its existence does a tree or any other plant most require shelter? surely if it needs it at all, it is when young. Then if trees 16 or 18 inches high are planted at any distance from 2 to 6 or 10 ft. apart, it is obvious they can afford no shelter to each other until they have grown 4, 5, or 6 years, and then in place of protecting one another, the work of destruction commences, the more robust and faster growing overtop and smother the weaker and slower growing plants, and all are less or more injured in their constitutions, for thinning at that early age is very seldom resorted to; the trees being of no value, they are are allowed to stand until the thinnings will at least pay the expense of taking them out, by which time the plantation is unfit to be thinned. The trees have attained an unnatural height, the lower branches are in a decayed or sickly state from want of light, air, and moisture; the bark is thin and the sap vessels small and attenuated from want of sufficient nourishment, and from existing in an artificial climate several degrees higher in temperature than the natural one. If this is the case, and no one will deny that it too generally is so, it is quite apparent that the admission, by thinning, of a current of cold air, must have the effect of shrivelling the bark, contracting the sap-vessels, loosening the weakened roots from the exhausted soil, and thereby killing many, and checking the growth of all, except those which have been fortunate enough to have got an outside berth, and are prepared to weather the storm. The natural consequence is, that the trees are stinted in their growth, they become diseased, and do not, with all the care that can afterwards be bestowed upon them, live half the term of their natural lives, and the timber is also inferior in quality.

It is well known to every one at all acquainted with the subject, that the part of a tree most susceptible of injury from cold is the top or leading shoot, and it is quite obvious that, however closely they may be planted, this part of the tree must always be exposed to every vicissitude of climate. The remedy for this is very plain; instead of planting at 2 to 4 feet, the usual distance, plant at 6 to 8 feet apart if Firs, and if hardwood for the permanent crop, plant them at least 28 feet distant from each other, and fill in Firs, Larch, Spruce, or Scotch Firs, according to soil and situation, for nurses, till all stand at 6 to 8 feet apart.

Hardwood is of little or no value until it has arrived at some age, and has attained to considerable dimensions; while Larch and Spruce can be applied to useful purposes at any age after 10 or 12 years. The saving of plants and labour, and, consequently, money, at the outset, is not a trifle. At 7 feet apart it requires only 889 plants for an acre, imperial measure; at 3 feet apart it requires no less than 4840—more than 5 times the number; but this is only a small portion of the amount ultimately to be saved.

At the distance of 7 feet apart, the medium between 6 and 8 feet, the trees will stand in ordinary soils and situations for nine or ten years without requiring thinning, and without doing any injury to each other. The soil, too, will be not only unexhausted, but, from the annual decay of the herbage upon it, will be receiving fresh acquisitions of fertility, and the trees being surrounded with a pure atmosphere and the unobscured rays of the sun, in place of the polluted air in the other case, arising from the dead and decaying portions of their own species, will make much more rapid growth, and be much more robust in their constitution.

3*d*: *Thinning.*—Thinning will then commence, namely in nine or ten years, with the nurses standing next to the hardwood trees, which should be set quite clear, that they may receive without interruption, light, air, and moisture, which it is well known are the only elements by which plants subsist, the soil being only a medium through which is communicated to them that portion of their nourishment which they receive from their roots. This being the case, how apparent is the propriety of planting thin, still keeping thin for producing large trees and timber of good quality, to say nothing of the primary saving and ultimate profit.

It is not a little amusing to observe the expedients resorted to to remedy the evil of close planting, and to put off till a more convenient season the very necessary operation of thinning, which, if done in time, is the only effectual remedy. One of these shifts, and a most absurd one it is, is cutting off the whole of the lower branches, leaving only a few of the upper ones to form a small top, as if Nature had committed a great error in furnishing the plants with a superfluity of resources by which to draw to them that nourishment necessary for their existence. This is a very great error when practised even on hardwood trees, as it must of necessity retard their growth, and cause them to make unnecessary efforts to restore what they have lost by pushing out shoots from their stems near the parts where the branches were attached to. This of itself is sufficient to teach any reflecting person that the practice is wrong. But when adopted on resinous plants, such as the Fir tribe (and the practice in many parts of the country is very common), it is most destructive, as they are deprived by Nature of the means of restoration, and hence the wounds remain unhealed for many years, and in many cases as long as the plants survive; showing that Nature has strictly forbidden the approach of the knife to them. There is obviously no remedy for close planting but early and timely thinning; and a good, safe, and simple general rule is to leave every plant standing clear of its neighbours, and this rule is applicable to plantations of every kind, and in every stage of their progress.

4*th*: *Pruning.*—Pruning is an operation which by some is carried too far, and by others entirely neglected. When substituted in place of thinning, it is carried to an injurious and unprofitable extent, as has been already remarked, and when neglected altogether, many trees will only assume the habit of shrubs. It can only be practised with propriety and advantage on hardwood trees, and should be done at an early stage. Little or no pruning should ever be necessary in a plantation after 15 years' growth. In performing this operation, attention should be paid to the natural habit or form of the tree, and thus to assist but not to thwart Nature. It is absurd to attempt to make an Oak, or any other round-headed tree, assume the habit of an erect growing plant such as the Lombardy Poplar. It is therefore difficult to lay down a general rule, and much must depend on the judgment of the operator. It may be remarked, however, that all trees intended to grow to timber should be set off with one stem. This should be attended to at the time of planting; afterwards they should be looked over periodically, and every rival to the top or leading shoot should be cut off, and any side shoot or branch acquiring greater strength than the stem itself, and drawing away from it an undue proportion of sap, should also be taken away. A few of the lower branches may be cut off as the trees advance, but this must be done with caution. If this is properly attended to, and judiciously done when the plants are young, and it can almost all be done with the common pruning-knife, and at a mere trifle of expense, the trees in general and under ordinary circumstances will have attained sufficient length of stem in 15 years, and may be allowed to form their heads in their natural way.

It is presumed that these remarks sufficiently prove the propriety and advantage of properly adapting trees to the soil and climate; planting thin, or, in other words, not over-cropping the land; early and timely thinning and judicious pruning. And when compared with the prevailing practice of indiscriminate selection and close planting, it is obvious that the great obstacle to the more extensive planting of waste lands in Great Britain and Ireland, of which there is an immense extent altogether inapplicable to any other useful purpose is removed, inasmuch as the first outlay (with the exception of inclosing and draining) and future management is greatly reduced, and the success and ultimate profit rendered certain.—*James Young, Land and Wood Surveyor, Perth, Nov.* 16.

Home Correspondence.

Polmaise Heating.—A fortnight since, Mr. Meek published my total failure in an attempt to heat a house by the Polmaise system. But to me failure never was defeat; it only told me that I was on the wrong side of the question, and bade me mend my practice. I have now the pleasure of mentioning my perfect success. Thoroughly convinced of the soundness of the principle, I had watched the progress of Polmaise, and studied each contending article for and against the system; fully determined to test it as soon as opportunity offered. But I wanted Polmaise to be simple, effectual, and, above all, economical;—hot a thing to look at, but to work. A man might spare, and would willingly expend five pounds for his hobby, when he could not by any possibility spare twenty or thirty. Such a thing I wanted, and unless such a thing could be obtained by Polmaise, it would make but slow progress. The Air King would still have bowed his head to the Water King, King Stork to King Log. I attempted such a thing, and most signally failed. The principle I had adopted was right, I had applied 9-10ths of Nature's laws, but forgot the odd one. In my dilemma I paid a visit to Mr. Meek; I saw all that he has asserted in operation, and bear most willing testimony to his assertions. I saw more than he asserts; I saw a house the atmosphere of which was heated to nearly summer heat, yet so congenial that I was bustling in it for upwards of two hours, the major part of the time with my great coat on, yet (as a jockey would say) "never sweat a hair!" I examined everything, for, thanks to the courtesy of Mr. Meek, he showed me everything, and explained everything. I found that my principle was the same, though the details were different; I returned, but could not, for a time, detect my error. On Friday I received a letter from Mr. Meek, in which his opinion in a great measure coincided with my own, but I found it totally impossible to put the most essential part in practice, viz., that of giving my drains a descent from the peculiar position of the house. I found that I must either make the cold air ascend, or give up Polmaise. I did not like the idea of expending 40*l.* or 50*l.* upon hot water, when 4*l.*, which was the utmost I had expended, would answer the same purpose, could I but make it work. I have done so, and it works admirably; and if you think that an expenditure of 4*l.* to heat a house sufficient to protect it from the frost of winter, of 50 feet long, 22 feet wide, 12 feet high, and span roofed, the upright sashes glazed to within 8 inches of the ground, is worth publishing, I will send the plan with further particulars. In the meantime the house itself is open to the inspection of any one, Sundays excepted.—*Alfred Kendall, Queen Elizabeth's Walk, Church-street, Stoke Newington.* [Pray let us have the plan. We give you great credit for your skilful application of Natural Philosophy.]

Jerusalem Artichoke, a substitute for the Potato.—With regard to the paragraph (p. 775), signed "James Wellman, Reading," I beg to offer the following explanation, not only to satisfy your correspondent, but private friends who have addressed me, and who are evidently labouring under the same mistake as to the nature and value of this important plant. This plant is said to be a native of Brazil, and if so, the native country of the Potato, namely Peru, is situated on the same parallel of latitude. Now, although our summers in England are long enough and warm enough to bring even two crops of Potatoes to perfection, the summer of 1846, which has been one of the longest and warmest, was not able to bring the Jerusalem Artichoke even into flower in Staffordshire; for, the plants showed flower-buds, but were cut down by frost before they could open a petal. It is, therefore, unreasonable to talk of bringing either the root or the stem of this exotic to perfection, and equally so to speak of a plant ripening that has not even flowered. But to render my meaning clearer,—suppose the farmer were to have his crop of Potatoes frosted just before the flowers opened, would not every practical man allow that the root crop or tubers were a very long way from perfection, and that the haulm had not been ripe. Now this consideration will not only show the true state of the Jerusalem Artichoke crop in this country every year, but will also suggest the very valuable consideration of how this defect is to be remedied by early planting, and by exciting manures, raised beds, or by forwarding the plants in spring, and planting them out in the same manner that Indian Corn is planted out after being grown under shelter so as to give it a longer summer than could otherwise be calculated upon. It will therefore take some time and pains, and perhaps no small amount of horticultural skill, to bring either root or stem of this plant to ripeness or perfection in our climate; but it is well worth striving for, and no doubt will ultimately be attained. Ordinary tubers of this plant are of an irregular spheroid or spindle shape, but from examining numberless specimens I find that those which I have been able to bring nearest to perfection are irregularly globular, and the pouting and prominent eyes become nearly even with the general surface of the tuber; and moreover tubers of this shape are less soapy or squashy than the spindle-shaped ones. I am, therefore, of opinion that the normal form of this tuber is globular. Now, for the stems; and on this head I beg to remark that this plant, like the Potato, propagates its species by two sets of organs, namely by tubers and by seeds; it is, therefore, evident that this plant elaborates by its leaves and green stems juices for these two functions of seed-bearing and tuber-forming. The juices for seed bearing are laid up in the hollow stem above the collar of the plant, and are green coloured and of a pleasant taste; hence it happens that when this plant is ill used either for want of food or crowded, and consequently choked for want of air, &c., its stems are hollow for nearly all their length, and the stalk is only a long single rod; but when the plant is well grown it has a conical and very symmetrical form, with a regularly branched head, and thus grown in a favourable season its stem is no longer hollow, but well stored with rich food, a beautiful provision of Nature to enable the plant to perfect the heavy bulk of seeds which it would produce in a sunny clime. It is a well known fact that the ball of a Turnip becomes exhausted of its store of sap as the flower-stem rises; being propagated only by seeds, the plant had only one set of functions to perform, namely, the seed-bearing. Not so with the Jerusalem Artichoke and the Potato plant; they have each two sets of functions, namely a tuber-forming as well as a seed-bearing set, and hence it is that the great difference arises in the management of the stems of such plants as Jerusalem Artichokes and Potatoes; for however large the tubers might be of Jerusalem Artichokes or of Potatoes, there never would or could pass one grain of their stored juices above the collar of the plant to aid the seed-bearing department, and on the other hand the seed-bearing juices are stemmed in their descent at the collar of the plant, and either not into the "ways and means" of supplying nourishment to the tubers. These distinctions, as compared with the Turnip and other members of the Brassica tribe, are of the utmost importance to be kept in view in the economical management of the Jerusalem Artichoke. I beg to add one fact connected with the culture of this plant which I cannot easily account for, and it is that the tubers increase in size and value after the haulm is injured by frost. The preservation of the stems is a part of the farmer's business, indeed I have no sympathy for those who have a

quantity of rich green fodder, and cannot convert it into food for stock. Clover in the aftermath is subject to be spoiled by frost, yet we seldom hear that urged as an argument against the culture of that valuable plant; no, it is eaten off before the frost comes. Gorse is good fodder, but is not only hard as the Jerusalem Artichoke stalks, but is moreover beset with spines, yet farmers reduce even Gorse to fatten cattle with. What would Mr. Mechi say of the farmer that could not take and use a green crop of 69 tons per acre before Christmas rather than let it be frosted and evaporated? That it will keep green and good for food for pigs for some time there can be no doubt if fermentation is prevented, which can easily be done by keeping in tanks or tubs under ground, as is done here and elsewhere with draff or grains. The ordinary cutters, such as are in use for chaff or Turnips will do for reducing the haulm to useable sizes, whether green or dried, and as to the idea of this store being, when cut green, a very watery article (the editor has inserted in parentheses that it would be two-thirds water), surely the Potato and the Turnip are excellent roots for store, and they contain no small per centage of water. In conclusion, I would advise every cottager and farmer to cultivate this plant, and take care of it whilst green, for they have little chance of ever seeing it ripen in this country; and as for getting one crop, namely, of tubers, and not being able to get the other, or green crop, of haulm, it would be indeed extraordinary if a quantity of vessels laden with food, or in other words tubers, had been found underground, and this food had been elaborated by organs above ground, a waving crop two fathoms deep, no body could lay hands on, or appropriate it to the use of man or beast, even when it stood before them.—*J. Forsyth, Alton Towers.*

Cambridge Botanic Garden.—The public will be glad to know that the syndicate appointed to consider what steps should be taken respecting the ground which was purchased by the University for the purpose of changing the site of the Botanic Garden have reported to the Senate: That the work of clearing and preparing about 20 acres of the new Botanic Garden, for which instructions were given as reported to the senate by a former syndicate in June 1845, having been to a certain extent executed, the late Vice Chancellor, with the concurrence of the other trustees of the Botanic Garden, in order that no time might be lost, gave directions that 7 acres of this ground should be trenched as a preparation for planting trees to form the belt which is necessary for the shelter of the garden—such trees being so to be grouped as to constitute an arboretum, as shown in the sketch which will be laid on the registrary's table.—That in doing this and in building a tool-house an expense of 298*l.* 11*s.* 9*d.* has been incurred, which sum the syndicate beg leave to recommend the senate to authorise the Vice-Chancellor to pay.—The syndicate are informed by the curator that the trees which it will be necessary to purchase for the belt will require a sum not exceeding 70*l.*; and the syndicate are further informed by the Professor of Botany that he has reason to believe that a number of the rarer and more costly trees will be gratuitously supplied from other botanic gardens.—The syndicate beg leave to recommend that the Vice Chancellor be authorised to expend a sum not exceeding 70*l.* in the purchase of the trees required, in order that the curator may proceed to plant them without delay. This report was signed by the following names:—H. Philpott, Vice-Chancellor; G. Thackeray, W. French, R. Tatham, Robert Phelps, W. Whewell, J. Haviland, J. S. Henslow, W. H. Stokes, Charles C. Babington; and the Vice-Chancellor has given notice that a grace would be offered to the senate to confirm the above report.

Have a care of the Water-pot.—A short time back, calling on a friend and looking through his houses, where a considerable quantity of Pelargoniums are raised and grown, I observed a fault in management, to which if I advert it may lead his gardener and others to consider the error of a too liberal and erroneous use of the water pot. It was in the beginning of this month, the weather was and had been dull for some days previous; it was evening and an uncomfortable one. Yet on rapping the sides of the pots there was no ring, and on lifting them they were like lead; they had just been watered, and I pitied the poor things from my heart. Now here were present two great errors. First, they did not want water at all; second, they ought not to have been watered in the evening. That they did not need water at all was evident by their dropsical shoots and foliage. That they ought not to have been watered at this time of the year in the evening I presume every gardener knows; if he does not, the sooner he pulls off his blue apron and puts on a green baize one the better for his employer; for it would be wiser to clean knives and shoes well than ruin a set of expensive plants. Let any one that has not duly considered the evil of over-watering plants at this time of year try the simple experiment upon a soft-wooded one of withholding water even to death. Let him see how long it will do without. If he sees it flag when the sun appears for an hour or two, let him visit it before he goes to bed and see how it will have stiffened up again. He will soon be convinced that at all times and seasons, whether for giving or withholding, he should "have a care of the water-pot."—*Viridis.*

Hydraulic Machines.—As I take a peculiar interest in all that relates to hydraulics, from the fact of my having been for many years engaged in the endeavour to overcome some natural obstacles in raising water for my extensive machinery at this place, my attention was drawn to the accounts of Legg's engine, which appeared in your columns some weeks since; but no practical information having been given relative to it, I commissioned my agent in London to gain for me full particulars, and to send me a detailed account of it. I discovered that this new invention is absolutely entered upon the books, and acknowledged by Legg *as old* (being nothing more than a water-wheel working pumps), and, certainly, from the description forwarded to me, so old that I can avouch the first mill-owners in this part of the country worked them as successfully as they could operate; and surely it is wrong to give the title of new invention to a thing so well understood. That portion of the invention which Mr. Legg claims as being new, viz, the introduction of air vessels in the main, from the pumps to the place of delivery, is just as old as the wheel pumps, and certainly, in common honesty, ought to have been registered as such. An air vessel on a main of pumps, or any other engine, as placed by Mr. Legg, can have no effect beyond that of producing a uniform stream.—*A Mill-owner, the Dale of Derbyshire.* [We know nothing of Mr. Legg, or his supposed invention, which has been brought into notice by "Hydrangea."]

Fowl's Dung as Manure.—Having recently erected a poultry yard, and stocked it with fowls, I am anxious to know whether I can turn to any account in my garden the dung of the animals collected during the week? I have fruit-trees of all kinds; also Rose-trees, and the usual plants and flowers that are to be found in pleasure-grounds. If the dung possesses any fertilising properties, I am anxious to learn to what trees or shrubs in particular it can be most profitably applied. Perhaps you will oblige me with a hint?—*William Kidd, Sanders' Cottage, New-road, Hammersmith.* [If kept dry it is excellent, and may be applied for all the purposes for which other manure is applied; but, being of a hot nature, like pigeon-dung, it must be applied in small quantities and mixed with the soil, or some other material, so as in some measure to counteract its burning effects.]

Early Spring Greens.—I beg to direct the attention of all who are trenching ground, whether field or garden, to the advantages that might accrue by planting the tops of the Swedish Turnip, wherever they can be procured, as an early Spring Green, not bitter, like that from the common Bullock or white garden Turnip, but sweet and tender as Brussels Sprouts. What a pity it is to see a valuable article, as this might become, lying about the fields, as is the case in this neighbourhood, utterly neglected. A thousand tops might be planted by one person in half a day, as they need only to be put into the ground almost in any way, and almost as close together as possible. They make no root, and cannot therefore exhaust the soil. I have planted more than a thousand where nothing will grow but these tops, that is, under large branching trees.—*Anon.*

Meudon Pine Apples.—I have not read the remarks respecting these Pines with the confidential interest I would have done had the writer's name and address been appended; and I should not have made any observation on the matter had I not observed, in the leading article, that you had procured one of these Meudon Pines, which weighed about 8 lbs. when cut, and now that it has lost some of its weight, is far heavier than the finest Queen ever cut in this country. Now this is evidently a mistake; for Pines exhibited in London are not exactly a criterion whereby to measure the production of the whole country; besides, accounts have been published in your columns of the present volume of heavier Queen Pines than the Meudon Queen which had been cut and produced by a Briton. [Where?] It is well known that I have cut Queens exceeding that weight. I have cut a Queen which measured in circumference 23½ inches. I have also cut a Queen that measured in height 14½ inches. Nevertheless I did not for a moment imagine those productions could not be excelled by others, or improved on by myself, as I could always observe sufficient imperfection to induce me to strive at improvement, and this I have but little doubt I shall some day accomplish. Previous observations on the cultivation of the Pine will surely to some extent bear out these facts, but I will leave others to judge how much we poor Britons have to learn to be upsides with those great guns of Frenchmen.—*James Barnes, Bicton Gardens.*

Silkworms.—You enquire, p. 759, whether any of your readers have seen or heard of a certain gigantic silkworm common to the southern parts of the United States. It may not, therefore, be unacceptable to your readers to learn some particulars of a silkworm inhabiting the banks of the Doce (a tributary of La Plata), even if it be not the one mentioned by your correspondent as having been seen by the late M. Audouin. Three or four years since, in my search after persons keeping silkworms in England, I heard of a gentleman at Southampton who had some, and went to his house. Mr. Humphreys told me that when employed in his profession as a civil engineer to survey the Doce, to discover if it were practicable to remove some rocks in a reach of the upper parts of the Rio Doce, in order to render it navigable for the purposes of commerce, he found on the banks a large silkworm feeding on the Palma Christi, and brought some of its cocoons home with him. The chrysalis turned to moth, deposited its eggs, which were hatched in a garret of Mr. Humphreys' house, and I saw from them a beautiful race, such as I had never seen before, of a bright emerald green, considerably larger than the Italian silkworm. Some of them were feeding on plants of the Palma Christi (raised by Mr. Page, the celebrated landscape gardener and nurseryman at Southampton) and some inclosing themselves in their cocoon by wrapping the leaf of the Palma Christi around them, which they do in a curious manner. These silkworms differ from all I have seen, not only in colour but in habits; the Italian moth deposits its eggs soon after quitting the cocoon, and dies, the eggs are kept six or eight months until food appears for them in the spring. These South Americans, on the contrary, fold themselves up in their leaf (evidently a wise provision of Nature for their protection) and the chrysalis remains within the cocoon until the appointed time when they should come forth, they then deposit their eggs, which are immediately hatched, and the cocoon made and wrapped up as I have said. Mr. Humphreys was kind enough to give me a specimen; the colour is a dull pale brown silk, of a coarse texture; the cocoon measures 4 inches long by 3½ in circumference; it is not round but has four flat sides; the ends instead of being round and compact like the Italian, are pointed and loosely formed, so that the moth can escape without perforating the cocoon. Mr Humphreys was kind enough to promise me some eggs, but during a temporary absence his colony was neglected, and he lost the race.—*M. S. V. Whitby, Newlands, near Lymington, Hants, Nov.* 19.

Cultivation of the Jerusalem Artichoke.—Not having sufficient roots to plant my ground after supplying the requisite wants of the family, I collected all the bottoms of the stems of those I had taken up in 1845) that part which bears the tubers), and kept them in a damp place till March, 1846. They were then planted in rows 2 feet apart, and 15 inches in the row; they were manured with a light strawy substance, the soil being of a strong alluvial nature, with the idea of keeping it light. These sets were covered 3½ inches in depth with the soil, and they have proved to be an excellent crop; some of the roots producing 13 good sized tubers, one measuring 10 inches in length, and 13 inches in circumference, with stems upwards of 13 feet in height. By this practice all the eatable part of the root may be consumed, and there will still remain sets for a further supply. It seems to be immaterial what sort of soil it is planted in. I have grown it with manure and without it; on old land and on new; on a stiff soil and on a sandy one; on a black soil and on a light one; and from each success has been obtained.—*A. A., Helmington Hall, Nov.* 16.

Heating.—The following may bear on Mr. Meek's plan, and the objections to the fact of the amount of heat lost in the flue, as supposed by "J. H. H., B—k," and as stated by Hazard. A well constructed Arnott's stove, made and used strictly according to his directions, radiates or gives off nearly the whole of its heat from the body of the stove, so completely so that the iron flue would be so cold, 4 feet from it, that the hand may grasp it with impunity. This is fact; at least when anthracite coals are used, such being the case when I observed the fact.—*A Practical Man.* [Certainly.]

Over-potting Pelargoniums.—Last year I had an opportunity of seeing in different parts of the country plants in cultivation and in bloom that had gone out from here, and in every instance I found the same error to exist, viz. over-potting, and that too late in the season. The consequence of this was seen in great leafy plants, succulent shoots, and feeble bloom often overrun by the foliage. It is to be hoped this error will be avoided in the coming season. It must be borne in mind that if Pelargoniums are to have a good head of bloom the pots should be full of roots before the flowers appear. Every one must have noticed when the fancy varieties are turned out of pots and placed in the borders what luxuriant foliage they acquire, and how very unsatisfactorily they show colour. It is just the same on a smaller scale when over-potted. Nothing, in my opinion, could have saved our flowers from condemnation last season but our own exhibitions, the result of which I hope justified their being sent out—*Edward Beck, Worton Cottage.*

The Coping of Garden Walls.—Walls for horticultural purposes may be of different heights, according to the extent, level, or inclination of the ground, or as may suit the fancy of the designer, or as it may be intended the trees shall be trained; for instance, walls say 8 or 9 feet high have a better appearance than walls 12 or 14, if the horizontal or pendant modes of training are to be adopted. However, for general purposes walls 12 feet in height are what I have always recommended, as upon these you can plant dwarf trees as permanent plants—maiden or trained as the wish may be—with tall standards between, four, five, or more years, trained to clothe the top part of the wall. Such standards would come early into bearing; they should be reduced as the dwarfs progress, and ultimately cut away. Such a wall could scarcely fail to give satisfaction for the little extra expense incurred as to the difference in height. I have always as yet been located where what I consider the best and most durable material for coping a substantial built wall existed, viz, good freestone and not porous. The coping I made use of some years ago for a common 18-inch garden wall, or say a south wall, flued of 23 ins., was 5 ins. in depth at the face or south side; it was worked perfectly level on the under side or bed, then worked off on the top, so as to incline 3 ins. in depth on the north side of the wall, throwing all the water that fell upon it to that side, and thus the trees on the north—an unfavourable aspect as to damp, &c.

—were made still worse by that method of coping; the projection on each side was from 3 to 4 ins., with a groove or drip on the north side as near the edge as it could be conveniently cut. On the east and west walls the face of the coping was shown inside the garden, and the water was all thrown off to the outside as before; the joints were joined with cement. The above method of coping answers admirably as far as protecting the wall from perishing is concerned, but nothing can be worse than to protect the trees on one side at the expense of those on the other, and this led me in my next attempt to divide the drip equally on either side. The form of coping I then adopted was the same as sketch No. 6, allowing a projection on each side of 3 inches, with a groove. In south walls, under the coping, I fixed irons, so as to fix a batten to ward off perpendicular frosts when the trees were in bloom, or on which to suspend woollen netting. After the trees are out of bloom, and the weather mild, the little spray that chances to fall on the trees from the coping will be found in practice more beneficial than injurious. The joints of the coping were put together with mastic in oil. A few years ago I put up nearly 300 yards of substantial brick walls, 12 feet high, coped as above, and they have given every satisfaction. Having erected a range of Vineries this summer, I had leave to add a portion of wall at each end, so as to form two wings, with a view to protect the ends of the houses. At the north side are the sheds, very near to which runs a belt of timber, so that at the north side of those wing-walls no fruit-trees can be planted; but one end must answer as a compost ground, the other a deposit for coals for the use of the Vineries, &c. Above or upon the head-plate of the Vineries is built a course of dressed Ashlar stone, 1 foot in depth, and upon that and on the rest of the wall is fixed an Ashlar coping, 6 inches in depth, at the face, so that the centre or length of the houses is 18 ins above the wing-walls; the coping of the walls is 6 ins. at the face also, and bevelled off to 3½ ins. at the north side, where it projects 3½ ins.; but to the south I have only allowed a projection of 2 inches, which, in my opinion, will be more to the advantage of the trees planted against them, as regards their health and fruitfulness, than all the 10-inch or 1-foot projecting copings over recommended. The almost unprecedented high temperature experienced last summer led me to adopt the little projection. A thermometer suspended against my cottage, stood as high as 122° Fahr., and afterwards one against the walls several times stood as high as 118°, 116°, 112°, and 110° (it reached as high as 110° two or three times during September), the coping not being at that time set out or wrought. What would have been the consequence at that time if the trees had been in a bearing state, with a projecting coping of 10 inches or 12 inches? why, solar heat, reflected and repelled by a broad coping, would have been so powerful that the trees could not have supported the excessive drain upon the foliage by evaporation, and would have become a prey to red spider; the present year's crop would have been without flavour, and woe to the fruitfulness of the trees the following season. Those observations led me to adopt this little projection in the present instance; still, no doubt, a temporary projection is of great use at the time the trees are in bloom, and for a time after to protect the bloom and infant fruit, or until the weather becomes settled and mild in spring. For this purpose I have had irons fixed in the wall immediately under the coping, cranked to drop 1 inch behind the top course of bricks, and again cranked so as to drop 1 inch down the face of brickwork. It then stands forward 11 inches from the face of the wall, with the outer end turned up 1 inch; those irons are fixed 4 feet apart, so that I can secure within them a board 11 inches broad, and 1 inch thick close under the coping, so levelled as to throw the water off the outer edge. Upright laths or spars can be fixed to the edge of the board, with cross laths attached, and as a further protection netting or hunting can be suspended at pleasure.—*James Roberts, Raby Castle.*

Aloe-steep v. *Mice*, *&c.*—It was suggested to me by a friend, last season, to try the effect of a solution of aloes for steeping Peas, as a preventive to the ravages of birds, mice, and slugs, &c, and as it is now about time for sowing those intended for an early crop, your readers who are desirous of having an abundant crop will ensure it by following my plan. The gardener has again this year, by my direction, adopted the same course, and in fact to secure healthy and plentiful crops where they are liable to the above-named depredators, I consider the steeping indispensable. The best method of making the solution is to pour boiling water on the aloes (which can be obtained from any chemist), and let it remain till cold; the Peas should be soaked in this for about 12 hours. The quantity is not important; one ounce to a quart makes a sufficiently strong solution. —*W. Tebbitt, Clapham Common.*

Vines.—Your leading article lately contained a speculation, apparently at variance with received principles, that "the bleeding of the Vine in spring is not so serious an event as is generally believed." But in the data adduced, may there not be some (trick) cause not exhibited for the phenomena stated. After the Vine had been forced during the period necessary for the production of the first crop,—may not the forcing have been discontinued for the time during which it was pruned again, before the forcing for the second crop was recommenced? A Vine will bleed less on a cool day, than during a warm one. What space of time must elapse—after pruning,—before the cut ends become seared or secure against bleeding?—*D. S. E*

[The facts are as we have stated. We do not enter into the spirit of those who doubt all evidence except their own.]

Foreign Correspondence.

Moscow, Sept. 1, 1846.—An excursion from hence to Nijni Novgorod (where the great fair is now being held) and back has led me over a good deal of country much less uninteresting than most of that we grossed from Petersburgh here. The distance is near 300 miles in an eastward direction, perhaps a little more north than Moscow, but the soil in many places must be richer, or rather, less poor. Occasionally, it is true, there are 20 or 30 miles together, in one place 40 miles, of flat sandy or boggy Pine forests; but in others the country is hilly, with a good deal of cultivation, and on the banks of the Kliasma, particularly about Viasniki and Gorokovskaia, really very pretty. The Rye was in most places in, the Oats and Buckwheat just commenced cutting appeared to me to be very short crops; there was also a good deal of a small kind of bearded Wheat, the ears much smaller and the awns shorter and more spreading than the large coarse-bearded Wheat grown in the south of France; very little Barley, and scarcely ever any green crops, except Cabbages, near the villages and towns. As we returned on Friday and Saturday we saw the peasantry employed in sowing the autumn grain crops, which is always begun here after the fast, which ends on the 15th August, O. S. (27th, N. S.). The weather hitherto has been beautiful; some rain has refreshed the ground and brought it into the best state for sowing, and they are hastening to get in the seed before the break up of the season, which may be expected in a fortnight or three weeks at furthest. Near Viasniki we passed through two or three miles of the only Oak forest I have yet seen. It was apparently of 30 or 40 years' growth since the last cutting, thick, and the trees vigorous and healthy; all Q. pedunculata.

Nijni Novgorod, or as it is often called for shortness, Nijegorod or Nijni, is the best situated town I have yet seen in Russia. The town itself, including the ancient citadel or Kremlin, is on the edge of the line of hills forming the high right bank of the Oka at its junction with the Volga, and contains a number of fine buildings and churches interspersed with gardens and trees; the lower part of the town stretches along the river under and on the side of the hill, and opposite between the two rivers and across the Volga extends a vast wooded plain, terminated by low hills on the horizon. The fair is held between the rivers at their junction. Twelve long lines of shops, with dwelling-rooms over them, and covered ways round them, separated by 11 longitudinal streets, and intersected by four cross ones, are permanently built of brick; the central street is a very broad one, with a fine church at one end, and at the other a handsome building for the governor's residence, with a bazaar, restaurateur, club-room, &c., underneath. There are also two cross rows on each side of the cathedral, and all round this permanent part innumerable booths, eating and lodging-houses more or less substantial; countless piles of goods covered with matting extend far along the banks of the two rivers, and in this fair a temporary population of near 300,000 men circulate and transact business for millions upon millions of money, not only without disturbance or confusion, but with a quiet and absence of noise and bustle which much surprised me. The goods that appeared to be in the greatest quantities are iron, Siberian furs, hides, skins, and leather, wooden work (for instance, casks, hoops, enormous piles of wooden rims for wheels, made here of one piece bent in shape of a hoop, &c.), and especially immense piles of boxes of Tea from China brought by Siberian merchants, and European goods taken by them in return for Siberia and China. The broad Oka was almost blocked up by the mass of barges which covered for a considerable length and extend also up the Volga, and on the long wooden bridge over the Oka, connecting the town with the fair, an almost continuous line of *telegas*, *tarantases*, *droshkies*, and other vehicles for the transport of men or goods is circulating each way from early in the morning till dark. The much-talked of variety of costume did not strike me, though it would a West-European could be be set down at once in the fair without passing through Petersburgh and Moscow, for the great mass are either with the rough beard, coloured shirt, loose trowsers tucked into the boots, and outer *caftan*, or robe of the Russian peasant, or in the more or less dressed beard and finer dress forming every gradation from the Russian to the European costume of the tradesmen and merchants, and only here and there a few Persians, Circassians, or Tartars.

In agricultural produce I saw very little at the fair. Harvest being so far from complete it is not the time for the sale of much corn; indeed, there did not appear to be more than what was brought to market for the consumption of the temporary population, except, perhaps, Cucumbers for salting, cartloads of which covered one of the market places, or were being transferred to small barges to be carried up the Volga. In the corn and fruit dealers' shops amongst the bags of nuts of various kinds, were quantities of Sunflower seeds eaten as nuts by the peasantry, and pods of Caroub (Ceratonia) much liked by them, under the name of *sweet pod*, and imported, I was told, from Smyrna.

Societies

BOTANICAL SOCIETY OF LONDON.

Nov. 6.—The PRESIDENT in the chair. The following donations were announced:—50 specimens of Carduus setosus, and some specimens of Luzula nivea, presented by Dr. Dewar. 50 specimens of Galium Vaillantii, presented by Mr. G. S. Gibson. 90 specimens of Sisyrinchium anceps presented by Mr. J. Lynam. 60 specimens of Glyceria plicata presented by Mr. T. Moore. Upwards of 300 specimens of Spartina alterniflora collected at Itchen Ferry, near Southampton, in September last, by Mr. Hewitt Watson, and Mr. G. E. Dennes. The Rev. A. Bloxam presented a copy of his Fasciculus of British Rubi. Some thousands of specimens of Azoric plants had been received from T. C. Hunt, Esq., her Majesty's consul at St. Michael's. This was in continuation of Mr. H's former series of specimens sent to the Society. A large parcel of Pyrenean specimens had also been received from Dr. Southby. The following papers were read:—"On Hieracium maculatum," by Mr. J. Bladon; "On the Potato disease," by Mr. Maberly.

MICROSCOPICAL SOCIETY.

Nov. 11.—The PRESIDENT in the chair. W. A. Boyle, Esq., was elected a Fellow. A paper was read by Mr. Quekett, entitled "Additional Observations on the Intimate Structure of Bone." After alluding to his previous researches on the form of the bone-cells in the various classes of animals, and their application to Palæontology, the author stated that he had recently had an opportunity of examining the Proteus siren, and Menobranchus, a group of reptiles which approached in many of their characters the fish. In these animals the bone-cells were very large, much larger than in the other reptiles. They had also large blood-globules, and he had found that the size of the bone-cells was always proportionate to that of the blood-globules; that where the one was small, the other was small also. The bone-cells of these animals resembled more those of fish than of reptiles, and assisted to confirm Professor Owen's view of their piscine nature.—A paper was read from Mr. John King, of Ipswich, on a new arrangement of microscopic objects to produce polarisation of light. This paper was followed by a discussion in which Mr. Varley, Mr. Legg, and other members took part, in which it was stated that some objects were better defined through the agency of the colours of polarised light than by common light.

LINNEAN SOCIETY.

Nov. 17.—E. FORSTER, Esq., V. P., in the chair. A collection of dried plants from the neighbourhood of Sydney, collected by J. E. Bicheno, Esq., late Secretary of the Society, was presented by him to the museum. A small collection of plants, found about Wellington, Van Diemen's Land, was presented by Mr. James Bonwick. Francis J. Graham, Esq., and William White Williams, Esq., were elected Fellows. W. Hanson, Esq., was elected an associate. The Assistant-Secretary read a portion of Dr. Buchanan Hamilton's Commentary on Van Rheede's "Hortus Malabaricus." The portion read consisted of descriptions and identifications of various species of Cucurbits.

BOTANICAL SOCIETY OF EDINBURGH.

Nov. 12.—Dr. BALFOUR in the chair.—At this the first meeting for the session the following communications were read:—1. On three species of Glyceria, by Mr. F. Townsend, Ilmington, Warwickshire. In this paper the author gave full descriptions of Glyceria fluitans, Br., G. plicata, Fries, and of a supposed new species found in Cambridgeshire and Warwickshire, which he proposes to name G. hybrida, and pointed out the distinctions by which they may be known from each other. The paper will appear in the "Annals of Natural History." 2. Dr. Balfour read a description of Exogonium Purga, Benth., the true Jalap plant, and noticed some points connected with its medical history. The Jalap plant was for a long time referred to Convolvulus Jalapa of Linnæus and Willdenow, or Ipomœa macrorhiza of Michaux, a native of Vera Cruz. It has recently been proved, however, from various sources, to be the plant now under notice, which grows in the hill country, near Jalapa in Mexico, at a height of about 6000 feet above the level of the sea. The plant was first sent to the Edinburgh Botanic Garden by Dr. Christison, who received it from Dr. Coxe, Philadelphia, and it has flowered several times in a cold frame. It belongs to the natural order Convolvulaceæ. The genus Exogonium has been separated from Ipomœa by Choisy, on account of its exserted stamens. Specimens of the recent plant were exhibited. Dr. B. also described Stenocarpus Cunninghami of Hooker, and exhibited a fresh specimen in flower. This plant has been long known in gardens under the name of Agnostus sinuatus. It is a small evergreen tree, belonging to the natural order Proteaceæ, sub-order Folliculares, and tribe Grevilleæ. It was found by Allan Cunningham on the banks of the Brisbane River, Moreton Bay, and is remarkable for its umbellate inflorescence, and showy orange-scarlet flowers, with reflexed and subsecund segments of the perianth. The plant was first introduced into the Royal Gardens at Kew, whence it has been distributed over the kingdom. It has flowered this season for the first time in Britain. 3. Remarks on a Pyrola found in Lancashire, by Mr. Kenyon. Specimens of this plant, which is considered by its discoverer as a new species, and which he proposes to call P. maritima, in allusion to the localities in which it is generally found, were shown to the meeting. It is nearly allied to P. rotundifolia, from which it may be distinguished by its size, the form and length of its sepals, and length of the stamens. Some excellent

botanists who have examined it, are of opinion that it is only a variety of that species. Mr. W. M'Ivor, of the Kew Gardens, sent specimens of an Orobanche, considered by him to be O. lucorum, Braun, gathered on Epsom Downs; also Thesen ramosissima, from Sndley, Yorkshire, and Hormospora mutabilis, from the Thames, near Walton. A series of beautiful photographic delineations of various forms of leaves, prepared by Mr. J. Lumsdaine, jun., of Lathallan, Fife, was exhibited, and an account read of the process by which they were obtained. There were also exhibited a collection of Rubi from the Rev. A. Bloxham, Twycross, Leicestershire, containing some new species and varieties. Framed portraits of the late Professor Graham, Sir Wm. Hooker, Robert Brown, Esq., and Dr. Neill, were presented to the Society from Mrs. Graham. Mr. J. Davies presented excellent dried specimens of 20 species of Agaries, collected by himself in the neighbourhood of Edinburgh.

Reviews.

A second volume of the new edition of *Beckmann's History of Inventions*, 8vo. (Bohn), already noticed at p. 535, has been issued. It contains many capital articles, of which those on zinc, Madder, plant-skeletons, sowing-machines, Indigo, kitchen vegetables, hops, and blacklead are more especially interesting to our readers. The commencement of the chapter on soap is in Beckmann's best style:—

"That the first express mention of soap occurs in Pliny and Galen, and that the former declares it to be an invention of the Gauls, though he prefers the German to the Gallic soap, has already been remarked by many. Pliny says that soap* was made of tallow and ashes; that the best was made of goats' tallow and the ashes of the Beech-tree, and that there were two kinds of it, hard and soft. The author of a work on simple medicines, which is ascribed to Galen, but which, however, does not seem to have been written by that author, and of which only a Latin translation has been printed, speaks of soap being made by a mixture of oxen, goats', or sheep's tallow, and a lye of ashes strengthened with quicklime. He says the German soap was the purest, the fattest, and the best, and that the next in quality was the Gallic. This account corresponds more exactly with the process used in Germany at present; whereas the French use mineral alkali, and instead of tallow, employ oil, which appears to be a later invention. Pliny in his description does not speak of quicklime; but as he mentions a mixture of goats' tallow and quicklime a little before it, it is probable that the use of the latter was then known at Rome. Gallic and German soap are often mentioned by later writers, as well as by the Arabians, sometimes on account of their external use as a medicine, and sometimes on account of their use in washing clothes. The latter purpose is that for which soap is principally employed in modern times; but it does not seem to have been the cause of German soap being introduced at Rome. Washing there was the occupation of indigent scourers, who did not give themselves much trouble concerning foreign commodities. The German soap, with which, as Pliny tells us, the Germans coloured their hair red, was imported to Rome for the use of the fashionable Roman ladies and their gallants. There is no doubt that the *pilæ Mattiacæ*, which Martial recommends as a preventive of gray hair; the *caustica spuma* with which the Germans died their hair,† and the Batavian froth or lather which the Romans employed for colouring theirs,‡ were German soap. It is probable that the Germans tinged it with those plants which were sent to Rome for dyeing the hair;§ and, according to the modern manner of speaking, it was more properly a kind of pomade than soap.

"It appears that the Romans at first considered hair-soap as an ointment made from ashes; for we read in various passages of ancient authors, that the hair was dyed by means of ashes, or an ointment made of ashes and a certain kind of oil. It is, however, possible that they may have had such a kind of ointment, which undoubtedly would be of a saponaceous nature, before they were acquainted with the German soap, or that they imitated the German pomade with different variations."*

"As soap is everywhere used for washing at present, a question arises what substitutes were employed before it was invented. Those with which I am acquainted I shall mention and endeavour to illustrate. They are all still used, though not in general; and they are all of a soapy nature, or at least have the same effects as soap; so that we may say the ancients used soap without knowing it."

* It is beyond all doubt that the words *sapo* and *σάπων* were derived from the German *sepe*, which has been retained in the Low German, the oldest and original dialect of our language. In the High German this derivation has been rendered a little more indistinguishable by the *p* being changed into the harder *f*. Such changes are common, *as schaip, schaf; schip, schiff*, &c.

† Caustica Teutonicos accendit spuma capillos,
Captivis poteris cultior esse comis.—Mart. xiv. 26.
These lines are generally explained in this manner:—"Dye thy hair with soap, and it will become more beautiful than that of the Germans." But in this case all the wit of the advice is lost; and the expression, "eris cultior quam coma captiva," seems to me very improper. I should rather translate them as follows:—"Let the Germans dye their hair with pomade; as they are now subdued, thou mayest ornament thyself better with a peruke made of the hair of these captives." This was a piece of delicate flattery to Domitian and the Roman pride. That prince thought he had conquered the Germans; and the most beautiful German hair, that which was not dyed, could be procured, therefore, at Rome, much easier than before. If the title of this epigram was written by Martial himself, it contains the first mention of the word *sapo*.

‡ Fortior et tortos servat vesica capillos,
Et mutat Latias spuma Batava comas.—Mart. viii. 33, 19.
The first line of the above proves that people then covered their heads, in the night time, with a bladder to keep their hair, after it was dressed, from being deranged; and a bladder was undoubtedly as fit for that use as the nets and cauls employed for the like purpose at present.

§ Femina canitiem Germanis inficit herbis.
Ovidius De Arte Amandi, lib. iii. 163.

* Valer. Max. l. 5, p. 135: Capillos cinere rutilarunt.
Ad rutilam speciem nigros flavescere crines,
Ung uento cineris præditit Plinius auctor.
Q. Serenus. De Medic. iv. 56.
Serenus seems to allude to a passage of Pliny, xxiii. 2, p. 306, where he speaks of an ointment made from the burnt lees of vinegar and *oleum lentiscinum*. The same thing is mentioned in Dioscorides, v. 132, p. 379. Servius, Æn. iv. quotes the following words from Cato: "Mulieres nostræ cinere capillum ungitabant, ut rutilus esset crinis." Alex. Trallianus, i, 3, gives directions how to make an ointment for gray hair from soap and the ashes of the white flowers of the *Verbascum*. The *Cinerarii*, however, of Tertullian, lib. ii. *ad uxor.* 8, p. 641, seem to have been only hair dressers, who were so called because they warmed their curling-irons among the hot ashes.

Garden Memoranda.

Horticultural Society's Garden, Turnham Green.—Since Mr. Fortune's appointment to the Chelsea Botanic Garden, the hothouse and hardy departments have been consolidated, and are now under the superintendence of Mr. Gordon. The large mass of Lælia superbiens in the stove is throwing up 9 strong flowering spikes, being two more than it had on it last year. The singular Crinum-like Exostema aquaticum was also in bloom, and the very useful Gesnera Herbertiana, whose leaves are less handsome than those of G. zebrina, but whose flowers equal in brilliancy and beauty those of that species.—In the greenhouse was in bloom Mr. Fortune's Jasminum nudiflorum, a pretty species, likely to prove hardy.—In the Orchid House, the mass of Phalænopsis amabilis exhibited so often in Regent street was still in bloom, and likely to continue so all the winter. In the flower-garden, in front of these houses, some neat-looking span-roofed pits have been erected, in which it is contemplated to plant Mr. Fortune's Pæonies and other plants, and which would form excellent pits for protecting stock in winter. They are set on about 18 inches in height of brick-work, the ends forming nearly an equilateral triangle, the side being 3 ft. 12 in. in length. At the west side of the experimental garden is a new Conservatory erected by Messrs. Hartley and Co. It measures 36 feet in length, and 30 feet in width. The roof—a ridge and furrow one—is divided into five spans, the outside span rising off a perpendicular elevation of about nine feet, and the centre ones supported on neat iron columns. The roof, the only portion completed, is glazed with excellent glass in panes upwards of three feet in length, and 13½ inches in width. The house, which just now contains a nice group of Pinuses in pots, is not to be heated for the present. In front of Mr. Gordon's pits has also lately been erected a long additional range for keeping stock in winter. It is built to face the north, this aspect being most favourable for preserving vegetation in a steady state, the sudden alternations of sunshine and frost to which our winter days are subject being in a great measure avoided. The Large Conservatory was gay with Chrysanthemums, which are, however, hardly so fine as usual. Several winter flowering Heaths also adorned the shelves, such as hiemalis, erubescens, transparens, cruenta, &c. The large Luculia gratissima promises soon to be a mass of beauty, the Camellias will also soon be in blossom, and some of the Orange trees are profusely loaded with fruit, whose beautiful colour forms a striking contrast with the deep green leaves. Trained up the rafters the new Tacsonia mollissima, the finest of its class, was putting forth here and there a vagrant blossom, besides various other plants, introduced with the view of relieving the otherwise monotonous appearance that generally prevails in such houses at this season.—In pits in the kitchen garden department were some young Potatoes, raised from tubers of 1846, which had pushed and had been planted with a view to ascertain how they might succeed with regard to the prevailing disease. As yet, however, no satisfactory result could be obtained. They were chiefly early sorts. Adjoining them were some pits bottomed with slate, rendered water tight at the joints by cement, and so contrived that both top and bottom heat could be provided by iron tanks, with tile covers placed immediately below the bottoming. Two slate slabs, placed perpendicularly, formed, as it were, a slate cistern, so placed as to leave an aperture 6 inches in width, along the front and back for the ascent of top heat. These pits have been found to work well, and will keep in good repair for a length of time, slate being imperishable in such a situation. Much of the winter Spinach in the kitchen garden, both Flanders and Lettuce-leaved, has rotted off both root and top, something after the manner of Potatoes. The plants, however, which have escaped appear now to be doing well. The Pomeranian Cabbage has proved to be an excellent variety—the heads hard and conical, and tapering to a long sharp point. We also observed a very good variety of dwarf Brussels Sprout, which had been obtained from Mr. Lauder, market gardener, near Edinburgh. A Lettuce called the Artichoke-leaved, although somewhat ragged, has been found to be a good tender variety, and to stand the winter better than other Cos Lettuces.—In the Orchard the portion of the Peach border not renovated two years ago is being done now. This is effected by removing the old soil entirely next the wall, and replacing it, to the depth of 2 feet, with fresh North Hyde loam, and good soil from another part of the border.

The Garden Committee, in connection with the Council, having determined to provide a reading room for the improvement of the men in the garden, it was opened for the first time on Monday evening last. An introductory lecture was delivered by Professor Lindley, who commenced by stating that the object of the room was to enable the young men in the garden to improve their minds, and to assist them in obtaining that amount of knowledge which alone could render them superior to the common herd of men. Knowledge, he said, was power, and offered the only means of raising gardeners in the scale of society, and of improving their wages; and this he went on to illustrate at some length. The sort of knowledge most essential to gardeners was stated to be the art of gardening, of observing, the knowledge of vegetable physiology, botany, physical geography, and a certain amount of chemistry, with other subjects belonging to usual education. Of these, not the least important was mentioned to be the art of observing, and this was exemplified by a variety of very interesting experiments, all tending to prove that more than a mere superficial examination of subjects is often necessary in order to arrive at truth. Besides the intrinsic value of these kinds of knowledge, in themselves, they were also said to promote the formation of orderly and systematic habits, qualities of paramount importance in a gardener. The art of reading was also introduced to consideration, more especially the necessity of making notes of what is read.

Dr. Lindley, in conclusion, expressed a hope that this small beginning would lead to greater results; that the course now taken by the Horticultural Society and others would be followed by every large establishment all over the country, and that by this and similar means a more solid foundation would be laid for that great school of British gardening which other countries might rival, but could never hope to excel.

These form a very brief outline of the more important heads of the lecture. The walls of the room—at present a temporary one—are furnished with maps and plans of continental gardens; and it was mentioned that if the objects of the room were likely to be appreciated by the men (as they no doubt will be), the Council would give them further support, and future lectures would be occasionally given. Besides various kinds of mathematical instruments, we understand that the library now contains about 175 different works, the greater part of which are of direct importance to the pursuits of gardeners, and all of which are suited to enlarge and improve the mind. For the *Principles of Gardening* there are many of the works of Darwin, Johnson, Knight, Lindley, and others. The *Practice of Gardening*, a distinct matter, although dependent upon a correct knowledge of principles, is illustrated by all the best writers on general subjects; as, for example, by the dictionaries of Miller, Johnson, Loudon, and Paxton, and the special treatises of many of the best gardeners of the present day. Repton's "*Landscape Gardening*," "Abson on Taste," and Downing's "Cottage Residences," furnish, as far as they go, correct views of laying out grounds; and the old work of James is then to be studied in connection with these writers, when geometrical gardens have to be planned. For *Vegetable Physiology* and *Systematic Botany*, there is the very useful illustrated work of "Baxter on British Flowering Plants," many excellent introductions to botany, suited to different capacities, the "Vegetable Kingdom," Smith's "English Flora" Tournefort's old but invaluable "Institutions," Loudon's Encyclopædias of Plants and of Trees and Shrubs, with the Catalogues of Steudel, Sweet, Paxton, Don, and Loudon.

For those who wish to study *Chemistry*, and no man can be a great gardener who does not understand the elements of that science, there are the capital and very simple introductions of Professor Solly and Mr. Sparkes, and the works of Davy, Liebig, and others for those who are so far advanced as to be able to understand them. Elementary works on *Arithmetic, Land-surveying*, and simple *Mathematics* have been selected with care, and it is expected that Brook Taylor's "Perspective," Loudon's invaluable "Self Instruction," some elementary works of the Messrs. Chambers, Ritchie's "Arithmetic," and a few others, will enable everybody to make progress in such subjects. Nor has what may be called *Natural Philosophy*, so indispensable to all persons, whatever their station in life, been neglected; there are Daniell's "Meteorological Essays," Hood's and Bernan's works on "Heating and Ventilating," with Tredgold's "Principles of Warming and Ventilating," which, when they have been properly studied, may be succeeded by others.

In *Physical Geography* there is provided Traill's "Physical Geography," Bankes's "Geography," and some other elementary works, with a good Atlas and an excellent Terrestrial Globe, together with Mr. Buckhouse's instructive "Travels in Australia and the Cape of Good Hope," with some other valuable books of travels.

Finally, there are various works, which, although they have no direct connection with gardening, are full of value as works of *general instruction*. Among them may be named complete sets of the "Penny Cyclopædia," and of the Athenæum journal, Beckmann's "History of Inventions," Brande's "Dictionary of Science," an abridged edition of Shakspeare, Crabb's

"Technological Dictionary." This class of works, if judiciously selected, is of much importance in developing the intelligence of all men, be their station in life what it may.

Calendar of Operations.

(For the ensuing Week.)

CONSERVATORIES, STOVE, &c.

The conservatory being now replete with gaiety, care must be taken in the very first place that all drip from the roof is avoided. To accomplish this, very little water must be applied in any shape, excepting what is absolutely necessary at the root. However, under these circumstances, a very moderate amount of atmospheric heat must be allowed; for, wherever heat is allowed (in the gardening acceptation of that term), there must be atmospheric moisture, or the plants will soon show marks of debility; therefore the true conservatory policy, from the end of November until the early part of February, is to keep as low a temperature as possible, consistently with the main object in view, viz. enabling plants with duly organised buds to develop their blossoms in a proper way. This, I say, is the principal object; their continuance in bloom, and the preservation of their tints, follow in close connection. A still atmosphere must be maintained. The ventilation must be moderate; about 45° to 55° by day, and 40° to 45° by night, will be quite sufficient for the present. *Stove and Orchids.*—Go on quietly; keep a similar atmosphere to that recommended for the conservatory, but about 10° higher. A little more atmospheric moisture must be allowed, however, in proportion to the extra heat, according to the fore-named principles. *Mixed Greenhouse.*—Observe the remarks on Conservatory management. *Forcing pit.*—If a mere pit of fermenting matter, a very free ventilation must occasionally be allowed, or the moisture will be overpowering. A bottom-heat of 75° ought to be secured; this is indispensable. The pots should be about half plunged in the old tan. Keep the atmospheric heat very low at first, about 55° to 60° in the day, with as much air as can be managed, and 50° to 55° by night, still leaving air more or less.

KITCHEN GARDEN FORCING.

Pines.—Late-swelling fruiters, which have had no water for weeks, may receive a little more tepid manure-water. There is, however, room for grave doubts as to whether it is absolutely necessary after this period. Of those managed in the old style (in houses or pits with flues), there is no doubt that such would require it. By modern plans, however, a much greater amount of atmospheric moisture is indulged in; and this should be duly considered. When sunshine occurs, instead of giving air, let the thermometer rise to 80° or even 90°, after which give air. *Early Vinery.*—If the former directions have been attended to, little can yet be added. As before observed, commence gradually. If there is fermenting matter within the house, let it be turned or stirred once a week, in order to promote fermentation; taking care to keep it moist. *Peaches.*—Proceed as with the Vines for the present. *Cucumbers.*—Those who have winter plants in pits or frames must be sure to keep the glass perfectly clean. So much depends on the mode of heating that it is almost impossible to offer advice which may prove serviceable. One or two points, however, apply to all. If much atmospheric moisture be applied, so as to lodge on the leaves in a general way, ventilate, or by other means dry the dew off the leaves for an hour or two every day. Secure a day heat of 70°, allowing 85° max. in sunshine, and 60° to 65° by night. *Mushroom house.*—Keep the floor constantly wet. Be moderate in the use of fire-heat—55° to 60° is sufficient. Any late made beds not yet showing, on which the soil has become husky, may be slightly sprinkled before the spawn comes through.

FLOWER-GARDEN AND SHRUBBERIES.

Now that the leaves are off the trees and shrubs, let the shrubberies have a thorough cleaning. Rose stocks should be procured forthwith and planted on rich soil for budding purposes. Examine pillar and trellis Roses, and see if the soil wants renewing or the kinds changing. Roomy holes should be made for choice kinds, capable of containing three or four barrows of soil. Turfy loam of a sound character is the chief thing; to this add a portion of rich rotten manure and, if at hand, a little sandy peat or leaf soil.

KITCHEN GARDEN AND ORCHARD.

Salads.—The proper preservation of salads is one of the most important winter duties of a gardener, and great difference exists in practice on this head. The old Dutch mode of procuring good Lettuce through the whole winter is pretty well known; indeed many know it who are not able to practise it for the want of spare frames or pits. Those who desire to have good Lettuce in this way need be under no apprehension of the difficulty, provided they are willing to undergo the expense of frames. However, for ordinary purposes, the best way is to grow a considerable breadth of Lettuce from the August sowings; that of the first week is eligible. This being tied and blanched betimes in October, may be taken up and headed close together and covered with straw mats or otherwise. The same may be done with Endive. Two points are very necessary, drop wise to promote the circulation of dry air or winds cool day, than at all times, and to keep out frost. Much time must elapse said on this head, which the Calendarial become seared result. I must therefore reserve some for a future period. *Orcharding.*—Proceed with pruning, nailing, &c., without a moment's delay, in proper weather.

COTTAGERS' GARDENS.

The Potato pit should be carefully examined, and all suspicious ones removed and used forthwith. Where a cow is kept, the decaying leaves from all the various greens should be collected once a week. Those which are become yellow are, of course, useless; but abundance will be found on Broccoli, Savoys, Brussels Sprouts, &c., on the lower parts of the stem, which will be of service to the cow. Continue to plant Potatoes as ground can be spared.

FORESTING.

This is an excellent planting season, and not a day should be lost, for frost and snow may shortly be expected; a continuance of them may suspend these operations till February. Let young trees annoyed by hares or rabbits be protected; any simple nauseous mixture will keep them off until they seek other food. Make preparation for new hedgerows, break the soil up as deep as possible, and introduce as much turfy or vegetable matter as can be spared.

State of the Weather near London, for the week ending Nov. 26, 1845, as observed at the Horticultural Garden, Chiswick.

Nov.	Moon's Age.	Barometer. Max	Min.	Thermometer. Max	Min.	Mean	Wind.	Rain
Frid. 20	1	29.484	29 295	54	48	48.6	S.W.	.16
Sat. 21	2	29 641	29 540	53	39	43.0	S.W.	.37
Sun 22	3	29 570	29 3 6	55	39	47.0	W	.04
Mon. 23	4	29 759	29 711	51	49	50 0	S W.	.07
Tues. 24	5	29 698	29.580	56	46	51.0	S.W.	.50
Wed. 25	)	29 663	29 960	52	43	47.5	N	.27
Thurs. 26	7	29 988	29.528	56	39	48.0	S.W.	.01
Average		29 579	29 424	53.3	41.3	47.3		1.22

Nov. 20—Cloudy and boisterous: lightning at night
21—Fair: fully overcast: very fine; rain
22—Fine; overcast, clear, rain
23—Slight rain, cloudy, densely overcast; rain
24—Hazy and damp, rain
25—Rain throughout
26—Partially clouded; very fine; clear; foggy at night.
Mean temperature of the week 7 deg. above the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Dec. 5, 1846.

Nov.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest quantity of Rain	Prevailing Winds: N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 29	49 4	37.1	43 3	11	0.55 in.	1	1	3	3	2	7	2	2
Mon. 30	50 3	38.8	44.4	12	0.31	—	1	1	2	5	6	3	2
Dec													
Tues 1	50.1	38 9	44 5	8	0.35	1	2	2	2	2	4	5	2
Wed 2	47 8	36.1	41.9	11	0.51	1	3	1	1	2	2	2	4
Thurs 3	49.7	38 0	43.8	9	0.17	—	2	2	1	2	2	7	—
Frid. 4	47.0	36 8	42 0	9	0 14	1	2	2	—	3	1	6	4
Sat. 5	46 4	35 6	41.0	9	1.18	—	1	1	1	1	3	6	6

The highest temperature during the above period occurred on the 5th, 1827—therm. 56°; and the lowest on the 5th, 1840—therm. 14°.

Notices to Correspondents.

Books.—*J H*—Loudon's "Encyclopædia of Gardening," Loudon's "Self Instruction for Young Gardeners," and "The Theory of Horticulture."——*J E M*—The last mentioned, with Donn's new edition of Donn's Catalogue, the "Vegetable Kingdom," and "School Botany."

Cottagers.—*M H*—You had better procure Paxton's "Cottager's Calendar." It would require a treatise to give you the information you seek; you will probably find all you want in that invaluable little book.

Forcing Frame—*J L H*—The situation is excellent. Sink the bed below the ground level, about one-half its bulk, provided water can be prevented from lodging; whether shale or soil is immaterial, if such can be accomplished. Is it worth while, however, to excavate rock for a pit? The bed may be above the level, only it will require more attention and manure in linings. The leaves should be those recently fallen, and must be thrown together, and well fermented, previous to building the bed. It should be at least 4 feet high at back, at this season. It is immaterial what frame is used, provided height for the plants is afforded. The leaves and dung should be moist and trodden tolerably firm. *E.*

Fumigation—*C M C*—A solution of carbonate of ammonia, in water, will kill green fly; but all plants are not able to bear it; some leaves become brown; some drop off, and it ruins paint. It does very well for Roses; see p. 371, 1846. Try Tobacco-*water*.

Gooseberries—*A Subscriber*—Preferring flavour to size, the following varieties will suit your purpose:—*Red*: Red Champagne, Red Warrington, Keens' Seedling, Rough Red, Red Turkey, Rob Roy, Ironmonger. *White*: Woodward's Whitesmith, Early White, White Fig, Taylor's Bright Venus, White Honey. *Green*: Early Green Hairy, Heßburn Green Prolific, Pitmaston Green Gage, Green Walnut. *Yellow*: Rumbullion, excellent for bottling; Yellow Champagne.‖

Heating—*George*—It is not practicable to give you an answer to your inquiry without being on the spot. You should consult Plumridge. We presume that soot collects in the bend of your chimney, where it dips down. Why can you not make it rise instead of fall? Your leaf is a martyr to the red spider. Your house is much too dry.

Insects—*N S*—As there are so many insects, &c., all called wireworms, whose habits are very different, we cannot give you advice until you have sent some specimens in a pill-box. *R*——*M D*—It is Spathius clavatus which lives upon the beetles. May we beg of you to send us some of these that we may publish their history. Cannot you have the bedsteads taken to pieces and kiln dried, or put into an oven for 15 or 20 minutes? if not, wash the furniture well with spirits of turpentine, using a painter's brush, and repeat it occasionally until you find no dust falls from the holes. *R*——*H M*—When frost comes the insects will disappear. They are called Aleyrodes proletella. The leaves with the brown scales under them must be taken away and burnt, as the little white flies are bred from them. *R*——*J L H*—Your interesting queries require too long answers for our Notices, but if we can learn sufficient to satisfy your curiosity, the caterpillar shall form a subject for an essay. *R.*

Jerusalem Artichokes—*Youghal*—Our columns of last week and of this will give you all the information we possess.

Leaves—*C S R*—Such spots are found every year upon dying Sycamore leaves: yours are blotched excessively; we see no other difference.——*Rus in Urbe*—We should have supposed that your leaves were suffering from cold and wet; but it is impossible to speak with certainty in the absence of inspection of your place. Potters' guano is not *likely* to have produced the appearance. A warm and drier atmosphere would, probably, remove the evil.

Manure—*A Beginner*—Cinder ashes, in small quantities, are beneficial to all kinds of heavy land as a top-dressing, and worked in; and they will sometimes assist light land also. They are much improved if soaked with putrid urine. We attach much value to them.——*C Z S*—Mix your light soil with weeds, decayed vegetables, and all such rubbish; cover it with gypsum, cinder ashes, charcoal dust, dead leaves, peat, or any such material, and put a good thickness of soil over all. In a few months, when the smell is gone, turn the heap well over, and it will be a very *strong*, excellent manure for all purposes. There is no difficulty in fruiting the Kishmish Vine that we ever heard of; it bears abundantly on an open wall; but it wants heat to ripen it.

Mulberries—*J S M*—Cuttings of these may be put in pots now, and in spring put them in moderate heat. An old plant may be forced.‖

Names of Fruit—*W*—Not known: it is russeted and coloured like the Pomme Royale, but it has a wider depression about the eye, and appears to ripen earlier.‖

Names of Plants—When plants are sent to be named, it is most particularly requested that they may be in flower, and as perfect as circumstances permit. Most especially is it requested that the country whence they have been received, and whether they are annuals, perennials, or shrubs, hardy, greenhouse, or stove plants may be stated; because specimens by post are generally bad and incomplete, and much valuable time, which such information would save, is needlessly wasted.——*T A B*—1, Catasetum luridum; 2, Rodriguesia planifolia; 3, Catasetum deltoideum; 4, Epidendrum umbellatum; 5, Maxilluria pallidiflora; 6, Catasetum Hookeri——*A S*—Physalis pubescens, *alias* edulis.——*N O P*—6 is Pteris longifolia; it is not reasonable to ask us to waste time in finding out the names of morsels of Ferns without fructification, and of other plants, especially miserable Cassias, without flower.——*George Geggie*—Your Bramble is no variety of Rubus fruticosus, which is an entirely different species. It is a cut-leaved state of one of the corylifolius set, and is probably the R. laciniatus of Willdenow.——*J B*—Apparently some species of Callitris, but it is impossible to say what from such a specimen.¶——*J Tipperary*—Your beautiful little plant is a Scinthian, with which we are unacquainted. It may, perhaps, be S. geniculosa, which is said to have purple flowers. We must apologise for having mislaid your note.——*J M Stansfield*—Both are varieties of Zygop. Mackaii, not worth botanical distinction.

New Gardens—Walls first: houses afterwards. Upon referring to our previous Numbers you will see that Mr. Meek permits his house to be seen any Wednesday, after one o'clock. Another correspondent near London also to-day expresses his willingness to show his Polmaised houses. *Good* Walcheren Broccoli is hard to get. Apply to your seedsman.

Orchard—*B B*—Ground that has been dug out 7 or 8 feet, and to within 1 foot of the lowest practical drainage, is not at all likely to answer for orchard trees. If you do make the experiment, you ought to trench the ground well, and plant the trees on ridges, before spring. The hardiest kitchen Apples will be most proper. Potato crops are the best for meliorating the soil where young fruit trees are planted.‖

Pears—*A Subscriber*—The Van Mons Leon le Clerc is a large oblong fruit of first-rate quality, ripe in October and November.‖——*J A, Bristol*—For espaliers in a warm shallow soil: Red Doyenné, Seckle, Louise Bonne (of Jersey), 2 Marie Louise, Beurré Rose, Beurré Diel, 2 Bacon's Incomparable, 2 Winter Nelis, Trout, Napoleon, 2 Thompson's, 2 Glout Morceau, 3 Passe Colmar, 2 Knight's Monarch, 2 Ne plus Meuris, Jean de Witte, 2 Easter Beurré, 2 Beurré Rance.‖

Pinus patula—*W H*—It has stood out unprotected, in the garden of the Horticultural Society, since 1841, and is now 8 feet 2 inches in height, and 8 feet across the bottom branches. It was only 2 in. in height when planted out, and has never had any protection. In very severe winters the ends of the leaves sometimes become browned by frost.¶

Polmaise Heating—*Mr. George Nichols*, of Leeds, states that he has succeeded in applying this principle, using a stone trough for the tank. He adds that "the moisture given out is sufficient, and has a wonderful effect upon the growth of the plants. Tobacco smoke passed into the cold air drain at the lowest part makes its appearance in a few seconds at the opening where the hot air enters the house. The apparatus can be stopped, or the hot air turned off, when not wanted, which will be found a boon after a frosty night followed by a bright sun."——*R A J*—We have carefully gone through your two *very long* letters, and we conclude that you do understand the principle of Polmaise, but we quite despair of making the plans more intelligible to you. Plans are conventional modes of guiding builders and others; and it is indispensable that the ordinary rules of representing objects in such figures should be apprehended. That art we cannot teach. The return flue, P, is the chimney flue; we quite misunderstood your question. It has no communication whatever with the cold air drain. Z is a separation of the chimney return flue from R, the space below which is filled with rubbish. A stoke-hole is a small external shed in which the furnace of a greenhouse, with its fuel, &c. is placed.—The Reine Claude Violette Plum is a very fine kind of Purple Gage; it is one of the best Plums known. We do not recommend the Windsor Pear. We are so crowded with other matter that we cannot at present repeat Mr. Meek's plan. And, after all, why should we? as the world will not give itself the little trouble of turning from one paper to another, it is the affair of the world, not ours. We are not quite justified in repeating matter accessible to all, merely to save somebody a little trouble. Your hints, however, are very acceptable; they entirely correspond with our own experience of the genus homo. Believe no wonderful tales of wonderful stoves that cost nothing. There are many excellent stoves in use, and in many cases the distinctions are mere matters of fancy or folly. You may burn either coals or coke; we prefer the latter because we avoid soot, which is a great evil in a garden.

Potatoes—*R H* will find what he seeks scattered in profusion through our columns ever since August, 1845. Surely he does not expect us to save him the trouble of searching for himself.——*T W*—The Ash-leaved Kidney is the same as the Walnut-leaved.‖

Pruning—*Elfrida*—As soon as the leaves have dropped, the winter pruning of fruit-trees may be safely commenced.‖

Stoves—*M H E*—If your suspension stove becomes *red hot* you had better not use it at all. It is unsuited to plants, if that is the case. The painting does no other good than that of preventing the iron from rusting; the colour is immaterial in your case. We will give you with pleasure what you ask for if you will favour us with your address.

The late Hailstorm—*A Correspondent*, who adds that he is also a contributor to the funds raised for relieving the damage done by this storm, complains that no money has been distributed among the sufferers, and urges that what money is in hand should be at once distributed. We cannot enter into this question. Our correspondent should apply to the committee.

Vines—*A Sub, J S M*—It is now a good time to cut back your previously neglected Vines. No composition is necessary; there is no danger of their bleeding when cut before winter. Exposure to severe frost is injurious; but a cool temperature is beneficial.‖

Misc.—*A B D*—The fruit you sent was the Momordica Balsamina. It may be cultivated as a Cucumber, and so pickled in a *green* state. We cannot say what the other fruit is, to which you allude, without seeing it.‖——One shilling will be given for No. 31, 1845.——*Temple*—It is an invariable rule, and an indispensable one, that we should not give recommendations of tradesmen. It is for them to keep the public aware of their residences, &c., by means of advertisements. It is of no consequence when Ivy is pruned; whenever it is most convenient.——*A Subscriber* may plant his Water Lily now, and in the manner he proposes; the tank is, however, too deep, and it would be as well to contrive some means of keeping the plant within 3 feet of the surface.

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those correspondents, the insertion of whose contributions is still delayed.

GUANO, &c.

MARK FOTHERGILL begs to offer the following MANURES on the best terms, viz:
GUANO, PERUVIAN and AFRICAN, direct from Import Warehouses.
Ditto, PATAGONIAN and SALDANHA BAY. Ditto.
SODA ASH, for destruction of Wireworm.
SUPERPHOSPHATE OF LIME (See Royal Agri. Soc. Journal, Vol. vi. Part 2).
GYPSUM (Pure Sulphate of Lime).
BONE DUST and BONE POWDER.
SULPHURIC ACID. CHARCOAL.
PETRE SALT and AGRICULTURAL SALT for Composts.
SILICATES of SODA and POTASH, and all other Manures.
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The Agricultural Gazette.

SATURDAY, NOVEMBER 28, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS

WEDNESDAY, Dec. 2 { Agricultural Society of England / Highland and Agricultural Society. / Flax Society of Belfast
THURSDAY, — 3—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, — 9—Agricultural Society of England.
THURSDAY, — 10—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.

Llandovery—Bath—Rugeley—Arran—Wells (Ireland)—Cumnock—Farringdon—Brigham and Gullerous.

FARMERS' CLUBS.

Nov. 30—W Hereford—Wenlock—Chamcester—W. Market Exminster
Dec. 1—St Peter's—Abergavenny—Rochford Hundred—Framlingham—Swaffham—Jedburgh—Watford—Wingerworth
2—Harleston—Braintree and Rocking
3—Crowe Ferry—Carlton-on-Trent—Hawick—Peebles
Dec. 4—Tavistock—St. Germain's—Chelmsford—Claydon—Wadebridge
5—Dartford—Callington—Wimborne—Durham—Melrose—Swansea.
7—Darlington—St. Columb-Major—Newark Yeaford—Market Hill—Bamborry—Bakewell
8—Wotton Basset

"ON Tuesday last the Seventh Annual Exhibition of MANGOLD WURZEL, TURNIPS, WHITE CARROTS, POTATOES, and other roots, was held at Lewes"; and the county paper from which we quote gives a long account, "to be continued," of the roots exhibited. We very much doubt the *agri*cultural utility, in practice, of shewing individual specimens of any plants. A person who knows the special attentions generally bestowed on show plants, can only admit such exhibitions to illustrate the quality of varieties as regard their form, &c.; they cannot, unless all the specimens have been treated in a manner equally congenial to their nature, illustrate the relative ability of varieties to produce *quantity*: and it is in the latter particular that their greatest differences so unquestionably exist, that a Root Show which fails to inform on this point is of comparatively little use.

But if a fair objection lies against these exhibitions in the general—what can be urged in defence of the policy which has published the details of the Lewes Turnip Show for 1846 — in particular? Think of Swedes weighing 3½ lbs.!; and of Turnips 2¼ lbs!!—sent, no doubt, many miles under special convoy to the "Sussex Express Turnip and Root Show," accompanied by a full, true, and particular account of the character of the soil on which they were grown, of the nature of the manure applied to them, of the treatment they received—particulars so necessary to be known in order to the removal of the otherwise impenetrable mystery which must have surrounded the process of such abnormal growths as these! No doubt a few respectable weights are given in the lists of this exhibition, but the average of those published was far from justifying the statement that "the display of roots was exceedingly creditable to the south of England." The weight of the Mangold Wurzels exhibited has not yet been given, but it must be extraordinary if it shall succeed in saving the reputation of the show.

The present year, so far as our experience goes, while it has been unfavourable to Turnip husbandry, has been extraordinarily productive of large Mangold Wurzels. We could within two miles of the spot from which we write select some dozens of roots falling but little short of 28 lbs. apiece, and many cart-loads of roots which should exceed in individual weight the heaviest Turnip named in the *Sussex Express* of November 21.

THE subject of TENANT RIGHTS still occupies attention: but it is rarely discussed in the right spirit. This may in part arise from its designation, which, it must be acknowledged, is altogether a misnomer. Rights have no existence in *this* matter, except in so far as they are the subject of special agreement, or of an understanding arising out of custom. If a man occupies a farm with the knowledge of his liability to ejectment at the will of the landlord, he will of course know how to farm accordingly, but he can have no ground for complaint of any losses he may sustain in consequence; he is supposed to have calculated the risk he incurred when he signed the agreement. The consequence of contending for tenants' *rights*, as against the landowner, independently of any mutual agreement between the parties, and of advising the recognition of these rights by legal enactment, has been to excite in the minds of many landed proprietors a strong feeling of disgust at the whole system, and thus to alienate those by whom, if by any, the system must obtain an establishment. Look, for instance, at the letter by "R. L., a Landowner," at page 780; it has been as evidently written under the influence of feelings thus excited, as, in our opinion, its sentiments and lamentations are inconsistent with the interests of the body to which the writer belongs. The agitation for tenants' rights, if the words be allowable, is to be urged simply on the grounds of advantage to all the parties concerned in the matter; no word of appeal to Parliament should be uttered—the idea it would express is both unjust and absurd. And is not the ground we recommend strong enough to support a superstructure of unanswerable argument? Consider two things connected with this subject, which to most minds must appear sufficiently obvious:—1, a system which gives to tenants a right to unexhausted improvements in the land tends to higher cultivation; 2, the owner of the land is of all parties the one most interested in this high cultivation. Is not this the essence of all that can be urged? The mode in which higher cultivation affects other interests need not now be enlarged on. Mr. GREY, of Dilston, pointed out most clearly at Newcastle that the responsibility of the poverty and misery prevalent in many districts in this country must be held to rest on those owners of land there who refuse to allow of any other occupancy by farmers than that which depends on their own will or caprice.

ON BOX-FEEDING CATTLE.

[The following is extracted from a very instructive paper by Mr. Glover, lately read before the Newcastle Farmers' Club, of which he is honorary Secretary.]

It is almost impossible for any one who has not seen and paid attention to the subject to form a correct estimate of the advantage of box-feeding cattle. The plan is extremely simple and feasible, which is one of its greatest recommendations. The advantage of feeding cattle in boxes consists in the absence of all waste of food, which in a yard it is impossible to prevent. It affords the opportunity of placing before the animal an equal portion of food, which cannot be the case in a yard where cattle are indiscriminately mixed. It allows each animal to eat at its leisure, ruminate unmolested, and take its rest undisturbed. In yards where there are a number of cattle, the master cattle consume the choicest part of the food; they drive the weak ones about, and allow them little rest. Hence the great inequality observable in the condition of yard-fed cattle compared to those fed in boxes; and hence the astonishment so often expressed by farmers that after their fattest cattle have been sent to market, the remainder thrive rapidly. It is then perceived that those cattle which appeared the least prone to fatten would perhaps have been the most forward in condition, had they been separated from others. In fact the system of feeding cattle in boxes can be regulated to the greatest nicety; while that in the yards must ever remain slovenly, wasteful, and imperfect.

I shall now proceed to give you a description of the boxes, according to the plan of Mr. Warnes. We will suppose that you wish to erect 10 boxes, for which you will require a space of 90 feet long and 12½ wide; then let a line be drawn from one end to the other, 3½ feet wide, from the side most convenient for the passage. Next, let the mould to the depth of 1 foot, be excavated from the other part, and thrown on the side intended for the front, and spread to the thickness of a foot deep. This will give 2 feet from the bottom of the boxes to the surface. A wall of brick-work 1 ins. wide and 2 feet high is next to be built round the inside of the part excavated, and intersected at distances of 8½ ft. At each angle the brickwork should be 9 or 12 ins square which will both support the posts and afford strength and durability. Upon the wall a sill of wood is next to be placed; for which purpose large poles either square or split are adopted. The foundation being now complete, posts 6 feet long, and the necessary sills and ties may be placed upon it. Across the ties the most ordinary poles may be laid to support a roof composed of the trimmings from hedges and ditches, and completed with a thatch of straw or rushes. Two gates must be added to each box; one of which moves on hinges, and the other to be secured at the top and bottom sills of the building, so as to be taken down at pleasure. Presuming that we have taken advantage of a barn, or other walls or farm premises, the external part is finished; the internal has merely to be parted off with a few poles between each box, and the passage separated by the cribs, which are to move up and down between the interior posts, which are placed upon the angles of each box, and support the roof on the passage side.

Such boxes as I have described where advantage can be taken of an unoccupied wall (which ought to be from 6 to 8 feet in height), may be erected for 30*s.* each. These boxes are 8½ ft. square. From what I have seen I think that they would be too small for our large shorthorns; they should be from 9 to 10 feet square. I would not recommend them to be made larger than 10 ft. for if so the manure will not get properly trodden down. Good strong substantial boxes, back wall 8 ft. high, interior 10 ft. square, and with slated roof, can be erected in this neighbourhood for 3*l.* 15*s.* Each box acts as a small tank, the whole of the urine being taken up by the straw, or other absorbents; such as sawdust, dry mould, &c. If cattle are properly littered in this way, the manure will only rise about 3 ins. in a week, it becomes compressed into a hard compacted mass, turning out about 5 or 6 cubic yards of manure, two loads of which being equal to three made any other way by cattle.

I shall now proceed to describe the different things that are required for making the "cattle compound." The only apparatus required for carrying out the system is a Linseed-crusher, an iron cauldron, a hand-cup, a stirrer, one or two hogsheads, two or three pails, and a wooden rammer. The probable cost will be about 12*l.* Large cauldrons are found inconvenient for stirring where compounds are made with the meal of Peas, Beans, &c. The size most preferable are those to contain from 30 to 40 gallons. The stirrer is an iron spoon fastened to a shaft of wood 4 feet long. The rammer is 3 ft. long, about 5 ins. square at the bottom, and 2½ ins. at the top, through which a pin 14 ins. long is passed for the convenience of being raised with both hands. The compounds are made as follows:—Upon every six pails (a pail is supposed to contain 6 gallons), of boiling water, one of fine crushed Linseed is sprinkled by the hand of one person, while another rapidly stirs it round. In five minutes the mucilage being formed, a half hogshead is placed close to the cauldron, and one bushel of Turnips or tops and cut straw are put in. Two or three handcupfuls of the mucilage are then poured upon it and stirred. Another bushel of the cut Turnips, chaff, &c., is next added, and two or three cups of the jelly as before, all of which is expeditiously stirred and worked together with the stirrer and the rammer. It is pressed down as firmly as the nature of the mixture will allow with the rammer, which completes the first layer. Another bushel of the cut straw, chaff, &c., is thrown into the tub, the mucilage poured upon it as before, and so on until the cauldron is emptied. The contents of the tub are lastly smoothed over with a trowel, covered down, and in two or three hours the straw, having absorbed the mucilage, will also, with the Turnips, have become partially cooked. The compound is then usually given to the cattle, but sometimes allowed to remain till cold. The cattle, however, prefer it warm; but whether hot or cold they devour it with avidity. Either Potatoes, Carrots, Turnips, or Mangold Wurzel, boiled and incorporated with Linseed meal, form a compound upon which cattle fatten with great rapidity. To make it, nothing more is required than to fill the cauldron with washed Potatoes, or Carrots, &c. sliced. Supposing the cauldron would contain eight or nine pails of water, let only one be added. In a few minutes the water will boil, and the steam will speedily cook the roots, then a convenient portion should be put into the half hogshead, with a little Linseed meal, and smashed with the rammer. The remainder must be prepared in the same way. As the mass increases in the tub it should be pressed firmly down, in order that it may retain *the heat as long as* possible.

In the spring and summer months, germinated Barley may be made into a compound with great advantage, mixed with Linseed, cut Clover, Grass, or Lucerne; cattle eat it with great avidity, and thrive fast upon it. The process is simple—let some Barley be steeped about two days, and the water drained off. After the radical or root has grown to nearly a quarter of an inch in length, it must be well bruised by the crushing mill, and as much as possible forced into some boiling mucilage, containing the same quantity of Linseed, but a fourth less of water than would have been prepared for dry Barley. Care must be taken lest the sprouts are suffered to grow beyond the prescribed length, or the quality will be materially injured; therefore it will be necessary to destroy their growth, by passing the Barley through the crushing mill. It may then be used at pleasure. In August, when I was at Trimingham, Mr. Warnes was using Wheat for his compound, as he found it was more profitable to feed his cattle upon it than to sell it at the price then offered. The Wheat was steeped for 24 hours, then taken out of the steep, and allowed to sprout, which it did in two or three days; it was then put through the crushing mill. Three pails of Wheat were put into the boiling cauldron, containing seven pails of water, it was well stirred, and one pail of crushed Linseed was sprinkled into the cauldron; a layer of cut Clover, Chaff, &c., was put into the half hogshead, two or three of the handcupfuls of the boiling mucilage was then poured upon the cut Clover, &c., it was then well stirred and rammed down, and the same was repeated until the cauldron was emptied. To lay down any general rule for making the compound would be to destroy one of the great advantages of the system; provide yourselves from the resources of your farms, with whatever is necessary to form cattle compound. The superiority of the cattle compound to foreign oil-cake is explained by the fact that the one, at the best, is merely the refuse of Linseed; while the other is made of the seed itself. The real fattening properties of the compound is in the Linseed; and that in order to produce a greater or less effect it is only necessary to regulate the quantity of that important ingredient. Wheat, Oats, Barley, Straw, or Bean stalks, may be used either with or without Turnips, according to circumstances; nothing more being required than fibrous matter to act as a vehicle for conveying the Linseed to the stomach of the animal, and for re-conveying to the mouth for rumination.

The following compound may be used with great advantage for feeding sheep:—Let a quantity of Linseed be reduced to fine meal and Barley to the thick-

ness of a wafer, by the crushing mill. Put 18 gallons of water into the cauldron, and as soon as it boils, not before, stir in 21 lbs. of Linseed meal; continue to stir it for about five minutes, then let 63 lbs. of crushed Barley be sprinkled by the hand of one person upon the boiling mucilage, while another rapidly stirs and crams it in. After the whole has been carefully incorporated, which will not occupy more than five or ten minutes, cover it down, and then throw open the furnace door; should there be much fire put it out. The mass will continue to simmer, from the heat of the cauldron, till the Barley has absorbed the mucilage, when the kernels will have resumed nearly their original shape, and may justly be compared to little oil cakes, which, when cold, will be devoured with great avidity. I have no doubt some of you will be apt to say, Oh! but there is a great deal of labour attending all this. I will now show you the profit attending the labour. A lot of 12 beasts were equally divided by Mr. Postle, six were fed on oil cake, and six on Mr. Warnes's compound. The account of their food was kept with scrupulous accuracy for nearly six months. The following were the results:—

Expense of oil cake	£21	14	9
Expense of compound	19	6	1½
Balance in favour of compound ..	£2	8	7½

	Dead weight. st. lb.	Loose fat. st. lb.	Hides. st. lb.
Six cattle fed on compound ..	432 7	55 9	39 6
Six ditto oil cake	387 12	51 7	37 11
Difference of weight in favour of compound	44 9	4 2	1 9

So that we have in favour of the cattle compound upon the six beasts—44 st. 9 lb. at 6s. 6d. per stone £14 10 2
Difference of expence of compound 2 8 7½
Total difference in favour of compound .. £16 18 9½

By this system of feeding Mr Warnes says that he could compete with the foreigner, as he could send cattle to market at 4½*d.* per lb, and pay himself an ample return. Since he had followed the system of box-feeding, he knows not of a single instance where he has not realised 8*l.* for every head of cattle he kept for six months. At the farm where he now resides, he fattened last winter for market the following cattle, after being six months box-feeding:—

Seven Durham steers, cost 8*l.* 10*s.* each, sold for 19*l.* 10*s.* each..	£17 0 0
Six Scotch steers, cost 10*l.* each sold for 12*l.* 10*s.* each	75 0 0
One cow, cost 5*l.* 5*s.*, sold for 15	9 15 0
Four Scotch steers, cost 10*l.* each, sold for 20*l.* each..	40 0 0
	£201 15 0

The above cattle were bought in and disposed of within six months. They consumed, with the following now in herd, 19 acres of Turnips, about 14 quarters of Linseed, and a few bushels of Barley-meal, with several acres of Pea straw:—

Three Durham heifers, estimated value above the cost price	£22 10 0
Two Irish steers	13 0 0
Five small steers and heifers	30 0 0
Three calves, and butter from two cows	18 10 0
	285 15 0
Deduct, for 14 qrs. of Linseed, mostly grown upon the farm, 85*l.*, also for Barley, 4*l.*	39 0 0
Leaves a return of	£246 15 0

The next item of profit is the manure, to form a just estimate of which is impossible; of course the rent of the land, rates, &c., and expences for attendance, &c., must be enumerated to show a clear profit; but the utmost allowance that the severest critic could make, would leave a balance unprecedented in favour of box-feeding. In bringing this paper to a conclusion, I cannot do so without strongly urging upon you all to follow the system so successfully and profitably carried out by Mr Warnes—a system by which you can double the number of cattle usually kept on your farms, you can turn your money over twice in the year instead of once—you can double your profit, increase the quantity of your manure, by which means you increase the fertility of your land—a system simple in practice, powerful in effect, and applicable to every grade of farmer.

POTATO DISEASE.

ENQUIRIES CONTINUED—REMEDIES.

[See p. 762.]

If the disease be, as the great majority of cases appear to me to indicate, the effect of different exciting causes, upon a tendency to putrefaction, brought on by long repeated yearly inoculation with dung juice, having appeared gradually in different places, and with different symptoms for several years past; but became general last year, chiefly from the absence of sun; and again this season, probably from remaining infection, the main question then is, how shall we restore the pristine hardiness of the plant, and how obviate, meanwhile, the respective exciting causes to disease?

Hardiness of the Plant.—If, as appears, the sap of the plant has become gradually vitiated by putrescent manure, the remedy seems obvious; the avoidance of all putrescent manures, and the use of such as have an opposite quality. Of these, charred matters and ashes are the readiest for the purpose; whatever has passed the fire will not putrify. Even coal ashes have been found efficacious. But the plant must have potass, and therefore wood ashes or charcoal dust may be used, where attainable, or still better, weeds, hedge clippings, sods, &c., charred, rather than burnt to ashes, which are much more wasteful, and rather less effective. Where the land is very poor, such weeds, &c., may be composted with lime and salt, or lime only, instead of burning; but burning is safer, though composting is more productive; the best Potatoes are produced with vegetable manure. Charred sea-weed, where obtainable, should be an excellent Potato manure; but fresh sea-weed is too putrescent, in the present state of the plant.

If stimulants are required, soot may be used; or a spring top-dress of nitre mixed with sulphates of soda and of magnesia. But dung, night-soil, and putrescent manures of every kind, should be avoided till the health of the plant is restored. Rich, wet, heavy, and soft soils are also to be avoided for the present.

The hardiness is well known to be promoted by growing on high lands, and of these peats have always been found preferable (until this season, when infection may have operated); such lands should, therefore, be preferred, at least for seed Potatoes. And the second shoots, produced by earthing up, having been frequently found both weaker and more diseased, that practice should be discontinued in most cases, particularly for seed Potatoes.

With these means and precautions (especially for the seed), may we not hope gradually to bring the plant back to its former firm and hardy state, capable of resisting the casualties of weather, and bearing the old methods of storing. Anything like a sudden cure is not to be expected; a succession of fine sunny seasons may forward it greatly; but the plant is likely to require particular care for some years to come.

Autumn planting.—Autumn and winter planting, perhaps, applies to another property of the disease, that of precocious sprouting while the tuber decays. If the plant shoots in store, where it has no place to root, it can receive no sap but that from the rotting tubers, which in the air (without light) becomes worse. But if set in the ground, it will throw out roots, and gather uninfected sap from the soil, the rotting tuber acting as manure. If, therefore, not planted in autumn, it should not be delayed after they begin to sprout. But it must be remembered that this hasty growth is tender and diseased, and will require protection from frost and blighting winds: and if the first shoot is rubbed off, the second will be weaker still.

It would perhaps be safest to set them rather deep, say about eight inches, laying the sprouts almost horizontally on the ground; to keep it some time covered from frost, give it room to throw out roots and runners, and a good length underground, to keep alive, if frost should fall on the leaves: and whole sets may be better depended on than cuts.

Exciting causes.—To obviate the exciting causes, until the restored hardiness of the plant shall enable it to resist them as formerly: those connected with soil and manure are within our control and their remedies suggested above; (not only avoiding putrescent manures, but using those of the opposite quality.) But the atmospheric casualties of weather and season being above our reach, we must guard against them as best we can. They may be grown on the most favourable aspect; open to free circulation of air, but sheltered from blighting winds; and littered over if in danger from frost.

When attacked by Botrytis or other mouldy spots on the leaf, they may be mown down and burnt, before the spawn descends the stem to the tubers; or better, where hands are plenty, to have the stems pulled off. The tubers appear, from a great number of reports, to keep better in the ground (if dry) undisturbed, than anywhere else; and may therefore remain until wanted to set, or the ground to be tilled for the next crop; when stored, they should be in small parcels, dry, cool, and with sufficient ventilation. Dry charcoal or ashes strewed in with them, has been found useful in many cases.

Dusting the young plant with lime and sulphur appears, in some cases, to have prevented the spread of fungi; and is, therefore, worth trying, though a troublesome operation; and growing some other plant, as Mangold Wurzel, Turnips, or Cabbage, between the rows, has been found to protect the Potato; whilst it supplies the means of filling up the blanks, if they happen to fail.

These recommendations are not mere chemical suggestions; most of them (except charred sea weed) having been extensively used: and though charred materials and soot have sometimes failed, they have done better, so far as I have learned, than any other dressings.—*J. Prideaux.*

DISCREPANCIES IN THE PRACTICE OF LAND DRAINING.

By J. H. Charnock.

(Continued from p. 762.)

Before we can hope to apply any artificial means successfully, we must first clearly understand both the object and the extent of the effect which we seek to produce, for without some such definite comprehension we shall be very likely either to fall short of attaining our purpose altogether, or to rest content with the fancied satisfaction of complete accomplishment, when in truth we have only just gone far enough to show the value and necessity of proceeding further. Now the end to be attained by artificial drainage is that of bringing the land to which it is applied into a suitable state of dryness for proper and profitable cultivation. But then we are told that it is yet a problem how long it is necessary or useful for the water to remain in the soil before it is drained off; and there are conflicting opinions on the point from reputed scientific drainers and others, some maintaining that every completeness of effect is produced, if in 48 hours after heavy and continuous rain, the land is sufficiently dry to allow of its being worked, whilst others contend that one-fourth of that time is a much nearer approach to perfection; unless, therefore, we can fix upon some more accurate and uniform standard, we are in danger after all of being left with a very extensive margin in determining what suitable dryness really is. Of all the causes which produce their effects on cultivation, none probably present themselves more conspicuously to the every-day observation and experience of the agriculturist than those of suitable dryness and superabundant moisture. Where the former is a characteristic feature a more abundant production and a higher state of cultivation are almost invariably seen, whilst in those districts where the latter predominates, we as certainly find less productiveness, and a very inferior state of culture, so that Nature, in placing the effects of these causes in juxtaposition before us in every direction, has shown us in the fertility of the one the remedy for the barrenness of the other. And this disposition of nature is often peculiarly marked where the transitions of the strata are frequent and abrupt, affording us thereby opportunities innumerable of observing with what unerring certainty the good or bad effects result, how surely the natural and perfect drainage of a porous substratum gives promise of an abundant return, whilst that from the retentive undrained land is ever, at the best, a very precarious produce. With cause, effect, and remedy thus before us, we cannot but admit that Nature is our safest guide, and that when, in our artificial application, we follow the most closely her instructions, and attain the most nearly to her results, we may be assured of the completeness of the effect at which we ought to aim. But it may be said, the power of absorption, even upon these naturally drained lands, varies as widely as do the opinions of what is the most appropriate absorbent state; and it is true these dry soils do vary materially in their character and fertility; but surely there are few who can be at any loss to determine where worthlessness ends and excellence commences, to estimate rightly that completeness which insures a produce proportionate to the liberal cultivation bestowed, and at the same time admits of the administration of that culture in the most perfect and economical form. Such is the land upon which the highest state of cultivation is attained at the least cost, and with the greatest certainty; and this is the example, and the standard of perfection which we should endeavour to emulate in theory, and, as far as possible substantiate in practice.

With such an illustration, then, it is impossible any longer to doubt in what suitable dryness consists, seeing that the most fertile soils are those which by nature are rendered so porous that in 12 hours after a rain, which in undrained land would retard the out-door work for almost as many days, the ordinary operations of ploughing, &c., can be proceeded in. And if by artificial means it is within our power, at a moderate and compensating outlay, to attain the same result, it is never worth while to incur the risk of such completeness in order to effect an apparent saving of a few shillings per acre. For example, draining may be done in clay lands, where the cutting is tolerably good, at a distance of from 20 to 24 feet apart, and 3 feet deep, with pipes of 2 inches diameter, at from 3*l.* to 3*l.* 10*s.* per statute acre; and if the same land is drained at from 35 to 40 feet apart, and 4 feet deep, with similar pipes, it will cost from 2*l.* 10*s.* to 3*l.*, shewing a present saving of about 10*s.*, which is no adequate compensation between a doubtful and a perfect effect. There is no fear of strong land ever being made too dry by drainage, and therefore it is the safest practice to endeavour to approach rather the positive than the negative degree of perfection. I never yet heard any one say his land had been drained too much; but the converse is no uncommon complaint. In theory, as well as in practice, the most complete drainage, and that which most nearly resembles the ordinary operation of Nature, is obtained by trenching the land to a proper depth, and filling the entire foundation with porous and durable material so as to form a continuous bed; but the outlay would far exceed the benefit for agricultural purposes. Nevertheless it is, from necessity, frequently adopted in this and other coal districts, for the purpose of making good the land which has been covered by refuse heaps, and for disposing of the refuse itself; and when properly done it is in every respect complete drainage, and never fails to insure large crops. Its extreme costliness, however, necessarily precludes its general adoption; and I mention it merely to show that perfection may be attained at too dear a rate, as well as economy be exercised at too great a risk. There is, unquestionably, a remunerative adjustment required between cost and completeness, which it is the province of the experienced scientific drainer to determine under the circumstances of each particular case, and to direct his operations accordingly; for it would be no proof of either skill or judgment to drain land 4 or 5 feet deep, and with drains 40 feet apart, at an expense of 3*l.* per acre, with only a questionable result; when, by an outlay of 3*l.* 10*s.* to 4*l.* per acre, with the drains 20 to 25 feet apart, and 3 feet deep, every completeness of effect and durability could be secured. Or in other words, it is more safe and profitable to lay out 4*l.* per acre, and be thereby enabled to perform all the operations on the farm in 12 hours after the heaviest rain, than, with a temporary saving of 10*s.* or 20*s* per acre, be obliged to wait two or three days before the effect can be made practically available. If completeness of effect consist with a protracted action of 48 hours, then we must arrive at

* Whenever material is suitable and sufficient, this is an excellent plan for garden ground drainage.

the conclusion that all land which by nature becomes suitably dry in that time, requires no draining. How far experience contradicts this, we need not inquire.

Having thus endeavoured to show that durability and completeness should be the primary considerations in thorough-draining, and that economy and science comport the most securely with such effective execution, I cannot, perhaps, close these remarks more appropriately or usefully than by requesting attention to the accompanying synopsis, which I have compiled as carefully and as briefly as possible, in order to present in a condensed form, and upon what must be considered competent authority, the several practices of drainage; and after what has been already advanced, I shall not weary the reader by dwelling upon the discrepances it exhibits, or yet upon those more important and leading features which it establishes, fully satisfied that, in recommending the attentive perusal of the entire evidence itself to all those who are interested in the matter, I cannot do more ample justice to the subject than commit its further consideration to their hands.

A SYNOPSIS OF DRAINING, *compiled from the Minutes of Evidence taken before the Select Committee of the House of Lords, appointed to inquire into the Expediency of a Legislative Enactment to enable possessors of Entailed Estates to charge such Estates with a Sum, to be limited, for the purpose of Draining, &c.*—SESSION OF 1845.

Page.	Name of Witness.	Character of Land Drained, or most practised upon.	Drains. Depth.	Drains. Distance.	Material used and recommended.	Fall used and recommended.	Cost per Acre.	Cost of Tiles or Pipes per 1000.	Time of Action.	Permanency, or supposed Durability.	Improvement in Land Drained.	Miscellaneous.
			Ft. In.	Ft. In.			£. s. d.	£. s. d.				
3	Mills ..	Clay, Sand, and Gravel and Sand.	2 6	15 0	Gravel, and Pipes with Gravel over.	1 in 80 to 1 in 120 ..	4 10 0	..	..	Would rather trust to the permanency of a Gravel Drain than a Tile Drain.	Tenants pay 7 per cent. to cover outlay and interest.	
7	Parkes ..	Clay Lands, chiefly in Kent.	3 0 to 4 0	24 0 to 40 0	Small Inch Pipes, with Heath or Thorn covering—does not like Stones.	As much as possible, and 1 in 330 answers perfectly. Have also seen them act well without fall.	1 10 0 to 3 0 0	0 6 0	Should dry the land in 48 hours after heavy rains.	Duration as long as that of the Pipe itself.	Cost paid the first year. Rent doubled.	
23	Thompson.	Clay, in Kent ..	4 0 to 6 0	..	1½ and 2-inch Pipes, and Bushes to cover.	.. .. ..	3 0 0 to 4 0 0	0 16 0 to 0 12 0	..	.. .. ..	Produce trebled.	
32	Putland ..	Retentive Clay, in Sussex.	Began with 4ft. 6in. and 8ft., but afterwards found 2, 2½, & 3ft. better.	24 0 to 32 0	1-inch Pipes principally.	.. .. ..	3d. to 4d. per Rod.	..	..	Thinks they will stand an immense length of time, but in some soils not so long.	10 to 15 per cent.	
35	Spencer ..	Stiff Clay, in Kent .	Began at 1ft. 8in., then to 2ft., then to 3ft., & then to 4ft.	2 to 4 rods.	Tiles principally—lately 1½-in. Pipes.	.. .. ..	2 10 0 to 5 0 0	1 5 0	..	As good as when laid 15 years ago	One-third more Corn.	
44	Davis ..	Sand and Gravel, in Surrey.	4 0	..	1-inch Pipes, with Heath covering.	The greatest that can be got.	2 0 0 to 3 0 0	1 5 0	..	4 feet Pipe Drains put in properly will never stop.	1l. per Acre ..	Objects to Main Drains. Makes each Drain discharge itself at once into the ditch wherever possible.
56	Neilson ..	Very strong retentive Clay, in Lancashire.	2 0 to 2 8	15 0 to 24 0	Part with Stones, and part with Tile and Slate Soles—Sods or Straw to cover.	1 in 100, or less ..	Stone 8 0 0 Tile 4 0 0 to 6 0 0	..	..	Tiles or Pipes more permanent than Stones.	From 20 to about 300 per cent.	
67	Reed ..	.. .. ..	3 0 and upwards.	..	1-inch Pipes, Clay to cover.	Not material. No need of fall at all.	..	..	Should dry the land in 11 to 12 hours.	There is no end to them if the Pipes are properly made and burnt.		
71	North ..	Various, in Lincolnshire.	With Thorns 1ft. 9in., with Tiles 2 to 3ft.	With Thorns 24ft., with Tiles 30 to 60ft.	Partly with Thorns and Sods; and partly with Tiles and Soles, with Sods and Hedge-cuttings to cover.	The less the better .	1 10 0 to 3 0 0 and to 6 0 0	..	..	Tile Draining most permanent.	Double the original Rent.	
76	Smith ..	Various	2 6 to 3 0	15 0 to 24 0	Broken Stones, and Tiles or Pipes.	Not of much importance.	4 0 0 to 6 0 0	..	..	In steep land Stone Drains more durable than Tiles, if properly done Where not much fall, Tiles or Pipes preferable.	Upwards of 10 per cent. In Ireland the produce may be doubled.	
93	Hobbs ..	Gravel, and tenacious below—many springs—Essex	2ft. 6in. to 3ft., and 3 to 3ft.	15 0 to 24 0	Tiles, Soles, and Pipes, but nothing less than a 2-inch.	A perfect level will not do. It requires some slight fall.	3 0 0 to 4 0 0 if not for springs	1 7 0	..	.. .. ..	5 per cent. A gain from 5s. to 50s. in rent.	I have had proof sufficient to convince me that an Inch Pipe is liable to choke up.
100	Dixon ..	Calcareous Clay, in Essex.	3 0	..	2-inch Pipes ..	.. .. ..	..	0 19 3	..	Pipes will last a Century.	Any Tenant would pay 5 per cent. additional Rent.	Pipe Draining has been long a practice with us. We had smaller Pipes formerly, but the practice of using small Pipes has been given up because they are inefficient.
105	Pearson ..	Strong and mixed Land, in Essex.	1 6 to 2 0	..	2-inch Pipes, but prefers Tiles to Pipes. Bush or Straw to cover.	4 inches in 20 yards enough, but a little fall is best.						
108	Hutley ..	Chalky Clay, in Essex.	2 6	25 0	Formerly Wood or Straw, but now 2-inch Pipes, and Gravel to cover.	.. .. ..	3 8 0 to 5 10 0	1 7 0	..	.. .. ..	Very great.	
115	Balmer ..	Various, in Scotland	2 0 to 3 0	..	Partly Stones and partly Tiles. Green Sward to cover.	.. .. ..	Stones about 3 0 0 Tiles about 4 0 0	..	..	Both are quite permanent, but prefers Tiles.	Double Rent.	
122	Pusey ..	Coldest and stiffest Clay, Berkshire.	2 10	30 0	Inch Pipes, and the Clay over them.	.. .. ..	An average of 3 0 0	..	..	I have no doubt about the Tube Tile answering.	.. .. ..	I have just purchased 200,000 Inch Pipes for cold clay land, and I have not the least fear of using them. Of course, as in the case of the Atmospheric Railway, we cannot speak positively upon this matter, without more experience. But after all the question of diameter is a minor question, because you may get the 2-inch Pipes for 6s. per 1000 more than the inch.
128	Burrell ..	Clay, in Sussex ..	1 6 to 2 6	8 6 to 10 0	Common Tile reversed.	A good fall desirable.	..	..	..	.. .. ..	From 5 sacks of Wheat per acre to 8, and even 9.	
137	Bowes ..	Very strong Clay, in Durham.	1 8.	18 0	Common Tiles ..	.. .. ..	..	1 10 0	..	Answers perfectly as far as gone.	Estate increased ⅓ in value. Tenants pay 7 per cent.	
145	Ogilvie ..	In Scotland and in Cheshire.	2 6 to 3 0	15 0	Common Tiles ..	.. .. ..	5 7 0 to 6 0 0	1 0 0	..	Quite permanent. Prefers Tiles to Stones.	Rent improved 30 per cent.	I have not tried the Pipe Draining, but I have been a good deal in the country and seen it tried. I have doubts upon it. I think the small Pipes of an inch bore have not been sufficiently tried to warrant any one to say that it is the best system of Draining. I think after such a year as last, and such a winter as we have had, the effect will be all we could wish for; but after such seasons as 1828, 1829, and 1830, which were very wet, I think a 1-inch bore put at the distance of 33 to 42 feet, would not take off the water so soon as it ought.

Home Correspondence.

Farm Agreements.—The object of the following clause is to provide against a tenant doing serious injury to his farm, but, at the same time, not so stringent as to prevent a good farmer from pursuing or varying his rotation of cropping according to quality and condition of soil, situation, and other varying circumstances. I shall be much obliged by the opinions of such of your correspondents as aim solely at the benefit of both parties affected by such agreements. "To farm and cultivate as arable acres of the land described in the schedule as arable land; and two crops of corn, or two crops of corn and one of pulse, with a thorough cleaning of the land with a green crop (or fallow if it cannot be done without) and laying down for one or more years with a sufficient quantity of Clover and Grass seeds, and to be well and sufficiently manured for one or other of the last-named crops, is to constitute the round of cropping of the said land to be cultivated as arable." The rotation of the above crops is left entirely open to the tenant.—*J. H., Nampwich.*

On Shed-feeding Sheep.—This has been a good deal tried by different graziers and keepers of sheep in this neighbourhood, but I am sorry to say not with success, owing to the difficulty that seems to exist in keeping folded sheep free from the foot-rot. In the *Agricultural Gazette*, at page 778, is a paper on this subject by "J. A. C.," and from the style of his writing I presume that he has had considerable experience in shed-feeding sheep, and therefore as he appears as anxious as I am for bringing about agricultural improvement, I trust that he, or some other of the readers of the *Gazette* who are conversant with the subject, will kindly point out what means would be most likely to prevent this disease attacking the flock. In the paper alluded to, "J. A. C." describes it as only requisite to have the shed in which the sheep are kept well bedded (I presume with straw), but yet that has been found not to answer in this neighbourhood. I am, however, much of the same mind as "J. A. C.," "that this department of agricultural procedure loudly calls for improvement," and I am of opinion that if any mode of management can be pointed out by which the feet of the animals can with certainty be kept sound, that one stumbling block will be removed towards improvement in this department.—*Thomas Dixon, Darlington, Nov.* 23.

On Thin Sowing.—I have attentively read the several statements which have appeared in your Journal from time to time, respecting the superior crops produced by Mr. Hewitt Davis, although raised from so much smaller a quantity of seed than is usually employed by "old farmers," and I find that much praise is attributed to that gentleman for his peculiar system, viz., sowing a small quantity of seed at wide intervals, and constant hoeing. Now without wishing to detract from the merit which is due to Mr. Davis for carrying out that mode of culture, my object in addressing you is simply to point out that there is nothing new in the principle called "Hewitt Davis's," which is in fact only a revival of the system first promulgated by Jethro Tull in 1701, and it would be but an act of justice to the memory of that gentleman were you to make it more generally known, that to Jethro Tull we are indebted for the system of thin sowing, and also the invention of the drill and introduction of the horse-hoeing husbandry. In that justly celebrated work, entitled "The Horse-hoeing Husbandry," by Jethro Tull, published in the year 1731-2, at page 174, it is stated:—"About the year 1701, when I had contrived my drill for planting Sainfoin, I made use of it also for Wheat, drilling many rows at once, which made the work much more compendious, and performed it much better than hands could do; making the channels of a foot distance, drilling in the seed and covering it, did not in all amount to more than 6*d.* per acre expense, which was above ten times over paid by the seed which was saved; for one bushel to an acre was the quantity drilled." I have carried out Jethro Tull's system to a certain extent, and I find that the Tullian principle is more correct than that of Mr. Hewitt Davis, because the latter gentleman "goes the whole hog," and simply asserts,—"sow thin, at wide intervals, and hoe." Now, although a convert, as I before said, to the Tullian system, I must beg to tell Mr. Davis, and also many of your readers who might be induced to try this new old system, that they must be careful not to rush to an extreme of thin sowing, unless their land is in good heart, and clean, and a due regard is had to the time of getting in their seed. At page 184 of the before-named work, Tull says, "when Wheat is planted early, less seed is required than when late; because less of it will die in the winter than of that planted late, and it has more time to tiller." "Poor land should have more seed than rich land, because a less number of the plants will survive the winter on poor land." "The least quantity of seed may suffice for rich land that is planted early, for thereon very few plants will die; and the hoe will cause a small number of plants to send out a vast number of stalks, which will have large ears, and in these, more than in the number of plants, consists the goodness of a crop." * * * "Six gallons of middle-sized seed we most commonly drill on an acre; yet on rich land, planted early, four gallons may suffice." Let not the farmer, however, who thinks of trying this plan, comply with having drilled a much smaller quantity of burnt than he has usually done; for that operation is more a part of the whole which is required to insure vegetation, even upon well-conditioned soils. Indeed, the step is an all-important one, viz., the width of intervals; and I know from experience that there is more prejudice against drilling at a wider distance than 6 inches, even than against one bushel of seed *versus* two bushels. The fact, however, is, that thin sowing is useless unless at intervals of not less than 9 inches, and the hoeing properly done—not skimmed over just to hide the weeds, but a thorough deep stirring. Hear again what Jethro Tull says upon this point, first observing that, for the hoe-plough which Tull speaks of we have now the improved horse-hoe. At page 194, Tull says, "We are not so exact as to the weather in the first hoeing, for if the earth be wet the hoe-plough [horse-hoe] may go the nearer to the row without burying the Wheat, and the frost of the winter will pulverise that part of the furrow which is to be thrown to the Wheat in the spring, although it was hoed wet." * * * "Neither is it necessary to be very exact as to time, but it must never be until the Wheat has more than one blade, and it may be soon enough when it has four or five leaves, so that it is done before or in the beginning of winter." * * * "The greatest fault you can commit in hoeing is the first time, when the furrow should be turned from the row not to go near enough to it, nor deep enough." * * * "The spring hoeing is performed after the great frosts are passed, and when the weather will allow it, and then turn the ridge from the middle of the interval to the rows on each side." * * * "As to how many times Wheat is to be hoed in the summer after this spring operation it depends upon the circumstances and condition of the land and weather; but be the season as it will, never suffer the weeds to grow high, nor let any unmoved earth lie in the middle of the intervals long enough to grow hard, neither plough deep near the rows in the summer, when the plants are large, but as deep in the middle of the intervals as the staple will allow, turning the earth towards the Wheat, especially at the last hoeing, so as to leave a deep wide trench in the middle of each interval." * * * "We augment our Wheat crops, not in number of plants, but in stalks, ears, and grains. The first is by increasing the number of stalks from one, two, or three to 30 or 40 to a plant, in ordinary field land; and we augment our crop by bringing up all the stalks into ears; for if it be diligently observed, we shall find that not half the stalks of sown Wheat come into ear." * * * "The last way of augmenting the produce of Wheat plants is by causing them to have large and plump grains in the ears; and this can no way be so effectually done as by late hoeing, especially just after the Wheat is gone out of the blossom; and when such hoed grains weigh double the weight of the same number of unhoed (which they frequently will), though the number of grains in the hoed are only equal, yet the hoed crop must be double." I think the foregoing quotations will sufficiently bear out my observation respecting the credit of this system being due to the author I have quoted. Indeed, the work of Jethro Tull should be every farmer's text-book. Should you consider the above worthy a place in your Journal, it may be the means of inducing some of your readers who may be, like myself, but a young farmer, to seek further into the work in question, from which, I flatter myself, I have gained considerable information.—*H. C., Wooburn, Bucks.*

Calcareous Deposits in Drains.—I see, in your last *Gazette*, that a correspondent (T. G. Clitheroe) speculates upon the possible effect of calcareous deposits in stopping drains in the limestone districts, and also in those in which quick-lime is used as a manure. I happen to have discovered, by accident, a very remarkable instance of this. I was recently draining a large pasture field on the side of a hill, in the Cotswold district, which was a complete swamp; there was a considerable depth of soil, and the men were surprised at meeting continually in the course of the drains with what appeared to them like irregular fragments of rock, in continuous lengths, which they had some difficulty in separating. On a close examination of these, they were evidently very ancient drains which appeared to have been originally formed of three blocks of stone—one having formed the base, upon which two others had been placed, meeting at the upper edge; thus leaving a triangular space for the flow of water. These stones had become consolidated into one mass by the calcareous deposit of the water, and had, no doubt, ceased to act for many years. There is a tradition that there was heretofore a castle upon the top of this hill, which lies near the old Roman Foss-road; it is probable that these drains were coeval with that structure. There are springs in various parts of this county, which are very remarkable for the quantity of deposit in their course. There is one at Chalford, in the vale district, which, in common parlance, petrifies all substances submitted to its action. When the earth is carefully removed, and the substance is submitted to the action of water to cleanse away the ordinary dirt, the most beautiful forms become apparent, the nucleus of which have evidently been roots, branches of trees, &c., now converted into limestone without any change even of minute structure. Where such springs exist, no doubt drains would cease to act in the course of a few years; but these, I apprehend, are rare. I have seen many old drains opened in this county, all formed of stone of the country, but I never observed the slightest deposit, excepting in the instance I have mentioned.—*C. Laurence.*

Antimony for Pigs.—I beg to thank you for your reply to my enquiry as to porkers, and I hope you will excuse my recurring to the subject of antimony for them. In "Paxton's Cottagers' Calendar," edited at your office, and which I have had much pleasure in circulating by distribution amongst my neighbours, directions are given, at p. 66 (the top of the page), for "introducing into the food of baconers, for the first five or six days, as much powdered antimony and sulphur as will lie on a shilling." Being ignorant as to the power of antimony, and how it operates, I asked the question; as well as from having seen a not very credible if humorous anecdote at some time, which is probably not new to you, namely, that some Roman Catholic protector of a monastery, who had seen the fattening power of antimony upon pigs, and who held the Chinese opinion that obesity was a blessed state to be desired, administered the same to the holy brotherhood, and killed them; *unde antimony derivatur!* Since writing to you, the decay amongst my Swedes has become more decided, a dry pithy rot being apparent in very many. In this neighbourhood many crops of Skirving's Purple-tops (to say nothing of other sorts), are as far advanced towards seeding as they were at the latter end of March in the present open and forward year. That excellent Turnip appears to start off earlier than most. In the present summer, so very favourable has the season been for luxuriant growth that, although Turnip sowing was very late, the plants have stood too near to each other and drawn one another up towards seeding. It is a very old remark that no man can be trusted to thin his own Turnips, because he is sure to spoil his crop by not leaving them sufficiently distant from each other. But the luxuriance of this year has been greater than the most unsparing thinner could calculate upon, and shows how very difficult it is, if not impossible, to lay down any fixed rule for distance in thinning Turnips, whether the crop be sown early or late. The Tankards have been a sad failure this year, all tops and not above one-third of usual bulk. They have, too, a sickly decaying appearance.—*A Subscriber.* [It cannot be good policy to physic healthy animals. Our experience as regards the Turnip crop resembles yours.]

Potatoes.—I have been careful to be present, whenever it was possible, at the digging up of Potatoes in this vicinity, and by observation and inquiry I have endeavoured to ascertain every fact concerning them. In this occupation, my attention has been drawn particularly to one circumstance. Whenever the crop has been overrun with weeds the produce has been remarkably healthy. In a sandy piece of land almost covered with Couch Grass, I could scarcely detect a diseased tuber. Now, I conceive that this will point out the most profitable method of cultivation during the prevalence of the present malady. The Potato thus situated has been in a comparatively natural state, and has thus been able to combat successfully with a natural enemy. When growing spontaneously it is surrounded by other plants, and if these have been an obstacle to the enlargement of the tuber they have, by preventing gross luxuriance, given the plant, &c., hardiness of which cultivation has deprived it. But to follow Nature too closely, and to sow a crop of Barley over the imbedded sets would be useless, for the produce, I am afraid, would not pay the expense of cultivation. Instead of this, a plan which I saw tried by an intelligent labourer is, I believe, worthy of adoption, at least by way of experiment. His crop was planted without manure, at the earthing up he sowed some White Stone Turnip seed. Thus in the first part of the season when the disease produced little injury the Potatoes were unrestrained in their growth, but when, after the wet weather, the malady begun its destructive career, the Turnips grew apace, asserted their right to the rich contents of the soil, deprived the Potato of the unnatural stimulus of cultivation, and thus prevented its falling a prey to the almost universal destroyer. No plan that has come under my notice has been so satisfactory in the result as this. The cottager had twenty bushels of sound Potatoes to the chain (I have not seen this year a larger produce), and in addition a valuable crop of Turnips. There are, besides, other reasons for aiming at this double crop. It is found that the Potatoes ought not to be taken from the ground before November. By allowing them to remain, they keep better, and are improved in quality. But there is the drawback that the ground is lying useless all this time. If, however, some Swede or white Turnip seed is sown, the second crop takes its turn after the Potato has finished its course. The Turnip, moreover, is a desirable adjunct to the Potato. Every one who has tried it knows how the hog thrives with boiled Swede Turnips mixed with Potatoes better than with the latter diet alone, and the physician assures us that our own stomachs also perform their duty more effectually with a variety and change of food than with a continuance of the same aliment. Besides, if the land is not manured, the Turnips will be peculiarly sweet, and fit for human food. I may also add that there are various reasons for not earthing up the Potatoes on light land. Mr. Knight recommended it, and I, with some others, tried it last year with satisfactory results. If the Potatoes have been autumn planted, they are already six inches below the level surface, and, if the soil is raised higher, the tubers grown in this part will have been produced so tall as to become the almost certain prey of the disease. Whilst without this earthing up the produce in the six inches of underground stem is more likely to be sound by having an early maturity. On the level surface, too, the Turnips will be more easily grown, and if alternate rows are left and earthed up against the winter's frost, the operation will be more easily and effectually performed.—*Sigma.*

Societies.

FLAX-IMPROVEMENT SOCIETY.

THE annual meeting of this Society was held last week at Belfast. The following are extracts from the report of the Society, read by the secretary, Mr. MacAdam :—

"With a view to meeting the demands for instruction, from the various new districts over which the extension of the Society's labours gave it control, your committee selected, last spring, from among a number of candidates, 15 young men, already conversant to some extent with the management of Flax, and highly recommended for character and intelligence. These individuals have been placed as assistants to the more experienced of the Society's agriculturists, in their several districts, and have thus been fitted for entering upon the management of other districts in their turn. Three of the young men thus chosen were selected, and sent to Belgium, during the Flax harvest, where they remained for three weeks, to improve themselves both in the green steeping and the Courtrai mode of managing the crop. Your committee deemed it expedient, in order to give every assistance to those about entering, for the first time, on the extensive culture of Flax, in the south and west of Ireland, to send the Society's most experienced agriculturists to the new districts in the beginning of the winter, to select and point out the land most suitable for the crop, and to give directions for the preparation of it during the winter. At the sowing and pulling seasons the entire staff of the Society, numbering 26 in all, were employed in districts of the counties of Donegal, Londonderry, Down, Tyrone, Monaghan, Longford, Westmeath, Meath, King's County, Carlow, Kilkenny, Cork, Kerry, Clare, Limerick, Tipperary, Waterford, Mayo, Leitrim, and Roscommon. Your committee are happy to state that the services of the agriculturists have given general satisfaction, and that they have been most valuable in carrying out the views, and furthering the objects of the Society.

"*Quantity and Quality of this Year's Flax Crop.*—Your committee regret that they cannot present you with a more favourable report of the amount of Flax produced this year in Ireland. Partly owing to the unusual quantity of rain which fell during the winter and spring, preventing the farmers from bringing the heavier clay soils (which constitute a large proportion in the best Flax-growing districts of Ulster), into that fine tilth which the plant requires; and partly from the fears entertained on the score of obtaining genuine seed which were entertained, after the frauds practised last year, the breadth of Flax sown was considerably under an average. The long-continued drought of summer had a most prejudical effect on the growing crops, from which they did not subsequently recover; and the produce has in consequence been much less than usual, while the quality also has been considerably deteriorated. The crops on the Continent have also suffered from the same cause, some even to a greater degree. Your committee, therefore, do not feel the least despondency, since the genial moisture, so characteristic of our climate, gives us a decided superiority on this head over the Flax-growing countries in other parts of the world, where as great, and often much greater, losses are sustained from the dryness and extreme heat of their summers. It is also a gratifying fact, in relation to the future prospects of the Society, that, while in Ulster the produce of the Flax crop is under an average, both as to quantity and quality, generally, in the new districts of the other provinces the crop is abundant, and the quality excellent.

"*Frauds in the Sale of Flax-seed; and Sowing of Home-saved Seed.*—In their last annual report, your committee detailed the great injury occasioned by the vending of spurious or fraudulently made up seed. Anxious, by the prosecution and conviction of some individual case, to put a stop to this nefarious practice, and thus afford any farmers who might in future be sufferers by such frauds a clue to the means of legal redress, they selected one which, from its extent and aggravated nature, and the clear chain of evidence which could be brought forward, proved peculiarly suitable for their purpose. By agreeing to defray the costs of the action, in the event of its issue being against the plaintiff, and of furnishing a special counsel to assist in the conduct of the case, the parties concerned agreed to come forward and enter on the prosecution. The result in the case of Simpson v. Dickson as reported in the public papers, was the finding of the jury in a verdict for the plaintiff, damages 64*l.* and costs. Your committee are of opinion that the arguments of the counsel for the plaintiff, and the strong charge delivered from the bench on this occasion were such as to increase the value of this case as a precedent, which your committee have reason to believe, has already had its effect on the minds of the public, as well as the farmer, as the parties concerned in the sale of seed. As another means of guarding against such frauds, your committee recommended the saving of a portion of the Flax crop each year on the Courtrai system, and the use of the seed thus saved for sowing. This advice having been acted upon in several districts the result has been very satisfactory, the crops thus grown being equal in all cases and frequently superior to those grown from foreign seed. The success of these trials is likely to encourage the extensive adoption of this practice throughout the country. Your committee are happy to learn that a very large supply of Riga and Dutch sowing seed, of prime quality, and at a low price, is offering this season and will likely be brought into our markets.

"*Value of Flax-seed as Food for Cattle.*—Your committee have yearly in their reports to you, and constantly through the practical instructions of their agriculturists, urged most strongly the importance and value of Flax-seed, as food for all kinds of live stock, and the utter folly and culpability of permitting this to go to waste in the steep-pools. The produce of the Irish Flax crop in seed may be taken as averaging 100,000 to 120,000 quarters annually, value about a quarter of a million sterling. While this, or a large portion of it, has been allowed to go to utter loss, the imports of Flax-seed and oil-cakes, from the Continent into the United Kingdom, have averaged 600,000 quarters of the former, and 80,000 tons of the latter, annually—value at least, two millions sterling. Your committee are, however, happy to report that through their strong recommendations, and the instructions of the agriculturists, more and more of the seed is each year saved, although as yet fully two-thirds is wasted. The success of those gentlemen in the East of England who have introduced, under the able direction of Mr. Warner, an excellent system of house feeding on Flax-seed, is deserving of serious attention on the part of Irish farmers, and its adoption highly recommended."

Mr. W. SHARMAN CRAWFORD, M.P., moved the adoption of this report. He said the extent of the employment which the extensive cultivation of Flax would afford, could be learned by a reference to the various documents interspersed through the reports of that Society. He should not take up their time by going through any great number of them, on that occasion, but would merely call the attention of the meeting to one statistical statement, which appeared in the records of the Society, and which had been considered of sufficient importance by Sir Robert Kane, to be used by him, in his work on the industrial resources of the country. We find recorded the following analysis of the produce and profits of a crop grown by Mr. Blakely, of Warrenstown, as recorded in former transactions of this Society. This crop was the produce of three statute acres; on these three acres he had at least 100 stones, sold for 15*s.* per stone, realising 75*l.* (no mention is made of the quantity or value of boles or seed). The process of converting this Flax into cambric is described thus :—

	£	s.	d.
158 spinners, 12 months, or 52 weeks, at about 8*s.* 4*d.* per week	1369	6	8
18 weavers, 12 months, at 24*l.* per annum ..	432	0	0
40 needlewomen, 52 weeks, at 4*s.* each week ..	416	0	0
216 persons employed, amount of wages	2217	6	8
Cost of Flax	75	0	0
Total expenses	2292	6	8
Value of 1050 dozen of pocket-handkerchiefs, at 2*l.* 10*s.* per dozen	2023	0	0
Profit	332	13	4

This one instance furnished them all with instruction of the most valuable kind; it taught them a lesson of immense value. By this they were enabled to perceive what might be done with three acres, applied in this way. The value of the produce to the farmer amounted in cash to 75*l.*, while the profit of the manufacturer on the article was 332*l.*, after his having diffused, in wages, for the employment afforded in preparing the article, no less a sum than 2217*l.* 6*s.* 8*d.*—After some further remarks he said it was a rather remarkable circumstance to reflect upon, that, but a short time since, the prosperity of agriculture was thought to depend by many upon the rate of prices. Well, what were the facts now? Prices range at a figure as high as the most anxious friends of agriculture could desire, or as their wishes would lead them to demand—and yet the landed interests were in danger of being deprived of a proportion of their income. If he were asked to point out how these things came to pass, he would have no hesitation in replying—because the people are unemployed, and, therefore, unable to pay their rents. This country, as was well known to the noble Chairman, and every gentleman present, was in a great measure divided into small holdings,—a circumstance which could not fail to increase the existing distress. Neither his lordship nor he (Mr. Crawford) would desire to see these small holders dispossessed; and if they were not to be dispossessed, what course, he would ask, could be adopted in respect to them, except to devise for them some means of employment, which would enable them to pay their rent better than at present. Now, he would point out the cultivation of the Flax crop, as one way to enable them to do so. Suppose a man holding a small farm of eight acres, and pursuing a four-course rotation; and suppose that in that rotation he devotes a half-acre, annually, to the culture of Flax. If he would, he said, follow this plan, one-sixteenth of his holding would be every year under Flax. He had no hesitation in saying, that with this half-acre he would, without trouble, be enabled to pay his rent; for he found, on reference to the various returns in the reports of the Society, that the value of the produce of an acre of Flax, that is of fine Flax, properly cultivated, amounted to a sum of from 30*l.* to 40*l.* With respect to the trouble and expense of working it, the small farmer would be repaid by the seed, which, he perceived, by some of the documents, amounted sometimes to 10*l.* on the acre. So that if the holder receive 15*l.* for the produce in Flax, that sum would cover, in most instances, the rent for the ground, which was an additional inducement to the landlords to protect and encourage the cultivation of Flax, as much for their own sakes as for the sake of the tenants. It is quite true that it would be a highly improper course to devote too great a proportion of a small holding to Flax; because it is well known that it is a crop which will not admit of being sown too frequently in the same ground. But, on the supposition that in sowing a half acre, a man devotes to that purpose but one-sixteenth of his farm, by following a prudent system of rotation, it would not be repeated in the same ground oftener than once in every 16 years. This would be allowing him an ample interval for the renovation of the ground after the former sowing. The report which had been read showed, that that most important process, the saving of the seed, had greatly increased this year. There was an example furnished him by his friend Mr. Andrews, of Comber, of the great value of saving the seed of Flax. The hon. gentleman then stated that Mr. Andrews had saved and sold, from a crop of Flax which had produced him 28*l.* 16*s.* 10*d.*, at the rate of from 15*s.* to 16*s.* the Scotch stone, a quantity of seed, which, at a price, had given the sum of 11*l.* 6*s.* 6*d.* Here was a source of profit to the farmer, which had been hitherto but too much neglected, but which, through the assistance offered by that Society, he trusted, would become generally known and carried out successfully.—*The Northern Whig.*

Farm Memoranda.

A FARM IN DUMFRIESSHIRE.—You will think me tardy in complying with your request, that I would give you some account of the tile-drains executed on this farm of late years; but having been much occupied during the summer and autumn, I have scarcely had time to draw up a statement of the different years in one concise report for insertion in my farm-book till now, and I waited until I had done so, intending to send you a copy of it, and some remarks on the advantages arising from the work. We commenced the tile-drains in 1835, but at that time had a long way to lead the tiles, and paid a high price for them. In 1836, the Duke of Buccleuch put up a tile-work in this parish, and a year after another in the neighbouring parish, to supply his tenants with draining-tiles. We continued to get them from 1836 to 1839 from these tileries, but the demand was so great we had always to set in our carts for days previous to the drawing of the kilns, and thus a very great deal of time was lost both of men and horses, as one of the tileries where the best tiles were made was seven miles distant, and we seldom could get our fields completed in a season from the inadequacy of the supply. As this farm is of considerable extent (750 acres), and 600 required draining, I saw it would be a ruinous concern going on in that way, and at length proposed the erection of a tile-kiln for our own use, and applied to the Duke of Buccleuch to know if he would consent to our having a tile-work of our own, and what he would allow per rood. His answer was extremely satisfactory and encouraging, so that the thing was proceeded with at once. I kept exact accounts of everything, and an account of it was afterwards drawn up, for which a premium was obtained from the Highland Society. I inclose you a copy, though there have been so many improvements since that it can be of little or no use to you. From 1835 to 1839 the number of tiles we used was 300,792; the number of roods (of 18 feet) of drains, 15,831. The 3-inch tiles were charged 25*s.* per thousand; the 4-inch 32*s.*; and we were allowed 3*d.* per rood for cutting the drains, excepting a few done at our own cost previous to the Duke's tile works being erected. The total sum for those, on which we pay 5 per cent. interest, is 567*l.* 15*s.* 7*d.* From 1840 till this time, we have made and used 1,504,694 draining-tiles, and cut 79,062 roods of drains (or perhaps a hundred or two more of the latter), for these we have received 3354*l.* 5*s.*, paying 5 per cent. on the whole. The extent of ground completely drained is 538 acres; we have only 14 or 15 acres more to drain, for which we have tiles made, and shall complete them this winter. The drains are cut when the ground is in lea; they are almost all in the furrows; the ridges 15 feet wide; depth of the drains 2½ feet. For some time we cut the drains in the middle of the ridge, that we might have enough of good soil to fill in the drains without putting any of the clay, but from the many minute veins of sand that intersected the clay acting as conductors of the water, we discontinued this and cut them at once in the furrow. We are now laying down the land much flatter, and in even the most tenacious clay soils we seldom see any water 24 hours after the heaviest falls of rain. We had 5 inches of rain on the evening of the 29th July; the following afternoon, on riding over the farm, I only saw water on one of the Grass-fields, and that a mere "dub"; and instead of the horse's feet sinking, or making the land sound like a sponge, as it formerly did, all was firm and agreeable to ride on. Some seasons we have had very large crops of both Swedes and Hybrid, as well as yellow Turnips on our out-field land, where Turnips never grew before. This is the first season they have been indifferent, the long drought and heat, and then repeated heavy rains (20 inches in seven weeks, commencing from 24th June) quite put a stop to their cultivation. The rotation recommended by our landlord is two years in Grass, a white crop, a green crop, and again a white crop, with Grass-seeds. Of course we may cut the first year's Grass, if we like; and need not take up the Grass fields after two years, unless we choose. We rather think the most of our out-field land will require to remain in Grass three years. We do not approve taking hay especially from our out-field land, but occasionally do so, as from so much tile leading our horses have had hard work. I am very desirous of getting into a regular right system, now that the draining is nearly over. We have for some years just been taking what fields we could get drained out of lea; and until all the land was safe for our sheep, we could not keep so many as we shall now do. Our ewes are Leicester, and half bred Cheviot and Leicester, from which we take three crops of lambs, selecting always our best ewe lambs to keep up our stock, and sell the draft ewes fat in Sept. or this month; we have lately sold the whole lot over head at 35*s.*; when we sell our lambs in July, at "spaining," we get 20*s.* or sometimes more. This season we have kept them all, and sold the bullocks we should have fed, had the Turnip crop been better. We have 30 cows, and rear their calves, feeding the bullocks at 2½ or 3½ years old, and selling the heifers in calf, excepting those we keep to stock up our dairy with. Thus we breed and rear all our stock, having scarcely any good land capable of feeding stock fat, excepting sheep on seeds. Previous to the tile-draining, we could not grow Turnips for our sheep, but had more land in Grass, and took Turnips for our sheep in winter and spring, and only kept a flying stock, purchasing Cheviot ewes every autumn, taking one crop of lambs, and selling them the following season, which was attended with much risk and trouble. We could not feed any cattle for want of Turnips; therefore, sold them generally in autumn, or the heifers in spring. Now we have all the benefit of the manure of the sheep at home, and these three last winters have made large quantities of rich manure, from feeding 15 to 25 cattle on Turnips, oil-cake, grain, and Linseed; besides feeding our cows also on these: but we have not such quantities of straw for litter as induce us to adopt your excellent method of feeding cattle and sheep in boxes, as our land is best suited for Oats, and we rarely grow either Barley or Wheat; neither soil or climate being adapted for it. I fear you will find this detail tedious and uninteresting. We are far behind in many things. — *Farm, Dumfriesshire.*

[The following are extracts from the pamphlet which was printed by the H. S. in their Ag. Jour. in 1842, and which our correspondent has kindly sent us.]

Tilery. "A plan, combining economy with efficiency, was adopted to suit the views of responsible and respectable contractors, who undertook the manufacturing of the tiles. The result has been in every respect most satisfactory.

In the season of 1841, the number of tiles made, was—
266,478 three-inch tiles
and 29,671 four-inch do.

Total .. 316,149

"The kiln was drawn 20 times, giving an average of 15,807$\frac{9}{20}$ tiles for each kiln.

Dates of drawing the kiln each time.

April 29	June 14	August 2	September 14
May 10	22	10	23
18	31	19	October 3
31	July 10	31	10
June 7	20	Sept. 7	25

"The quantity of coals used was 154 tons.

In 1842, the number of tiles made was 221,796 three-inch tiles,
and 21,204 four-inch do.

Total .. 243,000

"The kiln was drawn 14 times up to the 18th September, when a sufficient number for the season was obtained, giving the average of 17,357$\frac{1}{7}$ tiles for each kiln.

Dates of drawing each kiln full.

May 3	June 11	July 10	September 9
14	18	29	18
28	27	Aug. 6	
31	July 11	19	

"The quantity of coals used was 113 tons 15 cwt. There was also burnt in 1842, 1500 soles for the bottoms of drains. More have not been burned, as slates, suitable for soles, are obtained at a lower cost. It will

be seen from the detailed account, afterwards given, of the expenses of erecting the work, that the whole cost, exclusive of the carriage of materials, was 139*l.* 0*s.* 10½*d.* No repairs whatever have hitherto been required, and the only additional outlay has been the purchase of 500 fire bricks for the fine, which cost 1*l.* 16*s.* 3*d.* Coals are delivered at the work at 7*s.* 4*d.* per ton of excellent quality. The three-inch tiles, the size mostly used, are delivered to me at 18*s.*, and the four-inch at 23*s.* per 1000; the contractor having a free house and horse's Grass. It is hoped that the details given may encourage the establishment of similar economical works, by proprietors or their tenants, where thorough-draining is required and clay can be met with—for there is not only a great saving, from the comparatively small sum that requires to be added to the price of the tiles, to repay the cost of the works, but there is also a saving in carriage to the tenant, and an advantage afforded of making the time of leading the tiles subservient to the other operations of the farm, in place of interfering with them.

"Detailed Expense of the Erection of the Tile-Work.

	£	s.	d.	£	s.	d.
Stones for kiln, 6*l.* 0*s.* 6*d.*, common bricks, 7*l.* 18*s.* 6*d.*	13	19	0			
3050 fire-bricks (which quantity left sufficient for setting the kiln)	11	3	9			
35 measures of lime, each containing 3 imp. bushels, at 10*d.*, 1*l.* 9*s.* 2*d.*, building kiln, 14*l.*	15	9	2			
100 long fire-bricks	1	15	0			
				42	4	11
Sheds.—Wood got at a sale, part of which was left over for palings and farm purposes	22	0	0			
2200 feet of boarding, at 1½*d.*, [illegible] ready to put up, and laths	16	8	1			
Sawing 3122 feet of boards for [illegible], at 2*s.* 6*d.* per 100 feet	3	15	6			
Joiner work of shed, per contract, including nails	24	7	0			
Additional sawing of boards and planks required	1	10	0			
				67	15	7
10,000 Welsh slates, 13*l.* 6*s.*, slate nails 2*l.* 15*s.*	16	1	0			
308 yards slating, at 2½*d.* per yard	3	3	1½			
				19	4	1½
Iron-work for clay-mill, and all other iron-work, or tools made of iron, necessary for the work	4	5	0			
Linen for curtains	2	18	9			
				7	3	9
Coopers' work on pug-mill				0	7	6
Cost of shed against the kiln				2	5	0
				£139	0	10½

"The carriage of the materials is not included in the above.

"Cost of making Drain Tiles.

"It would not, in my opinion, be profitable for either a proprietor or farmer to carry on the work in a satisfactory manner by day's wages. The cost to the contractors for the different parts of the process is about as follows:—

	3-inch Tiles, per 1000.	4-inch Tiles, per 1000.
	s. d.	*s. d.*
Removing the surface and casting of clay	0 10	1 0
Grinding and sand	2 6	3 6
Paid for moulding	3 9	5 0
(Out of which the moulder pays the boy attending him 10*d.* per day.)		
Filling into the kiln	1 2	1 3
Coals, 2¾ cwt at 7*s.* 4*d.* per ton	3 6	4 0
Burning (the fireman attending day and night)	1 6	2 0
Taking out of kiln	1 0	1 2
Superintendence, incidents, and upholding the shed, kiln, and implements	0 9	1 1
	15 0	19 0

"The hands employed have generally been—Three moulders; three boys; two men at the clay, and assisting at the kiln; and one of the contractors assisting at moulding and taking a general superintendence."

Miscellaneous.

Instance of Grass land broken up.—This farmer, in 1813, broke up a piece of pasture land, the half of which he pared and burned in autumn, and after spreading the ashes, sowed Wheat and ploughed it in with a thin urrow, and obtained a very good crop. The other half he ploughed up without paring and burning. The land was harrowed and dragged, and the Wheat sown and dragged in. He had but a very bad crop, scarcely worth reaping, with abundance of weeds. The soil of this land averages 8 or 9 inches deep, on gravel, which rests on a subsoil of Oxford clay. The succeeding crops on a four-field course answered very well.—*Mr. Bravender, in Eng. Ag. Soc. Jour.*

Extraordinary Crop of Wheat.—One grain of white Wheat was planted on the 17th of August, 1844, and the plant was taken up and divided into six on the 6th of October; these were sub-divided into 18 on the 24th of January, 1845. Five of these plants were destroyed by the frost, and the remaining 13 yielded 112 ears and 3725 corns, which were dibbled in November, and cut in July, 1846, and yielded half a bushel (minus three quarters of a pint) of good Wheat, which weighed 30 lbs. 6 oz.; the straw weighed 79 lbs. 9 oz. The superiority of dibbling Wheat over the old system of sowing it broadcast, has been well shown in one of the allotment gardens of Horsham. One-eighth of an acre was equally divided, one part being dibbled with Wheat at the rate of 2 gallons of seed to the acre; the other part was sown broadcast, at the rate of 2 bushels of seed to the acre. The product of the first, or dibbled seed, was at the rate of 13 sacks to the acre; while the produce of the second was at the rate of 10 sacks. This experiment was performed in one of the allotment gardens (which number 105) in Horsham.—*Daily News.*

Notices to Correspondents.

AMMONIACAL LIQUOR.—*H C*—Mix it with the compost as you propose. There is no better way of using it, and unless your land is poor, you had better apply this to *green* crops. It is impossible to say at what rate—for the liquid is of such variable composition; but a quantity containing perhaps half a cwt. of ammonia would be an efficient dressing for an acre.

ANALYSIS OF SOIL.—*G C*—You had better write to Mr. Gyde, of Painswick, Gloucestershire, on the subject.

BOOKS.—*Constant Reader, &c.*—"Low on Landed Property," "Hoppus on Practical Measuring," "Gibson on Surveying." The second is a mere ready reckoner with explanatory instructions.—*H L Lawton*—"Blacker's Essay on Small Farms." We have no published Glossary of scientific terms better than "Brande's Dictionary."

BONES AND LIME.—*C W*—Fresh lime can have no such influence on bones that sulphuric acid has. The influences respectively exerted by these substances are opposite. Sulphuric acid sets phosphoric acid free, and therein lies its merits. Lime would only fix it the firmer.

CARROTS.—*K K W W*—The seed may be sown in the common Suffolk or cup drill by first mixing the seed with sand or ashes. Guano is a capital manure for it, applied either mixed with earth, which is generally best, or alone sown broadcast in wet weather in April. Gardener's Turnip cutter will do well either for sheep or cattle; we have used it for several years for both.

DERBY CATTLE, &c.—*H L Lawton*—You should write to the advertiser for particulars about the churn—Mr. Charnock, Wakefield, Yorkshire.

EPIDEMIC.—*A Sub*—Next week, if possible.

FARMERS' CLUBS.—*Henry*—We suppose you mean the London Farmers' Club. It is merely an agricultural society, meeting once a month for discussion at the York Hotel, Bridge-st., Blackfriars.

GRASS SEEDS.—*J R*—Lawson recommends for permanent pasture on "medium soils" without a crop—

	lbs.		lbs.
Alra cæspitosa lutescens.	1	Lolium italicum	3
Alopecurus pratensis	2	L. perenne	5
Arrhenatherum avenaceum	1½	Phleum pratense	1½
Avena flavescens.	1	Poa nemoralis	4
Dactylis glomerata	2	P. trivialis	1½
Festuca duriuscula	3	Trifolium pratense perenne	4
F. heterophylla	1	T. repens	5
F. loliacea	1		
F. pratensis	2		38½

Also Barley or Rye, about 1 bushel additional, per acre. A seedsman will obtain the varieties for you.

LUCERNE.—*T D W*—If up high enough to make the forage of any value cut it; but if only a few inches high you may as well leave it till the spring.

MANGOLD WURZEL.—*Sub*—You had better lift them, cut the tops off, and transplant them now into any convenient corner of land not manured; letting them stand at intervals of 3 ft. every way. They will sprout and bear seed next year.

OILCAKE OR BEANS.—*Henfield*—It is not better to sell Beans at 44*s.* per quarter and buy oilcake at 12*l.* 10*s.* per ton. The best mixture you can give cattle or sheep we believe to be one of Linseed and Beans. The former you can buy at 12*l.* to 12*l.* 10*s.* a ton, and they should be ground and given half and half with hay chaff.

POTATOES.—*C W E*—Swedish Turnips, Mangold Wurzel, and Belgian Carrots, are any of them suitable as a substitute for Potatoes as food for pigs.

SCAB IN SHEEP.—*R J G*—Next week.

SUNDRIES.—*Inquirer*—We imagine that the accumulated cuttings at short intervals of a rich meadow would exceed in amount the sum of a few cuttings in the same period. It becomes a question whether and when the advantage will be worth purchase at the cost of the greater labour of frequent mowings. The truth as regards stall feeding is that while an individual cow will give more milk at pasture than when tied up, yet the produce of land will yield more milk *per acre* if consumed in the house than if consumed out-of-doors. The thing is explained by so much larger a number of cows being supported on the same quantity of food in than out.——Coal *cinders* may be used with advantage as manure, especially on clay land; but this is a misappropriation; they should be used as fuel, and their ashes used as manure.——In stall-feeding the dung all falls in one place, and the feet of the animal stand in one place; it would not answer to let its litter accumulate under it as in box-feeding.——It will be lost labour to apply lime on wet peaty soil; but you may do so with profit on drained land though it be not broken up.——Does phosphoric rat poison lose its efficacy after keeping mixed with flour and sugar? [Yes. It should only be mixed as it is wanted.]

VETCHES.—*T W M*—They are considered very fattening food for pigs. They should be crushed or ground and given as Barley-meal is given. Barley meal and Indian corn meal and Bean meal and Pollard are, any of them, better, because cheaper food.

*** Communications reaching town after Wednesday cannot be answered the same week.

Markets.

POTATOES.—SOUTHWARK, WATERSIDE, Nov. 25.

At present there is such a sameness in this Market that there must of necessity be a sameness in the wording of a report. The supply continues to be moderate coastwise from Kent and Essex, Yorkshire, Cambridge, and by the railways from the various inland counties. The prices are ranging as follow:—

York Regents, 120s to 140s	Kent and Essex Regents, 160s to 180s
Do. Shaws, 100s to 140s	Do. Shaws, 120s
Cambridgeshire Regents, 120s to 140s	Do. Kidneys, 170s
Do. Shaws, 110s to 130s	French Whites, 80s to 110s
Do. Kidneys, 100s to 130s	

RICHARD HARRIS.

SMITHFIELD, MONDAY, Nov. 23.—Per Stone of 8 lbs.

Best Scots, Herefords, &c.	4s	0s to 4s 4	Best Long-wools	4s	6s to 4s 8
Best Short Horns	3	8 to 4 0	Ditto (shorn)	—	—
Second quality Beasts	3	4 3 4	Ewes and second quality	4	0 4 4
Calves	4	0 4 10	Ditto (shorn)	—	—
Best Downs & Half-breds	4	10 5 2	Lambs	—	—
Ditto (shorn)	—	—	Pigs	4	0 5 0

There are not so many Beasts in Market to-day; but the supply is quite equal to the demand, which is limited. The best Scots are still scarce and maintain their price—as 4*d* a-leg readily obtained for this description. The best Short Horns with difficulty make 4*s*, and second-rate barely reach Friday's quotations. We have above 500 from Holland and Germany. We have rather more Sheep than on Monday last, and the demand is considerably decreased—trade is consequently worse—especially for Long Wools; and second-rate quality Downs are not much lower. Calves, although not plentiful, are lower in price. Trade for Pigs is very slow.

Beasts, 3607; Sheep and Lambs, 20,380; Calves, 79; Pigs, 318.

FRIDAY, Nov. 27.

The supply of Beasts to-day is large. Trade is very heavy—especially for inferior quality. The best Scots are making from 4*s* to 4*s* 4*d*. Best Short Horns, 3*s* 8*d* to 4*s*. Scarcely anything to deal in second-rate—the little business transacted in this description may be quoted at 3*s* 8*d* to 4*s*; but many remain unsold. There are about 400 from Holland and Germany. The number of Sheep is small—especially making due consideration that 700 are from Holland and Germany—notwithstanding it is difficult to effect sales at Monday's prices. Best Downs cannot be quoted per lb*s* more than 4*s* 8*d*. The extreme price for best Long Wools is 4*s* 6*d*. Ewes, &c. do. to 4*s* 4*d*. The supply of Calves being small, trade is brisk—best qualities making 4*s* 8*d* to 4*s*. Second-rate, 4*s* 2*d* to 4*s* 6*d*. Pigs are under request at late prices.

Beasts, 1013; Sheep and Lambs, 2180; Calves, 198; Pigs, 280.

61, West Smithfield.

COVENT GARDEN, Nov. 28.—In consequence of the mildness of the season, Raspberries—the produce of a second crop—still continue to make their appearance in the Market. Other fruit, as well as Vegetables, are also brought in abundance; but trade is far from being brisk. Pine-apples are sufficient for the demand; but Grapes, both English and Foreign, are scarce. Apples and Pears have not altered in price since last week; the latter are rather more plentiful. Oranges are also brought in greater abundance. Spanish Melons may be obtained, and Nuts are sufficient for the demand. Walnuts are scarcer, and there is little demand for Filberts. Lemons are scarce. Of Vegetables, Cabbages, Cauliflowers, &c., are good and plentiful. Carrots and Turnips have altered but little in price. Beans remain nearly the same as last week. Celery is good in quality. Good Potatoes are scarce. Lettuces and other Salading are plentiful. Horseradish still continues to be imported. Cut Flowers chiefly consist of Heaths, Jasmines, Camellias, Pelargoniums, Gardenias, Cacti, Neapolitan Violets, Luculia gratissima, Bignonia radicans, Roman Narcissus, Allamanda cathartica, Fuchsias, Azaleas, and Roses.

FRUITS.

Pine Apple, per lb., 4*s* to 7*s*	Lemons per 100, 10*s* to 20*s*
Grapes, Hothouse, per lb., 3*s* to 5*s*	Almonds, per peck, 6*s*
— Foreign, per lb., 2*s* to 3*s*	Sweet Almonds, per lb., 2*s* to 3*s*
Apples, Dess., per bush., 3*s* 6*d* to 8*s*	Filberts, English, p. 100 lbs., 80*s* to 90*s*
— Kitchen, 4*s* to 6*s*	Nuts, Cob, per 100 lbs., 95*s* to 100*s*
Pears, per bl.-sieve, 4*s* to 12*s*	— Barcelona, 70*s*
Oranges, per dozen, 2*s* to 3*s*	— Brazil, 12*s* to 16*s*
— per 100, 14*s* to 24*s*	— Spanish, 14*s*
Berberries, per bl.-sv., 4*s* to 7*s*	Walnuts, per bushel, 16*s* to 24*s*
Lemons, per dozen, 1*s* 6*d* to 2*s*	

VEGETABLES.

Cabbages, per doz., 6*d* to 1*s* 6*d*	Garlic, per lb., 6*d* to 8*d*
— red, per doz., 1*s* to 2*s*	Spinach, per sieve, 1*s* to 1*s* 6*d*
Broccoli, per doz., 4*s* to 12*s*	Asparagus, per 100, 4*s* to 6*s*
Cauliflowers, per doz., 1*s* to 2*s*	Seakale, per punnet, 2*s* 6*d* to 3*s*
Artichokes, per doz., 2*s* 6*d* to 4*s*	Salsify, p. bundle, 1*s* to 1*s* 6*d*
— Jerusalem, p. bl.-sieve, 1*s* to 2*s*	Scorzonera, 1*s* to 1*s* 6*d*
French Beans, per bl.-sv., 1*s* 6*d* to 3*s*	Brussels Sprouts, per bl.-sv., 1*s* 6*d* to
Sorrel, per bl.-sieve, 6*d* to 1*s*	Lettuce, Cos, per score, 6*d* to 1*s*
Potatoes, per ton, 70 to 80	Tomatoes, per bl.-sv., 3*s* to 6*s*
— cwt., 3*s* 6*d* to 4*s* 6*d*	Endive, per score, 6*d* to 1*s*
— bushel, 1*s* 6*d* to 2*s* 6*d*	Radishes, per 12 bunches, 1*s* to 1*s* 6*d*
— Kidney, per bushel, 2*s* to 4*s*	Mushrooms, per pottle, 4*d* to 1*s* 6*d*
Turnips, per doz., 1*s* to 2*s*	Small Salads, per punnet, 2*d* to 3*d*
Red Beet, per doz., 1*s* to 1*s* 6*d*	Fennel, per bunch, 2*d* to 3*d*
Horse Radish, per bundle, 1*s* to 2*s*	Savory, per bunch, 2*d* to 4*d*
Cucumbers, each, 6*d* to 1*s* 6*d*	Thyme, per bunch, 3*d*
Leeks, per doz., 1*s* to 2*s*	Watercresses, p. 12 sm. bun. 6*d* to 8*d*
Celery, per bundle, 6*d* to 1*s* 6*d*	Parsley, per bunch, 1*d* to 2*d*
Carrots, per doz., 2*s* to 4*s*	— Roots, per bundle, 1*s* to 1*s* 6*d*
Onions, per bushel, 4*s* to 8*s*	Tarragon, per bunch, 3*d*
— Spanish, per doz., 1*s* 6*d* to 4*s*	Mint, green, per bunch, 6*d* to 9*d*
Shallots, per lb., 6*d* to 10*d*	Marjoram, per bunch, 3*d* to 4*d*

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Nov. 26.

Prime Mead. Hay	70*s* to 77*s*	New Hay	— *s* to —*s*	New Clr.	—*s* to —*s*
Infr. New & Rowen	50 65	Clover	80 95	Straw	30 32*s*

JOHN COOPER, Salesman.

WHITECHAPEL, Nov. 26.

Fine Old Hay	70*s* to 78*s*	Old Clover	90*s* to 100*s*		
Inferior Hay	60 68	Infr. do.	70 80	Straw	30*s* to 32*s*
New Hay	— —	New Clover	— —		

Trade very dull.

CUMBERLAND MARKET, Nov. 26.

Prime Mead. Hay	70*s* to 80*s*	Old Clover	90*s* to 96*s*		
Inferior do.	55 60	Inferior do.	75 84	Straw	32*s* to 34*s*
New Hay	— —	New Clover	— —		

JOSHUA BARNS, Hay Salesman.

HOPS, FRIDAY, Nov. 27.

The Market is very brisk for all Hops with colour, at an advance of full 2*s* per cwt., such being very scarce.

PATTESON & SMITH, Hop-Factors.

MARK-LANE, MONDAY, Nov. 23.

The supply of English Wheat by land carriage samples this morning was moderate, and the greater part taken off early, principally for shipment, at an advance of 1*s* per qr. Free Foreign met a limited sale, holders insisting on former prices. We did not hear of any transactions in bonded.—Barley, all but the finest qualities, must be noted 1*s* per qr. lower.—Beans; new were a dull sale and the turn cheaper; old declined 1*s* to 2*s* per qr.—White Peas were difficult of disposal; Grey unaltered in value.—The Oat-trade was firm; but we cannot write it dearer.—In flour there is very little doing.—Maize continues in request from 48*s* to 49*s* 6*d* for Galatz afloat.

BRITISH, PER IMPERIAL QUARTER.

	s.	*s.*		*s.*	*s.*
Wheat, Essex, Kent, and Suffolk	White	60	Red	53	58
—— Norfolk, Lincolnshire, and Yorkshire		54	60	White	54	62
Barley, Malting and distilling 35*s* to 40*s* Chevalier		42	43	Grind.	34	36
Oats, Lincolnshire and Yorkshire		Potatoe	28	34	Feed	26	29
—— Northumberland and Scotch					Feed	27	30	Potato	32	35
—— Irish					Feed	28	30	Potato	28	32
Malt, pale, ship						—	—			
—— Hertford and Essex						—	—			
Rye						40	44			
Beans, Mazagan, old and new		36 to 41		Tick	38	42	Harrow	38	42
—— Pigeon, Holland		44 to 46		Winds	35	70	Longpod	38	45
Peas, White		40 to 44		Maple	42	45	Grey	38	42

ARRIVALS IN THE RIVER LAST WEEK.

	Flour.	Wht.	Barl.	Malt.	Oats.	Rye.	Bns.	Peas
English	2441 Sks. — Brls	2852	2057	2777	315	—	616	243
Irish	— „ — „	—	—	2577	524	—	—	—
Foreign	— „ 2265 „	1705	1551	—	2098	50	78	627

FRIDAY, Nov. 27.

There was little English Wheat fresh up for this morning's Market, and it was cleared at our quotations of Monday last. In free Foreign the transactions were limited, and prices unaltered. The demand for Bonded has subsided.—Barley is firm at late rates.—Beans remain the same; but white Peas in some instances offered on lower terms.—The Oat-trade is steady, and has rather an upward tendency.—Maize in demand at 1*s* to 2*s* per qr. advance.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	3080	1360	1680	1360 Sks
Irish	—	700	9850	—
Foreign	2480	960	1040	10900 brls

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Oct.	17 per Quarter.	49*s* 10*d*	38*s* 6*d*	28*s* 3*d*	38*s* 3*d*	40*s* 5*d*	42*s* 3*d*
—	24 „ „	50 10	40 2	26 6	39 0	43 9	43 10
—	31 „ „	51 9	41 8	27 0	41 1	46 1	50 8
Nov.	7 „ „	48 3	44 3	27 3	41 5	46 6	50 11
—	14 „ „	51 5	44 6	26 9	43 4	46 10	50 10½
—	21 „ „	50 5	43 11	25 10	43 7	46 4	49 0
6 weeks' Average, Aver.		50 11	43 5	26 6	40 9	46 3	49 7
Duties on Foreign Grain		4 0	2 0	1 6	2 0	2 0	2 0

Fluctuations in last six week's Corn Averages.

Price.	Oct. 17	Oct. 24	Oct. 31	Nov. 7	Nov. 14	Nov. 21.
62*s* 3*d*						
61 9						
61 5						
60 10						
59 10						
59 8						

SEEDS, Nov. 28.

Canary	per qr	60*s* to 64*s*	Linseed Cakes, Foreign, p. ton	£6	10 to £11
Caraway	per cwt.	40 48	Mustard, White, per bush	7*s*	8*s*
Clover, Red, English	—	—	— Superfine	—	—
— Foreign	—	—	— Brown	9	11
— White, English	—	—	Rapeseed, English, per last	£15	£16
— Foreign	—	—	Rape Cakes	per ton	—	£7
Coriander	—	10 16	Safflower	—	—
Hempseed	per qr.	36 38	Tares, Eng., winter, p. bush.	4*s*	5*s*6*d*
Linseed	per qr.	38 41	— Foreign	—	—	5*s*6*d* to
— Baltic	—	40 46	Trefoil	per cwt.	16	18
— Cakes, Eng. per 1000	£12 0		Turnip, (too variable for quotation)		

RICHARDSON AND LAY,

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition by Auction on the Premises, Eschol Nursery, Hampstead-road, on Monday, Dec. 7th, 1846, at 12 o'clock (by order of the Proprietor, in consequence of the ground being let for building, the whole of the valuable NURSERY STOCK, consisting of fine Evergreens and Shrubs, Fruit and Forest Trees. Also, a select assortment of Standard Roses.—May be viewed prior to the Sale. Catalogues may be had on the premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition, at the Auction Mart, Bartholomew-lane, on Thursday, Dec. 3, 1846, at 12 o'clock. A first class collection of DUTCH BULBS, comprising very fine double and single Hyacinths, Narcissus, Crocus, Snowdrops, Jonquils, Iris, Gladiolus, Anemone, Ranunculus, &c. Also, a splendid assortment of Standard and Dwarf Roses, consisting of all the leading varieties, Rhododendrons and Azaleas, well furnished with bloom buds, &c. May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition, at the Auction Mart, Bartholomew-lane, on Friday, Dec. 4, 1846, at 12 o'clock (by order of Mons. LOUIS VAN HOUTTE, Nurseryman and Florist to the King of the Belgians), about 250 RHODODENDRON PONTICUM, beautifully furnished with bloom buds. Also a fine collection of DUTCH BULBS, comprising very fine double and single Hyacinths, Anthollza, Crocus, Gladiolus, Iris, Jonquils, Narcissus, Tulips, Sparaxia, &c. May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS have received instructions to submit to Public Competition by Auction on the Premises, Paradise Nursery, Hornsey-road, on Monday, Dec. 14, 1846, and following day, at 11 o'clock (by order of Mr. PAMPLIN, in consequence of the land being required for other purposes), the whole of the valuable NURSERY STOCK, consisting of a considerable quantity of very fine Evergreens, Dwarf Trained Peach, Nectarine, and Plum; also about 500 Camellias, from 2 to 5 feet, beautifully furnished with bloom buds, Azalea Indica, and Erica, of sorts, and other Greenhouse Plants. May be viewed prior to the Sale. Catalogues (6d. each, returnable to purchasers) may be had on the Premises; of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

MEXICAN ORCHIDS.

MESSRS. J. C. AND S. STEVENS will sell by Auction, at their Great Room, 38, King-street, Covent-garden, on Tuesday, December 1, at 12 for 1 o'Clock, a small Importation of ORCHIDS from various provinces of Mexico, including many favourite varieties.—On view the day prior, and Catalogues had of the Auctioneers, 38, King-street, Covent-garden.

NORFOLK. FREEHOLD AND TITHE-FREE ESTATES. ELIGIBLE INVESTMENTS in as fine Land as any in Norfolk, in the immediate vicinity of the Attleborough Station on the Norfolk Railway.

MR. BUTCHER will sell by Auction, at the Royal Hotel, Norwich, on Friday, December 11, at Twelve o'clock, either as an entirety or in Three Lots, unless previously disposed of by Private Contract, of which due notice will be given, that desirable and well-known estate called the HALL FARM, at old Buckenham, Norfolk, celebrated as being one of the most extraordinary producing farms in the county, the Arable Land yielding on an average of years 40 to 50 bushels of Wheat, and 50 to 60 bushels of Barley per acre, remarkable for the growth of Turnips and Beet of excellent quality, and the pastures (upwards of 60 acres) producing feed of the most fattening description. It comprises an excellent farmhouse, called the Hall Double Cottage, three Barns, Riding and Cart Horse, Stables, Cowhouse, Piggeries, Bullock and Waggon Lodges, Granary, and 290 Acres, or thereabouts, of Arable, rich old Pasture and Plantation, lying in a ring fence, now let on lease for eight years from Michaelmas last, in three occupations, at rentals amounting to 740l. per annum. The outgoings in land-tax, modus in lieu of tithes, &c., amount to about 30l. per annum.

Should the Estate not be disposed of as a whole, it will then be offered in the following lots:—

Lot 1.—THE HALL, a convenient and comfortable Residence, pleasantly situated, with a southern aspect, in a beautiful, well-timbered lawn; comprising an entrance hall, three excellent sitting-rooms, housekeeper's room, several good bed and dressing-rooms kitchen, and requisite offices, double cottage, barn, riding and cart-horse stables, cowhouse, bullock and cart lodges, excellent granary, and 138a. 3r. 10p. of arable, pasture, and plantation, all lying in a ring fence around the premises, and now in the occupation of Mr. Samuel Legood, for a term of eight years from Michaelmas, 1846, at the rent of 395l. per annum. The buildings are in good repair.

Lot 2.—A very desirable, compact, small FARM, of eight inclosures of arable and pasture land, with a barn, enclosed yard, and lodges for cattle, lying in a ring fence, near Old Buckenham Green, containing 46a. 1r. 39p. This lot is in the occupation of Messrs. Philly and John Trickson, under a lease for eight years from Michaelmas last, at the rent of 168l. per annum.

Lot 3.—Another desirable occupation adjoining lots 1 and 2, comprehending a good barn, extensive sheds for cattle, and ten inclosures of very fine arable and pasture land, containing 71a. 0r. 11p. This lot is in the occupation of Mr. John Burton, under a lease for eight years from Michaelmas last, at the rent of 177l. 10s. per annum.

Old Buckenham is situated 16 miles from Norwich, 95 miles from London, and three miles from the market town of Attleborough, one of the principal stations on the Norfolk Railway. The poor-rates are moderate.—Particulars and conditions of sale, with a lithographic plan of the estate, may be had on application to Messrs. WHITE and BEAUMONT, Solicitors, 35, Lincoln's-inn-fields; Mr. COLLINS, Auctioneer, Mourgate-street, London; Mr. EDWARD FREESTONE, Solicitor, Little Orford-street; or Mr. BUTCHER, Auctioneer, Norwich. Mr. LEGOOD, the tenant of the Hall Farm, will show the several lots.

☞ NOTE.—*The above Rents are all guaranteed, and if no larger Price is obtained, the Estate will be Sold so as to pay a clear 4 per cent.*

TO BE LET, EDMONTON NURSERY.—Great Bargain.—Seven Houses, Pits, &c.; containing about 4000 feet of Glass, about 3000 Plants in pots, remaining Stock in ground, Lease, Cart, Pots, Tools, Fixtures, &c.; for 450l. Term of lease, 21 years; rent of Cottage, Shop, and above two acres of Land, 30l. per annum.—For further particulars apply to Messrs. H. Low & Co., Clapton; or on the premises.

TWO ADJOINING STOCK FARMS, NEAR NEWPORT PAGNEL, BUCKS.

TO BE LET on LEASE, together, or separate, at Lady-day, comprising 179 Acres of ARABLE and 280 Acres of PASTURE, with suitable residences and homesteads. The soil is a fertile loam, free from stones, and may be greatly improved by draining, deeper tillage, and the introduction of Turnip husbandry and dressing by yard stock. Mr. HEWITT DAVIS, the agent of the Estate, highly recommends these farms to enterprising tenants with capital to invest in improvements, and will gladly assist their views. A Tilery for making of draining pipes for the use of the tenants has just been completed on the estate, and permission will be given to plough up the inferior Grass land, and to grub all useless hedges at the same time that other means are being taken to throw open and greatly improve the estate. For further particulars, apply to Messrs. DAVIS and VIZARD, Land Agents, 3, Frederick's-place, Old Jewry, London.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND,"

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

POTATO EPIDEMIC.

To AGRICULTURISTS, GARDENERS, & OTHERS.

PARKER'S ENTYKOPROLEON, OR CHEMICAL COMPOSITION MANURE, for destroying the Wireworm, Grub, Mole, Insects, and Vermin inimical to the growth of all kinds of grain and vegetable productions, and for assisting vegetation.

W. and S. B. PARKER in offering their Composition Manure to the notice of Farmers, Gardeners, and others interested in agricultural pursuits, do so with the perfect confidence that it will be found fully to effect all the objects intended, and to be a desideratum long and anxiously looked for by all classes of persons for whose benefit it is now offered. This Manure will be found most effectually to destroy the fly in Turnips, to preserve corn and other seeds and grain from insects without injuring or affecting the seed; while, at the same time, it materially assists and promotes vegetation. It will be found highly beneficial in cold and wet corn lands, keeping the young plants warm, and contributing essentially to their growth and nourishment. On meadow land, also, its beneficial qualities will be readily perceived, and it cannot fail to be appreciated as a rich, cheap, and invaluable Manure.

The extraordinary disease affecting the Potato is now become an object of serious consideration, not only to the grower, but to the consumer; and any expedient or specific to stop or diminish the malady, must be considered of the utmost importance to the community. Notwithstanding the experiments, observations, and opinions of scientific and practical men, no satisfactory solution of the origin or cause of the disease has been suggested, or any efficacious specific or remedy proposed, and the alarming extent of the mischief justifies and requires the adoption of any reasonably proposed preventive or mitigant. With this view the proprietors of the Chemical Compost on Manure, confidently recommend its adoption as a perfect specific against the prevailing epidemic. The limits of an advertisement do not allow the opportunity of giving a scientific exposition of the subject, or the reasons for the great efficacy of this Manure otherwise the proprietors flatter themselves their explanation would be perfectly satisfactory. It seems to be the opinion of many, and particularly of one gentleman, evidently of great practical experience and observation, and who has written a pamphlet on the subject, that the disease originates in the leaf, from the appearance of blotches on the leaves of those plants where the Potato was found diseased, but it is apprehended this opinion rests on most feeble grounds, as the blotches may as probably be the effect as the origin or cause of the disease. It is submitted, however, that the disease, whether the effect of an insect, of fungus, or of some peculiar state of the atmosphere, or other undiscoverable cause, must originate in an effect on the tuber in the ground, and whilst on, or after it attains its mature growth, the proper remedy therefore must be applied to the soil, and the destructive effect of this manure on all kinds of insects affecting the roots and germs of vegetable products, and its stimulative and nourishing qualities, seem to leave little doubt of its efficacy against the Potato epidemic. The proprietors consequently, from their own experience, and the observations of other parties, strongly recommend the dressing of the land with their Manure previously to planting, being confidently assured it will be found a perfect preventative of this fatal disease, as also in other respects a cheap and fertilising manure.

Sold in casks of any size at 6l. per ton, with directions, &c., for use, by W. and S. B. PARKER, Sole Manufacturers, Chemical and Colour Works, Deptford, Kent; where also can be had Prospectuses with Testimonials.

KAGENBUSCH AND CO.'s REMEDY FOR THE POTATO DISEASE.—Price 6s. per packet, which ensures an acre of sound Potatoes and a large crop.

KAGENBUSCH AND CO.'s GERMINATING COMPOUND.—Price 2s. and 4s. per packet. The best Steep for Wheat and other Grain; Turnip, Clover, Onion, and all other Seeds and Pulse. This is the gardener's best friend.

KAGENBUSCH AND CO.'s GERMAN SCIENTIFIC MANURES, which fertilise the land without exhausting it, at 30s. per acre for Meadows, once in three years; for Tillage 35s. per acre, and for Hops 40s. per acre, annually. Price 7l. 10s. per ton for Meadows and Tillage, and 9l. per ton for Hops. One ton is sufficient for 4 acres.

These articles are kept at Hibernia Wharf, London-bridge, and Mr. JOSEPH EDWARDS will deliver them to any one bringing the amount in cash.

Manufactured by KAGENBUSCH and Co., Agricultural Chemists, Leeds. Sold by JAMES and Co., Agents for the South of England, 52, King William-street, City; and POTTER, BROTHERS, Agents for the North, Cromford-court, Manchester.

*** Vessels of 50 tons, drawing 9 feet, load at the Works in Leeds, and can ascend the creeks of every port in the Kingdom, so that Dealers or Farmers, and Landed Proprietors, clubbing together, may be supplied direct, at a saving of expence.

A liberal allowance to the Trade.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 68, Dorset-street, Fleet-street, London.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,

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And by their Agents,

GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL; COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

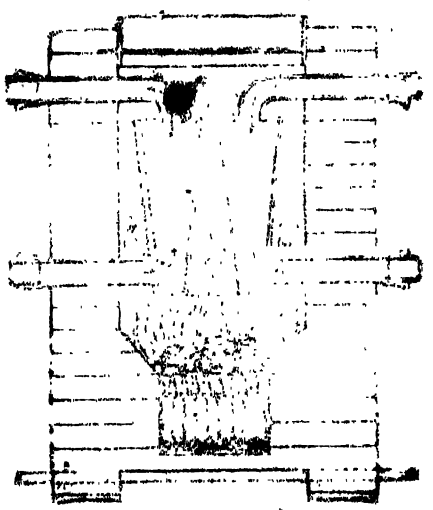
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A Pamphlet on Artificial Manures will be forwarded to any person enclosing two postage stamps to Mr. WILSON, at Mr. Lawes' Factory, Deptford Creek, London.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

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BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended in Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

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D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the execution of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

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STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that, at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

LONDON SEWAGE CHEMICAL MANURE COMPANY, (Registered Provisionally), Capital £100,000, in 5,000 Shares of £20 each. Deposit, £1 2s. per share.

This Company is preparing to proceed for an Act of Incorporation, to enable them to collect the contents of several of the London Sewers, and by the aid of Chemistry to form from them a *Solid Manure* of valuable as Guano, and which from its being a concentrated and portable substance, will ensure a ready market, and must supersede its expensive use.

The profits of this Company will be considerable, and the Shareholders will have the benefit of a material reduction in the price of such quantities of the Manure as they may require for their own use.

Applications for Shares and Prospectuses to be made to the Secretary, at the Offices of the Company, 9, Spring Gardens, and to the following Stock-brokers:—Messrs. E. J. Hunter, 15, Throgmorton-street; Borthwick and Campbell, Glasgow; Flint and Tootall, Hull; D. Murray, 31, St. Andrew's-square, Edinburgh; T. Wren, Preston; W. Tomkinson, Newcastle-under-Lyme; Collis and Smith, Birmingham; F. Wakefield, junior, Nottingham; J. Colling, Newcastle-on-Tyne; J. Allanson, and W. J. Barker, Sunderland; S. Eyre, 5, Queen-street, Derby.

By order of the Directors, EDWARD HUNT, Secretary.

SMITHFIELD CLUB PRIZE CATTLE SHOW, 1846.

THE ANNUAL EXHIBITION OF PRIZE CATTLE, SEEDS, ROOTS, IMPLEMENTS, &c., will take place on the 9th, 10th, 11th, and 12th of December, at the Horse Bazaar, King-street, Portman-square. A handsome permanent Building, in place of the usual tent, was last year erected, and the Implement Galleries are, this year, made to extend over double the space formerly so occupied. Ladies are enabled to view this National Exhibition with perfect comfort.

Open from Daylight till Nine in the Evening. Lighted up after Three in the afternoon. Admittance, 1s.

CHEAP AND DURABLE ROOFING.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, the Manufacturers and only Patentees of THE ASPHALTED FELT FOR ROOFING Houses, Farm Buildings, Shedding, Workshops, and for Garden purposes, to protect plants from Frost.

At the Great National Agricultural Shows, it is this Felt which has been exhibited and obtained the Prize, and is the Felt patronised by

HER MAJESTY'S WOODS AND FORESTS,
HONOURABLE BOARD OF ORDNANCE,
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HER MAJESTY'S ESTATE, ISLE OF WIGHT,
ROYAL BOTANIC GARDENS, REGENT'S PARK,

And on the Estates of the Dukes of Sutherland, Norfolk, Rutland, Newcastle, Northumberland, Buccleuch (at Richmond), the late Earl Spencer, and most of the Nobility and Gentry; and *at the Royal Agricultural Society's House, Hanover Square.*

It is half the price of any other description of Roofing, and effects a great saving of Timber in the construction of Roofs. Made to any length by 32 inches wide.

PRICE ONE PENNY PER SQUARE FOOT.

*** Samples, with Directions for its Use, and Testimonials, of seven years' experience, with references to Noblemen, Gentlemen, Architects, and Builders, sent free to any part of the town or country, and orders by post executed.

☞ The Public is respectfully cautioned that the only Works in Great Britain where the above Roofing is made, are

F. M'NEILL AND CO.'S

Patent Felt Manufactory, Lamb's-buildings, Bunhill-row, London, where Roofs covered with the Felt may be seen, as also the new Vice-Chancellor's Court, and the Passages and Offices at the entrance to Westminster Hall, and other buildings at the New Houses of Parliament, done under the Surveyorship of Charles Barry, Esq., R. A.

Note.—Consumers sending direct to the Factory can be supplied in lengths best suited to their Roofs, so that they pay for no more than they require.

TO BRICK AND TILE MAKERS.
BRICK AND TILE MACHINES.

THE AINSLIE PATENT TILE MACHINE COMPANY, (Charles Smith, Esq., of Doncaster, Chairman), invite attention to their improved TILE MACHINE, and to their new Patent Improved Kilns, for drying and burning Bricks and Tiles, by which a saving of from two-thirds to three-fourths of the fuel is effected, and all the articles are burnt equally without loss or damage. The Machine at work and a Model of the Kilns to be seen, and all particulars to be obtained from Mr. John Paton, Secretary, 193a, Piccadilly, London. Agents wanted.

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton, Draining Engineer to Her Majesty, at Osborne, Isle of Wight; the inventor of a Patent Tile and Pipe Machine (applicable to making Bricks); also a new Machine for taking roots and stones out of clay, both which are to be seen at the Royal Polytechnic Institution, Regent-street,—offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P.S.—Land drained at a fixed sum per acre, including every expense.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

LIGHT, CHEAP, AND DURABLE ROOFING.

THOMAS JOHN CROGGON, of 8, Laurence-Pountney-Hill, Cannon-street, London,

Begs to call the attention of Noblemen, Gentlemen, and the Public, to his

PATENT ANTI-DAMP FELT FOR ROOFING,

As adopted by Her Majesty's Woods and Forests, and by the ROYAL AGRICULTURAL SOCIETY OF ENGLAND, on their Buildings at Newcastle-on-Tyne, and Hanover-square, London; also, by the leading members of the above and other Agricultural Societies of England, Scotland, and Ireland.

The Price of the Felt is only ONE PENNY PER SQUARE FOOT, being considerably less than half the price of Slate, Tiles, Thatch, &c. There is also a very great saving in the woodwork, as the Felt, from its lightness, does not require half the weight of timber that slates or tiles do. The Felt can be manufactured of any required length, by 32 inches wide.

THOMAS JOHN CROGGON, 8, Laurence Pountney-hill, Cannon-street, London.

Croggon also may be had Railway Felt, Sheathing Felt for Ships' Bottoms, and Dry Hair Felt for covering Boilers, Steam Pipes, &c.

FOR WHEAT, TARES, &c.

THE GUANO OF THE LONDON MANURE COMPANY will be found a most valuable Manure for the above crops—it is permanent in its effects, and has stood the test of five seasons with increasing success each year. The Company also supply genuine Peruvian Guano, Gypsum, Superphosphate of Lime, Sulphate and Muriate of Ammonia, Charcoal, Bone Sawdust, Sulphuric Acid, and every Artificial Manure, at the lowest market price.—EDWARD PUSSER, Secretary, 49, New Bridge-street, Blackfriars.

CAUTION.

CHANNEL ISLANDS' CATTLE. — Information having been received here that numbers of French Cattle, chiefly the small Brittany breed, have been sold lately in England, as Channel Islands, purchasers are earnestly requested either to write to friends, or to the officers of the Agricultural Committee, who will direct them to respectable dealers. Obtaining animals of our marked superior breed is of equal interest to the buyer as to the seller.

N. LE BAS, } Honorary Secretaries.
J. S. LAINE. } R. A. S. G.

Guernsey, Octgber 28, 1846.

CHELTENHAM SIX-ROWED BLACK BARLEY.—This singular BARLEY was propagated from Three Corns found in a Sailor's pocket, by Mr. Vaughan, Tobacconist, of Cheltenham; it stood a six-weeks' frost in 1813. Its produce was 80 stools and 5610 grains; making the average per each corn, 1870; no account of its native country can be ascertained.

The Barley stood the extreme drought and heat of 1844 summer, and the severe winter of 1844 and 1845.

Mr. Churchill, of the Plough Hotel, Cheltenham, planted a few acres on the 14th of February, 1846, after a green crop, partly broadcast, drilled, and dibbled, allowing 5 pecks to the acre. It was reaped on the 4th of July, the average crop being 50 bushels and 2 pecks to the acre. Weight per bushel, 55½ lbs. A portion of the same land he sowed with White Stone Turnips on the 22d of July, and on the 2d of September the Turnips were large and fit for table.

His Royal Highness Prince Albert having received a portion of this new Barley, has graciously condescended to express to Mr. Churchill his approbation, and intention to plant the same on his farm.

Agriculturists are of opinion if sown in autumn, from its being early to harvest, a crop of Swedes may be got from the same land.

The Black-skinned Barley produces a fine white flour, and malts well. The Straw is strong and fine, and fit for plait.

Any Agriculturist wishing to try this invaluable Black Barley, may be supplied with any quantity by applying to Mr. JOHN CHURCHILL, Plough Hotel, Cheltenham (for Cash or Post-office order); the calculation being as under:—

		£. s. d.
Quarter of an acre	17 lbs. in a bag..	1 1 0
Three-quarters ditto	1 bushel	3 1 0
One and a half acre	2 bushels.....	
Three acres.....	4 do.	
Six ditto	8 do.	
Twelve ditto	16 do.	

A sample tin, containing sufficient for two poles, will be forwarded on receipt of a Post-office order for 3s.

MARQUEE.—Wanted, a second-hand Marquee in good condition, 50 feet by 30.—Apply to Mr. WM. STILES, Walsall.

NEW CHRISTMAS BOOK BY MR. DICKENS.

In December will be published, price 5s., small 8vo.

THE BATTLE OF LIFE.—BY CHARLES DICKENS.

The Illustrations by DANIEL MACLISE, R.A., CLARKSON STANFIELD, R.A.; JOHN LEECH, Esq.; and RICHARD DOYLE, Esq.

London: BRADBURY and EVANS, Whitefriars.

Just Published,

THE MINIATURE FRUIT GARDEN; or some directions for Root-pruning, Hints for the Cultivation of the Pear on the Quince Stock, and the Cherry, as Dwarf Bushes on the Cerasus Mahaleb. By THOMAS RIVERS, of the Nurseries, Sawbridgeworth, Herts. Sent by post, free, on receipt of 12 postage stamps. Sold also by LONGMAN & Co., price 1s.

Also, in a few days will be ready, a new edition of a Descriptive CATALOGUE OF FRUITS, by THOMAS RIVERS, which will be sent post-free on receipt of two penny postage stamps.

Preparing for the Press, price 2d., Stamped 3d.,

THE UNITED GARDENERS' SHEET ALMANAC, in connection with THE UNITED GARDENERS AND LAND-STEWARDS' JOURNAL, the profits of which are devoted to the relief of indigent Gardeners and Land-stewards, their Widows and Orphans. To render the Almanac of an attractive character, and to secure for it a wide circulation, great pains will be taken, and expenses incurred, to introduce into it a CORRECT LIST OF THE NURSERYMEN OF ENGLAND, IRELAND, AND SCOTLAND, with such information of general reference as will secure for it a site in all public Places, Nurseries, Seed-shops, &c. &c. Nurserymen are respectfully requested to send their names and addresses to the Editor of the above Journal.

A few Advertisements will be inserted. By Advertisers sending immediately, they will secure a place.

This day is published, 8vo, price 6d.,

ON THE CLOVER SICKNESS OF CERTAIN SOILS; being an Analytical Investigation into the Causes producing the Failure of the Red Clover Crop, with Suggestions for its Prevention. Undertaken at the request of the Blythe Farmers' Club, by JAMES HAYWOOD, Analytical and Consulting Chemist; Lecturer on Chemistry at the Sheffield Medical Institution.

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FERIÆ SACRÆ; OR NOTES ON THE GREAT FESTIVALS OF THE CHURCH.

WITH CHANTS AND HYMNS APPROPRIATE TO THE SERVICES APPOINTED FOR EACH.

Compiled and Edited by the
REV. T. TURSTALL HAVERFIELD, B.D.
Rector of Caddington, Oxfordshire.

Price, to Subscribers, 15s.; to non-Subscribers, 21s.
JOHN OLLIVIER, 59, Pall-Mall.

JOHNSON'S GARDENERS' ALMANACK for 1847 is just published by the Stationers' Company. Besides the usual contents of an almanack, it contains full information of all the horticultural discoveries of the past year, and directions for the future; highly improved information relative to the Potato; Garden Calendars, &c.

The following works will be published on the 30th inst.

THE COMIC HISTORY OF ENGLAND. No. VI. By GILBERT A'BECKETT. Illustrated by LEECH. Price 1s.

DOUGLAS JERROLD'S SHILLING MAGAZINE. No. XXIV. Price 1s.

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Published This Day, in 1 vol. 8vo, with 20 Plates, 10s. 6d. cloth,

THE POTATO PLANT: its Uses and Properties; together with the Cause of the present Malady, the Extension of that Disease to other Plants, the Question of Famine arising therefrom, and the best means of Averting that Calamity. By ALFRED SMEE, F.R.S., Surgeon to the Bank of England, to the Royal General Dispensary, to the Central London Ophthalmic Institution, and Lecturer on Surgery at the Aldersgate School of Medicine.

London: LONGMAN, BROWN, GREEN, and LONGMANS.

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To AGRICULTURISTS, LANDLORDS, and TENANTS.

JOHNSON and SHAW'S FARMERS' ALMANAC for 1847, 240 pp., price 1s., or bound in cloth, and interleaved, price 2s.; to be had of

JAMES RIDGWAY, Piccadilly, and every country bookseller.

Also, JOHNSON'S RURAL SPELLING BOOK, inculcating the first principles of Agriculture and Horticulture, together with general Education, price 1s. 6d. new edition, bound in cloth.

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FINDEN'S BEAUTIES OF THE POET MOORE. Second Series. Containing Twenty-four Portraits of the principal Female Characters in his Works, from Paintings by eminent Artists, made expressly for the Work—Engraved in the highest style of Art, by or under the immediate superintendence of Mr EDWARD FINDEN. With descriptive Letter-press. In imperial 4to, elegantly bound in red morocco, gilt edges, price 2l. 2s., or in atlas 4to, with proof impressions of the plates on India paper, price 3l. 3s.

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MARY WEDLAKE'S MODERN AND IMPROVED IMPLEMENTS:—Thrashing Machines, Subsoil Ploughs, Light Ploughs, Turnip Cutters, Dressing Machines, Chaff-cutting Machines, Oil-cake Breakers for hand cake, Oat Bruisers, Scarifiers, Land ditching Ploughs, Moulding Ploughs, Drills of different sizes, and Iron Rollers, on view at 118, Fenchurch-street, opposite Mark-lane.

WANTED TO PURCHASE OR RENT, with immediate possession, AN ESTATE, comprising from 150 to 250 acres of good land, with a Substantial House and Outbuildings in a good neighbourhood, and not far from a market-town. The South or West of England preferred. Particulars to be forwarded (post-paid) to L. G., care of C. M. Kingdon, Esq., No. 11, Pittville Parade, Cheltenham, Gloucestershire.

FEATHER BEDS PURIFIED BY STEAM.

HEAL AND SON have just completed the erection of Machinery for the Purifying of Feathers on a New Principle, by which the offensive properties of the quill are evaporated and carried off in Steam; thereby not only are the impurities of the feather itself entirely removed, but they are rendered quite free from the unpleasant smell of the stove, which all new feathers are subject to that are dressed in the ordinary way.

Old Beds, re-dressed by this process, are perfectly freed from all impurities, and by expanding the feathers the bulk is greatly increased, and consequently the Bed is rendered much softer.

The following are the present Prices of New Feathers:—

Mixed, per lb. ..	1s. 0d.	Best Foreign Grey Goose	2s. 0d.
Grey Goose	1s. 4d.	,, Irish White ..	2s. 6d.
Foreign Grey Goose ..	1s. 8d.	,, Dantzic White ..	3s. 0d.

HEAL & SON'S List of Bedding, containing full particulars of Weights, Sizes, and Prices, sent free by post, on application to their Establishment, 196, opposite the Chapel, Tottenham-court Road.

PATENT ELASTIC BANDS, WARRANTED NOT TO BE AFFECTED BY THE COLD OR HEAT OF ANY SEASON OR CLIMATE.—These Rings or Bands are used instead of tape or string, for holding Papers and Parcels of every description. One of these Rings is instantly placed round a packet of Papers, a roll of Maps, Prints, Music, &c., holding the same firmly and securely, saving the time and trouble of tying, yet allowing of very great addition or reduction without any loss of compactness. They are well adapted for Garters (a size being selected which requires little stretching); also for the Waist and different parts of the body; Surgical Bandages, and for a variety of Surgical and Manufacturing purposes. These Bands are also very useful for fastening the covers of Preserves and Pickle Jars, Bottles, &c. In addition to the above, there is a great variety of uses, too numerous to mention, for which these Bands may be applied with advantage, and new applications will constantly suggest themselves when in use. They may be had of two thicknesses, and are sold in boxes of six dozen each, of assorted sizes, price 6d. per box and upwards. Bands may be had to order of various widths and thicknesses.

☞ The above articles are sold by all Stationers and Dealers in Metallic Pens. Wholesale and for Exportation by PERRY and Co., at No. 87, Red Lion-square, London; and also by CHARLES MACINTOSH and Co., Manufacturers, Manchester and Birmingham.

WARMING AND VENTILATING CHURCHES, LARGE BUILDINGS, GENTLEMEN'S ENTRANCE HALLS &c., &c. CUNDY'S PATENT STOVE, for these purposes, is the most efficient and economical yet introduced to public notice. The price of No. 1 Stove, calculated to Warm and Ventilate Buildings from

5,000 to 10,000 cubic feet, is 15l.
No. 2, from 10,000 to 50,000 do. 30l.
No. 3, from 50,000 to 100,000 do. 50l.

Ample testimony can be adduced. They may be seen in daily operation at the PANNLIBANON IRON WORKS, the Great Western Emporium for Stove Grates, Kitchen Ranges, Fenders, Fire-Irons, &c. Where is also the largest assortment in the Kingdom of General Furnishing Ironmongery, in Finned Copper, Tin, and Iron Cooking Ware; best Sheffield Plate and Table Cutlery; Japanned Paper and Iron Tea-Trays; Bronzed Tea-Urns; Baths of all kinds; Brass and Iron Bedsteads; Wire Trellis Work; Garden Ornaments; Verandahs, &c. &c.

THOMPSON, FALLOWS, & Co., Pannlibanon Iron Works, 58, Baker-street, Portman-square.

Printed by WILLIAM BAXTER, of No. 6, Pall-Mall Place, Middlesex, and published by the said WILLIAM BAXTER, at the Office of the Company of Stationers, Paternoster-row, in the Parish of St. Faith, London, in the County of Middlesex, Printer to the Worshipful Company of Stationers of the City of London; and published by them at the Office, No. 41, Chancery-lane, in the Parish of St. Dunstan-in-the-West, in the said County, to whom all Advertisements for the Gardeners' Chronicle are to be addressed.—SATURDAY, NOVEMBER 28, 1846.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 49—1846.] SATURDAY, DECEMBER 5. [PRICE 6*d.*

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STAMFORD-HILL HORTICULTURAL SOCIETY.—The EXHIBITIONS of this Society for the year 1847 will be held on the undermentioned days, viz.:—

FRIDAY, 14th May.
WEDNESDAY, 23d June.
WEDNESDAY 21st July.

The above Society is confined to the resident Gentry and Amateurs; but, for the general encouragement of Horticulture, Prizes are awarded to Nurserymen, who are invited to compete among themselves at each Exhibition

C. H. ANDERSON, Hon. Sec., Warwick road, Upper Clapton

DRIED PLANTS FROM CHINA.—A few sets of the VALUABLE DRIED PLANTS collected in China by Mr. FORTUNE, may still be procured by applying to R. HOWARD, Esq., Young street, Kensington, London. Among them are many new and rare species scarcely known to Europeans

WARNER'S SUPERIOR EARLY EMPEROR PEA. This splendid new PEA, adjudged as being the earliest and best flavoured Pea known, may be had, at 2*s.* 6*d* per quart, of FREDERICK WARNER, Seedsman, 28, Cornhill, London. Also the improved EARLY GREEN MARROW PEA, having a dark-green, glossy pod, much superior, in flavour and earliness, to the old varieties, at 1*s.* 6*d.* per quart.

A general collection of HYACINTHS, &c., in the best varieties.

NOW SENDING OUT.

MOUNT ETNA .. .. £1 1 0 } the two 30*s.*
ISABELLA .. .. 0 10 6 }

THE above first-rate GERANIUMS have obtained Five Prizes at the London Exhibitions. Descriptive Lists (gratis), and Engravings by Holden for 12 stamps.

WILLIAM MILLER, Providence Nursery, Ramsgate.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The above-named Bulb, famous for its beauty and the fragrance of its blossom, has been just received from Italy, and may be obtained at A. CORBETT'S Italian and Foreign Warehouse, 18, Pall Mall. A choice collection of Orange, Lemon, Citron, and Shaddock Trees; Azorian, Catalonian, and Arabian Jasmines expected in January next.

TO FRUIT GROWERS AND OTHERS.

MESSRS. FITCH of Parson's Green, Fulham, offer for Sale from 40,000 to 50,000 GOOSEBERRY and CURRANT BUSHES, of sorts, adapted for the London Markets. They were headed down last year, have made an unusually fine growth; and are of very superior quality. To be seen at their Grounds, situate as above.

FAIRBEARD'S CHAMPION OF ENGLAND PEA.—A large blue Wrinkle Marrow, a few days earlier than the "Fairbeard's Surprise," an abundant cropper, of fine flavour; in height 4 feet. It is considered to be the best as yet offered, possessing the qualities of a Marrowfat, with the advantage of an early Pea.

May be had of the following Seedsmen at 5*s.* per quart:—George Chartwood, Covent-garden; J. Nutting, Cheapside; Miller, Nash, and Nash, Strand; Gray, Adams, and Hogg, Brompton; W. and I. Noble, Fleet-street; Hay, Anderson, and Saugster, Newington Butts; J. Wrench and Sons, London-bridge; Hurst and M'Mullen, Leadenhall-street; Gordon, Thompson, and Basket, Fenchurch-street; Frederick Warner, Cornhill.

Green-street, near Sittingbourne, Kent, Dec. 5.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN & OTHERS.
ABIES CANADENSIS, OR HEMLOCK SPRUCE.

G. BAKER, NURSERYMAN, Bagshot, Surrey, having the Largest Stock in Europe, of various sizes and in fine condition, can with confidence recommend this noble tree to the notice of the public, at the following prices:—

1 ft.—Transplanted	..	..	at £0	12	0 per 100
2 ,,	,,	..	.. ,,	0	16 0 ,,
3 ,,	,,	..	.. ,,	1	5 0 ,,
3 to 4 ft.	,,	..	.. ,,	1	10 0 ,,

PICEA BALSAMEA.

1½ to 2 ft.	,,	..	at £0	8	0 ,,
2 ,, 3 ,,	,,	..	.. ,,	0	12 0 ,,

G. B. having a fine Stock of Flowering KALMIA LATIFOLIA, can supply them at the following low prices:—

9 to 12 inches	..	..	.. at £2	10	0 per 100
12 ,, 18	,,	..	.. ,,	3	15 0 ,,
18 ,, 20	,,	..	.. ,,	5	0 0 ,,

Fine Specimen Plants from 3*s.* 6*d* to 5*s.* each.

N.B.—Large purchasers will have considerable reduction.—The usual allowance to the trade.

FOREST TREES.
VICTORIA AND ALBERT NURSERIES, CORK.

J. AND H. HAYCROFT beg to inform Gentlemen intending to plant, that they have this season a large stock of Seedling and Transplanted FOREST TREES, which they can offer on very moderate terms. As a considerable reduction will be made on large quantities, it is respectfully requested that the sizes and number required be stated.

N.B. All packages DELIVERED FREE by steam packets to London, Plymouth, Southampton, Bristol, and Liverpool, and by sailing vessels to nearly every port in South Wales.

Roots of Tigridia conchiflora, 7*s.* per 100, Cyanothus azureus, 2 feet, in pots, 12*s* per dozen

The usual discount to the Trade.

PEAR TREES

RENE LANGELIER, of the Clarendon Nursery, St. Helier, Jersey, respectfully announces that he has on Sale upwards of 30,000 fine PEAR TREES, from his unrivalled collection of upwards of 1200 varieties, of which a Catalogue may be had on application, post paid, and a penny stamp inclosed, among which will be found several new ones, in particular his new Beurré which proves again this year to be one of the best fruit known; also one called Grosse Calebash, measuring from 8 to 8½ inches, weighing from 20 to 24 ounces, a perfectly melting fruit, ripens in November, quite different from Calebash Rost, both in shape, &c., and flavour.

All the sorts insured to be true to name and none sent out by R. L. unless proved by him, by application, as to the time of maturity and description of fruit,—as sufficient. Having devoted his particular attention to the above culture, he flatters himself he has the most select collection in England or France.

Price—Langelier's Beurré, from 6*s.* 6*d* to 5*s.* each tree; Grosse Calebash, 5*s.*, fine trees. Those who do not possess these varieties should not be without them.

A Descriptive Catalogue of Pears is in progress, and will much interest Pear Growers, and proper pruning will be treated according to the plan they are grown in his garden, which is different from all other pruning.

All letters prepaid, and remittance or reference from unknown correspondents.

FOR SALE, a quantity of Fruiting and Succession VINE PLANTS, quite clean, to be sold very cheap, owing to the gentleman leaving his residence Apply to Mr. BATEMAN, Hertsbourne Manor-place, Bushy-heath, Herts.

NEW VICTORIA RASPBERRY

GEORGE CORNWELL, MARKET-GARDENER, Barnet respectfully begs to call the attention of Noblemen, Gentlemen, and Gardeners, to his new Victoria Raspberry, unequalled in the size of its fruit, brightness of colour, and richness of flavour, is an abundant bearer, and grows 10 feet high. Canes to be had at E. CHARLWOOD'S, Covent-garden, Messrs. W. and I. NOBLE, Fleet-street; also of GEORGE CORNWELL, opposite the Red Lion, Barnet, and all the principal Seedsmen in London, at 3*d.* per 100, or 2*s.* per dozen.

AMERICAN POTATO SEED.

J. M. THORBURN [illegible] Price 5*l.* 5*s.* per lb, or 10*s.* 6*d* per oz.) 25 lbs. of the finest WHITE KIDNEY POTATO SEED, raised the present year in one of the Northern States, by an experienced farmer, with the utmost care, from Potatoes entirely free from disease, indeed the opinion is prevalent in America among practical men, that roots affected with the rot do not mature the blossom, and of course are seedless. Whether this theory is correct or not it is certain the Seed now offered was gathered from a vigorous healthy field.

Orders, with a remittance, will meet with prompt attention, or may be left with Mr GEORGE CHARLWOOD, Covent-garden, London, where a sample of the Seed may be seen.

To NOBLEMEN and GENTLEMEN about to Plant this Season.

W. SKIRVING, Walton Nursery, Liverpool, begs to announce that the STOCK in his New Nursery Grounds being now fit for SALE, he is enabled this Season to offer a more extensive Collection of FRUIT TREES, FOREST, and ORNAMENTAL TRELLS and SHRUBS than he has ever before offered to the Public. Priced catalogues of which may be had on application

The FOREST TREES consist of several Millions, including OAK, ASH, ELM, LARCH, SCOTCH FIR, SPRUCE, and all the common Forest Trees generally planted in this country; and, of the following, for Underwood, HAZEL, SLOE, PRIVET, HOLLY, RHODODENDRON, BERBERIS AQUIFOLIA, LAUREL, &c.

In addition to the general Collection of Forest Trees usually planted, W. S. would recommend the two following new and very Ornamental Hardy Trees, viz. ARAUCARIA IMBRICATA, and CEDRUS DEODARA. The stock of the former consists of many Thousands of fine Plants, two years old, grown from Seed in the open ground, expressly for Forest Planting. Also, several Thousands selected Plants, of various sizes, 1 to 3 feet high, in Pots, well formed, and adapted for effect, on lawns, parks, or avenues. Since the introduction to public notice, of this Tree, ten years since by the Advertiser, it has been extensively planted from his Nursery in every county in Great Britain and Ireland without a complaint of its not being perfectly hardy, which now induces him to offer it for general planting as a Forest Tree well adapted to our climate.

The same observation will apply to the CEDRUS DEODARA, which has been proved to be perfectly hardy. His stock of this Tree being more limited than the foregoing, W. S. can only offer a few Thousands of fine Plants, 1 to 3 feet high, all warranted from Seed. He has also for Sale at present a few fine specimen Plants of the following:—

ARAUCARIA EXCELSA	..	..	8 to 12 feet
,, CUNNINGHAMII	..	..	4 to 10 feet
,, BRAZILIANA	..	..	1½ to 6 feet

Railway Contractors, and others, enclosing new Lands or improving old Estates with new fences, can be supplied to any extent with fine transplanted THORN QUICK, of various ages at very moderate prices.

November, 1846.

ROYAL NURSERY SLOUGH.

W. CUTTER AND CO. beg to call attention to their very superior stock of ABIES DOUGLASII, varying in height from 6 in. to 5 ft. Prices from 7*s.* 6*d.* to 63*s.* Very handsome plants. A splendid well-furnished specimen, 20 feet high in tub

PROLIFIC PEA.

JOHN CLARKE, of Long Sutton, has about 20 qrs. of his Prolific Pea to dispose of. Price 2½. per bushel. The Pea has been adapted to field culture by Mr. C. from the strong recommendation of a practical amateur gardener It is a white Pea of dwarf variety, but now from culture growing from 4 to 5½ feet high, and exceedingly productive.—Orders addressed as above, will be carefully attended to.

POTATOES.

JOHN SUTTON AND SONS having true stocks of the undermentioned early kinds, entirely free from disease, owing to their being harvested very early before the disease appeared this season, beg to offer them at the following prices

	£	*s.*	*d.*	
TRUE ASH LEAF KIDNEYS	..	2	6	per peck.
TRUE WALNUT-LEAF KIDNEYS	..	3	0	,,

J. S. and SONS take this opportunity of announcing that their crops of HOME GROWN GARDEN SEEDS consisting of all the new and improved kinds of Peas, Lettuces, Broccolies, Cabbages &c. &c., are now ready for delivery and may be had separately at moderate price, or in collections at 3*l.* 3*s.* 2*l.* 2*s.*, and 1*l.* 1*s.* Reading, Berks, Dec. 5.

TRAINED WALL-TREES, &c.

J. C. WHEELER has this season to dispose of a large quantity of Trained PEACH, NECTARINE, and APRICOT TREES. They are exceedingly fine and healthy of good varieties, and warranted correct to name Lists of the sorts may be had on application. Also upwards of 30,000 Transplanted Thorns rooted QUICK, at from 10*s.* to 30*s.* per 1000; Jerusalem Artichoke, 6*s.* per bushel. Trees, &c. will be added as compensation for long carriage.

Agent for the Cuba Bast or Matting.

J. C. WHEELER, Kingsholm Nursery, Gloucester.

HYACINTHS.

H. HUNT'S IMPROVED REGISTERED HYACINTH POTS AND SUPPORTS, are far more conducive to the well-being of the Bulb, more convenient, and much more elegant than glasses See *Gardeners' Chronicle*, Nov. 30; "Paxton's Magazine of Botany," for Feb.; "Gardeners' Gazette," "The Art-Union," for Dec., &c From 1*s.* 6*d.* each, of most Seedsmen and Florists, and at H. HUNT'S, Wholesale Garden Ware and China and Glass Depot, 29, Queen's-row, Pimlico.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea (by appointment to HER MAJESTY and H. R. H. PRINCE ALBERT).—ORNAMENTAL WATERFOWL, consisting of Black and White Swans; Egyptian, Canada, China, Barnacle, Brent, and Laughing Geese; in sickness, early Widgeon, Summer and Winter Teal, Gadwall, Labrador, Shovellers, Gold-eyed and Dun Diver, Carolina Ducks, Call Ducks, &c., domesticated and pinioned; also Spanish, Cochin China, Malay, Polish, Sussex and Dorking Fowls; and at 3, Half-moon-passage, Gracechurch-street.

White, Japan, Pied, and Common Peafowl and pure China Pigs.

SEEDS.—CORNER OF HALF-MOON-STREET.
THOMAS GIBBS and CO.,
(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

STRONG HORTICULTURAL SHEET GLASS.

HETLEY AND CO. are supplying 16 oz. SHEET GLASS, in boxes of 100 feet each, an article superior in every respect to the foreign, and well adapted for Horticultural and general glazing purposes, at the following reduced prices for cash. A reduction on 1000 feet.

Sizes.					Per 100 feet Box. £	*s.*	*d.*
inches,		inches,	*s.*	*d.*			
6 by 4	and under	7 by 5	at 0	2½	1	0	10
7	5 ,,	,, 9	7	0	2½	1	2	11
9	7 ,,	,, 10	8½	0	3	1	5	0
10	8½ ,,	,, 14	10	0	3½	1	7	1
14	10 ,,	,, 2 ft. super.		0	3½	1	9	2

Other sizes of every substance and quality equally low.

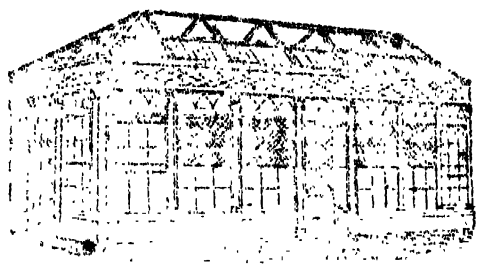
	inches.	*s.*	*d.*	
GLASS TILES,	14 by 10 from	9	0	per dozen according to substance, thinnest
,, SLATES,	20 by 10	9	6	being 16 oz. sheet.

WHOLESALE GLASS SHADE, Sheet, Crown, and Patent Plate Glass Warehouse, 35, Soho-square, London.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, of 100 and 200 feet each; also Glass Panties, 11*s.* per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at F. ELPHICK'S, 28, Castle-street, East, Oxford-street. *** For Ready Money only.

PATENT VENTILATORS for Public Offices, Smoking Rooms, &c.

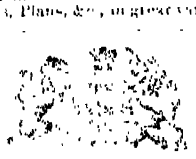
HORTICULTURAL BUILDING AND HEATING BY HOT WATER.



J. WEEKS AND DAY, Architects, &c., Gloucester-place, King's-road, Chelsea, HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, most respectfully beg to inform the Nobility, Gentry, and Horticulturists, that they have erected on their premises, for the purpose of inspection, a variety of Hothouses, Greenhouses, Conservatories, Pits, &c., where all the various known improvements of the day can be seen. Their Hot-water Apparatus is also erected, and kept in constant action in various Hothouses, Greenhouses, Pits, &c., where the whole principle of Top and Bottom Heating can be seen.

J. WEEKS & DAY warrant their Hot-water Apparatus to be efficient for every purpose to which it is applicable. Boilers of all sizes; the largest is warranted to heat a range of Forcing-houses 300 feet in length, with a small quantity of fuel, and only to require attention once in 12 hours.

Models, Plans, &c., on view daily.

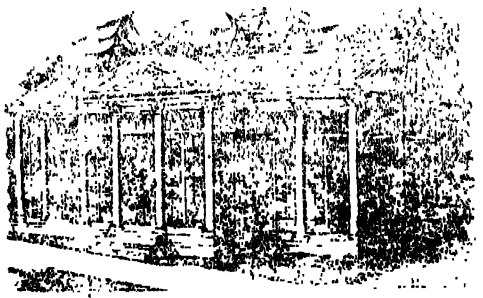
CLARK'S METALLIC  HOTHOUSE WORKS.

55, LIONEL-STREET, BIRMINGHAM.

Proprietor Mr. THOMAS CLARK.
Superintendent of the Works, Mr JOHN JONES.

IN returning his grateful thanks to the Nobility, Gentry, and Public at large, for their liberal patronage of the above Establishment during a period of thirty years, Mr CLARK begs to state that the repeal of the duty on Glass enables him to offer his METALLIC HOT and GREENHOUSES at a greatly reduced price. These Houses are glazed with British Sheet Glass, in panes of from 24 to 30 inches in length, and of such thickness as to preclude all danger of accidental breakage, whilst that which arises from the action of frost (frequently amounting to 25 per cent per annum), is effectually prevented by the peculiar mode of glazing adopted. As a subscriber of the Metallic Hothouses, in which all the most recent improvements are happily combined, Mr. CLARK refers with pride and satisfaction to the magnificent range erected by him at the new Royal Gardens at Frogmore, which is admitted by all competent judges to be the most complete and perfect of its kind in the world.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.



GRAY, ORMSON, AND BROWN, Hothouse Builders and Hot-water Apparatus Manufacturers, Denbigh-street, Chelsea, respectfully solicit the attention of the Nobility, Gentry, and Gardeners, to their superior manner of Erecting and Heating every description of Building connected with Horticulture. Extract of a letter from Mr. TURNBULL, Gardener to His Grace the Duke of Marlborough, Blenheim-gardens:—

"GENTLEMEN,—I am happy to say that the Heating Apparatus erected here by you, answers well. I am perfectly satisfied it is the most complete and powerful I have seen. I shall be happy to answer any questions from parties whom you may refer to me."

Plans and Estimates furnished free, and their Works seen at the principal London Nurseries.

HOT WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority: or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

BURBIDGE AND HEALY'S COOKING APPARATUS combining Sylvester's Patents.—This COOKING APPARATUS possesses greater general advantages than any yet submitted to the public, both as regards strength of material and economy, in fact the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus. B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. May be seen in daily use at Greenwich Hospital, Craven Hotel, Craven-street, Strand, and at the Manufactory, 139, Fleet-street. A Prospectus can be forwarded upon application, detailing particulars and price.

GUANO, &c.

MARK POTHERGILL begs to offer the following CARGOES, on the best terms, viz.:

GUANO, PERUVIAN and AFRICAN, direct from Import Warehouses
Ditto, PATAGONIAN and SALDANHA BAY. Ditto.
SODA ASH, for destruction of Wireworm.
SUPERPHOSPHATE OF LIME. (See Royal Agri. Soc. Journal Vol vi. Part 2).
GYPSUM (Pure Sulphate of Lime).
BONE DUST and BONE POWDER.
SULPHURIC ACID. CHARCOAL.
PETRE SALT and AGRICULTURAL SALT for Composts
SILICATES of SODA and POTASH, and all other Manures.
No. 49, Upper Thames-street
Agent for DINGLE'S HAND SEED DIBBLE.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of POWLER'S PUMPS, made expressly for the purpose, either portable or fixed. Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c. &c. 139, Fleet-street, Fleet-street, London.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS
ANTONY GIBBS AND SONS, LONDON;
WM. JOSIAH MILES AND CO., LIVERPOOL;
And by their Agents,
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL.
COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

LAWES'S [illegible] MANURES.—Turnip Manure, 7l. per ton. Grass Manure, 14l. per ton. Corn Manure 14l. per ton. Superphosphate Lime, 7l. per ton.

A Pamphlet on Artificial Manures will be forwarded to any person enclosing two postage stamps to Mr. WILSON, at Mr. LAWES' Factory, Deptford Creek, London.

LONDON SEWAGE CHEMICAL MANURE COMPANY, (Registered Provisionally), Capital £100,000, in 5,000 Shares of £20 each. Deposit, £1 2s. per share.

This Company is preparing to proceed for an Act of Incorporation, to enable them to collect the contents of several of the London Sewers, and by the aid of Chemistry to form from them a *Solid Manure* as valuable as Guano, and which from its being a concentrated and portable substance, will ensure a ready market, and must supersede its expensive use.

The profits of this Company will be considerable, and the Shareholders will have the benefit of a material reduction in the price of such quantities of the Manure as they may require for their own use.

Applications for Shares and Prospectuses to be made to the Secretary, at the Offices of the Company, 9, Spring Gardens, and to the following Stock brokers:—Messrs. E. J. Hunter, 15, Throgmorton-street; Borthwick and Campbell, Glasgow; Flint and Tootall, Hull; D. Murray, 31, St. Andrew's-square, Edinburgh; T. Wren, Preston; W. Tomkinson, Newcastle-under-Lyme; Collis and Smith, Birmingham; F. Wakefield, junior, Nottingham; J. Golling, Newcastle-on-Tyne; J. Allanson, and W. J. Barker, Sunderland; S. Eyre, 3, Queen-street, Derby.

By order of the Directors, EDWARD HUNT, Secretary.

KAGENBUSCH AND Co.'s REMEDY FOR THE POTATO DISEASE.—Price 6s. per packet, which ensures an acre of sound Potatoes and a large crop.

KAGENBUSCH AND Co.'s GERMINATING COMPOUND. Price 2s. and 4s. per packet. The best Steep for Wheat and other Grain; Turnip, Clover, Onion, and all other Seeds and Pulse. This is the gardener's best friend.

KAGENBUSCH AND Co's GERMAN SCIENTIFIC MANURE, which fertilise the land without exhausting it, at 30s. per acre for Meadows, once in three years, for Tillage 35s. per acre, and for Hops 40s. per acre, annually. Price 7l. 10s. per ton for Meadows and Tillage, and 8l. per ton for Hops. One ton is sufficient for 4 acres.

These articles are kept at Hiberuia Wharf, London-bridge, and Mr. JOSEPH EDWARDS will deliver them to any one bringing the amount in cash.

Manufactured by KAGENBUSCH and Co., Agricultural Chemists, Leeds. Sold by JAMES and Co., Agents for the South of England, 55, King William-street, City; and PORTER BROTHERS, Agents for the North, Cranford-court, Manchester.

*** Vessels of 50 tons, drawing 5 feet, load at the Works in Leeds, and can ascend the crooks of every port in the Kingdom, so that Dealers or Farmers, and Landed Proprietors, clubbing together, may be supplied direct, at a saving of expence.

A liberal allowance to the Trade.

FOR WHEAT, TARES, &c.

THE CRATE OF THE LONDON MANURE COMPANY will be found a most valuable Manure for the above crops—it is permanent in its effects, and has stood the test of five seasons with increasing success each year. The Company also supply genuine Peruvian Guano, Gypsum, Superphosphate of Lime, Sulphate and Muriate of Ammonia, Charcoal, Bone Sawdust, Sulphuric Acid, and every Artificial Manure, at the lowest market price.—EDWARD PURSER, Secretary, 49, New Bridge-street, Blackfriars.

SMITHFIELD CLUB PRIZE CATTLE SHOW, 1846.

THE ANNUAL EXHIBITION OF PRIZE CATTLE, SEEDS, ROOTS, IMPLEMENTS, &c., will take place on the 9th, 10th, 11th, and 12th of December, at the Horse Bazaar, King-street, Portman-square. A handsome permanent building, in place of the usual tent, was last year erected, and the Implement Galleries are, this year, made to extend over double the space formerly so occupied. Ladies are enabled to view this National Exhibition with perfect comfort.

Open from Daylight till Nine in the Evening. Lighted up after Three in the afternoon. Admittance, 1s.

TO BRICK AND TILE MAKERS.
BRICK AND TILE MACHINES.

THE AINSLIE PATENT TILE MACHINE COMPANY (JAMES SMITH, Esq., of Deanston, Chairman), invite attention to their improved TILE MACHINE, and to their new Patent Improved Kilns, for drying and burning Bricks and Tiles, by which a saving of from two-thirds to three-fourths of the fuel is effected, and all the articles are burnt equally without loss or damage. The Machines at work and a Model of the Kilns to be seen, and all particulars to be obtained from Mr. JOHN PATON, Secretary, 193a, Piccadilly, London. Agents wanted.

GROVE HOUSE ACADEMY, BUSHEY, HERTS.
Head-Master, Mr. H. L. BIGGS.

At the above School Young Gentlemen are liberally Boarded, and instructed in the Latin and Greek Languages, the Mathematics, and Book Keeping, together with the various branches of a sound English Education, including the Theory and Practice of Rural Chemistry, Botany, Land Surveying, Mapping, Drawing, &c. Terms, from 5 to 8 guineas per quarter, according to age and requirements.

Grove House is delightfully situated at a few minutes' walk from the Bushey Station, on the London and Birmingham Railway. A coach also runs to and from London daily.

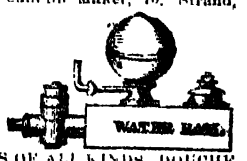
G. H. possesses the advantages of a Dry and Airy Playground, a Field, and an immense Garden, the produce of which is devoted to the School; portions of the same being allotted to each Pupil for practical purposes connected with Agriculture and Horticulture.

References to the Parents of the Pupils, to Gentlemen in the neighbourhood, and others.

The annual half yearly Distribution of Prizes, Description of the same, and Recreation of the above School, will take place at the "Assembly Rooms" the Essex Arms, Watford, near Bushey, Herts, on Thursday the 10th inst., when the Friends of the Pupils, and the Public generally, are respectfully invited.

Tickets of Admission and Programmes, may be obtained at Mr. BEADEL'S, 81, St. John's street, London, or at the School.

THE IMPROVED HYDRAULIC RAM,



Fixed by CREMEN ROE, Fountain Maker, 70, Strand, London, can be worked by a small stream of half-an-inch, where a fall of 2 feet can be obtained. The same Ram without the aid of a Tank or Cistern arranged to throw a Jet of Water constituting a Fountain with the head of water beneath.

ENGINES FOR DEEP WELLS OF ALL KINDS. DOUCHE AND OTHER BATHS. BUILDINGS HEATED BY HOT WATER. WATER WHEELS to work Small Pumps, from 15l.

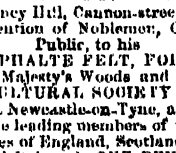
Estimates given for the supply of Towns, &c.

A newly invented PORTABLE VAPOUR BATH, all complete for 4[illegible]

REGISTERED.

J. LEGG'S IMPROVED SELF-ACTING HYDRAULIC ENGINE.—A Machine to convey water 100 yards, conducting pipe included, 20*l.* Do. do., 500 yards, 50*l.* Towns, Fountains, &c., situated on eminences, can be supplied by the above machine. Also HYDRAULIC RAMS on improved principles. An efficient Ram, with supply pipe, and 100 yards of conducting pipe, 15*l.* Do. do., 500 yards, 40*l.*; and so on in proportion. Deep-well PUMPS on an improved principle. N.B. All machines warranted.

Apply to J. LEGG, 9, St. Philip's-street, Cheltenham.

BY HER MAJESTY'S  ROYAL LETTERS PATENT.

LIGHT, CHEAP, AND DURABLE ROOFING.

THOMAS JOHN CROGGON, of 8, Laurence-Pountney Hill, Cannon-street, London,

Begs to call the attention of Noblemen, Gentlemen, and the Public, to his

PATENT ASPHALTE FELT, FOR ROOFING,

As adopted by Her Majesty's Woods and Forests, and by the ROYAL AGRICULTURAL SOCIETY OF ENGLAND, on their buildings at Newcastle-on-Tyne, and Hanover-square, London; also, by the leading members of the above and other Agricultural Societies of England, Scotland, and Ireland.

The Price of the Felt is only ONE PENNY PER SQUARE FOOT, being considerably less than half the price of slates, Tiles, Thatch, &c. There is also a very great saving in the wood-work, as the Felt, from its lightness, does not require half the weight of timber that slates or tiles do. The Felt can be manufactured of any required length, by 32 inches wide.

THOMAS JOHN CROGGON, 8, Laurence Pountney-hill, Cannon-street, London.

Of whom also may be had Railway Felt, Sheathing Felt for Ships' Bottoms, and Dry Hair Felt for covering Boilers, Steam Pipes, &c.

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton, Draining Engineer to Her Majesty, at Osborne, Isle of Wight; the inventor of a Patent Tile and Pipe Machine (applicable to making Bricks); also a new Machine for taking roots and stones out of clay, both which are to be seen at the Royal Polytechnic Institution, Regent-street,—offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P.S.—Land drained at a fixed sum per acre, including every expense.

HORTICULTURAL SOCIETY OF LONDON.—Notice is hereby given, that the EXHIBITION OF FLOWERS AND FRUIT, in the Society's Garden, in the ensuing season, will take place on the following Saturdays, viz., May 8; June 19; and July 17; and that Tuesday, April 20, is the last day on which the usual privileged Tickets are issued to Fellows of the Society.

GOLD AND SILVER PHEASANTS.

TO BE SOLD, at half price, One Guinea each—the Pheasantry being overstocked. The Birds are in high plumage. Sold in Pairs, or Cocks singly.—Letters addressed to Z. Y., Miss Denham's, No. 189, Regent-street, London.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 5, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY,	Dec. 7—	Entomological	8 P.M.
WEDNESDAY,	— 9	Microscopical	8 P.M.
		Society of Arts	8 P.M.
SATURDAY,	— 12—	Royal Botanic	4 P.M.
TUESDAY,	— 15—	Linnean	8 P.M.

THE utility of a NEWSPAPER, as a medium of communication between persons interested in similar pursuits, must be obvious to everybody, and although, like all things which conduce to improvement, it requires time before its real value can be appreciated by a certain class of individuals, yet we feel confident that every *intelligent* gardener will readily acknowledge the advantages which result from a discussion of subjects connected with his profession, and bear testimony to the pleasure he derives from the mutual interchange of opinion which such discussions occasion. The very best instructed are not to suppose they have attained such a degree of perfection as to have nothing more to learn. Scarcely a week passes over our heads without bringing with it some important discovery in the various branches of science having reference to gardening and agriculture. On this account the truly wise are those who feel that they know but little, and are glad to receive advice and assistance from men who have had more experience than themselves. It was never intended that we should be selfish, solitary beings, unconnected with one another in society. On the contrary, we are so formed as to enjoy social intercourse, and to delight in the esteem and good opinion of the world. We have each a certain sphere of action assigned us, and it is our duty to perform the part which may fall to our lot, to the best of our ability, taking care not to interfere with the affairs of others so as willingly to give offence, and endeavouring as far as possible, to view men and things in the clear sunshine of charity and good nature, free from that dark and sullen shade which a jealous rivalry casts over them.

The interest in all public vehicles of information is greatly impaired when cavilling and insolence form the return which is made for instruction or temperate discussion; intelligent or right-minded men are disgusted at being brought into unintentional collision with the unintelligent and wrong-minded; they naturally shrink from such company, and instead of communicating their knowledge for the public good, they prefer to confine it to their immediate neighbours. From this cause the public suffers grievously, and newspapers which tolerate such conduct soon fall exclusively into the hands of those who combine the greatest amount of impudence with the smallest amount of intelligence. Against this we must protect ourselves and our readers.

We have been led to make these somewhat trite remarks in consequence of a circumstance which recently occurred with reference to a statement published some time ago in this journal. The act is in itself unworthy of notice, except as regards the proper conduct which ought to be pursued by gardeners to one another; and as it serves to illustrate the feelings which some unworthy men are actuated by. It will be remembered that the dimensions of a tree of Abies Douglasii, at Dropmore, were sent us by one correspondent, and inserted at page 709. Another correspondent compared them with those of a tree of the same kind at Carclew, in Cornwall, and candidly owned, as will be seen by referring to page 693, that the Dropmore specimen, in regard to size, was much the larger of the two. As their height had been recorded some eight or nine years previously in Loudon's "Gardeners' Magazine," a comparison was instituted as to the rate of *annual* growth since that time, when it was found that the tree at Carclew had the advantage. Who could have imagined that this small matter could be given offence to even the most wrong-headed human beings?

It turns out, however, that somewhere in the neighbourhood of Bristol (at least his letter bears a Bristol postmark), one of those perverse geniuses is to be found who, conscious of his own lowmindedness, and of the cunning with which he could himself misrepresent any facts that came before him, has addressed to our Carclew correspondent the following anonymous letter, which we print *verbatim*, in the hope that it may contain such internal evidence as will unveil the writer.

"The comparison of the growth of the Abies Douglasii at Dropmore and Carclew loses all its interest by the dishonest way in which it is made by W. Booth. P. Frost describes the seed as *sown* in 1828 and the young tree as planted out in 1829, about a year old. W. Booth, notwithstanding the above plain statement, describes the tree at Dropmore *as planted out* in 1828, and the one at Carclew in 1831. This looks very like a wilful misrepresentation, and an endeavour to conceal the real age of the Carclew tree, the real seed of which was no doubt sown in 1828 or 1829. Surely 'honesty is the best policy,' even in such little matters."

And so, because in Mr. BOOTH'S communication the year 1828 is printed instead of 1829, this charitable person permits himself to charge the writer with dishonesty and wilful misrepresentation. Why what sort of understanding can such a man have? How does he know that Mr. BOOTH wrote 1828 at all? Is there no possibility of its being an error of the pen or of the press? or one of those trifling mistakes, of no earthly consequence, to which we venture to presume this anonymous writer is as liable as any man? an error, too, in no way whatever affecting the question. The subject of comparison was twofold; first the actual size of the trees; and secondly their rate of growth since 1837. Their age was not a subject of comparison, and for the purpose of the inquiry the Dropmore tree might as well have been planted in 1826 or 7 or 9 as in 1828. Yet this anonymous writer founds upon a mere, and utterly insignificant, mistake, of writing or printing, no one can know which, a charge of *wilful misrepresentation!*

Our letters lead us to fear that men like this anonymous personage are much too common near Bristol; which, considering the intelligence of others there, is not a little remarkable. It may therefore be as well to remind them that there is such a maxim as, "Be charitable unto all men"; that we are all liable to error; that abusive anonymous letters are not resorted to by persons of respectability; and that when men venture to commit themselves by having recourse to such disreputable proceedings, they inevitably lay themselves open to the grave suspicion of being themselves actuated by those unworthy motives which their ungenerous nature leads them to impute to others.

WHEN the subject of POLMAISE heating was first introduced by us, we had no other object in view than the convenience of Horticulture, but it will be seen by a communication from Mr. MEEK, in another column, that it has in his view a still more extensive application, and one perhaps of more importance. We all know how badly our places of worship are usually warmed, if they are warmed at all; that massive stoves, under whose influence a small part of the congregation finds itself in Libya, and the greater part in Iceland, form the common resource; that in other cases gas is brought into stoves, to the misery of all who are condemned to breathe the polluted air; and that hitherto hot water has been the only agent which could be made to act usefully, but that the heavy cost of its apparatus places it far beyond the means of the greater proportion of churches and chapels.

Such being the fact, it becomes extremely desirable to test the fitness of Polmaise for such buildings, and we see with great satisfaction that Mr. MEEK has pointed out an excellent opportunity of putting it to the test, by proposing that the unfinished church of St. Thomas, at Winchester, should be subjected to the trial. For ourselves we anticipate no difficulty in the operation, and no uncertainty in the result, and therefore we might perhaps assume that a trial is needless. But we must admit that it is always possible, for some evil may lurk in the system which experience has not yet detected, and that what appears to be sound theory up to the present time may be found defective in some unexpected point. For that reason we by no means blame those who are cautious in accepting as certain anything which has not been proved *experimentally*, and we cordially join in the recommendation that the friends, and opponents, of Polmaise will both subscribe their guineas for the purpose of settling the question.

Of course the condition of the experiment is, that the application of the principle to St. Thomas's Church shall be under the *uncontrolled* direction of Mr. MEEK, to whose generous and disinterested zeal in this good cause the public is already so much indebted. Entertaining this view, we have already sent our guinea, in the form of a Post-office Order, to the Rev. GEORGE JAMES CHEETE, *St. Thomas's Rectory, Winchester*, and we would strongly urge our friends to do the same. We shall not fail to report progress, and to give the names of those who thus become contributors to the first Polmaise experiment in church heating in England.

CULTURE OF THE PINE-APPLE.

[Third Notice.]

THE size of the plants which produce fruit varying from 7 to 10 lbs., of the Queen variety of Pine, at Meudon, is by no means large; their general character and appearance is very striking, and must impress any one accustomed to the cultivation of the Pine with exalted notions of the superiority of Mr. Gabriel Pelvilain's system. It is that system I have to deal with at present; I may, however, by and by have a word or two of explanation to advance in answer to some of your correspondents, because the only object I have in view is to introduce a system as much superior to all other modes of culture now pursued in almost all garden establishments, as the result of that practice which has been witnessed by hundreds of the best Pine growers in this country is superior to the productions of these cavillers: and this result has been attained at a comparatively small outlay, and at half the trouble attending the common practice of Pine growing. If I were about to set forth a system merely because it may have a little novelty about it, and that alone was its only recommendation, then I might well deserve a hurricane of abuse to be hurled violently at me, by those who have plumed themselves on their own exalted doings; but the system has something else besides mere novelty to acquire for it consideration and examination. I am not afraid that it will make its own way, despite of the doubters, the objectors, or obstructors. I already know of several of the best gardeners in the country who are setting about it in right earnest; sensible men who can benefit by the practice and experience of others.

The young Pines at Meudon, which we may term the succession plants, were in their general aspect and character quite as extraordinary as those in fruit. Of this description there were upwards of 600 plants, all of them in equal health; there were no mixtures of yellows, none of them lanky and narrow-leaved, and tottering in the soil, unable to maintain their standing. It would have puzzled even a *doubter* to have discriminated between the worst and the best; unquestionably there was disparity in size but none in health, all were of the same luxuriance, with short broad foliage, and as green as a bed of Leeks rioting in the rich alluvial deposit of Fulham-fields. These plants were growing in structures which had not engaged the attention of any great architect. Mr. Pelvilain produces them in frames, that is, in wooden boxes. These boxes are supported by pieces of wood, about 2½ feet above the ground. The under portion of the box is lined with old ship timber, laid as close as possible to prevent the ingress of steam, and also to keep the soil in which the Pines are planted from mixing with the stable litter which is employed in heating them. Thus a complete box is formed. Mr. Pelvilain introduces into the box about 16 or 18 inches of the peat soil formerly described. His bed is thus completed, his plants are then stuck into the soil, making allowance for their season's growth. It would not do to plant them in the first place without considering well this point, otherwise they might possibly choke one another. A season's practice will afford this information, bearing in mind that it is always better to err on the safe side; that is, by allowing plenty of room, and admitting a free circulation of air amongst them. There are no stated periods when these plantations are formed; that depends exclusively upon the supply of crowns and suckers. But suppose, for example, that a bed was planted in spring, these in the autumn would have attained a size sufficient to justify Mr. Pelvilain's statement, that, in the following summer, Pines equal to those I have described would be produced by them. It will be remarked that this system transforms, in six months, crowns and suckers into noble succession plants, without the trouble of potting and renewing of tan, and other expensive hindrances which have attended the usual modes of culture. It has more the appearance of a market-garden culture of Cauliflower or Lettuce, so simple is it, than complicated systems with cumbrous and expensive appliances. These plants are produced in pure peat, and watered with pure water. The heat applied to them is by means of hot stable dung. Now, it is not unnatural that many may ascribe much of the success attending the Meudon practice to the ammonia escaping from the fermenting litter; such an inference deserves consideration and respect, not only because authorities which we reverence and regard may be supposed to support such a plea, but also because long practical experience would induce us to entertain a similar notion; but Mr. Pelvilain is decidedly of an opposite opinion, and renders his boxes *proof* against the access of any steam or gas which may escape from the fermenting material which surrounds the boxes. This was a point on which, if I had doubts, I investigated fully; for although the boxes were at the time I examined them surrounded with warm litter, and the space beneath the boards also filled up with the same, we could not discern the slightest effluvium inside them. Thus then the ammonia escaping from the stable-litter was not the "hidden virtue" that swelled the Meudon Queens. This is accomplished by simple gardening, pure peat, pure water, and pure air. None of the adjuncts usually called into requisition by the Pine-growers of this country are employed at Meudon, and the result of the practice there deserves, as it receives, our warmest encomiums—our heartiest eulogy. Mr. Pelvilain, unlike some of his compeers in the art of Pine-growing, begins

at the beginning, upon a principle which Nature may claim as her own. The dissertations on potting are thrown to the wind; a thousand casualties incidental to other systems of cultivation are obviated in this. Expensive buildings are not necessary to produce fruit which the most costly structures could never boast of. Surely we are verging upon a great revolution, not only in the cultivation of this noble fruit, but in much that is expensive and now apparently abstruse in matters of gardening. In Pine-growing I have undertaken to show that such is the case, and I presume that I have good ground to maintain my standing. I know that a host of opponents are already in arms to knock me down; but I have still a few facts to reveal which may be found more invulnerable than arguments based upon vain and conceited notions, or on the mysteries of ancient gardening.—*Mirabile dictu.*

THE AMATEUR GARDENER.

Out-door Protection from Frost.—There are many productions in the flower-garden which occupy a rather dubious position between those which are hardy or tender, and to these the best care of the gardener should be given. It is undesirable to load pits and frames more than absolute necessity demands, on account of the great trouble entailed by the operation; besides, we should aim at training plants to bear the severity of our winters. Ascertain which roots or shrubs may be left to themselves, which will require protection in frames, and which are doubtful. It is in reference to the latter class that I propose to offer a few observations.

In mild winters the most tender Roses will sustain little injury, even if fully exposed to the weather; the same may be said of Wallflowers and similar plants; but a severe season will disfigure or kill some of these, and therefore precautions must be taken. But protecting must not be begun too early. I yesterday saw a garden strangely metamorphosed by conical piles of straw and short dung either tied round grieving stems of Fuchsias, &c., or laid at the roots of other things presumed to be tender. Now this was done before any frost had appeared, and with the thermometer above temperate. This is taking time by the forelock in a wrong sense, for all wrapping up is to be avoided altogether if possible, and only to be resorted to in the last extremity. If a little care is taken to have protecting materials in readiness, you may safely wait for a first frost, which rarely does much injury; and then, if the day indicates the recurrence of the dreaded visitor, proceed with your operations. Bear in mind that even this should not be done till the middle of November, for frosts before that time are generally innocuous in reference to the tribes of plants I am now speaking of.

If it is desired to protect roots, conical heaps of some dry substance may be used. I believe all Fuchsias will do well with this treatment. If Moss is abundant, and your garden not large, some placed over these heaps and fastened by little sticks will make you more secure, and enliven the dulness of the beds. I am inclined to think that Dahlias would be more safe in this way than any other. It is certain that these roots often perish from various causes when taken up and stored away; while one accidentally left in the ground often sprouts in the spring. If about 6 inches of some protecting material was placed over the crown, I have no doubt the roots would be found in a fine growing state for spring forcing. If you have any Dahlias not taken up, try a few of them, and record the result for future practice.

Roses and other plants with woody stems which run any risk, should have the soil banked up over the roots, and a little Moss spread over them as above directed. The branches may be tied up with straw. But the plan I adopt, and which I think was alluded to last season, is very preferable to any other I know of. I plant cuttings of Laurels and other evergreens among the branches of the trees I wish to preserve, by which a gay and lively appearance is added to the security afforded. Of course this can only be done where evergreens are plentiful; but I would suggest that they should be grown for this purpose in every garden of any size. I have some round beds about a yard and a half in diameter, filled with tender Roses, which I have just subjected to the following process:—Having a large number of layers of Laurestinus, well rooted, and not knowing exactly where to plant them to advantage, I have put them in these Rose beds, in the spaces between the trees. I expect the following advantages from this plan:—First, the Laurustinus and Roses will mutually protect each other in severe frosts. Second, the mixture will have a fine effect when the Roses are in bloom. Third, the young evergreens will be nursing up for a year or two as well there as anywhere else, and when too large for the beds may be permanently removed. I think this plan may be advantageously adopted in many cases, and young trees now located in the nursery made to increase the beauty of the garden, and afford protection to more tender objects.

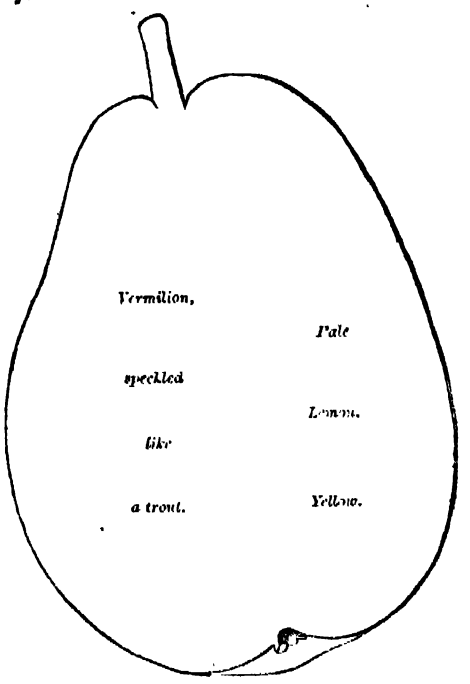
Many frozen plants may be preserved from injury by preventing their being thawed by the rays of the sun. This may be effected by throwing mats over them, and not removing them till the frost is gone. Tender climbers against walls should have a mat lightly nailed over them. As a general rule, coverings must be removed as soon as possible from all growing stems, such as Roses, Fuchsias, &c.; if this is not done in mild weather they will push forth their buds prematurely. —*H. B.*

*** The writer will thank his readers to substitute the following sentence for one occurring at p. 772, at the close of the first paragraph, the awkwardness of which he is ashamed of: "The clearing up is *postponed* until Nature calls too loudly to be any longer neglected, and the appearance of Snowdrops and Crocuses *infuses* new energies into the before torpid proprietor."

THE TROUT PEAR.

Synonymes.—Forellenbirne, Truite.

"Long as I have collected fruits," says Dr. Adrian Diel, "and searched the gardens in the neighbourhood of the Rhine, furnished with French sorts, I have found no fruit like the Trout Pear. We may, therefore, proudly call this a national variety, which most probably originated in Northern Saxony. It is a valuable addition to our stock of November and December Pears, which may compete with the best French dessert kinds, ripening at the same period, and far surpassing them in the length of its keeping in perfection, and in its beauty." He adds, "could we phlegmatic Germans make as much fuss about novelties as the volatile French do, the Trout Pear would have acquired, ere now, the highest celebrity."



It has obtained its name from its beautiful trout-like speckling. The spots are numerous, circular, bright gray, margined with crimson. The flesh is white, exceedingly smooth and fine-grained, buttery and melting, with a pleasant vinous flavour; in perfection in November, and will sometimes keep till January. The tree is of vigorous upright growth, bearing early and abundantly. The shoots are glossy, of a fine violaceous dark red, sprinkled with few whitish grey spots, and towards the extremities very slightly woolly; leaves middle-sized, ovate, somewhat cordate at the base, acuminate, the apex slightly deflexed, their margins finely denticulated; petioles, 1 to 2 inches in length; flowers middle-sized, opening early; petals roundish.

It is adapted for a wall or espalier, and, probably, for a standard; at all events the singularly beautiful appearance of the fruit, the smoothness and delicacy of its flesh, and the productiveness of the tree, will entitle the latter to a place in every good collection.—*R. T.*

POLMAISE HEATING.

In my last paper on the diffusion of heat, and which related more especially to this subject as far as it affects public buildings, I clearly proved, that if the acknowledged laws given us by the greatest philosophers, and founded on the most elaborate experiment, be true, it is useless to attempt to heat the air by radiation, and that to attempt to diffuse heat equally by such means is to act in direct opposition to our physical knowledge. The necessary effect of giving full force to these laws will be at once to sweep out of all our public buildings every radiating surface, whether stove, flue, or pipe, as being (so far as their radiating power is concerned) either useless or objectionable, as disturbing that uniformity which it should be our especial aim to preserve. Methinks I hear the shriek of horror that such an announcement will occasion, but despite of the cry either of ignorance, or interest (and it is hard to say which is the loudest), the law is true, and the result will be inevitable. The methods hitherto employed for the diffusion of heat have been planned either with a total or partial disregard to scientific knowledge. The results have been necessarily either total failure or but partial success, and they must be prepared to give way to a system whose principles, founded on nature and philosophy, are so sound as to defy attack, and which requires only time and experience for its full and successful development. With these prefatory remarks, I pass to the second and important consideration—can heat be diffused equally, and by what means?

If the term equal is employed in its strictest sense, possibly we shall look in vain, but if the term is restricted to mean the greatest attainable amount of uniformity, the object of our search will not escape us, for the inquiry is very limited. We have but three forms of matter, with which we are acquainted, each possessing powers of diffusing heat; and if uniformity is our object, surely we cannot for a moment hesitate to employ that form of matter most rapid in its motion, namely, a gas or air; but we shall also find that it will be necessary, if we hope to attain our end, to subject even this power to certain conditions. We require uniformity of heat; if we look to Nature will she afford us a specimen of equal distribution? Certainly not; and though she has directed our attention to the proper agent to diffuse atmospheric heat, she has not subjected it to those conditions which should insure any approach to uniformity; such was not her object. Providence has used radiation as the first heating power, it is, consequently an unequal power, the result being that our globe is unequally heated; surely an equally heated atmosphere around an unequally heated globe would have been an imperfection such as we should look for in vain among Nature's perfect works; for what would have been the result? In some localities the ground heat would have been great, while the atmospheric temperature was low; while in others, the atmospheric temperature would have been much in advance of that of the soil; to stimulate the roots by bottom-heat to produce a flow of sap, such as the leaves could not dispose of, or to encourage a weakly foliage by atmospheric temperature, such as the root could not support, was no lesson of Nature's teaching; the advantage of a bottom-heat, 20° or 30° in advance of the air-heat, was left for gardeners to discover; and as uniformity of temperature is the object of our search, we must turn away from Nature, where it could not have existed without imperfection, remembering, however, that she has instructed us as to the means; but if we seek help from Science she not only bears testimony to the truth of Nature, and teaches us to use the medium that can diffuse heat most rapidly, but to subject it to the conditions that will ensure its doing so.

And what are those conditions under which this medium of diffusing heat, namely the air, moves with the greatest rapidity. Is not the velocity of an aerial current dependent on the difference of the temperature of the two places between which it is flowing? and consequently, if we desire to warm the air in a building most rapidly, we shall first take to the heat that portion which is coldest. Does not common sense teach us the same lesson, that the air which requires warmth the most to make it agreeable is the coldest of all, and that this is consequently that which we should first take to the stove, and not that which is hottest but one (see "laws of heating," page 707). If we consider a portion of air leaving the poles, and flowing towards the equator, supposing no other force to disturb its course, it would acquire warmth on its way, becoming warmer and warmer, till it became the most highly heated portion of the earth's atmosphere; in like manner the coldest air of a church gradually would flow towards the stove, till it came in contact with it; but this is not the condition under which the air can be made to move with the greatest rapidity. It certainly is a means of limiting the difference of temperature; a means sufficient for the purposes of Nature, where uniformity is not required, but only a given amount of distribution, where it is even a part of the design that one part should be highly heated while the other is frozen; but it is not the condition under which we must place the air if our desire is to approximate to uniformity of temperature. Philosophy says, since uniformity can only result from extreme rapidity of diffusion, provide a way for the coldest air of the building to flow first to the source of heat; and such is the principle of Polmaise, it not only employs the form of matter that can move most rapidly, but it compels it to travel at the extreme of its speed; unlike other systems of air heating it provides the means not only of most rapidly and uniformly heating that portion of air which it is required to heat, but of heating that only; and as facts are daily proving the truth of all my theoretical predictions, so will experience prove that the most economical and perfect diffusion of heat in public buildings, can only, in our present state of knowledge, be attained on the Polmaise principle; and this leads me to notice the manner in which this principle may be carried out.

The first thing is to provide the means of the oldest air in the building passing first to the heat, than which nothing can be more easy; for as the coldest air is of necessity on the floor, so if there is a space below the level of the floor into which it can fall it will do so, and thus a drain (being made with one end opening to the source of heat, and the other opening at the extreme end of the building on the floor) will be a channel, by which means the coldest air can at once pass to the heat, and will do so. There is little doubt that the velocity of the flow will be influenced by numerous circumstances, such as the gradual inclination of the cold air drain (or return pipe as it may be called) towards the source of heat, the relative size of the drain, &c.; on all these points experience will prove our only guide, but let us examine whether there are any practical difficulties opposing our course, for instance in churches. Where these are newly erected the aisles will form a convenient locality for the cold air drains; in many cases where the floor of the aisles is formed of stone this may be made to form the roof of the drain itself, but in many old churches where it has long been the sad custom of giving up a portion of that building for the dead which was only intended for the living, which has endeavoured to carry distinctions where the new

can be carried, there may arise some practical impediments, such as crowns of vaults and monumental slabs; but fortunately it makes little difference to the air if its journey be a little lengthened by a roundabout course; it will still outstrip all competitors, and therefore I trust that this, the only practical difficulty, will be more apparent than real; and I shall suppose we are in possession of a cold air channel, with a gradual fall, say of one foot in 30, towards the heating surface, for, by being brought in contact with such, the air must be heated; but heated surfaces are radiating surfaces, and radiation is the bane of uniformity, therefore, the heating surface must either be placed without the building, or else surrounded with such substances as shall effectually prevent the passage of the heating rays. There can be no difficulty in adopting either course; in the latter case, let us suppose a church already supplied with a powerful stove, Arnott or other; for economy's sake, it is wished to retain it—can it be made subservient to Polmaise? and can its radiating annoyance be got rid of? Most assuredly; for if it is placed over the orifice where four concentric cold air drains coming from distant parts of the church meet, and if it is covered over with some non-conducting hood having apertures through which the air coming from the cold drains and passing over the stove can rush out the object will be accomplished: even if the hood were dispensed with, the radiating evils of the stove will be much mitigated, because the constant and rapid current of cool air will, by supplying itself with caloric, prevent its accumulation on the surface of the stove. Another mode of carrying out the Polmaise principle, and which I am inclined to think will be very generally adopted in churches, will be to sink the source of heat below the level of the floor, say in a vault, at one end of the church: this will secure a fall for the cold air, and an entrance for the hot at the lowest possible level. I would advise the stove being built close to the foundation wall of the church, so that it shall be supplied both with oxygen and fuel from without, by piercing the foundation wall for this purpose, and also to allow the flue to return into an external chimney, which in many instances can be carried up behind a buttress; much good will be effected by this plan—first, we shall run no risk of having a bad draught to the fire, we shall avoid all possibility of gaseous exhalation or smoke from down-draught, either when the fire is first made, or when it expires, and which occasionally does and must occur, directly the weight of the external atmosphere overcomes the upward draught, a circumstance so often rendering stove-heated buildings unpleasant. The fire will not exhaust the air of the building, and though last perhaps not least, the architectural beauty of the church will not be sacrificed, either within or without, for in lieu of a great length of iron pipe, supported by sundry devices of iron bars, hanging from the centre of Gothic arches, or similar barbarisms, we shall perceive nothing within except the perforated plating in the aisles to admit the descent of cold air, and a similar design to admit the hot air up, over the spot beneath which the stove is placed, while externally the furnace doors will be sunk below the level of the ground, and the steps down to them may easily be concealed, either by some neighbouring monuments or stone balustrade, while the chimney will be the only portion of the heating apparatus necessarily apparent. Where circumstances prevent the stove being below the church, then it must be placed without, where (as it is advisable to place it as low as possible) it will not be difficult to conceal it.

Having considered the position of the heating power, the means of bringing the air to it, it will be expected that I should make some remarks on the heating apparatus itself, although I wish it to be understood this has nothing whatever to do with the principles of Polmaise; for these might be applied even were the temperature produced through the intervention of water, and while I have not hesitated to help forward Polmaise, by reducing it to practice in a most simple form, I trust I am not foolish enough to consider this form the best that can be devised. I already see errors to be got rid of, and improvements that may be made; and as it yet remains to be seen how small an area will suffice for the cold air to flow to the heat, so it yet remains to be proved what are the best means of warming it on its arrival. The question really for solution is—the best air boiler. I have no hesitation in asserting that the means I have employed, namely a brick stove with an iron top, will secure the end desired; that where uniformity of temperature is required, it possesses peculiar advantages; but it is equally certain that where other qualifications are required, such as the power rapidly to raise the temperature, other means may be adopted with advantage; and when the ironmongers are compelled by public opinion to heat buildings in this manner, there will be no lack of ingenious stoves. I doubt not that both Mr. Haden's and Mr. Hazard's stoves would each be very powerful placed under the conditions of Polmaise; but then there is the question of cost, which, I hear, is necessarily very great, from the complication of the mechanism and the quantity of the metal; but is all this cost necessary? There are water-boilers which profess to abstract all the caloric from the burning fuel, and which, even of a large size, cost but a few pounds. Why should an air-boiler be more expensive? Who can tell whether, if the contents were emptied out of one of these very boilers, and air conveyed through it instead of water, the result would not be satisfactory? Of course I shall be told that I shall burn the air, and decompose the air. It may be so. But we neither burn the water nor decompose it; the current of water keeps down the temperature of the boiler. We do not know what would be the effect of the current of air; but this we know, that the velocity of that current depends on the difference of the temperature of the two places between which it is travelling, and that the plan is not unworthy a trial. I throw out all these suggestions, partly with a view to induce your readers to reflect on great principles, partly to show how completely Polmaise is in its infancy (the power only waiting for development), but most of all, to induce those who delight in such investigations to make various experiments on the application of its principles to practice. Supposing, therefore, the cold air has been brought and been heated by passing over a stove of similar construction to my own, it only remains to consider the mode of distributing it; and about this, repeated experiments have proved to me that we may save all our trouble; the hot air will distribute itself, with a uniformity and speed almost incredible. Unless we reflect on the well-known velocity of aerial currents, nothing more will be required than to let it flow out into the church, when it will be found that at the distance of only a few feet, the air will be at the uniform temperature of the building. I have repeatedly seen a thermometer which I have the power of suspending in the hot blast, at 150° Fahr., while another, 4 feet from it, was at 65°, or the uniform temperature of the place, and unless persons sat actually over the blast, they would not experience any inconvenience from sitting near. Those who doubt I must refer to "Facts from Polmaise," published in the *Chronicle*, every one of which my experiments at Nutfield fully corroborate.

Having thus far endeavoured to enlighten the public as to the right means of diffusing heat, and thus afford them a luxury which in this climate all know how to appreciate, I am about to ask a favour at their hands, one which I do not believe I shall ask in vain from the friends of Polmaise, while even its opponents must admit that it is desirable its truth should be tested on a large scale. The case which I desire to lay before the public is this: A large and beautiful church, 130 feet long by 70 wide, is now nearly completed in the city of Winchester. The funds subscribed will barely suffice to pay for its erection, and there will certainly be nothing left to provide the means of warming this large building. The rector and committee, thinking favourably of the Polmaise mode of heating, are anxious to see it applied; but the necessary funds are wanting. Under these circumstances, I have obtained their permission to make this appeal to the public, with a view to raise the necessary sum by subscription. If this is done, I am quite willing to direct and personally superintend the work. It is proposed to limit the subscription to sums not exceeding a guinea. It is difficult in so novel an undertaking to estimate the required sum. One very expensive portion of the work will be the formation of the cold-air drains. It is desirable the committee should be furnished with 100*l.*, to meet all contingencies. A strict account will be kept of all actual expenses, and the surplus given to the general funds of the church. If a few separate parties who appreciate the importance of the subject would severally exert themselves in the cause among their friends, the sum would soon be raised.—*D. B. Meek.*

Home Correspondence.

New Theory of the Potato Disease.—I have lately read something about the Potato disease arising from volcanic operation, and I am led therefrom to ask you for a little space in your columns for the mouse which my mountain is now about to bring forth to the wondering world. You must know, that when I first witnessed the experiments at the Polytechnic, with Armstrong's hydro-electric machine, it immediately struck me that the thousands of steam locomotives incessantly traversing all parts of England, might be so many travelling factories of electricity, diffusing it through the atmosphere to an enormous amount. And *if* so, that after awhile we might all be the worse, somehow or another, for the superabundant supply of this not very idle nor inoperative agent. Cannot you imagine that a sufficiency of electricity might be thus generated, so as not only sensibly to disturb the nice equilibrium and adjustment of the free and uncombined components of the atmosphere, but also to affect these in such manner as to induce the constituents to enter into some new chemical relationships, thereby rendering the air to a degree detrimental to the functional operations of animals and vegetables? I fancy I can see how ammonia, nitric acid, and perhaps that curious electric compound of hydrogen and oxygen, called ozone, might be formed, and whether my mouse, which by the bye is a very primum mobile, in all chemical matters, is playing any part in the production of these, or in the destruction of the Potato, or in epidemics generally; who can tell? You may say *the* Potato disease has occurred before locomotives were known [*we* do not say that]; *a* disease in Potatoes may have occurred, I grant, and that it is now occurring where locomotives have never even been heard of—very true; but this will not annihilate my mouse, for once set electricity free, and where between the poles it may be at the next moment, aye, in the twinkling of an eye, playing its pranks, neither I nor you (clever as you are, Mr. Editor) can tell. I should much like to know *if* these locomotives do generate electricity (and from the vast frictional forces exerted, I should think they must) what becomes of it all. It must go somewhere—it must do something. You have no doubt, sir, produced water, by passing the electric spark through a mixture of oxygen and hydrogen, and who knows but that some such operation has been going forward for the last two or three years through the agency of the electricity generated by this mighty locomotive hydro electric machinery, giving rise to the rains, which have occasioned the devastating floods now so continually occurring throughout Europe. You, perhaps, have also resolved water into its elementary constituents by electricity; now, should my machines throw off a sufficiency of electricity into the atmosphere to effect the decomposition of water, or should some of the water as it escapes in steam from the boilers be decomposed by the electricity known to be generated at the moment of escape, might not the disunited elements be brought (through the same agency) into new combinations; the oxygen with the nitrogen of the atmosphere forming both ammonia and nitric acid, and the oxygen with the liberated hydrogen—ozone—and thus by the nice atmospherical balances, both chemical and electrical, being disturbed, the air becomes vitiated and inimical to animal and vegetable life, producing cholera in man, rot in Potatoes, &c. You have given κυδος to the volcanic visionary, pray pat me on the head for my mountain labour. But should my poor *wee* pet not do well under your nursing, I shall consult Drs. Liebig and Schoenbein.—*Ridiculus Mus.*

Gardeners' Reading Rooms.—To the reading rooms already in operation I beg to mention that one has been established here by Mr. Epps, who has liberally furnished a comfortable room and a good library for the use of gardeners and young men employed in his establishment; and I am happy to add that one and all duly appreciate the generous act, and I doubt not but the employer as well as employed will be benefited by such a proceeding.—*Daniel Freeman, Boxer Nursery, Maidstone, Kent.*

Polmaise Heating.—Having been alluded to by Mr. Meek in a late article as the "clergyman near Coventry," who had partially failed in his application of the Polmaise system of heating, I think it but due to the system, as well as to its zealous advocate, Mr. Meek, to inform you that I have since completely succeeded. My partial failure was chiefly owing to having too many openings from the floor of the house into the cold air drains, since, after closing all these but two, one at each end of the house, the current of air became amply sufficient to sweep into the hot air chamber an abundant supply of heat. During the last three or four nights of sharp frost, with an external temperature of about 20°, the house has been kept at a regular heat of from 54° to 60°, with one moderate fire put on at 10 o'clock in the evening.—*W. Thickins, Keresley House, near Coventry, Dec. 2.*

Cambridge Botanic Garden.—The report of the Syndicate, mentioned in your last, was confirmed by the Senate, without opposition, on Wednesday last, and the Curator will now have directions to act upon it immediately. The land is quite ready to receive the trees, and has proved far better for its object than had been expected. The chief difficulty is money. Although some of the colleges have large incomes (which, however, are divided in small dividends to a large number of individuals), the University has hardly a sufficient annual income to meet its necessary expenditure. The colleges can do nothing, as their funds are all appropriated by their statutes.—*Nov. 30, 1846.*

The Potato Fly.—The Aphis vastator, or destroyer, the insect which causes the Potato disease, is still sparingly to be found in enclosed gardens on the leaves of young Potato plants, Groundsel, the Shepherd's Purse, the Turnip, the Radish, the Solana, the Spinach, and many other plants. I yesterday not only found it upon these plants, but in addition to those which I have elsewhere detailed, I have even noticed that whole beds of Violets were dying from its agency, the leaves perishing like those of the Potato, Spinach, or Beet. At this period of the year, vegetation becomes quiescent, and from this cause a much smaller number of the destroyers appears to effect the destruction of the plant.—*Alfred Smee, 7, Finsbury-circus, Nov. 23.* [See the Reviews of to-day.]

Legg's Hydraulic Engine.—I regret being obliged to trouble you again; but from the letter of a "Mill-owner" in the last Number, a few of your readers might suppose I had purposely called their attention to "an old friend with a new face." At the present moment I am not aware of any hydraulic engine existing with Legg's application (whatever it may be), attached to it), and even should it prove to be a revival, I am at a loss to imagine how it can have remained so long in obscurity, as whether new or old, nobody can doubt its efficiency, where only a small stream is at command. When I first noticed the machine in question, my chief desire was to give gardeners and farmers an opportunity of saving much labour and expense, by employing an engine calculated to overcome difficulties which might appear without remedy, as in my own case. I had no idea of raising such a storm as I appear to have done. Let the engine be either a recent affair or as ancient as the pyramids, it is worthy of being brought before the public, and on a small scale such as I have before mentioned! do not know of anything to equal it (although such a machine may exist). If men expect the hydraulic to do the work of a steam-engine, they will probably be disappointed. I wish some of your correspondents would give their experience (authenticated by name), on any hydraulic engines they may

have in use; the public may then have a chance of judging for themselves without prejudice to any man.—*Hydrangea.*——"A Mill-owner, of Derbyshire," or his London agent, is mistaken in misrepresenting the machine. Let the registration be new or old, I claim for myself the merit of introducing to the public a cheap and most useful machine, by which a supply of water may be obtained from the smallest dribble, where a fall can be obtained, and I hereby beg to state that for any infringement on my registration, the law for protecting such registration will be enforced.—*J. Legg, Cheltenham.* [All further correspondence on this subject must be paid for as advertisements.]

Sending out Seedling Pelargoniums.—Allow me to call the attention of Pelargonium growers to the time at which the new varieties are usually delivered. It is not unfrequently the case that plants for which you are charged 1, 2, and 3 guineas, are not sent out till November, and even then they are such miserable plants, that, with the greatest care and cultivation, they cannot be made fit to exhibit at the blooming season. Why cannot a time be named for the delivery of the new sorts? I feel convinced that if any respectable nurseryman adopted the plan of delivering his plants early, he would find it to answer his purpose, more especially if he was careful not to admit any into his catalogue that had not been exhibited at one or other of the public shows. On this point a reform is much wanted (though I hate the word); but under the present system, every person who wishes to act openly and honourably has no chance. For instance, he exhibits all that he intends to advertise, thereby giving the amateur an opportunity of seeing and judging of the new flowers. He is by this plan not only put to great expense, but to the severest scrutiny; whereas, the greater part of the nurserymen issue a flaming catalogue, with a description of the beautiful colour, shape, and substance of flowers, most of which they have never seen. By this means many are tempted to purchase varieties which are really worthless, and which, had they been exhibited, never would have been offered to the public. But I cannot suffer the subject to drop without offering my thanks to one grower, who, I believe, not only publicly exhibits all he offers for sale, but has also given to the amateur, in a short pamphlet, an easy and successful mode of managing the Pelargonium, from the seedling to the full-grown plant. He has done more; for he delivered his plants earlier than any other dealer. I allude to Mr. Beck, of Isleworth, to whom florists owe no little for some beautiful varieties of which he has been the raiser, and also for the very liberal manner in which he disposes of them.—*J. Riley, Bickby, near Huddersfield, Nov.* 17.

Polmaise in Cold Weather.—I can imagine that "where is Polmaise now?" is the inquiry both of its friends and enemies. For the comfort of the former, and the discomfiture of the latter, I beg to send this simple statement. At 11 o'clock on Tuesday night the external temperature was 21° Fahr. Three thermometers suspended at the same elevation at the two ends and the centre of the house, all indicated 58° (if anything, the one at the extreme end was half a degree higher than the rest). Thermometers suspended in the position Vines would occupy, were from 63° to 70°, according as they approached from the eaves towards the ridge; the thermometer in the blast was 180° Fahr.; the lowest point to which the thermometer declined in the house during the night was 57°. The fire was supplied with fuel at 10 o'clock and again this morning at 7 o'clock. When it is remembered that when the external air is at 45°, the internal usually is at 65°, namely, 20° in advance; while last night, when the external air was 21°, the house was 58°—an advance of 37°. It will not be denied that my prediction is abundantly verified "that the colder the weather the better Polmaise would act," and its operation may be considered as practically independent of external circumstances. I have no wish to enjoy any personal triumph over my opponents; it is my especial wish that this controversy should close in a different spirit from its commencement; and it is about to close, as far as great principles are concerned; and as it is for these alone I have contended, having proved them sound beyond a doubt, both by argument and experiment, I shall leave the war of detail and application to others. I have only a few more remarks to make, chiefly of a controversial nature, in reply to recent communications, after which it is not my intention to trespass on your space, unless others trespass on the great principles of Polmaise. I can with truth assert that my chief delight arises from the fact that Polmaise has given us another proof that sound inductive philosophy never leads its student to defeat.—*D. B. Meek, Holmesdale, Dec.* 2.

Coping for Walls.—The best and most efficient coping is stone, with 2 inches projection, if the wall is not more than 12 feet in height, with a groove underneath as near as possible the outside, to keep the drip from falling on the trees. Let there be a groove in the centre of the coping, with a slight declivity from each edge to bring the water into the centre; the whole to be carried off by pipes connected with drains at the base of the walls; joints well cemented; and the coping, made as above, will not only protect fruit-trees, but walls. Let the coping be made of tiles, stones, cast-iron, or slates, being careful at all times to keep the joints properly cemented.—*Siler.*

Chinese Chrysanthemums.—A few weeks ago was published a tabular list of Pelargoniums, arranged according to their shades of colour. A similar list of Chinese Chrysanthemums would, I doubt not, be equally acceptable to your readers, and as this has been a favourable season, especially for the late varieties, such a list may readily be made from one or more of the nurseries celebrated for growing these plants near London. Merit and not novelty should be the criterion of each variety, for there has been too much lauding of those new sorts which, to coin a word, are mere "asteroids," and a neglect of the good old full double kinds. The shades of colour I would suggest, and the types, are pure white, as Paper White; blush, as Early Blush; lilac and its shades, as Queen; purple, as Expanded Light Purple; buff or pale yellow, as Formosum or Goliath; deep yellow, as Golden Yellow; orange, as Large Quilled Orange; red or crimson, as Duc de Canalignano. There ought to be a selection of 3 or 4, or even half-a-dozen, under some of the heads, where they are really first-rate, and a list of both early and late varieties. I may mention that this is the only season since 1819, when I first began to collect these beautiful winter plants, that they have flowered in the open border in this part of the kingdom (Northumberland), and that, amongst others, the old and rarely flowered Two-coloured Red has expanded its blossoms in that situation.—*N. W. G.* ——Having had a good bloom this season, I have been induced to measure the following 15 flowers:—

Tasselled Yellow.		No. 8—13 in. in circumference.	
No. 1—15 in. in circumference.		9—12	Ditto.
2—15	Ditto.	*Old Paper White.*	
3—12	Ditto.	10—9¾ in. in circumference.	
Quilled Yellow.		11—10	Ditto.
4—15 in. in circumference.		12—11½	Ditto.
5—15	Ditto.	*Old Golden Yellow.*	
6—13	Ditto.	13—11½ in. in circumference.	
Tasselled White.		14—12	Ditto.
7—15 in. in circumference.		15—12½	Ditto.

The above have been freely supplied with Potter's liquid guano.—*G. Handley, Milford House, Derby, Nov.* 28.

Foreign Correspondence.

Moscow, Sept. 2, 1846.—The comparison of the gardens of Petersburgh and Moscow shows plainly the different fates of these two capitals. In the former the apparently insurmountable obstacles opposed by Nature, smoothed down and almost overcome by the efforts of art, the power of wealth, and of that determined and irresistible will of the man who not only founded and built a splendid capital in a wild inhospitable bog, but connected it with institutions which obliged his successors to invoke his spirit and carry out his plans. In Moscow, the climate less hopeless yet still severe enough to require great means to resist it, institutions already founded or handed down to the present time from remote antiquity, requiring only to be kept up or improved upon, but all the capital, all the enterprise, all the fashion necessary for the purpose transferred to the younger and more brilliant rival, and that notwithstanding the national feeling which for a time did so much to restore Moscow after the dreadful calamities of 1812. Moscow vast in extent like Petersburgh, and full of immense public buildings, has also within her circuit numerous extensive gardens, public and private, but they are in general either those of the old nobility, which have once been splendid but are gradually abandoned to weeds and decay, or new ones founded on a large scale with grand intentions, but without means or will to keep them up. Amongst those I have seen, the following are, however, well deserving of notice:—The botanical garden belonging to the University, founded like most of the kind, by Peter the Great, has been since found so much too large that a considerable portion has been sold off, and yet the funds do not suffice to maintain the remainder. With a little more support, however, it would be a very good one for the purposes of instruction. This year, like everything else, it has suffered from the excessive rains of May and June, and the drought ever since.

The Imperial gardens here are under the management of Mr. Poelzel; the only one I saw, that of Orlofskoi, at Neshkushno, in one of the suburbs of Moscow, is large and very well kept. It is in a very pretty situation on the high bank of the river, a little below the Sparrow Hills, and attached to the Alexandrian palace. It was originally the property of a Count Orloff, who gave it to the late Empress. It was laid out by an Englishman with a good deal of taste; it contains considerable plant-houses, filled chiefly with plants for the decoration of the palaces when the Emperor comes here, and amongst others there is a fine collection of Orange-trees. The view from the balcony of the palace over the flower-garden, and thence down to the river winding under the Sparrow Hills on the left, with a portion of the town to the right, is one of the best about Moscow, where there are so many fine views.

The Horticultural Society of Moscow has a large garden in a fine situation near the Three-hill Barrier. It must once have been very beautiful, having the advantage of a large piece of water, and having been apparently well laid out. It was given to the Society by the Empress, who contributes 1000 rubles a year to its support, but unfortunately there is but little besides. The president's health does not allow of his attending much to it, the Director and Secretary do not appear to be much of horticulturists, the members very seldom are to be seen there, and the greater part of the garden is overgrown with weeds, the bridges and buildings falling into decay. That part, however, which is kept up shows how much can be done by the zeal and activity of the gardener (Mr. Jansen, of Lubeck), under so many discouragements. He is now planting a large stock of Camellias in a new house built for them; he has a considerable collection of fruit trees and ornamental stove and greenhouse plants; and a set of fruit trees is more difficult to maintain than with us, as even Cherries, Pears, and Plums must all be grown in tubs and taken in in winter. Amongst the Conifers was a very pretty striped-leaved variety of the Cunninghamia, which he had raised from seed. In general the collection of the garden is well cultivated and well named, which makes one the more regret that the gardener has not the means of maintaining the ornamental part. The Pine-apple collection is also good; but the finest set o. Pine-apples I have seen here is at Mr. Aderbejanoff's, who grows them for the market, and sells every year about 800 fruits, generally above 3 lbs. and from that up to 5 lbs. (according to his account), and I can well believe it, for his plants were very vigorous and healthy, and the fruits now ripening larger, with smaller crowns, than any I have as yet seen on the continent.

There are also many private gardens well kept, with houses, often extensive, chiefly for fruits and for plants for decorating rooms or those large kinds of balconies or verandas in which it is so much the custom to dine and drink tea in summer. Those immediately about the town belong chiefly to the rich merchants; a little further off you find them at the country seats of the nobility. Prince Serge Gagarin, at his seat at Jassenova, has extensive and well laid out grounds in a pretty situation, a great deal of glass, chiefly for fruit, a very good German gardener, and the only really fine Oak I have yet seen. It is a Q. pedunculata, aged, but scarcely showing that it has passed its prime, and the stem measures about 22 feet in circumference at 5 feet from the ground.

Societies.

HORTICULTURAL SOCIETY.

Dec. 1.—F. G. Cox, Esq. in the Chair. J. B. Favell and J. Wheble, Esqs., were elected Fellows. Of plants, the principal novelty came from the nursery of Messrs. Veitch and Son, of Exeter, in the shape of Lysionotus longiflorus. It is a Java plant, nearly related to Æschynanthus, with large brilliant red flowers, which were, however, little expanded and somewhat damaged by travelling. It was stated to be a free bloomer, succeeding well in a moderately warm stove. It appears to be new to gardens, and when better flowered will prove very ornamental. A Banksian Medal was awarded it.—From Mr. Munnock, gr. to the Rev. C. Pritchard, was a very pretty Centropogon fastuosum, a gay looking plant, with long curved tubular pink blossoms. A certificate was awarded it.—C. B. Warner, Esq., sent beautifully coloured and well bloomed specimens of Epidendrum Skinneri and Lycaste Skinneri, for the former of which a Banksian Medal was awarded; and from Mr. Vernon, gr. to Earl Cornwallis, came an Epidendrum, not different apparently from cuspidatum.—From Mr. Robertson, gr. to Mrs. Lawrence, was a noble bush of Veronica speciosa, and along with it Barkeria Lindleyana, and Saccolabium denticulatum, which were both exhibited at the last meeting, and were again brought to show the length of time they remain in bloom. From the same collection were also Brassia Lanceana, the rare Angraecum bilobum, the little orange-blossomed Sophronitis cernua, Cypripedium venustum, the larger variety of Oncidium papilio, together with cut flowers of Amicia Zygomeris, and Laplacea semiserrata. A Knightian medal was awarded the three first mentioned plants.—From Mr. Dunsford, of Chingford-green, Essex, was a bit of Ipomœa Nil, raised from Chinese seed; and Dr. Daubeny, of Oxford, produced a drawing of a specimen of Furcroea cubensis, which has been in bloom at Oxford during the latter part of the present year. Like Littœa geminiflora, or the American Aloe, to which it is related, it throws up a tall flowering stem, with the top half ornamented with green blossoms. Some idea of the height it attains may be formed from the fact that a lantern had to be erected on the house in which it was grown, to afford room for the top.—Specimens of what are called Prickly Pears were shown by Mr. Coates, of Monument-yard. They are the fruit of a species of Opuntia, common in the hotter parts of America, and whose fruit is eatable.—Mr. Tillyard, gr. to the Duke of Buckingham, sent specimens of Oxalis Deppei, one of those Mexican Wood Sorrels whose large fleshy fangs form an inferior, but, under some circumstances, a useful accessory to a table. Of the productiveness of the root, it was mentioned that 18 square yards had produced 980 roots, weighing 217 lbs. This weight had been obtained from a piece of ground which had at one time been a walk—the gravel and sand, with the addition of some leaf mould, being trenched up together. The sets or little roots were planted on the 2d of May. A Certificate was awarded.—Heads of Sweet Indian Corn were exhibited by Mr. Hudson, of Chobham, Surrey, and various other sorts were contributed from the Society's garden. Of these the chief value consists in their interesting appearance, for although many of the smaller sorts were as good as could be obtained in Maize growing countries, yet the larger sorts were hardly thoroughly ripened and even although we could calculate on a continuance of summers like the past, it is improbable that they would ever produce crops sufficiently profitable to render Maize worth cultivating on an extensive scale. The heads are, nevertheless, very interesting in appearance, and as objects of ornament worth growing in a garden, where space can be afforded for such things.—Early Jewess Cucumbers came from Mr. Mills, of Gunnersbury, and two Hybrids were shown by Mr. Dunsford.—G. Crawshay, Esq., of Colney Hatch, long famed for

his skill in producing excellent Black Hamburgh Grapes without fire-heat, again exhibited specimens produced without any artificial assistance, except that occasionally a fire was lighted merely to dry up damp and keep out frost. They were bunches, with large well-swelled berries, but badly coloured. The Vines were stated to have borne a good crop, to which plenty of air has been freely admitted. Along with them was a basket of excellent Beurré Diel Pears; and the same variety, together with excellent specimens of Marie Louise, was contributed by Mr. Tucker, gr. to J. Moorman, Esq., of Clapham-road, who annually shows Pears in excellent preservation, long after the sorts have disappeared in the markets. In the present instance the varieties were nothing inferior to the exhibitions of former years. A certificate was awarded to the Marie Louise.—Good bunches of black Hamburgh Grapes, from a south wall, were produced by Mr. Epps, of Maidstone.—From the Garden of the Society, were Mr. Fortune's Jasminum nudiflorum, two Correas, the neat little Chusan Daisy, Muraltia Heisteria, two Cape Heaths, a richly coloured variety of Lycaste Skinneri, and Cypripediums insigne and venustum. The fruit consisted of Glout Morceau, Beurré Diel and Vicar of Winkfield Pears—the latter a rather uncertain variety as regards quality.

BOTANICAL SOCIETY OF LONDON.

Nov. 30.—Tenth anniversary meeting, the PRESIDENT in the chair. The secretary read the annual Report of the Council, from which it appears that 27 new members have been elected since the last anniversary, and that the Society now consisted of 201 members. Many thousands of specimens of British and foreign plants had been received, and greater exertions than ever had been used by the Herbarium Committee to obtain the rarer British plants, which had been attended with the greatest success, most valuable and interesting specimens (including many duplicates) having been received, and which would shortly be distributed to the members. The Report was unanimously adopted. A ballot then took place for the Council for the ensuing year, when the President was re-elected, and he nominated John Miers, Esq., F.R.S., and E. Doubleday, Esq., F.L.S., Vice-Presidents; Mr. J. Reynolds and Mr. G. E. Dennes, F.L.S., were re-elected Treasurer and Secretary. Portraits of the President and Hewett Watson, Esq., F.L.S. (painted by Mrs. Carpenter), subscribed for by the members, were presented. The meeting was very fully attended.

Reviews.

The Potato Plant, its Uses and Properties; together with the Cause of the Present Malady; the Extension of that Disease to other Plants, the Question of Famine arising therefrom, and the best Means of averting that Calamity. By A. SMEE, F.R.S. 8vo. Longmans. Pp. 174.

In fine paper, good type, and lithographic plates, with all the formalities of numbered paragraphs, and the advantage of a dedication to Prince Albert, could settle the question of the Potato disease, Mr. Smee's book would be conclusive. But we apprehend that in addition to such auxiliaries, an extensive knowledge of facts, correct judgment, an acquaintance with the nature of all the subjects treated of, and, moreover, the power of drawing just conclusions from ascertained premises, are also indispensable requisites, which we do not find in the work before us. We say so with much regret; but the subject is one of such moment that we are bound to express our opinion without reserve when a work of pretension, written by a Fellow of the Royal Society, enlists itself on the side of the most manifest error.

The opinion of the author is that a kind of Aphis, which had been previously called *Rapæ*, but which he now names *vastator*, has done all the mischief; and thus he joins that small knot of writers among whom it is enough to say that no man of science has before been rash enough to rank himself; writers who are all equally clear as to the Potato disease being caused by insects, though they cannot agree whether those "insects" are mites, worms! or grubs, flies, perfect or imperfect, Thrips or Eupteryx or Aphis.

We have read Mr. Smee's book with care; we have endeavoured to make out his argument, and to do justice to his evidence, and we can only express our wonder that he should not have perceived how inconsistent even with his own knowledge of facts is this insect theory. For what are the grounds on which he has founded his opinion? Firstly, that the aphis is found on the Potato plant; 2dly, that it multiplies very fast; 3dly, that it punctures the leaves; 4thly, that it fills the air with its myriads, and is found even in the streets of London; 5thly, that where the insect has damaged the leaf of a plant, it (the leaf) is much influenced by wet weather; 6thly, that "the first appearance of the disease in a healthy and previously undamaged plant is always subsequent to the visit of the destroyer; and the amount of disease, *cæteris paribus*, is directly proportionate to the number of insects which take away the vital fluid of the plant."

We may very well concede the three first propositions; they are well known to be true. The fourth is a mere local fact; for we cannot suppose Mr. Smee to assert that myriads of aphides are found over every Potato field; if it were so, we and others must have been very unfortunate not to perceive them. The fifth is a strong assertion, in support of which we cannot discover a trace of evidence; and it might be disposed of by a counter assertion, that "when the leaf of a plant is injured by aphides the leaf is less influenced than before by wet weather." We do not, however, deny that the punctures of aphides may be in some degree affected by wet weather; but how?—by a general destruction of vitality?—by broad blotches on the foliage?—by inducing moist gangrene in the whole system?—who ever heard of such a thing! Aphides cause swellings and a thickening of tissue, as may be seen in the Potato as well as other plants; and when they do exist in the myriads which are talked of, trees will sometimes cast their leaves, because the stem which bears them is exhausted by the aphides of the organizable matter which feeds the leaves; but such cases have no concern with the Potato "disease." The sixth proposition is certainly not admissible; it is directly in the teeth of facts which we are all familiar with. Our own Potatoes were as much diseased as any crops near London; yet we saw no aphides prior to the appearance of the injury, except a straggler here and there, such as could have been found any year within our recollection.

Does this aphis notion explain how Potatoes, sprouted in sand, in 1845, and which never got above ground, became diseased? How Potato fields screened by trees or strips of other crops, were saved as far as the influence of the screen extended, while all around them perished? How all the Isle of Calf Potatoes escaped in 1845, except the patches belonging to the lighthouse keepers? and finally, how in certain countries the disease was unknown except in localities planted with foreign Potatoes? What could have kept these winged creatures from flying to the neighbouring fields and biting them?

We must not, however, part with this book without an example or two of the author's mode of reasoning. He says—

"When the insect has damaged the leaf of the plant, it is much influenced by wet weather. a shower of rain will fill the stems with water; and *in consequence of the solid portion having been taken away by the insect*, the moisture cannot cause the rapid growth of the plant which should take place under such circumstances."

We were not previously aware that aphides fed on *solid* matter; we had always understood that their food was the *fluid* matter of plants. Again—

"This vastator does not commit the same amount of mischief upon every kind of Potato. *It dislikes those leaves where moisture is to be found on the under surface in the morning*; and thus, according to the state of the plant, it passes over with greater or less rapidity.'

Here is certainly a very remarkable discovery. It appears that there are some *kinds* of Potatoes which deposit water on the under side of their leaves during the night, and other *kinds* that have no such power! Perhaps Mr. Smee can find some kinds of men who perspire by their skin, and others who do not. Until that is shown we must be permitted to adhere to the vulgar opinion that the vital actions of all kinds of Potatoes are essentially the same.

But we would rather not go on. Let us rather advise all who are ambitious of figuring in the Potato discussion to qualify themselves, in the first instance, by an attentive study of the writings of such men as Decaisne, Harting, and Payen, in addition to the well-ascertained facts that may be gathered from the published documents of this country.

New Garden Plants.

56. JASMINUM NUDIFLORUM. Naked-flowered Jasmine. *Half-hardy Shrub.* (Jasmineworts.*) Shanghae. From Mr. Fortune. "It is a shrub with angular deep-green trailing branches, which have little disposition to branch in the first year of their growth. The leaves are shining, deep green, and each consists of three sessile leaflets of an ovate form. They fall off early in the autumn, soon after which they are succeeded by large yellow scentless flowers, which grow singly from the buds formed in the axils of the leaves that have previously dropped. The limb of their corolla is about an inch in diameter, and divided into six broad, oblong, blunt, flat segments. The species seems likely to prove hardy; it grows freely in almost any sort of soil, especially rough sandy peat. During summer an ample supply of water should be given to its roots, and it must be syringed over head once or twice a day. In consequence of its slender habit it is necessary either to train it on a trellis or to induce it to form an upright stem three or four feet high, so that the young twigs may hang down as they may be naturally inclined. "It is easily multiplied by cuttings or layers, as it has a tendency to throw out roots at the joints on the stem. The Chinese often graft it on the more common kinds, about a foot from the ground, which improves its appearance. It will answer well for a rockwork, or small garden where neat flowering shrubs are desirable."—*Botanical Register.*

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

Garden Memoranda.

Worsley Hall, the seat of the Earl of Ellesmere, late Lord Francis Egerton.—This magnificent country residence lies about eight miles west of Manchester. The mansion is beautifully situated on a rising knoll, the gentle acclivity of which in the approach imparts to it a great degree of dignity. In the east may be seen the wild and lofty blue hills of Derbyshire, whilst the fertile county of Cheshire lies within view on the south. The celebrated Chat Moss lies in this direction, formerly covered with impenetrable swamps, but now bearing the impress of civilization. Skirting a declivity of the park may be seen the famous Bridgewater Canal winding along the vale, which is beautifully skirted by rich meadows and woods, the whole forming a picture full of interest. The present approach to the mansion is about to be altered in some degree; it has assuredly some striking faults, according to certain acknowledged principles in landscape gardening. Too many of the beauties before alluded to are seen at once from this approach, which, as a whole, would perhaps be more appropriately presented from the windows of the drawing room. On the terrace lies a very chaste and unique parterre. The beds individually, and as a whole, are in the most perfect unison with the mansion; they are on gravel, surrounded by Grass margins; and the excellent proportion existing between Grass, gravel, and beds, and between the whole and the mansion, is seen at once. The design for this parterre was, I understand, by Neofield.

The kitchen garden lies about three quarters of a mile from the mansion, and the descent to it is through a dense plantation, destitute of undergrowth. Certain knolls of ground intervene between this and the mansion, which furnish an excellent opportunity that has not been lost, of planting, for the double purpose of partly concealing the kitchen garden and its approach, and of adding a sort of foreground to the mansion, at present rather destitute of detached masses. Descending to the kitchen garden, we pass through the naked plantation before alluded to, and here is manifest the want of timely pruning. This omission must have occurred some 20 or 30 years ago, and is now incurable, except by throwing the whole into irregular masses, and introducing undergrowths of Holly, Thorns, Broom, Gorse, Rhododendrons, &c. This plantation affords an excellent shelter, from the north and east, to the kitchen garden.

The kitchen gardens were commenced in 1840 (I believe), the walls all completed and the trees planted in 1842. The borders for the fruit trees are deep; some, perhaps, three or four feet, Mr. Mitchell being an advocate for such borders, provided the roots are lifted annually, and brought to the surface, a practice almost peculiar to Mr. M., I conceive. The trees are thriving admirably; the Peaches are particularly fine, both in fruit and wood, and are under a high course of management. I may here be permitted to observe, that I cannot conceive what can be the use of the lower stratum of soil if the roots, by continual lifting, are prevented from all contact with it. The walls are all heated by flues, which make, I believe, four revolutions between the bottom of the wall and the top. These heated walls, although very expensive, are a most valuable adjunct in ripening the wood and warding off the rigours of a frosty night in March and April; which are very common in our northern counties. Walls of this kind would, undoubtedly, admit of borders somewhat deeper than ordinary ones; and one fact I was struck with, the finest and earliest of the fruit was at the lower part of the wall, thus evincing the partiality of the Peach to plenty of warmth. The slips of the kitchen garden are bounded by massive iron railing on a stone base, and altogether, things are finished in a style worthy of a monarch. The gardens are teeming with substantial crops, and Mr. M. has adopted a plan which I tried last year, of cutting down his diseased Potatoes and then soiling them over deeply, to be taken up as wanted; any mode which will prevent fermentation will excel one in which it is permitted.

The Pine, Melon, and Cucumber pits, of which a plan appeared at p 180, 1841, are very compact and useful; instead of using so much brick-work above ground, Mr. M. makes use of it below, especially in the case of his Pineries. This arises in the main, from an attempt to produce a rotatory motion in the atmosphere—a most desirable point. Whatever opinions may be held on this head, certain it is that the Pines are extraordinary, and were I to enter into a description of the size and character of both plant and fruit, no one could believe me. They are cultivated entirely on the Hamiltonian system, and the addition of the rotatory motion would appear to be a point slightly in the advance; or at least an acquisition. Mr. Mitchell is very adverse to the admission of cold air to his Pines; he has therefore made deep excavations at the end of his Pine pits, and thus enters them by means of flights of steps. The Vineries are in good order; the rafters all well furnished. The rotatory motion is established here also.

Much of the park scenery, in front of the mansion, lies in an unimproved state, and broken up in consequence of the recent alterations. This part possesses great capabilities; and I am here tempted to offer an opinion as to what would be an improvement worthy of this superior mansion. It possesses at present one terrace; I would have two, or even three, in order to reconcile the levels, they might each be successively somewhat plainer in character as they receded from the mansion, and one of them might contain an American garden, forming a foreground to the landscape. —*R. E., August* 20.

Miscellaneous.

The Linnæan Gold Medal.—To the President and Council of the Linnæan Society, London, there is left, under the will of the late Mr. Edward Rudge, of Abbey Manor-house, Evesham, Worcester, a magistrate and

justice of the peace for that county and Middlesex, a bequest of 200*l.*, the annual interest to be laid out in the purchase of gold medals, to be called "the Linnæan Medals," and to be awarded by the president and council to the Fellow of the Society who shall write the best communication in each volume, and which shall be published by the Society, in either of the four departments of natural history. Each gold medal to contain on one side a profile bust of Linnæus in his full dress, encircled by his name and the dates of his birth and death. On the obverse is to be engraved the name of the Fellow of the Society to whom such medal is awarded, encircled by a wreath of the *Linnæa Borealis*. —*Daily Paper.*

Calendar of Operations.

(*For the ensuing Week.*)

Rotation of Crops.—It is admitted by most practical men that nothing is more conducive to success, whether in agriculture or horticulture, than a judicious rotation of crops. Setting aside the doctrine of excrementitious matter, which is I believe understood to be in some respects untenable, it has sufficient foundation in the well known facts, that different plants require different proportions of food; and that, consequently, what is rejected by one will be appropriated by another. As for the circumstance that a given crop may be produced on the same plot for several years in succession, this, although perfectly true in itself, is not as would at first sight appear antagonistic to the above doctrine, inasmuch as such *generally* occurs with plants that are somewhat indifferent as to texture, provided their favourite manure is afforded them. At this period, those who are desirous of attending to such principles, and thus laying the foundation for a good garden in the ensuing year should closely review the routine of cropping for the past summer, and even cast their eye back on the preceding year. Various are the schemes or rotations practised by different gardeners, many of them being based on no better foundation than the convenience of the present hour; when, however, the kitchen garden is sufficiently extensive, and where much produce is required, the rotation of crops should be carefully studied. Calendarial limitation will not permit me to offer more than a few words of advice, which, however, will, as far as they go, be a tolerably safe guide. The great difficulty is to procure fresh ground for the Brassica tribes, so numerous are the kinds, as well as successions in cultivation. Broken up plantations of Strawberries, Raspberries, bush-fruit, with Celery ground, should at all times, as a leading principle, be set apart for some of the Brassica family. The ground from which Celery has been taken, especially in the Scotch or bed fashion, is also ready made ground for new Asparagus beds. Potatoes prepare well for almost any crop. Deep or tap-rooted crops should be succeeded by shallow or fibrous ones. Carrots and Onions, in rich kitchen gardens, will be found a much safer crop if grown on high raised beds without a particle of manure. When the course of cropping has been decided on for the ensuing year, and duly entered with numbers in the garden book, my practice is to set up laths opposite to the space appropriated to each crop, with a number corresponding with the book, and the name of the crop on one side; and on the other the manure (if any), of what kind, where from, and the quantity, with the mode of cultivation, digging or trenching. This done, a labourer who can read the label can set out or proceed with the work at any spare time.

CONSERVATORIES, STOVE, &c.

Conservatory.—The Camellias will now be making a fine display here; mine were never finer. They should receive careful attention as to watering with tepid liquid manure, very weak. Let them not, however, receive a drop until they are really dry, and then give it to them liberally. If in such cases any air bubbles arise, continue to fill up with water until they cease. Let not a drop of water be spilled on the conservatory floor at this period, and keep a very little back air all night, in order to let atmospheric humidity pass off. Be very cautious in the use of fire heat; the less the better, if 45° to 50° can be insured. *Mixed Greenhouse.*—See that the early flowering Cinerarias have the lightest place in the house, close to the glass; crowding is very prejudicial to this plant. Let plants of Eranthemum pulchellum, coming into blossom, have abundance of water and a warm situation. The Veltheimias, Tritonias, Stenorhynchus speciosus, Lachenalias, &c., are delightful winter things; see that they receive due attention. Follow up the directions for the Conservatory, as to heat and general management. *Forcing Pit.*—Take care that the pots are not plunged deep, if there is a lively bottom heat; such in the neighbourhood of the root should by no means exceed 75°. Indeed, if atmospheric heat of 60° or 65° can be secured by other means, a bottom-heat of 70° would suffice.

KITCHEN GARDEN FORCING.

Pines.—Extract from a letter of Mr. Hamilton's: "Atmospheric moisture must not be withheld from Pines in a swelling state, although we have arrived at the dark days. Nothing has a greater tendency to premature ripening. Should roof-drip prove troublesome, by wetting the soil too much, prepare a sharp-pointed stick, and bore two or three holes, a foot deep, close to the stem of each plant, as a drain. I give no air at this season, except what I introduce from under the pipes. I have, however, a slight communication of this kind all day, and sometimes all night if the weather is mild." *Early Vinery, Early Peach house, &c.*—Where the roots are inside, either wholly or partially, such should be thoroughly watered, if rather dry, with liquid manure, at a temperature of 75° or 80°; this will impart nutrition and warmth at once. An ounce of best guano to a gallon of warm water (allowed to settle), to equal parts of clear and strong soot-water, with the addition of a small quantity of the drainings of the cow-house, will be found excellent. If the soil is exceedingly dry, the application of clear water should precede that of the liquid manure, or the latter will be wasted by running off in the fissures. As before observed, proceed moderately; the first three weeks in such matters should hardly be considered forcing—merely softening the shell of the bud. *Mushroom house.*—Be moderate in the use of fire-heat here. If the beds have been made in due time, and on substantial principles, little fire-heat will be wanted. When much fire-heat is required it is a sure sign that the beds are weak; the introduction of Seakale roots, Chicory, Rhubarb, &c., in succession, should be duly attended to. I am astonished that folks should still plague themselves with the old plan of forcing under pots out of doors: let them once do justice to this plan, as a system, and I will engage that they do not return to the out-door plan, provided they have a house or pit.

FLOWER-GARDEN AND SHRUBBERIES.

Once more look over tender stock, and add any protection necessary according to the principles heretofore laid down. Remember that fresh sawdust is an excellent protector to the crown and collar of tender plants.

FLORISTS' FLOWERS.

It will be advisable to keep all Carnations or Pinks which may have been potted during the past month from the action of frost, as they are unable to withstand it so well as those which have established themselves by being potted earlier in the season; they should not, however, be shut down when damp, for though extremely hardy, no flower suffers so much from a want of a free circulation as the Carnation. Examine the plants after the frost goes, and fasten the soil carefully round the stems. They want very little water at this season of the year. *Tulip beds* as a matter of course have been covered as previously directed. The lesson taught to florists generally last season will not soon be forgotten, and from the loss then sustained we anticipate greater attention will be paid to protection for the future. It is a good plan to lay young shoots of Gorse between the rows of Pinks where rabbits are apt to come, and it will prevent cats from taking liberties with the beds, independent of protecting the plants from the cutting winds of the winter months. Look well to the turning of compost heaps, &c.

KITCHEN GARDEN AND ORCHARD.

Winter has at last commenced, at least in this part of the kingdom; and it behoves every one possessing a garden to cast their eyes once more round, in order to see whether its rigours can be further softened with regard to anything tender. The best policy with Lettuces intended for the supply next spring, is to allow them to freeze tolerably firm before covering them up. A very light screen of straw should be shook over them at first, and when this is frozen, add a little more; the object being to keep them frozen as long as possible. Above all, do not uncover them when a thaw arrives; let them remain until completely thawed. These remarks will bear equally on all other vegetables of a tender character. *Asparagus*: an opportunity will now occur of covering the roots with a good coat of the best rotten manure. Hard frosts frequently do serious injury to this root, for want of such a procedure. The Celery ground, as before observed, will answer well for a new plantation; it should be ridged to mellow as the roots are taken up: for further information see an article by me, at p. 667, of 1844. *Orcharding*: proceed with pruning where necessary, both root and branch. In addition to a list of fruits may be named the "Ord Apple," a seedling from the celebrated Newtown Pippin. This on an east or west wall will almost rival its progenitor. A drawing of it will be found in "Maund's Botanic Garden and Fruitist," Fig. 23, of this year; a work calculated to be of much service in this way to the amateur.

FORESTING.

Amidst other woodland business the coppice must not be forgotten. All superfluous or useless stuff should be cleared away at an early opportunity, and preparations made do for filling up all gaps. Now the frost has set in, the spade may be exchanged for the axe and saw; getting on with such matters without delay, for fear of snowy weather.

State of the Weather near London, for the week ending Dec. 8, 1845, as observed at the Horticultural Garden, Chiswick

Nov.		Moon's Age.	Barometer. Max	Barometer. Min	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean	Wind.	Rain
Fris.	27	6	29.348	29.208	44	39	38.0	S.W.	—
Sat.	28	7	29.544	29.408	41	32	31.5	N.	—
Sun.	29	10	29.799	29.716	39	16	27.5	N	—
Mon.	30	11	29.891	29.618	34	27	30.5	N.	—
Dec.									
Tues.	1	12	29.900	29.848	31	25	28.0	S.W.	—
Wed.	2	0	29.448	29.361	34	20	32.-	N.W.	—
Thurs.	3	14	29.716	29.664	37	17	27.0	N.	—
Average			29.675	29.540	37.4	24.0	30.7		.00

Nov 27—Dense fog; overcast at night
28—Faintly overcast; clear and fine; frosty at night
29—Frosty; clear and fine; severe frost at night
30—Sharp frost; overcast throughout; frosty
Dec. 1—Foggy, cloudy, frosty at night
2—Frosty with slight fog; overcast
3—Cloudy; clear and frosty at night.
Mean temperature of the week 1½ deg. below the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week, ending Dec. 13, inclusive.

Dec.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun 6	46.1	35.9	40.8	13	0.80 in.	1	1	1	1	3	6	4	—
Mon. 7	46.7	36.7	41.7	15	0.3	1	1	2	1	4	4	5	2
Tues 8	46.2	34.2	39.5	11	0.36	1	2	2	—	2	6	6	1
Wed 9	45.6	35.3	40.4	8	0.34	2	3	1	1	1	7	6	1
Thur 10	45.6	35.0	40.3	6	0.30	—	3	2	1	3	5	4	2
Fri. 11	45.1	34.6	39.9	9	0.64	—	2	1	3	3	6	4	2
Sat. 12	45.2	35.1	40.2	7	0.36	2	1	1	—	4	5	5	1

The highest temperature during the above period occurred on the 13th, 1834—therm. 57°; and the lowest on the 8th, 1844—therm. 16°.

Notices to Correspondents.

AMERICAN APPLES—A correspondent states that these are very dear in Cumberland, and inquires if they can be grown in that climate with undiminished flavour. We answer, no.‡

AZALEAS—*Taraxacum*: You will find the following varieties excellent show varieties:—A. lateritia, Gladstanesii, variegata, venusta, speciosissima, splendens, Catleugh's pulcherrima alba, exquisita, optima, macrantha purpurea, fulgens, eximia, coccinea, superba, constantia rosea, Broughtonii, alba grandiflora, indica alba, candidissima maxima, Catleugh's atrosanguinea, and conspicua rosea.*

BACK NUMBERS—Five shillings will be given for Nos. 16 and 52, 1845; and 38 and 41, for 1846. Also 2*s.* for No. 7, 1841.

BOOKS—*J J G*—Lindley's "Guide to the Orchard and Kitchen Garden," and Mackintosh's "Fruit Garden." All the plants named are stove species, and will not thrive in winter in a greenhouse. Your last question is best answered by consulting the "New Plants" in the different volumes of this journal. If you want a catalogue take Don's edition of Dons.—*R P*. Sweet's "Hortus Suburbanus Londinensis."

CHIMONTHUS PLATANIFOLIUS—*C D* says he has a fine plant of this, which was put in spring into a slate box, and plunged in the ground in front of his house, aspect S.E. (Chichester.) It has grown nearly 3 feet this fine summer, and is now about 9 feet high, exclusive of its box; but this day or two's frost has made its leaves droop, and fears are entertained of losing it. Has any one had experience of its hardiness? May he venture to leave it out this winter, protecting it with poles and mats? Last winter it was in an Orange house, where the thermometer was occasionally down to 35°, but it is now too large to house. He adds, Erica mediterranea has thriven well in the same sheltered spot, unhurt by the severe frosts a year or two back, also the large white flowered Magnolia. Perhaps some kind correspondent will give his experience on the subject.

CINERARIAS *S B N*—Procure the following sorts:—*White*—Queen Victoria, Beauty of Wonham, and Henderson's Beauty of St. John's Wood. *Crimson*—Eclipse, Royal King, Royal Crimson, Surrey Hero, Light Crimson, and Triumph. *Blue and purple*—Henderson's Royal Purple, Criterion, Beauty of Sydenham, King of Prussia, King of the Blues. Varieties having coloured terminations to the petals—Henderson's Isabella, Bell's Conspicua, Criterion, Ivery's Prime Minister, Compacta, Victoria Regina, Pet, Catleugh's Novelty, Captivation, Fanny Elsler, and Perfecta.*

FUCHSIAS—*S B N*—Procure the following 24 varieties: *Light*—Dr. Jephson, Norfolk Hero, Cleopatra (Turville), Cleopatra (Smith's), Venusta (ditto), Beauty of Dalston (ditto) Queen Victoria (ditto), Alice Maud (ditto), Duchess of Sutherland (Gaines), Cassandra, Sansparell (Youell), Nymph (Epps.) *Dark*—Formosa elegans, Lowerii, Magnifica (Smith's), Emma (ditto), Paragon (ditto, Exoniensis, Lady Walsingham, Kentish Hero, Colossus, Erecta elegans, Lucens (Youell's), Kentish Bride (Epps).

INSECTS—*S S J*—Lime-water, or a dressing of wood-ashes might be serviceable, but not more so than the method you mention, which has been successfully practised on a large scale by agriculturists.—*R S*—This frost will kill the maggots in your Celery leaves, and you need not apprehend any further mischief from them. *R.*

MOWING MACHINES—*An Old Subscriber* begs "Coptolano" to do him the favour to name the maker of that which he recommends. We never yet saw a good one, if the maker has such a thing he should advertise it.

NAMES OF FRUIT—*J M*—1, Blenheim Pippin; 2, Beauty of Kent; 3, Winter Pearmain.‡

NAMES OF PLANTS—When plants are sent to be named, it is most particularly requested that they may be in flower, and as perfect as circumstances permit. Most especially is it requested that the country whence they have been received, and whether they are annuals, perennials, or shrubs, hardy, greenhouse, or stove plants may be stated, because specimens by post are generally bad and incomplete, and much valuable time, which such information would save, is needlessly wasted.—*Ilex in Orbe*—The trees in Printing-house-square are the Ptelea trifoliata, doubtless the remains of some garden or square now absorbed by brickwork and machinery.

PLUNGING—*S T*—If your plants are to remain and flower in the beds, it is better to plunge them; if they are to be removed when in flower to a sitting-room, or to be transferred from place to place, it is better not to plunge them. With *good management* and good houses no plants *require* plunging, except certain very tender things and those which are sickly. In theory all plants which grow naturally in earth should be plunged; but the artificial conditions to which they are exposed renders it inexpedient to act rigorously up to theory. Perhaps we may explain this more fully some day.

PRUNING—*A Reader*—Prune Myrtles and Laurustinus in the spring, *i. e.*, in April, which is the best time for pruning all evergreens.

SASH-BARS—*A N*—You cannot have a worse material than zinc. The form of iron pipes is not of much moment; those raised are the best, because they expose the greatest radiating surface to the interior of a house. We cannot answer price questions; you should consult your builder.

SIMMONS'S HYGROMETER—*Beta, &c.*—Next week.

MISC—*A H*—Taxodium sempervirens is perfectly hardy. Cryptomeria japonica is supposed to be hardy, but it has not yet been proved.‡—*Sub*—If you will be kind enough to refer to p. 118 you will find a list of stove plants that may possibly suit your purpose.‡—*R A T*—Privet is struck from layers or cuttings or raised from seed; but not at this season out of doors. Put the cuttings in early in the spring, when bad frosts are gone, and cover them close with a hand-glass. Cardamoms are stove plants, of the natural order Ginger-worts (see "The Vegetable Kingdom"); they are multiplied by seed or division of the rhizome.—*C Robinson*—China Roses may be propagated whenever suitable cuttings can be obtained, no matter at what season. Place them in sand and give them a little heat ‡—*M*—The Pine-apple Potato does not require a different treatment from other Potatoes.‡—*Enquirer*—The distinctions of Grasses are always puzzling to the beginner, not because of the real *difficulty* of making them out, but because of the patience required in their examination, and the necessity of a good steady microscope of low power. Of course you will not find every vulgar name in works of science. Some very useful figures are to be found in the 5th edition of Hooker's "British Flora." Our only venomous snake is the viper or adder. Its wound should be smeared with oil, and strong doses of ammonia given internally. We know nothing of the hagworm.

ERRATUM—Page 796 *c*, 9 lines from the bottom, for "so tall" read "so late."

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—TWO LECTURES will be delivered before the Members of the Society on the occasion of their December General Meeting, by JOHN RYAN, M.D., LL.D., Professor of Chemistry to the Royal Polytechnic Institution of London, &c. &c. &c., in the great Theatre of that establishment, on the evenings of Wednesday the 9th, and Thursday the 10th of December, to which Members of the Society will have the privilege of free admission, at the private entrance to the Institution, No. 5, Cavendish-square, on presenting Tickets, to be obtained by them of the Secretary, at the Society's House in Hanover-square.

The object of these Lectures will be, to give a strictly Elementary Demonstration of the Substances which enter into the Composition of Plants and Soils, and to elucidate their various Chemical and Mechanical Properties by Experimental Illustrations.

The Rooms of the Society in Hanover-square will be thrown open, as usual, for the accommodation of Members, from 6 to 10 o'clock on the evenings of Wednesday the 9th, Thursday the 10th, and Friday the 11th of December.

The General Meeting will be held on Saturday, the 12th of December, at 11 o'clock in the forenoon.

By order of the Council,

London, Nov. 28, 1846. JAMES HUDSON, Secretary.

The Agricultural Gazette.

SATURDAY, DECEMBER 5, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, Dec. 9 Agricultural Society of England.
Thursday, — 10—Agricultural Imp. Soc. of Ireland.
Wednesday, 16—Agricultural Society of England
Thursday, 17 Agricultural Imp Soc. of Ireland.

LOCAL SOCIETIES.

Llandovery—Bath—Rugeley—Arran.

FARMERS' CLUBS.

Dec 7—Darlington - St Columb | Dec 7 Bakewell
Uk Newark Yeovil— | 8 Wootton Basset
Market Hill—Banbury

OUR correspondent "Y. Z." has imposed upon us a task which we might fairly decline, on the ground that, though highly favourable to the application of the refuse of towns to the purposes of agriculture, and firmly convinced that the plan proposed by the METROPOLITAN SEWAGE MANURE COMPANY is the only reasonable and practicable way of dealing with that refuse, we are by no means so pledged to the details of any plan as to undertake its championship. But as we are anxious to promote a discussion of the merits of this measure, we will, to the best of our ability, answer the objections of our correspondent. We do this in the hope that others who may take a more favourable view of the intended operations of the Metropolitan Sewage Manure Company than our correspondent "Y. Z.," may be induced to favour us with their reasons for so doing.

Our correspondent sets out with stating that our former remarks on this subject have raised in his mind an expectation that we are able to satisfy the public "respecting the extraordinary discrepancies which are to be found in the published evidence and in the proceedings of the Company." We submit that this expectation is in some degree unreasonable. Such discrepancies are inseparable from all evidence on all subjects, and especially on new ones. If our correspondent will point out any instance of a similar kind, in which similar discrepancies have not shown themselves, if he will give us any example of a 'blue book,' or a trial, free from still wider divergence of opinion; then we will pledge ourselves to undertake the Herculean labour of reconciling the conflicting opinions and statements to be found in the evidence before the Health of Towns' Commission, and the Select Committee of the House of Commons on Metropolitan Sewage Manure. The discrepancies in question could not have escaped the notice of the Select Committee itself, and yet their laborious and careful inquiry issued in a report highly favourable to the plan of the Company. That report itself must, therefore, stand in the stead of an answer from our own pen.

We will not even undertake to defend Mr. SMITH, of Deanston, from the attack of our correspondent. We think Mr. SMITH somewhat sanguine in some of his expectations. We do not, for instance, believe that the Sewage water can be supplied at 2*d.* per ton, even on the supposition that the quantity pumped out were increased tenfold. We doubt whether the water could be supplied, even without a profit, at less than 2*d* per ton; and we look upon the penny which makes up the 3*d.* that Mr. MYLNE proposes to charge, and on which he rests his calculations of gain, as the maximum of the Company's profit.

The abandonment of the reservoirs is an act which we are by no means disposed to defend, but we have no doubt that the Company were obliged to make this concession or lose their bill, as they were forced to abandon the very eligible plan of carrying their pipes through some of the broad streets and squares of the west end, where it was feared they would have occasioned inconvenience, in order to disarm the opposition of the inhabitants of Belgravia. This opposition on the part of men whose position in society would have led us to expect better things of them, has forced the Company to consent to lay their pipes in the bed of the river, subject to the consent of the Navigation Committee of the Corporation of London, which consent a prejudice both narrow and discreditable has led them to refuse. Accordingly, as we find by the London papers, the Company is obliged to apply to Parliament to sanction a plan free from all conceivable objection, but secure, of course, of some interested and ignorant opposition, that of a tunnelled sewer to intercept the waters of the principal sewers of Westminster, and conduct them, without the possibility of injury or nuisance, to a station at Hammersmith.

For abandoning the reservoirs and submitting to expensive and inconvenient modifications, therefore, the Metropolitan Sewage Manure Company is not responsible. The entire blame must fall on the opposition which the Company has had to encounter. But the question arises, and with it we presume our correspondent wishes us to deal:—is the abandonment of the reservoirs fatal to the success of the Company's undertaking? We think not. We believe that every market gardener and every farmer will have a covered reservoir of his own, into which the Company will pour their supplies at such times as they are not laying on water by the hose, or supplying the water-carts of those gardeners or farmers who have not provided themselves with reservoirs. We have lately conversed with a gentleman who has just returned from a long sojourn in Italy, and who informs us that in the neighbourhood of Lucca every farmer and gardener has his covered tank, into which he empties the contents of cesspools carted from the city. From this covered reservoir he supplies his garden or farm, applying the refuse by hand, a woman carrying it in a rude vessel on her back, and a man manuring the plants with a sort of ladle. Several of these receptacles are to be seen in every direction, and being covered they are not complained of as a nuisance, and we believe that similar covered reservoirs will be provided in the neighbourhood of London, that the sewer-water will be stored in them, and mixed with such other manure as the garden or farm may yield. The sewer-water will thus form what our cooks call *stock*, that is to say, a kind of mother-liquor for the formation of liquid manures.

We believe that the Company will soon see covered reservoirs spring up on every side to receive their sewer-water; and we have no doubt that in this, as in other cases, many modes of application not yet thought of will come into play. But our correspondent seems to look upon the necessary preliminary to the application of liquid manure—thorough draining—as an insurmountable obstacle to the success of the Company's operations; and so it would be if the cost of drainage were what he sets down—namely 30*l.* per acre. This is probably ten times the actual cost, which is generally estimated at 3*l.* or 4*l.* an acre. At this more moderate estimate we doubt not that draining will soon come into universal use, not as a preparation for the use of sewer water, but as a reasonable proceeding *per se*, and a necessary preliminary to all good and profitable farming. As to the objection that the quantity of sewer-water which the Company propose to apply is too large to be carried off by land however well drained, we must content ourselves by pointing to the case of the meadows near Mansfield, to which the maximum quantity (500 tons), is certainly applied throughout the year, in a state of dilution still greater than that of the sewer-water of London, and nevertheless with a success little short of that obtained with the "turtle soup of Edinburgh."

Another objection which our correspondent advances is this: That when by the application of sewer-water the meadow lands shall have been made to feed a large number of cows, those cows will themselves yield the manure necessary to keep them in a state of fertility, and that consequently the pipes which the Company have laid down will be no longer required. The answer to this objection seems to us to be obvious. It will be to the interest of the farmer to purchase these pipes for the application of his own home-made liquid manure, and thus to replace the outlay of the company; but in many, perhaps in most instances, he will still continue his use of sewer-water as the liquid with which to dilute the more concentrated drainage of the cow-house or stable.

We have only space to notice one or two errors into which our correspondent has fallen relative to the value of the sewer-water. Professor MILLER, as he observes, estimates the value of the fertilising substances passing into the Thames from King's Scholars' Pond Sewer at 23,360*l.* a-year, and he goes on to object that as Mr. MYLNE only proposes to pump away little more than half the quantity to which this value is attached, he will confer upon the agriculturist a value of 13,626*l.*, for which he expects at 3*d.* a ton 43,750*l.*; so that the farmer would be paying for the sewer-water upwards of three times its value. We are surprised that our correspondent, with his evident intelligence and acuteness, should not have perceived the obvious fallacies involved in this objection. Professor MILLER's estimate of upwards of 23,000*l.* is the sum which three leading constituents of the sewer-water—the ammonia, the potash, and the soluble phosphates—would fetch, if they were extracted and sold in a separate form to the farmer for manure, to which Dr. MILLER adds a very moderate sum as the value of the matters held in suspension. The sum of 23,000*l.* and upwards is therefore less than the value of the sewer-water of the King's Scholars' Pond Sewer if it were taken up by the farmer at the very mouth of the sewer. The 3*d.* per ton is the sum proposed to be charged by the Company for the sewer-water conveyed to the market garden or farmyard, and represents the intrinsic value of the liquid *plus* the cost of conveyance. There is the same sort of difference between Professor MILLER's estimated value of the sewer-water and its value to the consumer, as there is between the 1*s.* or 1*s.* 6*d.* a load which the farmer pays in London for the best town manure, and the sum which he would be willing to give for it at his own door some five or six miles off.

The other error into which our correspondent has fallen, and which we are anxious to correct, is involved in his observations respecting the meadows near Edinburgh. It is quite true that the drainage of the town is originally of the consistence of "turtle soup;" but this matter, before it is allowed to flow on to the land, deposits its grosser parts in settling ponds, assumes very much the consistence, and has very nearly the chemical constitution, of the water of the King's Scholars' Pond sewer. Now, what happens with this liquid as it flows over the land? Why, it parts with a small fraction of the matters which it holds in solution, and ultimately reaches the sea still rich in the food of plants. But the land, besides taking to itself this small portion of the constituents of that part of the sewer water which is thus wasted, drinks up a large quantity, of which it appropriates *all* the constituents. This, then, is our correspondent's mistake. He altogether forgets this quantity taken up by the land, and assumes that the land only receives 1-9th of the soluble constituents of the water which flows into the sea. If the sewer-water, instead of flowing over the land and running into the sea is supposed to be applied by watering-pot, or hose, or water-cart, the land absorbs and appropriates *all* its constituents.

If the land near Edinburgh merely absorbed a ninth part of the matters held in solution by the sewer-water which flows over it, and by virtue of this fraction attained its extraordinary fertility, then would sewer-water be not merely of wonderful efficacy, but perfectly miraculous; and the arguments of "Y. Z." might be made of irresistible weight in support of the cause which he attacks. If one-ninth part can work such wonders, what must be the effect of nine-ninths!

After having pointed out these very obvious mistakes in the letter of our correspondent, he will forgive us if we do not encroach further on our space by noticing points of less importance.

A few more words, however, in conclusion, on the *vexata questio* of solid *versus* liquid manure. We see by the London papers that the London Sewage Company is about to renew its application to Parliament, from which it is clear that they are still labouring under the strange delusion that it is possible to deal profitably with the solid deposits from the sewers. We believe that the promoters of this scheme, like our correspondent, have overlooked some simple but conclusive considerations, and have fallen into a very transparent error. The contents of a cesspool comprise all the valuable refuse of a house in a half-solid, half-liquid, form, and are, as every one knows, a very valuable manure. The sewer-water is, so to speak, a solution of all these matters with valuable additions, in a weak brine (for each gallon of sewer-water contains about 13 grains of common salt). Now, this weak brine, of which we speak, dissolves out all the soluble matters from the solid substances conveyed into the sewers, the greater and more valuable part of which no process of precipitation can possibly separate afresh. So that the deposit from the sewer-water, especially after the addition of lime, is a comparatively valueless material, which would be dear at a tenth of the price which the London Sewage Company propose to charge. A large proportion of this deposit is, in fact, mere silt, a mixture of the *debris* of granite from the roads, and oxide of iron from the wheels of carriages.

The more this subject of the application of the refuse of towns to agriculture is considered, the more certainly will the plan of distributing the entire refuse, dissolved or suspended in water, by means of engines and pipes, commend itself to the judgment

as the only feasible method of conveying the riches of the town to the surrounding country, and the more certainly will the project of collecting the deposit from the sewers be condemned. We are convinced that the latter is a serious and ruinous mistake, and we say this, not in the spirit of partisanship, but in the interests of truth.

THOUGHTS ON AGRICULTURAL MACHINERY.

I. The two greatest improvements in modern agricultural mechanics, are—1. Substituting metal, *i. e.* cast and wrought-iron for wood. 2. The introduction of the lever principle.

II. The principal points to be observed in machinery are—1. Making a machine serve different purposes at the same time; 2. To serve different purposes at different times; 3. Buying only the iron castings and other metal work and having the wooden part made at home. This would be found the best plan for emigrants and for most farmers.

1. *Substituting iron for wood.*—In doing this machines were first made all of wrought-iron, but now (the art of founding being much improved) they are generally made of cast-iron. The advantages of each are:—

Wrought.	*Cast.*
May be made lighter; not so likely to break; edge tools much thinner, and consequently if steeled sharper, if broken they can be mended	Much cheaper, less liable to rust, and firmer, as it never bends

Ploughs.—I believe the first plough made entirely of wrought-iron was that made by Brand, a Suffolk blacksmith, about 1780. This was one of the best ploughs in England. Making ploughs of cast-iron was much slower in coming into effect. Small made the first cast-iron mould board about 1770; Ransome the first cast-iron ploughshare, 1785, case-hardened 1803; also the first cast-iron plough bottom; soon followed by cast-iron plough frames. Who first made the plough beam of cast-iron I do not know, but Stratton has patented one on the hollow iron principle.

Wrought iron scarifiers and harrows were generally used in Suffolk before 1814; of cast-iron ones I think Biddle's was nearly the first; wrought-iron cart-wheels, see Loudon's "En. Agr.," p. 429. Of cast iron wheels, perhaps those for sheep-troughs were the first, but they are now common for scarifiers, carts, &c., &c. In short we have now almost everything formerly made of wood made of iron; thus sheet and cast-iron liquid manure carts; wrought iron boilers for steam-engines; cast for boiling roots, &c.; cast-iron chaff-cutters (with knives of cast steel), &c., &c.; but generally speaking the troughs of chaff cutters, the handles of ploughs, and wheels and shafts are made of wood.

2. *The Lever principle.*—This is of two kinds, 1st to give a constant and equable pressure, which may be increased or lessened at pleasure; 2d, for altering and regulating the depth in the soil, or wholly putting out of work scarifiers and other tillage implements, without stopping the horses.

For giving an equable pressure the lever principle is now added to drills, horse and hand rakes; horse hoes (Garrett's); harrows (Coleman of Colchester); rollers (Booth's). It is curious to remark how slowly it spread itself; a Suffolk farmer (Baldwin of Mendham) in 1790, first added it to drills to give each separate lever what pressure it required; but it was not till 50 years afterwards that another native of Suffolk added it to horse hoes. Salmon gave increased pressure to hay by adding a lever and weight to his chaff cutter in 1827. It took more than 40 years to apply the same principle to the cheese press.

As examples of the second method of applying leverage, I may mention the lever added to plough-wheels by a Suffolk farmer (see Ransome's "Imp. Ag.," p. 40), and the levers to Biddle's and Finlayson's scarifiers.

The second division is of the chief points to be observed in machinery:—1st. Making a machine serve different purposes at the same time or having one machine joined to another to complete the work at one operation; this may save the labour of many men and horses. The thrashing machine on Earl Ducie's Example Farm, is a good example of this principle. Here the corn is raised to the feeding-board, thrashed, winnowed, put into sacks and weighed, by the same power (Ransome, p. 156). Many machines both thrash and winnow at the same time; others cut chaff, and crush Beans and Peas, or grind Barley, with the same horse-power and at the same time. We have also drill-ploughs where drilling is carried on at the same time as the ploughing; harrow-ploughs where knives, working behind the plough, cut the clods either perpendicularly or transversely; ploughs which stir the subsoil at the same time (as the Charlbury); double ploughs, as Lord Somerville's. I suppose it would make the plough too complicated to add all these, so as to turn the furrow-slice, stir the subsoil, sow the seed, and harrow all at the same time. [A plough was exhibited at Bristol, having lateral knives, which cut and stirred the earth as it was turned over. See Report in "English Agricultural Journal."] We have drills to drill seeds, with light harrows fastened behind them to harrow them in at the same time; drills which drill the manure and cover it, drill the Turnips and cover them, and shape the ridges at one operation; drills for manure, corn, and seeds at the same time. Dibbles which do the two-fold operations of the hand dibbler and dropper better, and in less time, as Newberry's. Perhaps a rake (for example, Grant's lever) might be fixed behind the waggon, in harvest time, to rake up everything, and thus save the labour of a man and horse.

2d. Making a machine serve different purposes at different times. For any machine, for which one has but an occasional use, this is essential; it is better for them to wear out than rust out: as examples, "Clarke's universal plough" which can be made (1) a double Tom, or ridge plough; (2) a moulding plough; (3) a horse-hoe, or cleaning plough; (4) a skeleton, or broad-share plough: altogether a very perfect tool for ridge culture. Cooke's drill, invented about 1780 (see Loudon, p. 408), was, though now superseded, a most complete implement for light, dry soils, and flat culture. "The same machine is easily transformed into a cultivator, horse-hoe, scarifier, or grubber; and by substituting a corn-rake, stubble-rake, or quitch-rake, for the beam of coulters or hoes, it will rake corn-stubbles, or clean land of root-weeds." If the farmer who substituted levers for fixed coulters in this drill, continued to use Cooke's additions, he would then have forestalled the modern lever horse-rakes, horse-hoes, &c. I believe some of Garrett's drills are so made, that, by removing the drill-box, and substituting tines and hoes for the coulters, they serve for lever horse-rakes, and horse-hoes; small lever rollers might also be used. Wheels and shafts can always be taken off one machine and put on another; an extra pair is always useful. Machines of only occasional use ought to be made so as to take to pieces, so as to be packed up in a compact state, and take up little room, till next wanted.

3d. It is an excellent plan, especially for emigrants and those distant from towns, to purchase only the iron or complicated part of machines, and get the wood-work made at home by some carpenter on the farm, thus: the manufacturer sends a drawing of the wood-work made to scale, and the iron-work; if this is of cast iron, it becomes quite easy to fit them together. The machine is much cheaper, and the carriage of it greatly so. Thus, for example, stack pillars of cast-iron, with covers to prevent vermin ascending, are bought, and the wood-frame for the stack is made at home. (2.) The cast iron parts of the plough often bought, and the wooden-handles and beam made at home; and country carpenters often buy the iron parts of drills and thrashing-machines, and then finish them themselves.

To conclude—strength, simplicity, and cheapness are most important points in farming machinery; and a machine, having these properties, should always be chosen before a fine-looking complicated patent article, as the extra cost at first, the difficulty of getting labourers to understand it, loss of time in setting it to work, delay and expense by constant breakage and getting it repaired, &c., will in general more than counterbalance any fancied superiority.—*X. Y.*

THE SUPPLY OF ANIMAL FOOD.

The rapidly increasing demand for animal food is now attracting much attention, and the most profitable and speedy mode of producing it is the subject of general discussion amongst breeders and graziers. The extraordinary consumption of the past two years has arisen from very satisfactory causes—abundant employment for the lower orders at adequate wages; it is this which has caused such a great demand, and produced that correspondent scarcity in that principal article of food for the poor, mutton.

Every article or paragraph must have its limit; this shall be confined to mutton—the production of mutton. The grand desideratum in the mind of the writer being to produce the greatest weight of food in the shortest time and at the least cost. This must, ere long, be the all-important question. The inquiry will not be between Sussex Downs or Hampshire Downs, fine Leicesters or large Leicesters, Gloucester Long-wools or Lincoln Long-wools; but which will soonest attain the most profitable maturity. Weight of carcase must ultimately be the great end aimed at; quality of flesh will become a secondary consideration, because the bulk of consumption is with the labouring classes, to whom quality of meat is by no means the main thing. The public must be fed, and that at a cheap rate. In order to obtain mutton of first quality it is a well-known practice and requisite to keep a South-down sheep to its third or fourth year; observe, not to fatten but to secure quality of meat; what a waste of time for quality of flesh! this cannot continue, quantity must supersede quality. The Gloucester and Lincoln Long-wools are the largest breed of sheep in the kingdom, and will not require more than 18 to 21 months in fattening to full maturity, weighing, at 24 months, from 22 to 40 lbs. per quarter; and where the flock is not required for folding, grazing open downs or mountain pastures, and the like, they will be found the most profitable breed for the producer and the most beneficial to the public, being the fastest growers, and also quick feeders, realising the greatest weight of flesh in the shortest time.

Much, very much, certainly depends upon selection and careful breeding; but more closely connected with this than is generally imagined, is the proper management and feeding. No animal intended for fattening ought at any time to be allowed to stand still; they must be kept thriving, and while in health this is easy of attainment, in this country, at least, by the use of corn, cake, meal, and the various esculent roots which have become almost indispensable adjuncts to good grazing; warmth and shelter in winter, cool and shade in summer, are equally desirable. It is necessary that the animal should be kept quiet and composed; no restless ones will fatten rapidly, nor will those of predatory habits thrive fast; secure contentment, feed punctually, and the result may be anticipated.—*

(To be continued.)

METROPOLITAN SEWAGE MANURE COMPANY.

You have repeatedly referred to this Company, and two leading articles have appeared in your paper in favour of the proposed undertaking, which gives rise to the expectation that you are able to satisfy the public respecting the extraordinary discrepancies which are to be found in the published evidence and in the proceedings of the company.

The plan submitted by Mr. Smith, of Deanston, to the Health of Towns Commissioners was one which proposed application of sewer water to the land three times a-year, and as it is daily supplied, there became necessary reservoirs of sufficient capacity to store up a three months' supply; and the Metropolitan Company's bill, therefore, contained a clause claiming power to purchase 20 acres of land in different situations for the purpose of forming the required reservoirs. This was a distinct part of the plan, suggested some years ago and persevered in till March, 1846, and yet when the construction of such reservoirs was opposed, the promoters of the bill declared that sewer water would be daily applied to the land as it is daily supplied by the sewers. Mr. Dickinson, however, admitted "that it would not be used when rain had fallen; and when there was a dense atmosphere, that land occasionally watered never becomes in a dry state," as his experience, and yet he uses a liquid of which 5 to 15 tons an acre give this result.

The Metropolitan Company propose to give 100 tons an acre on arable, and 500 tons on meadows. Agriculturists, according to the evidence, were told the Company would be prepared to manure their land for them on very moderate terms, and no doubt every farmer in the country would easily be induced to desire to have the option of availing himself of such an offer, particularly when at the same time he is told of the good effects of a liquid of which only 1 000 or 2,000 gallons are wanted, as if of equal quality with the sewer water, which requires from 23,000 to 110,000 gallons an acre; the difference in value being as great as that which exists between silver and copper. The value of a shilling is established, and then there is a farthing for you to pay twelve pence for. The example of Edinburgh and Mansfield is brought forward as proving the value of the sewer water of a town. Its consistency is stated to be as thick as "turtle soup;" and the expense of draining 30*l.* an acre. The Pimlico sewers are so diluted that the contents have been used on Grass, without any unpleasant smell, and no one expects or is prepared to incur the expense of draining. Mr. Solly (another witness brought up to speak in favour of liquid manure) stated, "that certainly all land should be drained first, before any application of this manure was extended on a large scale."

The Company is to pay a fine of 300*l.* if any water be "fouled" or "polluted" by the sewer water, and yet there is no evidence to show where the surplus is to run to. Mr. Parkes in his experience respecting the drainage of land, has ascertained that 91 tons of water drain through an acre during the six summer months, and putting on 100 to 500 tons additional will very materially reduce the accumulated ground heat, and tend to reduce the genial influence of the atmosphere. Our climate is notoriously a very humid one, and hence draining the land is one of the great improvements in a country in which the wetness of the season very frequently occasions fears respecting the growing crops.

The Company expects that there will be a large quantity of land turned into meadows, and that consequently a greater number of cows will be kept. But the latter would at once furnish all the liquid manure which would be required for the meadows. Mr. Harvey has clearly proved this at Glasgow. Hence sewer water would not be required any longer than to form the meadows. After that the pipes which it is required to lay down will have to be taken up; and the Company must always be liable to such useless expence for pipes, subject to be removed again any three months, that no profitable return can be calculated on.

That portion of fertilising substance which is held in solution is esteemed to be the most valuable. Experiments at Edinburgh have established the fact that when sewer water is used for irrigation, nearly the whole of this is lost; sewer water which contained 82 grs. in a gallon when it left the town, after passing over two miles of meadows, it finally ran over a sharp sand into the sea, and then still continued to contain 72 grs. in solution, consequently 8-9ths were lost, and 1-9th only retained by the land. According to Professor Miller, the value of the fertilising substances passing into the Thames from King's Scholar Pond Sewer is annually 23,360*l.*, the drainage being 6 000,000 tons.

According to Mr. Mylne 120,000*l.* will enable the company to pump up and distribute 3,500,000 tons. The value of this quantity may therefore be taken at 13,626*l.*, if 8-9ths of the portion held in solution were not lost. Now for this 13,000*l.* worth of fertilising substance, the agriculturists, according to Mr. Mylne, are expected to pay (at 3*d.*) 43.750*l.*, and it was stated that the farmers would probably not object to 4*d.* a ton, or 58,333*l.* More than four times its avowed value is to be paid for the 1 ton of manure which is contained in 500 tons of King's College Pond sewer water. According to the Company's engineer, 120,000*l.* will be required to try the experiment on 3½ million tons, and as the proper drainage which should pass away from the metropolis may be very properly assumed to be 250 million tons, an outlay of 8,500,000*l.* must be incurred for studding the town with immense stand-pipe columns

200 feet high, and steam-engines, at Pimlico, Trafalgar-square, Fleet-street, London-bridge, &c., and for breaking up roads and streets (as proposed through Brentford, &c.); whilst the profitable return on the outlay must be most precarious, supposing even that the estimates presented to the Parliamentary committees were not founded on the most fallacious basis, and that the means provided be not utterly inadequate for pumping up and distributing 3½ million tons of sewer-water, granting even that the removal and use of it may go on day and night all the year round. An answer respecting the extraordinary discrepancies alluded to will oblige the public, and— *Y. Z., a Subscriber: Nov.* 11.

MANAGEMENT OF MANURE.

In my reply to the first article on this subject, inserted by your Hull correspondent, I deemed it superfluous to the occasion to meet his views with any weight of argument; because, in my opinion, it bore on its face the stamp of absurdity; thence arose the cause of your correspondent's complaint, the levity of my reply; it is not as he supposes because of the novelty of the plan that I attack it, most decidedly not, nor am I (as he insinuates) one of the old school, measuring the merits and demerits of novel systems by the misrule of a hundred years ago; on the contrary, being a young farmer, I am partial to novel improvements, but the little experience I have, teaches me to make a wide distinction between plans founded on scientific principles, with practical information as to cost, profits resulting, &c., and plans supported only by their own novelty, based upon unsound principles, and unaccompanied by a fair statistical account; the latter I affirm that of your Hull correspondent to be. His object is, as stated in his defence before me, "to save labour in collecting the materials, room in storing them, the prevention of loss by the dissipation of the fertilising elements of the manure, the perfect decomposition of it, and lastly, the facilitating its application." Some of these are objects of great importance, but I maintain that the most essential cannot be realised by the plan proposed; who among your readers will acknowledge, that to build a tower 25 feet in height, with the necessary apparatus for hoisting the litter to its summit, is to save labour in collecting the materials; enough for me to ask the question; the absurdity of the proposal makes further comment on it unnecessary. But the strongest alleged support of his system is, "the prevention of loss by the dissipation of the fertilising elements of the manure;" now, in all his articles, I read of no other agent to be employed to effect this design than the tower and crane, liquid manure tank, sheds for drying, and a mill to grind it, and, when I read also in connection with these triumphs of mechanical skill, that the dung will by their means, undergo perfect decomposition by a fermentation similar to that of a hotbed, I cannot reconcile your correspondent's very important object of preventing the dissipation of the fertilising elements of the manure with his system of management. Most of your readers are aware of the inferiority of hotbed dung, owing to excessive fermentation throwing off large quantities of the most valuable constituent of manure; if dung is fermented like that of hotbeds, we may reasonably expect a like result, whether it is stored in heaps or in pits, or in a tower, we should get a material of very inferior quality; but suppose your correspondent in the course of his experience wished to reduce the fermentation, would not the same expedients be equally effectual in a pit as in a tower? I believe it would be more difficult to check it in the latter than in the former; then, let me ask, of what advantage is this tower over a walled pit? if I take his own most unfortunate analogy on the fermentation of a hotbed and his tower, I must conclude at once that the tower is the cause of supporting instead of preventing a ruinous dissipation of manure. Another weak prop of a weaker system is "perfect decomposition," speaking of which he says, that one cart-load properly prepared, is worth four in a crude state; this is equally true with the fact that it will take four loads of the raw litter to make one when perfectly decomposed. There are various opinions as to the merits of fresh dung and well-rotten dung; but as it is unnecessary, and a review of them would considerably lengthen this paper, I will not enter on them now, but shall be most be happy to do so at another time; suffice it to say, that if perfect decomposition must be obtained for the dung before applying it to plants, the cheapness of the plan does not recommend it. Again, he says "my object in recommending lofty towers was twofold; in the first place, because they would enable farmers to store vast quantities of manure in comparatively small space, and because they are just as convenient for the purpose of fermenting manure as a walled pit one-fifth of the depth." Now, as I would not sink my dung-pit as deep as the height of the tower, I will acknowledge that in this trivial particular of saving space, his system cannot be refuted; but it is in most cases a matter of no importance whatever; all farm-yards are capacious enough: and where it is desirable, how dearly the convenience is bought remains to be told by your correspondent's table of expenses, which he has now given, and for which I have purposely delayed this paper. He does not mention the cost of erecting the tower; but allows 3*d.* per cubic yard as interest on the first outlay, which for a bin to contain 260 cubic yards, would be 3*l.* 5*s.*; this sum at 5 per cent. is the proceeds of 65*l.*, the supposed cost of the tower; besides which must be calculated the cost of the mill and sheds, with the unavoidable additional labour; this he cheerfully proposes, for no other real advantage than the saving a few yards of land; and again, as if to show your readers how wofully hard he is driven for a reason, he says "and because they are just as convenient as a walled pit one-fifth of the depth" —very useless must be the system that cowers under the wing of such an argument! and most wonderful must be the enthusiasm of the man who thinks a novelty attended only with common results so well worth paying for!—truly this is to me incomprehensible; but "it is in advance of the times, and must abide its time." Farmers of the 19th century will require better reasons than those to induce them to incur expense; but posterity may so far forget the prejudices of their fathers as to exchange profit for novel effect, and build lofty memorials of the march of intellect.—*Henry Adams, Morwenstow, Cornwall.*

Home Correspondence.

Thick or Thin Sowing of Wheat.—As I promised, I send you the results of an experiment of drilling Wheat with different quantities of seed per acre. A field of 7 acres 3 roods (that had previously grown Beans—a heavy crop; the Beans were drilled 2 feet ¾ inch wide, and were during their growth, four times horse and twice hand hoed), the stubble clean was once ploughed and drilled with Morton's Red Straw Wheat, at the rate of 1½ bush. per acre, except 6 lands in the middle of the field, the measure of which was 2 roods 13 poles; this was drilled with the same Wheat, at the rate of 1 bush. per acre, all 10½ inches wide. In the spring it was all once hand-hoed; the thin-drilled grew at the rate of rather over 40 bush. per acre; the thick, as near as possible, 40 bush. per acre; the weight per bushel in favour of the thin-drilled. It was cut, harvested, and thrashed separate, and, as far as could be, conducted with perfect fairness. This being the third year I have tried similar experiments; in the dry summer of 1844 the thin-drilled was equal in produce to the thick; in the wet cold summer of 1845 the thin-drilled grew more than the thick by 2 bush. per acre, but was not so early to harvest by five days; again, in 1846, the thin-drilled grew rather more than the thick, came to harvest as early as the thick, as it did also in 1844. The fields in which the experiments were tried, in the winter of 1845-6 were much attacked by slug; also that of last year, after Beans, and in both cases were salt sown during winter to prevent their ravages. The thin-sown was not more attacked than the thick, nor do I think it suffered more from being thinned by them. If I may be allowed to make a few remarks, I should say, from observation, and the result of the above experiments, that thick seeding is only safe in dry hot summers like the past, and that of 1844, or in dry climates, which is the same thing. I am led to these conclusions from the fact that there are more laid crops of Wheat in wet cold summers than in dry hot ones, because the usual practice is to sow thick, and in case of cold wet summers the straw does not mature, *i. e.*, does not form sufficient woody fibre for want of sun light, which is well known to have a less effect amongst thick growing corn, vegetables, and trees, than where they are thin. It is a well-known fact in America that the timber of the primitive forest, or what is there called the first growth, is not nearly so good for ship building, &c., as the timber of the second growth. The first growth timber in America is as thick as it can well grow; this is not the case with the second growth. It is also well known by wheelwrights and others of our own country, that all sorts of timber grown in the open fields or parks is much more tough and durable than that from thick coppice and woods. I have made the e remarks to show that the crops the farmer cultivates require room to mature their straw, for without good straw who ever saw a good crop of grain; he must also bear in mind that it will not do to sow thin and stop there; if he drills thin he must hoe clean, manure well, and cultivate deep. It should be remembered that weeds are more injurious to corn than even a thick growth of their own, obstructing the light of heaven, heat, and air, also robbing the soil of what should go to produce corn.—*James Eames, Alton.*

Influence of the Mind on Agriculture.—"But that these motives can act otherwise than through the skill and intelligence with which the mind is endowed, we cannot conceive. Is it well to imagine any mysterious relationship between a cause and its result when one which is plain and obvious is quite sufficient to account for all the circumstances of the case?" *Agricultural Gazette, Nov.* 14. The above remarks have suggested to my mind the following thoughts:—When an eminent geologist digs deep into the bowels of the earth, and brings up a monster skeleton, he brings up an object for the vulgar to wonder and gaze at. And they retire with the reflection that the species of animal to which it belonged has no existence at the present day. Their minds also afford no association by which they can link it to kindred and existing species. But the geologist brings a mind better prepared for the investigation;—if he cannot find for you a lineal descendant of this ancient denizen of the earth, he can at least introduce to your acquaintance a scion of his now decayed, but formerly illustrious family. The mineralogist, also, when attracted by some peculiarity in a specimen of coal, takes it with him and deposits it in his cabinet. The mineral, which is the object of his care, is sufficient to afford food for the thoughts of a life-time. Let us imagine a few of the reflections which it would naturally suggest. The mind of the mineralogist is immediately ushered into the vegetable kingdom. From thence he contemplates the effect of light and heat, air and water, upon the growth and decay of plants; it never once occurs to him (and very properly) that an element necessary to the growth of vegetable life which does not exist now, existed at an earlier period of the world's history; and he sees a necessity for the elements that existed at that early period also existing now. He associates the two remote periods of the world's history in his own mind with as much sound sense and correct logic as I associate the leaves of autumn—now dancing before the wind across the lawn—with the leaves of autumn which rotted there ten years ago. Now sir, suppose we become moral geologists or mineralogists in a small way; if we dig deep into the substrata of the world's history, we will find facts there to which Burns' personification of facts as "sturdy chiels that winna ding," is puerilely inadequate; for they are blocks of massive granite upon which the superstructure of man's subsequent history rests. Or they may be considered as representing the skeletons of a nearly extinct class of moral agents who, at an early period, walked upon this earth as giants, and whose dwarfish descendants even now are the means of benefiting the world to a greater extent than it is willing to give them the credit of. I will give you one of the facts to which I allude. It is to be found in Judges, 6th chap. "And Gideon said, behold I will put a fleece of wool in the floor; and if the dew be on the fleece only, and it be dry on the earth beside, then shall I know, &c. And it was so; for he rose up early on the morrow, and thrust the fleece together, and wringed the dew out of the fleece a bowl full of water." Let us now consult the memoranda of our daily observation, and see if they afford us any facts which can be classed with this event in Gideon's life. There is something in the appearance of a field of young Grass in spring which, according as the field is likely to produce a good or bad crop, satisfies or offends the eye of a farmer. There is also that in the appearance of the ox grazing upon it which gives satisfaction or otherwise to the mind of his owner as he rises and stretches himself of a summer's morning. There is that also in the countenance of the herd which, in proportion to its absence or presence gives pain or pleasure, analogous to that derived from considering the cultivation of the field or the condition of the ox. Suppose we travel over a country and find a farm which the favourable side of the picture represents; and we find another remarkable for the absence of these favourable characters. If we are intelligent men, and upon all occasions venture to gage everything by the measure of our own intelligence, we ascribe the difference to the difference of skill and intelligence; we inquire into the circumstances and find skill and intelligence associated with the prosperous condition, and the absence of skill and intelligence with the unprosperous condition. We stop short in the investigation, and ask if it be well to imagine any mysterious relationship between a cause and its result, when one which is plain and obvious is quite sufficient to account for all the circumstances of the case! Other minds, however, taught more wisdom by passive subjection to events which human skill could not control, are not satisfied with our view of the case. The circumstance of Gideon's fleece, and many other analogous facts are present to them, and they view skill and intelligence not so much as a cause, but as a result kindred in character to the indications of health to be found on the field, the ox, and the servant. Now, I have stated no imaginary case. In any district of the country I will find you abundance of illustrations of it. I take the liberty of drawing the attention of your Irish correspondents to the subject, believing that their country will afford a more decided confirmation of the truth of my opinions than may be found in Britain. Let any one travel over the former country, let him compare one estate with another or one district with another. Let him chew the end of reflection upon the observations that he has made. Let him bring chemistry if he will to his aid, and let him subject the contents of his stomach to any test that modern intelligence can give him. Let him do all this, and then let him deny, if he can, my assertion that the rays of the sun write a parable upon every blade of Grass that grows in that country.—*John Russell, East Lothian, Nov.* 21. [With one further remark we must close this discussion. Whenever mind has acted on matter otherwise than through the body with which it is clothed —otherwise than by the skill of the one directed by the intelligence of the other—the occurrence was a miracle; and indeed the only key to our correspondent's meaning is the supposition that he believes a miraculous influence still to be occasionally exercised. How otherwise can he consistently place the experience of Gideon alongside with that of the farmer?]

Shed Feeding Sheep.—In a late *Gazette* there is a paper on this subject, in which the writer strongly advocates shelter for the flock, where persons are not disposed to shed feed. I have not the slightest doubt that the writer takes a sound view of the question, but there are many things of the justice of which we are convinced, that we are not able at once to carry into effect. If I were to set about making the proposed shelter in my Turnip field, I should be laughed at by my neighbours, and perhaps from not knowing how to effect it in the most economical way I should be a loser by the undertaking. Therefore in all these things I leave persons of more substance and acreage to set the example, and when I can quote the name of a farmer of repute in the neighbourhood then I shall be willing to try it also. Ridicule and possibly non-success are powerful dissuasives in the eyes of a young farmer, you will admit.

But I have been thinking whether or not I could compromise the matter for this winter. Could I bring my flock into a well littered fold-yard for the night, during cold weather, in fact during the greater part of the winter, giving them Turnips (cut) in troughs at night, and cut hay and straw in the morning before turning them into the Turnip field for the day. Most of the agriculturists about here keep what is called a flock of lambs, which they winter, and sell as tegs at the large fair at Guildford in the spring. I anticipate no evil or loss of flesh in driving them to and fro, as in my case the distance is short; nor do I consider that I shall be a loser by the amount incurred in drawing the Turnips to the fold-yard, as I have three cows tied up for which I must draw them, and it is all in the day's work for the shepherd and an old horse. My flock consists of 172, all stores. I have a tolerable sized fold-yard, quite at the service of the sheep in question, as I have another yard for the cows. I have such an enormous quantity of straw of all sorts this year, that I could litter them 10 feet deep (which, of course, however, would be a wrong proceeding), Wheat straw, Pea haulm, Bean ditto, Vetch haulm, Barley and Oat straw. Question: Would it injure the health of the flock if I were to confine them in the aforesaid yard during the night, and let them into the pitching (as we call the area inclosed by hurdles in a Turnip field about here) during the day? Would it expose them to any disease? [No.] Of course it would if they were kept there during the day also. What constantly occurs here is this—we grow perhaps a heavy crop of Turnips and Swedes; they are fed off by sheep, not one perhaps drawn; the field is sown with Barley (very late in the spring, in the end of April), and most commonly the straw at harvest time is lodged, and the Barley not a marvellous yield. By partly feeding in the yard, I should get more manure, and put it where I want it; whereas by the common mode the land is too much dressed, and the straw lodged. I have sown 15 acres of Red-straw White and Hopetown Wheat, which seems to be getting into favour about here; lots of Chidham capitally up.—*L.*

Farm Machinery.—The report you gave of the discussion at a Farmers' Club, on the use of machinery, is very valuable and instructive. I plant about 25 acres of Wheat, and to me a thrashing machine would be very valuable. 1st, in the saving of time, by enabling me to have the labour of men employed in thrashing employed on other work—not to get rid of the men, but to make my capital more available. 2ndly, to prevent the pilfering which weeks of thrashing affords daily opportunities, for a man can pilfer to but a small extent when the work is done off hand. Moreover, the labourer becomes honest if he has but slight opportunities to be dishonest. After this preface, I hope I may induce you to mention who makes the best small horse-machine of two or three horse power, for thrashing. This is not for the purpose of recommending a maker, but a machine. I find most machinery is adapted for large farms—few machines for small farms. In America, on the contrary, I found all machinery adapted for the smallest amount of power possible—that is, made to enable the capital of farmers to be available to the greatest extent. Among such a machine loving people, and such excellent machine-makers, it is the natural result that the instruments chiefly made should be adapted to the use of many people—where those many form a great class. The flail is as barbarous an instrument as the old and ancient wooden plough. I hope to live to see it hung up as a curiosity; but, before this can be, we must have a machine of efficient power, and calculated for thrashing only a few loads of grain with the ordinary horse power of a small farm. Of the thrashing-machines with which you are acquainted, would you please to say which is the best, answering the requirements I have alluded to?—*T. F.* [Almost all our principal machine-makers offer thrashing-machines for various power suited to different sized farms. You should consult the prize lists of the English Agricultural Society.]

Draining with 1-inch Pipes.—In a late *Ag. Gazette* I was much pleased with Mr. Charnock's ideas in his paper entitled "Discrepancies, &c.," and more particularly with his remarks on the use of inch pipes in thorough draining. When at the meeting of the Royal Agricultural Society at Newcastle, although I must say that I never enjoyed three days more in my life, yet, like Mr. Charnock, I felt some disappointment when at the discussional lecture on draining, the time would not permit so important a subject to be more fully entered into at a meeting teeming (as it was) with such an extensive amount of practical intelligence; and I may here remark that there was one point in particular which I intended to have brought under the notice of the meeting in the hope of gaining information thereon. Although I have heard and read a great deal on the utility, efficacy, and advantages derived from the use of inch or inch and a quarter pipes in preference to a larger size in thorough draining; yet in the application thereof I have frequently found a practical difficulty, more particularly in land approaching to a dead level, or where the fall was inconsiderable; this difficulty being caused principally by the stubbornness of the subsoil or strata through which the drain has to be cut, and the pipes laid, and the consequent difficulty of obtaining a uniform and even channel for the water. Now I think that any one accustomed to set out and superintend the drainage of land must be fully aware of the difficulty which almost invariably exists (where the bottom of the drain is cut through what we in this district term a raffy bottom, composed of clay mixed with small stones, or when veins of sand are found at intervals in the clay) in getting the workmen to bottom the drains, and lay the pipes so mathematically true as to warrant the use of inch pipes except in situations where the fall is tolerably quick. In draining land there are generally two very important objects to be considered—efficiency and economy, and as it cannot be expected that a resident engineer will in all cases superintend the laying of the pipes, as this might in many cases infringe upon economy to a greater extent than the payment of 2*s.* or 3*s.* per 1000 higher price for a larger sized pipe, that would lessen the risk of injury to the drain by any slight deviation from the level that might occur in bottoming the drain or in laying the pipes. When it is considered what a small measure an inch in height or depth is, we cannot but see what a trifling degree of inaccuracy either in cutting the drain or laying the pipes would almost entirely, if not altogether, spoil the channel for conveying the water along the drain, or even the bent form which the pipes not unfrequently assume in the manufacture is nearly sufficient to produce the same effect. At all events we cannot but see how any or all of the casualties must tend to render inefficient a drain laid out with pipes only 1 inch or 1¼ inch bore in the first instance, particularly where there is a want of fall. I am quite of Mr. Charnock's opinion, where he says, "I do not say that the smallest size of pipe may not be effective for a time (as indeed would the drain itself if merely refilled with the materials taken from it without any pipe or tile being laid) and even perhaps in many situations permanently so, but I cannot think that practice is to be regarded as either generally safe or scientific which incurs a risk for so insignificant a saving." I also entirely concur with Mr. Charnock in his ideas with regard to the form of pipes for situations in which it is desirable to compress the current of the water in the pipes into a less space than what could be done in using 2 inch pipes of the usual circular form (and I certainly do not recommend a pipe of less depth than 2 inches being used in any case) by having the pipes made of an oval form with a bore, say of 2 inches high by 1¼ inch wide, with a flat sole or foot to stand upon firmly when placed in the drain; this would answer the double purpose of securing a safer water way, and also compress the water into a current not wider than the inch pipes.—*Thomas Dixon, Agricultural Engineer and Surveyor, Darlington.*

Landlord and Tenant.—On reading yours of the 21st ult., "R. L." says, "I mark with interest the letters which, from time to time, grace your columns, respecting tenant-rights, &c." First, he evidently does not know the position of a tenant-farmer, or, at least has not been one—but probably one of those whom we see often figuring in your *Gazette*—"A Lincolns-Inn Receiver." What respectable tenant ever wishes to dictate to his landlord in taking a farm. But let me tell him if landlords do not assist and uphold the tenants at this crisis, his occupation will soon be in the eye of the law a dead letter. As to farm profits, I defy the landlords to their cost, as they would ever find, to attempt or be able to farm their own lands—at a profit. This I can prove: why here in Northumberland we have one baronet (not 15 miles from Newcastle on-Tyne) who, to his cost, has tried the experiment—and what has he done with some 2000 or 3000 acres—I will tell "R. L."; he has allowed the fallows to run riot, and let the Grass lands per auction every year,—nay, more—he has even advertised (in our local newspapers) those and the foul fallows to the best bidder; and yet we are modestly told our ancestors were serfs, and indebted solely to our landlords for every shilling! Upon my veracity "R. L." has strangely forgotten himself here. I, a humble follower of Mr. Mechi, have spent thousands on my farm (250 acres), yet my rent-day was within a month of this, and I only asked (through the steward) of these far-famed generous landlords to drain me a 14-acre field, which I would have led for, and paid one half cutting, but was refused; and, mark, my farm, without any addition, pays the same rental of the year 1815—so the poor-rate books tell me. Even in a mercantile view, "R. L." is again in ignorance. Let him ask on the Royal Exchange, Cornhill, how many thousands (I may say hundreds of thousands) of pounds are daily risked with very much more peril and very little more return than the landlords' three-per-cent. certain return. "R. L." must not imagine *me* a serf in the eyes of my neighbouring farmers. I am an amateur; and yet I, the tenant farmer, after an occupation of four years, have not received one quarter per cent. on my capital.—*A Northumberland Farmer.*

Savings Banks.—St. Marylebone Bank for Savings, 76, Welbeck-street, established 5th July, 1830. Comparative statement of progress, at specified periods, during the last seven years:—

	Open Deposit Accounts.	Sums invested with National Debt Commissioners.
		£
On 20th November, 1840	12,680	253,167
" " 1841	13,004	266,107
" " 1842	13,349	285,392
" " 1843	14,130	319,496
" " 1844	15,124	350,089
" " 1845	16,201	358,954
" " 1846	17,280	348,643

—*D. Finney, Secretary and Actuary.*

Potatoes.—I am much struck with reading a note in "Science of Horticulture," p. 51, regarding the absorption of water through the alburnum, &c., and the mildew in Wheat. I think by referring to the meteorological journals of 1845, you will find that the conditions of damp and cold succeeding an excessively dry and bright season, so favourable to the production of mildew, were fully met. The subject at least deserves consideration, and on a first glance at the matter I am disposed to think that those parasitical plants were first called into extensive action (however extensive and general their existence has since become through the mildness of last winter and other causes) at the period when a remarkable meteorological change took place in the month of July, 1845; not so remarkable perhaps *per se*, but particularly so in its effects as combined with the degree of humidity in the soil at that time, which was particularly small. The average of rain which fell in the following months, from 1838 to 1842 inclusive, and the fall in the months of last year are shown below—

Average.	Inches.—1838 to 1842.		Inches.—1845.	
January	2.606		2.20	
February	2.22		0.49	
March	1.813		0.69	
April	1.021		0.91	
May	1.692		1.70	
June	2.214	generally in quick	3.18	principally
July	2.2	showers with	1.32	in cold
August	2.227	electric phenomena.	1.23	wet nights.

The preceding November and December were also extremely dry, being 3.3 in. below the average, fully accounting for the extremely dry state of the ground observed in this neighbourhood, as I believe over the whole of the south of England.—*B. B.*

Potato Blight.—There seems to be a growing opinion that atmospheric causes have had more or less effect in producing the blight in Potatoes. It has been asked, however, in return, whether the general condition of the atmosphere has not always (at least within the memory of man) been like what it now is. Without pretending to answer this question as a skilful meteorologist might, and probably would, answer it, may I be allowed to ask in return whether it be not possible that the constant uninterrupted current of smoke issuing from steam-vessels, railroads, &c., may deteriorate the quality of the air? Whoever else may sneer at this suggestion, I think that a gardener in the neighbourhood of such towns as Manchester and Leeds will scarcely be the first to do so.—*An Enquirer.*

Potatoes not diseased on the Sea Coast.—Being on a visit to the Isle of Wight in July last, I had abundant opportunity of observing the apparently healthy state of the Potato crops in that island, and was much struck with the luxuriousness of leaf displayed by those growing close to the shore. Those planted on an eminence of 500 or 600 feet above the level of the sea, were certainly not to be compared with those in its immediate vicinity. I was assured by some persons I saw digging within 3 feet of high water mark, and who had housed last year Potatoes grown on the same ground, that they did not remember finding one bad one. I can speak to the perfect soundness of those dug when I was present. Every one knows that all vegetation so near the sea is completely crusted over with saline particles, which can soon be made evident to the taste by applying a leaf to the tongue. Can it be the absorption of such matter produces such beneficial results as those detailed?—*W. Tebbitt, Clapham Common.*

The Drainage of Land.—I take my pen for the purpose of making a few remarks on this subject, which deservedly occupies a considerable portion of your columns. Living in a district where there is not one acre in 200 cultivated by the plough, and distant nearly 30 miles from a tile manufactory, I have had no experience in draining land with that material, which however is undoubtedly the best, so far as I have made myself acquainted with it, through the speeches and publications of Messrs. Parkes, Smith, Mechi, &c., and must form the basis, in the absence of stone, of all improved farming where the plough is to be used, and although land may be perfectly drained with stones, yet in most cases it will cost more that way than any other. Still there is one advantage in draining some lands with stone; if persons drain deep, as they ought to do, a sufficient quantity of stones will be got out in opening the drain to build it, which is an important consideration, and shows the necessity of a thorough knowledge of the theory of deep drainage, and how fallacious it is to think that deep drainage is in all cases more expensive than shallow. I would most earnestly implore all such as are prejudiced against deep drainage to make a fair trial of deep drainage before rejecting it altogether, and just for once give their plants and Grasses a greater depth of soil to luxuriate in (not to struggle in, as they have to do in shallow or undrained land), and not to treat with contempt that well-judged remark, that if one foot of soil be good for one crop, two must be better. As sod draining is the system most extensively practised in this district, I will confine my remarks to that system, as I am persuaded it is often lightly spoken of, when the fact of its being so cheap, effectual, and durable a means of improving Grass-lands is perhaps never taken into consideration. But so long as vast portions of this island remain in Grass, it is a system that will be better to make it as perfect as possible, rather than never to discuss the subject at all. For my own part I think it may be made both effectual and durable. It has been my object to put the theories of these great

authorities on draining into practice, in combination with this system, and, I am happy to say, with considerable success. The old plan is, to put the drains along the hill sides, and not more than 27 inches deep, and to get the main drain on as high a level as possible, and therefore the side drains are almost on a dead level. It will be seen that such drains are liable to be burst in by the cattle treading upon them; to remedy this, I cut my drains from 32 inches to 42 inches in depth, thus accomplishing two things: securing the drains from being burst, and applying to some extent the theory of deep drainage. In the old plan there is a want of fall for the water, and that renders the drains liable to stoppage by the sediment which the water will leave; and in some land the drains will be stopped entirely up in a few years by oxide of iron, or what is more commonly called "canker water;" add to this the effect of the water on the sides of the drain, and on the sod that covers it, in rotting them, and it will be seen that want of fall is a serious mistake. I place my drains in the direction of the fall, with the main drain in the lowest part of the field; no sediment is deposited, but the oxide of iron is carried away, to the evident delight of the rich Grasses that immediately take the place of the Mosses. Again, drains running along the side of a hill, at whatever distance they are from each other, have each that distance to draw the water, or it has to percolate through the soil the whole of that distance; of course, it comes from the upper side of the drain, though some of the old drainers contend that such drains lay dry the lower side, but I never could be persuaded that water ran up hill. My drains being placed up the inclination, instead of across it, lay an equal portion of land dry on each side; consequently the rain water is not detained in the soil longer than is necessary for its communicating its warmth to the lower soil which it takes from the surface, and yet gives sufficient time for the water to part with the gases it contains in passing through the soil. As to the theory of draining, I feel convinced that my plan is on more correct principles than those of the old school, and I have no doubt that the drains will last much longer; in fact, I do not know what limit could be put to their duration in a clay subsoil.—*A Craven Grazier, Nov.* 23.

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Monthly Council was held at the Society's house in Hanover square, on Wednesday last, the 2nd of December: present, the Earl of Egmont, President, in the chair, Lord Portman, D. Barclay, Esq., M.P., T. Raymond Barker, Esq., S. Bennett, Esq., W. Blount, Esq., H. Brandreth, Esq., W. R. Browne, Esq., F. C. Cherry, Esq., J. Bell, Crompton, Esq., S. Druce, Esq., R. Garnett, Esq., B. Gibbs, Esq., W. G. Hayter, Esq., M.P., C. Hillyard, Esq., W. F. Hobbs, Esq., J. Kinder, Esq., F. Pym, Esq., Professor Sewell, W. Shaw, Esq., J. V. Shelley, Esq., and C. Stokes, Esq. B. B. Cabbell, Esq., M.P., of Portland-place, London, and E. Wood, Esq., of Stout Hall, Swansea, were elected Governors, and the following gentlemen Members of the Society:—

Dawes, Edwin Nathaniel, Rye, Sussex
Simcoe, Rev. H. A., Pedheale, Launceston, Cornwall
Richmond, George, Heighington, Darlington, Durham
Bravender, John, Cirencester, Gloucestershire
Barlow, Rev. Peter, Cockfield Rectory, Staindrop, Durham
Bragg, William, Cockermouth, Cumberland
Stephens, Henry Lewis, Tregenna Castle, Hayle, Cornwall
Smiggs, William, Crest-n-Condover, Alresford, Hants
Newmarch, George, the Woodwards, Cricklade, Wilts
Morris, William, Wood-Norton, Fakenham, Norfolk
Male, Harry, East-Chinnock, Yeovil, Somerset
Cater, Lt. Col. (R. H. A.), Beckenham, Kent
Stowell, William Stow, Favordale House, Darlington
Thompson, William, Bishop-Auckland, Durham
Cornes, John Barbridge, Nantwich, Cheshire
Leche, John Hurleston, Carden Park, Chester
Gundry, Joseph, Bridport Dorsetshire
Wilkinson, Hooper John, Walsham-le-Willows, Ixworth, Suff.
Matheson, John, The Lewes Island, N. B.
Walker, Capt. Robertson, Kilgarrew, Whitehaven, Cumb.
Bullock, Henry, Marden-Ash, Ongar, Essex
Harrison, Rev. T. H., Bugbrooke Rectory, Weedon, Northampton
Hardy, James, Jaques Hall, Manningtree, Essex
Higgins, William, Northampton
Garnett, Robert, Wyreside, Lancaster
Hewlett, Thomas, Northampton
Palmer, Edward, 8, Lower Thames-street, London
Stanton, Robert, jun., Swaffham, Norfolk
Jennings, Richard, Wargrove-hill, Henley-on-Thames

The names of 16 candidates for election at the next meeting were then read.

Finances.—Mr. Raymond Barker presented to the Council the report of the Finance Committee for the month just ended; from which it appeared, that on the 30th of November, the invested capital of the Society stood at 7000*l.* stock, with a current cash-balance of 1395*l.* in the hands of the bankers. This report, and the various recommendations it contained, were unanimously adopted and confirmed.

Mr. Pym, chairman of the collection of Subscriptions' Committee, presented the report of that Committee, which was also unanimously adopted and confirmed.

Prize Essay.—Mr. Pusey, M.P., Chairman of the Journal Committee, reported the adjudication of the Society's Prize of 10*l.* for the best Essay on the St. John's Day Rye, to Mr. W. P. Taunton, of Ashley, near Stockbridge, Hampshire.

Country Meetings.—Mr. Pym presented on the part of the Stewards of the cattle-yard at Newcastle, a report on the various documents referred to them by the Council. This report was unanimously adopted and confirmed.

Lord Portman then brought forward the three motions of which he had given notice at Newcastle, on the undue fatting of animals intended for exhibition at the Society's Country Meetings, on the penalties to be inflicted on parties who failed to send stock and implements entered for exhibition, and on the means to be taken to prevent fictitious biddings at the sales by auction, when an interesting discussion ensued, and the two latter topics, along with Sir Matthew Ridley's and Mr. Hillyard's suggestions in reference respectively to the removal of animals from their place in the Show-yard, and the conditions of prizes to be offered at Northampton, were, on Lord Portman's motion, unanimously referred for further consideration and discussion to the General Northampton Committee, which his Lordship, as its Chairman, had directed to be summoned on the Thursday in the following week.

On the motion of Mr. Shaw, seconded by Mr. Brandreth, a Committee was appointed to report on the practicability of appropriating, after the year 1847, a portion of the fund subscribed towards the expenses of any Country Meeting to the purpose of local prizes, to be competed for by such parties only as are resident within the particular district.

The Council then proceeded, agreeably with the bye-laws, to appoint the Standing Committees for the ensuing year.

Cattle Diseases.—Mr. Fisher Hobbs gave notice that at the next monthly Council he should move the following resolutions; namely,—

1. That the grant of 200*l.*, given by the Society annually to the Royal Veterinary College, be reduced to 100*l.* per annum.

2. That a Prize of 50*l.* be offered by the Society for the best Essay on Pleuro-Pneumonia.

3. That a Prize of 50*l.* be offered by the Society for the best Essay on the general Diseases of Cattle, Sheep, and Pigs.

Communications were received from the Leominster Agricultural Association, and Mr. Edward Angell, of Kensington.

The Council then adjourned to their Weekly Meeting on the 9th inst.

NORTH LONSDALE AGRICULTURAL SOCIETY.

At the late annual meeting of this Society the prizes for the best cultivated farm were awarded as follows:—For the best drained farm, George Robinson; second best ditto, Abraham Atkinson; best crop of Potatoes, Robert Barber; best crop of Turnips, John Butler; second best ditto, John Coward; best-managed farm, Thomas Coward; second best ditto, John Askew, third best ditto, John Garnett; best general farming stock, John Butler, to the tenant whose sheep shall consume the largest quantity of Turnips on ground whereon grown, John Lawrence; to ditto, for the largest quantity of Rape, Edward Walker.

INSPECTORS' REPORT.

"Gentlemen: In laying before you the result of our labours, we beg to state that we have had rather an arduous task to perform, not only on account of the number of competitors and the distance they laid from each other, but that in some instances the scale was so equally balanced that we had some difficulty in coming to a decision; however, we can safely say that we have acted conscientiously; and if, in any case, we should not have come to a correct conclusion, it must be attributed solely to a want of judgment, and not to any favour or affection towards any particular party.

"The first premium for draining we have awarded to Mr. George Robinson, of Newbarns, who has cut and finished 1051 roods of tile-drains at a cost of 48*l.* 10*s.* The second premium we awarded to Mr. Abraham Atkinson, of Haume, who has cut and finished 856 roods at a cost of 51*l.* 11*s.* There were five competitors for these premiums, all of whom we considered worthy of credit, as they appeared to have executed their work in a permanent and judicious manner.

"For the premiums for Turnips there were 13 candidates; the crops generally good, but in some cases not so clean as we could have wished to see them. The first premium we have awarded to Mr. John Butler, of Moorside, Kirkby Ireleth, who, upon a very poor soil, and in a field so steep that it would be next to impossible to take a cart of manure up it, has, by the application of guano and well thinning and cleaning, contrived to raise one of the best crops of Turnips in all Furness.

"The next premium we awarded to Mr. John Coward, of Rampside, who has also great credit due for raising an excellent crop upon very inferior sort of ground; those have been sown with farm-yard manure.

"For the premium for Potatoes, we are sorry to say there was only one candidate. They were a very good crop, grown upon a piece of poor bog soil, and are the only crop we have seen or heard of but what has been more or less affected by the prevalent disease. The candidate was Mr. Robert Barber, of Low Newton.

"For the best-managed farms there were five competitors; the farms were all in a high state of cultivation, and are examples of good management well worth following. The first premium we awarded to Mr. Thomas Coward, of Colt-park; the second to Mr. John Askew, of Knappershaw; and the third to Mr. John Garnett, of Walton-hall; and we should have been glad if we could have bestowed premiums on the other two candidates, who, we consider, are worthy of great praise.

"For the best general stock there were also five competitors, and we had much pleasure in observing the very great improvement which has taken place in the breed both of cows and sheep, within the last few years, and this we attribute chiefly to the premiums offered by this Society, which have tended to create such a spirit of emulation amongst the breeders of stock. We have awarded the premium to Mr. John Butler, of Winder-hall, who has taken great pains in bringing every department of his stock towards perfection. At the same time we beg to remark that Mr. R. W. Ashburner's horned cattle were superior to those of any other of the competitors.

"For eating of Turnips with sheep there was only one eligible candidate, Mr. John Lawrence, of Flookburgh, to whom we of course awarded the first premium.

"For consuming Rape upon the ground there were four competitors. This premium we awarded to Mr. Edward Walker, of Lindale, who, upon a farm of 90 acres, has 9 acres of Rape. This we considered a very eligible crop, not only as food for sheep, but as a good preparation for grain, or for laying down land for permanent Grass seeds.

"We may further add that we see a very great improvement in every department of agriculture throughout the district, and we confidently hope that it will very soon be able to vie with any part of the United Kingdom in the production both of stock and crop.

(Signed) "THOMAS GIBSON, "JOHN COWARD, "JOHN LAWRENCE, } Inspectors.

"Ulverston, October 22, 1846."

Farmers' Clubs.

St. Peter's.—*Annual Report*:—The following are extracts:—

"*Tenants' Rights.*—1. You all agree that every possible arrangement should be made to secure good farming. Even moderate rents cannot be paid without it: the heavy expenses of the tenant can be met under no other system: the rapid increase of our population renders it desirable; and it will secure the employment of the agricultural poor.

"2. It is not likely that the capital and skill of the agriculturist, and the capabilities of the soil, will be fully developed unless due attention is paid to the relative position of landlords and tenants.

"3. Security of possession is most important to every occupier of land. Improvement in the condition of the soil is, to the farmer, what improved machinery is to the manufacturer; nor can there exist proper inducements to the necessary outlay, in either case, unless a fair chance is given of obtaining adequate remuneration. A farmer under any circumstances risks his outlay; and he has many dangers and difficulties to contend with unfelt and unknown to mercantile men; but uncertainty of tenure (an evil too often inflicted on the tenant by those whose interests are involved in his success) places him at once in circumstances infinitely disadvantageous, and will be sure to operate on every reasonable mind in the production of a parsimony incompatible with the best interests of the landlord, the labourer, and the country. On these grounds leases are desirable.

"4. If farms are taken on a yearly tenure the tenant should receive two years' notice to quit, that he may have proper time to seek another home; and care should be taken in the agreement that the landlord is not left with a starved farm, nor the occupant without a fair remuneration for his outlay. Matters should be fairly adjusted, too, between out-going and in-coming tenants.

"The following plan is considered likely to secure the interests of all parties concerned:—

"1. That the out-going tenant be paid for all work done on the land after his last harvest.

"2. That all fodder, straw, and manure, found on the farm at Michaelmas be taken by the in-coming tenant at its full value.

"3. That half the value of the manures applied the preceding year be paid to the out going tenant.

"4. That all buildings erected by the tenant, or purchased by him of his predecessor, be taken by his successor.

"Lastly. That the real value of all their items be settled by fair arbitration.

"5. It might prove advantageous to both parties if landlords were to pay the out-going tenants the full amount of the valuation, and take it from the in-coming tenants in yearly or half-yearly payments, so as to reimburse themselves, both principal and interest, by the expiration of the term specified in the lease or agreement. It often happens that the tenant (though an industrious and persevering man, possessing a good degree of practical knowledge), having to pay a large sum on entering a farm, is so straitened as to be unable to improve the estate; still he would be able to do so, and also to pay an increased amount annually for the benefit received, if assisted in his commencement. This plan would give accommodation to tenants, and prove a good investment for landlords; increasing the real value of their estates, while it improved their rent-roll.

"6. It is hoped that all parties concerned will discover the mutual advantages of judicious arrangements; and cordially co-operate to establish a sound system of 'Tenants' rights.' [Wise voluntary arrangements are better than Acts of Parliament; still some legislative interference seems required to meet cases where persons in the possession of farms are not protected by any agreement with their landlords relating to the treatment they are to receive on quitting, but are left to the 'Custom of the country.' A legal standard of appeal would be useful in such cases: now, the tenant must

take just what the landlord pleases to give him, or enter a contest in which he is unequally matched, and the very ground on which the battle must be fought is as unstable as a floating iceberg.

"Resolved,—'That the sentiments entertained by this Club on the subject of 'Tenants' rights' be forwarded to the London Farmers' Club in compliance with the request of that Club, and that the subject be resumed here at some future period, at the discretion of our President.'

"*Parsimonious Farming.*—It appears impossible to come to any decision on this important subject which will equally apply to all localities, or to farmers prosecuting their calling under widely differing circumstances. In order to fairly balance the advantages of high farming with the advantages of other systems, men must be supposed to possess fixity of tenure, or a certainty of remuneration for the improved state of cultivation to which the land is brought under their management. It is often said in the present day that a want of capital is the great hindrance to agricultural improvement, but where men possess fixity of tenure they find no more difficulty in obtaining capital than persons do engaged in trade or prosecuting the duties of a profession.

"In order to fairly test the comparative advantages of the systems, it is also necessary to suppose that labour in each case can be commanded at a moderate price, and manure obtained with equal facilities. Further, in making the comparison it must be remembered that all farmers are subjected to seasons in common with each other: that the household expenses, and the seed corn required, are about the same whether a man farms highly or not: that rents, tithes, parochial rates, and income tax fall equally on each; and that the prices realised for that portion of the produce taken to market are similar. There may be some difference of opinion amongst us as to the classification of farms under the three heads, but this is of no consequence to the discussion, because our remarks on the comparative advantages will be equally applicable, however we may, in our own ideas, classify the lands to which they apply.

"There is no question but high farming is most advantageous to the nation. We cannot move a step in improvement without extra labour: whether we purchase manure or make it on the farm by consuming green crops and artificial food, additional labour is required in proportion to the extent to which the system is carried; and carting, turning and spreading the manure increases labour; when it is buried in the soil it will produce weeds, and these must be uprooted, or a great portion of the benefit will be lost. Then, if all goes on well, the crops will be more abundant and will require more labour to harvest and store: there will be more thatching, more thrashing, and a larger quantity of produce to take to market, so that it is easy to perceive that in a thickly populated country like ours, the employment it furnishes over and above that furnished by other systems prove its advantages in a national point of view. We may also conclude that as the improvement of land may be carried on to a great extent if it is managed skilfully, and when it has been farmed well for many years it will produce amazing crops; if therefore, this system of high farming was generally adopted it would render this country entirely independent of other countries for its supply of food. The Members of this Club, however, do not for a moment flatter themselves that the farmers of England are so full of patriotism and benevolence, as to generally adopt the system of high farming, unless they can be satisfied it will prove productive of personal advantage. The probability of this is always required to propel the wheels of agricultural machinery in an onward movement.

"There are probably but few persons who farm parsimoniously or drivingly from choice; while many do so from necessity. The advantages peculiar to it are few and small. But little capital is required, which is an advantage, if this little will only answer all desirable ends, and as the expectations of such farmers can never run high, the appearances of their crops are seldom flattering, and are often little affected by blight or heavy rains: some mortifications are escaped. But these advantages are more than counterbalanced by the serious consequences attending the system. This driving is always in the wrong direction; the capabilities of the soil are gradually diminished; the capital employed is perpetually lessening, and the probability is that such a farmer must soon reap his last crop, which will little more than meet the demands of the landlord, who would not have let his farm to such a tenant, had not the law given him prior claim to all other creditors.

"There are also advantages and disadvantages peculiar to what is termed farming moderately. Here everything is carried on systematically and regularly. The crops are in rotation: the seasons for the several sorts of grain follow each other; the movements of the men are orderly and regular; and the cattle are never put out of their paces, nor subjected to the least possible inconvenience. The moderate farmer is generally quite satisfied with the knowledge he possesses: he toils not at science; he loses nothing in speculations or experiments; and his farm is a snug little settlement so long as prices answer his purpose. But if the value of corn is much depreciated such a farmer (from utter incapacity to increase his quantity under this system, and having scarcely anything but corn to sell) is placed in an awkward predicament: his prosperity is destroyed by the ruthless hand of changeful legislation: even a general adoption of the system of high farming would improve his ruin; and he is left like a duck-legged drummer boy, unable to keep up with his regiment, hobbling and grumbling in the rear.

"The man who farms highly also finds advantages and disadvantages attending his system. That the amount of produce will be much increased by good cultivation no one can doubt; and as many standing expenses are the same as under other systems, and the prices of manure and labour are in some measure regulated by the price of this produce, we conclude that the value of the increased produce will usually be more than sufficient to reimburse the farmer for his increased outlay. Still very much depends on the prices obtained for the increased produce, and no farmer is likely to keep on in his outlay to effect improvements, unless he finds the capital he has invested is returning interest, and he can hopefully anticipate that the permanent improvements will again put him in possession of the principal.

"In no country that we know of, much less in a country taxed as is England, can any system of farming produce food cheap enough to satisfy avaricious manufacturers on the one hand, or penniless idlers on the other; yet properly protected by the legislature; with fixity of tenure and at moderate rents; and smiled upon by Divine Providence, we believe the increased amount of produce obtained by men who farm highly, will enable them to sell at prices that could not be endured under any other system to which we have referred.

"Another advantage of high farming is that it perfects in every locality the productions of the country. A good cultivated farm, even in this bleak neighbourhood, will produce anything and everything that can be produced by field culture in England. A man's chances are thus multiplied; and the season must be peculiarly unfavourable if he has not a few fields which return him very considerably over the average value of crops.

"This system also gives ample scope to the mental energies of the farmer, and if mental exercise increases mental power: if 'activity is the soul of happiness;' this may be considered an advantage. There are, too, some disadvantages to which the man who farms in this way is sometimes subjected. If he happens to lose a crop the loss is not trifling: if seasons are precarious he is put to serious inconvenience by the disarrangement of his operations; and if there is a general depreciation in the value of agricultural produce his loss is immense.

"Considering impartially the advantages and disadvantages of the three systems, we give our verdict in favour of high farming, believing it to be the only system to which we can hopefully cling in the present day, and most likely to prove profitable for several years in succession, while it perpetually improves the land; and we regret exceedingly that the uncertainty of tenure to which some of us are subjected, together with the uncertain value of agricultural produce, arising from fickle and whimsical legislation, prevents its more general adoption."

Reviews.

Tales for Young People. By Agnes Loudon. Edited by Mrs. Loudon. London: Bowdery and Kerby.

A LITTLE work of the greater interest to many country readers as being from the pen of the only child of John Claudius Loudon. "The Lost Gloves" we had before seen in "Chambers's Journal;" all the rest were new to us. They are extremely creditable to the taste and judgment of the young authoress, and augur well for her success in the higher walks of literary composition.

Miscellaneous.

Drainage—Who is to do it?—The natural production of no land can be fairly ascertained until it has been thoroughly drained and its soil properly deepened, either by subsoil ploughing or trenching; the roots are impeded in the course required by nature, the plant chilled by stagnant water, and manure deprived of half its strength; that these processes are expensive is but too well known, but it is also well known that they will bring a certain and ample return for capital, if properly done; it becomes then a consideration, as a matter of agreement, by whom this is to be found, whether by the landlord or by the tenant; but if it is not found by one of them, the land cannot be farmed with the same profit it might otherwise. If undertaken by the tenant, and connected with other improvements, it must be to the interest of the landlord to afford him every facility and security in his power, by giving him leases, by consulting him as to the removal of superabundant hedgerow timber, and game, and by dispensing with all forms in his conditions which may diminish his profits and damp his energies, without being necessary as a security to the landlord; but if such concessions are granted on the one side, the tenant must also make some on the other. He must abandon his evil courses, and willingly adopt such changes as are proved to be right. He must know that to farm beneficially for himself and his landlord, he ought to have at his command a capital, at least from 10*l.* to 12*l.* per acre in the first instance. He should avail himself of all useful implements that are proved to work well, and to be economical, not with a view of diminishing his labour, but of employing it, and increasing it, for many other purposes, on his farm, which is now suffering for want of it. He should imitate foreigners in the economy of their green crops and manures, by folding, soiling in-doors, and carefully collecting and preserving all manures; by greatly increasing the present usual quantity of stock, and by employing Linseed and oil-cake, for the double purpose of fattening the stock, and at the same time of manuring the land. He may do well also to inquire into the method of box-feeding cattle, as recommended by Mr. Warnes to us last year, and which has been proved by many persons to be advantageous and economical.—*Report of the Stewpony Agricultural Association.*

Notices to Correspondents.

AGRICULTURAL SOCIETY.—*Constant Reader.*—The subscription is 1*l.* a year. Apply to the Secretary, 11, Hanover-square; he will obtain your election.

BRUISING MACHINE.—*R S.*—Apply to any of the great agricultural implement makers. Such machines are common. We have often described them, but cannot recommend makers. The lazy bed system of planting is to lay the sets on the surface of the bed, and then cover them with earth, opening deep trenches between the beds in order to obtain it.

CONTRACTORS TO DRAIN.—*J W L.*—We are unacquainted with the neighbourhood of Harrow, and under any circumstances must have declined to recommend tradesmen. The Smithfield Show takes place next week—on the 9th, 10th, and 11th of the month. A report shall appear next Saturday.

DRAINAGE.—*An Old Subscriber.*—Our advice would be to commence at the lowest end of the main dyke, and from there, parallel with it at the distance of 20 feet, dig a main drain, commencing with a depth of 2 feet, to permit a fall into the ditch, and thence run it nearly level till 3 feet 6 inches deep. From this, at intervals of 8 yards, we would cut parallel drains directly up the ascent, either 3 feet deep from the beginning and continuing so, or at the depth of the main drain, whatever that may be, and getting to a depth of 3 feet as soon as possible. You may consider this an extreme piece of advice, but we believe it is a sound one. Use a pipe tile, laying it carefully, then covering it with any vegetable rubbish, and lastly with the earth replaced in position and in firmness as nearly as it originally was.

GOLD OF PLEASURE.—*Rev W C Dickson.*—It is an absurdly grandiloquent name for a plant found as a weed among Flax. No doubt when grown by itself it yields a considerable quantity of seed which yields oil; but it is in every respect inferior to the Flax plant, which it is expected to supplant. You may crush the seed if you have any, and use it as you would use Linseed, mixed with other matter, Bean-meal for instance, and chaff, as food for cattle.

INFLUENZA.—*C Dugmore.*—It is necessary for you to describe the symptoms of the disease to which you give this name. You cannot ask us to give the dream as well as the interpretation. *W. C. S.*

LINSEED FOR PIGS.—*Stymar.*—Do not give it by itself. You may give it with Bean and Barley-meal, boiling it up and mixing with Swedish Turnips &c. It should be crushed.

LUCERNE.—*J B H.*—Use a framed line, marking 2 or 3 rows at at once, and drill them out with a hoe. If your land is in good order, the treading will do it good. So small an extent should be sown by hand.

MILK PANS.—*Subscriber.*—Do not use brass: the idea is absurd. If glass will not do, use earthenware. About the small farm and buildings, hereafter, if possible, next week.

POTATOES.—*J Dugmore.*—No doubt mineral manures are preferable to those which are putrescent. Wood ashes may therefore be used, but they do not serve the purpose of charcoal. Thanks for your information corroborative of what has been said on the policy of autumn planting.

REARING YOUNG PIGS.—*Archibald.*—Can any one give their experience? Something near the milk of which they have been deprived is what is wanted. Warm some cow's milk and give them it pure at first, then you may skim it, or dilute it with water, and add Linseed jelly, and by and bye oatmeal, &c.; but whatever you do, do not give "gin."

SCAB.—*R T G.*—You will find some suitable receipts in the following works, "Spooner's Treatise on the Sheep," and "The Sheep," by Youatt. An ointment in which Sulphur, Hellebore, and Oil of Tar exists will be found as safe and effectual a remedy as any. *W. C. S.*

STALL FEEDING.—*Monsoon.*—Next week.

TRAP-ROCK AS MANURE.—*J Jones.*—The soil over trap-rock is generally fertile, but we doubt if ever a rock of the kind was so rich in alkalies and other elements of fertility as to render it worth while to pound it up and distribute it as manure. We advise you to spend your money on guano, bone-dust, &c., and leave the pounded rock for the curious.

TURKEYS.—*E W Asks* for assistance. A number of turkeys are attacked with an inflammation in the head which is attended with swelling, red and hot. How are they to be treated?

WHEAT.—*M A.*—If it has been pickled with strong brine and dried with lime, it will not be safe to sow it after being kept a week. But you may try a few grains between two pieces of turf kept damp in a warm parlour.

"*" Communications reaching town after Wednesday cannot be answered the same week.

Markets.

POTATOES.—SOUTHWARK, WATERSIDE, Nov. 30.

Since our last the supply has been more liberal, and the demand is somewhat brisker. The weather has set in very cold, and should it continue, we may expect an advance in our present prices.

York Regents 130s to 160s	Do Kidneys, 100s to 130s
Do Shaws, 120s to 140s	Kent and Essex Regents, 140s to 180s
Lincolnshire Regents, 120s to 140s	Do. Shaws, 120s to 140s
Cambridgeshire Regents, 130sto 140s	Do Kidneys, 140s
Do. Shaws, 120s to 140s	French Whites, 100s to 120s

RICHARD HARRIS.

SMITHFIELD, MONDAY, Nov. 30.—Per Stone of 8 lbs.

Best Scots, Herefords, &c	4s	2s	0s	4s	Best Long-wools	4s	6 to 4 10
Best Short Horns	3	10	4	0	Ditto (shorn)	—	—
Second quality Beasts	3	0	3	8	Ewes and second quality	4	0 4 4
Calves	4	4	5	0	Ditto (shorn)	—	—
Best Downs & Half-breds	5	0	5	4	Lambs	—	—
Ditto (shorn)	—		—		Pigs	4	2 5 4

Although there is a considerable increase in the number of Beasts, the weather being favourable trade is quite as good; indeed, the best qualities meet with a quicker sale. The best Scots readily make 4s 4d, and in some instances nearly 4s 5d is obtained for the most selling Short-horns—but 4s is the more general price for this description. We have nearly 700 from Holland Germany, and Sweden—only a small proportion remain unsold. The supply of Sheep is not large—neither is the demand. Trade is slow at the above quotations. We have nearly 4000 from Holland and Germany. Trade is brisk for Calves—a choice one readily makes 5s. Pigs meet a readier sale.

Beasts, 4161; Sheep and Lambs, 25,160; Calves, 93; Pigs, 340.

FRIDAY, Dec. 4.

We have again a large supply of Beasts—but the demand being also extensive, Monday's prices are fully supported, and in some instances have been exceeded in the choicest qualities—a superior Scot is worth nearly 4s 6d. There are about 300 from Holland and Spain. Although we have very few Sheep on offer to-day—Friday's demand has become so very unimportant (which is usual at this time of year) that there are more than can be sold. Prices remain about the same as on Monday for all descriptions. Trade for Calves is hardly so good—prices range from 4s to 4s 10d. The demand for Pigs continues to be so good.

Beasts, 1963; Sheep and Lambs, 8760; Calves, 197; Pigs, 290.

41, West Smithfield.

COVENT GARDEN, Dec. 5.—Fruit and Vegetables are abundant; but trade is far from being brisk. Pine-apples are scarcer, and likely to become dearer, and Grapes, both English and Foreign, are scarce. Apples and Pears have not altered in price since last week; the latter are rather more plentiful. Oranges are excellent in quality and brought in greater abundance. Spanish Melons may be obtained, and Nuts are sufficient for the demand. Walnuts are scarcer, and there is little demand for Filberts. Lemons are rather more plentiful. Of Vegetables, Cabbages, Cauliflowers, &c., are good and plentiful. Carrots and Turnips have altered but little in price. Beans remain nearly the same as last week. Celery is good in quality. Good Potatoes are scarce. Lettuces and other Saladings are plentiful. Horseradish still continues to be imported. Cut Flowers chiefly consist of Heaths, Jasmines, Camellias, Pelargoniums, Gardenias, Cacti, Neapolitan Violets, Lucuim gratissima, Bignonia radicans, Roman Narcissus, Allamanda cathartica, Fuchsias, Azaleas, and Roses.

FRUITS.

Pine Apple, per lb., 4s to 7s	Lemons per 100, 4s to 14s
Grapes, Hothouse, per lb., 2s to 5s	Almonds, per peck, 6s
— Portugal, per lb., 1s to 2s	Sweet Almonds, per lbs., 2s to 3s
Apples, Dess., per bush., 3s to 4s	Filberts, English, p. 100 lbs., 35s to 50s
— Kitchen, 4s to 6s	Nuts, Cob, per 100 lbs., 10s to 12s
Pears, per hf-sieve, 2s to 12s	— Barcelona, 20s
Oranges, per dozen, 1s to 2s	— Brazil, 1s, to 16s
— per 100, 5s to 16s	— Spanish, 14s
Barbarias, per hf-sv., 2s to 3s	Walnuts, per bushel, 16s to 24s
Lemons, per dozen, 1s to 2s	Chesnuts, per peck, 1s to 2s

VEGETABLES.

Cabbages, per doz., 6d to 1s	Garlic, per lb., 6d to 8d
— red, per doz., 1s to 4s	Spinach, per sieve, 1s to 1s 6d
Broccoli, per doz., 6s to 12s	Asparagus, per 100, 4s to 6s
Cauliflowers, per doz. 1s to 6s	Sea Kale per punnet, 2s 6d to 3s
Artichokes, per doz., 3s to 4s	Salsify, p. bundle, 1s to 1s 6d
— Jerusalem, p. hf sieve, 1s to 2s	Scorzonera, 1s to 1s 6d
French Beans, per hf-sv., 1s 6d to 3s	Brussels Sprouts, per hf-sv., 1s6d to
Peascod, per hf sieve, 6d to 1s	Lettuce, Cos, per score, 6d to 1s
Potatoes, new sorts, 6d to 8d	Tomatoes, per hf. sv., 2s to 4s
— ash., 4s to 5s	Endive, per score, 6d to 1s
— bushel, 3s to 5s	Radishes, per 12 bunches 1s to 1s6d
— Kidney, per bushel, 4s to 5s	Mushrooms, per pottle, 3d to 1s 6d
Turnips, per doz., 1s to 2s	Small Salads, per punnet, 2d to 3d
Red Beet, per doz., 1s to 1s 6d	Fennel, per bunch, 2d to 3d
Horse Radish, per bundle, 4s to 6s	Savory, per bunch, 3d to 4d
Cucumbers, each 6d to 1s 6d	Thyme, per bunch 3d
Leeks, per doz., 1s to 2s	Watercress, p 12 bun. 6d to 8d
Celery, per bundle, 1s to 1s 6d	Parsley, per bunch, 1d to 2d
Carrots, per doz., 3s to 6s	— Roots, per bundle, 1s to 1s 6d
Onions, per bushel, 2s to 3s	Tarragon, per bunch, 3d
— Spanish, per doz., 1s 6d to 3s	Mint green, per bunch, 6d to 8d
Shallots, per lb., 6d to 10d	Marjoram, per bunch, 3d to 4d

HAY —Per Load of 36 Trusses.

SMITHFIELD, Dec. 3.

Prime Meadow Hay	70s to 74s	New Hay	— s to — s	Sweet Ditto	— s to — s
Infr. New & Rowen	50 —	Clover	80 —	Straw	26 30s

JOHN COVEY & SON, Salesman.

WHITECHAPEL, Dec. 3

Fine old Hay	70 to 78s	Old Clover	90s to 100s	Straw	28s to 30s
Inferior Hay	— 64	Inferior do	80		
New Hay	—	New Clover	—		

CUMBERLAND MARKET, Dec. 3.

Prime Meadow Hay	70s to 80s	Old Clover	90s to 100s		
Inferior do	55 60	Inferior do	75 84	Straw	32s to 36s
New Hay	— —	New Clover	—		

JESSE & BARKER, Hay Salesman.

HOPS, FRIDAY, Dec 4

The Hop Market continues brisk at its previous rates. Fine Hops wish to sell.

LAFFERSON & SON, Hop Factors.

MARK LANE, MONDAY Nov 30.

There was a moderate supply of English Wheat by land carriage samples this morning, which were cleared off at prices rather under those of this day se'nnight; free foreign was in very limited demand bonded met a slight inquiry for export at 58s to 59s per qr.—Fine samples of Barley sold readily, secondary qualities were difficult to realise Beans, both old and new, in buyers request at late rates.—We reduce our quotations for White Peas 2s per qr., which, with the state of the weather, induced rather more inquiry Hog Peas are 1s to 2s per qr. dearer Oats are firm, with a more ready sale The top price of flour has been reduced 2s per sack Maize for arrival in good tax request, and held at advanced prices.

BRITISH PER IMPERIAL QUARTER. s. d. s. d.

Wheat, Essex, Kent, and Suffolk		White	60 72	Red	56 58
—— Norfolk, Lincolnshire, and Yorkshire			58 70	White	54 64
Barley, Malting, new and fine	32s to 34s	Chevalier	32 36	Grinding	28 30
Oats, Lincolnshire and Yorkshire		Polands	24 28	Feed	22 26
—— Northumberland and Scotch		Feed	22 26		22 24
—— Irish		Feed	21 26		18 22
Malt, pale, ship					
—— Hertford and Essex					
Rye			42 44		
Beans, Mazagan, old and new	36 to 41	Tick	34 36	Harrow	38 42
—— Pigeon, ditto	44 to 48	Winds	36 38	Longpod	38 42
Peas, White	48 to 52	Maple	42 48	Grey	38 42

ARRIVALS IN THE RIVER LAST WEEK.

From	Wht.	Barl.	Malt.	Oats.	Rye	Bns	Peas
English 5013 Sks. — Bgs.	10955	4316	2135	4728	58	1181	370
Irish 900 " — "	—	700	17	10158			
Foreign — " 10219 "	3777	3712	—	9503	15	617	874

FRIDAY, Dec. 4.

The arrivals of Wheat, Barley, and Oats, during the week have been large. We observe no alteration in the value of English or free Foreign Wheat, and the business doing is limited, with the exception of an increased demand for low qualities of the latter for Ireland. Bonded is still inquired after for export to France.—Having a large arrival of foreign Barley, secondary qualities are difficult to quit Beans are unaltered. White Peas hold very firmly, and the turn dearer. —Oats are dull at the former prices.—Maize continues in great request at 54s to 56s per qr. for Danube and Berala afloat. Flour of fine quality neglected; but inferior sorts are being taken for Ireland.

ARRIVALS THIS WEEK.

	Wheat	Barley	Oats	Flour
English	12610	14420	5240	5740 Sks
Irish	—	900	—	
Foreign	8980	15470	24890	5400 Brls

IMPERIAL AVERAGES.

		Wheat	Barley.	Oats	Rye.	Beans.	Peas
Oct.	24 per Quarter	60s 10d	40s 2d	26s 6d	39s 6d	42s 2d	42s 10d
—	31 "	61 9	41 8	27 0	41 1	43 —	43 8
Nov.	7 "	62 3	44 3	27 3	41 5	43 6	43 11
—	14 "	61 6	44 6	26 9	42 4	43 10	44 10
—	21 "	59 8	42 11	25 10	42 7	43 4	43 9
—	28 "	59 0	42 9	25 11	41 9	43 10	42 8
6 weeks' Aggres. Aver.		60 10	43 0	26 7	41 9	43 3	43 7
Duties on Foreign Grain		4 —	2 0	1 6	0 0	0 0	0 0

Fluctuations in last six week's Corn Averages.

Prices.	Oct. 24	Oct. 31	Nov. 7	Nov 14.	Nov. 21.	Nov. 28
62s 3d	..	..	..	..	..	..
61 9	..	..	..	..	..	..
61 6	..	..	..	..	..	..
60 10	..	..	..	..	..	..
59 8	..	..	..	..	..	..
59 0	..	..	..	..	..	..

SEEDS, Nov. 30.

Canary	per qr 60s to 64s	Linseed Cakes Foreign, p ton	9l to 11
Caraway	per cwt 40 44	Mustard, White, per bush	7s 8s
Clover, Red, English	— —	— Sowerbne "	— —
— Foreign	— —	— Brown "	9 11
— White, English	— —	Rapeseed, English per Last	21l 24l
— Foreign	— —	Rape Cakes per 1000	— 6l
Coriander	10 16	Saintfoin	— —
Hempseed per qr	38 36	Tares, Eng., winter, p bush.	3s 3s 6d
Linseed per qr	50 54	— Foreign	4s6d 5s
— Baltic	45 46	Trefoil per wt.	16 19
— Cakes, Eng. per 1000	4l 18 5	Turnip (too variable for quotation)	

KINGSFORD AND IAY

Sales by Auction.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS have received instructions to submit to Public Competition by Auction on the Premises, Paradise Nursery, Hornsey-road, on Monday, Dec. 14, 1846, and following day, at 11 o'clock (by order of Mr. FARLIN, in consequence of the land being required for other purposes), the whole of the valuable NURSERY STOCK, consisting of a considerable quantity of very fine Evergreens, Dwarf Trained Peach, Nectarine, and Plum; also about 500 Camellias, from 2 to 5 feet, beautifully furnished with bloom buds, Azalea Indica, and Erica, of sorts, and other Greenhouse Plants May be viewed prior to the Sale. Catalogues (6d. each, returnable to purchasers) may be had on the Premises; of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition by Auction on the Premises, Euchol Nursery, Hampstead-road, on Monday, Dec. 7th, 1846, at 12 o'clock (by order of the Proprietor, in consequence of the ground being let for building, the whole of the valuable NURSERY STOCK, consisting of fine Evergreens and Shrubs, Fruit and Forest Trees Also, a select assortment of Standard Roses.—May be viewed prior to the Sale Catalogues may be had on the premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone

TO NOBLEMEN, GENTLEMEN, FLORISTS, & OTHERS.

MESSRS PROTHEROE AND MORRIS have received instructions to sell by Public Auction, at the Mart, Bartholomew-lane, on Wednesday the 9th, and Thursday, the 10th December, at 1 o'clock each day precisely, a Collection of first-rate DUTCH FLOWER ROOTS, all warranted true to name, and in the best condition, consisting of Hyacinths, Narcissus, Gladiolus, Anemones, Ranunculus, Crocus, Iris Tulips, Campernel Jonquils, Hyacinthus botrioides, &c. - May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

TO NOBLEMEN, GENTLEMEN, FLORISTS, & OTHERS

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition, at the Auction Mart, Bartholomew lane, on Friday, December 11, 1846, at 12 o'clock, a unique Collection of BULBS, comprising very fine double and single Hyacinths, Tulips, Narcissus, Jonquils, Iris, Crocus, Gladiolus, &c., consigned from M. LOUIS VAN HOUTTE, Nurseryman and Florist to the King of the Belgians May be viewed the morning of Sale, and Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

NORFOLK.—FREEHOLD AND TITHE-FREE ESTATES, ELIGIBLE INVESTMENTS in as fine Land as any in Norfolk, in the immediate vicinity of the Attleborough Station on the Norfolk Railway.

MR BUTCHER will sell by Auction, at the Royal Hotel, Norwich, on Friday, December 11, at Twelve o'Clock, either as an entirety or in Three Lots, unless previously disposed of by Private Contract, of which due notice will be given, that desirable and well-known estate called the HALL FARM, at old Buckenham, Norfolk, celebrated as being one of the most extraordinary producing farms in the county, the Arable Land yielding on an average of years 40 to 50 bushels of Wheat, and 50 to 60 bushels of Barley per acre, remarkable for the growth of Turnips and Root of excellent quality, and the pastures (upwards of 60 acres) producing feed of the most fattening description It comprises an excellent farm-house called the Hall Double Cottage, three Barns, Riding and Cart Horse, Stables, Cowhouse, Piggeries, Bullock and Waggon Lodges, Granary, and 290 Acres, or thereabouts, of Arable, rich old Pasture and Plantation, lying in a ring fence now let on lease for eight years from Michaelmas last, in three occupations, at rentals amounting to 710l per annum. The outgoings in land-tax, modus in lieu of tithes, &c., amount to about 30l. per annum.

Should the Estate not be disposed of as a whole, it will then be offered in the following lots —

Lot 1 THE HALL, a convenient and comfortable Residence, pleasantly situated, with a southern aspect, in a beautiful well timbered lawn; comprising an entrance hall, three excellent sitting-rooms, housekeeper's room, several good bed and dressing-rooms, kitchen and requisite offices double cottage, barn, riding and cart house stables, cowhouse, bullock and cart lodges, excellent granary, and 12a. 3r. 19p. of arable, pasture, and plantation all lying in a ring fence around the premises, and now in the occupation of Mr Samuel Legood, for a term of eight years from Michaelmas, 1846, at the rent of 39l. per annum. The buildings are in good repair.

Lot 2. A very desirable compact, small FARM, of eight inclosures of arable and pasture land with a barn, enclosed yard, and lodges for cattle lying in a ring fence, near Old Buckenham Green, containing 60a. 1r. 35p. This lot is in the occupation of Messrs. Philip and John Erickson, under a lease for eight years from Michaelmas last, at the rent of 168l per annum.

Lot 3.—Another desirable occupation adjoining lots 1 and 2, comprehending a good barn, extensive sheds for cattle, and ten inclosures of very fine arable and pasture land, containing 71a. 0r. 11p This lot is in the occupation of Mr John Barton, under a lease for eight years from Michaelmas last, at the rent of 177l 10s per annum.

Old Buckenham is situated 16 miles from Norwich, 95 miles from London, and three miles from the market town of Attleborough, one of the principal stations on the Norfolk Railway The poor-rates are moderate.—Particulars and conditions of sale, with a lithographic plan of the estate, may be had on application to Messrs. WHITE and BORRETT, Solicitors, 35, Lincoln's-inn-fields; Mr. COLLIER, Auctioneer, Moorgate-street, London; Mr EDWARD PREESTONE, Solicitor, Little Orford-street; or Mr. BUTCHER, Auctioneer, Norwich. Mr. LEGOOD, the tenant of the Hall Farm, will show the several lots.

☞ NOTE.—*The above Rents are all guaranteed, and if no larger Price is obtained, the Estate will be Sold so as to pay a clear 4 per cent.*

TO BE LET, by Tender or Lease, BAY TREE FARM, in the parishes of ALLHALLOWS and STOKE, in the hundred of Hoo, will be in the occupation of the Executors of the late Mr. Knight until Michaelmas, 1847, at which time possession may be obtained.

The farm consists of 111 acres of very rich Arable and Pasture land, in a high state of cultivation, together with a comfortable Homestead and suitable buildings thereon, which will undergo a course of repair previous to re occupation.

The rivers Thames and Medway are contiguous to, and the towns of Rochester and Gravesend are in the vicinity of the farm. All tenders must be sealed, endorsed with the word "Tender" on the cover, prepaid, addressed and forwarded to B. D. DUPPA, Esq., Hollingbourne House, near Maidstone, on or before the 18th day of December next.

The Bailiff on the estate will show the land.

TO BE LET, at CHRISTMAS, in a Western County, adjoining Wales, a RESIDENCE suitable for a gentleman's family, with about 270 acres of Land, including 200 acres of Pasture, a portion of which can be irrigated when required. The house can be divided for the accommodation of a tenant not requiring a mansion. Also a small Dairy and Grazing Farm of 130 acres, 30 of which are arable. The buildings are very complete, and the house, containing two parlours, water-closet, &c., is newly erected. For further particulars, apply to Messrs DANIEL SMITH and SON, Waterloo-place, London.

WOODEN HOUSE FOR SALE.

TO BE SOLD, a WOODEN HOUSE, containing Entrance-hall, Sitting-room 16 feet by 20 feet, 5 Bedrooms, 2 Dressing-rooms, Water-closet, Kitchen, Pantry, Shoe-room, Larder, and Cellar. The House is nearly new, and has a most picturesque appearance.

Price, including 2 large Water Tanks, Fire Grates, Bells, &c., 200l.

Cost of taking down and re-erecting, including new painting, papering, &c., about 100l. more. Address to C. R. C., Post-office, Atherstone.

AGRICULTURAL MACHINERY NOT PREJUDICIAL TO THE INTEREST OF THE LABOURER.

This PROBLEM is clearly demonstrated in the FARMERS' MAGAZINE for the 1st of December. Office, 24, Norfolk-street, Strand. May be had of all Booksellers. Price 2s.

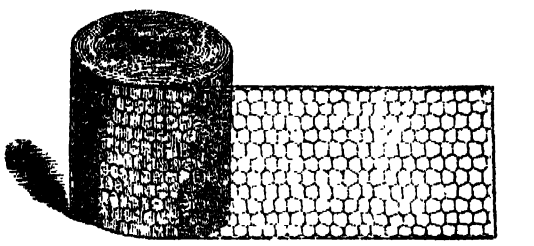
POTATO EPIDEMIC.

To AGRICULTURISTS, GARDENERS, & OTHERS.

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STRONG HARE AND RABBIT PROOF WIRE NETTING,



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Prices, in Webs of any length 18 inches high, 9d. per yard; 24 inches, 1s., and 6 inches 1s. 3d. per yard; and delivered free at any of the principal ports of the three Kingdoms for One Halfpenny per yard.

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STRONG STRAINED WIRE FENCES, with Wrought iron Uprights, for Red Roe and Fallow Deer, at from 2s. 6d. to 3s. 6d per yard according to height and strength.

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These Hurdles are made with prongs to fix them into the ground, and can be removed or fitted up with the greatest facility by any labourer.

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The Barley stood the extreme drought and heat of 1844 Summer, and the severe Winter of 1844 and 1845.

Mr. Churchill, of the Plough Hotel, Cheltenham, planted a few acres on the 14th of February 1846, after harvest from partly broadcast, drilled, and dibbled, allowing 3 pecks to the acre. It was weighed on the 8th of July, the produce being 30 bushels and 2 pecks to the acre. Weight per bushel, 58 lbs. A portion of the same land he sowed with White Stone Turnips on the 23d of July, and on the 3d of September the Turnips were large and fit for table.

His Royal Highness Prince Albert having received a portion of this new Barley, has graciously condescended to express to Mr. Churchill his approbation, and intending to plant the same on his farm.

Agriculturists are of opinion if sown in autumn, from its being early to harvest, a crop of Swedes may be got from the same land.

The Black-skinned Barley produces a fine white flour, and malts well. The Straw is strong and fine, and fit for plait

Any Agriculturist wishing to try this invaluable Black Barley, may be supplied with any quantity by applying to Mr. John Churchill, Plough Hotel, Cheltenham (for Cash or Post-office order); the calculation being as under:—

		£.	s.	d.
Quarter of an acre	17 lbs. in a bag.	1	1	0
Three-quarters ditto	1 bushel	3	4	0
One and a half acre	2 bushels			
Three acres	4 do.			
Six ditto	8 do.			
Twelve ditto	16 do.			

A sample tin, containing sufficient for two poles, will be forwarded on receipt of a Post-office order for 5s.

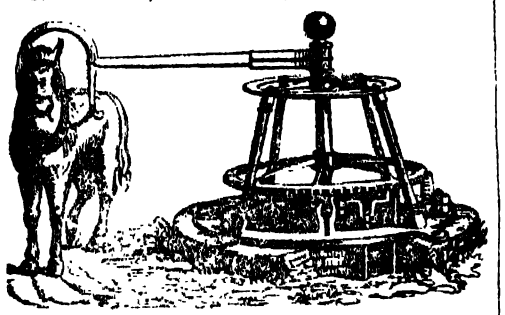
CAUTION.

CHANNEL ISLANDS CATTLE. — Information having been received here that numbers of French Cattle, chiefly the small Brittany breed, have been sold lately in England, as Channel Islands, purchasers are earnestly requested either to write to friends, or to the officers of the Agricultural Committee, who will direct them to respectable dealers. Obtaining animals of our marked superior breed is of equal interest to the buyer as to the seller.

N. LE BEIR, } Honorary Secretaries,
J. S. LAINE, } R. A. S. G.

Guernsey, October 28, 1846.

WATER RAISED FROM ANY DEPTH TO ANY HEIGHT FOR THE SUPPLY OF MANSIONS, PUBLIC ESTABLISHMENTS, FARM-YARDS, &c.



R. AND S. KNIGHT, 5, Great Suffolk-street, Southwark, beg to call the attention of the Nobility, Gentry, Agriculturists, and all who are desirous of having a supply of Water on their own premises, either for domestic or ornamental purposes, to their HYDRAULIC MACHINES for raising water from deep wells, ponds, rivers, &c., by manual or horse-labour, or where a fall of water can be obtained by self-acting water wheels or Hydraulic Rams.

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PROTOXIDE PAINT is sold ground in oil, and compared with white-lead its property of concealing is as 75 to 50, so that one hundred weight is equal to one and half of lead. It works well under the brush, and forms with oil an unctuous and cohesive mixture. If blended with other paints it has a softer tone than white-lead. For houses painted during occupation it is most preferable, being perfectly innocuous. Manufactured by CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

BILIOUS AND STOMACH COMPLAINTS CURED BY HOLLOWAY'S PILLS.—Perhaps half the human race suffer from disorders of the liver, yet few are aware that they labour under bilious or liver complaints, consequently often take medicine that is injurious, and so go on until past all cure. From great experience it is known that no remedy was ever found to act so promptly upon the liver and stomach as Holloway's celebrated Pills, as by their means even persons of shattered constitution are soon restored to perfect health. Delicate females, either at the turn of life or when approaching womanhood, may derive from their use the required benefit—the liver at such periods being at fault.—Sold by all Druggists, and at Prof. Holloway's Establishment, 244, Strand, London.

Printed by WILLIAM BRADBURY, of No. 6, York-place, Stoke Newington, and FREDERICK MULLETT EVANS, of No. 7, Church-row, Stoke Newington, both in the county of Middlesex, Printers, at their office in Lombard-street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles-street, in the parish of St. Paul's, Covent Garden, in the said county, where all Advertisements and Communications are to be addressed to the Editor.—SATURDAY, DECEMBER 5, 1846.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 50—1846.] SATURDAY, DECEMBER 12. [Price 6*d*.

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NEW VICTORIA RASPBERRY.

GEORGE CORNWELL, Market-Gardener, Barnet, respectfully begs to call the attention of Noblemen, Gentlemen, and Gardeners, to his new Victoria Raspberry, unequalled in the size of its fruit, brightness of colour, and richness of flavour; is an abundant bearer, and grows 10 feet high. Canes to be had at E. Charlwood's, Covent-garden; Messrs. W. and I. Noble, Fleet-street; also of George Cornwell, opposite the Red Lion, Barnet, and all the principal Seedsmen in London, at 3*l*. per 100, or 3*s*. per dozen.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s*. per dozen.—The above-named Bulb, famous for its beauty and the fragrance of its blossom, has been just received from Italy, and may be obtained at A. Conbett's Italian and Foreign Warehouse, 18, Pall Mall. A choice collection of Orange Lemon, Citron, and Shaddock Trees; Azorian, Catalonian, and Arabian Jasmines expected in January next.

PEAR AND MUSCLE PLUM-TREE SEEDLINGS.—Wanted 40,000 of the former, and 10,000 of the latter, equal proportions of one and two-year old plants, desired to be bargained for immediately, and to be delivered well packed for an Atlantic voyage next February or March, as the weather may permit.—For particulars apply, post paid, stating price and quality of the plants, to Messrs. Willmer and Smith, Liverpool.

UNDER THE PATRONAGE OF HER MAJESTY.

WAITE'S QUEEN OF DWARFS PEA.—A splendid new variety growing only one foot high, producing a larger pod than any of the same habit; the seed is quite distinct from all others, and larger than any Dwarf Pea in cultivation; it has been grown at the Royal Gardens at Frogmore, and approved of as a new variety, and also at Her Majesty's table for its superior flavour .. Per quart 3*s*. 6*d*.
NEW EARLY WONDER PEA .. .. " 2 6
WAITE'S NEGRO MAJOR, (the best French Bean grown, see "Gardeners' Chronicle," and "Land-Stewards' Journal," the numerous Prizes taken), per quart 2 6
4, Eyre-street Hill, Hatton-garden.

HYACINTHS.

H. HUNT'S IMPROVED REGISTERED HYACINTH POTS AND SUPPORTS, are far more conducive to the well-being of the Bulb, more convenient, and much more elegant than glasses. See *Gardeners' Chronicle*, Nov 30; "Paxton's Magazine of Botany," for Feb.; "Gardeners' Gazette;" "The Art-Union," for Dec., &c. From 1*s*. 6*d*. each, of most Seedsmen and Florists, and at H. Hunt's, Wholesale Garden Ware and China and Glass Depôt, 29, Queen's-row, Pimlico.

PROLIFIC PEA.

JOHN CLARKE, of Long Sutton, has about 20 qrs. of his Prolific Pea to dispose of. Price 20*s*. per bushel. This Pea has been adapted to field culture by Mr. C. from the strong recommendation of a practical amateur gardener. It is a white Pea of dwarf variety, but now from culture growing from 3 to 3½ feet high, and exceedingly productive.—Orders addressed as above, will be carefully attended to.

FOREST TREES.
VICTORIA AND ALBERT NURSERIES, CORK.

J. AND H. HAYCROFT beg to inform Gentlemen intending to plant, that they have this season a large stock of Seedling and Transplanted FOREST TREES, which they can offer on very moderate terms. As a considerable reduction will be made on large quantities, it is respectfully requested that the sizes and number required be stated.
N.B. All packages DELIVERED FREE by steam packets to London, Plymouth, Southampton, Bristol, and Liverpool, and by sailing vessels to nearly every port in South Wales.
Roots of Tigridia conchiflora 25*s*. per 100; Ceanothus azureus, 2 feet, in pots, 12*s*. per dozen.
The usual discount to the Trade.

MESSRS. J. & H. BROWN inform the Nobility and Gentry they are now supplying the following desirable Hardy and other plants:—

	s.	*d*.
Andromeda floribunda, per dozen	10	0
6 ditto, one of a sort, for	7	0
25 Azaleas, new hardy Ghent varieties, one of a sort by name	18	0
25 ditto ditto, American ditto	15	0
25 Hardy American Plants, one of a sort by name	10	6
12 Rhododendrons, including Scarlet, White, and Rose, hardy varieties	12	0
12 Berberis, one of a sort by name	9	0
6 Fine Hardy Magnolias, one of a sort	10	0
100 Dwarf Roses, on their own roots, two of a sort by name	30	0
50 ditto ditto	18	0
Tea-scented Roses, one of a sort, per dozen ..	2	0
Rose Harrisonii, and William's Double Yellow, each	2	6
Rose Cloth of Gold, and New Double Persian Yellow, each	3	6
Standard and Half-standard Roses, per doz 15*s*. to	18	0
Camellias and Azaleas, fine blooming plants, per dozen	30	0

Albion Nursery, Stoke Newington, London, 12th Dec.

BOX HEDGING.—A Quantity is required, apply by letter, stating price and quality, to Mr. D. A Ramsay, Nurseryman and Landscape Gardener, the Arboretum, Queen's Elms, Fulham-road, Brompton.

FIG PLANTS (not potted)—A Quantity (from the Country) has been received for Sale at reduced prices.—For further particulars, apply to Mr. D. A. Ramsay, Nurseryman and Landscape Gardener, Queen's Elms, Fulham-road, Brompton.

EVERGREENS.—The unrivalled collection of Ornamental Trees, Roses, &c., now selling 25 per cent. below usual prices. David Allan Ramsay, Nurseryman and Landscape Gardener, takes the liberty of reminding noblemen, gentlemen, and others, of the rare opportunity offered to purchasers at the Arboretum, Queen's Elms, Fulham-road, Brompton. Plans and Estimates submitted for the carrying out all kinds of Ornamental ground-work and Planting in any part of the country.

PEAR TREES.

RENE LANGELIER, of the Clarendon Nursery, St Helier, Jersey, respectfully announces that he has on Sale upwards of 30,000 fine PEAR TREES from his unrivalled collection of upwards of 1200 varieties, of which a Catalogue may be had on application, post paid, and a penny stamp inclosed, among which will be found several new ones, in particular his new Beurre, which proves again this year to be one of the best fruit known; also one called Grosse Calebash, measuring from 8 to 8½ inches, weighing from 20 to 24 ounces; a perfectly melting fruit, ripens in November, quite different from Calebash Rose, both in shape, size, and flavour.
All the sorts insured to be true to name, and none sent out by R. L. unless proved by him, by application, as to the time of maturity, and description of fruit,—as sufficient. Having devoted his particular attention to the above culture, he flatters himself he has the most select collection in England or France.
Price. Langelier's Beurré, from 3*s*. 6*d*. to 5*s*. each tree; Grosse Calebash, 5*s*., fine trees. Those who do not possess these varieties should not be without them.
A Descriptive Catalogue of Pears is in progress, and will much interest Pear Growers, and proper pruning will be treated according to the plan they are grown in his garden, which is different from all other pruning.
All letters prepaid, and remittance or reference from an known correspondents.

NEW WEEPING and other ORNAMENTAL TREES for Lawns, &c.

	s.	*d*.
American Weeping Willow (Salix americana pendula) ..	3	6
Weeping Almond (Amygdalus communis pendula) ..	3	6
New Weeping Ash (Fraxinus lentiscifolia pendula) ..	2	6
Weeping Mountain Ash	5	0
Weeping Beech	3	6
" Milton variety	3	6
New Weeping Birch (Betula nigra pendula)	5	0
New Weeping Elm (Ulmus glabra pendula)	5	0
Weeping Sophora (Sophora japonica pendula)	5	0
Weeping Lime (Tilia alba pendula)	2	6
Weeping Aspen Poplar (Populus tremula pendula) ..	3	6

The above are all grafted on straight stems, 7 to 8 feet in height. The American Weeping Willow is one of the most graceful and beautiful trees known; it is never injured by spring frosts. The Elm is also a most graceful tree, very pendulous, with rather small shining leaves.

	s.	*d*.		*s*.	*d*.
Amelanchier florida ..	3	6*d*.	Pyrus grandiflora ..	3	0
" ovalis ..	3	0	" floribunda ..	3	0
" parvifolia ..	3	0	Cotoneaster nummularia	2	6
" sanguinea ..	3	0	" rotundifolia	2	6
" tomentosa ..	3	0			

The above are grafted on straight stems, 5 to 6 feet in height; they all form small trees, of much beauty, flowering from March till May.
New Double Chinese Crab (Pyrus spectabilis Riversii), 5*s*.—a variety with larger and deeper coloured flowers than the original; standards, 5 feet.

	s.	*d*.		*s*.	*d*.
Broom, cream coloured .	3	6	Cytisus elongatus ..	2	6
" yellow	3	6	" purpureus ..	2	6
" white Portugal ..	3	6	" " flore albo	2	6
" pink Portugal ..	3	6	" " elongatus (new)	5	0
" double flowering (*C. tinctoria plena*) ..	3	6	" sessilifolius ..	2	6
Genista purgans	2	6	" supinus	2	6
" anxantica ..	2	6	" Weldenii	3	6

The above Brooms and Cytisus are all grafted on straight stems of the Laburnum, 5 to 6 feet in height.
Red Horse Chestnut (*Æsculus rubicunda*), fine plants, 5 to 6 feet, for avenues, 5*l*. per 100.
THOMAS RIVERS begs to offer the above trees, all of which are well adapted for Lawns or Pleasure-grounds.
Sawbridgeworth, Dec. 12.

POTATO SEED.—The Produce of Potatoes (from the Azores) grown last season, perfectly free from disease, by Mr. Hayward, Lymington, Hants. Mr. H. has a small quantity of this Valuable Seed which he is anxious should be distributed as widely as possible. He will forward a packet to any address on receipt of 1*s*. postage stamps.

LARCH PLANTS.—Wanted immediately, One Hundred Thousand Strong Healthy LARCH PLANTS, about 18 inches high. Quality and Lowest Price to be stated to J. Holman, 3, Devonshire-place, Tonbridge Wells.

CATTLE SHOW.

J. G. WAITE, in returning thanks to his country Friends for the very liberal support he has already received this season, begs to state that he has neither spared time nor expense in making his STOCK & SEEDS equal, if not superior, to any house in the kingdom; of which, notwithstanding the scarcity of some, he has an abundant supply of every article in Agricultural, Horticultural and Floricultural produce worthy of notice. And also begs to intimate to those who intend to honour him with their commands, that they may rely upon having their orders despatched without delay.
Catalogues of prices (on terms more liberal than any other house in the Trade) may be had on application at 4, Eyre-street Hill, Hatton Garden, London.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250, Oxford-street, near Hyde-park.

NOW READY FOR EARLY FORCING.

YOUELL'S TOBOLSK RHUBARB (the earliest known), producing fine stalks of a bright transparent pink. Roots planted in a cellar or dark closet now, will be fit for cutting in three weeks. Extra strong roots, 9*s*. to 12*s*. per dozen; smaller, 6*s*. per dozen. MYATT'S VICTORIA RHUBARB, 9*s*. to 12*s*. per dozen. STRONG GIANT-ASPARAGUS, 2*s*. 6*d*. per 100, and SEAKALE, 2*s*. per dozen.

The TRUE FASTOLFF RASPBERRY, unequalled for its size and flavour, and originally sent out by Youell and Co., can be supplied by them in large or small quantities, of the same stock they had the honour of furnishing the Royal Gardens at Windsor, and most of the nobility; as well as two awards by the London Horticultural Society. They can also supply fine trained Peaches, Nectarines, Apricots, Plums, Cherries, Pears, and Apples of the most esteemed kinds, warranted true to name.

STRAWBERRIES—Dickson's Royal Pine 15*s*. per 100, Princess Alice Maude 3*s*. 6*d*. per 100, British Queen 3*s*. 6*d*. per 100.
FINE STANDARD ROSES, 18*s*. to 24*s*. per dozen.
FUCHSIA CORALLINA, 5*s*. per plant, post free.
ERICAS, fine sorts, by name, 6*s*. per dozen.
LILY OF THE VALLEY, 5*s*. per 100, very strong, for blooming next spring
FINEST VERBENA SEED from their extensive collection, 2*s* 6*d* per 100 seeds.
FUCHSIA Ditto, Ditto, 2*s*. 6*d*. per 100 seeds.
For the particulars of their extensive collection of Carnations, Picotees and Pinks, Camellias, new seedling Cinerarias, Tulips, Hyacinths, Cedrus Deodara, Araucaria imbricata, Geraniums, Fuchsias, Pansies, &c., they beg to refer to their Advertisement of the 14th Nov., as well as to that of the 17th of October.
TRUE ASH-LEAVED KIDNEY POTATOES, 2*s*. 6*d*. per peck.
SHILLING'S NEW EARLY POTATOES, 3*s*. per peck
EARLY COCKNEY POTATOES, 3*s*. per peck.
Warranted free from disease

QUICK, OR TRANSPLANTED WHITETHORN.

A few hundred thousands of the above (in the finest condition, stout, and from 1 to 2 feet in height) at 7*s*. per 1000
Steamers from this port to Rotterdam and Hull twice a week, and to London daily.
Youell and Co., Nurserymen, Great Yarmouth.

TRAINED WALL-TREES, &c.

J. C. WHEELER has this season to dispose of a large quantity of Trained PEACH, NECTARINE and APRICOT TREES, exceedingly fine healthy, of good varieties, and warranted correct to name. Lists of the sorts may be had on application. A large number of MOSS ROSES potted upwards of a year, and now fine plants well established for forcing, price 10*s*. per doz.; the usual allowance to the trade. Also upwards of 800,000 Transplanted Fibrous rooted QUICK, at from 10*s*. to 30*s*. per 1000; Jerusalem Artichokes, 6*s*. per bushel. Trees, &c. added as compensation for long carriage. Agent for the Cuba Bast or Matting.
J. C. Wheeler, Kingsholm Nursery, Gloucester.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN & OTHERS.
ABIES CANADENSIS, or HEMLOCK SPRUCE.

G. BAKER, Nurseryman, Bagshot, Surrey, having the Largest Stock in Europe, of various sizes and in fine condition, can with confidence recommend this noble tree to the notice of the public, at the following prices:

1 ft.—Transplanted ..	..	at £0	12	0	per 100
2 " "	..	.. "	0	16	0 "
3 " "	..	.. "	1	5	0 "
3 to 4 ft. "	..	.. "	1	10	0 "
PICEA BALSAMEA.					
1½ to 2 ft. "	..	.. at	£0	8	0 "
2 " 3 " "	..	.. "	0	12	0 "

G. B. having a fine Stock of Flowering KALMIA LATIFOLIA can supply them at the following low prices:—

9 to 12 inches ..	..	.. at	£2	10	0 per 100
12 " 18 " ..	..	.. "	3	15	0 "
18 " 20 " ..	..	.. "	5	0	0 "

Fine Specimen Plants from 3*s*. 6*d* to 5*s*. each.
N.B.—Large purchasers will have considerable reduction.—The usual allowance to the trade.

W. SKIRVING, Waltham Nursery, Greenwich, S.E., begs to announce that the STOCK in the New Nursery Grounds, being now fit for SALE, he is enabled this Season to offer a more extensive Collection of FRUIT TREES, FOREST and ORNAMENTAL TREES and SHRUBS than he has ever before offered to the public. Priced catalogues of which may be had on application.

The FOREST TREES consist of several Millions, including OAK, ASH, ELM, LARCH, SCOTCH FIR, SPRUCE, and all the common Forest Trees generally planted in this country; and of the following, for Underwood,—HAZEL, SLOE, PRIVET, HOLLY, RHODODENDRON, BERBERIS AQUIFOLIA, LAUREL, &c.

In addition to the general Collection of Forest Trees usually planted, W. S. would recommend the two following new and very Ornamental Hardy Trees, viz. ARAUCARIA IMBRICATA, and CEDRUS DEODARA. The stock of the former consists of many Thousands of fine Plants, two years old, grown from Seed in the open ground, expressly for Forest Planting. Also, several Thousands selected Plants, of various sizes, 1 to 3 feet high, in Pots, well formed, and adapted for effect, on lawns, parks, or avenues. Since the introduction to public notice, of this Tree, ten years since by the Advertiser, it has been extensively planted from his Nursery in every county in Great Britain and Ireland without a complaint of its not being perfectly hardy, which now induces him to offer it for general planting as a Forest Tree well adapted to our climate.

The same observation will apply to the CEDRUS DEODARA, which has been proved to be perfectly hardy. His stock of this Tree being more limited than the foregoing, W. S. can only offer a few Thousands of the Plants, 1 to 3 feet high, all warranted from Seed. He has also for Sale at present a few fine specimen Plants of the following, —

ARAUCARIA EXCELSA	.. .. ..	8 to 12 feet
,, OPPENGHAMII	.. ..	4 to 10 feet
,, BRAZILIANA	.. .. ..	1½ to 6 feet

Railway Contractors, and others, enclosing new Lands or improving old Estates with new trees, can be supplied to any extent with fine transplanted THORN QUICK, of various ages at very moderate prices.

December, 1850.

ROGERS AND SON, NURSERYMEN and CONTRACTING PLANTERS, Southampton, in submitting the following List of NURSERY STOCK, beg to add, the whole are healthy, strong, and well rooted, growing on heath land, in exposed bleak aspects, and well adapted for extensive Forest or Waste land planting. From the extent of their grounds, and the fine growth of the past season, they are enabled to render at the low prices quoted, from which a deduction will be made if ordered in quantities of 100,000 delivered in London by railway, or coastwise in steam vessels:—

SEEDLING FOREST TREES &c.

Ash	1 year 1s. 6d.	2 years 3s. 6d.	3 years 5s. 6d	Per 1000.
Beech	,, 1	,, 2	,, 3	
Birch	,, 3	,, 6		
Spanish Chestnut	,, 10	,, 15	,, 20	
Fir, Scotch	,, 1 0	,, 2 0		
,, Pinaster	,, 3 6	,, 7 6		

,, Sola Pine (Pinus maritima), excellent for exposure to the sea, one year, 7s. 6d.; two years, 10s. per 1000; and in small pots to plant out in very exposed situations, or the coming plantations quickly, 5os per 100

OAK, English.—The true "Durmast" of the New Forest (Quercus sessiliflora), the most valuable species, producing timber of the largest dimensions: one year, 7s. 6d.; two years, 10s. per 1000.

,, Common English, three years, 5s. 6d. per 1000.

TRANSPLANTED FOREST TREES, &c.

	1 year.	2 years.	3 years.	
Alder	10s. 6d.	20s. 0d.	35s. 0d.	p. 1000.
Ash	7 0	12 6	25 0	,,
Beech	12 6	25 0	40 0	,,
Birch	10 0	20 0	40 0	,,
Chesnut, Spanish	20 0	30 0	40 0	,,
Elm, Wych, or Scotch	12 6	15 0	40 0	,,
Fir, Scotch	10 0	15 0	25 0	,,
,, Larch	10 0	15 0	25 0	,,
,, Spruce	12 6	25 0	40 0	,,
,, Pinaster	10 0	15 0	25 0	,,
,, Sea Pine	20 0	30 0	40 0	,,
Hazel	15 0	30 0	40 0	,,
Poplar, Black	20 0	40 0	80 0	,,
Oak, Eng. (Durmast)	20 0	30 0	40 0	,,
Sycamore	15 0	30 0	40 0	,,

Willow (Come well), a new and valuable American species for Coppice or Hop Poles, of rapid growth; one year, 10s.; two years, 60s.; three years, 80s. per 1000

Laurel 1 year, 20s. 2 years, 30s. 3 years, 40s. p. 1000

Evergreen Privet ,, 20 ,, 30 ,, 80 ,,

Elder, common black, excellent for sea embankments, 2 to 3 ft. 8s. per 100

The above Transplanted are from ¼ a foot to 2 feet high. Plants of a larger size from 2 feet to 7 feet, for ornament or immediate effect, are from 20s. to 70s. per 100.

RHODODENDRONS.—Excellent for cover, and not subject to the depredations of game, 1 to 2 inches, 30s.; 3 to 4 inches, 60s.; 5 to 6 inches, 80s. per 1000.

,, 1 foot, Do.; 1½ to 2 feet, 50s to 80s per 100.

,, ponticum: coscum, 1 to 1½ feet, 40s. to 60s. per 100

,, Splendid hybrid, 1 foot, 50s. per 100.

,, Scarlet hybrid, 2s. 6d. to 5s. each.

,, Seedling hybrids, 25s. per 100

,, arboreum album, 1 to 2 feet, 2s. each

These Rhododendrons are all transplanted and well rooted.

Pinus (Abies) Douglasii, in 60 size pots, 2 to 3 inches from seed, 60s. per doz., and a few handsome plants in large pots, 3 to 4 feet, from seed, 42s. each.

Kalmia latifolia, 1 foot, 70s.; 1 foot, 75s. per 100

Clematis Jaunea, 50s. per 100. Clematis flammula, 25s. per 100.

Bignonia radicans, 6s per doz.

Aristolochia Sipho, 6s. per doz.

Common China Rose, 25s. per 100

Perpetual Tree Violet, strong flowering plants, 50s per 100.

Neapolitan Violets, flowering plants, 30s per 100.

Flowering Thorns, three sorts, 40s. per 100.

Giant Irish Ivy, 12s. 6d. per 100.

Arbutus, headed, 4 to 6 in. fine 12s. 6d. per 100.

Cotoneaster microphylla, 8s per 100.

HARDY ORNAMENTAL TREES SHRUBS, AMERICAN, HERBACEOUS, and GREENHOUSE PLANTS in extensive collection. Also a most superb collection of ROSES, including all the new sorts. Printed Catalogues and prices of which may be had on application at their Nurseries, Red Lodge, North Stoneham, or Floricultural Gardens, Southampton.

☞ If ordered in less quantity than the above quotations, the charge will be at retail prices.

*** Agents for Preston's Mushroom Spawn.

SEEDS.—CORNER OF HALF-MOON-STREET. THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Country House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

J. CHEESEMAN AND CO., Seedsmen, &c., 12, Cook-street, New York, U. S., offer for Sale (price 2s. 6d. per 15½ or 16½ gs. per oz.) 2 lbs. of the finest WHITE KIDNEY POTATO SEED, raised the present year in one of the Northern States, by an experienced farmer, with the utmost care, from Potatoes entirely free from disease; indeed the opinion is prevalent in America among practical men, that roots affected with the rot do not mature the blossom, and of course are seedless. Whether this theory is correct or not, it is certain the Seed now offered was gathered from a vigorous healthy field.

Orders, with a remittance, will meet with prompt attention, or may be left with Mr. GEORGE CHARLWOOD, Covent-garden, London, where a sample of the Seed may be seen.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea (by appointment to HER MAJESTY and H. R. H. PRINCE ALBERT). ORNAMENTAL WATERFOWL, consisting of Black and White Swans; Egyptian, Canada, China, Barnacle, Brent, and Laughing Geese; Sheldrakes, Pintail, Widgeon, Summer and Winter Teal; Gadwall, Pochard, Shovellers, Goldeneye and Dun Diver; Carolina Ducks, Call Ducks, &c., domesticated and pinioned; also Spanish, Cochin China, Malay, Poland, Surrey, and Dorking Fowls; and at 3, Half-moon-passage, Gracechurch-street,

White, Japan, Pied, and Common Peafowl, and pure China Pigs.

GLASS FOR CONSERVATORIES.

APSLEY PELLATT AND CO., Falcon Glass Works, Holland street, Blackfriars, are prepared to supply (in quantities not less than 100 square feet) SHEET AND CROWN GLASS OF BEST QUALITY, at the following *Net Cash Prices*:

Any size under 2 feet super.	Per square foot.
15 oz. weight per foot	4d.
16 oz. ,, ,, ...	5
21 oz. ,, ,, ...	9
26 oz. ,, ,, ...	11

SMALL Squares up to 10 ins. by 8 ins., from 1½d. to 3d. per square foot.

N. B.—The 16 oz. is full strength for Greenhouses.

GLASS MILK PANS, White, 5s. 6d. each; Green, 4s. each.

TO NURSERYMEN, FLORISTS, &c.

GLASS.—Any quantity of 16 oz. Sheet Glass, in small sizes, packed in boxes, containing 100 feet each, from 2d. to 3½d. per foot, according to size.

Every description of Horticultural Glass, from 13 to 32 oz. to the foot.

GLASS DAIRY PANS, the same size and strength as earthenware, from 3s. 4d. to 4s. 6d. each.

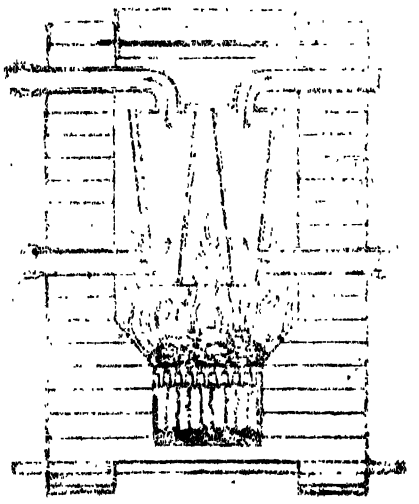
Improved Garden Hand lights. 21 oz. Glass Pantiles, at 11s. per dozen.

EDWARDS AND PELL, 15, Southampton-street, Strand.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, of 100 and 200 feet each: also Glass Pantiles, 11s. per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at F. ELPHICK'S, 28, Castle-street, East, Oxford-street. *** For Ready Money only.

☞ PATENT VENTILATORS for Public Offices, Smoking Rooms, &c.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures, for the cultivation of Pines, Melons, Cucumbers, and other tropical plants particularly upon the plan recommended in Mr. MILLS'S recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY'S peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work at the following places:—Horticultural Gardens, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery; Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—130, Fleet-street, London.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery: they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

GEORGE HADEN, Engineer, Manufacturer of Ventilating Warm Air Stoves, Warm Water and Steam Apparatus, &c. for Churches, Dwelling-houses, and Horticultural Buildings, 6, St. Andrew-square, Edinburgh.

POLNAISE HEATING.

G. H. has for many years been extensively engaged throughout the Kingdom in Warming and Ventilating Mansions of the Nobility and Gentry, Churches and Chapels, Colleges, Infirmaries, Schools, County Buildings, Court Rooms and Prisons, Banks, Conservatories, Hothouses and Pineries, &c. He begs to intimate that the Stoves are manufactured under his immediate superintendence, and he has at present an extensive supply on hand. The Advertiser is prepared to give designs and estimates, and furnish every information to Noblemen and Gentlemen inquiring such apparatus on applying at his office. The utmost attention will be paid to all orders committed to his care. 6, St. Andrew-square, Edinburgh.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,

ANTONY GIBBS AND SONS, LONDON;
WM. JOSEPH MYERS AND CO., LIVERPOOL;

And by their Agents,

GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL;
COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

GUANO, &c.

MARK FOTHERGILL begs to offer the following MANURES on the best terms, viz:—

GUANO, PERUVIAN and AFRICAN, direct from Import Warehouses.
Ditto, PATAGONIAN and SALDANHA BAY. Ditto.
SODA ASH, for destruction of Wireworm.
SUPERPHOSPHATE OF LIME (See Royal Agri. Soc. Journal, Vol. vi. Part 2).
GYPSUM (Pure Sulphate of Lime).
BONE DUST and BONE POWDER.
SULPHURIC ACID. CHARCOAL.
PETRE SALT and AGRICULTURAL SALT for Composts.
SILICATES of SODA and POTASH, and all other Manures.

No. 40, Upper Thames-street.

Agent for DINGLE'S HAND SEED-DIBBLE.

NEW KITCHEN GARDEN SEEDS

No 1—Complete Collection, consisting of 80 quarts of both kinds of PEAS and all other Seeds in proportion, and of the most approved kinds for one year's supply £7 7 0

No 2—Complete Collection, in smaller quantities, equally choice sorts 3 3 0

No 3—Ditto, ditto, ditto 1 1 0

Messrs Sutton and Sons have the honour and privilege of referring to Gardeners and Gentlemen residing at the undermentioned places who have annually availed themselves of this economical and advantageous mode of obtaining the best sorts of GARDEN SEEDS and who have expressed themselves in the highest degree pleased with the crops viz at or near Glasgow Perth Edinburgh, Aberdeen Newport Monmouth Cardigan Jersey Carlisle, Carmarthen Ludlow Gloucester Hull Newcastle-upon Tyne, Bury St Edmunds Wolverhampton, York, Bristol, Exeter, Brighton Plymouth Isle of Wight Windsor Bath Newbury Oxford Maidstone Cirencester Liverpool Hertford Grantham Canterbury, Portsmouth Ireland, and many others, of whom the addresses may be had on application

Early orders are requested and recommended as some sorts are in great demand

*** Parcels delivered free to any office in London or any Station of the Great Western Railway between London and Bristol

Remittances are not required from known correspondents, nor from those who give satisfactory references

Reading Nursery Reading Berks Dec 1.

HORTICULTURAL SOCIETY OF LONDON—Notice is hereby given that the EXHIBITION OF FLOWERS AND FRUIT in the Society's Garden in the ensuing season will take place on the following Saturdays viz May 8 June 19 and July 17 and that Tuesday April 20 is the last day on which the usual privileged Tickets are issued to Fellows of the Society

WARNER'S SUPERIOR EARLY EMPEROR PEA—This splendid new PEA admitted the earliest and best flavoured Pea known may be had at 2s 6d per quart of FREDERICK WARNER Seedsman 24 Cornhill London Also the improved EARLY GREEN MARROW PEA having a dark green glossy pod much superior in flavour and earliness to the old variety at 1s 6d per quart

A general collection of HYACINTHS, &c in the best varieties

The Gardeners' Chronicle.

SATURDAY, DECEMBER 12, 1846.

MEETINGS FOR THE FOLLOWING WEEK

T Royal Dec 15—Linnean 8 P M

W Wednesday 16—Society of Arts 8 P M

Not an autumn arrives but it brings with it a renewal of the question as to WHEN TREES SHOULD BE TRANSPLANTED From the enquiries that are made, and the doubts expressed and the dogmatical assertions that come before us, one would think that the subject had never been previously considered And yet it has been long ago disposed of conclusively by both experience and reason That the autumn is the proper season in this country for transplanting trees we have shown over and over again, and also that, upon the whole, November may be selected as the best of all months for the operation We shall not again travel over the ground which we have thoroughly beaten in former years without starting an objection to this view, if our previous volumes will not satisfy the planter, we have no means of carrying conviction to his mind, unless it be on some point, which has been little touched upon, although it is material to the enquiry

The great object of a planter is to induce his trees to strike root with the smallest possible delay or at least to produce roots before there is any great demand upon their activity. This takes place most rapidly at two seasons, either when a tree is covered with full-grown healthy leaves, or when it is just bursting into leaf Colonel GREENWOOD seemed theoretically right when he declared that the months of July, August, and September were the best for transplanting the generality of English trees (see "*The Tree-Lifter*," p 61), but he neglected the serious practical difficulties arising from the exhausting action of the leaves. Whether in the first burst of spring, or in the autumn, the demand made upon a tree by the leaves for their support is enormous, a demand such as young, feeble ill-formed roots are unable to satisfy. Any object which might be gained by taking advantage of the tendency of a tree at that time to form roots, is more than counterbalanced by the exhausting action of the foliage To profit by the great rooting power at that season it would be necessary to surround a plant with an atmosphere saturated with moisture, as is the case when it is placed under a bell-glass, which is, in practice, impossible We therefore cannot safely avail ourselves of that season for planting which seems theoretically best.

Then comes the important question when, if not in the spring's beginning or summer's end, roots will be formed without any such attendant danger as that we have just described. Our answer still is November, that is to say as soon as deciduous trees have lost their leaves. The air at that time is moist, the sky comparatively clouded, daylight short, and the stimuli of heat and light enfeebled, so that evergreens will not suffer from the action of atmospheric forces upon their leaves, and deciduous trees are incapable of sustaining injury from such causes, because their leaves are gone.

But it may be doubted whether in the cold months of the year any trees will make roots. Some physiologists peremptorily deny the possibility of roots appearing in the absence of leaves, and therefore although they do not altogether object to the assertion that roots are formed in winter or late autumn, they only admit that possibility in the case of evergreens Their theory is that roots are formed by the action of leaves, and that therefore when leaves are off roots will not grow Their theory is wrong, they should use their eyes In 1845 we examined, on the 26th February, the roots of various trees, and we found young ones formed abundantly on Sambucus racemosa, Ribes sanguineum and divaricatum, the Sycamore, Plum, Peach and Apple Such evergreens as Hollies, Garrya Common Broom and Portugal Laurel had also produced them in large quantity The statement, therefore, that roots can only be formed in the presence of leaves is untrue We believe the fact to be nearly as stated in a passage given in the "Theory of Horticulture which we venture to quote

"The immediate cause of the formation of roots is involved in obscurity and is one of the most important parts of vegetable physiology still to be investigated with reference to horticulture We all know how difficult it is to cause the cuttings of some kinds of plants to produce young roots and how rapidly they are emitted by others, it is to be supposed that the difficulty would be diminished in all such cases if we knew exactly under what circumstances roots are formed Nothing, however, sufficiently certain and general to merit quotation has yet been ascertained concerning this important subject except the following facts, viz that roots are most readily, if not exclusively formed in darkness and moderate moisture that they are not, like branches, the development of previously formed buds but appear fortuitously and irregularly from the woody rather than the cellular part of a plant, and that their production is in some way connected with the presence of leaves or leaf buds because portions of a stem having neither leaves nor leaf buds, produce roots unwillingly if at all, and that such roots perish if their appearance is not speedily followed by the formation of leaves Thus, although the first appearance of the root in the embryo plant, at the time of germination, precedes the expansion of the seed-leaves yet the young root will not live unless the seed leaves are enabled to act" Even this opinion must however be taken with some exception for the roots of such trees as the Whitethorn will form and remain alive for a long time even if leaves do not *speedily* follow

It will doubtless be asked, "what then is that power which calls the root into existence" We reply, "the same power which causes the bud to sprout, the leaves to form, the pollen to act, the seed to produce its embryo which enables vegetation to breathe, and feed, and grow, which distinguishes all organised beings from the brute matter of which they consist—which gives to man the high attributes of his nature It is VITALITY, a word which so called philosophers in their ignorance or presumption, may sneer at but which in truth is the unknown force that controls the energy of matter, and directs it to special ends

The production of roots is then a special exercise of vitality of life, and it may be a question whether it may not be possible to excite that vitality by *artificial* means Warmth is the great *natural* agent to bring about this end, and wherever it is applied judiciously its effect is certain, but in common plantations we have no great means of regulating it except by soil and drainage There is however an agent now coming largely into use, which certainly possesses the power of promoting rapid vegetation in a remarkable way, whether we call it a stimulant or not This substance is superphosphate of lime It has been proved by Mr GORDON, in the Garden of the Horticultural Society, that it greatly promotes the germination of seeds and the vigour of the seedlings (*Journal of Horticultural Society*, I 309), its value in forcing the young Turnip rapidly into the rough leaf, so as to place it beyond the reach of the fly, is past all doubt, and from some experiments with which we are acquainted, we are led to *suspect* that it also possesses, in some way or other, the power of causing the rapid production of roots in plants of all kinds, woody or herbaceous. If so, its value would be inestimable to the forester, and we strongly recommend those who have leisure to make inquiry on the subject To those accustomed to philosophical investigation we need not make any suggestions, but to others we venture to recommend the following forms of experiment —

1 Take half a dozen young trees, exactly alike in age and size, open a trench; divide it into two equal parts, place three plants in each half; in the one division dust the roots with the superphosphate, leave the others in their natural state. Fill in the soil, and in the spring when the buds are beginning to swell take the plants up, and observe the state of the roots in the two cases.

2 Try the same experiment, but leave the plants in the ground, and see which is best at the end of the summer's growth

3 Repeat the experiment with vegetables or perennial plants

4 Fill a number of bottles with water, into some put a little superphosphate of lime, say a teaspoonful to a pint of water, put into each a Willow cutting, taking care that the cuttings are all alike, keep them in a sitting room, where there is a fire, and watch the growth of the roots, noting carefully in which they first appear This last experiment would probably be as conclusive as any

We call the attention of such of our readers as are interested to a letter from Mr BECK, on the subject of SIMMONS's Hygrometer It is due to Mr. Beck to state that he has not the slightest pecuniary interest in the matter We have a communication from H BEVERLY, Esq, of the Royal Observatory Greenwich, on the same subject, which we shall publish next week

CONTINENTAL GARDENING, &c

In an interesting tour, which I have just completed, on the Continent, my attention was directed to the botanical and horticultural aspect of the countries through which I passed, and I am induced to think that the result of my observations may be interesting to your readers

With respect to the cultivation of flowers, I saw nothing, in the whole of my tour through Belgium, Germany and Switzerland, that harmonised in any degree whatever with our English notions of propriety and effect I saw now and then a showy bed of Dahlias, but I did not see a single flower garden that commended itself to the eye for the neatness of its taste and propriety, while, universally, the disorderly state of the Grass, whether in lawn or edgings, gives a character of untidiness and neglect which nothing better in the flowers can possibly redeem I strongly suspect that we are at issue with foreigners altogether in this respect, and that our principles of taste and propriety are wholly at variance. I do not know whether I am right, but I have the impression that they laugh at us for shaving our Grass so closely It is a point however, which I think we can never surrender, and every English gardener will agree with me, that the perfection of well mown lawns adds the highest charm and delight to our flower gardens If all is right here, according to our views, many a fault in the borders can be endured with comparative ease. But in all directions I saw the lawns left to grow till the Grass was profitable, and portions only cut at a time, as needed for the cattle Thus was the case even in the pleasure grounds at Baden Baden From the gardens of the prince to those of the peasant all presented the same character I went into those of the Grand Duke of Baden, and, though the family was there nothing could exceed their disorder The conservatory plants were in wretched shape and general condition; the flower borders without an atom of taste, dirty, and disorderly, and, in fact, I did not see a single object of interest except one arrangement, which was new to me, viz Violets as an edging to a long bed in full flower they formed a very even, pleasing line, and were (in October) in full bearing, and very fragrant The poor ladies came out of the castle while I was there, and pruned upon this as apparently the only object of their regard.

With respect to the lower classes, the best specimens I saw were, as in England, in the little plots of the policemen along the railways—an object always of peculiar interest when one thinks how that class of men need something to relieve the monotony and weariness of their lives, yet here was nothing to be compared with what we see continually on our English railways The most favourite flower in Belgium is the Nerium Oleander We saw it continually in tubs in the yards and windows of the hotels, as well as frequently in the windows of the poor in towns I was amazed to see with what freeness it put forth its beautiful flowers in the windows of the filthiest and oldest dwellings of the worst parts of Liège, the Birmingham of Belgium Everywhere, even to the end of Switzerland, it was evident that there was a native love of flowers, for the smallest cotter's plot was without a patch, and often scarcely a window in a town or village but all manifested a century in arrears behind England

I visited the public gardens in Belgium The botanic gardens at Brussels might be very satisfactory There is a fine range of glass, but the plants, generally speaking, are wretchedly grown, and in no shape whatever. The only object of interest which I saw was a palm tree, 60 feet high said to be the finest in Europe

* See Dr GARDNER in the 'Philosophical Magazine' vol xxviii p 482 This gentleman considers a plant to be "a porous system—endowed *with no ability* other than the power of forming cytoblasts and arranging cellules after a definite type We are tempted to enquire whether Dr GARDNER ever saw a plant, that he should write such unqualified nonsense Perhaps he will tell us whether when a leaf has fallen and dies as we say, it ceases to be "a porous system According to such chemists a man is only a bag of quaternary compounds, with a little phosphate of lime and iron dispersed in the mixture

out of doors there was literally nothing to look at. Nothing could exceed the disorder of the botanic gardens at Ghent, where I also saw Van Houtte's grounds, with his 20,000 Camellias and extensive Rose beds; but it must not be mentioned with some of our first nurseries in London, nor indeed in the country.

It was the first week in September that I entered Belgium. I concluded from the appearance of the Potatoes along the lines of railway, that they were generally diseased, the tops everywhere looking black and withered. I had the impression that with us this is seldom the case till frost comes. But I did not hear much complaint, and I was told that the crops were expected to be very fair. In Switzerland we heard a different statement, and they were evidently diseased in many parts. I was told they were very dear, and would be still more so. If the mischief spreads to the Alpine parts of Switzerland where the peasants, however elevated their dwellings, seek out the most suitable patches for their little plot of Potatoes, and where, from their elevated and secluded positions, little else in the way of food besides Potatoes and milk can reach them, the distress will be severe indeed.

The season was too far advanced for botanizing, yet the success I met with formed one of the most interesting features in my tour. I had the high satisfaction of meeting with many of the rarest plants in flower, which though chiefly appearing in spring, put forth, as in our gardens, a sprinkling of their beauty in autumn. My grand delight was to find and to gather with my own hands, besides five other species, our garden Gentianella, the Gentiana acaulis. I had long been hoping as I traversed the Alpine passes that Nature would be kind, and put forth her second produce, and just one flower, as large as our garden ones, I espied above 8000 feet above the sea, near the snowy Wetterhorn, in the Grindelwald pass. In the Grimsel pass I gathered on a rock a beautiful pink Primula in flower, the origin, I suspect, of our Auricula. Dryas octopetala in flower on Righi, as also our Polemonium coeruleum in full flower, and Gentiana lutea, Solidago alpina, near the Rhone glacier, Astrantia major and minor; a beautiful little Linaria, purple with yellow eye, one of our newly introduced annuals I suspect in England, near Mont Blanc; and what I was not prepared to expect, except in Italy—I had the delight of gathering several specimens as large and as fine as I ever saw with us, of the Cyclamen. It was growing in the fissures of limestone rock, in a wood going up to the grotto on the way from Geneva and St. Martin's, and Chamouny. There too was the Box wild, and the Tamarisk and the Berberry in abundance, very ornamental, with its profusion of ripe fruit, which the natives seem to make no use of, with all their love for sour food and sour wine. It was something new to pass through miles of Rhododendrons on the Alps, in many places putting forth their heads out of the snow with abundant promise for next year's beauty. At Rosenlani at the base of one of the finest of the Alps, the Wetterhorn, and just in front of a tremendous glacier, I found the Maitre d'Hotel in a small wood dwelling only used in the summer, and most romantically situated,—a very intelligent botanist. He goes on the highest summits with the Chamois hunters in the spring, and makes his collections, which he sells to travellers. I bought one of these in admirable order. Similar collections are on sale at many of the other hotels, Righi, Meyringen, &c., but I saw none equal to those at Rosenlani; at Bienne, in a limestone wood above the town, I gathered our garden Genista with angular stalk, which was growing in abundance, and our garden perennial Aster, and also one of our Veronicas, and a bright red Pink I never saw before; also, in many places, a bright purple kind of Salvia, as well as a pale-yellow of the same genus; but having no access to botanical books I could not ascertain what they were. If my enjoyment was so great even at so unfavourable a period of the year, what would it have been in the summer?—and if along the beaten mule passes I was so successful, what would have been my delight if I had been able to diverge on foot and examine more minutely more favourable localities? I continually saw plants without flowers which I knew to be extremely rare, and which could not fail to set me a longing to be there at a more favourable season. Mont Blanc was covered. Fresh snow had fallen, and I saw nothing in ascending to Montemvert but abundance of Rhododendrons, and here and there the Astrantia minor, a Saxifrage out of flower, and the Campanula, I think hirsuta or alpina; our large garden Epilobium was abundant in many localities, and if I mistake not, I saw the Daphne Mezereon in the Grindelwald Pass. [It may be useful to mention, in the scarcity of Potatoes, two very good vegetable dishes which I frequently saw and were new to me. The seed of Kidney Beans and Scarlet Runners when the pods are too old to use, are stewed and make an excellent dish. Endive also which is so little called for, and largely wasted in our gardens—I frequently saw stewed like Spinach.]—*W. Carus Wilson, Casterton Hall, Westmoreland, Nov.* 10.

CULTURE OF THE PINE-APPLE.

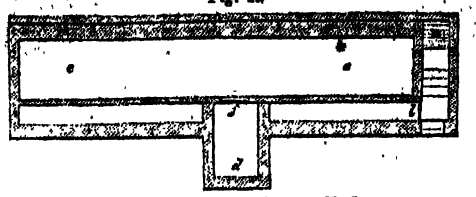
[Fourth Notice.]

Fruiting Pits.—Mr. Pelvilain has four fruiting pits, which are heated with hot water and stable litter combined; the stable litter for bottom-heat, and the hot-water for surface-heat. No 1 with 11 lights (each light in 4 feet 4 inches wide) is the largest fruiting pit, of which Fig. 1 is the ground plan, and Figs. 2, 3, and 4 different sections of it.

Nos. 2 and 3, with 15 lights. They are in one line, and the middle light is occupied by the furnace, &c.

No. 4, with 10 lights. The whole are constructed upon the same plan.

Fig. 1.



Ground Plan of Fruiting Pit, No. 1.

Figs. 2, 3, and 4 sections of it. In Fig. 3 is shown the manner in which access is had to the hot-bed.

Fig. 4 shows the entrance and the furnace, with a side view of the pit.

a, furnace; *b*, hot water pipes; *c*, chimney; *d*, concealed pit to get at the hot-bed; *e*, hot-bed; *f*, floor, which is shut up after the stable litter has been removed; *g*, air-holes, furnished with a cover

Fig. 2.

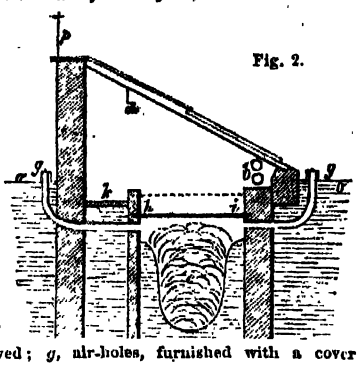
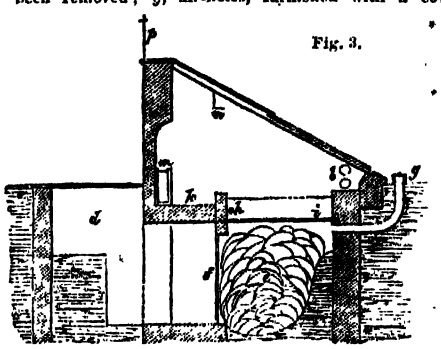
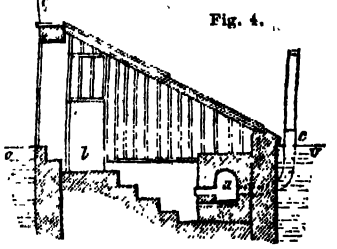


Fig. 3.



to regulate the bottom-heat; *h*, bed filled with peat soil, in which the Pine-apples are planted; *i*, iron bar covered with boards to hold the peat soil; *k*, foot-path; *l*, door; *m*, water cistern; *n*, shelf for Strawberries; *o*, ground line; *p*, iron railings for hanging the straw mattings upon, which serve to cover the pits.

Fig. 4.

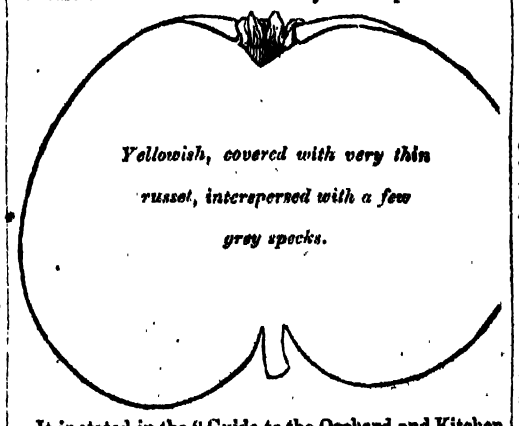


Air is given to all the pits when required by lifting up the lights.—*Mirabile dictu.*

THE EARLY NONPAREIL.

Synonymes.—Stagg's Nonpareil, Summer Nonpareil, New Nonpareil, Hicks's Fancy.

THE peculiarly brisk rich flavour of the old Nonpareil renders it the especial favourite of almost every one; but its period of maturity is not till winter or spring. Its earliest substitute is the variety here represented.



It is stated in the "Guide to the Orchard and Kitchen Garden," that this very excellent Apple was raised from a seed of the Old Nonpareil, by a nurseryman of the name of Stagg, at Caister, near Great Yarmouth, in Norfolk, about 65 years ago. The last name originated somewhat whimsically, in a nursery near town, in consequence of a gentleman of the name of Hicks having selected this, from a large collection of which he had tasted, in preference to any other.

The flesh is yellowish-white, juicy, crisp, and tender, with a rich, brisk aromatic Nonpareil flavour. In perfection in October and November; tree more vigorous than its parent, and an abundant bearer; shoots deep olive-green near the base, and where shaded, but approaching to a Chestnut colour where well exposed, sprinkled with pale grey dottings; leaves middle-sized, ovate, somewhat acuminate, dentated; petioles moderately strong, about an inch in length, slightly tinged with red; flowers of medium size, petals roundish-oval, broader than those of the Old Nonpareil. A variety highly deserving of cultivation, and suitable for working on the Paradise Stock. The shoots have a strong tendency to grow upright, and consequently crowded; but they must be kept thin and regular—in the case of dwarf trees more especially—by summer pruning.—*R. T.*

THE AMATEUR GARDENER.

A FEW WORDS ON THE KITCHEN GARDEN.—The unexpected and severe frost which has occurred since my last paper on protecting out-door plants was written, has confirmed the views I then stated respecting the little injury done by such visitants in the month of November. I have examined my own garden, and I cannot find anything has suffered, although I had afforded protection to very few productions. But this will not be the case bye and bye. When the frost penetrates to the roots, and lasts for weeks, the consequences will be very different, and therefore the amateur should be reminded of the proverb, "Be wise in time."

But I cannot say the same thing of the Kitchen Garden, whose more succulent products are sadly nipped by the late frost. This reminds me that most amateurs grow vegetables as well as flowers, and that a few lessons founded on experience may not be unacceptable to them. If the flower garden is more attractive in summer, the kitchen department has much interest associated with it in winter, since we depend so much upon it for the supply of our tables. It is a serious thing for the cook to find all the culinary vegetables frost bound, and this calamity ought never to occur. At the first intimation of frost, a provision should be made in-doors of such articles as are ready to be stored away. I do not mean Potatoes and other roots, which of course ought to have been for some time out of the ground, but such productions as are ordinarily in a growing state at this season of the year. Cauliflowers, Broccoli, Celery, and Lettuces may be kept in sheds in quantities sufficient to last a family through a frost of usual duration. With all these, care should be taken to avoid rottenness, and therefore superfluous leaves must be removed, and a cold dry atmosphere obtained. Turnips for kitchen use should be liberally laid up in this way, for a few weeks makes little difference to their flavour when taken out of the ground.

If small supplies of these thin skinned tribes have been planted near walls, and in other sheltered places, it will be easy to keep them fit for use by employing hurdles and mats, or by laying straw thinly over them. Celery suffers much from frost, and it should therefore be earthed up almost to the top, and the sides of the trench may be covered with some long dung. Loose straw should be placed over the top leaves, as, if they are injured, the frost-bitten part will decay down to the heart of the plant. Take the first opportunity of earthing up all rows of Cabbages, Broccoli, &c. Do it with a fork, that the soil may remain as light as possible. Finally, throw up in hacks as they are here called, or in deep ridges, all unoccupied ground. This is very important, not only because the soil is improved by the process; but on account also of the dryness which is thus secured in the early part of the year. After a frost these ridges will admit of being pulverised, and may be made available for early sowing. Two years ago this "hacking" system was neglected in my garden, and I suffered the greatest inconvenience from the oversight. While my neighbours were sowing Onions, &c., in prime style, my land could not be worked, and the season being wet, it was not till the close of March that the needful work could be performed.

Seakale crowns should be covered with leaves to keep the frost away, that if you wish to begin forcing any of them, frost may not be an impediment. Rhubarb for early use may be covered a foot deep with light materials, and afterwards boxes or earthen vessels placed over the advancing leaves will hasten their growth.

Home Correspondence.

Simmons's Hygrometer.—To account for my name being attached to this article instead of that of the inventor, it is necessary for me to say a few words about its origin to which I beg the attention of your correspondents, and of all those who have purchased this useful instrument. I trust it will exonerate Simmons from all blame in not having provided rules for its use in horticultural buildings. Between two and three years back, Mr. S., who is by profession a chronometer maker, was at Worton Cottage, and in walking through my greenhouses I mentioned how much we felt the want of an instrument by which at a glance we could determine the amount of moisture present, in the same way that we learn the temperature by the thermometer. The subject took hold of his ingenious mind, and the result was the production of the instrument in question, but it was at no little cost of his valuable time, &c. When it had been tested in a variety of ways, both in Coleman-street, and in my Orchidaceous house, I had the pleasure of placing one in Dr. Lindley's hands, which was tried at the Society's Garden at Chiswick, and upon the favourable results of that trial it was introduced to the

public at a meeting in Regent-street, and pronounced "a boon to horticulture." It was advertised, and the sale commenced, the writer of this placing a notice in your columns that the maker was no horticulturist, and that I would answer any inquiry. Such is its history, and as Simmons acted on my advice in its connection with the gardening world, all lack of rule, &c., lies at my door. I was perhaps wrong in supposing that so simple an instrument could be misunderstood. I thought that as every one saw a thermometer rose with heat and fell with cold, and observing it formed a standard for himself at which to keep the temperature of glass erections, so he would find that this instrument indicated a low number with wet, and a higher one with less moisture, and making himself acquainted with its action, would form a scale from his experience. Nothing would have been easier than to have printed a scale at which to keep buildings containing different descriptions of plants, but as we had but limited experience it would not have been honest, and therefore was not to be thought of. It was in fact commended to the observant, scientific horticulturist, for him to mark and learn its only character; that kept from being wetted or exposed to the sun it would give the amount of moisture present in any building in which it might be placed. I will conclude this letter, only adding, that with my intelligent gardener, Mr. Dobson, it has been most warmly welcomed. He has observed and used it as a guide in the Orchid house as much as the thermometer. Next week I will give figures and directions deduced from observations now in course.—"Beta's" instrument is deranged. It will be exchanged free from all expense on application to Simmons.—*E. Bell, Weston Cottage, Isleworth.*

Copings for Walls.—That copings are of very considerable service I have not a moment's doubt, but the nature of their services has lain under much misapprehension. I am inclined to think that a majority of persons view them in the light of mere blossom protectors, whereas, in fact, they afford little, if any, protection in this respect. Their real service, when sufficiently large, is of a twofold character, viz.—the accelerating an early growth in the early part of summer, and the thorough maturation of such growth in the autumn. To be guarded, however, in my observations, by early growth I do not mean causing the trees to bud earlier, but rather exciting the young growth, when it has fairly commenced, to proceed with greater freedom and rapidity. On the latter circumstance depends, in no mean degree, the preservation of the tender growth from the attack of insects, more especially in the case of Peaches and Nectarines. This principle is fully recognised in agriculture in the case of the Turnip crop, and why not in gardening? The benefits of coping in September and October are perhaps even greater still, and I think it would not be asserting too much to say, that at that period alone, in effect, they add a fortnight to the length of our summers; or, in other words, they produce results equivalent to a fortnight's fine weather. The rationale of their operation is, I suppose, by the interception of radiation; be that as it may, a wall with a good coping will be found warmer after sunset for some hours than one without a coping. The objections in point of excluding the dews and rains are, I conceive, of no weight, as it is quite certain that first rate fruit is, and has been, produced under copings. For my part, I am disposed to look on a wall wet with rain in the summer as a disadvantage rather than otherwise, such being a robber of heat, which can ill be spared, more especially in Peach walls. For this reason I am decidedly opposed to so many ablutions with the garden engine, unless applied early in the morning; more mischief is occasioned by this work than people commonly imagine. There are ample means of keeping trees clean without robbing them of one half the benefits of a wall. With regard to the width of the coping, I think that from 7 to 9 inches at least should be provided, and if twice that width in the months of April and May it would be a benefit. One half of this entire width should be movable at pleasure, and might be composed of boards on brackets. With copings of about 7 inches, and trees planted on platforms, of stiff loam only, a foot in depth, Peaches succeed here admirably; the wood is probably as perfect as in the native country of the Peach. Whatever width be adopted, it should by all means be wide enough to throw the drip beyond the leaves.—*R. Errington, Oulton Park, Cheshire.*

Polmaise Heating.—Having visited Nutfield for the purpose of seeing the model erection, Mr. Meek very kindly explained everything; and I must confess all was very different from what I had expected. The Cucumbers alone told me that it is an excellent system, and I am convinced that Pines will grow beautifully, planted out over the chamber—the air being so nice and soft, and the motion of the leaves showing the system to be more like nature than any other yet introduced. Polmaise being so simple and economical, I am certain it will soon be more valued than at present; for it only requires to be well known to be duly appreciated. —*A Practical Man, Bognor.*

Walcheren (Cauliflower) Broccoli.—Your columns, from time to time, have advocated the superiority of this variety, which in its true state, is really excellent. Yet it too frequently occurs, that after a valuable vegetable has become generally known and appreciated, and large quantities are demanded, people are taken in with a worthless sort instead of the genuine article. Last spring I procured seeds of the above; they have grown to an immense size, and formed large heads of little or no worth, merely a bunch of hard sprouts, when cooked worse by far than a Scotch Cabbage. This is waste of time, ground, and money, and you have disappointment into the bargain. The next procedure is to have recourse to redress. In the first instance, the individual that sent them out will satisfy you so far by telling you they come from such a large dealer; that large dealer states he procured them at a first-rate establishment, where particular care is always taken to have the article genuine, and so they go on, and no more can be made of the affair.—*A. A., Bishop's Auckland, Nov.* 30.

Soil for Pine-apples.—Sixteen years ago I was foreman to a gardener in the north of England, who was then considered to be a first-rate Pine grower. The soil used by him was loam, leaf-mould, sheep dung and soot, in specified quantities, mixed well together, and run through a coarse sieve; the fine siftings were used for potting. I at length left and went to a nobleman's garden near London, where a large number of Pines were grown, and the prevailing idea at the west end then was that Norwood loam was the only suitable soil for Pines; on going to the east end of London, it was there positively maintained that loam from Wanstead Flats was indispensably necessary. Afterwards I went to a situation which for two years previously had been entrusted to the care of a garden labourer; the houses were in a bad state, but to my surprise the Pine plants were the best I had ever seen, with fruit equally remarkable. On inspection I imagined the cause to lie in the soil—a just conclusion, as I have since proved by always using that kind of material; it was the very same sort of soil as is so successfully used at the present time by the French growers; it was the top spit of Bagshot Heath, and being naturally well mixed with silver sand and laid in narrow ridges for 12 months, exposed to the weather, it bade defiance to even bad management.—*D. R.*

Polmaise Heating.—In my last communication I promised to give further particulars, and a plan of my cheap method of heating by Polmaise; but subsequent experiments have so altered the leading characters of the system, that it would have been improper to have done so. In my first application of the system my drains were very small, consisting of drain tiles (such as are used in draining land) laid double. In my interview with Mr. Meek, and also in a subsequent communication from him, he suggested that the cause of failure was partly in the size of the drains, and partly in their inclination being slightly upwards, instead of having a descent to the air-chamber. The first idea I did not entertain; for, according to the laws of pneumatics, the air would flow as freely through a drain of 3 inches as through one of 3 feet; and also the colder the air, in proportion to the heat of the chamber it had to traverse, the more compressible it would become, and the more rapid its motion. I therefore threw away the idea that the drains had anything to do with it, further than providing a sufficiency of air to the chamber. The second suggestion, viz., that of giving the drains a descent to the chamber, I could by no means accomplish, unless I made the drains above the level of the floor of the house—a most unsightly arrangement. My stove could not be sunk lower, from the certainty of being inundated by every heavy rain. My attention was therefore directed to the raising of the cold air from the drains. After a very careful consideration of the laws of gravity, I came to the conclusion that the cause of failure was the extreme nicety of the balance of atmospheric pressure on the mouth of the air-chamber, and the mouths of the drains, for although I had an intense heat in the air-chamber, it could only escape by radiation through the upper surface of the iron plate which formed the top of the oven, consequently no action could possibly take place. To destroy that equilibrium was my first object. As I could not lower the drain, I therefore raised the mouth of the air chamber about two feet. This gave me an instantaneous and very strong current of air from the chamber through the drains. Having thus far accomplished my object, I turned my attention to Mr Meek's first suggestion, viz., the size of the air drains. I took them all up, and gave them an area of three times the diameter they had at first, but could not find any difference in the flow of heated air from the chamber. This brought me back to my first conclusion, viz., that the size of the drains was not of much importance. After carefully considering these results (and they spoke volumes) I came to the conclusion that the drains were useless, nay worse, for they only involved an expense and trouble, that would in many instances preclude the use of Polmaise altogether. The more I thought upon the subject the stronger was my conviction that drains were useless, and the more I felt determined to try and do without them. I felt convinced that the heated air would diffuse itself with equal rapidity over the whole building, and by that immutable law of nature which suspends the mercury in the tube of the barometer and raises the water from the well, and which compels the lightest particles of any fluid to ascend, and the heaviest to take their place; that as it parted with its calorie it would fall down and traverse the floor of the greenhouse, and of necessity be drawn again into the heated chamber, to be again distributed over the whole house. These opinions were strengthened by a conversation I had with one of Nature's self-taught philosophers who chanced to call upon me, but who did not leave his address, or I should have felt a pleasure in naming him. Having fully made up my mind, the weather on Thursday last promised to be all I could desire. I therefore, in the afternoon, about three o'clock, prepared for action by lighting the fire, and getting the house in fair order. I must here beg to call to your recollection the large volume of air I had to warm, viz., about 50 feet long by 22 feet wide, 12 feet high, span roof, and upright sashes, glazed to within eight inches of the ground. Moreover, the roof is glazed with small glass four inches by three, and the laps not puttied; the uprights are glazed with 8½ by 7½ sheet glass. At 7 o'clock the external thermometer stood at 20°, the internal at the most exposed end of the house, 39°, at the middle of the house, over the front trellis, and opposite the furnace, 40°, and 44° at the north end, where it joins to my forcing house, the thermometer in which stood at 50°, heated by the tank system. I then cut off one half of my drains close to the air chamber, securely closing the ends where I had cut them off; those drains communicated exclusively with the sheltered end, thus admitting a portion of the air of the house to enter the air chamber immediately. I left the house in that state for an hour. The thermometers then stood as follows: —external, 24°, internal exposed end, 40°, middle, 40°, sheltered end, 44°. My experiment had so far succeeded to my wishes. I then cut off all the remaining drains, and again left for two hours. The thermometers then indicated, external, 20°; internal exposed end, 40°; middle, 40°; sheltered end, 44°. At 12 o'clock I registered the following report:—external, 18°; exposed end, 40°; middle, 40°; sheltered end, 43°; forcing house adjoining, 47°. I then made up my fires and retired to rest; at half-past 6 I paid them another visit, and found everything satisfactory, as the following registration will testify:—external, 24°; internal exposed end, 39°; middle, 40°; sheltered end, 42°; forcing house adjoining, 49°, and nothing required for the fires. All this was done at the expense of less than a bushel of coke. Some recent experiments have convinced me that the above differences in the temperature of the extreme ends were caused, not by any irregular diffusion of the heated air, but by radiation from the hot-house; for having suspended another thermometer not more than six inches from the one from which the above registration was taken, it showed a difference of 3° in favour of the uniform temperature of the house, the one hanging against the glass of the forcing house, the other on the wooden upright. Having in the foregoing experiments completely set aside the necessity of applying drains to the heating of buildings on the Polmaise system, at all events to a limited area, and I have the faith to think to rather an extended one—for of course there are and must be limits to everything,—I deem it a duty which I owe to you, as the unflinching advocate of the system, to lay before you the result of these experiments. Polmaise is now only a furnace, an air-chamber with an opening into it close to the floor of the building, and with a raised orifice of from two to three feet to admit the heated air into the building. Can anything be more simple? In order to set at rest, and in some measure to anticipate enquiries as to the power of diffusing heat by Polmaise without the drains, the following experiments will, I think, be conclusive.—I procured six thermometers, placed them together, and finding they exactly agreed, I placed three of them along the highest point of the roof of the greenhouse (one at each end and one in the middle); one was placed over the front trellis, in the position it occupied in the previous experiments; one was placed on the floor of the greenhouse, and one 2 feet below the level of the floor, in a large cistern that I had emptied for the purpose of experimenting. With a very slight fire I obtained the following results: at the highest elevation the thermometer stood at 48°; second, 44°, on the ground, 41°; and at 2 feet below the level of the floor, 45° Fahr. This registration was taken about 8 o'clock last night; 12 hours afterwards the thermometer indicated the same.—*A. Kendall, Queen Elizabeth's Walk, Stoke Newington, Dec.* 9. [What will the opponents of Polmaise say to this? Stoke Newington is not so far off that people cannot see for themselves.]

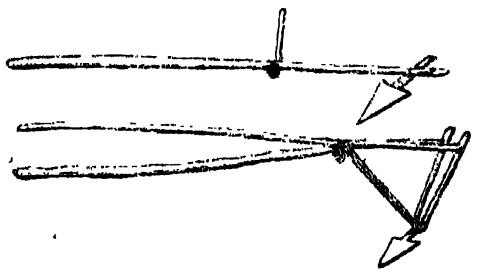
Vine Pruning.—I am induced to make a few remarks on Vine pruning, in consequence of the disappointment expressed by some who have been at great expense with houses, and have no adequate return of produce. There is, perhaps, no fruit requiring artificial cultivation that will give evidence of good cultivation more than the Vine and *vice versa*. Pruning should be performed as early as possible after the leaves have fallen; otherwise the Vine is to some extent deprived of organisable matter, which by early pruning would have been stored up in the remaining parts. Where the "spur" mode of pruning is adopted, and for general purposes it is undoubtedly the best system, it is preferable not to prune back the wood of the present year to one eye, as is usually done, but to leave a long spur of four or five eyes; the eye or bud nearest the base or old stem is in all cases to be retained, in order to produce the next year's wood; but it frequently happens that the base bud does not show fruit, or if it does, often not so promising as those further from the base; if it promises well, it should be retained, rubbing off the remainder, which may be done at a very early stage of growth; in fact, the sooner the better when it can be seen to which buds to give the preference. The long spur, divested of buds, will contribute its portion of organisable matter to the retained bud or buds, as the case may be; and should the base bud be fruitless, still it must be retained; and invariably some of the buds placed further from the base show fruit; retain the best, together with the base bud, and at every spur encourage this growth only. As the growing season ad-

vances the summer pruning, should be attended to, by stopping every shoot at the second bud beyond the bunch (if on the spur system, as presumed), soon after which laterals will be produced; these should not be allowed to ramble at large, the object being to concentrate the plant's energy where required most; let them be stopped back to the first bud, and never be allowed to interfere with the principal leaves; not more than a fortnight should elapse between every general stopping in this manner during the summer, so that the Vines may not receive any check from too much wood being taken off at once, and in all cases give preference to the principal leaves, the leaves of laterals being of much less service to the tree in the formation of organizable matter; by this means the Vines will have a tendency to ripen their wood earlier and better. How can it be expected that Vines should do well that are probably only stopped once or twice during the growing season? so that they appear as if intended to form a shady bower, rather than to produce fruit; and then they are so severely thinned, that the functions of the plant are completely disordered, and as a natural consequence, a host of evils follow, and yet I have heard great surprise expressed by some who treat their Vines in this manner, that they do not bear fruit. No growth whatever should be encouraged after the beginning of September, and the terminal shoot should be stopped still earlier, the thorough ripening of the wood being of the greatest importance.—*J. H., Ampart House, Nov.* 30.

Canker in Apricot Trees.—What is commonly (though improperly) called canker or disease in the Apricot tree, and supposed by some to arise from constitutional debility, by others from some local though unknown cause in connection with the soil, (this, I think, is fully proved by the numerous and conflicting opinions already in print on the subject), is in reality not a disease, but an injury received at a time when its effect is not apparent. This, I believe, is the only reason why the true cause and nature of the injury sustained has not been laid before us hitherto. The well known law respecting the crystallization of fluids at a low temperature will easily account for the vessels of the Apricot tree becoming ruptured as its sap freezes, and as the vessels on the upper and outward sides of a branch are the first to be injured, the number of those [illegible] will be in proportion to the duration and intensity of frost. The injury, then, is invariably received in the winter or early spring, and its effects not visible until the following summer, sometimes not for several years. This I have satisfactorily proved by trees which were injured in March, 1837, and January, 1838, and known at that time to have been so. They were closely watched, and for six years afterwards showed more or less the effect of those unusually severe seasons by branches dying off in the summer. When a considerable portion of the entire number of vessels in the transverse section or diameter of a branch are severed, the branch will go on as usual until such a degree of solar action occurs as will render the number of entire vessels remaining disproportionate to keep up the equilibrium of circulation. Whenever the demand is greater than the supply, the portion beyond the injured part becomes exhausted, and in an hour or two is past recovery. Should the surface of foliage beyond the injured part not be greater than the remaining number of entire vessels can supply, the branch will continue in health until the surface extends beyond the due proportion; whenever that is the case, the first intense solar action will kill it. I have shaded branches a little before they were quite exhausted, and recovered them for a time sufficiently to prove what I wanted. The only remedy, then, is protection on the first indication of severe frost; this has been proved to demonstration. Gum on all stone fruit trees arises from the same cause (severed vessels); this may easily be proved by incision, the elaborated sap oozing out at the ends of the open vessels, the aqueous particles evaporating, and the gummy becoming deposited on the surface next the extremity of the branch. All stone fruit trees of a tender nature should be protected in severe winters. This, I dare say, is unnecessary in the southern counties, especially on the coast, but in the midland and northern the case is different. The Apricot, from its early habit, is more tender than the Peach, and the Moorpark being more tender than most other varieties, and more extensively cultivated, accounts for its failure being so much noticed.—*Z.*

Foreign Correspondence.

Kieff, Sept. 16, 1846.*—From Moscow to this place we have passed through a portion of the great agricultural tracts of Russia. The governments of Orel, Tamboy, and parts of those of Tula and Riazan, by means of the Oka and the Volga, supply a great part of the north of Russia with Wheat, Buckwheat, and other grains. Our road lay through Tula and Orel, turning off at the latter town from the more direct road to Odessa through Charkoff. After leaving Moscow, the Pine and Birch forests and marshes of the north gradually give way to boundless tracts of arable land, intermixed now and then with Oak and Birch woods, and occasionally noblemen's seats, often in pretty situations, with woods and water, a large church, and a straggling wooden village about them. The country is undulating and even hilly, the soil seems good, and if agriculture were a little further advanced, the produce might be very great. The harvest is now pretty nearly over, and the winter crops good; though the spring corn has suffered from the drought. The Wheat is all of the small-eared bearded kind, and with Rye, Oats, and Buckwheat, seems to form the greatest part of the crops. The Buckwheat was still lying in heaps on the fields, or just commenced carting the other grain stacked in small stacks about the villages, and in many places being thrashed out on uncovered thrashing grounds, as in the south of Europe, but with flails instead of being trod out by horses or cattle. Crossing the government of Tchernigoff between Orel and this place, the aspect of the country changes considerably, as well as that of the inhabitants; the hills are flattened down, the soil is more sandy, all stones disappear entirely, and a milder climate allows of a much greater variety of produce, but the state of the fields shows that the inhabitants have not improved. The Little Russians are of shorter stature than the true Russian *muzhiks*, with rather gipsy-looking faces, and shave their beards, but far exceed the Russians in laziness. The main crops are still the same grain as about Orel, but there is much more Hemp, and a great deal of Tobacco (the green-flowered kind, N. rustica I believe), with which the government of Tchernigoff supplies a great part of Russia in the inferior qualities. Millet (Panicum miliaceum) is also a good deal cultivated and eaten in the form of a kind of baked pudding, like the Buckwheat, or simply boiled. Flax appears to be much less grown than in the north. Close about the villages are generally small fields or gardens overgrown with tall Chenopodiums, Amaranths, and other weeds, amongst which are their Cabbages, Sunflowers, Cucumbers, Water Melons, and Maize (the small kind called in France *Mais de la quarantaine*), with here and there a few French Beans, and all looking much better than one would have supposed from the wretched neglected state in which they are left. Everything indeed shows what resources this country would afford, could industry be introduced among the people, and capital be laid out in its due application. The whole routine of crops is alternating grain and fallow. The ground is ploughed or rather scratched over once or twice only between two crops. The ploughs seldom have mould-boards to turn the soil over, and are often of the rudest description. Some I saw were merely a long pole with a pair of oxen harnessed at one end, a share introduced at the other, and a stick stuck upright in a hole, with which a woman walking by the side kept it from turning over. Another with a pair of shafts was of this form, the upright part made of sticks bound toge-



ther, and cords connecting the part where the share is fastened with the bifurcation of the shafts. These ploughs, with their wooden harrows, the flail, the axe, the wooden shovel, and the *telega*, or little waggon, seem to be their whole stock of agricultural implements. Their horses are not shod, there being no stones even in the towns to wear their hoofs, but they usually prefer oxen, because horses they say give a good deal of trouble in feeding and taking care of them after the day's work is over, or when stopping to feed on a journey, whilst with oxen they merely slip off their yokes, and let them pick their own food among the straw heaps on the stubbles, or by the road sides, according to circumstances. When carrying their produce to market, or travelling any distance, they go in long strings of 20, 30, or more, oxen telegas, one man to every two or three, generally lying asleep in one of them; at night they draw up on the side of the road, turn their oxen loose, make a large fire where fuel is to be had to boil their Buckwheat or meal, and (at this time of year) lie down on the bare ground wrapped in their coats to sleep. In going from their villages to the fields to work, they are generally half asleep in their telega, and in short, every moment that can possibly be spared seems to be devoted to sleep or to drinking spirit. The agricultural labours of hedging, ditching, road making, hoeing crops, weeding, &c., are unknown. The stubble is left long on the fields in order to take up as little of the weeds as possible; there are no gleaners, possibly owing to the working people growing their own corn instead of working for farmers, but as soon as the fields are cleared, the village herd of cows, calves, sheep, goats, pigs, and colts are turned out to feed in the morning, and brought home at night under the supposed care of boys or girls who sleep out half the day. I suppose they do manure their fields, as a quantity of dung accumulates in the large yards, but I have seen no signs of any attempts to collect or increase it—no dung heaps about. With all this the crops appear to be good, and the quantity produced in some places so much greater than the demand, that where navigable rivers are distant (as in the Kursk government) I am told that grain accumulates for several years, and often can scarcely be sold for the cost of cultivation, whilst further north in the governments of Smolensk, Pskov, &c., great numbers of the population die of starvation. There is a project of a railroad from Saratov to Moscow, passing through the best of the corn country, which if carried into execution would greatly benefit the country, though of course it would not influence the corn trade with England, as it is not from thence (I am told) that we are supplied.

As we approached the Dnieper, coming to Kieff, we crossed for several stages a barren, sandy country, covered chiefly with Pine forests extending to the banks of the Dnieper, and crossing that broad, shallow, almost unnavigable river, came to quite a different kind of country on this side of the river. Kieff lies in a picturesque situation on the high bank, which is broken into a number of deep ravines; and many of the plantations and gardens contained within its wide extended limits must be very few in the early summer, but now everything is completely burnt up. It has not rained a drop for three months, and before that the rains had been only occasional heavy showers, of which all trace is soon lost in the sandy soil. The botanical garden attached to the new grand University has been only commenced within three years. It extends over broken ground, affording many very pretty situations, and is being well laid out, especially the out-door department. The climate is so much milder, and especially the summer so much longer than in Petersburgh and Moscow, that Professor Trautvetter is anxious to have as large a collection of out-door trees and shrubs as possible. Walnuts, Acacias, Gleditschias, and several fruit-trees, such as Pears, &c., which are greenhouse plants at Moscow, bear the winter well here; and Guilandina, Catalpa, Sophora japonica, Petrocarya caspica, &c., do with a very little covering. A new range of houses is building, with glass only in front and on the top, close brick ends, and rooms, store-rooms, &c., to the north, along the back; the whole range about 300 feet long, and the central part 30 feet high.

Kieff borders on the governments which supply Odessa with corn for exportation; and where, I am told, especially in Volhynia and Podolia, several of the Polish landholders have been taking some pains to improve the agriculture and introduce new kinds of grain. The Triticum Polonicum is said to be much cultivated on their estates. There may be, and very likely are, several noblemen who may have been making similar efforts in the country we have crossed from Moscow here; but the result does not certainly show yet to the eye of the passing traveller; and the very great waste of land shown everywhere in the broad space marked out for the road, in the wide straggling towns, and the number of pretexts taken advantage of for leaving land unoccupied, proves how little value is attached to it. Nor have I seen anywhere, one of the first steps towards improvement, the introduction of green crops (or artificial forages as they are called in France). Potatoes, also, are but very little grown, except near the larger towns, which are well supplied with them. The disease is as yet unknown here.

* This letter was omitted in its proper place, in order to publish those from Odessa.

Societies.

LINNEAN SOCIETY.

Tuesday, Dec. 1.—Edward Forster, Esq., in the chair. Geo. Busk, Esq., D. B. Chapman, Esq., W. R. Fisher, Esq., and Adam White, Esq., were elected Fellows.—Mr. R. H. Solly exhibited some monstrous specimens of the branches of a Spruce Fir. A paper was read by Mr. Thwaites, of Bristol, on the structure of Bacillaria paradoxa.—A paper was read by Dr. Joseph Hooker on the vegetation of the Galapagos Archipelago, as compared with that of some other tropical islands, &c., of the continent of America. In the working out this paper, the author stated he had followed the plan pursued by Mr. Darwin with regard to the Fauna of the same district. The relation of the Flora of this part of the world is double, the peculiar species being, for the most part, allied to plants of the cooler parts of America, or the uplands of the tropical latitudes, whilst the non-peculiar are the same as abound chiefly in the wet and damper regions, as the West Indian Islands and the shores of the Gulf of Mexico; also that, as in the case with the Fauna, many of the species, and these the most remarkable, are confined to one islet of the group, and often represented in others by similar but specifically very distinct congeners. After giving a history of the islands and their vegetation, the author concluded. The general result of this summary of the orders, and of the comparison of these and the species with those of the continent of South America and the other islands, which in peculiarity of Flora for their size, may be compared with the Galapagos (as New Zealand, the Sandwich group, &c.), is,—first, that there are points of agreement inexplicable in our state of knowledge: such are the peculiarities of Rubiaceæ, and of frutescent and arborescent Compositæ, which is rendered the more remarkable, for the species and genera of these orders contained in one group of islands having little or no relation with those of the others. 2nd, That the chief points of difference are explicable, and owing chiefly to the relation the islands bear to the nearest continents, and to the nature of the soil, climate, &c. Such as the absence of Ferns and the peculiar forms of Compositæ and Rubiaceæ, and other orders having their nearest allies on the neighbouring continents. 3rd, The smallest amount of novelty will be found amongst the more perfect plants—if such may be so considered—as possess a double floral envelope, and polypetalous corolla, including the Thalamifloræ and Leguminosæ,

whilst the greatest amount of new species exists in the lower order, as Amarenthaceæ and Piperaceæ, or in the incomplete genera of Euphorbiaceæ; and in the Compositæ on the other hand, there are somewhat fewer peculiar and new plants amongst the Monocotyledons than the Dicotyledons, and the amount of novelty amongst the Ferns is small in comparison to the higher orders.

MICROSCOPICAL SOCIETY.

Dec. 10.—F. J. Bowerbank, Esq., President, in the chair. H. J. Turner, Esq., and Dr. Parker, were elected ordinary members. Signor Philippo Pacini and Prof. Bailey, of New York, were elected honorary members. A paper was read by Mr. Legg, on the Application of Polarised Light to Microscopical Investigation. Mr. Legg commenced by stating that it was now well known that many objects which could be only imperfectly observed by common light, were very evident by means of polarised light. The object he had in view was to point out to the microscopist the most convenient way of using polarised light. He described the several means adopted for the purpose of obtaining polarised light, and recommended as the best the prism formed of Iceland spar and glass, as the most convenient. By this apparatus and a plate of selenite, objects might be submitted to the action of the various coloured rays of the spectrum. Mr. Woodward, of Islington, explained the nature of polarisation of light by means of models and other apparatus. After the reading the paper Mr. Woodward, Mr. Legg, Mr. Matthew Marshall, and Mr. Button, exhibited microscopes fitted up with various kinds of polarising apparatus.

STAMFORD-HILL, CLAPTON, AND STOKE NEWINGTON, GARDENERS' ASSOCIATION.

Mr. G. Castle read an essay on early forcing the Vine. He approved of the fronts of Vineries being built upon arches, and liked rather deep well drained outside borders. After planting (said he), the Vines should be encouraged to grow, by removing all laterals and useless shoots, by syringing and a strict attention to cleanliness. It is improper to expect a full crop from young Vines too soon, for although a few bunches might be obtained the season after planting, yet the general routine of forcing should not commence till the third season. Where the old system of heating is still in use, he considered nothing to be more congenial to the well being of the Vines than a good bed of leaves along the centre of the house; in fact, so as to occupy all the floor except the footway, for by this means a genial heat is generated, for six weeks at least; some prefer dung on account of its greater heat, and the ammonia arising from it is supposed to be useful to the Vines. With respect to pruning, he preferred short spurs to the rod system for very early work, taking care, in the "summer dressing," to allow no more eyes to swell than were actually wanted, and to carry up young canes every third year, and to cut out the old wood as soon as the Grapes are cut. He recommended the maintenance of a low temperature at all times, especially at night, increasing it gradually as the season advanced, with abundance of moisture, except at colouring time. He kept the pipes covered with woollen cloths, and sprinkled them instead of the pipes, and by this plan he avoided syringing the Vines, and evaded the evil of spots on the Grapes. Plenty of air should be admitted at all times, but if it could be warmed before it entered the house so much the better. When the Grapes are colouring he admitted plenty of front air, if the wind was south or south-west, and when the crop is cut the Vines are left to chance. The house is still well aerated and syringed, not with a garden engine, but with a syringe, so as to resemble a gentle shower. The Black Hamburgh has been found to be the best for forcing, which commences early in November, so as to have Grapes ripe by the middle of April.—*W. Sherwood, Hon. Sec.*

Reviews.

Orchidaceæ Lindenianæ; or, Notes upon a Collection of Orchids formed in Colombia and Cuba, by Mr. J. Linden. By John Lindley, Ph D., F.R.S. Bradbury and Evans. A Pamphlet of 36 pages.

This is a scientific account of a fine collection of Orchids formed in Colombia and Cuba by Mr. Linden, and by him transmitted to his supporters in Europe. Many are alive in the gardens of this country and the Continent, but a few only have flowered. The author gives the technical characters of the new genera and species, and Mr. Linden's valuable notes upon the situations and climate in which the species were found. The total number of species enumerated is 143, of which many more than half are new. A few observations respecting the climate in which these plants prefer to live, and their elevation above the sea, are prefixed by the author, and introduced by the following remarks:—

"It was not without reason that Humboldt thus characterised the Orchids of Equatorial America. 'Although,' says that illustrious philosopher, 'such plants are scattered through every part of the torrid zone, from the level of the sea to the height of 10,000 or 11,000 feet, yet it must be admitted that in the number of species, the colouring of their flowers, delicious fragrance, rich foliage and brilliant colours, none can be compared with those which inhabit the Andes of Mexico, New Granada, Quito and Peru, where the shade is moist, and the breezes mild, the mean temperature of the year at an elevation of between 3000 and 6000 feet, being from 15° to 69°.' Mr. Linden's collection shows that of 129 species nearly half are found in such localities. If, however, any general conclusions are to be drawn from Mr. Linden's useful notes, it is necessary to examine the species in detail, and for that purpose they are classified in the following lists according to their elevation above the sea; the temperature of each group being computed from the data furnished by Humboldt."

The Vegetable Kingdom. By Prof. Lindley.

A second edition of this work, already noticed at p. 187 of the present volume, has been issued. It differs from the first edition chiefly in the correction of such typographical and other verbal errors as have been remarked since its first appearance, and in the addition of the new genera that have become known to the author within the last few months.

Johnson's Gardeners' Almanac for 1847, continues its useful career, and is, we presume, by this time established in the good opinion of amateur gardeners. We regret, however, to see the lists of the plants which flower in each month so full of typographical and other errors. To have any value they should be accurate, and classified; what, for example, can be made of Tropeoli, *Cornea*, Neottia, Epidendra, Helianthus viridis, Coræa speciosa, Pogonia glabra, Jacquinii, and so on? and on what principle are such words as Tussilago Farfara, Achyranthus, Cluytia, Orontium japonicum, and Hyoseris! introduced at all? We wish we could say that no other marks of carelessness were visible; but we trust that this hint will cause the matter of next year's Almanac to be more carefully put together, for the book is really useful with even such blemishes as we have reluctantly pointed out.

The Illustrated London Almanac, is a highly-decorated account of the natural history and phenomena of the months, and on that account is worth the perusal of all who have a shilling to spare. It does not call for any critical remarks.

A Few Words of Advice on Artificial Manures, by Mr. Lawes, contains some of the best facts that we know of, stated in the best way. As it is *given* to every one who will send two postage stamps to Mr. Wilson, at Mr. Lawes' factory, Deptford Creek, we need not say more.

New Garden Plants.

57. Æschynanthus miniatus. Vermilion Æschynanth. *Stove Epiphyte.* (Gesnerads*) Java.

This species, received by Messrs. Veitch from their collector in Java, is readily distinguished by its very short dish-shaped calyx, which has scarcely any distinct marginal lobes, and its vivid vermilion-coloured flowers, with a yellow star in the throat. It yields to none in beauty, and is much finer than Vanden Bosch's Æschynanth lately imported from Belgium. It is one of the prettiest plants in cultivation, and like all its race, lends itself willingly to the care of any one who has a warm damp house in which to grow it, in a basket or on a block of wood. It was exhibited at one of the Garden meetings of the Horticultural Society last summer.—*Botanical Register.*

58. Sarcostemma (Philibertia) campanulatum. Bell-shaped Sarcostem. *Greenhouse Climber.* (Asclepiads.*) Peru?

From Messrs. Veitch. Its broad cordate leaves, and large yellow campanulate flowers, are strikingly different from those of other previously described Sarcostems. It is a pretty little shrubby plant, well adapted for training over ornamental wirework fastened to the pot, and like most of the plants belonging to Asclepiads, it requires a rich loamy soil and plenty of moisture during the growing season. Afterwards, when done flowering, it should be allowed a time of rest, by gradually withholding moisture until the soil in the pots becomes tolerably dry, when the plant should be placed in the warmest and driest part of the greenhouse until the following spring. At that season the plants should be fresh potted, cut back freely, and placed in a gentle moist heat for a few weeks. It is easily increased by cuttings, and flowers the greater part of summer and autumn.—*Botanical Register.*

59. Ionopsidium acaule. Stemless Violet-Cress. *Hardy Annual.* (Cruciferæ.*) Basaltic Hills near Lisbon.

A beautiful rock plant for shady situations; its flowers are of a clear lilac, and the foliage is of a delicate green colour. It propagates itself by seeds, and by runners which throw out roots abundantly into the damp soil. It grows in any rich garden soil, and blooms from April to October. It requires rather a moist (shady) situation. Its small flowers (they come o'it white and turn to a pale lilac) appear in profusion from April to October. It makes a neat edging to borders in shaded places. Although no Cochlearia, it may nevertheless as well continue to bear in gardens the old name of Cochlearia acaulis, unless our English one is preferred.—*Botanical Register.*

Miscellaneous.

Slug Fence.—To repel the slugs and snails from his Carnations, Mr. Sharp, of the Winchester gas-works, encircles the rim of each pot with a piece of horse-hair rope, partially cut across its strands. The bristles start forward and present a *chevaux-de-frise* which neither slugs nor snails can surmount. It is very durable, may be used to protect any plant, and is rather ornamental. Mr. Sharp does not claim merit for the invention, but its efficacy entitles it to be more generally adopted.—*Johnson's Gardeners' Almanac.*

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

The Food of the Shops.—Hard's Farinaceous Food has been for many years before the public. It consists of Wheat flour slightly baked. It is very carefully prepared, on which account it is much in repute. The poor frequently employ baked flour as a substitute. Densham's Farinaceous Food is composed of three parts of Wheat flour and one part of Barley-meal slightly baked. The Barley-meal renders this preparation slightly laxative. Ervalenta is the meal of the Lentil (*Ervum lens*). It is used with treacle, to counteract habitual constipation. English Arrow-root is Potato starch. The Prince of Wales's Food is Potato starch. Bright's Custard Powder is a preparation of Potato starch. Bright's Nutritious Farina is Potato starch aromatised. Gardiner's Alimentary Preparation has recently been introduced as a "production prepared after the instructions of the celebrated Professor Liebig, with a due proportion of nitrogenous matter indispensably requisite for nourishment." It is Rice-meal very finely ground.—*Pharmaceutical Journal.*

Barometer.—Mr. P. Christensen, of Cowes, in the Isle of Wight, lecturer upon astronomy, &c., has arranged a Table which no one having a weather-glass should be without. Its price is only 1*s.*, and it may be had of C. Wilson, 157, Leadenhall-street. This "Companion to the Barometer" is the result of 32 years' observation, and the following is an epitome of the information it gives: During the first six months of the year, when the mercury is rising, if the weather has been bad, and the mercury reaches to 29.62 inches, there will be a change; if to 30.12, the weather will be fair; if to 30.29, set fair. If the mercury has been high, and begins falling, there will be a change if it declines to 29.90; rain, if it descends to 29.50; and wind with rain, if it reaches 29.12.—During the last six months of the year, if the weather has been foul, and the mercury begins rising, there will be a change if it reaches to 29.45; fair, if to 30.13; and set fair, if to 30.45. If the weather has been fair, and the mercury begins falling, there will be a change if it sinks to 29.87; rain, if to 29.55; and wind with rain, if to 29.28. At any time of the year, if the mercury fall to 28.20, or even to 28.20, there will be stormy weather. These conclusions are from observations made at 30 feet above the sea's level, and therefore one one-hundredth part of an inch must be added to the height of the mercury for every additional 10 feet above the sea's level, where the barometer may happen to be.—*Johnson's Gardeners' Almanac.*

Calendar of Operations.

(*For the ensuing Week.*)

The Storing of Ice.—Heat, moisture, and confined vapour, are well known enemies, and of course the converse must be secured to command success. Whether "stacked" or in a house, the first matter is to promote the escape of the ice-meltings. These must quickly pass; for if allowed to accumulate they will assuredly nullify all other arrangements. There must be a capital drain, and this drain should possess what is termed a "trap," and if possible terminate in water. The next question is—whether above or below ground. In looking over the abundant evidence contained in the back Numbers of the *Chronicle*, and joining therewith some experience, I am persuaded that there is little need of going below the ordinary ground level, unless in peculiar situations. I consider Mr. Fortune's description of the Chinese houses at page 576, 1845, in addition to much former evidence on this head, tolerably conclusive. Here we find no excavation, no shade of trees, and the houses situated in fields under an irrigating system. All this, too, beneath a Chinese sky, described by Mr. Fortune as "clear, fierce, and burning." It must be remembered in this matter that the walls (mud and stone), are uncommonly thick, and a Bamboo roof is raised over the whole, thickly coated with thatch. I am of opinion that small ventilating doors or windows—one on each side near the top—will be found beneficial rather than otherwise. I take it for granted that a cloud of vapour floats over the surface of the ice at all times when closely confined; and if so, it must be very prejudicial. Such ventilators should not be opened too often, nor for many hours at a time, or it will be but exchanging one foe for another. Hollow walls are undoubtedly good; but they are expensive, and if they can do without them in China, we ought to do without them in Britain. A good and simple plan is described at p. 838, 1842, of the *Chronicle*, by a "Ross-shire Gardener," the only doubtful point being, according to my ideas, the using water and leaving the ice exposed afterwards in order to cement the surface. Mr. Paxton's plan, at p. 765, 1841, is also very good. When the main principles are kept steadily in view, there will, I conceive, be little occasion for the use of boiling water or salt.

Conservatories, Stove, &c.

Conservatory.—In frosty weather this structure will require a very great nicety of management; some rather difficult problems have to be worked out. Atmospheric humidity cannot by any means be entirely dispensed with, yet this, if not nicely managed, will produce drip, and such, I need scarcely say, is most prejudicial to the delicate texture of the Camellias and other gay things. Of course if the exterior of the roof has no covering, ice will gather on the glass, and in melting, drop through the laps. The best plan is to keep as low a temperature as can possibly be allowed,

say 40° to 45° at night, and to leave a little back and front air all night. The front must be very moderate, or the atmospheric moisture instead of passing quietly away by the back apertures, will be condensed as it arises. With a good roof covering 40° would be amply sufficient, and then there would be sufficient atmospheric moisture at all times, without the special application of water. *Mixed Greenhouse.*—See that the young stock of Heliotropiums, scarlet Pelargoniums, Persian Cyclamens, with other flowers, grown especially for winter, have nice light situations, and regular attention as regards watering. Let Ericas have close attention as to watering, if they stand unfortunately near flues or pipes, they may become suddenly very dry. Keep up a quiet ventilation day and night if possible; let the air steal in moderately, and dispense with strong fires—or, indeed, of any kind, when the temperature can be kept within the limits without them. Do not water the Pelargoniums until they are thoroughly dry, and take care to fumigate frequently and slightly. *Forcing Pit or Frame.*—This is a good time to introduce the following things, provided, as I before observed, they have received the necessary treatment through the summer: Rhododendrons, Azaleas, both American and Chinese, Persian Lilacs, Sweet Briars, Moss and Provins Roses, crimson Perpetual Roses, Ledums, Kalmias, Anne Boleyn Pinks, Wallflowers, Sweet Williams, Dutch Bulbs, &c., &c. Unless, however, they are in proper trim, it will be labour in vain, and no mode of forcing, nor form of pit, can compensate for this; the great secret in the affair, if the heat be wholly composed of fermenting materials, is to keep down accumulating damp and mouldiness, by an almost constant ventilation; increasing the linings in order to raise the necessary temperature: those who possess tank houses or pits, will pursue a somewhat different process; such will scarcely need my advice. *Cold Pits or Frames.*—We have had about a week of wintry weather here, during which the thermometer has several times indicated from 10 to 12 degrees of frost. Our pits and frames containing stores for next summer, were matted down at the commencement, and strawed over. The thermometer in one of them has been from 32° to 36° nearly the whole of the time; they have never been uncovered, but have had the back of the lights tilted most days for a couple of hours. On looking in at the commencement of the thaw, I find that although they had been slightly frozen, they are just as fresh as when shut up. I have turned up the ends of the mats to inure them gradually to the light: this is a most important affair.

KITCHEN GARDEN FORCING.

Pines.—Winter watering of Pines in pots is of rather doubtful character; a better way with general stock in pots is to cover over the pots with tan two or three inches thick, provided the bottom heat will permit such proceeding. *Early Vines, Peaches, &c.*—If any portion of the stem of the Vines now in forcing is near the influence of the flues or pipes, such should be bound with moss, old mat, or any other material, to ward off the dry heat. Keep the temperature at present down to 60° in the case of sunshine in the day time, sinking to 50° at night. Do not give air unless to depress the thermometer, or to avoid a superabundance of rank steam from fermenting matter. Let the syringe be applied two or three times a day, suffering the wood to become dry between the applications. *Strawberries.*—Where these must be obtained as early as possible, say by the end of February, a lot should now be introduced. Unless their buds are perfect through early cultivation, thorough ripening, and careful protection of their roots from frosts, it is ten to one they prove an abortion. Any house or pit will do for the first three weeks, provided a temperature of 45° to 50° can be maintained, with a moist atmosphere. Let them by all means have as light a situation as possible at all times. *Vines, Peaches, &c., in pots.*—Pursue similar principles to those recommended for the Vinery and Peach-house, except that a bottom heat of 70° to 75° will be greatly in their favour. *Mushroom-house.*—I had intended to say a few words about the management of this house, after the introduction of so many things, such as Sea-kale, Chicory, Rhubarb, &c., I must, however, defer my observations until next week.

FLOWER GARDEN AND SHRUBBERIES.

I have said nothing special about the protection of tender Roses hitherto, believing that they should be made to endure a little frost at the early part of the winter. No time should now be lost in affording them protection. The tops of standards, worked on ordinary stocks, may be protected by wisps of straw, bound amongst and over their branches, or by tight canopies firmly fixed, according to the principles laid down for the protection of tender plants in the Calendar for the last week in October. Beds or masses of Hybrid Perpetuals, Teas, or other tender kinds, should have some porous material strewed amongst them, to protect the collar. Old exhausted tan from the Pine pits, clean riddled—using the coarse particles—is very good. New sawdust may do also, or even a good coating of half-decayed leaves. Four or five inches of such materials will at least secure the collar safe in the event of a very severe winter. If it is desirable to protect the tops altogether, mats, thrown lightly on them, covered over with straw, will suffice, taking care, on the breaking up of frost, to observe the thawing principles laid down in the Kitchen Garden portion of the Calendar.

KITCHEN GARDEN AND ORCHARD.

Continue to trench, dig, and ridge every spare inch of ground when frost permits; this is particularly to be observed in gardens inclining to a clayey texture. If the frost continues let the manure necessary be wheeled out for the whole of the spring cropping, laying it in heaps, either on the spot, or as near as possible to it. That portion not required for immediate digging in should be piled in small mounds and soiled over, to prevent loss by evaporation. With regard to the exposure of tender vegetables on the breaking up of frost, let me not be misunderstood in the directions I gave in last Calendar: "Do not uncover them until completely thawed." Such was the advice there offered, in addition I say, do not entirely uncover them suddenly even then; leave a very light screen of straw on them for a day or two, in order to inure them gradually to sunlight.

FORESTING.

Planting of all kinds, lately suspended by frost, may now be resumed for awhile, if the thaw continues—especially where ground is in a mellow state. Young plantations must not be forgotten. The thinning out necessary may be proceeded with at any time; as also the cutting over of stunted young Oaks. The dubbing, cutting, or plashing of hedges, must be seen to; as also making new hedge-rows. Overgrown hedges should now be severely cut in.

State of the Weather near London, for the week ending Dec. 10, 1846, as observed at the Horticultural Garden, Chiswick

Dec.	Moon's Age.	Barometer. Max	Barometer. Min	Thermometer. Max	Thermometer. Min	Thermometer. Mean	Wind.	Rain
Frid. 4	15	29.878	29.726	48	25	31.5	N	—
Sat. 5	16	30.003	29.861	40	19	34.4	W.	.11
Sun. 6	17	29.811	29.712	41	30	35.6	N.W.	—
Mon. 7	18	30.127	29.906	49	33	37.5	N	—
Tues. 8	19	30.321	30.147	49	34	38.0	N.E.	—
Wed. 9	20	30.161	30.004	43	34	39.0	N.E.	.07
Thurs. 10	〃	29.104	29.651	44	34	34.0	S.W.	.08
Average		30.001	29.851	41.4	29.7	35.5		.26

Dec. 4—Sharp frost; cloudy and fine; clear at night
5—Clear and fine; overcast
6—Clear and fine; cloudy; clear; slight frost
7—Fine; cloudy
8—Cloudy; fine; overcast
9—Slightly overcast; drizzly; rain at night
10—Rain; densely overcast.
Mean temperature of the week 5½ deg. below the average.

State of the Weather at Chiswick during the last 60 years, for the ensuing Week ending Dec 19, 1846.

Dec.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain	Prevailing Winds
Sun. 13	46.5	32.1	41.1	6	0.18 in	1 2 1 1 5 7 2
Mon. 14	45.2	34.5	39.4	10	0.28	2 2 1 2 5 5 3
Tues 15	46.9	35.8	41.0	10	0.40	1 2 1 3 8 4 1
Wed 16	45.5	35.9	40.2	12	0.46	1 2 2 2 4 3 4
Thur 17	46.5	33.7	40.1	11	0.47	3 1 1 2 2 7 3
Fri. 18	45.4	35.0	40.2	7	0.33	2 2 1 1 2 4 5
Sat. 19	45.5	35.1	40.3	8	0.38	1 3 2 1 3 7 4

The highest temperature during the above period occurred on the 17th 1845—therm. 57°, and the lowest on the 18th, 1841—therm. 16°.

Notices to Correspondents.

Post-office Orders.—In order to obviate the inconveniences which are now constantly being experienced by parties who wish to remit small sums to the office of the Gardeners' Chronicle for Advertising, we have to request that all Post-office orders may in future be addressed to Mr. James Matthews, 5, Upper Wellington-street, Covent-garden, and made payable at the Post-office, 180, Strand, London. Post-office orders, remitted by subscribers for the Paper, should be sent to the respective Agents who supply them.

Anthemenes—*Clericus*—Wash off the flowers of sulphur and do not apply it again unless the disease re-appears.*

Books—*G—a*—It is out of our way to recommend Christmas presents, but, as far as we can judge, Miss Loudon's "Tales for Young People" are the very thing you want, amusing, and well suited to the capacity of young people, besides which it has some clever woodcuts.

Bees—*C H B*—Drain out your proceeds of honey-combs through a fine sieve or muslin bag, in a warm room or near a fire, otherwise the honey will not readily run. Wash the refuse comb into a vessel of cold water and mix it with your mead. To obtain wax, boil the combs in a strong muslin bag in a saucepan, with water sufficient to keep the bag from burning, and whilst boiling continue to press the bag with a wooden spoon to extract the whole as you skim. Drop the wax into cold water where it will swim on the surface. The wax thus obtained will still want refining, to effect which place it in a clean saucepan and melt it over a slow fire, then pour off the clear wax into proper vessels. When mead is obtained from pure honey, allow about 4 lbs. to a gallon of water. Boil the whole in a copper near three quarters of an hour, and skim it well. When your mead is almost cold, turn it and let it stand till it is fine and old enough to drink. When mead is made from honey-combs, dissolve them in warm water till an egg will swim in the mead the breadth of a shilling. Be careful before you break the combs into a sieve or strainer to separate all the young bees and pollen, otherwise that will give the mead a bad taste. Boil and skim as before.—*W.*

Emigrants—*M B*—To take Peaches to Georgia, is to carry coals to Newcastle. All tender annuals will grow there, so that you cannot go wrong. As to Vines, the Frontignans, Muscats, and Indian Grapes will answer best.

Entykoploleon—Mr. Parker's letter is an Advertisement. We have nothing to retract, but something to add if necessary.

Exhibitions—*Subscriber*—You can show fancy Pelargoniums in what sized pots you please; there are no regulations of any sort respecting them except that they *must* be shown in *sizes*, that is to say six plants at a time, neither more nor less.

Fruit and Kitchen Garden—*Nwell*—Trench 3 feet deep, taking care that an evenly sloping bottom be formed towards drains. These should be 5 feet deep, and from 18 inches to 2 feet in width, according to the nature of the materials you may have at command. None are better than stones laid so as to form a good cavity at the bottom, and filling up with the smaller to the height of a foot above the bottom of the trenching, covering with turf or heath to prevent the earth from choking the drainage. A deep surrounding drain will probably render few necessary within the area.‖

Fruit-trees—*A Constant Reader*—The following will be suitably included amongst the kinds you require for your small orchard:—*Apples:* Bedfordshire Foundling, Blenheim Pippin, Cockle Pippin, Dumelow's Seedling, Golden Harvey, Hawthornden, Braddick's Nonpareil, Early Nonpareil, Claygate Pearmain, Scarlet Nonpareil, Court Pendu Plat, Wormsley Pippin, Reinette du Canada, Alfriston, Sturmer Pippin. *Pears:* Aston Town, Beurré Bosc, Marie Louise, Glout Morceau, Thompson's, Knight's Monarch, Beurré Diel, Winter Nelis, Easter Beurré, Beurré Rance, Jean de Witte, Althorp Crassane, Passe Colmar.‖

Grafting—*A Junior*—Clay is preferable to grafting wax. The latter consists of four proportions, by weight, of pitch, four of resin, two of bees' wax, one of hogs' lard, and one of turpentine. These should be melted, well mixed, and spread on brown paper, or some more durable material, which should be cut into slips. Peaches next week.‡

Heating—*Cork*—You will find it very inconvenient to heat a conservatory from a kitchen range for a reason given to a correspondent under "Pears"; nor will you be a gainer in the long run. As to a tank in a pit, if holes are made in the side-walls of the pit, heat will escape into the house; but it is better to provide air-heat also, outside the pit, for a stove. By all means have a span-roof; a lean-to will be ugly, and not half so useful.—*Embryo*—Your plan seems judicious; but why run the flue along the *back* of the house? Or cannot you keep in the house the heat you already have, by putting something over the glass in very bad weather; such as asphaltine.

Hop-poles—*Anon*—Plant the Chestnuts 5 feet apart. Experience seems to show that to be the most economical and advantageous distance.

Insects—*H M*—Black Currant bushes are very subject to the attacks of this insect, which is the caterpillar of *Ægeria tipuliformis*, figured and described in the *Gard. Chron.*, vol. 1, page 779. *R.*—*J P*—The 3d and 4th vols. of Kirby and Spence's "Introduction to Entomology" ought to supply you with the information you require. *R.*—*R P*—Before gluing down dried plants, you should wash the backs of the specimens with corrosive sublimate. Now that they are infested with maggots, the only remedy is to put them for 20 minutes into an oven, not hot enough to singe a feather or discolour white paper. *R.*

Lead—*L*—Cast-iron pipes and cisterns are unobjectionable; but a slate cistern is cheaper and much better; or can you not build one of the mortised tiles made by Copeland and Garratt, and now employed in the baths, &c., for the poor. We cannot tell their price.

Morphology—*J G*—Thanks. Such things are not uncommon.

Names of Plants—When plants are sent to be named, it is most particularly requested that they may be in flower, and as perfect as circumstances permit. Most especially is it requested that the country whence they have been received, and whether they are annuals, perennials, or shrubs, hardy, greenhouse, or stove plants may be stated; because specimens by post are generally bad and incomplete, and much valuable time, which such information would save, is needlessly wasted.—*R Errington*—The fruit of some species of Mesembryanthemum.—*G W, Leeds*—Plants cannot be named from pen and ink scrawls, especially if accompanied by illegible writing.—*An Old Sub*—Your plant is some coarse sedge; apparently Carex intermedia. It resembles the Tussac Grass in its growth; but it is quite different. The Tussac Grass is a true Grass, more near our Wood Fescue, and is called Festuca flabellata.—*C A P*—A very fine specimen of Oncidium ciliatum; that figured in the "Botanical Register" was a miserable bit. 2, 3, 4, Maxillaria punctata; *b*, M. picta; 6, Acacia Gunnii.

Nuts—*T H*—In rich soil, such as you describe, it is difficult to bring Nut-trees into an early bearing state. If you cut them down, they will again grow vigorously to wood for years. Thin the branches now; and shorten the young shoots one half their length at midsummer. From the remaining portions, fruitful laterals will proceed. ‖

Paliurus aculeatus—*P A*—This is a deciduous shrub, armed with strong hooked thorns; it is hardy near London, in warm situations, except in very severe winters. It grows about as fast as a Holly. It prefers light soil. We do not know its habits in calcareous land. Propagate it by seeds, easily procured from Italy, where it is used for hedges.

Peach Trees—*A*—Your recently planted trees which now exhibit symptoms of canker should be cut back to sound wood; where there is none sound, of course remove the tree entirely, and replace, not in spring, a bad time to plant Peach-trees, but as soon as possible. Keep some reserve plants in training as substitutes for any trees that may prove unhealthy. ‖

Pears—*Speed*—We never recommend tradesmen. Any respectable nurseryman can supply you with the Trout Pear. A great objection to using the hot plate of a kitchen for heating a conservatory is that one is often wanted when the other is not. It is a penny wise arrangement. No one can execute such work satisfactorily, for that reason.—*C B*—Only Fellows of the Horticultural Society can obtain supplies from their garden. We *cannot* recommend tradesmen; any *respectable* nurseryman can procure what you want, if he chooses.

Pelargoniums—*Clericus*—Your varieties are good, but deficient in light flowers. Add Catleugh's Emma, Beck's Susanna, and Foster's Matilda; these will form an improvement.*

Polmaise—*J G*—Much obliged. We shall take care to publish names as soon as there is enough of them.—*G H*—We are perfectly aware that this method was first applied by Mr. Haden to a Church in Scotland; we expressly said *England*. But we are of opinion that it is desirable to ascertain experimentally whether better details cannot be hit upon. Why not send your guinea to assist in working out the problem?—Some letters on this subject are unavoidably deferred, in consequence of Mr. Kendall's interesting letter.

Potatoes—*A Constant Reader*—Surely this subject is wearing away quite as fast as it ought. That a vast deal of nonsense and rubbish has been published about it is most true; but out of such material information is to be elicited. We do not at all dispute your view of the cause, but such views will never lead to the improvement of the cultivation of any plant. What can be so important a question as that of food? Just look at Ireland.—*C T D*—Decaisne's pamphlet is entitled "Histoire de la Maladie des Pommes de Terre," in 1845, Paris, Dusacq. An abstract in French of Harting's paper will be found in the "Annales des Sciences," 3d series, vi., 42; the original is, we believe, in Dutch, and unpublished. Payen's papers are scattered through the "Comptes rendus." There are many other works; and any one who pretends to be able to write a book upon the Potato disease should be acquainted with them all. Many are in German; most of which have been abstracted by ourselves. Potato literature is already very extensive.

Roses—*W D S*—Sow the seed in a warm, light border early in the spring, about an inch deep, and wait the event. Such seedlings as come up may be treated like other hard-wooded plants. Frost will not have hurt the seeds. If you will put a hand-glass over your seedling-beds, so much the better.

Seeds—*T J*—Detailed answers to such inquiries as yours *cannot* be given in a Newspaper. The best course for you to take is to ascertain by the Index of the "Vegetable Kingdom" to what natural orders your unknown names belong, and then to judge for yourself of the likelihood of a plant turning out well. They appear to be Van Diemen's land plants; and they are all tolerably hardy in the mild parts of England and Ireland.

Sweetbriar—*A R*—You had better sow it in a bed, and make your hedge with the seedlings. If you attempt to sow a hedge, you will probably find it full of gaps, unless you sow it much broader than is necessary. Such seeds come up irregularly, and one after the other for a couple of years.

Misc—*Clericus*—Angelonia grandiflora is a tender plant.‡—*Nwell*—The manuscript is left for you at our office. It is not worth publication.—*Z*—Tetradenium signifies having three glands. Four volumes have appeared of Kunth's "Enumeration;" the last was occupied with Lillyworts. We do not give prices.—*W Baker*—Next week.‡

SEEDLING FLOWERS.

Fuchsia—*W D*—Your seedling has a good corolla, and is a fair flower, but it wants contrast in the colours, and it does not surpass many that are already cultivated.*

HORSE WORKS.—Wanted to Purchase, a good Second-hand **HORSE WORKS** for Driving Chaff-cutters, Threshing Machines, &c.—Direct to W. W., at Mr. Hare's, Swan Stables, St. Martin's-lane.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises. BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

The Agricultural Gazette.

SATURDAY, DECEMBER 12, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
WEDNESDAY, Dec. 16—Agricultural Society of England.
THURSDAY, — 17—Agricultural Imp. Soc. of Ireland.
THURSDAY, — 24—Agricul.ural Imp. Soc. of Ireland.

LOCAL SOCIETIES.
Leyland Hundred—Wells (Ireland).

FARMERS' CLUBS.
Dec. 21—Rooley | Dec. 26—Hereford
— 23—Rhins of Galloway

VERY many leading men in the AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND have regarded that alteration in its fundamental rules lately resolved upon (see page 777), in the manner we expected. Its President, the Duke of LEINSTER, and other noblemen, its chief supporters, fearing the consequence of admitting political matters to discussion, have resigned their membership, and such a general feeling has arisen in reference to the subject, that we are very glad to find that the Council have resolved to ask the next monthly meeting of the Society for leave to replace the rule which they had suspended.

The upshot of this affair is a very good lesson to our Agricultural Societies as regards the safety of a non-political character. Let farmers express and work for their political opinions as independently and heartily as any men; it is the privilege and *duty* of intelligent men in whatever station they may be to strive for the cause they hold just—in politics as in every other matter which engages their attention; but let them keep their efforts here apart from their efforts for the benefit of practical agriculture; the latter will be more likely to succeed if this be attended to, and the influence of the former will not be diminished.

THE complexity of any system of FARM ACCOUNTS depends altogether upon the will of the farmer. He may wish to know how each of his fields is paying, and in that case he must of course open an account for and against each in his ledger. Or he may be satisfied with ascertaining the cost of and returns from his root and grain crops merely, and then so far as these go he will require to open only two accounts there; the one exhibiting on the one hand the cost of labour, manure, and seed, and on the other the returns from grain sold; and the other (assuming the roots to be all consumed on the farm by bought cattle and sheep), exhibiting on the one hand the cost of labour, manure, and seed, as regards the cultivation of the fallow crops, along with the cost of stock to consume them; and on the other the value of stock sold, after their consumption.

But very few will be satisfied with only this; most farmers will be curious to know how their sheep, cattle, pigs, &c., are doing, apart from one another. Most will desire to know the cost of the cultivation of Wheat, Barley, Oats, Turnips, Potatoes, Carrots, &c., apart from one another, and to do this they need to keep separate accounts for each.

The matter of greatest difficulty to any one who would keep his farm accounts with any minuteness, is the distribution of the sum paid for labour amongst the several heads on which it is chargeable. Imagine a farmer at the end of each week paying two dozen labourers—men, women, and children, who have during that period been working, each of them, for days and parts of days at different sorts of work; if he enters the time of each man separately in his day book, he may have every week for labour alone, 40 entries to make there, 40 in the journal to which he transfers them, and 80 in the ledger to which they are posted on the Dr. and Cr. sides respectively of the accounts which they concern. To do this every week would be endless work. And some contrivance is therefore necessary by which the labour may be shortened. Let us devote the remainder of this article to a description of the LABOUR-BOOK which we employ, and by which the 160 entries which we have supposed and which we should often otherwise be required to make, are reduced to 12 or 20.

The following is a copy of the page in such a labour-book for the week ending Dec. 5, 1846:—

FARM LABOUR ACCOUNT, for week ending *December* 5, 1846.

NAMES.	Daily Wage.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.	1. Wheat.	4. Carrots.	5. Mangold Wurzel.	8. Cattle.	9. Sheep	10. Pigs.	Total.
Ploughmen.	s. d.							£ s. d.	£ s. d.	£ s. d.	£ s. d.	s. d.	s. d.	£ s. d.
Laidlaw	2 6	1	1	1	1	5	5	0 10 0	...	0 5 0	...	...	...	0 15 0
Cook	2 0	1	1	1	1	5	5	0 8 0		0 4 0	...	...	...	0 12 0
Williams	2 0	1	4	1	1	1	1	0 10 0	0 2 0		...	...	...	0 12 0
Rumbold	2 0	4	1	4	5	1	8	0 4 0	0 4 0	0 2 0	0 2 0	...	...	0 12 0
Courman	2 0	8	8	8	8	8	8	...	...	...	0 12 0	...	...	0 12 0
Paine	0 10	8	8	8	8	8	8	...	...	...	0 5 0	...	...	0 5 0
Furnal	0 6	10	10	10	10	10	10	...	...		...	3 0	0	0 3 0
Shepherd	1 6	9	9	9	9	9	9	...	...	...	...	9 0		0 9 0
Massey	0 10	9	9	9	9	9	9	...	...	...	...	5 0	...	0 5 0
H. Cook	1 8	4	1	4	5	5	5	0 1 8	0 3 4	0 5 0	...	...	...	0 10 0
Codrington	2 0	...	1	4	5	5	5	0 2 0	0 2 0	0 6 0	...	...	...	0 10 0
Careless	2 0	...	...	...	5	5	...	...	0 4 0	0 4 0	...	...	...	0 4 0
Lewis	1 8	...	...	4	5	...	8	...	0 1 8	0 1 8	0 1 8	...	...	0 5 0
Hevan	1 8	...	...	4	4	...	8	...	0 3 4		0 1 8	...	...	0 5 0
J. Rumbold	1 8	4	1	4	4	5	5	0 1 8	0 5 0	0 3 4	...	...	...	0 10 0
Women.														
Morgan	0 10	5	1	4	5	5	8	0 0 10	0 0 10	0 2 6	0 0 10	...	...	0 5 0
Creed	0 10	5	1	4	5	5	9	0 0 10	0 0 10	0 2 6	...	0 10	...	0 5 0
Smith	0 10	...	...	5	5	5	5	...	...	0 3 4	...	...	...	0 3 4
Bolton	0 10	4	1	5	5	4	5	0 0 10	0 1 8	0 2 6	...	...	...	0 5 0
Burford	0 10	4	4	5	5	4	5	...	0 2 6	0 2 6	...	...	...	0 5 0
Boys.														
Smith	0 8	4	4	4	5	5	8	...	0 2 0	0 1 4	0 0 8	...	...	0 4 0
Stanley	0 6	4	4	4	5	5	5	...	0 1 6	0 1 6	...	...	...	0 3 0
								1 19 10	1 10 8	2 7 2	1 3 10	14 10	3 0	7 19 4

In explanation of this Table, we must first beg our readers to imagine the columns 1 to 4, and 5 to 8, to be present! they are omitted merely because as no work during that week was properly chargeable on the accounts of Barley, Oats, Turnips, Potatoes, &c., which they severally represent, they would merely and uselessly occupy room.

To put into words all that this Table signifies would fill many columns; we shall merely say a word or two of explanation, and in proof of its usefulness point to the fact that in place of the 49 entries in the day-book, which would otherwise be required, six only are necessary. Instead of a separate entry for each of the particulars stated here one only is required for each of the columns; for the total in each indicates the whole amount of labour during the week for the benefit of the account which that column represents. The mode in which the work of each day is put down will be understood by reference to the figures at the head of the columns; whatever crop or account a man has been working for, the number of the column belonging to that account is placed opposite his name at the end of the day; and so at the end of the week the book-keeper is able to divide the whole money due to him among the several columns in which it is chargeable. The fact is, that during the week referred to, the chief works on the farm were ploughing for Wheat, carrying out dung for Wheat, threshing Wheat, carting Carrots and Mangold Wurzel home, and looking after the stock; and any one looking at the number of the columns will easily see how this tallies with what the Table tells him.

The labour of book-keeping is very much diminished by this expedient, and it may be still further lessened if the labourers be paid only once a fortnight, as ours are. The totals of the first week may then be carried forward to head the columns of the second, and the several sums paid are thus transferred to day-book and journal only once a fortnight. All piece-work payments and any petty sums, as market expences, &c., may very properly be recorded here, too, and this will still further diminish the number of the entries to be made in the ledger.

The transference of these items, and of others which have no place here, to the journal and ledger will be referred to on another occasion. Our present remarks have reference merely to the payment of wages and recording the same.

In directing the construction of a labour book the farmer must first make up his mind as to the divisions in which he shall arrange his expenses, the accounts under which he shall record them; and having determined these he must have a column in his labour book for every one connected with which there is probability of there ever being any expense of *labour*.

WE are happy to learn that our correspondent (see pages 761, 794) Mr. CHARNOCK, of Wakefield, has been appointed one of the Government DRAINAGE SURVEYORS, under the act of last session, for authorizing the advance of public money, to a limited amount, to promote the improvement of land in Great Britain and Ireland by works of drainage.

THRESHING MACHINE *versus* FLAIL.

I WAS surprised to see uttered such arguments as were used at a late meeting of the London Farmers' Club, against the use of machinery in threshing corn and in favour of the flail. The gist of the argument seemed to rest, however, on the greater employment it is supposed to give to labourers, and the necessity o supplying that employment—both of which views, I think, are erroneous; and I consider the public indebted to Mr. Morton and Mr. Fisher Hobbs for a clearer and more correct exposition of the subject. There can be no doubt that threshing by machinery, and more especially if water-power can be had, is more economical and more effectual than by flail, inasmuch as more corn is obtained, and of superior condition and quality; because it is "out of the stack into the sack," in a few hours; whereas, by the slow process of the flail, it lies for many days on a barn floor, acquiring [illegible]ness from the damp, and filthiness from the vermin. When the northern markets of the kingdom, buyers make a decided objection to flail-threshed corn, and a considerable deduction in price. If you deem the subject worthy of farther notice and investigation, allow me to direct your attention to the arguments for and against the practice, which are found in the 4th vol. of the "English Agricultural Society's Journal," from the middle of the 5th to near the end of the 8th pages. And as regards want of employment among agricultural labourers, if there be any of them in Dorset or elsewhere, still vegetating on 8*s.* a week, let them come (or such of them as have the means and information necessary to carry them so far) to the hiring markets in the north, where young ploughmen get from 17*l.* to 20*l.* a year, with board and lodging in the farmhouse; and where day labourers, even at this season of short days, are making from 2*s.* 4*d.* to 3*s.* per day, in furrow-draining and such like work, in which many more hands could be employed, if they were to be had. When I have occasion to call a set of men from their piece-work for an occasional job by day, I am obliged to pay them 3*s.* each, and to masons and joiners 4*s.*; and so difficult is it to get any labourer to condescend to use the flail, that the holders of the smallest occupations who have never had threshing-machines before are now erecting them of small size, to be worked by two or three horses, as the only means of getting their corn threshed.—*John Grey, Dilston, Dec.* 1. [The following is the extract from the Journal referred to.]—

"I am not certain that I am acquainted with all the arguments that may be adduced in favour of the flail practice by those who retain it; but such as I know I shall remark upon. A very strong one, however, on the other side may here be mentioned, and it is of sufficient power, if well founded, to overturn all the others; which is, that the extra quantity of grain obtained by the threshing of a powerful machine over that by flail is equal, with fair prices, to repay the entire expence of the operation. I have heard it said by occupiers of land in the south of England, that if they were to adopt our plan they should not know how to dispose of their threshers, who are not dexterous workmen in other branches, and might be thrown on the parish. This reason appears to me to be extremely futile and ridiculous; for I have never yet seen the farm of tolerable extent on which a few extra hands could not be employed during the winter months to advantage, in operations where great dexterity is not required, such as draining, scouring ditches, improving fences, making compost, repairing or levelling roads, &c. &c., in which, without being turned to the parish workhouse, such men could be occupied until they should find something more to their minds elsewhere, and become absorbed in the mass of the working population. Besides, the introduction of machinery does not diminish the requisite number of hands to be employed, although it alters their character and occupation. I know nothing better calculated to preserve the vacant mind in a state of stationary vacuity than the sober sameness of the flail's evolutions from morn to night, and from week to week; but the man who wields the flail by mere animal strength must undergo much cultivation, and be greatly elevated

In mind and acquirements, ere he can become the machine maker, to calculate its motions and adjust its parts; and even the farm-servant in whose charge the machine is placed, after a short training by the millwright, is called upon to exercise a superior degree of intelligence and attention in equalising the steam, if that power be used, and in regulating the operations in any circumstances. In so far, then, it would have the effect of substituting a superior class of operatives to that which had been dismissed by the change. Besides which, when the machine is at work some hands are wanted to cart the unthreshed corn to the barn, if the stack be distant, or to wheel it in on canvas barrows, as the seed crops are collected in Holland, if it be near. Several women and boys are employed to loosen the sheaves and hand them to the man at the feeding-board, while others are busied in piling up the straw and dressing and measuring the corn; and thus, although quite different in kind, much occupation is given to various classes of people, who, otherwise, might not have the opportunity of doing much for the relief of their families. One comfort, too, for the farmer attends this mode of proceeding: when the threshing is done, and the corn dressed up, the machine is at rest probably for some days, and his barn is locked up; whereas, with half a dozen barns, occupied with men threshing daily with flails, his property is always exposed to pilfering and depredation. Besides, a good machine enables the farmer to thresh a quantity of grain at once, to meet a call upon him for money, to take advantage of a good price, or to provide seed; and gives him the means of employing people in the time of frost and snow, so as to have them at liberty for field-labour when wanted. Another objection to the threshing machine, which I have heard of, is that it bruises the straw too much. There may be something in this, where straw is to be sold in the London market, or used for thatching houses, which use of it cannot be too soon abolished as an extravagant and wasteful practice -at least, so long as the slate-quarries of Wales and Westmoreland afford in such abundance a covering at once light, durable, and economical—but, for food, or litter in cattle sheds, this can be no objection: while, on the other hand, implements for chopping straw or hay may be worked by being attached to the threshing-machine, with less expence than in any other way.* It is probable that the straw of the northern counties does not break under the operation of the threshing-machine so much as that of the south, because the custom does not prevail here of allowing the corn to stand much until it becomes dead ripe and sunburnt—a custom which is of very doubtful expediency, as grain makes better seed, and is found to yield more meal, when cut before it attains its last stage of ripeness, and the straw is unquestionably better for all purposes. Besides, it does not injure the working of the threshing-machine, instead of having both rollers fluted, to make the upper one solid and smooth, by which means the straw is less broken. The upper roller is so easily changed, that it is advisable to have one fluted and another plain, to apply as circumstances may require. There is a newly invented threshing-machine, which works by what is called a *patent peg-drum*, instead of the flanged drum and rollers, which is said not to break the straw at all, and in other respects to perform its work admirably, and with a saving of one-third of the power—in which case four horses will do the work of six; but not having seen it in operation, I can only speak from report. I have heard also that some maltsters in the south give a preference to Barley threshed by flail—the reason for which I never heard assigned; and it is notorious that in this county, and those of the south of Scotland, hardly any other is used but what is threshed by machines, and no objection is ever made to it. It is possible that grain may be bruised in threshing, or broken off so close at the end as to injure its germinal powers; but that must arise, I imagine, rather from some defect in particular machines than from any fault generally applicable to the system. On the other hand, however, it is an established fact, that, in the markets of the north, Wheat threshed by machinery commands a higher price by some shillings per quarter than that threshed by flail, and for this obvious reason:—take two stacks of Wheat, equal in quality and condition; let one of them be taken in and put through the machine, and the grain is dressed up and sacked before night: let the other be put, on the same day, into a barn to be threshed by flail—it takes a man a fortnight to knock out the corn very imperfectly, and each night the produce of the day is added to the heap till all is finished: this heap consists of chaff and grain, resting all the time on a ground-floor, and though the floor be perfectly dry, yet the grain is said to acquire, if not actual dampness, still a degree of toughness, in grinding, which any miller can detect; hence arises his objection, and the difference in the price he offers."

* The erection of a steam-engine affords a good opportunity for constructing an apparatus for steaming Potatoes and other food for cattle.

THE SUPPLY OF ANIMAL FOOD.

(*Continued from p. 810.*)

EVERY breeder or grazier ought to be well assured of the capabilities of the land he occupies, as also the conveniences attaching to it, so as to adapt his practice accordingly. If the fields are large they must be subdivided by temporary moveable fences. Are they bleak and cold? Shelters must be erected, and plenty of them, to remain for shades in summer. Is the lair not well littered? Places or raised platforms must be provided, and it is requisite that these minor matters be attended to as to selection and breeding. It is by no means necessary to select a small breed of sheep for a poor soil, nor on the contrary a large breed for a rich one; nor is it an established fact that small animals will fatten faster than large ones, or on proportionably less food. It is pretty certain that the more active animal will, in one way or another, make away with the greatest quantity, either by consuming it as food or by destroying it from treading. The quantity of meat made will of course be the true criterion of profit, all other things being equal; and in reference to field management the writer would say that in any case, or whatever may be the breed, the greatest weight of food —mutton, will be obtained by placing the animals as much as possible in a state of quiet seclusion and composure. No restless ones will fatten rapidly, nor will those of predatory habits thrive fast; secure contentment and repose, and the result may be anticipated. No animal intended for fattening ought at any time to be allowed to stand still; they must be kept thriving, and while in health this is easy of attainment, in this country, at least by the use of corn, cake, meal, and the various esculent roots which have become almost indispensable adjuncts to good grazing; warmth and shelter in winter, cool and shade in summer, are equally desirable, and as easily attainable as the varieties of food. It is to these minor but not trivial matters that he more particularly wishes to direct attention, as being too much overlooked or neglected.

It would take up too much of your valuable space to descend into particulars of management, either as respects field or shed-feeding, but being a decided convert to the latter mode, an observation or two may not be unacceptable. Unquestionably the system of shed-feeding sheep will produce by far the greatest weight of mutton in proportion to the quantity of land to be grazed or fed off. There can scarcely remain a doubt upon the subject, and it properly attended to, at the least cost. The larger the breed the greater the increase. They will gain the most weight in the shortest time; in one well authenticated instance to the extent of 32 lbs. in 28 days. The advantages are in every way great; it creates profitable labour; it prevents loss of food by trampling; it prevents loss in manure. Most of the manure voided by sheep is dried up by the sun in summer, while under cover it is on the other hand retained as a valuable aid; it renders the Grass lands much more productive; the herbage being undisturbed by continual cropping is more matured and nutritious; the animals rest contentedly and fatten surprisingly fast. It is objected that they become unhealthy from confinement; that their feet become unmanageable and their wool "spoilt;" this is all fudge! The writer's sheep are seldom, if ever injuriously affected. They have regular and constant attention; a good variety of food, including Turnips, Rape, Mangold Wurzel, Cabbage, Carrots, with cake, corn, &c., in winter, and Grass, Clover, Lucerne, Tares, &c., in summer, and always a plentiful supply of that very useful condiment—salt, and plenty of water. Their hovels are cleaned out and fresh littered about three times a week, and those in the fold yard are supplied with fresh litter as required, care being taken not to allow too great an accumulation of manure so as to cause their feet to become diseased from heat, which they will do if neglected; every foot should be examined at least once within 21 days, and a cooling lotion or caustic applied as the case may demand. This fold yard is hollow drained, and the excess of moisture drawn into a cesspool, which has the effect of preventing any great fermentation of the manure, an advantage to the sheep at least; but no great injury will arise if they are kept clean, dry, and well littered, with regular examinations as above. It must be borne in mind, that if any animal is put into confinement, and thus prevented getting that particular kind of food which may prove a corrective or alterative in its digestive economy, such animal must have this provision made for it, and will do away with many objections by this mode of feeding. It is necessary that the animal should be kept quiet and composed; no restless ones will fatten rapidly, nor will those of predatory habits thrive fast; secure contentment, feed punctually, and the result may be anticipated.—*

ON STALL-FEEDING COWS.

By referring to the experience of all good farmers in all countries, and under all circumstances, it is ascertained beyond dispute, that by the practice of sowing green crops, such as Clover and Rye grass, winter and spring Vetches, Turnips, Mangold Wurzel, &c., the same ground which in poor pasture would scarcely feed one cow in summer, would, under the crops mentioned, feed three, or perhaps four, the whole year round,—by keeping the cattle in the house and bringing the food there to them: and the manure produced by one of these cows so fed, and well bedded with the straw saved by the supply of better food, would be more than equal to that produced by three cows pastured in summer and fed in winter upon dry straw or hay, and badly littered.

Here, then, are two assertions well worthy your serious attention,—first, that three cows may be provided with food in the house all the year from the same quantity of ground, which would scarcely feed one under pasture for the summer; and, secondly, that one cow so fed in the house will give as much manure as three fed in the field. I call these important assertions; for if they are really founded in fact, then any of you who may now be only able to keep one cow, would, by changing his plan, be able to keep three, and each one of them producing as much manure as three fed in the way they have hitherto been accustomed to adopt,—the result will be, that you would have nine times as much manure by the new method as you have hitherto had by the old. Now, as I do not think there can be a single individual among you so blind as not to see at once the great advantage it would be to have such an immense addition to his manure-heap, it appears to me that the best thing I can do is, in the first instance, to endeavour to impress firmly upon your minds the conviction that this fact, so much entitled to your attention, and yet so little attended to, is in reality a truth that may be relied on, and may be practically adopted with any fear of disappointment. It is upon this foundation that the practicability of almost every improvement I mean to suggest in the cropping of your land must ultimately depend, and it is, therefore, indispensable to the success of any arguments I may offer, to place it before you in the clearest point of view, and remove from your minds every doubt whatever upon the subject.

To draw the necessary proof, therefore, from what comes under your own observation (I may say every day of your lives, and which must, therefore, have more weight with you than anything else I could say), I refer you with confidence to the exhausted miserable pasture upon which your cattle are now almost universally fed, two to three acres of which are often barely sufficient to keep one cow alive for the summer months, but by no means to afford her a sufficiency of food. Now one acre of good Clover and Rye-grass, one rood of Vetches and three roods of Turnips (making up in all two acres which are now allotted for grazing one cow in summer), taking a stolen crop of Rape after the Vetches, will afford ample provision for three cows the year round. For you all know that an acre of good Clover will house-feed three cows from the middle of May to the middle of October; and with the help of a rood of Vetches you will be able to save half the first cutting for hay to use during the winter. Then when the first frosts, about the middle of October, may have stripped the Clover of its leaves, the early sown Rape, which ought to be put in ridge by ridge as the Vetches are cut, and the land well manured (if the seed has been sown by the middle of July), will be ready to cut and feed the cattle until the Turnips are ripe. Here then you have plainly provision secured until towards the middle of November, and we have to calculate what remains to feed the cattle until the middle of the May following. For this purpose there is a rood of Turnips for each cow. Now, an acre of the White Globe and yellow Aberdeen Turnip ought to produce from 35 to 40 tons per acre; but supposing one-half to be of the Swedish kind, let us calculate only on 28 tons to the acre, which is not more than an average produce, even if they were all Swedish, and see what that calculation will yield per day for 190 days, which is rather more than the six months. If an acre yields 28 tons, a rood will yield 7 tons, which being brought into pounds will amount to 15,680 pounds, and this divided by 190 days, will leave 83 pounds of Turnips for each cow every day, which with a small portion of the hay and straw you are possessed of, is a very sufficient allowance for a common sized milch cow; and over and above all this you have the second growth of the rood of Rape coming forward in March and April, which would feed all the three cows much longer than would be necessary to meet the coming Clover crop, even in the latest season.

Here then the facts of the case are brought before you for your own decision, and I fearlessly appeal to yourselves—is it true that two to three acres (I make my calculation on two only), are frequently allotted to graze one cow during summer? And again—is it true that an acre of Clover and Grass-seed, a rood of Vetches, and three roods of Turnips, with the stolen crop of Rape after the Vetches, will fully supply food for three cows the year round? I defy any one of you to reply to either of these questions in the negative. The straw of the farm in any case belongs to the cattle; but in the latter case, where Turnips are provided for food, it is chiefly used for bedding, and the additional quantity of grain which will be raised by means of the increased quantity of manured land, will always keep pace with the increase of the stock, and provide the increased quantity of bedding required. I think, therefore, I am warranted in considering my first assertion proved, namely, that the ground generally allotted to feed one cow, will in reality supply food for three—and have only now to offer some calculations as to the accumulation of manure, which I hope will be considered equally conclusive.

During the summer months, your cow which is only in the house at milking time (and perhaps not even then, for the practice is sometimes to milk her in the field), can afford little or no addition to the manure-heap, being upon the Grass both day and night; and even in winter and spring, whilst there is any open weather, they are always to be seen ranging over the fields in search of food, so that I think you cannot but admit (upon a calculation for the entire year round), the animal is not in the house more than 8 hours out of the 24, and it is only the manure made during this period which can be reckoned upon; therefore upon this supposition (which I think is sufficiently correct to show the strength of my argument), if there is any truth in arithmetic, one cow fed, as I have calculated on, in the house for the entire 24 hours, will yield as much manure as three cows that are only kept in the house for 8 hours—the quality of the food being supposed the same

in both cases; and this would manifestly prove my assertion; namely, that one cow fed within, would give as much manure as three fed without; and therefore when three can be kept in the one way, as I have already shown, for one kept in the other, it is as clear as three times three make nine that the result of the calculation will be just as I have stated—namely, that the farmer will obtain by the change of system nine times as much manure in the one case as he would have in the other.

Now, if after all that has been said (which seems to me at least quite convincing), any of you should be so astonished by the quantity of manure thus proved to be gained as still to have some misgivings on the subject, and be inclined to think that matters would not turn out so favourable in practice as I have shown in theory, I would wish any such person to consider one very material point which I have not yet touched upon—for in the foregoing the argument is founded entirely on the time the animals are kept within, viz.—it is stated that one cow kept within for 24 hours will give as much manure as three cows which are only kept in for 8 hours, the food being assumed to be the same in both cases; but it is quite evident that if the cow kept within should be fed with Turnips and bedded with straw which the others are fed upon, leaving them little or no bedding whatever, that the calculation must turn decidedly in favour of the animal which is well fed and bedded, both as regards the quantity and quality of the manure—so that it appears the estimate I have made is decidedly under the mark.—*From Mr. Blacher's Essay on Small Farms.*

A SIMPLE FORM OF A FARM LEASE.

I am convinced that many of the valuable suggestions contained in your Paper for the improvement of agriculture can never be carried into practice either under the system of yearly tenancy, or under that of leases containing so many absurd restrictions as is commonly the case.

I enclose a form of lease which, whilst it leaves ample latitude for an intelligent farmer to exercise his skill and judgment, contains sufficient security to the lessor that the value of his property should be maintained.

If a form of lease in substance like this were to be adopted, printed forms might be used, with blanks for the names of parties and the localities only to be filled up, and thus greatly lessen the expences now attending leases; this, however, I am aware could not well be done without the establishment of a general system of registration, but if that desirable object were attained, the long recapitulations of title now necessary to show the lessor's power to lease might be dispensed with, by adopting instead, the certificate or mere signature of the registrar of the district.

A further improvement might also be adopted by abolishing the stamps on leases, and paying instead a sum of money on getting the lease registered, such payment being a per centage on the amount of rent payable.

Should you deem this worthy of insertion in your columns, it may elicit some valuable and practical remarks, tending to the great object of an abundant supply of home-grown food.—*E.*

"A lease of land and buildings called farm, situate in the parish of , and in the county of , and now in the occupation of as tenants, made and agreed upon this day of , 1846, between A. B. the owner, and C. D. the tenant.

"Firstly. To avoid repetition, and still maintain a clear understanding of the import of this lease, it is mutually agreed that when this farm is mentioned therein, it shall be understood as meaning the whole of the land and buildings and erections thereon, and whenever either of the contracting parties hereto are mentioned, it shall be understood as meaning either them or their authorised agents, heirs, administrators, or assigns.

"The said A. B. agrees to let, and the said C. D. agrees to take, for a lease of 21 years from the 29th March next, the said farm, consisting of 100 acres (a map or plan of which, with all the buildings and erections thereon, is subjoined in a schedule hereto attached) at the annual rent of 150*l.*, one half of which shall be payable and due on the 29th day of September; and the other half on the 25th day of March, in each year during the said term, and the first payment shall become due on the 29th September next, the said C. D. being put in legal and peaceable possession of said farm on the 25th March now next ensuing.

"The said A. B. reserves to himself all mines and minerals, such portion only excepted as the said C. D. may require to be used on, and for the improvement of, the said land, building, and roads thereof. And the said A. B. also reserves all the timber trees now growing on the said farm, with liberty at all times to cut down and carry away such timber trees, and also to enter upon and get any mineral under the said farm, and carry the same away, paying or allowing to the said C. D. such fair and reasonable sum for surface damage as may be either mutually agreed upon or awarded, as hereinafter provided.

"It is hereby fully agreed that the said C. D. is at liberty to cultivate the said farm in any way he may think proper, and is to be subject to no restriction as to the disposal of the crops, further than is hereinafter agreed upon; namely, that at the expiration of the first four years of this lease, and at the expiration of any subsequent period of one year, it shall be competent to the said A. B. (after giving one month's notice to C. D.), to have a valuation made of the said farm in the month of July by two competent persons, one of whom shall be chosen by A. B., and the other by C. D., and if C. D. should neglect or refuse to appoint a valuer within the month after receiving such notice, the valuation made by the person appointed by A. B. shall be valid and binding. That if the two persons so appointed do not agree in their respective valuations, they shall choose an umpire, and if they cannot agree upon an umpire, or either party refuse to appoint such umpire, it shall be lawful for the sheriff of the said county of , on the application of either party to appoint such umpire, whose decision shall be equally binding as if made by an umpire mutually chosen by the said valuers.

"If it shall appear by such valuation that the said farm is deteriorated in value, either by reason of improper cropping or by neglect to repair the buildings, so that the annual value of the said farm is less than the sum agreed upon as rent thereof, then the said A. B. may claim from C. D. a sum not exceeding ten times the amount of such deficiency in the annual value, together with all costs of the reference and valuation, and if the sum be not paid within three months after C. D. has been furnished with the valuation and claim, A. B. may recover the same by seizure and distraint, as for arrears of rent, and if the annual value shall be found to be less than the said rent by more than 25*l.*, it shall be lawful for the said A. B. to cancel this lease and re-enter upon the farm.

"If, however, the valuation shall be equal to, or exceed the amount of rent hereby agreed upon, the expense of the valuation and reference shall be wholly paid by A. B., together with 5 per cent. on the amount of the annual rent, as a compensation to C. D. for the trouble such valuation may have caused him.

"Any difference of opinion that may arise between the said contracting parties respecting the damage done by getting minerals, or cutting down and carrying away timber, shall be settled by arbitrators appointed as in the case of valuing the farm. "In witness, &c."

Home Correspondence.

Shed-feeding Sheep.—In a late *Gazette*, your correspondent, Thomas Dixon, expresses his desire that some one would point out the means most likely to prevent the attacks of foot-rot, to which folded sheep are so liable. In suggesting a few of the points to be observed in shed management, I will just give an example. Last winter we had 30 large sheep fed in a yard, half of which was covered in. The fences were of Thorn, and high; the place well littered with straw; thus appearing quite warm and comfortable. The foot-rot made its appearance, owing to the wetness of the yard; for the ground being low, the bedding was always wet. The yard was then underdrained, and we soon found the benefit of having it dry. The sheep were supplied with plenty of roots; their feet frequently pared; and, in consequence, we were afterwards troubled very little with the disease. I think the principal things to be borne in mind, with reference to this subject, are—first, that the shed or yard must be kept as dry as possible; 2dly, the manure must not be allowed to accumulate and heat, but frequently cleaned out and replaced by fresh straw; 3dly, the sheep must not be neglected—their feet must be attended to and frequently pared; 4thly, the sheep should be supplied with plenty of root food, and have access to a trough of water to drink when they please; and, 5thly, a lump of common salt should be placed in the yard for them to nibble at occasionally; this prevents feverishness, cools their blood, &c., thus rendering them less subject to the foot-rot. Common salt is preferable to rock-salt, as the sheep can bite it much more easily, therefore getting more salt than from the latter. Although the shed may be favourable to the development of foot-rot, I think if these hints are properly attended to, this difficulty will be found to disappear; and our own experience abundantly proves that the advantages of this system of feeding far outweigh any danger or inconvenience arising from it.—*I. A. C.*

Shed Feeding.—If my small experience be of any service to your correspondent Thomas Dixon, Darlington, he is heartily welcome to it. For three years I have fed my wether hoggs of the Leicester breed in courtains, by which I mean, yards enclosed by sheds. The hoggs are brought in about Christmas if the season be an open one, or sooner if the weather be coarse. To-day we have 18 inches of snow on the ground, and my sheep will be snug in their courtains by daylight to-morrow I hope. Convenient to the courtains is a store-house, capable of holding a month's Turnips, so that few storms frighten us. Plenty of troughs are placed about the open yard, which are supplied four times a day with sliced Turnips, and once in the beginning of the season, and twice, further on, with pollard and bruised Linseed. Every now and then, say once a forthight, I have every hogg's feet pared and carefully examined. The sheep are always kept liberally bedded with clean straw, and (to use my herd's words, who was greatly against pen-feeding at first), "dinna eat abune the hauf o' the meat they did oot-bye, and still 's a lang way better than ever they war for baith mutton and oo'." As to foot-rot, I have never had one from pen-feeding; but, I take great care. —*North Earle.*

To have laying Poultry.—In recommending your correspondent "Elphida" to give her poultry a warm lodging, as a part of a plan for inducing laying, I quite concur; it is with poultry as with all other animals removed from a warmer to a colder climate, they exist but do not thrive without warmth, and whether to fatten them or to promote their laying at an unseasonable time, a temperature adapted to their constitution should be provided them; this will be one point towards success. I will now mention two more points, viz., age and diet; attending to these three particulars I have at all seasons an abundant supply of new-laid and large eggs: the age of poultry should never exceed three years (except it is wished to keep an individual for the sake of breed), after this age they rarely lay from the moulting season to late in the following spring, consequently it is only to keep an unprofitable animal when one in profit would consume no more food: the plan I pursue and recommend is to part with all poultry after the third autumn laying, and to put in their place the previous spring chickens, by which is meant chickens hatched through the months of March, April, and May; birds of January and February hatching are apt to have their feet swollen by the cold in some situations, which is unsightly, and besides this being ready for market in May they are too valuable to be kept for stock when birds of less market value but equally good for laying can be had; the March Pullets will begin to lay in September, and the others will succeed them in rotation of hatching; to these in November will be added the hens rising two years old, and about January, if favourable weather, the hens rising three years old will begin to lay; by attending to age a succession of laying hens will be had through the whole year. The next particular to be attended to is diet; with poultry as with other animals variety has its charms, and greatly promotes both fattening and laying; poultry confined to a yard should have given to them food as similar as possible and as various as that they would feed on if allowed to roam at large; they require vegetables, seeds, insects, gravel, ashes or dry mould, as much as corn of different sorts, to keep them in health, and plenty of clean water, rain water is the best; if a feed of mixed corn is given the first thing in the morning, let this be followed at eleven, A.M., by a feed of Barley-meal mixed with boiled Potatoes or Parsnips, or both, to this pieces of fat meat chopped may be added, the fowls will fill themselves to repletion; about three, P.M., a little corn may be thrown them, soon afterwards they will prepare for roosting: fowls prefer meal to corn, and I have observed that those birds that had rolled crams of Barley and Oatmeal required feeding only twice a-day, feeding to satisfy each time, and resting nearly the whole of the interval; by feeding with meal made into a stiff dough or crams with milk, or liquor of boiled meat, more eggs, and larger and fatter fowls will be obtained than by corn-feeding—of giving peppercorns to poultry I have no knowledge, neither do I think any benefit will attend it.—*J. S.* [P.S. I hope your correspondent "D. S. E." has prepared more letters on the diseases of poultry.]

Allotment System.—Much has, within these last few years, been said *pro* and *con* respecting the allotment system. I have no doubt but experimentalists in general are by this time convinced of its beneficial effects and utility. A portion has, within these last two years, been separated from the Birmingham Botanic Gardens; this portion is something more than 5 acres in extent (the exact measurement I do not know), and is divided into compartments, each one containing 576 square yards, or, as the working class here call it, "9 roods." Each 64 square yards lets at 3*s.* per year, making each compartment amount to 27*s.*, returning to Lord Calthorpe, to whom the property belongs, something more than 11*l.* 5*s.* per acre per annum. Does not this amount to extortion? May we not reasonably wish for a reduction to half the amount? The system in itself is productive of great improvement in the character of the working classes; of this I am well convinced by observation. Not only does it cause them to breathe the pure air after so many hours in the foul and contaminated air of the manufactory; it also stimulates them to collect from every part of their premises the decomposing substances; the many small carts and barrows which go loaded daily to the Birmingham Allotment Gardens bear ample evidence of this. From this and other facts connected with the allotment system too obvious to need comment, we may fairly conclude that the health of large towns may be very materially improved by the more general adoption of the system. I hope that landowners will take this into consideration, and encourage the system, but not merely by allotting ground out to the working classes, but by letting it them at a price that may enable them, for their labour, to receive some little pecuniary returns.—*C. Lucas, Birmingham.*

Autumn Planting Potatoes.—From the fear that my Potatoes might become diseased again this year, I was induced to try autumn planting. I selected some of the best tubers, and having filled a large frame with leaves and laid on them a good layer of soil, I proceeded to plant the Potatoes about 9 inches apart each way, giving them a good dressing of field ash. They were then soiled to the depth of about 4 inches, and upon this I sowed a crop of Radishes on the 25th of November. At the same time I planted about two perches in the open ground, and protected them with long dung. In spring they were twice cut down with frost. I planted another perch in spring, beside the former, and of the two plantings the result was about one-half in favour of autumn-planting. I began to dig from the frame on the 4th of May; the others followed in succession, and though all were exposed to many heavy showers, I had a beautiful crop with scarcely any dis-

case. I greened part of the produce of the frame, and planted again, and from them I dug some good sound, tubers This year I planted on the 14th of November, substituting charcoal for field ash, and instead of long dung for those in the open ground, I have laid the soil in ridges, which I think will be sufficient protection, and looks much neater.—*W D S, December 3*

Potatoes.—Some few months ago I mentioned that a quantity of Potatoes had kept remarkably well up to September, which had been ripened in a frame in last February Of these I planted a portion a few months since, with the view of having new Potatoes by Christmas, but, I regret to say, the epidemic attacked them a short time ago with greater severity than I had ever seen in any previous crop In a few days the tops were entirely cut down to the new tubers When the Potatoes were planted they had all the appearance of being perfectly sound Certainly, no disease was traceable in them by the naked eye, neither did they exhibit any forerunning symptoms. To the best of my judgment, they were quite equal in soundness to any, or, at least, most Potatoes in the country at present I send some of the new tubers from the Potatoes alluded to.—*Chas Ewing, Bodoryan Hall, Anglesea* [They are good and sound.]

Bedfordshire.—Wheat sowing is now almost brought to a close, the young plant wears a healthy appearance Slugs, &c, have been rather too busy upon the Clover and Bean stubbles but the present frost will prevent their further ravages The Wheat crops of last harvest have yielded to expectation, and are more than an average in weight and quality Turnips are a light crop, and rapidly disappear before a flock of sheep Mangold Wurzels are a heavy crop Carrots under an average, and selling at from 40s to 45s per ton The plough has been kept steadily to work during the month having received no check from excessive wet or frost until the past few days Winter ploughing may therefore be considered as more forward than usual at this season Labourers have met with full employment at wages proportionate to the price of provisions distress can only exist amongst those who prefer idleness to employment Tile draining has occupied many hands during the past few weeks Farmers under every description of tenancy no doubt see the propriety of draining their wet lands, with surplus labour which returns a much better interest than paying heavy poor-rates for the maintenance of able-bodied men forced to a workhouse for want of employment Much difference of opinion still exists about the comparative merits of deep and shallow draining, reason and investigation, however, seem to favour deep draining, by effectually drying and otherwise improving the temperature of the soil, the expence is small also compared with Mr Smith's system Mr Smith's thorough draining with common tiles costs from 6*l* to 8*l* per acre, the drains at such distances (about 18 feet) as is considered necessary to dry the land. Mr Parkes' deep draining system with pipe tiles costs from 3*l* to 4*l* per acre, the drains at such distance (about 32 to 36 ft), as is proved effectually to drain the land We have therefore, no doubt but deep draining will usurp the place of shallow, and heartily recommend it accordingly, as the most effectual most permanent, and most economical.—*From a Correspondent*

The Liverpool Swede.—Having made a liquid manure tank in the autumn of 1845, for the drainage of the stables, piggeries, cattle yards manure pit, &c, and finding that an outlet for the tank was necessary to escape drain was made for the overplus in a private road into the land adjoining the winter and early spring being dripping, caused a great flow of this fertilising liquid, an acre of land in immediate connection was prepared in the usual way for Swedes, after waiting through May for rain, drilled the seed in on the 2d of June, in about ten days the plants made a thin appearance and continued to grow without addition to their number; being anxious to preserve all the roots I could get, the season continuing so unusually dry (no rain fell until the first or second week in July) was fearful to hoe them, had them singled from time to time the roots making rapid progress so that by the end of June the greens had completely covered the land no one could have judged that the distance averaged 2 feet 3½ inches from plant to plant Upon lifting the roots a few weeks back, 2 poles were selected and weighed The first, 49 roots, 371 lbs the second pole 52 roots, 576 lbs, so that the produce was upwards of 40 tons per acre (the average weight per root from 16 lbs to 8 lbs) Presuming that this large crop was from the effect of the surplus drainage from the land the land of itself, a moderately good vegetable sand proves that rich liquid manure is equal if not superior to any stimulant you can apply to this most valuable root, and to the stockmaster the key to his success the previous plant an indifferent Pea crop.—*Amen, Berks, 30th Nov* [If you wish to grow another green crop next year, try Mangold Wurzel.]

Societies.

SMITHFILLD CATTLE SHOW

The Show has this year been fully equal to any of the preceding exhibitions; and, in many respects, superior to that of last year In the Cattle department there are 50 more entries than there were last year, and though there was a slight falling off in the quality of the first class of Fat Steers the Cows more than made up the deficiency, being, in the opinion of some of the oldest frequenters of Smithfield, superior to any previous exhibition. Among the successful competitors we have Mr. Trinder, of Wantage; Prince Albert, the Marquis of Exeter, the Earl of Warwick, the Earl of Leicester, and Mr. John Rob, of Thorpe-field, whose West Highland Ox is certainly as fine a specimen of the breed as we have seen The Cows, as we have before said, are very fine, and here also Mr Trinder has carried off the first prize

In the Sheep department there are a few more entries. The Short wooled scarcely so good, and the Long rather better than last year In the Short-wools Mr Webb has, as is his wont, carried all before him, having got the first prize in two of the three classes, and the Silver Medal in the Extra Stock Among the Long wools the pen of Mr. Painter, of Burley, were out of all comparison the finest Sheep

The show of Pigs was certainly very good, and here Prince Albert and the Earl of Radnor have shown themselves not only good pig feeders, but also good pig-breeders, especially the latter, with all whose pigs we were exceedingly pleased, always excepting the fearful over feeding, but of that hereafter And however well the tenant farmers have sustained their ground in the other departments of the Show, we must here acknowledge that His Royal Highness and the noble Earl have carried the day, for though there were many fine specimens of the "Swinish multitude," we have a decided preference for those we have named

In the Root and Seed department, Mr Gibbs was there with many very fine specimens of seeds, Mangolds (both tap-rooted and globe varieties), and some as fine specimens of Swedes (Skirvings) as we remember to have seen, grown by Mr Dudie The Earl of Radnor, too had some very fine specimens of Mangold Wurzel

Of the Implements we can say little. There is more required than the cursory view obtained at a show ere a correct view can be gained of such a host of implements as were exhibited Ploughs, Harrows, Broadcast and Drill Sowing Machines, Reaping and Threshing Machines, Chaff and Turnip Cutters innumerable Bean, Corn and Linseed Bruisers, Drain tile and Brick Machines Stomach Pumps, Probangs, Horse Rugs Asphalte Roofing, machines of use, and machines of no use, and machines the use of which no one would discover of himself We hope the number of different Tile machines exhibited is indicative of a greater demand for that article And now, having, as far as we are able, given a faithful report of the Show, we would just like to ask the upholders and promoters thereof what is the use of such an exhibition of over fed monsters? Is it for profit? We have but to cast our eye over the food which has been expended in the attainment of such overgrown and unnatural obesity, to see that this cannot be the object, No doubt we may be told, "Oh! I got 60*l* for my ox," or "I got 70*l*. for mine so there can't be much loss at that" But in this case the loss is only transferred to a different party, viz the purchaser Profit, then, cannot be the object for there is no profit in trying who can make use of most oil cake, Bean and Barley meal, Linseed, Mangold Wurzel, and Swedish Turnips, and produce least good, useful food Nor is it for the purpose of ascertaining which breed of cattle can be soonest brought to maturity on the smallest amount of food, nor for any useful object that we can conceive We have endeavoured to give an account of the Show in comparison with former years, while at the same time we must say that in inspecting the various animals, we could not help grieving at the amount of food consumed (not to mention the cruelty practised) in converting many beautiful animals into deformities We hope ere long to see the farmers of this country and H R H Prince Albert at the head of them, striving to obtain great and useful results by economical means, rather than wasting their time and energies in obtaining little and useless results by extravagance

AWARD OF PRIZES

N B The figures at the commencement of each description signify the judge number and those at the end of each animal the number referred to

OXEN OR STEERS

Class I.—Oxen or Steers of any breed under 5 years old with no restrictions as to feeding yet the kind or kinds of food must be certified

5 The Most Hon the Marquis of Exeter of Burghley, near Stamford, Northampton a 3 years and 8 months old Durham ox, bred by his lordship, and fed on Turnips, Carrots, meal, and oil cake Travelled to the show by van 7 miles, and by railway 104 miles (200) Second prize, 15*l*

17 Mr. John Stevens, of 19, Holywell-street, Oxford, a 4 years and 8 months old Hereford ox, bred by Mr John Monkhouse, of the Stowe, near Hereford, and fed on Grass, hay, Barley, and Bean meal, Carrots, Mangold Wurzel, and oil cake Travelled to the show by van 7 miles, and by railway 63 miles (284). Third prize, 10*l*

0 Mr W Trinder, of Wantage, Berks, a nearly 4 years old Hereford steer, bred by Mr Thomas Roberts, of Ivington Bury, near Leominster, Hereford, and fed on Grass, hay, Cabbages, Swedes, Mangold Wurzel, meal, and cake. Travelled to the show on foot 2 miles, by van 1 miles, and by railway 64 miles (281). First prize, 20*l*, and silver medal to Mr Roberts

Class II Oxen or Steers, of any breed, under 5 years old weighing 90 stone and upwards that shall not have had cake corn meal seeds grains or distillers' wash, during 12 months previous to the 1st of May 1846

21 His Royal Highness Prince Albert, of Windsor Castle a 4 years and 1 month old Hereford ox, bred by Mr Thomas Roberts, of Ivington Bury, near Leominster, Hereford, and fed on hay, Swedes, Mangold Wurzel, ¾ ton of oil-cake, 7½ bushels of Bean-meal, 6¾ bushels of Pea-meal, and 1½ bushel of Oats. Travelled to the show by van 2 miles. (277). Second prize, 20*l*

26. Mr. James S. Bult, of Dodhill-house, Kingston, near Taunton, Somerset, a 3 years and 8 months old short-horned and Devon steer, bred by himself, and fed on hay, Grass, and roots, 200 lbs. of seeds, 12 bushels of Barley, and 8 bushels of Beans. Travelled to the show by van 2½ miles, and by railway 170 miles. (276). Third prize 10*l*

28 Mr. Thomas White Fouracre, of Durston, near Taunton, Somerset, a 4 years and 10 months old Devon steer, bred by Mr John Mockridge, of Greenway Farm, near Taunton, and fed on hay, Grass, Vetches, Rape, Turnips, Mangold Wurzel, and 780 lbs. of Bean and Barley meal Travelled to the show on foot 7 miles, and by railway 163 miles (273) Commended.

38. The Right Hon the Earl of Warwick, of Warwick Castle, Warwick, a 5 years and 17 days old Hereford ox, bred by Mr John Thomas, of Cholstry, near Leominster, Hereford, and fed on straw, hay, Grass, Turnips, 1,232lbs of oil cake, 270lbs of Barley-meal, and 130lbs of Bean-meal Travelled to the show on foot 1¼ miles, and by railway 103 miles (263) First prize, 30*l* and silver medal to Mr Thomas, and gold medal to Lord Warwick

Class III.—Oxen or Steers of any breed under 4 years old under 100 stone and above 70 stone weight, that shall not have had cake corn meal seed grain or distillers' wash, during 12 months previous to the 1st of May 1846

39 His Royal Highness Prince Albert, of Windsor Castle, a 3 years 10 months and 13 days old Hereford ox, bred by Mr. Thomas Roberts, of Ivington Bury, near Leominster, Hereford, and fed on Swedes, Mangold Wurzel, hay ¾ ton of oil cake, 7½ bushels of Bean-meal, 6¾ bushels of Pea meal, and 1½ bushel of Oats Travelled to the show by van 22 miles (262) First prize, 15*l*, and silver medal to Mr Roberts

19 Sir Charles Wake of Courteen hall, Northampton, a 4 years and 2 months old Hereford ox, bred by Mr J S Edwards of Stanton Lacy, near Ludlow, Salop, and fed on Grass, hay, Mangold-Wurzel, Turnips, 1,240lbs of cake and 3 bushels of Bean-meal Travelled to the show on foot 1 mile, and by railway 60 miles, (252) Second prize, 10*l*

50 The Right Hon the Earl of Warwick, of Warwick Castle, Warwick, a 3 years and 11 months old Hereford steer, bred by Mr Thomas Longmore, of Leintwardine, near Leominster, Hereford, and fed on Grass, hay, Turnips, 1,040lbs of cake, 216lbs of Barley-meal, and 97lbs of Bean meal Travelled to the show on foot 4½ miles, and by railway 103 miles (251) Commended

Class IV Oxen or steers of any breed not exceeding 4 years and 3 months old under 8 stone weight, that shall not have had cake corn meal seeds grains or distillers wash, during 12 months previous to the 1st of May 1846

53 Mr. Willett Goodale, of Boroughbury house, near Peterborough, Northampton, a 3 years and 3 months old Hereford steer, bred by Mr James Crane, of Shrewardine, near Shrewsbury, Salop, and fed on Grass, Swede, Turnips, and 700lbs of Bean and Pea-meal Travelled to the show on foot 2 miles, and by railway 110 miles (248) Second prize, 5*l*

55 The Right Hon Lord Southampton of Whittlebury, near Towcester, Northampton, a 3 years and 10 months old Hereford ox, bred by Mr Walham Child, of the Grange, near Leintwardine, Hereford, and fed on Mangold Wurzel, Turnip, Carrots hay, chaff, 812lbs of cake 12 bushels of Oats, and 742lbs of Bean meal Travelled to the show by van 7 miles, and by railway 60 miles (246) First prize, 10*l*, and silver medal to Mr Child

Class V Oxen or Steers of any breed under 4 years and 10 months old (and under 8 stone weight with no restrictions as to feeding yet the kind or kinds of food must be specified

65 The Right Hon the Earl of Leicester, of Holkham, near Wells, Norfolk, a 2 years and 10 months old North Devon ox bred by his lordship and fed on Swedish Turnips, Mangold Wurzel hay, Linseed-cake, and Pea meal Travelled to the show by van 40 miles and by railway 70 miles (236) Prize, 10*l*., and silver medal to Lord Leicester

Class VI Oxen or Steers of the Scotch Welsh or Irish (Kerry) breed of any age without restrictions as to feeding, yet the kind or kinds of food must be certified

71 His Royal Highness Prince Albert, of Windsor Castle, a 3 years and 2 weeks old Highland Scot, bred by Mr Campbell, and fed on cake, Bean meal, Swedes, Mangold Wurzel, and hay Travelled to the show on foot 8 miles, and by railway 18 miles. (230.) Commended

71 Mr John Claydon, of Littlebury, near Saffron Walden, Essex, a 5½ years old Scotch ox fed on oil-cake, Bean meal, Clover, hay, Swedish Turnips, and Mangold Wurzel Travelled to the show on foot 8 miles, and by railway 10 miles (227) Commended.

78 Mr John Rob, sen., of Catton, near Thirsk, Yorkshire, a 4 years old Highland ox, fed on straw, Turnips, oil cake, and Grass Travelled to the show on foot 4 miles, and by railway 244 miles. (223.) Commended

79 Mr John Rob, of Thorpe-field, near Thirsk, Yorkshire, a 4 years old Highland ox, fed on straw, Turnips, oil cake, and Grass. Travelled to the show on foot 4 miles, and by railway 244 miles. (222.) Prize, 10*l*.

COWS AND HEIFERS

Class VII.—Fattened Cows or Heifers, under 5 years old. Unserviceable and spayed Heifers are not qualified This class generally commended.

92. Mr. J. L. Hassell, of Packington, near Ashby-de-la-Zouch, Leicestershire, a 4 years and 9 months old

shorthorned heifer, bred by Mr. John Wood, of Burton Joyce, near Nottingham, and fed on vegetables, cake, and Barley, Bean, and Pea-meal. Travelled to the show by van 17 miles, and by railway 100 miles. (209.) Third prize, 5*l.*

95. Mr. Capel Hanbury Leigh, of Pontypool-park, near Pontypool, Monmouth, a 2 years 9 months and 13 days old pure short-horned heifer, bred by himself, and fed on Swedes, hay, Vetches, and Barley-meal. Travelled to the show by van 49 miles, and by railway 114 miles. (206.) Second prize, 10*l.*

98. Mr. W. Trinder, of Wantage, Berks, a 3 years and 10 months old short-horned heifer, bred by Mr. George Hewer, of Earlington, near Northleach, Gloucestershire, and fed on Grass, hay, roots, meal, and cake. Travelled to the show on foot 2 miles, and by railway 64 miles. (203.) First prize 20*l.*; and silver medal to Mr. Hewer.

Class VIII.—Fattened Cows of 3 years old and upwards. Freemartins and spayed heifers are not qualified.

102. Mr. D. Bennett, of Faringdon, Berks, a 6 years and 5 months old short-horned cow, bred by Sir John A. Cathcart, of Cooper's-hill, near Chertsey, Surrey, and fed on Grass, hay, roots, meal, and cake. Travelled to the show by van 5 miles, and by railway 63 miles—has had two calves. (199.) First prize, 20*l.*; and silver medal to Sir J. A. Cathcart.

104. Mr. Joseph Gillett, of Little Haseley, near Whateley, Oxfordshire, a 5 years and 2 months old short-horned cow, bred by Mr. Sober Watkins, of Plumpton, near Penrith, Cumberland, and fed on hay, Bean, Barley, and Linseed-meal, and oil-cake. Travelled to the show by van 10 miles, and by railway 60 miles. (197.) Commended.

107. Sir George Phillips, of Weston-house, near Shipston-on-Stour, Warwickshire, a 5 years and 7 months old improved short-horned cow, bred by himself, and fed on oil-cake, Barley-meal, Swedish Turnips, and hay. Travelled to the show by van 24 miles, and by railway 63 miles. Has had 1 calf. (194.) Second prize, 10*l.*

108. The Right Hon. Lord Portman, of Bryanston, near Blandford, Dorset, a 5 years and 7 months old pure North Devon cow, bred by Mr. George Shapland, of Oakford farm, near North Molton, South Molton, Devon; and fed on Carrots, Swede Turnips, hay, oil-cake, and Linseed, Barley, and Bean-meal. Travelled to the show on foot 5 miles, by van 50 miles, and by railway 56½ miles. Has had 2 calves. (193.) Commended

Class IX.—Fattened Cows, of 5 years old and upwards, that shall have had at least two live Calves at separate births.

111. Mr. John Booth, of Killerby, near Catterick, Yorkshire, a 9 years and 10 months old short horned cow, bred by himself, and fed on Grass, hay, Turnips, Barley, and Bean-meal. Travelled to the show by van 10 miles, and by railway 255 miles—has had 5 calves (190.) First prize, 15*l.*; and silver medal and gold medal.

115. Mr. John Hall, of Wigston, near Bawtry, Nottinghamshire, a 12 years and 4 months old short-horned cow, bred by the late Earl Spencer, and fed on oil-cake, Barley and Bean-meal, Turnips, and hay. Travelled to the show by van 20 miles, and by railway 170 miles—has had 8 calves. (186.) Second prize, 5*l.*

EXTRA STOCK—CATTLE.

124. His Royal Highness Prince Albert, of Windsor Castle, a 2 years and 11 months old Highland Scot and Durham heifer, bred by Mr. Milnes, Downham, Norfolk, and fed on cake meal, hay, Swedes, and Mangold Wurzel. Travelled to the show on foot 9 miles, and by railway 22 miles. (177.) Silver medal.

SHEEP.

Class X.—Long woolled fat Wether Sheep, one year old, that have never had cake, corn, meal, seeds or pulse.

142. Mr. J. S. Burgess, of Holme Pierrepoint, near Nottingham, a pen of three 21 months old long-woolled wethers, bred by himself. (159.) First prize, 20*l.*, and silver medal.

144. Mr. Thomas Twitchell, of Willington, near St. Neot's, a pen of three 20 months old pure Leicester wethers, bred by himself, from rams hired of Mr. Samuel Bennett, of Bickering-park, near Woburn, Beds. (157.) Second prize, 10*l.*

Class XI.—Long-woolled Wether Sheep, one year old, that have never had cake, corn, meal, seeds, or pulse. Each Sheep not to exceed 180 lbs. live weight.

147. Mr. Thomas Twitchell, of Willington, near St. Neot's, Bedfordshire, a pen of three 20 months old pure Leicester wethers, bred by himself, from rams hired of Mr. S. Bennett, of Bickering-park, near Woburn, Beds. (154.) Prize, 10*l.*, and silver medal.

Class XII.—Long-woolled fat Wether Sheep, 1 year old, without restrictions as to feeding. This class generally commended.

156. Mr. John Painter, of Burley, near Oakham, Rutland, a pen of three 21 months old new Leicester wethers, bred by himself, from rams hired of Mr. Robert Smith, of Burley. (145.) First prize, 20*l.*, and silver medal and gold medal.

158. Mr. William Sanday, of Holme Pierrepoint, near Nottingham, a pen of three 21 months old Leicester wethers, bred by himself, from rams hired of Mr. Robert Burgess. (143.) Second prize, 10*l.*

Class XIII.—Long and short-woolled cross bred fat Wether Sheep, 1 year old, without restrictions as to feeding.

167. Mr. John Hitchman, of Little Milton, near Wheatley, Oxon, a pen of three 21 months old Hampshire and Oxfordshire cross wethers, bred by himself. (134.) First prize, 10*l.*, and silver medal.

168. The Right Hon. the Earl of Leicester, of Holkham, near Wells, Norfolk, a pen of three 20 months old Southdown and Leicester wethers, bred by his Lordship, from rams hired of Mr. Aylmer, of Fincham, Norfolk. (133.) Second prize, 5*l.*

EXTRA STOCK.—LONG-WOOLLED SHEEP.

172. Mr. John Clarke, of Long Sutton, near Wisbeach, Lincoln, a 56 months old long-woolled Lincolnshire ewe, bred by Mr. William Clarke, from rams hired of Mr. J. Clarke. (129.) Commended.

173. Mr. Christopher Faulkner Allen Faulkner, of Bury Barnes, near Basford, Oxford, a 49 months old improved Oxfordshire ewe, bred by the late Mr. William Faulkner, of Bury Barns. (128.) Silver Medal.

177. Mr. Charles Large, of Broadwell, near Lechlade, Gloucester, a 56 months old new Oxfordshire ewe, bred by himself. (124.) Highly commended.

182. The Right Hon. Lord Southampton, of Whittlebury, near Towcester, Northampton, a 32 months old Leicester wether, bred by his Lordship, from rams hired of Mr. Richard Hewitt, of Dodford. (119.) Commended.

Class XIV.—Short-woolled fat Wether Sheep, 1 year old, without restrictions as to feeding.

187. Mr. D. Barclay, M.P., of Eastwick-park, near Leatherhead, Surrey, a pen of three 20 months old Southdown wethers, bred by himself. (114.) Highly commended.

195. His Grace the Duke of Richmond, of Goodwood, near Chichester, Sussex, a pen of three 20 months old Southdown wethers, bred by his Grace. (106.) Second prize, 10*l.*

196. Mr. Samuel Webb, of Babraham, near Cambridge, a pen of three 20 months old Southdown wethers, bred by himself, from rams hired of Mr. Jonas Webb, of Babraham, near Cambridge (105.) First prize, 20*l.*, and silver medal and gold medal.

197. Mr. John Williams, of Buckland, near Faringdon, Berkshire, a pen of three 20 months old Southdown wethers, bred by himself. (104.) Commended.

Class XV.—Short-woolled fat Wether Sheep, 1 year old, without restrictions as to feeding. Each sheep not to exceed 180 lbs. live weight.

200. Mr. Thomas Goodlake, of Wadley-house, near Faringdon, Berkshire, a pen of three 20 months old pure Southdown wethers, bred by himself. (101.) Prize 10*l.*

201. Mr. John Harris, of Hinton, near Abingdon, Berkshire, a pen of three 19 months old Southdown wethers, bred by himself (100.) Highly commended.

Class XVI.—Short-woolled fat Wether Sheep, 2 years old without restrictions as to feeding.

208. His Grace the Duke of Richmond, of Goodwood, near Chichester, Sussex, a pen of three 32 months old Southdown wethers, bred by his Grace. (93.) Second prize, 10*l.*

209. Mr. Samuel Webb, of Babraham, Cambridgeshire, a pen of three 32 months old Southdown wethers, bred by Mr. H. J. Adeane, from rams hired of Mr. Jonas Webb, of Babraham. (92.) First prize, 20*l.*, and silver medal to Mr. Adeane.

EXTRA STOCK—SHORT-WOOLLED SHEEP.

215. Mr. Thomas M. Goodlake, of Wadley house, near Faringdon, Berks, a 20 months old pure Southdown sheep, bred by himself. (86.) Commended.

231. Mr. Samuel Webb, of Babraham, near Cambridge, a 20 months old Southdown sheep, bred by himself, from rams hired of Mr. Jonas Webb, of Babraham, Cambridgeshire. (80.) Silver medal.

PIGS.

Class XVII.—Pigs, of any breed, above 15 and not exceeding 20 weeks old.

225. Mr William Mills Barber, of Uxbridge, Middlesex, a pen of 13 weeks and 4 days old Middlesex improved pigs, bred by himself, and fed on toppings, Barley and Peas ground, and chat Potatoes. (76.) Highly commended.

227. Mr. Charles Eley, jun., of Heathfield Farm, near Hounslow, Middlesex, a pen of three 20 weeks and 5 day old improved Berkshire pigs, bred by himself, from the stock of Mr. C. Eley, sen., and fed on Buckwheat, Barley meal, Peas, and milk with water. (74.) First prize, 10*l.*, and silver medal

228. Mr. John Hercy, of Hawthorn-hill, near Maidenhead, Berks, a pen of three 23 weeks and 5 days old improved Essex pigs, bred by himself, from stock bought of Mr. W. Fisher Hobbs, and fed on Indian corn, Barley and Buckwheat-meal, and skimmed-milk. (73.) Commended.

232. The Right Hon. the Earl of Radnor, of Coleshill, near Faringdon, Berks, a pen of three 21 weeks and 1 day old Coleshill pigs, bred by his Lordship, and fed on 20 bushels of Barley meal, and 3 bushels of Potatoes mixed with whey (69.) Second prize, 5*l.*

Class XVIII.—Pigs, of any breed, above 26 and under 52 weeks old.

233. His Royal Highness Prince Albert, of Windsor Castle, a pen of three 41 weeks old Bedfordshire pigs, bred by his Royal Highness, and fed on corn, meal, milk, and Potatoes. (61.) Second prize, 5*l.*

238. The Right Hon. the Earl of Radnor, of Coleshill, near Faringdon, Berks, a pen of three 45 weeks and 1 day old Coleshill pigs, bred by his Lordship, and fed on 48 bushels Barley-meal mixed with whey, and about 6 bushels of Potatoes. (63.) First prize, 10*l.*; silver medal and gold medal.

EXTRA STOCK.—PIGS.

250. The Right Hon. the Earl of Radnor, of Coleshill, near Faringdon, Berks, a 15 weeks and 1 day old Coleshill pig, bred by his Lordship, and fed on 16 bushels of Barley-meal mixed with whey, and 1 bushel of Potatoes. (51.) Silver medal.

253. Mr. Edward Whitfield, of Snaresbrook, near Wanstead, Essex, a 28 weeks and 9 days old Essex and Suffolk pig, bred by himself, and fed on middlings, Barley-meal, and milk. (48.) Highly commended.

Reviews.

The Patent Journal and Inventor's Magazine. Publishing Office, 89, Chancery-lane, London.

Our readers will find, in the 23d No. of this journal, the specification of a patent granted to "Mr. William Higgs, of Westminster, for the means of collecting the contents of sewers and drains in cities, towns, and villages, and for treating chemically the same, and for applying such contents, when so treated, to agricultural and other useful purposes."

Mr Higgs intends intercepting the flow of sewage into the river by diverting it into tanks, where a series of chemical operations will commence by which the whole of the matter available for manure will be precipitated, and the gases (at present evolved into the atmosphere) combined with chemical agents, and formed into a fixed ammoniacal salt; thus converting poison into the means of subsistence and health. The water having been by these means divested of its filthy, but most truly valuable contents, will be discharged into the river in a state of great purity and softness, while the deposit will be compressed by a particular and ingenious process, dried and packed, fit for transit to wherever a demand for it may exist.

No longer shall we have to deplore the exhaustion of the stores of guano, the manure of the metropolis being alone more than sufficient to supersede its use.

The principal features of the plan are these:—The contents of the sewer run into a series of tanks, each being filled in turn. In the lowest part of the bottom of the tank a filter is placed (a horse-hair cloth, or some other porous and filtering material). The liquid part of the sewerage is pumped out of the drains below the filters, and a partial vacuum being thus created there, the operation of filtering is accelerated. Above these tanks buildings are erected. The first ceiling over the tank is of a somewhat domed shape, and at its apex there is an opening in which a screw ventilator works, drawing off the vapours and exhalations into an upper chamber. In this chamber a number of uprights of wood are fixed, and to these a number of spars are secured in a longitudinal position, on which the salts and other substances, formed from the vapours or gases, may rest and attach themselves.

Over each tank an apparatus is fixed, on which a carriage is made to traverse along and across over the whole surface of the water below, for the purpose of enabling the workmen evenly to distribute the chemical agents employed to separate the fertilising matters contained in the sewage water, thus securing the uniform mixture of the whole.

The substance to be employed is slaked lime, which while it is expected to precipitate the animal and vegetable matters in the water, will at the same time drive off and volatilise the ammonia and other vaporous substances which it may contain. These substances arise and are drawn through the ceiling into the upper chamber by means of the ventilator; they are then mixed with chlorine or muriatic acid gas, and are thus condensed in a fixed form upon the apparatus of spars arranged there for the purpose; and from these they may be collected for sale.

The solid matter precipitated at the bottom of the tanks is collected properly shaped, dried, and may then be conveyed away and sold. The drying process is by means of slowly revolving endless chains of buckets placed between the flue and the outside wall in the chimney of the steam-engine, which will be required on the premises. The material is placed in these buckets, has an hour's journey up to the top of the chimney and down again, and is thus expected to be dried.

Mr. Higgs has succeeded in establishing a company for the carrying out of his plans, and they are to apply to Parliament during the ensuing session for power to proceed.

Whatever may be our opinion of the practicability of their plans, we heartily wish them success. There is room in the metropolis alone for many such companies, and the sooner they are all busily at work the better for the people, both as regards the public health, which is injured by the present stagnation and evaporation of sewer water, and as regards the increased food to be obtained by its application to the land.

We hope for the establishment of many sewage companies, and should rejoice to see them at work in all the great towns of the kingdom; and we should be glad to confine ourselves exclusively to the advocacy of the principle which they all would admit—viz., the folly not only of wasting town manure, but of permitting this waste in a manner which renders it fearfully destructive of human life; but there is no avoiding the conclusion that the failure of the first attempts to meet this enormous evil would greatly retard its final defeat, and for this reason we are justified in discussing the plan which Mr. Higgs proposes. We believe it to be unnecessarily expensive and laborious. The abstraction of the ammoniacal salt, on the one hand, and the loss of other matters dissolved in the waste water on the other, will leave the sediment of comparatively little value, certainly not of such value as to bear the expense of carriage to any great distance.

We must repeat the expression of our opinion that the plan suggested by Messrs Smith and Martin of conveying the sewage water, sediment and all, by means of pipes to the place of its application, is the most efficient and economical way to dispose of it.

Farm Memoranda.

Farming near Dundee.—When in the neighbourhood of Dundee, I had the pleasure and advantage of

inspecting the farm and improvements of Mr. Cobb, who has entered with spirit on the thorough improvement of his farm, by frequent or thorough-draining, on the Deanston system, straightening crooked, and levelling the unnecessary large fences On one part of his farm, in fact, he has retained scarcely any fences at all—added to these, the taking in and reclaiming a quantity of waste ground, which, in many places, lay on each side of the bridle or parish roads. These improvements have been well performed, on scientific principles—no expense has been spared—still, there has not been one penny wasted.

The farm of Mr. Cobb was all drained about 24 years ago, on the old system For a number of years after the drains were put in, the land was pretty dry, but they were losing their effect, when Mr. Cobb began, about five years ago, to drain on the Deanston system. For the first three years, he made the drains 2½ feet deep with 15 inches of stones—but since that period, he has drained at 3 feet deep, with 12 to 15 inches of stones, which he considered, after all his experience, to be the best method. The drains are generally put at 36 feet apart—sometimes 18 feet—but he has found it will be necessary, on all the thin moorish land, where the drains are 36 feet apart, to put another drain between them—he has already made upward of 50 miles of drains, and still continues annually to carry on the system; the drains are all laid with stones, having a quarry in the neighbourhood, and there being no tile-work where tiles are sold near the farm Mr Cobb says that he is repaid the outlay of draining, in two years, or three, at the outside. Is it not really surprising that farmers and proprietors are so blind to their own interest, that they will not drain, subsoil, trench, and deeply work their land, when they have the numbers upon numbers of authentic statements of those enterprising farmers and proprietors who have adopted those improvements! It cannot be supposed that a sensible tenant farmer, such as Mr. Cobb, would, year after year, continue these improvements, if he found that he lost, or did not make money His stake in the land is great, as may be inferred, from the fact, that his yearly rent is between 1200*l* and 1300*l*—he has been farming now upwards of 40 years, and has risen from a farm of 40 acres to one of 500 and that within two miles of Dundee; it cannot be urged that he has had no experience.

Mr. Cobb's farm being situated so close to Dundee, he is enabled to procure any quantity of manure at 4s per ton The rotation of crops is somewhat peculiar, but well adapted for the situation, as nearly all the crops are sold to the towns people The course consists of the following crops,—

1st Grass.
2d. Potato Oats
3d Common Oats, with 3 cwt. guano.
4th. Turnips, with 15 tons of dung, and 2½ cwt. of guano.
5th. Barley, with 3 cwt. of guano.
6th, Potatoes, subsoiled, and about 28 tons of dung.
7th Wheat, with 10 tons of dung, sown out in spring with Grass seeds.

There are only cows kept for the use of the farm, and nine pairs of horses, with another pair partly employed on the farm and partly in carting to and from a corn mill, which Mr Cobb also owns All the Grass is sold growing to the carters, cow-feeders, &c, of Dundee, except what is necessary for the keep of the horses and cows on the farm. The latter are fed in the house The Potato Oats, No. 2, are also sold growing, with the exception of about 10 acres, which are usually kept for seed. The Turnips are also disposed of to the townspeople, with the exception of about 15 acres, which are kept for the cows, and 30 head of cattle, wintered in the straw-yard. These cattle are disposed of in spring. The Potatoes are divided into small lots and sold growing to the poor people and others of the town The sale of the crops is effected by auction, or, as they term it in Scotland, by roup The number of horses kept may appear large; but this number becomes necessary, as all the sold produce of the farm must be delivered in the town to the purchasers. The horses on no account return without bringing to the farm the manure of the town. Some of the farmers of the neighbourhood only sell a part of their green crops, feeding the remainder at home with milch-cows, selling the milk and butter in Dundee. Mr. Cobb is particularly fortunate in being able to sell any part of his growing corn crop, as most of the farmers in the district are prohibited by their leases from selling fodder off their farms The cow-feeders and carters, &c, have therefore great difficulty in procuring straw, and give a high price for it to those farmers who are not bound so strictly by their leases

To the draining is added subsoiling the land for the next crop or two after, when the land has been dried in a sufficient manner. It is an error too often committed, and one that has brought subsoiling into disrepute, to subsoil immediately after draining, and before the drains have been able to even partially dry the land. At least a year should intervene between the two operations. The time must be extended according to the nature of the soil On no account must the subsoil be in any way stirred previous to the drainage. I remember a field of good and naturally pretty dry soil, which the farmer thought was quite dry enough to subsoil without previous draining. The subsoil plough was used, and the ground stirred to the depth of 18 ins. After the first heavy fall of rain the land became in such a state that the horses could not work in the field, each foot sinking to the depth of 12 or 14 in into the soil. It will be seen that the working and preparing of the subsoil made an excellent retainer of the moisture, there being no outlet for its escape. The field could not be cultivated till it had been thoroughly drained.

Mr. Cobb is so convinced of the efficiency of subsoiling that he performs this operation every rotation. He finds the preparation of the land for the Potato crop the most convenient time.

In levelling the fences that are inconvenient or crooked, or too large, Mr Cobb has first the gulp cleaned out, and in it builds a gullet 6 ins wide by 10 ins high, this is used, if found convenient, for a main or receiving drain for the drains of the fields The ground is then levelled, leaving only a bank and hedge, or if the fence be not required, it is entirely removed The waste moor he reclaims by first enclosing, then trenching to the depth of 3 feet, removing all the stones, and using them to drain with He was in the habit of putting the drains on the moor 36 feet apart, in future he will adopt 18 He showed me a piece of this moor that he had brought into cultivation two years ago; the cost of trenching and draining which was 12*l* p. acre, The first crop, Oats, sold by auction for 12*l* per acre. Thus one crop nearly paid the outlay of reclaiming. I am sure nothing could be more uninviting than the part of this moor which still remains in its natural state The cold, inhospitable wet look, the scanty thin Grass, the stunted rushes, and stagnant pools of water, suggest the idea of a great coat and thick shoes—not luxuriant crops and ample profits. The soil is about, at the utmost, 4 inches in depth, resting on a cold, wet, retentive clay into which, in its natural state, no plant could or would attempt to extend its roots. No person, let his land be what it may, ought to despair of reclaiming it, after he sees what this enterprising farmer has been able to accomplish with so very unprepossessing a piece of land

I had almost forgotten to mention, that Mr Cobb has made through his farm good and well made roads, running in such a direction, that they pass by every field This is a great saving in horse labour. I wish our farmers and landed proprietors would take pattern from their brothers on this side of the water, and when they have roads to make for their own convenience, and that of their tenantry, that they would make themselves and not job on the grand juries, and get those roads made at the expense of the barony. One would think that the poor people of Ireland were immensely rich, to see the way they are drained of their money by their trading patriots their jobbing resident gentry, their absentee landlords — *David T Jones, Edinburgh, abridged from the Farmers' Journal.*

Miscellaneous.

Instance of Grass land broken up —In 1815 this farmer broke up a piece of land, and for the purpose of ascertaining what would "answer best," he pared and burned the sward of the entire piece, and spread the ashes He then sowed half of it with Turnips, and had them breast ploughed in, covering the seed lightly with little more than the ashes, and had an excellent crop. The other half was ploughed twice or three times, and harrowed and dragged, with the view of doing it well, and preparing it to a fine state previous to sowing Turnips The Turnips were sown with the land in nice order, soon after the others just mentioned, and he had nothing. The soil was a light darkish loam, inclining a little to peat, on gravel, with a subsoil of Oxford clay some feet under.—*Mr. Bravender, in Eng. Ag. Soc. Jour.*

Notices to Correspondents.

Labourers of Tourists We have mislaid the address of *D S F* Will he be kind enough to give us it?

Milk Cow—*H W* We cannot account for the falling off in the milk

Ibid—*J J*—You may mix some Linseed meal with the pollards and Peas meal Boil it up into a thin mucilage and pour it over the Swedes before you give them Give them 1lb a piece at first starting, and you may increase it up to 3lb a piece a day You cannot make 30s a ton of Belgian Carrots by feeding them

Stall—*B D J*—A known correspondent recommends Biggs' composition, from experience of its efficiency

South Devon Farm—*A Bonâ fide Farmer*—Excuse a week's delay

Weight of Water *G B, Leeds*—A cubic foot weighs about 62½ lbs and contains about 7 48 wine gallons, or about 6 2 corn gallons

*** Communications reaching town after Wednesday cannot be answered the same week.

Markets.

POTATOES—Southwark, Waterside, Dec 7

The supply during the past week was principally from York, Lincoln and Cambridgeshire, and for the season may be considered liberal Some cargoes have also arrived from France, and although most of the samples have had a long passage, the potatoes have been in good condition, therefore it is generally considered that for the remaining part of the season they may be shipped with safety in sailing vessels.

York Regents 120s to 160s	Cambridgeshire Kidneys, 100s to 120s
Do Shaws 120s to 140s	Kent and Essex Regents, 140s to 180s
Lincolnshire Regents (Scots 150s)	Do Shaws, 120s to 140s
Cambridgeshire Regents, 140s to 160s	Do Kidneys, 160s
Do Shaws, 120s to 140s	French Whites, 100s to 120s

RICHARD HARRIS.

HAY—Per Load of 36 Trusses

SMITHFIELD, Dec. 10.

Prime Meadow Hay	70s to 76s	New Hay	—s to —s	New Clover	—s to —s
Inferior Meadow & Rowen	40 66	Clover	80 90	Straw	26 30s

JAMES COOPER, Salesman.

WHITECHAPEL, Dec. 10

Fine Old Hay	76s to 78s	Old Clover	80s to 90s		
Inferior Hay	56 60	Inferior	70 80	Straw	26s to 32s
New Hay	— —	New Clover	— —		

Trade very dull at the above quotations.

CUMBERLAND MARKET, Dec 10.

Prime Meadow Hay	70s to 78s	Old Clover	80s to 90s		
Inferior	50 68	Inferior do	76 84	Straw	28s to 34s
New Hay	— —	New Clover	— —		

JOSHUA BAKER, Hay Salesman.

COVENT GARDEN, Dec. 11

Next Monday being the great Christmas Market, there is not much business doing here to-day The number of Baskets is small, and the choice quantities make rather more money Best Pines 4s, make 4s to 4s 6d, and the most selling Short horns, 3s 6d to nearly 4s Sound quality with dispatch will make a little more than on Monday last although we have very few, sheep they cannot be all sold—the demand is to an exceedingly limited What few sales are effected may be quoted at Monday's prices Calves are rather lower—all being the more general pen of the choicest qualities Trade for Pigs is very heavy at a reduction of 4s to 6d per 8 lbs

Beasts, 3803; sheep and Lambs, 8671, Calves 190 Pigs, 960.

41 West Smithfield

HOPS, Friday, Dec. 11

The Market continues firm, with a good demand

Farnham & Mid Kent Hop Factors

MARK-LANE, Monday, Dec 7

There was rather a better supply of English Wheat this morning, which excepting a few of the very finest samples met a slow sale at a decline of 1s per qr, some quantity remained unsold towards the close of the market Good free Foreign a very limited sale at late prices low and inferior are much wanted, and command an advance of 1s to 2s per qr. Bonded finds occasional buyers for France—Best Barley is 1s per qr cheaper, secondary qualities dull at 2s per qr. decline—Beans are 1s per qr lower, and White Peas 2s per qr, without inquiry Maple fully as dear—Oats are heavy at our quotations—Maize continues to be much wanted for Ireland, and is taken at 1s to 2s per qr. advance—Fine flour is neglected, but coarse qualities are freely taken for Ireland

BRITISH, PER IMPERIAL QUARTER.	s	s		s	s
Wheat, Essex, Kent, and Suffolk		White 61	65	Red	58 60
—— Norfolk, Lincolnshire, and Yorkshire		74	80	White	64 68
Barley, Malting and distilling		Grinding 40	42	Grinding	32 34
Oats, Lincolnshire and Yorkshire		Polands 28	32	Potato	26 28
—— Northumberland and Scotch		Potato 27	30	Feed	24 26
Irish		Feed 28	30		
Malt, pale, ship			— —		
—— Hertford and Essex			— —		
Rye			42 44		
Beans, Mazagan, old and new	36 to 40	Tick	38 42	Harrow	36 42
—— Pigeon, Heligoland	44 to 48	Winds	56 70	Longpod	36 42
Peas, White	42 to 50	Maple	42 46	Grey	36 44

ARRIVALS THIS WEEK	Wheat	Barley	Oats	Flour
English	6940	7010	4080	3400 bls
Irish	—	—	2710	—
Foreign	—	7380	1010	1390 bls

FRIDAY, Dec. 11

The English Wheat left over from Monday has been cleared on terms fully equal to that day's Prices Foreign of fine quality met an improved demand, and prices are in favour of the seller. Petersburg, Polish Odessa and Interior, have been extensively purchased at an advance of 2s to 3s per qr Bonded is sought after at rather more money—Fine Barley is a dull sale secondary qualities support our quotations—Beans are unaltered White Peas, which on Wednesday were unsaleable, sell readily at the rates of Monday last, other sorts fully as dear.—Oats are a more free sale—Flour is an improved request at advancing prices, Meal for Ireland must be written 12s 6d to 20s per ton higher—Maize is not difficult to be met with, but for forward shipment 3s to 4s per qr dearer

IMPERIAL AVERAGES

		Wheat	Barley	Oats	Rye	Beans	Peas
Oct.	21 per Quarter.	51s 10d	41s 8d	27s 9d	41s 1d	40s 1d	40s 6d
Nov	7 "	52 8	44 4	27 8	41 5	42 6	40 11
"	14 "	51 5	44 6	26 9	42 4	42 10	41 10
"	21 "	50 6	43 11	26 10	42 2	43 4	42 0
"	28 "	49 9	42 9	26 11	41 9	43 10	42 6
Dec	5 "	49 7	43 11	26 7	42 5	43 4	42 0
5 weeks Aggreg. Aver.		50 7	43 8	26 7	42 4	42 8	42 5
Duties on Foreign Grain		5 8	2 0	1 6	3 0	2 0	2 0

Fluctuations in last six week's Corn Averages.

Price	Oct 21	Nov 7	Nov. 14.	Nov. 21.	Nov. 28	Dec 5
62s 3d	••					
61 10		••	••	••	••	••
61 5						
59 8	••	••	••	••	••	••
59 7						
59 6	••	••	••	••	••	••

[Kingsway and Lad

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. MOCCKEROE AND MORRIS have received instructions to submit to Public Competition by Auction on the Premises, Paradise Nursery, Hornsey-road, on Monday, Dec. 14, 1846, and following day, at 11 o'clock (by order of Mr. Tarrelle, in consequence of the land being required for other purposes), the whole of the valuable NURSERY STOCK, consisting of a considerable quantity of very fine Evergreens, Dwarf Trained Peach, Nectarine, and Plum, also about 500 Camellias, from 2 to 6 feet, beautifully furnished with bloom buds, Azalea Indica, and Erica, of sorts, and other Greenhouse Plants. May be viewed prior to the Sale. Catalogues (6d. each, returnable to purchasers) may be had on the Premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone.

BARNES, SURREY.

TO FORCING GARDENERS, FLORISTS, & NURSERYMEN.

TO BE LET, under Assignment of Lease for 21 years from Michaelmas, 1848 about 2 acres of well stocked GARDEN GROUND, partly walled in, with erections of Forcing Houses, 57 feet by 8, and 30 feet by 10, and Pits, 49 feet by 7 feet 6 inches, ditto 45, ditto 46 and 43 feet, situate contiguous to the River Thames, near Barnes Terrace The whole of the stock to be valued, and immediate possession to be given. For further particulars, apply by post to Mr W Atwell, Land Agent, Mortlake; or to Mr. W. Bunnell, Barnes, Surrey.

IMPROVED POLMAISE HEATING.

GREENHOUSES, HOTHOUSES, and CONSERVATORIES of every description fitted up with the above Apparatus on the most Economical terms, and warranted to answer, by Mr. J. Lewis, Horticultural Builder, Stamford-hill, Middlesex, where it may be seen in operation.

POTATO EPIDEMIC.

To AGRICULTURISTS, GARDENERS, & OTHERS.

PARKER'S ENTYKOPROLEON, OR CHEMICAL COMPOSITION MANURE, for destroying the Wireworm, Grub, Mole, Insects, and Vermin inimical to the growth of all kinds of grain and vegetable productions, and for assisting vegetation.

The extraordinary disease affecting the Potato is now become an object of serious consideration, not only to the grower, but to the consumer, and any expedient or specific to stop or diminish the malady, must be considered of the utmost importance to the community. The proprietors, consequently, from their own experience, and the observations of other parties, strongly recommend the dressing of the land with their Manure previously to planting, being confidently assured it will be found a perfect preventative of this fatal disease, as also in other respects a cheap and fertilising manure

Sold in casks of any size at 6l. per ton, with directions, &c., for use, by W. and S. B. PARKER, Sole Manufacturers, Chemical and Colour Works, Deptford, Kent; where also can be had Prospectuses with Testimonials.

AGRICULTURAL TRAINING SCHOOL, Hoddesdon, Herts - The CHRISTMAS VACATION will TERMINATE on TUESDAY, Jan 26, 1847, when punctual attendance is required Lectures on the following subjects will be delivered daily during the ensuing Term - Agriculture, Botany, Breeds, Management and Diseases of Cattle, Chemistry, with Practical Analysis in the Laboratory, Civil Engineering, Geology, Mineralogy, Mechanics, Natural and Experimental Philosophy, also Practical Surveying Draining and Levelling, and the Course of Education combines the Classics, Mathematics, and Modern Languages - Terms and particulars may be known by application, personally, or by letter addressed to the Head Master, at the School.

WILLIAM HASELWOOD, Head Master

TO ADVERTISERS.—All Advertisements intended for the First Number of the MIDLAND FLORIST must be forwarded without delay to the Publisher, R. Sutton, Bridlesmith-gate, Nottingham, or to Simpkin and Marshall London.

The MIDLAND FLORIST will undoubtedly be a most desirable medium for advertising Books, Plants, Seeds, Roots, Horticultural and Agricultural Implements, or for any other advertising communication requiring extensive publicity — Terms very reasonable.

*** Order the MIDLAND FLORIST of any Bookseller

KAGENBUSCH AND Co.'s REMEDY FOR THE POTATO DISEASE — Price 6s. per packet, which ensures an acre of sound Potatoes and a large crop.

KAGENBUSCH AND Co.'s GERMINATING COMPOUND —Price 2s. and 1s per packet The best Steep for Wheat and other Grain; Turnip, Clover, Onion, and all other Seeds and Pulse This is the gardener's best friend

KAGENBUSCH AND Co's GERMAN SCIENTIFIC MANURES, which fertilise the land without exhausting it, at 20s. per acre for Meadows, once in three years, for Tillage 30s per acre, and for Hops 40s. per acre, annually. Price of 10s. per ton for Meadows and Tillage, and 9l per ton for Hops. One ton is sufficient for 4 acres.

These articles are kept at Hibernia Wharf, London-bridge, and Mr. Joseph Edwards will deliver them to any one bringing the amount in cash

Manufactured by Kagenbusch and Co., Agricultural Chemists, Leeds. Sold by James and Co., Agents for the South of England, 55, King William-street, City, and Potter Brothers, Agents for the North, Cromford-court, Manchester.

*** Vessels of 80 tons, drawing 5 feet, load at the Works in Leeds, and can ascend the creeks of every port in the Kingdom, so that Dealers or Farmers, and Landed Proprietors, clubbing together, may be supplied direct, at a saving of expense.

A liberal allowance to the Trade.

LAWES' PATENT MANURES —Turnip Manure, 7l. per ton. Clover Manure, 14l. per ton. Corn Manure 14l. per ton Superphosphate Lime, 7l. per ton.

A Pamphlet on Artificial Manures will be forwarded to any person enclosing two postage stamps to Mr. Wilson at Mr. Lawes' Factory, Deptford Creek, London

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounslow, near Southampton, Draining Engineer to Her Majesty at Osborne, Isle of Wight; the inventor of a Patent Tile and Pipe Machine (applicable to making Bricks); also a new Machine for taking roots and stones out of clay, both which are to be seen at the Royal Polytechnic Institution, Regent-street,—offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P.S.—Land drained at a fixed sum per acre, including every expense.

TO BRICK AND TILE MAKERS.

BRICK AND TILE MACHINES.

THE AINSLIE PATENT TILE MACHINE COMPANY (James Smith, Esq., of Deanston, Chairman), invite attention to their improved TILE MACHINE, and to their new Patent Improved Kilns, for drying and burning Bricks and Tiles, by which a saving of from two-thirds to three-fourths of the fuel is effected, and all the articles are burnt equally, without loss or damage. The Machines at work and a Model of the Kilns to be seen, and all particulars to be obtained from Mr. John Pares, Secretary, 193a, Piccadilly, London. Agents wanted.



FIXED BY FREEMAN ROE,

Fountain Maker, 70, Strand, London,

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CAUTION.

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N. Le Geir, } Honorary Secretaries.
J. S. Laine, } R. A. S. C.

Guernsey, October 29, 1846.

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TO THE BENEVOLENT.—Attention is most respectfully called to an almost unparalleled case of misfortune which has just occurred in this neighbourhood.

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With these ruinous prospects before him, Mr. Hannam appealed in the most respectful manner to his landlord, who stated (through his bailiff) for the first time that he was only an agent to his father, who was in Rome. Thus he was not only refused compensation, but his goods and implements were distrained upon and sold (as might be expected in such a wild country) at an enormous sacrifice The unfortunate man, together with his wife and four infant children, are now left upon the inhospitable moor, 100 miles from their native village, with scarcely a bed to lie on. Mr Hannam's losses are not less than 1400l and these sad reverses of fortune, coming upon him as they did so unexpectedly as well as undeservedly, have induced his brother farmers to render him some assistance, and most respectfully to solicit the benefactions of all who may feel disposed to aid them in this work of charity.

John Pearce, Wool Stapler, Southmolton, Devon.

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Grape, Jeddon's St. Albans ... 811
Grounds, wash for ... 811

TO THE SUBSCRIBERS TO THE GARDENERS' BENEVOLENT INSTITUTION.—The Committee of management vote and instruct is obliged to submit for election Mrs. Gardiner, who is 78 years of age, has formerly filled first-rate situations, and has brought up a family of 12 children, but is now incapable of work through old age and being badly afflicted with Rheumatism. His testimonials are of the highest order, and his case (which is a truly deserving one) is strongly recommended by the following:—Messrs. Noble, 108, Fleet-street, Messrs. Garaway, Mayes, and Co., Dudham-Down Nursery, Bristol, Mr. J. C. Wheeler, Kingsholm Nursery, Gloucester.

PRIZE FIGHTER CUCUMBER.—Fifty Seeds of this hardy and most useful CUCUMBER will be sent free of postage for 12 penny stamps. It is an excellent bearer, and grows 16 inches long.

JOHN HAYES, Nurseryman, West-street, Farnham, Surrey.

UNDER THE PATRONAGE OF HIS GRACE THE DUKE OF BUCKINGHAM AND CHANDOS.

D. FERGUSON, Nurseryman and Seedsman, Aylesbury, Bucks, respectfully informs the Nobility and Gentry that from the encouragement he is receiving as a Landscape Gardener, contracting planter, thinning and filling up neglected plantations, &c &c., he intends devoting a great part of his time to that branch of his profession. From the opportunities he has had of gaining experience in the course of 25 years' service in some of the largest places in England and Scotland, he hopes to be enabled to give satisfaction to those that employ him. Charges moderate, and distance no object. D. F has a large quantity of very fine Standard Roses, upwards of 100,000 strong Larch from 2 to 6 feet, and other nursery stock.—Experienced gardeners recommended.

DOUBLE ITALIAN TUBEROSE ROOTS, 4s. per dozen.—The above-named Bulb, famous for its beauty and the fragrance of its blossom, has been just received from Italy, and may be obtained at A. Cassetti's Italian and Foreign Warehouse, 18, Pall Mall. A choice collection of Orange, Lemon, Citron, and Shaddock Trees, Asorian, Catalonian, and Arabian Jasmines expected in January next.

PEAR AND MUSCLE PLUM-TREE SEEDLINGS.—Wanted 40,000 of the former, and 10,000 of the latter, equal proportions of one and two-year old plants desired to be bargained for immediately, and to be delivered well packed for an Atlantic voyage next February or March, as the weather may permit.—For particulars apply, post paid, stating price and quality of the plants, to Messrs. WILLMER and SMITH, Liverpool.

POTATO SEED.—The Produce of Potatoes (from the Azores) grown last season, perfectly free from disease, by Mr HAYWARD, Lymington, Hants. Mr. H has a small quantity of this Valuable Seed, which he is anxious should be distributed as widely as possible. He will forward a packet to any address on receipt of 1s postage stamps.

PROLIFIC PEA.

JOHN CLARKE, of Long Sutton, has about 20 qrs. of his Prolific Pea to dispose of. Price 20s per bushel. This Pea has been adapted to field culture by Mr. C. from the strong recommendation of a practical amateur gardener. It is a white Pea of dwarf variety, but now from culture growing from 3 to 3½ feet high, and exceedingly productive.—Orders addressed as above, will be carefully attended to.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN & OTHERS.

ABIES CANADENSIS, or HEMLOCK SPRUCE.

G. BAKER, NURSERYMAN, Bagshot, Surrey, having a large Stock in Europe, of various sizes and in fine condition, can with confidence recommend this noble tree to the notice of the public, at the following prices:—

1 ft.—Transplanted	..	..	at £0	12	0 per 100
2 „	„	..	.. „	0 16	0 „
3 „	„	..	.. „	1 8	0 „
3 to 4 ft.	„	..	.. „	1 10	0 „

PICEA BALSAMEA.

1½ to 2 ft.	„	..	.. at	£0 8	0 „
2 „ 3	„	..	.. „	0 12	0 „

G. B. having a fine Stock of Flowering KALMIA LATIFOLIA can supply them at the following low prices:—

9 to 12 inches	..	..	.. at	£2 16	0 per 100
12 „ 18	„	..	.. „	3 15	0 „
18 „ 20	„	..	.. „	5 0	0 „

Fine Specimen Plants from 3s. 6d to 5s. each.

N.B.—Large purchasers will have considerable reduction.—The usual allowance to the trade.

FOR IMMEDIATE AND EARLY JANUARY SOWING,

VERBENA SEED, saved from various oppositely distant new and most select show kinds of the past season, MICHAEL BREWER, Florist, 4, St. John's Wood, Regent's Park, London, having saved an above in quantity than required for own sowing, offers the same for general cultivation at 3s. per 100 seeds. Directions for sowing, &c., will be given if required. The severity of winter has already destroyed many valuable collections, may by sowing (in pots plunged in a cold frame) be restored in time to furnish the usual summer display, besides affording the probability of obtaining new and improved varieties.

For February and March Sowing.

M. B. has also the following; being his own saving are likewise confidently offered as correct to description:—

	Per Packet.
Phlox Drummondii, finest scarlet and scarlet rose mixed	50 seeds, 1s.
Antirrhinum, from 16 distinct and best kinds, do.	200 do. 1s.
French Marigold, fine double bright striped and self-coloured, mixed	300 do. 1s.
Schizopetalum Major, an extra large and very fine flowering variety	50 do. 1s.
Petunia, same as advertised Oct. 3, a few packets	500 do. 1s.
Verbenaria Discoidalis	100 do. 6d.

Free per post on receipt of postage stamps or Post-office order on Upper Baker-street, London.

The quantities being limited to a narrowed growth, early orders are solicited.

SUPERB SEEDLING VERBENAS, PHLOXES, ANTIRRHINUMS, &c., of 1846.—Nurserymen and Florists desirous of adding to their catalogues for 1847 are requested that M. BREWER, Florist, 4, St. John's Wood-terrace, Regent's Park, London, will supply accurate descriptions of his Seedlings as above upon receipt of application enclosing a penny postage stamp. As a criterion to worth and novelty, M. B begs to state that most of them have been seen, approved, and ordered by the Messrs. Hendersons, of Pine Apple Nursery, in whose Catalogue for 1847 the greater part will be entered, and of whom Plants may be had. They are also bespoke by other eminent growers.

NOW READY FOR EARLY FORCING.

YOUELL'S TOPOLSK RHUBARB (the earliest known), producing fine stalks of a bright transparent pink. Roots planted in a cellar or dark closet now will be fit for cutting in three weeks. Extra strong roots, 7s. per dozen; smaller, 4s per dozen. MYATT'S VICTORIA RHUBARB, 2s to 12s. per dozen. SEMONO GIANT ASPARAGUS, 2s. 6d. per 100; and SEA KALE, 2s.

The [illegible] in sizes and [illegible] and Co., can be supplied by the [illegible] or small quantities, of the same stock they had the honour of furnishing the Royal Gardens at Windsor, and most of the nobility, as well as the awards by the London Horticultural Society. They can also supply fine trained Peaches, Nectarines, Apricots, Plums, Cherries, Pears, and Apples of the most esteemed kinds, warranted true to name.

LILY OF THE VALLEY, 5s per 100, very strong for blooming in spring.

TRUE ASH-LEAVED KIDNEY POTATOES, 2s 6d. per peck.
SHILLING'S NEW EARLY POTATOES, 3s. per peck.
EARLY COCKNEY POTATOES, 3s per peck.
Warranted free from disease

TRANSPLANTED QUICK, OR WHITETHORN

A few hundred thousands of the above (in the finest condition, stout, and from 1 to 2 feet in height) at 7s. per 1000

Steamers from this port to Rotterdam and Hull twice a week, and to London daily.

YOUELL and Co., Nurserymen, Great Yarmouth.

FOREST TREES

VICTORIA AND ALBERT NURSERIES, CORK

J. and H. HAYCROFT beg to inform Gentlemen intending to plant, that they have this season a large stock of Seedling and Transplanted FOREST TREES, which they can offer on very moderate terms. As a considerable reduction will be made on large quantities, it is respectfully requested that the sizes and number required be stated.

N.B. All packages DELIVERED FREE by steam packets to London, Plymouth, Southampton, Bristol, and Liverpool, and by sailing vessels to nearly every port in South Wales.

Roots of Tigridia conchiflora 25s. per 100; Ceanothus azureus 2 feet, in pots, 12s. per dozen.

The usual discount to the Trade.

PEAR TREES

RENE LANGELIER, of the Clarendon Nursery, St Helier Jersey, respectfully announces that he has on Sale upwards of 80 000 fine PEAR TREES, from his unrivalled collection of upwards of 1200 varieties, of which a Catalogue may be had on application, post paid, and a penny stamp inclosed, among which will be found several new ones, in particular his new Beurré, which proves again this year to be one of the best fruit known, also one called Grosse Calebash, measuring from 8 to 8½ inches, weighing from 20 to 24 ounces, a perfectly melting fruit, ripens in November, quite different from Calebash Rose, both in shape, size, and flavour.

All the sorts insured to be true to name, and none sent out by R. L. unless proved by him,—by application, as to the time of maturity, and description of fruit,—as sufficient. Having devoted his particular attention to the above culture, he flatters himself he has the most select collection in England or France.

Price.—Langelier's Beurré, from 3s 6d. to 5s each tree, Grosse Calebash, 5s., fine trees. Those who do not possess these varieties should not be without them.

A Descriptive Catalogue of Pears is in progress, and will much interest Pear Growers, and proper pruning will be treated according to the plan they are grown in his garden, which is different from all other pruning.

All letters prepaid, and remittance or reference from unknown correspondents.

SPLENDID CAMELLIAS.

NEW AMERICAN SEEDLINGS.—The Proprietor of these magnificent CAMELLIAS takes great pleasure in announcing to his Customers, Friends, that these most superb new varieties will now be offered to them. The Proprietor believes it will only be necessary to give the Reports of the Massachusetts Horticultural Society, and their introduction, to secure the entire confidence of this community that they are most worthy their attention.

SUPERB NEW CAMELLIAS.—The most remarkable novelties in the horticultural world at home, are the NEW CAMELLIAS, which have been raised by Col. Wilder, of Boston. Among all the exquisite sorts that the skill and long-continued devotion to this plant have produced in Europe we may safely say that none surpass, in beauty of colour and perfection of form, those two new American Camellias. These Camellias were first exhibited on the 14th February, and the Massachusetts Horticultural Society, in their usual liberal manner, immediately signified their appreciation of their merits, by awarding their originator a piece of plate of the value of 50 dollars. The following extract from the proceedings of the Society comprises a full description of the new Camellias, and we therefore place it upon record:—

"At a meeting of the Massachusetts Horticultural Society, on Saturday, Feb 14, 1846, a vote was passed, directing the committee on Flowers to take *special notice* of the fine seedling Camellias exhibited at that time by Marshal P. Wilder, president of the Society. Agreeably to this vote, the Flower Committee submit the following report:—The number of seedling Camellias exhibited was five. Two of them were of surpassing beauty and perfection. As the committee have had the pleasure of often examining the extensive collection of the President, as well as those of other gentlemen in the vicinity, embracing the most perfect varieties known among amateurs, they feel themselves sufficiently acquainted with this beautiful class of flowers, to judge the comparative merits of the seedlings under consideration, and they have no hesitation in pronouncing them as varieties of the very first order, and such as will be difficult to surpass in this or any other country. The production of two such remarkable varieties, by one person, we believe unprecedented, and will reflect much honor on our President abroad, as well as upon the Society of which he is the head. We, therefore, recommend that a gratuity be awarded to the President, for these two superb American Camellias, and that it consist of a Piece of Plate of the value of Fifty Dollars, and of such form and design as he may elect.—Jos. Breck, Chairman."

DESCRIPTION OF THE SEEDLINGS.

No. 1. CAMELLIA JAPONICA, var. WILDERI. Leaves 1½ inch broad, and three long, oval, acuminate, slightly dentated, a very dark green, with prominent midrib; petiole short; a shrub of free [illegible] quite young [illegible] petals quite round, persistent; five in the [illegible] expanding perfectly retaining its beauty for a long time. The superiority of this variety, when compared with these established favourites, the *Old Double White*, *Lady Hume*, *Imbricata*, and others, is its beautiful round petal, with scarcely a serrature or indentation on the edge. Raised from the seed of the single red Camellia, fertilised by Camellia japonica, var punctata, the mother plant and all the stock, with the exception of a single graft, having been destroyed by fire, in the year 1841.

No 2. CAMELLIA JAPONICA, var MRS ABBY WILDER. The name was given by the committee, in honour of the lady of the President. This variety is a very beautiful one—a vigorous shrub of upright growth and strong branches, foliage large and handsome, leaves 4 inches long, by 2½ broad, roundish oval, a little reflexed, coarsely dentated, acuminate, with pale prominent midrib and nerves, yellowish green, resembling in colour those of Camellia Japonica Lady Hume, bud round with pale green scales, flower large, 4 inches or more in diameter, thick full, and perfect; petals of beautiful form, very numerous, 80 to 100 in number, the exterior rows broad, circular, gradually diminishing in size to the centre, and arranged with great regularity, colour white, with an occasional stripe of light rose, after the manner of Camellia Japonica Duchess d'Orleans, corolla very round and of great depth. Produced from seed of Camellia Japonica var Middlemist."

The Proprietor now on a visit to Europe, will occasionally be found at the Seed Warehouse of Geo Charlwood, Esq, 14, Tavistock-row, London. Subscriptions will be received for these Two Camellias, deliverable in the early autumn of 1847. Price Ten Guineas the pair. Orders left at G. CHARLWOOD'S, 14, Tavistock-row London, or forwarded to the Proprietor, Nonantum Vale Gardens, Brighton, Massachusetts, covering the amount, will receive prompt attention. None but good strong Plants will be sent. orders shall receive immediate attention, and be served in the order they are received.

Drawings of these beautiful Camellias will be exhibited in London and Paris in the month of March. Notice will be given in the public papers.

London, December, 1846. JAMES L. L. F. WARREN.
Office, Nos 1 and 2 Tremont Temple, Boston, Mass. U. S. A.

SEEDS.—CORNER OF HALF-MOON-STREET.

THOMAS GIBBS and CO.,

(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND."

Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250 Oxford-street, near Hyde-park.

LEGG'S EARLY WALCHEREN BROCCOLI. Warranted the true sort.

Beans, Improved Windsor
" Johnson's Wonder
" New Early Forcing Dun
" Do., Long-podded Negro
Beet, Dark Black
" Dwarf Crimson
Broccoli, Early White Cape
" Improved Wellcree
" Dillistone's Late White
" Ambler's Spring do.
" Chappell's Large Cream
Cabbage, Early Queen
" Do, Enfield Market, a very large and early variety
" Early New Nonpariel, an excellent sort, much larger and earlier than the old kind.
Carrot, Earliest Scarlet Frame
" Scarlet Surrey
" Selected Altringham
Cauliflower, Mady Hanglaise
Celery, all the best sorts
Cucumber, Victory of Bath
" Cuthbert's excellent, and many other sorts
Lettuce, Ady's Large Cos
" Paris White do.
" Do. Green do.
" London Market do.
" True Drumhead
Melon, Seymour's Perfection
" Beechwood, true
Onion, Enfield Matchless
Curled
Parsnips, Improved Guernsey
Peas, Queen of Dwarfs
" British Queen. And all the varieties that are kept in the trade.
Potatoes, Ash-leaved Kidney
" Round Frame
" Shilling's do.
" Morgan's Nonsuch
Radish, Fine Early Transparent
" Early Olive-shaped
Rhubarb, Myatt's Victoria
Savoy, Large Drumhead
Sweet Herbs, many sorts
Turnips, all the varieties, both for garden and farm use.

MITCHELL'S ROYAL ALBERT RHUBARB, the largest early sort for open ground use that has ever been introduced to the Horticulturist, price 2s. per plant, or 20s. per doz.

A General Catalogue with prices will be forwarded on application to CHARLES FARNES, Seedsman, &c., 128, St. John-street, London.

BERNARD SAUNDERS, NURSERYMAN and FORESTER, Jersey, has several Hundred of fine, young Dwarf trained NECTARINE, PEACH, and PEAR TREES, warranted correct to Name, which he intends to dispose of at a low Rate, in order to clear the ground, and would be happy to treat with any person requiring a quantity. He continues to cultivate a large Collection of PEAR TREES of all the choicest and most approved kinds.

B. S. has also a fine stock of large Shrubs, both Evergreen and Deciduous, adapted to giving immediate effect to Plantations. A remittance or reference required from unknown correspondents.

N.B. — Constant communication with the Southern and Western ports of England by trading vessels and steamers.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea (by appointment to HER MAJESTY and H. R. H. PRINCE ALBERT).—ORNAMENTAL WATER-FOWL, consisting of Black and White Swans; Egyptian, Canada, Chilian, Barnacle, Brent, and Laughing Geese; Sheldrakes, Pintail, Widgeon, Summer and Winter Teal; Gadwall, La brador, Shovellers, Gold-eyed and Dun Diver, Carolina Ducks, Chili Ducks, &c., domesticated and pinioned; also Spanish, Cochin China, Malay, Poland, Surrey, and Dorking Fowls; and at 3, Half-moon-passage, Gracechurch-street.

White, Japan, Pied, and Common Peafowl, and pure China Pigs.

HYACINTHS.

H. HUNT'S IMPROVED REGISTERED HYACINTH POTS AND SUPPORTS, are far more conducive to the well-being of the Bulb, more convenient, and much more elegant than glasses. See *Gardeners' Chronicle*, Nov. 30; "Paxton's Magazine of Botany," for Feb.; "Gardeners' Gazette;" "The Art-Union," for Dec., &c. From 1s. 6d. each, of most Seedsmen and Florists, and at H. Hunt's, Wholesale Garden Ware and China and Glass Depôt, 29, Queen's-row, Pimlico.

GLASS FOR CONSERVATORIES.

ASHLEY PELLATT AND CO., Falcon Glass Works, Holland-street, Blackfriars, are prepared to supply (in quantities not less than 100 square feet) SHEET AND CROWN GLASS OF BEST QUALITY, at the following *Net Cash Prices*:

Any size under 1 feet super.	Per square foot.
13 oz. weight per foot	4d.
16 oz. " "	5
21 oz. " "	9
26 oz. " "	11

SMALL Squares up to 10 ins. by 8 ins., from 1½d. to 3d. per square foot.

N.B. The 16 oz. is full strength for Greenhouses.

GLASS MILK PANS, White, 5s. 6d. each. Green, 4s. each.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, of 100 and 200 feet each; also Glass Shades, 11s. per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at F. ELSDEN'S, 28, Castle-street, East, Oxford-street. ** For Ready Money only.

PATENT VENTILATORS for Public Offices, Smoking Rooms, &c.

STRONG HORTICULTURAL SHEET GLASS.

HETLEY AND CO. are supplying 16 oz. SHEET GLASS, in boxes of 100 feet each, an article superior in every respect to the foreign, and well adapted for Horticultural and general glazing purposes, at the following reduced prices for cash. A reduction on 1000 feet.

Sizes. inches.		Inches.	s.	d.	Per 100 feet Box. £	s.	d.
6 by 4	and under	7 by 5	at 0	2½	1	0	10
7	5 " "	9 7	0	2½	1	2	11
9	7 " "	10 8½	0	3	1	5	0
10	8½ " "	14 10	0	3½	1	7	1
14	10 " "	24 sup.	0	3½	1	9	2

Other sizes of every substance and quality equally low.

	inches.	s.	d.	
GLASS TILES,	11 by 10 from	9	0	per dozen, according to substance, thinnest being 16 oz. sheet.
" SLATES,	24 by 10	9	0	

WHOLESALE Glass SHADE, Sheet, Crown, and Patent Plate Glass Warehouse, 35, Soho-square, London.

IMPROVED POLMAISE HEATING.

GREENHOUSES, HOTHOUSES, and CONSERVATORIES of every description fitted up with the above Apparatus on the most Economical terms, and warranted to answer, by Mr. J. LEWIS, Horticultural Builder, Stamford hill, Middlesex, where it may be seen in operation.

BURDIGE AND HEALY'S COOKING APPARATUS, combining Sylvester's Patents.—This COOKING APPARATUS possesses greater general advantages than any yet submitted to the public, both as regards strength of material and workmanship; in fact the laws of heat are so applied as to produce the greatest effect with the least consumption of fuel, without destruction to the apparatus. B. and H. can safely recommend it, from experience, as unquestionably superior to anything of the kind hitherto made. May be seen in daily use at Greenwich Hospital, Craven Hotel, Craven street, Strand; and at their Manufactory, 130, Fleet-street. A Prospectus can be forwarded, upon application, detailing particulars and price.

WARMING AND VENTILATING.

GEORGE HADEN, ENGINEER, MANUFACTURER OF VENTILATING WARM AIR STOVES, WARM WATER AND STEAM APPARATUS, &c., for Churches, Dwelling-houses, and Horticultural Buildings, 6, St. Andrew-square, Edinburgh.

G. H. has for many years been extensively engaged throughout the Kingdom in Warming and Ventilating the Mansions of the Nobility and Gentry, Churches and Chapels, Colleges, Infirmaries and Schools, County Buildings, Court Rooms and Prisons, Banks, Conservatories, Hothouses and Vineries, &c. G. H. begs to intimate that the Apparatus are manufactured under his immediate superintendence, and he has at present an extensive supply on hand.

The Advertiser is prepared to give Designs and Estimates, and furnish every information to Noblemen and Gentlemen requiring such Apparatus on applying at his Office.

POLMAISE HEATING.

G. H. begs to state that the Apparatus erected in the Vinery at Polmaise, and which has for the last three years caused so much sensation, was constructed, and the arrangements of the Flues planned by him, and that the whole design was carried into effect under his direction.

The utmost attention will be paid to all orders committed to his care.—6, St. Andrew-square, Edinburgh.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Engineers and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HOT-WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 272, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above-mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland, and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 272, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range, adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic curvilinear houses to horticulturists, and can refer to the Conservatory attached to the Pavilion as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
WM. JOSEPH MYERS AND CO., LIVERPOOL;
And by their Agents,
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL;
COTSWORTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of POWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water, for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63, Dorset-street, Fleet-street, London.

GUANO, &c.

MARK FOTHERGILL begs to offer the following MANURES on the best terms, viz:
GUANO, PERUVIAN and AFRICAN, direct from Import Warehouses.
Nitro, TATAPONIAN and SALDANHA BAY. Ditto.
SODA ASH, for destruction of Wireworm.
SUPERPHOSPHATE OF LIME (See Royal Agri. Soc. Journal, Vol. vi. Part 2).
GYPSUM (Pure Sulphate of Lime).
BONE DUST and BONE POWDER.
SULPHURIC ACID. CHARCOAL.
PURE SALT and AGRICULTURAL SALT for Composts.
SILICATES of SODA and POTASH, and all other Manures.
No. 40, Upper Thames-street.
Agent for DINGLE'S HAND SEED-DIBBLE.

FOR WHEAT, TARES, &c.

THE URATE OF THE LONDON MANURE COMPANY will be found a most valuable Manure for the above crops—it is permanent in its effects, and has stood the test of the seasons with increasing success each year. The Company also supply genuine Peruvian Guano, Gypsum, Superphosphate of Lime, Sulphate and Muriate of Ammonia, Charcoal, Bone Sawdust, Sulphuric Acid, and every Artificial Manure, at the lowest market price.—EDWARD PURSER, Secretary, 40, New Bridge-street, Blackfriars.

KAGENBUSCH AND Co.'s REMEDY FOR THE POTATO DISEASE.—Price 6d. per packet, which ensures an acre of sound Potatoes and a large crop.

KAGENBUSCH AND Co.'s GERMINATING COMPOUND.—Price 2s. and 4s. per packet. The best Steep for Wheat and other Grain; Turnip, Clover, Onion, and all other Seeds and Pulse. This is the gardener's best friend.

KAGENBUSCH AND Co's GERMAN SCIENTIFIC MANURES, which fertilise the land without exhausting it, at 30s. per acre for Meadows, once in three years; for Tillage 35s. per acre, and for Hops, 40s. per acre annually. Price 7l. 10s. per ton for Meadows and Tillage, and 8l. per ton for Hops. One ton is sufficient for 4 acres.

These articles are kept at Hibernia Wharf, London-bridge, and Mr. JOSEPH EDWARDS will deliver them to any one bringing them money cash.

Manufactured by KAGENBUSCH and Co., Agricultural Chemists, Leeds. Sold by JAMES and Co., Agents for the South of England, 55, King William-street, City; and POTTER BROTHERS, Agents for the North, Crossford-court, Manchester.

** Vessels of 50 tons, drawing 6 feet, load at the Works in Leeds, and can ascend the creeks of every port in the Kingdom, so that Dealers or Farmers, and Landed Proprietors, clubbing together, may be supplied direct, at a saving of expence.

A liberal allowance to the Trade.

LAWES' PATENT MANURES.—Turnip Manure, 7l. per ton. Clover Manure, 14l. per ton. Corn Manure 14l. per ton. Superphosphate Lime, 7l. per ton.

A Pamphlet on Artificial Manures will be forwarded to any person enclosing two postage stamps to Mr. WILSON, at Mr. LAWES' Factory, Deptford Creek, London.

CHEAP AND DURABLE ROOFING.

BY HER MAJESTY'S  ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, the Manufacturers and only Patentees of THE ASPHALTED FELT FOR ROOFING Houses, Farm Buildings, Sheddings, Workshops, and for Garden purposes, to protect plants from Frost.

At the Great National Agricultural Shows, it is this Felt which has been exhibited and obtained the Prize, and is the Felt patronised by

HER MAJESTY'S WOODS AND FORESTS,
HONOURABLE BOARD OF ORDNANCE,
HONOURABLE EAST INDIA COMPANY,
HONOURABLE COMMISSIONERS OF CUSTOMS,
HER MAJESTY'S ESTATE, ISLE OF WIGHT,
ROYAL BOTANIC GARDENS, REGENT'S PARK,

And on the Estates of the Duke of Sutherland, Norfolk, Rutland, Newcastle, Northumberland, Buccleuch (at Richmond), the late Earl Spencer, and most of the Nobility and Gentry; and *at the Royal Agricultural Society's House, Hanover Square.*

It is half the price of any other description of Roofing, and effects a great saving of Timber in the construction of Roofs. Made to any length by 32 inches wide.

PRICE ONE PENNY PER SQUARE FOOT.

** Samples, with Directions for its Use, and Testimonials, of seven years' experience, with references to Noblemen, Gentlemen, Architects, and Builders, sent free to any part of the town or country, and orders by post executed.

☞ The Public is respectfully cautioned that the only Works in Great Britain where the above Roofing is made, are

F. M'NEILL AND CO.'S

Patent Felt Manufactory, Lamb's-buildings, Bunhill-row, London, where Roofs covered with the Felt may be seen, as also the new Vice-Chancellor's Court, and the Passages and Offices at the entrance to Westminster Hall, and other buildings at the New Houses of Parliament, done under the Surveyorship of Charles Barry, Esq., R. A.

Note.—Consumers sending direct to the Factory can be supplied in lengths best suited to their Roofs, so that they pay for no more than they require.

THE IMPROVED HYDRAULIC RAM, Fixed by FREEMAN BOX, Fountain Maker, 70, Strand, London, can be worked by a small stream of half-an-inch, where a fall of two feet can be obtained. The same RAM, without the aid of a Tank or Cistern, arranged to throw a Jet of Water constituting a Fountain with the head of water beneath.



ENGINES FOR DEEP WELLS OF ALL KINDS, DOUCHE AND OTHER BATHS, BUILDINGS HEATED BY HOT WATER, WATER WHEELS to work Small Pumps, from 15l.

Estimates given for the supply of Towns, &c.

A newly invented PORTABLE VAPOUR BATH, all complete for 4l.

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Apply to J. LEGG, 9, St. Philip's-street, Cheltenham.

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton, Draining Engineer to Her Majesty, at Osborne, Isle of Wight; the inventor of a Patent Tile and Pipe Machine (applicable to making Bricks); also a new Machine for taking roots and stones out of clay, both which are to be seen at the Royal Polytechnic Institution, Regent-street,—offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P.S.—Land drained at a fixed sum per acre, including every expense.

TO BRICK AND TILE MAKERS.
BRICK AND TILE MACHINES.

THE AINSLIE PATENT TILE MACHINE COMPANY (JAMES SMITH, Esq., of Deanston, Chairman), invite attention to their improved TILE MACHINE, and to their new Patent Improved Kilns, for drying and burning Bricks and Tiles, by which a saving of from two-thirds to three-fourths of the fuel is effected, and all the articles are burnt equally without loss or damage. The Machines at work and a Model of the Kilns to be seen, and all particulars to be obtained from Mr. JOHN PATON, Secretary, 193A, Piccadilly, London. Agents wanted.

HORTICULTURAL SOCIETY OF LONDON.—Notice is hereby given, that the EXHIBITION OF FLOWERS AND FRUIT, in the Society's Garden, in the ensuing season, will take place on the following Saturdays, viz., May 9; June 19; and July 17; and that Tuesday, April 20, is the last day on which the usual privileged Tickets are issued to Fellows of the Society.

WM. MITCHELL'S ROYAL ALBERT RHUBARB.—All the wholesale orders for Large Roots of the above valuable early sort having been supplied, Cut Sets may now be had at 2s. each, or 20s. per dozen. This variety is pronounced by Mr. Myatt, sen., of Deptford, and all the most extensive growers of Rhubarb for the London markets, to be the best coloured and most productive early sort known. All orders prepaid and addressed to WM. MITCHELL, Enfield, or to the sole Agent, CHAS. TURNER, Seedsman, 199, St. John-street, London, will meet with prompt attention.

AMERICAN POTATO SEED.

J. M. THORBURN AND CO., SEEDSMEN, &c., 15, John-street, New York, U. S., offer for Sale (price 2l. 5s. per lb., or 10s. 6d. per oz.) 25lbs. of the finest WHITE KIDNEY POTATO SEED, raised the present year in one of the Northern States, by an experienced farmer, with the utmost care, from Potatoes entirely free from disease; indeed the opinion is prevalent in America among practical men, that roots affected with the rot do not mature the blossom, and of course are seedless. Whether this theory is correct or not, it is certain the Seed now offered was gathered from a vigorous healthy field.

Orders, with a remittance, will meet with prompt attention, or may be left with Mr. GEORGE CHARLWOOD, Covent-garden, London, where a sample of the Seed may be seen.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 19, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Wednesday, Dec. 23—Society of Arts. . . . 8 P.M.
Friday, Jan. 1—Botanical . . . . . 2 P.M.

THE Right Hon. T. F. KENNEDY, Paymaster of civil services in Ireland, has addressed a public letter to Mr. LABOUCHERE, drawing attention to the fact that BEET-ROOT AND FLOUR, mixed in equal proportions, make excellent nutritious bread. We have had the experiment tried, by rasping down a red Beetroot, and mixing with it an equal quantity of flour; and we find that the dough rises well, bakes well, and forms a loaf very similar to good brown bread in taste and appearance.

We regard this as an important discovery; because there is no crop which can be so readily introduced into Irish cultivation as the Beet, and its varieties, because no crop will yield a larger return, and *because an abundant supply of seed may be had of it from France*. We have long since shown the great value of a Beet crop, in point of nutrition (see p. 163 of this vol.); that in fact it ranks higher than any known plant which is cultivable. But there was always the difficulty of how to consume it, for man would find it a poor diet by itself, and the present circumstances of Ireland are not such as to justify the introduction of produce which can become food for man only after having been transformed into pigs and oxen. The discovery, however, in Germany, of the facility with which it may be combined with bread, removes the difficulty, and places Beet incontestably at the head of the new articles which should be introduced into Irish husbandry. In its relation to Potatoes, Beet stands as 1020 to 433, if its nutritive quality is considered; and as 8330 to 3480 in regard to utilisable produce of all kinds (see the tables at p. 163). It is still to be determined what kind of Beet could be best cultivated for this purpose. Red Beet produces brown bread; white Sugar Beet would probably yield a white bread, and of still better quality; Mangold Wurzel we have ascertained to form a bread of inferior quality, but still eatable enough.

Mr. KENNEDY suggests that Carrots and Parsnips might be employed in the same manner as Beet. That, too, we have tried, and we find that Parsnips are excellent, but Carrots much less palatable. All those substances combine readily with flour, but they are rather unwilling to part with their water, and will probably be best in cakes, like Oatmeal.

The letter to which we have alluded is the following:—

"*Treasury Chambers, Dublin Castle, 7th Dec. 1846.*

"My dear Sir,—My attention was recently attracted by a notice in the *Economist* newspaper of 28th November, to an experiment said to have been made at Vienna, in making bread from a mixture of Wheaten flour and the common red garden Beet-root. It struck me that it would be very important to ascertain the result of such a combination in the shape of bread, and I have succeeded in having the experiment made with a degree of success much beyond what I could have ventured to anticipate. I take the liberty of sending you a specimen of bread made from flour and Beet-root, in equal proportions, which appears to me to be most excellent. I venture to think that this experiment is one of some importance with reference to the present condition and future prospects of Ireland. No advantage indeed can be derived from it in respect of a supply of food, for some time, but in the coming year there is no reason why the garden Beet should not be cultivated in the fields of Ireland, in those at least which are dry or drained, to a very large extent. The land which is suitable to the cultivation of the Potato, may with sufficient manure be in a condition fitted for the culture of the garden Beet. The culture is similar to that of Mangold Wurzel and of Turnips, and can consequently be effected, on a small or on a large scale, as may suit the varied circumstances of individuals. In an economical point of view, it seems to me that the success of this experiment is important, because the produce of the Beet per acre is very large, in respect of *weight, substance*, and *nutriment*, it being well known that it contains, besides the fibre, a very large proportion of saccharine matter. The whole is combined in the bread, and it is obvious that by this mode of preparation, an enormous, indeed unlimited addition, may be made to the native supply of a most wholesome and nutritious food. In an agricultural point of view, the Beet would be a most profitable occupation of the soil to the farmer. With careful cultivation, 30 tons might be calculated upon per imperial acre, which, at the moderate price of 1*l.* per ton, would yield a value of 30*l.* gross produce, from which, if there were deducted one-half for rent, manure, and expense of culture, there would remain to the cultivator a net profit of 15*l.* per imperial acre. This I believe to be a safe and by no means an exaggerated calculation. If the system were to succeed, another great benefit would result from it in an agricultural point of view—that the culture of the Beet, so far from interfering with the culture of Wheat, Barley, and Oats, would promote it, by coming into the alternate system of husbandry, in the rotation, as what is termed a *drilled green crop*, a great desideratum, if the Potato is to cease to occupy that place. Turnips are a most important element in good husbandry in this respect, but as they can, *directly*, constitute an article of human food only to a small extent, it is most important to find as many sources as possible of human food, which can keep up, with the same advantage as the Turnip, the *alternation of green and white crops*, which is found to be essential to the continued fertility of the soil. In all probability, meal of Indian corn and Barley-meal, would also combine well with the Beet in making wholesome and nutritious bread. I have little doubt, from the experiment made with Beet, that Parsnips and even Carrots might be found to combine with flour in making excellent bread, and if experience should prove such to be the case, a still wider field is presented, of profit to the cultivator, and of hope to the whole mass of the consumers of food. I am sure that you will pardon this hasty and imperfect statement of a few of the first ideas which have occurred to me on this subject. Many other ulterior considerations present themselves to my mind, which I forbear to state.—Believe me, my dear Sir, most truly yours, T. F. KENNEDY.

"*The Right Hon.* HENRY LABOUCHERE,
"*&c. &c. &c.*"

THE following very important information upon the subject of the POTATO DISEASE in Poland has been received by Government from the British Consul at Warsaw, and we hasten to lay it before our readers.

"*Warsaw, Oct. 16, 1846.*

"My Lord,—In a report on the result of this year's harvest in Poland, which I had the honour to forward to your lordship with my letter, Consular, No. 25 of the 28th of last month, I stated that the Potato disease was totally unknown in this country.

"Since making that statement I have heard of one exception to the rule, which has occurred on a small estate not far from Warsaw, farmed by a Mr. Kedzlie, a British subject of much intelligence, long established in Poland.

"The Potatoes which have furnished this exception are of the kind called the 'Ash-leaved English Kidney Potato,' and were obtained from England two years ago; they were planted in the midst of Mr. Kedzlie's other Potato crops, on land of the same quality, and prepared exactly in the same way as the rest of the ground, which has yielded perfectly sound fruit.

"This circumstance would seem to prove that the disease is not attributable to atmospheric influences, as is, I hear, the generally received opinion in other countries. Here, in Poland, all persons to whom I have spoken on the subject, think that the Potatoes in the rest of Europe are tainted in the germ by over cultivation; and it is certainly remarkable that here, where the soil is generally light, and where less manure is used than in any other country, except Russia—and never immediately preceding the crop of Potatoes—those plants should have completely escaped the infection which threatens their extinction in all parts where greater pains have been taken in their cultivation. I do not imagine that the opinion alluded to on the isolated fact which I have mentioned, will decide a question which has so hopelessly occupied the attention of first-rate scientific men in many countries; but I hope that the notice of the circumstances will not be deemed irrelevant at a time when the disease in question is the cause of such dire distress in her Majesty's own dominions as well as in other parts of Europe.

(Signed) I have, &c., GUST. DU PLAT.

"*Viscount* PALMERSTON, *G.C.B.*,
"*&c., &c., &c.*"

This document will be read with the more interest if it is compared with the other facts of the same nature to which we have formerly alluded as having been observed at Genoa, Oporto, Bermuda, and the Cape of Good Hope. It proves incontestably one of two things, either that the Potato disease was actually engendered in 1844, or that the whole English Potato crop is predisposed, by some cause, to take the disease more readily than the crops of Portugal, Italy, and Poland.

WE have much pleasure in announcing that subscriptions for heating St. Thomas's Church, Winchester, upon the Polmaise system, under Mr. MEEK's direction, are beginning to come in. The following gentlemen have already furnished their quota, viz.:—

T. S. TRANDELL, Esq., Newport	£1	1	0
C. TELFORD, Esq., Throgmorton-street	1	1	0
Prof. LINDLEY, London	1	1	0
Hon. and Rev. JOHN GRAY, St. James's-square	1	1	0
GEO. JOHNSON, Esq., Winchester	0	10	0
JAS. GADESDEN, Esq., Ewell Castle	1	1	0
D. S. MEEK, Esq.	1	1	0
— TURNER, Esq., Godstone	1	1	0
FRED. WILSON, Esq., Blackhurst	1	1	0
J. WILSON, Esq., Stamford Hill	1	1	0

We hope that our next announcement will record a large accession of names; for the various assurances from correspondents that the Polmaise method of heating has already been tried in various churches in Scotland with perfect success only makes us the more anxious that this experiment should be fairly worked out in England. Not that we belong to that ingenious class of philosophers who believe that what happens in Scotland will not happen in England under exactly the same circumstances, and who contended that although Mr. MURRAY could heat a Vinery near Stirling, and beat all the country side with his Grapes, that was no reason why a man should be able to do the same thing in Middlesex. We could not, indeed, belong to them, with any convenience, for they are all dead now; the cold weather has killed them, along with green-fly and slugs. Our reason for desiring a new experiment to be tried is that although the soundness of the principle of Polmaise cannot require any proof, yet there are various ways of working out that principle, and we want to know what plan is the best and cheapest. Most of the Scotch churches have been heated by Mr. HADEN, a very intelligent engineer, residing at 6, St. Andrews-square, Edinburgh, who uses a stove, doubtless an efficient one, constructed by himself; but cannot a better arrangement be devised? The Rev. D. ESDAILE, minister of Rescobie near Forfar, tells us that the East Church, Perth, an ancient gothic building, capable of containing nearly 1400 people, was thus heated 12 years ago with perfect success; but then it cost 80*l.* He, on the contrary, has warmed his church of Rescobie for about a quarter that sum. He says:—

"Remembering the perfect success of the experiment at Perth, I resolved to repeat it when I came here four years ago. I have done so with an equally satisfactory result; and the church of this parish is heated in the same way by a stove which costs, including building and carriage from Perth, 22*l.* The expense of fuel is not more than fifteen pence each Sunday; a very small sum to render comfortable 500 people. Our stove is erected outside the church; an arrangement necessary from circumstances, but faulty on account of the heat dissipated in the external air. I beg to direct your attention to the fact that churches can be heated on the Polmaise plan without incurring the expense of cold air drains. Without the help of such expensive means cold air must rush towards a heated surface; and when the rector of the new church at Winchester hears of churches, large and small, having been heated without them, I trust he may be induced to try whether Polmaise may not be introduced without such expensive and unnecessary adjuncts."

The latter part of this letter demands to be well considered, for cold air drains have been especially objected to by "air objectors," because it was supposed that a rat might get into them, or a cat kitten therein. Better reasons could be given for removing them if the air is *really* as well diffused without as with them, the most obvious of which is their cost. Now it will be remembered by our readers that Mr. ALFRED KENDALL last week anticipated the information conveyed by the Rev. D. ESDAILE, by announcing that he had dispensed with drains; and his experiment, which we have examined personally, seems to show that they are unnecessary, for his house is large and difficult to heat, while his apparatus is of the most simple and unexpensive kind; in reality only a furnace, and *two* holes in a wall, without the wet blanket.

Economy in construction must be a very great object in church building, as well as in gardens, for we never yet heard of a country church overburthened with wealth; and if it was, the abundance may be better employed than in paying for cold iron to carry hot water about in, or for any other needless apparatus. Therefore it is that we again presume to urge those who have at heart the reduction to exact proof of a very great social question, to

forward their contributions to the Rev. George James Cubitt, *St. Thomas's Rectory, Winchester.*

And now a word to those who have endeavourod to persuade the public not to listen to the valuable lessons of Mr. Meek. Let us observe their position. They began by asserting that houses could not be heated at all on the Polmaise system; the allegation now is that they are overheated! After maintaining the plan impracticable, it is now found to be only too easy. A truce to such disputation. *We* give them credit for having exercised legitimate caution; let *them* admit that they have been mistaken, and so balance the account. Let it never be forgotten that a principle is one thing, and the right way of applying it another. The principle in this case is established beyond all further dispute: let us now see how it can be worked most profitably. The ingenuity of gardeners is proverbial; they will soon find how to manage Polmaise. The Greek engineer boastingly said, "Give me a fulcrum and I 'll upheave the world." We say, with more reason, give gardeners a heating power, and they will soon learn to apply it advantageously.

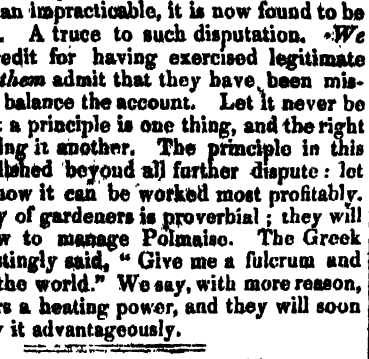
CULTURE OF THE PINE-APPLE.

[Fifth Notice.]

The plan and sections accompanied with details of one of the Meudon pits present nothing remarkable, unless it is that of being simple and scarcely different from pits used for other purposes in this country years ago. It is in consequence of this that I have considered it worth while to give a representation of them, as no pits ever erected in Britain have produced such results. The "hidden virtue," therefore, cannot be ascribed to these. I think it lies much more in the proper application of the right principles of cultivation, which are so successfully carried out at Meudon, and which I have given in detail in the belief that much good will result from an exposition of the system, which stands at a great distance from others in its results, besides its cheapness and simplicity.

I have now to detail the method adopted by Mr. Pelvilain in arranging and planting his fruiting pits. The soil, as in the case of the wooden boxes, is filled in to the depth of 18 or 20 inches; nothing further is required than the pure peat, of which you possess a sample. The pit is at once ready to receive the plants and the mode pursued in that operation is as follows: Those which are advanced to a fruiting state in the wooden boxes are selected; such only as have arrived at this state should on any account be brought into the fruiting pit. There is no difficulty to a practised eye in detecting these. The reason for this is that they may be brought into a fruiting condition within a month or two of each other, and this is also the reason why Mr. Pelvilain has four fruiting pits, as the sequel will show.

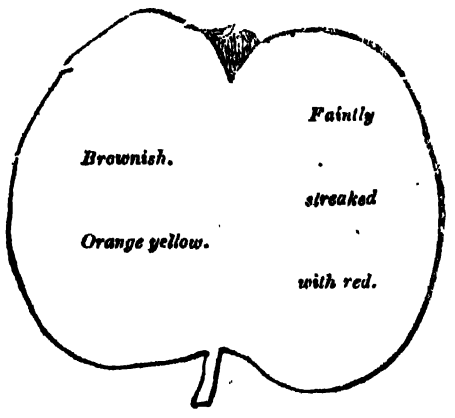
The operation of transplanting them when the selection has been made, is easily performed. The plants are dug up with their roots entire, and carefully removed into the bed of fresh soil—their final position. The roots must be carefully spread out, and the new soil intermixed with them. The pits at Meudon are narrow and admit only of three rows, of which the annexed woodcut gives a representation when in fruit. The transplanting may be objected to as causing a severe check, and being an unnatural process, but I shall presently explain why it is adopted. As soon as a sufficient number of plants has been selected, and removed to their new quarters, the whole of the bed then gets a good watering with pure rain water. The bottom-heat of course has been previously set in motion, by the application of a supply of hot stable litter to the chamber, beneath the bed of soil; and the air of the pit has been raised by the hot water pipes at least 10° or 15° above the air in the boxes, 60° being considered a healthy growing temperature for the young stuff. So far as artificial heat is concerned, and irrespective of solar influence, Mr. Pelvilain regulates the bottom heat, which is supplied by the stable litter, by allowing it to pass off at the drains as shown in the section, that is, when the bed in which the plants are growing begins to indicate a terrestrial temperature unsuitable to luxuriant and healthy vegetation, not such as the Pine apple plant weights in, nor such either as Nature, an unerring guide, would furnish. The maximum temperature for the bed may be safely set down at 90°; this will injure no plant which is found to vegetate in a healthy condition under the hottest of the tropics, and 80° should be the minimum. Having secured these conditions perfectly, the only precaution necessary is to maintain them. Mr. Pelvilain—no bad authority in Pine growing—considers that much of his success depends on this. It is one of Nature's laws to produce them where the Pine-apple is a natural production. It is one of Mr. Pelvilain's maxims to create and maintain them where it is, as in his case, a work completely artificial; and this he pursues with an ardour and an industry amounting to enthusiasm.



Having explained the atmospheric and terrestrial desiderata as regards temperature, I have a word to say on watering. As I have formerly stated, when the plants are first put out they receive a heavy watering. After this they should be sparingly supplied, and no artificial steam created until the plants have laid hold of the new soil. They will at the same time, or almost immediately after, start into fruit; water may then be more freely given. Of course much will depend upon the season of the year; the dryness or moistness of the atmosphere must bear some proportion to this. When the plants are in blossom a drier atmosphere must also be kept, more particularly in winter. When the fruit begins to swell, a more liberal supply of water is given. The nature of the peat soil admits of this. It is never at any season liable to get soured and 'glutted like a stiff loam crammed into an earthen pot, which hastens on much of the ruin attending that unnatural system of cultivation.—*Mirabile dictu.*

COURT OF WICK APPLE.

Synonymes. — Court de Wick, Rival Golden Pippin, Fry's Pippin, Golden Drop, Knightwick Pippin, Wood's Huntingdon, Wood's New Transparent, Phillips's Reinette, Weeks's Pippin, yellow.



It is stated in the "Guide to the Orchard and Kitchen Garden," that this most excellent and beautiful little Apple originated from a seed of the Golden Pippin at Court de Wick, as it was formerly written, in Somersetshire. "Throughout this, and indeed throughout almost all the western counties, it is held in the highest estimation as a table fruit. The trees grow to a good size, are very hardy, standing in some places the most severe blasts from the Welsh mountains, and there bearing in the greatest abundance, becoming the most perfectly ripened of their orchard fruits. It cannot have too extensive a cultivation."

The flesh is yellow, brisk flavoured, rich and sugary. In perfection from October or November till March or April. The tree is hardy, not subject to canker, and a good bearer. Shoots dark-coloured, with numerous small whitish dots. Leaves middle-sized, ovate, acuminate, acutely crenated; stipules rather broad. Flowers large, petals oblong, cream-coloured.—*R. T.*

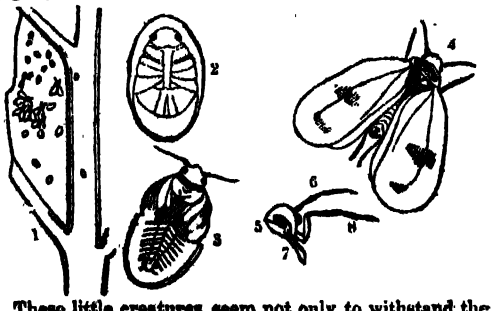
ENTOMOLOGY.

Aleyrodes proletella or Linnæus (*the Cabbage powdered wing*), called also by Latreille *A. Chelidonii*, from its living upon the great Celandine (Chelidonium majus), and it is said to inhabit the Oak also; but this I think requires to be confirmed, as these minute insects very much resemble each other. In discussing the economy of a species of this genus, which was committing serious mischief amongst the Cocoa-nut trees in Barbadoes,* I alluded to one that infested the Cabbage tribe, and as it was unusually abundant in some parts of England last month, its natural history will be the more acceptable. The first week in November I heard that the whole of the Brocooli and Cabbages in the neighbourhood of Romford, in Essex, were infested by millions of Aleyrodes in the fly-state. They were first noticed in May, and the October rains did not diminish their numbers, or offer any check to their increase; it was therefore feared, if frost did not impede them, that the whole crop would be destroyed. In another place, towards the end of the same month, the Broccoli leaves are turning quite brown and falling off fast. The flies live under the leaves, where they are hatched from the brown scales which are scattered in patches over the surface. Fig. 1, portion of a Cabbage-leaf, with the scaly pupæ and the Aleyrodes of the natural size.

The Aleyrodes is a minute fly covered with white powder, which takes short flights, like many little moths, and so much resembles them that Linnæus and other authors considered it to be a lepidopterous insect; but its metamorphoses are different, and more resemble those of Coccus, whilst the structure of the mouth is the same as that of the Aphides (fig. 7). On touching a Cabbage-leaf, these little flies will dance about in the air like atoms of snow, whilst others remain, with their wings closed, upon the outside of the leaves; these probably are the females, or they may be either sex engaged in abstracting the sap, and having pierced the leaf with their rostrum, it is not readily withdrawn.

Although found in every season of the year, they abound most in June, July, and August; and the females have been observed about Midsummer to remain quiet on a leaf for several days, when about to lay their eggs, and when they left the spot where they had rested, a small circular space, covered with white powder, was observable, around which were irregularly deposited from 9 to 14 eggs. These eggs are transparent, like water, at first smooth, and somewhat oval; but afterwards turn of a yellowish tint. They hatch in about 12 days, and the young larvæ immediately run a short distance to spread themselves more about the leaf, but in a few hours a scale is formed over them, so that they look like little Tortoises or Cocci, and exhibit no signs of life; they are oval, with the scale pressed close to the leaf in front, owing probably to the animal beneath immediately inserting its beak into the cuticle to obtain nourishment. The colour is almost white, with two yellow spots behind. They are not absolutely stationary, but only move very short distances as they increase in size, being furnished with six pectoral legs; four or five days after their birth, Reaumur observed they became Pear-shaped, and in five days more they assumed their original tortoise shape, but were more elevated; at this time they were spotted irregularly, with two brown spots like eyes towards one extremity. This was the pupa state, when the oval animal contracts and recedes from the margins of the scales; it is then fleshy, of a pale green colour, with two red eyes, the rostrum and legs are partially developed, and there are two large white patches on the underside of the abdomen (fig. 2). In four days more the perfect insects hatched, and they effected their escape by bursting through the thoracic suture of the scale. I have found them dead in the act of extricating themselves, with the head, thorax, and unexpanded wings protruding, as shown at fig. 3.

Aleyrodes proletella, the perfect insect, is covered with white powder (fig 4); the head (fig. 5) and thorax are black, variegated with yellow; the eyes are divided and black; the antennæ are nearly as long as the thorax, slender, and five-jointed † basal joint stout, second very long, third and fourth shorter, the remainder slender (6); the rostrum is bent under the breast in repose, stout, biarticulate, with two very fine bristles passing through (7); the thorax is sub-globose, the collar short, with three black spots; abdomen short, yellow or rosy; the apex obtuse and dark; wings forming a triangle in repose, and more or less deflexed, pure white, mealy; superior the largest, with a single nervure curved at the centre, where there is an obscure black fascia, with a black spot at the extremity; inferior wings smaller, with a central longitudinal nervure; six legs rather long, black, and powdered with white; feet long and composed of two equal joints, terminated by two very fine curved claws, with a hook between them (fig. 8).



These little creatures seem not only to withstand the cold, but even multiply during the winter; for Reaumur says he found them in every state in December and January as he had done in summer, and this will account for their extraordinary increase, which, from the small number of eggs laid by each female, appears at first to be inexplicable. Moreover, in less than a month, the insects undergo all their changes—from the deposition of the egg to the pairing of the perfect progeny; it is therefore possible to have 12 generations in a year, and the learned naturalist whom I have quoted has calculated that a single female may be the source of nearly 200,000 descendants in the course of one season; for taking only the seven warmer months, viz., from the beginning of March or April to the end of September or October, and supposing that 10 eggs were laid by one female, five of which were males and five females, and allowing a month for the perfecting of each brood, the number would be 195,810. This is exclusive of those which might be produced in the other months, and the eggs are taken below the average number.

When these insects have made their appearance, plants should be carefully examined in the winter and spring, when the infested leaves ought to be cut off and burnt. If it were desirable, fumigation might be applied in small gardens, with a hand-glass sufficiently high to cover a plant. The larvæ of a species of Scymnus * apparently live upon those of the Aleyrodes, as well as upon the pupæ; and Latreille also mentions a Cynips and Acarus that destroy them.—*Ruricola.*

* *Gard. Chron.* 1846, p. 284.

† Flavilabris? Curtis's Guide Gen., 436, 1.

Home Correspondence.

Planting and Management of Woods.—Mr. Young, of Perth, proposes, p. 787, to plant Oaks 26 feet apart, and

to fill up with nurses at 6 feet apart; this would be all very well provided every plant was to live for 100 years; but in high situations and poor soils it is scarcely possible but that some will die; I consider 10 feet apart a much surer crop. As Oak copse is now so common, what kind of return would Oaks planted 28 feet apart make in 25 years? and I can further state from experience that Oak thinnings are as profitable as any other wood. Every man must be satisfied that each tree has a soil on which it will grow better than on any other; but in a large plantation of 50 or 100 acres, there may be great varieties of soil, which makes it difficult to fix the exact spot for each kind of tree. In my opinion the climate of the south-west of Scotland is too humid and warm for either Spruce or Larch coming to proper perfection. All the old Spruce here die before they come to any size, and are much inferior to those I have seen in Aberdeenshire. I have given considerable attention to the disease on Larch, on which subject I wrote an article in the Journal of the Highland Society some years ago. I think it is much owing to diseased seed, there being trees here of 80 or 90 years old in great vigour, and quite sound, and upon these I never saw the insect, although many of the younger ones are going to decay. I condemn as much as Mr. Young does pruning after a certain age, one of the greatest faults of our Oaks being that they are too straight.—*James Webster, Gardener and Forester for* 53 *years, Munshet, Galloway-shire.*

Church Warming.—As you have taken up the question of church warming on the Polmaise plan, I am induced to send the results of our experience of that system in our church here, which has been so heated for nine winters, and I think I can show that every condition which Mr. Meek suggests for the heating of the new church of St. Thomas, Winchester, has been complied with in this church except one, and that would have been adopted, but it was found impossible under the circumstances. The church is a very difficult one to heat, being unceiled, the roof being open to the interior, boarded and covered with lead. The windows are large, and all old casements, which are very difficult to keep air tight. There is also a row of clerestory windows on each side above the side aisles, and the east window is very large; part of it the remains of a painted window of Furness Abbey, so that it is as good a specimen of counteracting influence to the warm-air current as can well be found. The length of the interior is 83 feet; the breadth 58 feet, including the side aisles; the height to the spring of the roof from the walls 28 ft., and the height of roof 5 feet. The height of the side aisle walls outside are 17 ft. 6 ins. on the north side, and 16 ft. 9 ins. on the south. The heating apparatus consists of a furnace, over which a large iron cockle is inserted, forming the heating surface. This is in a stoke-hole on the north side of the church-tower, and outside it, sunk below the level of the church-floor; the chimney is carried up the side of the tower to the top of it. The cockle is surrounded by the hot-air chamber, which is supplied with air by two drains, one from the open air, and the other from the inside of the church at its floor level (these two, of course, are never used at the same time). The hot air is introduced into the church at a height of about 6 feet from the floor, the lower edge of the aperture being that height, and immediately under the gallery at the west end of the church. In heating the building the outside air drain is opened, and when the church is warmed, and before the congregation arrive, this is closed, and the return air-drain from the church is opened, thus forming the circulation. So far, surely this is all on the Polmaise principle. The one condition not complied with is the cold-air drains inside the church. This could not be done in consequence of the burials in the aisles, although the gentleman who put up the apparatus was quite aware how much the absence of these drains would interfere with the effectual working of the apparatus; but we should have had them if we could. Nevertheless, even without these the thermometer at the very farthest end of the church where the last window and those of the side aisles are, chilling the air and checking the warm current, stands at from 50° to 52°, according to the weather. The expenses attending the repairs of the apparatus, the coals which cost here 23*s.*4*d.* a ton, the wages of the man who attends to it, &c., average about 10*l.* a year. We begin warming about the last week in November, and leave off when the money subscribed is expended; a great deal too soon, in my opinion, for the weather is often colder when that time comes in the spring than when we begin. However, it is a poor parish, and money does not abound. The first cost of our apparatus is its greatest fault. It was supplied by Mr. Retchie, of Edinburgh, who was the person that planned and put it up, and the price in Edinburgh was about 60*l.*; then the carriage of this enormous cockle of cast iron and its perforated hood, with all other expenses, such as excavating the stoke-hole, and piercing the church tower (an old wall as hard as rock), superintendent's travelling expenses, &c. &c., were upwards of 160*l.* more; and when the cockle is worn out it will be a most expensive and troublesome job removing it, and we shall be much indebted to Mr. Meek if he enables us to substitute for it side walls of brick and a top of iron. Owing to the position of the stoke-hole, the impossibility of getting drains inside the church, and the interior arrangements of the building, the apertures for introducing the warm air and those for abstracting it when cooled, and returning it to the heating surface, are obliged to be one under the other, and joining. This is a great disadvantage; but in spite of it and the others I have named, the thing works as I have told you. The temperature at the issue is about 130°, and the under side of the gallery being immediately over the spot prevents the heated air rising to the roof, as it would otherwise do instantly, and directs the current towards the centre of the church. I should mention, perhaps, that the cockle and all our drains and apparatus are of a very large size, as the intention is to introduce a large quantity of moderately-heated air instead of a smaller quantity of very highly heated. I have, however, some doubts whether the object might not be gained at a less expense with smaller drains by a more rapid current. The cockle has a perforated hood to bring all parts of the cockle into contact with the air to be heated. Several churches in Edinburgh, and other parts of Scotland, were heated on this plan before ours was done; and my own house, as well as that of a neighbour of mine, has the same kind of apparatus, to which my only objection is the expense; mine burns somewhat under 1 cwt. of coke in the day, of 12 to 14 hours.—*T. S. P.*

Simmons's Hygrometer.—The following table is constructed from a series of observations made with Simmons's hygrometer in connexion with the dew point, as obtained by a Mason's hygrometer, or a dry and wet thermometer. The two instruments were situated in the open air, but sheltered from the rain and the direct rays of the sun. The observations were taken simultaneously at 9 A. M. and 3 P. M. The extreme of dampness or saturation of the atmosphere with moisture, is expressed by unity or 1·00; that is, when the dew point is the same as the temperature of the air; and unity decreases decimally in proportion as the degree of dryness in the atmosphere increases; or as the difference between the dew point and the temperature of the air increases. Complete saturation of the atmosphere in our climate is often shown—complete dryness never. The range of Simmons's hygrometer corresponding to the mean state of humidity of the air is prepared for every 10 degrees of that instrument commencing with the extreme of dampness.

Range of Simmons' Hygrometer.	Mean Humidity of the air.	
20° to 30°	1·00	Extreme saturation; air precipitates moisture at a fall of temperature.
30 — 40	0·86	
40 — 50	0·80	
50 — 60	0·81	
60 — 70	0·77	Ordinary fine dry weather.
70 — 80	0·72	
80 — 90	0·67	
90 — 100	0·59	
100 — 120	0·50	Air contains one half of the moisture it is capable of holding in solution; in England very dry weather.

Example:—Suppose Hygrometer read 45°, the mean humidity corresponding is 93. Again, if hygrometer read 90°, the mean humidity corresponding is 59°.

—*John Henry Belville* (*of the Royal Observatory*), 9, *Hyde Vale, Blackheath.*——Will your readers allow me a week or two more before I communicate the results of our experiments on this instrument. The subject is receiving every attention from Mr. Simmons and myself, and it is desirable that we should take more time than I anticipated. The weather also has been too much of a character this week for our purpose. It shall not be delayed longer than necessary.—*Edward Beck.*

Raising Roots of Fruit-trees against Walls.—In raising fruit-trees it is often found that the roots have penetrated to a great depth, and sometimes into a cold and wet subsoil, where they receive unwholesome food, and where they are removed from the influence of sun and air; but although the subsoil should be good, if the roots are deep, over-luxuriance, late growths, and badly ripened wood, are frequently the consequence, causing the blossom buds to drop in spring, and no care on the part of the gardener can obviate the evil. But where the roots are otherwise situated, I have no doubt, with the same care and protection, there would be a sufficient quantity of fruit. In raising old trees, extra care is required to preserve the roots, especially those of Pears, as the latter generally strike deep into the soil, and have few fibres. The worst soil should be removed, and replaced with sandy loam from an old pasture. The border should be afterwards covered with long stable litter, and if the most decayed portion of it be allowed to remain during the following summer, it will considerably benefit the trees. Where new borders are intended to be made, use the same kind of soil, but not deeper than 2 feet next the wall, and 18 inches in front, in a border of 12 feet wide. The bottom should be well drained with brick rubbish, stones, or similar materials, not less than 10 inches in depth, and this should be covered with gravel, screenings of lime, &c., and well pressed with a roller, to prevent the soil from choking up the drainage. When completed, the bottom should have a fall to the front not less than 10 inches. Before the soil is put in, place a layer of turf on the top of the drainage, laying the grassy side downwards. There should be a drain 4 feet in depth in front, constructed with tiles on slate soles, and filled up with stones to within a foot of the surface. The stones should be small towards the top, and a layer of turf with the grassy side downwards, placed on the surface. When the above kind of soil cannot be had, and stronger soil is obliged to be employed, I should recommend a sixth part of gravel, freestone, or limestone, to be mixed with the soil. The above remarks apply to east, west, and south borders. Borders on north aspects should not exceed 18 inches in depth next the wall, and 14 inches in front; in a border of 8 feet in width, the drainage, or the bottom, to be made in the manner already recommended, but it should not be less than 12 inches deep, with a descent from the wall to the front of not less than 10 inches. The drain in front should be formed as before. Be it understood, however, that I speak of gardens supposed to be already drained, and that the drain mentioned in front of the borders is entirely for the benefit of the borders. The wood of fruit trees, planted as above, will become perfectly ripened, and will not be so liable to be injured by frosts, especially that of Peaches and Nectarines. Canker, and other disease will be avoided, the roots will receive the advantage of sun and air, and thus will not only an abundant crop be obtained, but the fruit will be of the best possible quality.—*George Hemsworth, Knowsley Gardens, Prescot, Lancashire, Dec.* 14.

Flies.—The most simple way to rid a dining or other room of these troublesome intruders, is that pursued in Spain and Portugal, and other hot countries. The cloths which are hung outside the windows in order to cool the rooms by excluding the scorching rays of the sun at noon-day, also effectually darken them. The doors being then left slightly open, the flies soon make their exit into the light of the passages or other rooms adjacent. Any shutters or blinds will answer the like purpose.—*D. S. E.*

Polmaise.—After all the "chaffing" (to use a rather expressive vulgarism), about this so-called discovery, the interesting communication of Mr. Kendall, in p. 821, has, by proving the uselessness of underground "air-drains," established the identity of this method of warming apartments, with the very old stove, which is nothing more than an iron body containing the fire, surrounded at an inch distance (more or less), by an external casing, open at bottom and at top, where it usually ends in a dome with a regulator. By this, the colder air at the bottom of the chamber, is drawn through the opening between the casing and the fire-place, is heated, and ascends by its diminished gravity to the upper part of the apartment to be replaced as it cools, by a constantly ascending current, and diffusing a nearly equal temperature through the whole. If securing the greatest quantity of caloric from the fuel, for the purpose of heating, be essential, the above stove has the advantage over Mr. Meek's, by the whole apparatus being within-side the building, and consequently warming it both by the current of warm air and by radiation. The only difference is that the fire in this is supplied by air for combustion from the apartment itself, whilst Mr. Meek's is supplied from the external air. I cannot but still think (as I mentioned before), that this is an advantage in favour of the internal stove, as the air necessary for feeding the fire must be replaced by purer air from without, which, percolating in such small quantity through numerous crevices, will not occasion prejudicial draughts, but by gradually changing the air of the house, tend to the benefit of the inmates, whether vegetable or animal. If any one should object to the fire being within the chamber from fear of dust or back draughts, I can only say that I did not discover anything of the sort in using a stove of the kind 16 or 18 years ago, which was perfectly satisfactory in warming a tolerably large apartment; but if any doubts are felt on the subject, it is very easy to feed the fire from without, and then it is identical with the Polmaise as improved by Mr. Kendall.—*Lusor.*

Superphosphate of Lime as Manure.—In the autumn of 1845, I transplanted about 20 Rose trees; and in consequence of seeing (I think in your Paper) this substance mentioned as one to be used with advantage in such a case, I tried the experiment on eight out of that number, by sprinkling about a handful on and about the roots at the time of planting, and kept a memorandum of the particular plants so treated. Early in March of this year the difference was very perceptible; the eight plants in question were in leaf, and quite as forward as those which had not been removed, while the remainder (with one exception) had not then started into growth. I think this may be taken as a proof that superphosphate of lime has a beneficial influence in causing the more ready formation of roots; but I am unable to give any guide as to the ultimate result, as in this particular case it proved a great disadvantage. You will doubtless remember that towards the middle of March we were visited with a more severe frost than had occurred during the previous winter, the consequence of which was, that these plants being so forward had their leaves and new wood quite cut off; while the other transplanted ones, whose buds had only just begun to swell, were comparatively uninjured. Indeed these latter made the finest plants, and produced the best bloom I had in the summer season, even more so than plants which had not been removed. This doubtless arose from the fact of their being so much more backward, and were not so severely acted upon by the destructive frost just alluded to.—*Richard White, Peckham, Dec.* 15.

The Weather in Cornwall.—The winter has already made its appearance with us—a most unusual thing for it to do in this part of the kingdom so early in the season. During the last fortnight we have several times had four or five degrees of frost; but on the 11th and 12th the thermometer fell to 23°. Fortunately the ground is covered with snow, varying from 4 to 6 inches in depth, which will protect many tender things that would otherwise have suffered from the severe frost.

Veronica Lyciana proves to be much more tender than I had anticipated. A plant trained against the front wall of a greenhouse and covered with flowers, had all the bark on the branches split in a remarkable manner, after encountering two or three degrees of frost. I expect this winter will test the hardiness of some of our Mexican Oaks and Firs, as well as other things.—*Wm. B. Booth, Carclew, Dec.* 14.

Death of Mr. Girling.—It is with deep regret I have to state that Mr. Girling, nurseryman, was taken in a fit in his garden yesterday, at 4 o'clock, and died instantaneously—I may say—without a struggle. He left his counting room in good health, and in less than 20 minutes was taken in a corpse.—*T. Barnes, Donecroft Nursery, Stowmarket, Dec.* 17.

Polmaise Heating.—Your correspondent "Luxor," in supposing that means for supplying external air are requisite for the plan of Polmaise heating, forgets that from the revolving current of air in the house, the moisture as well as any gases which may escape from the respiratory organs of the plants are in part arrested each succeeding time the air comes in contact with the heating apparatus. The air after passing the latter rushes into the house with a fresh supply of both heat and moisture; the air in the drain being exactly the same as that of the whole house. The stove has no power to make any selection of its supply, any more than the roots of plants have the power of making choice only of the essential parts of the soil by which they are surrounded, and external air being admitted freely into the house through the laps of glass, &c., renders I think his recommendation quite unnecessary; the whole body of air throughout the house being ever changing and equally diffusing itself, it can hardly be possible, if the obnoxious gases of combustion are effectually excluded, for the heated air to have any injurious effects whether the temperature be at 40° or 80°; but in structures heated by hot water, and smoke flues without air drains, the reverse takes place, heated air in the cases having to rise and fill its alloted space by radiation, all remains comparatively still and motionless; hence arises the two great evils, unequal diffusion, at a maximum expense. Some idea may be formed of the advantage of exchange of air by taking into consideration the immense currents required to feed the number of fires constantly in use in the metropolis, and to which much of its healthy atmosphere may be attributed; in fact, any power that will create or enforce a change of atmosphere, so as to render it more wholesome, is of the utmost importance both to the animal and vegetable kingdom.—*Chimera.*

Coping for Garden Walls.—In reading your article on the coping of garden walls, an idea which has often occurred to me before of a moveable wooden projection to let up and down, according to the state of the weather, forcibly recurred to my mind. In Fig. No. 2, suppose the stone coping to project an inch, by driving in at each corner a common iron hook, such as is used to suspend doors upon in the country, and the corresponding eye rivetted on to a board a foot wide, and the whole length between the piers; this would act as a kind of swing-door, save that the inch of stone-coping would prevent its sinking down much beyond its own level; by fixing a small light iron crane on the top of the wall between the two piers, with a pulley at top and one at the bottom, with a cord or string to the upper side and centre of the wood board, drawing it through the upper pulley and returning it through the lower one and bringing the string back through a hole in the wooden shutter, it may be pulled up straight so as to lie against the iron crane in fine or showery weather, and let down in an instant in case of a storm. This would insure a narrow or large covering to the fruit tree below while in blossom, and to prevent drift or to keep out frost, small brass hooks may be fixed at intervals along the edge of the board so that when down in its place by attaching brass rings to the edge of large mats or a sheet of calico sufficiently long to reach to the ground, it may be hooked on to the board in a moment and fastened by the two bottom ends to small posts driven in the ground, and there would be no chance of rubbing off the buds or blossoms, as in the usual way of fixing protection there usually is if it is done in a hurry. I intend to try the experiment myself this year, and hope it will succeed, but am not certain.—*F. N., Ludlow, Nov.* 23.

Foreign Correspondence.

Constantinople, Oct. 24, 1846.—I was obliged to finish off my last letter from Odessa in a great hurry, and I fear I gave but a very imperfect account of the gardens I saw on the south coast of the Crimea, nor can I now make up the deficiency. I am anxious, however, to add a few words relating to the culture of the steppes of South Russia, the result of further inquiries. Although I saw no signs of improving the corn-lands either by direct manuring or by alternation of crops, I could not quite believe that no manure ever was laid upon the ground till I was positively assured that such was the fact by every one I inquired of about it. The fine black soil which covers the ground to the thickness of from one to two or three feet, here called humus (the nature of which I am not geologist enough to tell; but which has all the appearance of the black mud deposited by stagnant waters), although so unfavourable to the growth of trees of any size, will yield several crops of Wheat in succession, and the owners of large estates after having temporarily exhausted a portion by three or four years' cultivation abandon it for some years, breaking up some other part of their land in the meantime, till some years' rest will enable them to return to the same spot, and this is much more frequently done than the alternate years of grain and fallow, which are more the custom farther north. Considering this very great waste of the productive power of the land, the further diminution of the crops by careless cultivation and the profusion of Thistles and other weeds that exhaust the soil, the loss of grain during the process of harvesting, storing, and threshing, and the vast extent of excellent steppe not yet brought into cultivation, one can easily imagine the immense increase which might be given to the quantity of grain brought to Odessa for exportation, were the prices sufficiently remunerating to tempt further enterprise, and that independently of improvements in the mode of transport which would bring a greater extent of country within the range of the port of Odessa. At present, with average prices, it is scarcely brought more than 200 to 250 miles, but as prices rise the range of Odessa market extends to 300, or 400 miles, or in some instances even further.

It has been a matter of much dispute whether the steppes of South Russia ever were or were not wooded, and whether they might not now be planted. There is certainly every appearance of the black soil never having borne trees, and of its being particularly ill suited to bear them. There are nowhere any remains of natural woods, and on the northern limits of the steppes, where patches and strips of wood are seen, these are sure to indicate a change in the soil, and do not appear ever to spread of themselves into the black soil. Great efforts have been made in the neighbourhood of Odessa, in some of the military colonies and other places, to form plantations, but as yet very few trees have succeeded except Acacias, and to a certain degree Ashes, and even these suffer much in dry weather after the first few years. It is generally said there to be owing to their roots getting into the stiff clayey subsoil; but in that doctrine I cannot agree. I should much rather attribute it to the nature of that subsoil preventing the roots from spreading at a sufficient depth to screen them from the scorching effects of the summer sun on this fine soil, entirely without stones. Some persons have attempted to form plantations at a great expense, by digging out the soil to a considerable depth in trenches, and filling them up with made soil; but even these have been disappointed, probably from a very different cause, one which operates more frequently with us. The trench thus made in a stiff soil retains the water in wet weather till it becomes stagnant, which scarcely any trees can bear. In some parts of the botanic garden and some nursery grounds about Odessa, where the ground is occasionally dug, the trees look much more vigorous; the operation of digging by leaving the surface much more rough prevents the sun's rays from penetrating so deep, and enables the ground to imbibe better the moisture from dews.

I spoke in a former letter of the flourishing state of the military colonies, and of the benefit they were to the country. I said this from the indications which strike the passing traveller, and from the opinions I heard from persons in whose knowledge of the subject, and whose correct judgment I had confidence; but I find they do not meet with any favour in Odessa. It is there said that these colonies are a dead weight on the country, and that they consume all they produce, and export nothing. I can easily conceive that a given number *of dessiatines* occupied by a large military colony, and supporting a population of some thousands, should export less though producing much more, than the same extent of territory belonging to one landowner, and worked by less than as many hundreds of peasants; but I should consider the former as contributing much more to the prosperity and natural strength and riches of the country than the latter. Many parts of the steppes would be much sooner brought into good cultivation were they divided into very much smaller estates.

Societies.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

Dec. 3.—W. Crawford, Esq., of Cartsburn, in the chair. There was an excellent display of fine Pears and Apples, and retarded Grapes, with many beautiful flowers; and in the kitchen-garden department the specimens were of first-rate quality. For the prize offered for the best four sorts of Pears, there were six competitors. A first premium was voted to Mr. Thom, gr. to A. Trotter, Esq., for Beurré Diel, Napoleon, Crassane, and Glaut Morceau; and a second premium to Mr. Laug, gr. to the Countess of Dunmore, for Beurré Diel, Napoleon, Glout Morceau, and Duchesse d'Angoulême. For the best six kinds of table Apples, there were also six competitors. A first prize was awarded to Mr. Weir, gr. to R. Bruce, Esq., for Golden Reinette, American Peach-Apple, Grey Leadington, Alfriston, Ribston, and Lewisham Pippin; and a second to Mr. Buchanan, gr. to W. Forbes, Esq., for Grange Apple, Stirling Castle, Baltimore Pippin, Lee's Nonpareil, Hardy's Nonpareil, and Scarlet Winter Nonpareil.—For producing excellent clusters of retarded Grapes two premiums were awarded; the first to Mr. Forgan, gr. to L. Buchan, Esq., for White Muscat of Alexandria, and Grizzly Frontignan; and the next to Mr. Baxter, gr. to Sir J. G. Craig, Bart., for White Tokay and Syrian.—For the finest specimens of Chinese Chrysanthemums (12 varieties), the medal was assigned to Mr. Addison, gr. to the Earl of Wemyss, the kinds being Queen of Gypsies, Therese, Annie Salter, Handy, Princess Maria, Queen Minerva, Orlando, Campestroni, Formosa, Vesta, and Victory.—For a well-grown plant of Torenia asiatica, in fine flower, a certificate of merit was granted to Messrs. Cunningham and Kelly. The thanks of the meeting were voted to Mrs. Haig, for sending for exhibition splendid plants of Epiphyllum truncatum, with Erica Lamberti rosea, and other winter flowering Cape Heaths; likewise to J. Hog, Esq., for sending a rich collection of Chinese Chrysanthemums, consisting of 21 named varieties, and to Messrs. James Dickson and Sons, for exhibiting a magnificent specimen of Erica hiemalis, 9 ft. high, covered with flowers.—In the class of Culinary Vegetables, premiums were this year offered for Leeks, Celery, and Onions. Ten cultivators competed in Leeks, each producing six stems, and all being well blanched. A first premium was found due to Mr. I'Anson, the kind being Scotch Flag; a second to Mr. Pousty, gr. to J. Giles, Esq., for Musselburg Flag; and a third to Mr. Blair, gr. to J. C. Renton, Esq., for common broad leaved.—For the best six stalks of solid Celery, 3 red and 3 white, there were 7 competitors. A first premium was awarded to Mr. Pousty, for Manchester White and Red; and a second to Mr. Goodall, gr. to the Marquis of Lothian, for Manchester Red, and Goodall's Broad White.—In Onions there were several competitors, each producing three sorts. A first premium was assigned to Mr. Thomson, gr. to W. C. Hope Vere, Esq., for Globe, Strasburgh, and James's Keeping; and a second to Mr. Goodall, for Strasburgh, Pale Red, and James's Keeping.—Among the extra articles exhibited on this occasion some very large and well-ripened specimens of the Beurré d'Aremberg Pear sent by Mr. Gardiner, gr. to the Earl of Stair, were considered as meriting an honorary award. A certificate of merit was voted to Mr. Sinclair, for a brace of excellent Cucumbers, grown against the back trellis of a Vinery. The same cultivator exhibited a bunch of Early Horn Carrots, as young and tender as those produced in spring; the seed had been sown in July last, on ground from which a crop of early Cabbage had been taken. Very large samples of the tuberous roots of Oxalis Deppei were sent by Mr. Clark, King's Grange. Mr. M'Naughton exhibited Potato tubers of 1845, which had been placed in shallow boxes in September, 1846, slightly covered with dry mould (without any watering), in a house kept between 55° and 60° Fahr., now presenting a fair crop of young Potatoes. Mr. Baxter sent from Riccarton Garden four very large Uvedale St. Germain Pears, weighing together 5¼ lbs. Mr. Lang communicated specimens of a seedling Pear, a cross between the old Grey Auchan and the Chaumontelle; it was regarded as promising well, but not being fully ripe was remitted to the committee for after consideration. Messrs. Dickson and Co. sent a package of Cuba Bast. Seven new members were admitted, and office bearers for 1847 were elected.

Reviews.

Outlines of Structural and Physiological Botany. By A. Henfrey, F.L.S. 12mo, Parts 1 and 2. Van Voorst.

This little book is a useful manual for students. It is rendered more especially valuable by the knowledge which the author possesses of the views of the most recent German vegetable anatomists, and the skill with which he has condensed and arranged them. It is not indeed in the minute details of structure alone that Mr. Henfrey has shown himself a master of his subject; his views of higher matters are lucid and judicious. Take, for example, his account of what is called morphology, which has so much alarmed the sapient Dr. John Murray and his silly followers:—

"Looking at vegetables in their generality, we may say that a plant consists of three parts, the leaf, the stem, and the root; although in the lower classes it is often the case that one or even two of these are wanting. Advancing again, as in the case of the cell, we find that a plant may be composed of one of these individuals, or phytons as they have been called, producing its like, the progeny immediately obtaining an independent existence; or the new individuals may remain attached almost to an unlimited extent, constituting highly compound plants, the different organs or phytons of which undergo very various modifications of form and acquire very distinct functions. Thus in a flowering plant, or as a stronger example in a forest tree, every leaf is to be considered as essentially a distinct individual; but as a member of a compound body, working for the general benefit of the whole. In obedience to the requirements of this, they undergo modifications to fit them to execute distinct offices in the economy of the plant; some are destined to the nutritive functions, others to the reproductive; and among these latter we find them still further losing their individuality, and becoming blended in all their parts with their fellows, until almost all trace of their real origin is lost. This is the substance of the doctrine of morphology, the most important generalisation in the whole science of botany, as affording a clear and systematic view of the vegetable kingdom as a whole, in addition to the important relations it establishes with zoology."

The first Part includes *Elementary Structure*, the second the *Organs of Vegetation*, the third, which is to contain the *Organs of Reproduction* and *General Physiology*, was promised five months ago, but has not yet appeared.

Mr. Gower's Scientific Phænomena of Domestic Life (Longmans) having been formerly noticed favourably

(p. 806, 1844), we have only to announce a second edition of it, with considerable and useful additions. It is a very good Christmas present for young people no longer children.

Manual of Materia Medica and Therapeutics. By J. F. Royle, M.D., F.R.S. 12mo. Churchill.

Medical works do not generally come within the limits of the *Gardeners' Chronicle*. Materia medica, which includes the application of plants to the cure of disease, is the exception, and we gladly avail ourselves of the distinction to notice Prof. Royle's compendious and well arranged Manual. In this work about 420 pages are devoted to a classified account of the principal medical plants recognised in modern practice, and neat woodcuts of many of the more remarkable species are employed in illustration of the descriptions. The author's intimate acquaintance with the sources of oriental drugs, in which he is distinguished beyond any contemporary, has ensured all the accuracy that is attainable wherever such subjects are introduced, and in matters beyond his personal knowledge he has been aided by the original investigations of Dr. Falconer, whose residence in Central Asia has been productive of so many great results to science.

Further than such advantages as these have enabled Dr. Royle to be original, his work is but the epitome of those of his predecessors. It could not be otherwise; it is however the cream minus the milk; and in this respect it will be highly valuable to students, to whom we recommend it.

The following account of the true source of Asafœtida, which has so long puzzled Europeans, is new, and extremely interesting. Dr. Falconer, who calls the plant which furnishes this drug Narthex Asafœtida, concludes his description of it with the following remarks:—

"Narthex, both in the characters of the flowers and fruit, and in its 'Peony-leaved' habit, differs widely from any known species of Ferula, and appears to constitute a distinct and well-marked genus.

"In the Dardoh or Dangree language (the Dardohs being the Daradi of Arrian) the plant is called 'Sip' or 'Sup.' The young shoots of the stem in spring are prized as an excellent and delicate vegetable.

"The species would appear to occur in the greatest abundance in the provinces of Khorassan and Laar in Persia, and thence to extend on the one hand into the plains of Toorkestan on the Oxus north of the Hindoo Khoosh mountains, where it seems to have been met with by Sir Alex. Burnes, and on the other to stretch across from Beloochistan, through Candahar and other provinces of Affghanistan to the eastern side of the valley of the Indus, where it stops in Astore, and does not occur in great abundance. The whole of this region, which constitutes the head-quarters of the gum-bearing Umbelliferæ, possesses the common character of an excessively dry climate, indicated in Berghaus's hygrometric map in Johnson's 'Physical Atlas' by a belt of white.

"Besides the gum-resin, the fruit of Narthex Asafœtida is imported into India from Persia and Affghanistan, under the name of 'Anjoodan,' being extensively employed by the native physicians in India: 'Anjoodan' being the epithet applied to the seed of the 'Heengaeh,' or 'Hulteet,' by Avicenna, also quoted by Kæmpfer, and used by the Indo-Persian and Arabic writers generally in describing the Asafœtida plant. Another Umbelliferous fruit is also imported with it, and sold under the name of 'Dooqoo' (a word evidently connected with the *Saveri* of the Greeks), being recommended as an excellent substitute for 'Anjoodan,' which it closely resembles in its general appearance. This I found to be the fruit of a species of true Ferula; it is one of the two Asafœtida-like fruits mentioned by Dr. Royle as occurring in the bazaars of northern India. The species of Ferula yielding this fruit may furnish some one of the obscurely-known gum-resins resembling Asafœtida produced in Persia."

New Garden Plants.

60. HOLBŒLLIA LATIFOLIA. Broad-leaved Holbœllia. *Half hardy climber.* (Lardizabalads.*) Nipal.

From L. W. Dillwyn, Esq., of Sketty Hall, near Swansea, with whom it flowered, perhaps for the first time in Europe, on a south wall, without protection, in the beginning of last March. Other plants, in the stove and conservatory, have shewn no disposition to blossom. It is a plant of interest, notwithstanding the greenness of its flowers. But it is sweet-scented. Mr. Dillwyn informs us that the female blossoms have a faint sweet smell, such as is common in flowers of the same colour, but this smell is infinitely more powerful in the males, which towards sunset fill the air, in favourable weather, for several yards around, with a delicious perfume. The latter appear later than the females: there was full ten days between the first opening of the two sexes.—*Botanical Register.*

61. ODONTOGLOSSUM MEMBRANACEUM. Membrane-sheathed Toothtongue. *Stove Epiphyte.* (Orchids.*) Mexico.

This delicious species, for so it deserves to be called, on account of its agreeable odour and delicate flowers—this delicious species is quite like O. Cervantesii in general appearance, and may possibly be a mere variety of it. It differs, however, in the following respects:—Its flowers are whiter and rather larger, and the lip is spotted at the base; its petals are much blunter; its lip is very deeply heart-shaped and quite rounded at the point; the two front teeth of the lip are shorter, and less hairy, and the concavity at the base of the lip has a much smaller central tubercle. In other respects the two plants may be regarded as being identical. Like O. Rossii it may either be tied to a block of wood, with a little sphagnum to retain moisture, or potted in turfy heath-mould in the usual way. In whatever manner it is treated, an ample supply of water should be given during the summer months, and a damp atmosphere maintained throughout the year. In winter, the soil or moss about the roots should be allowed to become almost dry, especially if grown in a pot. And since such plants are always benefited by being repotted once a year, that operation must be performed while the plant is dry, and in a state of rest.—*Botanical Register.*

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

Garden Memoranda.

The Horticultural Society's Garden at Turnham-green.—The Reading-room.—A second lecture, illustrated by experiments, was delivered by Dr. Lindley, to the young men in the garden, on Monday last. The subject was, "Plants feed on charcoal. How is that, and whence do they get it?"

The first point of science to be known by gardeners, properly so called (as distinguished from garden-labourers), said Dr. Lindley, is, what constitutes the food of a plant. This is ascertained by examining its chemical condition. What it contains is what it feeds on. Plants were stated to have many kinds of food, the first of which in importance was charcoal. This was proved by charring a piece of Willow wood, in a test tube, over a spirit lamp; whereby the water and other volatile matters were driven off, the mass of what remained being carbon or charcoal. But charcoal varies greatly in its appearance, according to circumstances. The diamond is charcoal in its purest state, and charcoal is often combined with other bodies, whose appearance would least indicate its presence. Loaf sugar was shown to be composed of charcoal and water, by placing some in a glass with a little sulphuric acid, which drew off the water and left the charcoal behind. Starch was proved in like manner to consist of a considerable quantity of solid charcoal. Oil of turpentine (carbon and hydrogen) was shown to contain charcoal, by separating the hydrogen with chlorine, the charcoal remaining behind. It was added that charcoal may also exist in the form of air or gaseous matter; the most important of which is carbonic acid, or a combination of charcoal and oxygen. (Owing to an accident the proof of this, by separating the charcoal and oxygen, was deferred.) But although these substances were all proved to contain more or less charcoal, they do not all possess it in a fit state for entering into the composition of plants. Those substances only can be beneficially applied as food which contain charcoal in a form capable of being taken up through the skin and leaves of plants. Oil of turpentine is not food for plants, although it contains charcoal. Sugar and starch are when internal; but not when external, partly because solids cannot be taken up. It is necessary that they should be dissolved, which readily takes place in the tissue of plants. Sugar, however, might be used as external food, in minute quantity, if it were worth while. Charcoal itself is not fit food for plants until it becomes gaseous. This is the form in which Nature herself provides it. From 3 to 8 per thousand parts of the air we breathe is carbonic acid gas. It is the heavy gas so destructive to animal life, often found at the bottom of wells and mines. It is supplied in considerable abundance from decaying animal and vegetable matter; but the great source of supply is the animal kingdom. Indeed there is, perhaps, no arrangement in the whole economy of Nature more beautiful than that observed in relation to this gas. It maintains the equilibrium or balance of the animal and vegetable worlds. What is thrown off from the lungs of the animal kingdom as poison to it is food in its best form for the vegetable world. But notwithstanding the immense quantities exhaled from the lungs of animals, the atmosphere contains but a small quantity, as was before stated, and hence the importance of giving motion to the air in hothouses. For plants feed through their leaves and skin, as well as by their roots, and it is obvious that air passing quickly over the surface of a plant will part with its carbonic acid in greater abundance than when it rests upon the absorbing surface in tranquillity. This was illustrated by reference to the action of an Argand lamp. As to the roots, it was explained that they require that air containing carbonic acid should have the freest access to them, on which good potting greatly depended, as does the operation of draining, which derives a large part of its advantage from the freedom with which carbonic acid can find its way to the roots of plants through the numerous chinks and crevices that lead the water into the drains. Many other experiments besides those which have been mentioned were performed, in illustration of these facts.

Miscellaneous.

Chalk Soils.—The trees, shrubs, and plants, which we have observed most flourishing on chalky soils, are the following; though many others will grow there less vigorously. All the varieties of the Ash, Elm, Amelanchier, and Cratægus. Mr. Taunton also finds the Maple grow well upon the chalk hills. Of the Pines, we hope never to see planted there the disgustful Scotch Fir; for it is worthy of cultivation for no one superexcellent quality, and is far less successful and enduring on the chalk than is Pinus pumilio, Larix dauricæ, and Pinus nigricans. The Deodara Pine promises also to flourish on the chalk. Of shrubs which succeed excellently on the chalk, are the varieties of Berberis, Phillyrea, Ribes, Spiræa, and Viburnum, to which Mr. Taunton adds Mahonia repens, though usually considered a peat plant. Of common garden flowers, the most successful are Aconite, Campanula, Enothera, Lupine, Peony, Phlox, Potentilla, and Veronica.—*Johnson's Gardeners' Almanac.*

Wash for Green Fly.—A solution of polysulphuret of calcium, obtained by boiling lime and flowers of sulphur in water, is very destructive to aphides, and is not unfrequently employed by gardeners for this purpose.—*Pharmaceutical Journal.*

Josling's St. Alban's Grape.—It is but seldom that a seedling Grape is obtained which can be recommended in preference to those varieties that have been long in cultivation; and still more rarely do seedlings possess any of that peculiarly rich flavour which characterises the Muscats of Alexandria and the Frontignans. A Grape having the high qualities of those just mentioned, and not liable to shank and shrivel as every gardener is aware the Frontignans are too apt to do, must be a great acquisition; and such the seedling which forms the subject of this notice will undoubtedly prove. It was raised by Mr. Robert Josling, Seedsman, &c., St. Alban's, from seed sown about six years ago; and a notice of its fruit appeared in the *Gardeners' Chronicle*, 1845, page 660, as being excellent, rich and sugary, with a Frontignan flavour; and that the variety was deserving of extensive circulation. This year fruit of it was exhibited at the meeting of the Society in Regent-street, September 1st, for which a Certificate of Merit was awarded. The bunch, supported by a strong footstalk, is very long and tapering, with strong diverging shoulders. The berries are about the size of those of the White Frontignan, round, greenish-white, acquiring a tinge of golden-yellow when well ripened. Flesh rather firmer than that of the Frontignan Grapes, but not so firm as that of the Muscat of Alexandria, very rich and sugary, with a Frontignan flavour. The leaves, in their general outline, are tolerably round, their lobes not deep, but the serratures are tolerably sharp; both the upper and under surfaces are remarkably glabrous, and slightly tinged with red. On the whole the leaves bear considerable resemblance to those of the White Muscat of Alexandria; the berries, however, differ in being decidedly round, like those of the Frontignans; but the leaves of the latter are not glabrous, being furnished with bristly hairs at and near the axils of the veins beneath. It is perfectly distinct from any other variety known. The following has been received from Mr. Josling in reply to inquiries respecting this excellent Grape:—"About six years ago I sowed some seeds of Grapes disfigured by wasps, of the White Muscat, White Hamburgh, or Large White Nice, White Muscadine, and White Sweet-water; the Frontignan I did not grow at the time. These were gathered and sown promiscuously, so that I cannot say positively from which of these sorts the variety in question has originated. My opinion is, that it is between the White Nice and the Muscat; these grew side by side. In the following autumn, after the seedlings came up, two were planted by the side of each Vine already growing; and the shoots trained up the rafters inside. Most of these have fruited, but proving worthless have since been cut away. I reserved three, besides the one which is the subject of this communication, but they are much inferior to it. For this I made space by cutting away the original Vine, a Black Hamburgh, by the side of which it was planted. It differs most distinctly from the White Frontignan, from the time of showing fruit, until, and when, ripe. In showing its fruit the branches are very long, on amazingly stout footstalks, which strut diagonally from the Vine in a manner very different from any I grow. At this stage they are very conspicuous throughout the house. After this the berries assume a dark-green colour, the Frontignan is of a pale green; it shoulders, the Frontignan does not; the bunch tapers to a point, the Frontignan is more cylindrical; the footstalk throughout the bunch is very stiff, the Frontignan hangs loosely. In flavour it approaches the Frontignan more than any other Grape; but even in this respect, it differs materially, the berry in the mouth having more substance, and being more sugary and sweetmeat like; when ripe it assumes a dark-gold colour. The berries have their pedicels well extended, so that much thinning is not required. With regard to the foliage, on first breaking it has not that white mealy appearance which the Frontignans have; it more resembles the Black Hamburgh in all its habits of growth. In ripening, this variety is rather later than the Frontignan, and has not shanked with me, nor shrivelled in the berry, as does the Frontignan. I have grown 30 rafters of Grapes in three houses, of the leading kinds, within the last sixteen years, and I can assert that it is decidedly distinct from any that I grow. Its habit of growth is strong and robust; and altogether I consider it a valuable variety." In this opinion I concur.—*Thompson in Journal of the Horticultural Society.*

Bees in a Bed.—A known correspondent mentions that a friend of his whose calling took him and his wife from home, and who had not visited their house since the May term till the 8th of the present month (Dec.), found on removing the coverlet of the bed a bees' nest amongst the blankets, the size of a man's hand, or larger, the variety being what is called the foggy bee. None were alive, all their store being gone. The only

inlet to their private chamber was by a small chink of a window, which was open and shut daily by a friend from the outside.

Alkali Works and Vegetation.—We some time since brought under the notice of our readers the necessity which Sir John Gerard found of proceeding against certain alkali manufacturers for the enormous injury done to his woods. Two of the cases were decided in court in his favour, one was compromised, and one was referred. We now learn that the arbitrator has awarded 300*l.* for the damages committed, and directed the defendants to pay all the costs of the reference, so that the total damages have been as follows:—Muspratt, 1000*l.*; Crosfield, 400*l.*; Gamble, 300*l.*; Kurtz, 300*l.* It is to be hoped that these verdicts will have the effect of putting down such intolerable nuisances.

The Chameleon.—Chameleons spend their lives in trees, for clinging to the branches of which their organisation is admirably adapted. On trees they lie in wait for insects which constitute their food; in catching which, they are probably aided by their extraordinary faculty of changing their colour, so as to be able to conceal themselves. They possess extraordinary power of abstaining from food. Hence arose the notion that they lived on air. Their power of changing colour depends on there existing in the skin two layers of pigment or colouring matter, placed one above another, which the animal can influence by means of a mechanism given for the purpose, so as to produce various hues. Its lung is so large, that the animal has the power of filling every part of the body with air, so as to double its size. This is done by gentle irregular efforts. Chameleons are inoffensive, but irascible one with another. In a state of excitement, they change colour rapidly, dark, yellow, or grey: when quiescent, they then pass into green, purple, or black.—*The People's Dictionary of the Bible.*

Calendar of Operations.

(*For the ensuing Week.*)

Preparations for Spring.—It may appear somewhat early to offer admonitions on this head, but such is the pressure of business soon after Christmas has passed, that no amount of precaution can be considered too great where general gardening has to be carried out through the ensuing year according to the high practice of the present day. The first point of advice I would offer is to let no alterations, planting, &c, trench on the routine business of the garden affairs. It is undoubtedly right to plant all that can be planted in the autumn, but it is equally urgent to carry on the matters of the kitchen garden and orchard. When these things are of necessity delayed until spring, there is sure to be a sacrifice of some importance. All the pruning, excepting Figs and Apricots, and most of the nailing of wall trees, as well as the training of espaliers, should be finished if possible by new-year's-day; and the same may be said of bush fruit. The making of borders or stations for fruit trees, too, should be autumn business; indeed, where new soil has to be introduced, September or October is the most fitting time, as the best of soils may be seriously injured by moving them in a wet state. No time should be lost, when the weather is foul, in getting on with the in-doors work, as suggested in the Calendar for the last week in October. All matting or bast required for the ensuing year should be cut, sorted, and hung up ready for use. Besoms and baskets also prepared. The tool-house should be examined, and put in an efficient state; and, in fact, every thing of this kind done that is possible.

CONSERVATORIES, STOVE, &c.

The introduction of the Chinese Chrysanthemums having in one house or other caused a disarrangement of part of the stock, it becomes a matter of importance at this time to get such back in their places, or so to re-arrange matters, that groups, or tribes, may occupy situations according to their habits. Placing things for effect, should, if possible, be subordinate to this point in some degree; for what is the use of placing plants where they will not thrive! The Chrysanthemums, decaying, should be cut down, suffered to become somewhat dry, and removed to cold frames. Those who cannot afford frame room, may secure them in some shed or out-house for a few weeks, covering them over head with clean straw whilst the frost lasts. If they are slightly frozen here it will not signify; only take care that they do not thaw too suddenly. *Stove and Orchids.*—Little can be said here at present. Use moderation in heat, ventilation, and atmospheric moisture. Beware of exciting the buds of Orchids before their time. Do this and keep a somewhat drier atmosphere until the middle of January.

KITCHEN GARDEN FORCING.

Early Vines, Peaches, &c.—Where forcing has commenced, and the roots are outside, every attention should be given to the borders. I must presume, in the first place, that frost has never been allowed to enter. The next thing is to get a fermentation in the covering material of the border—80° or 90°, if possible. Any kind of covering, such as tarpaulin, to throw off the rains and snows, would be invaluable, and would confine the powers of the fermenting matter. If room to spare in these structures, now is a good time to pot some Kidney Beans. The Fulmar's Dwarf is a very good early kind. Some early Ash-leaved Kidney Potatoes should be potted, to turn out with balls, in the first week of January, into a pit or frame. *Mushroom-house.*—This house, when sufficiently roomy, is one of the most useful structures about a garden establishment. Seakale may be forced here in constant succession with as little trouble as raising a crop of small salad. The old plan of raising a bed of fermenting materials, over the crown out doors, is a process somewhat resembling the labours of Sisyphus, when compared with this. I have followed the plan for 10 or 12 years, and can bear ample testimony to its certainty, simplicity, and economy. It is equally adapted for Rhubarb forcing. Nothing is needed but a long, narrow pit along the bottom of the house, on the one or both sides, the top of the pit level with the floor. It should be 4 feet deep, and filled in portions as wanted, with any hot, fermenting material, to within half a yard of the top, which would be very perfect if covered with a lid. The Kale and Rhubarb must be placed on the surface of the fermenting matters, as thick as it can stand, and then filled in lightly with fine old tan. If it get too hot, say exceeding 85°, reduce it frequently with water, putting a handful of salt in about 6 gallons. Chicory roots may be placed in a circle round roomy pots, and set on the flues of this house. The Lily of the Valley, too, may be plunged over-head in a fermenting body of 70° here, until the blossom-spikes appear, when it must be inured to the light, but in the most gradual and cautious way imaginable. The early-potted Hyacinths and Narcissi may be served precisely the same as the Lilies, taking care not to withdraw them until the pots are nearly full of roots. Many other uses may be found for this house, of which I shall say more hereafter.

FLOWER-GARDEN AND SHRUBBERIES.

Have an eye to the protection of tender things here; and in moderate weather, especially if dry, open the canopies or coverings a little for a few hours, once a week or so, in order to dispel damp. Do not, however, suffer the sun to shine on things of this kind by any means. If the frost continues, a scheme of the masses or beds might be decided on, and the soil renewed according to character of the flower.

FLORISTS' FLOWERS.

Little can be done now except in the way of preparation and should the present frosty weather continue, it will afford every opportunity of having all the compost heaps thoroughly frozen; by repeatedly removing the encrusted surface, and piling it up every morning, many of the insects and their eggs will be destroyed, a point of no small importance to the cultivator. It will also be a good time to cart turf sods, peat, &c., &c., and to lay in a good stock of soil most suitable for the various plants and flowers, without which it is next to impossible to grow them successfully. If leaden pegs are used for layering Carnations (and these we should always recommend in preference to Bracken or Fern) a fresh stock may be cast and the old ones cleaned and straightened. If the florist can mend his own handglasses and shades, these ought now to be done, and the metallic wire which has been used for attaching the stems of Carnations or Tulips to their support, should be made ready for use, and stored away in its place till the returning season renders it available. Rabbits during the severe weather will be apt to attack Carnations and Pinks. It would be worth while to try Mr. Rivers's plan of dipping small square pieces of cloth into brimstone, and tying them to sticks, and inserting the sticks in the ground round the beds.

KITCHEN GARDEN AND ORCHARD.

The prime Celery beds should be immediately covered, when frozen, with clean straw 6 inches thick. Let all other vegetables have due attention. Let all manure be wheeled out, and proceed with pruning, nailing, &c., as advised in the commencement of this day's Calendar.

COTTAGERS' GARDENS.

The cottager must keep an eye on the Ice King, more especially as to his Potato pit. If a good breadth of the Green Kale was planted in due time, as recommended, he will perceive the great value of this hardy green. The heads may be cut now successively. If he has Savoys in heart, they had better be used first, as frost may destroy them; the same may be said of White-hearted Cabbage or Coleworts.

FORESTING.

This settled frosty weather will afford excellent opportunities for thinning plantations, and felling timber trees, excepting the Oak. It will be well to lose no time, especially where much planting has to be done.

State of the Weather near London, for the week ending Dec. 17, 1846, as observed at the Horticultural Gardens, Chiswick

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Thermometer. Max.	Thermometer. Min.	Thermometer. Mean	Wind.	Rain
Frid. 11	28	29.641	29.391	44	19	31.5	N.W.	—
Sat 12	29	29.741	29.884	34	21	29.0	N.E.	—
Sun. 13	24	29.749	29.607	30	11	20.5	N.E.	—
Mon. 14	25	29.610	29.468	30	13	21.5	W.	—
Tues. 15	26	29.571	29.425	30	13	21.5	N.W.	—
Wed 16	27	29.749	29.670	35	21	28.0	N.W.	—
Thurs. 17	28	29.708	29.660	30	15	25.5	N.W.	—
Average		29.695	29.571	36.1	16.5	25.8		.00

Dec. 11—Frosty: slight snow; clear and frosty at night
12—Sharp frost; cloudy; snow shower; frosty
13—Frosty, partially overcast; cloudy; intense frost at night
14—Severe frost; clear; frosty throughout
15—Severe frost; deeply and uniformly overcast; frosty, with brisk wind in the night
16—Frosty; clear and cold; frosty
17—Densely overcast; thaw, with slight rain; frosty
Mean temperature of the week 18 deg. below the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Dec 26, 1846.

Dec.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp	No. of Years in which it Rained.	Greatest quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 20	44.0	28.0	36.0	6	0.76 in.	—	5	—	—	2	3	3	1
Mon. 21	44.3	28.5	36.4	6	0.60	—	4	1	1	2	6	5	2
Tues 22	46.4	28.9	41.1	11	0.98	2	3	1	2	2	6	4	2
Wed 23	41.2	32.7	36.8	10	0.39	4	4	1	1	2	7	1	3
Thur. 24	44.0	28.5	36.2	6	0.85	2	2	1	1	2	5	1	3
Fri. 25	46.0	28.0	36.5	4	0.82	1	2	2	—	2	5	4	2
Sat 26	46.6	28.0	37.3	7	0.80	1	2	2	2	3	7	—	1

The highest temperature during the above period occurred on the 25th, 1827—thermr. 56°; and the lowest on the 24th, 1836—thermr. 10°. The average temperature of the night of the 25th is lower than that of any other night throughout the year.

Notices to Correspondents.

The *Fourth* Reprint of Mr. PAXTON'S COTTAGERS' CALENDAR is now ready, price 3*d.* each copy. An Index has been added. Parties wishing to have copies for distribution among their tenantry can have them at the rate of 2*s* for 5*s*.

POST-OFFICE ORDERS—In order to obviate the inconveniences which are now constantly being experienced by parties who wish to remit small sums to the office of the GARDENERS' CHRONICLE for Advertising, we have to request that all Post-office orders may in future be addressed to Mr. JAMES MATTHEWS, 5, Upper Wellington-street, Covent-garden, and made payable at the Post-office, 180, Strand, London. Post-office orders, remitted by subscribers for the Paper, should be sent to the respective Agents who supply them.

ANALYSES—*Investigator*—The process of analyzing organic matter is long and tedious, besides which it requires much practice and experience in the use of apparatus and re-agents. It is in fact beyond the skill of amateurs. Those who wish to make the attempt must procure the books written on the subject, among which are Parnell's "Elements" and Fresenius' "Chemical Analysis."

ANDROMEDAS—*X Y*—Floribunda, Speciosa, Axillaris, Polifolia.¶

BOOKS—*Quæsitum*—"School Botany."

DAHLIAS—*E V*—Pooh! let that pass.

EVERGREEN CREEPERS—*X Y*—Cratægus pyracantha, Cotoneaster rotundifolia, Caprifollum sempervirens and Magnolia grandiflora.¶

EVERGREEN ROSES—*X Y*—Adelaide d'Orleans, Donna Maria, Princesse Marie, Felicité perpetuelle.¶

FENCES—*W E W*—We do not know to what fences you allude. Be so good as give us the page.

HEATING—*D M*—We must once more state distinctly that we do not furnish plans of heating. It is quite out of the question. You should apply to those who construct Polmaise apparatus. There can be no doubt of the applicability of the plan.

HYDRAULIC MACHINES—We really must close this subject. "A Millowner" assures us that Mr. Legg's "invention" is old, and has been tried and found wanting; another party asserts that it is new. We believe that we have ascertained the fact to be, that it is a water wheel working pumps, with a peculiar arrangement of air vessels, either the very same as one used by Braithwaite and others, or not materially different. As we said before, all further discussion must go into the advertisement columns.

INSECTS—*J A B*—Your box was crushed and everything in it, we cannot therefore tell you more than that it is the caterpillar of a moth. If you will send some enclosed in a quill we will rear them. The only remedy is to bake the infested books in an oven, where the heat will not singe a feather, or to wash the affected parts with spirits of turpentine. In all probability the moths breed in some woollen materials in the room. *E.*

IVY—*A Sub*—Trench the border well, plant well-rooted plants of the Irish variety in pits, and add a little rotten dung as a mulching. Nothing more can be done. Take care to spread the roots out carefully, and not to leave them in a ball.

LAW—*W F*—It will be cheaper to pay *bl* to avoid disputes than 20*l* to settle them. If you can trust your landlord, you may take the risk of your plan. All depends on that. An agreement, if stamped, is equally legal, whether it is drawn by one man or another; but the probability is that a man unacquainted with law will stamp what is unintelligible, or susceptible of more interpretations than one.

NAMES OF FRUITS—*A M*—1, Black Pear of Worcester (stewing); 2, Glout Morceau. ‖——*J G E*—Beurré d'Aremberg. ‖——*P F, Reigate*—Minchall Crab. ‖

NAMES OF PLANTS—When plants are sent to be named, it is most particularly requested that they may be in flower, and as perfect as circumstances permit. Most especially is it requested that the country whence they have been received, and whether they are annuals, perennials, or shrubs, hardy, greenhouse, or stove plants may be stated; because specimens by post are generally bad and incomplete, and much valuable time, which such information would save, is needlessly wasted.——*S Warnford*—Thorea will be found at p. 22, and Hormospora at p. 18 of the "Vegetable Kingdom." The book was Koch's "Synopsis Florm Germanicæ."

PLANTING—*Constant R*—Your inquiry was answered in a Leading Article last week.

RATS—*Sub*—We can say no more than we have said. With us it answered perfectly. You should consult the vendor.

RHODODENDRONS—*X Y*—Azaleoides, Catawbiense, Ferrugineum, Pontieum (dark var), Maximum album, Nobleanum, Smithianum, Pictum.¶

MISC—*A Constant R*—Labradour? We never before heard of such a vegetable. Your description reads like that of the Arracacha, the nature of which was explained some months since.——*A B*—Plant Fig trees now, or as soon as frost has gone, or any time in winter, matting them up *well* to secure them from frost. If they are in pots plant them in May.——*E L D*—Neither animals nor plants can be named from rude description; nor do we undertake to name the former, unless they are directly connected with agriculture or horticulture ——*N S H*—Cedars of Lebanon cannot be procured from Mount Lebanon unless some traveller will execute the commission; and then it is doubtful whether he would succeed. November is the month to try the experiment in. They must be packed in damp Moss in a close case, and sent down to some Syrian port, to a trusty agent, who will get them on board one of the regular steamers. That done, the chances are 10 to 1 against your receiving anything more satisfactory than a case full of dead wood, and a bill of freight to pay.——*L M N*—For the price of superphosphate of lime see Mr. Lawes' advertisement in another column.‡——*Clerieus*—Your plants should not be sprinkled overhead with water in winter, more especially during frosty weather. To have Roses in bloom in January the plants should have been placed in heat in the beginning of November. During forcing the heat should be kept up to about 60°, and the plants should have abundance of water of the same temperature as the house in which they are kept.‡——*Sambucus*—All the different kinds of Elder may be propagated in abundance by cuttings and seeds. The latter mode may possibly suit your purpose best.‡——*W Baker*—The article on Fruit-tree Borders, in another column, will possibly suit your purpose. The Nos. next week.‡

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those correspondents, the insertion of whose contributions is still delayed.

HORSE WORKS.—Wanted to Purchase, a good Second-hand HORSE WORKS for Driving Chaff-cutters, Threshing Machines, &c.—Direct to W. W., at Mr. Hare's, Swan Stables, St. Martin's-lane.

The Agricultural Gazette.

SATURDAY, DECEMBER 19, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, Dec. 23—Agricultural Society of England.
THURSDAY, — 24—Agricultural Imp. Soc. of Ireland.
THURSDAY, — 31—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.

Ross—Antrim Union—County Cork—Lincoln—Portarlington.

FARMERS' CLUBS.

Dec. 21—Botley | Dec. 30—Newton
— 28—Hereford | — 31—Rolleston—Ottery St. Mary

OUR columns again bear evidence of the interest which is taken in the subject of TENANT RIGHT. It is a question, the fullest discussion of which shall be admitted here—no attempt to damp public feeling on this matter shall be made by us.

It appears to us that there are two classes of thinkers engaged on this subject; and as it is from the bias which they respectively exhibit that their differences arise, it may not be useless to state the principle on which in either case this bias appears to rest. The one party, and our correspondent "R. L." must permit us to name him here, with an eye—sometimes, no doubt, unconsciously—resting on the day when Owners and Tenants were Lords and Serfs—are for maintaining that form of this relationship which alone the 19th century will permit, viz., as regards the Tenant, a "loyal affection for, and dependance on" the Landlord. Words which if seldom so boldly used as our correspondent has used them (see page 780), imply an idea which is familiar enough to many. This idea takes its full development when its advocate is daring enough to attempt its justification on the plea of that serfdom which characterised the monstrous state of society prevalent centuries ago—a state of society from which no man will coolly draw either inference or argument except for use as warning or contrast. And this is true whether our present 'Lords' and Tenants be or be not the heirs respectively of the Lords and Serfs of former days; a thing which, while it is necessary for "R. L.'s" position, he will find it somewhat difficult to prove. This idea of "loyal affection, &c." takes on the other hand its most graceful and—if one cannot praise it, at all events—its blameless form in (as we are glad to acknowledge) the case of many a good Landlord and contented Tenant up and down the face of the country. And between these extremes it exhibits itself in various aspects of the "Friend and Father" system caricatured (?) by Mr. DICKENS in the persons of 'Sir JOSEPH BOWLEY' and his dependants. It is sometimes harmless, as we have said; frequently, however, disgusting both to Tenant and we should imagine to Landlord spectators also; never praiseworthy, for this simple reason that it is the mark of that kind of inferiority in the many which all good men are trying to diminish—an inferiority based upon the want of education. By and bye we shall have *all* the land—as great part of it no doubt already is—cultivated by *intelligent* and upright men; what then will become of the word 'loyal' and of that sort of 'dependance' which is implied by it, in "R. L.'s" *beau ideal* of the connection between Landlord and Tenant? The 'affection' will doubtless generally remain, but it will be the result not of blind habit or hereditary dependance, but of a manly appreciation of *character*.

And then the idea cherished by the other party alluded to will have full development. 'The commercial principle' which grants all that an honest man can ask for, will be the universal basis of connection between class and class.

The best statement we have yet seen on the principle involved on the subject of 'Tenant Right' is that by Mr. SPEARMAN, in the discussion by the Durham Farmers' Club, an account of which we give in another page. We quite agree with this gentleman in what he has said on the subject, and are sure that the best connection between Landlord and Tenant will be most rapidly obtained, not by preaching up the merits of particular schemes for the security of their respective interests, but by diffusing the benefits of education, then to confer upon the latter true independence and intelligence, and then leaving every man to look after his interests himself. Mr. SPEARMAN was followed by the Rev. Mr. TYSON, of whose remarks we cannot speak so highly. Of course we cannot say whether the words used by him are in their ordinary acceptation accurately expressive of his mind; but if it is not false in sentiment, it certainly is most bad in taste to say "I hold the independence of the tenant to be a perfect bugbear," and the matter is not mended by urging that we are all dependant upon one another; for Mr. TYSON'S scheme of mutual dependance is illustrated by the simile of "a chain hanging from heaven to the earth," each link, be it observed, dependant solely on the one *above* it.

OUR attention has been directed to a circular issued by the salt manufacturers of England for the purpose of proving the advantages which would accrue from the more extensive use of SALT IN AGRICULTURE. This circular contains practical evidence on the point in question, which is extremely important, and places the value of salt for Agricultural purposes in so strong and conclusive a light that we feel justified in bringing the subject prominently before our readers.

The circular contains letters from several practical farmers of reputation, an abstract of Mr. HANNAM'S experiments with salt and other manures on Oats, Barley, and Wheat, contained in his Prize Essay on Manures, and published in the 5th volume of the "Royal Agricultural Society's Journal," letters from Mr. COLMAN, the Agricultural Commissioner from Massachussets, and a short letter which appeared in our Number of the 5th inst. from Mr. TEBBITT, of Clapham.

According to the statements contained in these letters, salt has been found most beneficial in its effects when applied to light soils, at the rate of 5 or 6 cwt. per acre, and upwards. The evidence combines to establish the following points:—

1. That salt applied to grain-crops increases the produce of grain, and very much improves its quality and its weight per bushel. This point is established with particular clearness by Mr. HANNAM, and his results are confirmed by the experience of the other writers. Mr. WILSON, of Aston Claverly, near Wolverhampton, observes, "I last year salted a 20 acre field for Barley, at the rate of 6 cwt. per acre, leaving a strip the whole length of the field without; at harvest the greatest novice might have discovered the difference, the salted being very superior in sample and colour. I last week winnowed 300 bushels of it without a single bushel of light, a circumstance which does not occur with us this year where salt was not used."

2d. That salt applied to Grass land has a very good effect, and renders the herbage much more palatable to stock.

3d. That it has been found very effectual in preserving the health of live stock, and protecting them from the attacks of the epidemic. This is a fact well known and admitted.

4th. That it tends to protect Wheat from the attacks of rust, mildew, and wireworm.

Mr. WALLINGTON, of Charlecote, Warwickshire, states that he has used salt over 400 acres of land or upwards, and remarks: "I can confidently say that I never had in any one field, a yard of ground without a good plant of Wheat during the course of salting. When I first used salt I frequently left portions of the field as a criterion, and found that in the first instance the Wheat grows slowly in the salted ground, but as the spring advanced it strengthened and surpassed the other, and at harvest it was much stronger and clearer in the straw, and free from rust or mildew, and the produce and quality decidedly the best." Some striking facts are also stated in this circular, showing the influence of salt in warding off or diminishing the effects of the Potato disease.

Of course it ought to be a leading principle in the cultivation of science (and of agricultural science from its very nature more particularly) not to base conclusions on too slender an array of facts, and therefore we by no means assert that the value of salt in producing the effects attributed to it is absolutely established by the evidence offered in this circular; but we may safely say that a great advance has been made towards its establishment, and we have no doubt that the extensive circulation which we understand is likely to be given to the Salt Manufacturers' Circular, will lead to an equally extensive trial of the article recommended.

COMPARATIVE STOCKING OF ARABLE AND HALF-ARABLE FARMS.

[AT the December monthly meeting of the Darlington Farmers' Club, on December 7, Mr. Dixon, their hon. secretary, introduced for discussion the subject of "the quantity and kind of stock there can be kept upon a clay-soil farm, half arable and half Grass, compared with when it is nearly all arable." The following are Mr. Dixon's remarks, with a copy of which he has been kind enough to favour us:]—

Let us bear in mind that the greater the number of cattle we can keep and feed upon a farm, the more profit that farm is likely to yield; and of course the more cattle that are kept the greater the quantity of manure will there be produced, more particularly if such cattle are stall fed.

You will, I believe, recollect that at a former discussion a resolution was arrived at, that it was more economical to keep all heavy cattle in the house upon green cut food during the summer than to turn them out upon the pastures, and that by doing so a greater number of cattle could be kept with advantage; and I am still fully convinced that stall feeding during the summer is more profitable to the farmer than turning the cattle loose upon the pastures.

If we admit this to be the case, it appears also quite evident that a farm nearly all in tillage will carry a much greater number of cattle to advantage than what a farm half arable and half Grass would do. On the former, if a suitable course of cropping be adopted, I have no doubt but that every requisite kind of food may be produced, to keep more than one-third additional cattle, particularly fatting cattle, over what could be kept if the same farm were half arable and half Grass. I expect before long to see Linseed used as a general ingredient for feeding cattle on almost every farm, and not only this, I also expect to see every farmer grow his own Linseed for that purpose. It is true that Flax has from time immemorial been condemned as a scourging and injurious crop, and therefore it has been in many farm leases and agreements prohibited from being grown; but for all this I very much doubt if it is a more exhausting crop than several others that are grown; and the principal reason of its being thought a scourging crop has, I believe, arisen from an improper course of cropping having been pursued, and thereby the fertility of the land in some cases injured; whereas the great art in following out a proper course or rotation of cropping, is to adopt such a scheme that no particular crop may follow another, which has already extracted from the soil a great portion of the principal ingredients required for the succeeding crop, without first adding to that land such a description of manure as shall remedy the defect.

I may here also name that at another of our former discussions "the comparative advantage and profitable cultivation of old Grass land as compared with arable land of similar quality," I showed that it required at the very least two acres of good Grass land to keep a fatting beast for a year, and I now wish to show, as clearly as I am convinced myself, that less than an acre and a half of medium tillage land, by adopting a proper system, will do the same thing, and feed the cattle much faster than the old method. There are already some gentlemen in our neighbourhood who are using considerable quantities of Linseed as steamed food along with meal, cut straw and Turnips for winter feeding, and I may name Mr. Hutton, of Sowber-hill, in particular, as having adopted this system. I had an opportunity, in company with our chairman and Mr. Johnson, of seeing the whole process he adopts of preparing the food and the way in which the stock seemed to thrive upon it. He gave us in detail all the different items of expense that he was at in the preparation of the food; and during the few hours that we spent at Sowber-hill, we were three different times among the cattle, and each time found them lying down resting; in fact, their quiet appearance and healthy thriving condition was such that we felt perfectly satisfied that they were feeding in a very superior manner; and Mr. Hutton quite convinced us that by using the steamed food along with Turnips, he could feed at least twice the number of beasts with the same quantity of Turnips that he formerly did, and that in a much less time. Now, in order to explain my idea on this matter, it will be requisite to go a little into detail to show what may be done by growing such produce upon a farm as is requisite for cattle feeding, viz. Corn, Linseed, and Turnips; also Rape, Tares, Clover, and Rye-Grass. Now, an acre and a quarter of land will grow 208 stones of corn, another acre and a quarter will produce 90 stones of Linseed; and upon three quarters of an acre you may grow 14 tons of Turnips. Now these quantities, the corn being ground into meal, the Linseed steamed, and both mixed as required with a sufficient quantity of cut straw, will, with the addition of the 14 tons of Turnips, be ample for feeding four beasts during the whole of the 26 weeks of the winter half-year. This would be at the rate of two feeds of the compound and two feeds of Turnips in each day. Then for the summer half-year, I am pretty certain that it would be a considerable advantage to give one feed of compound per day, along with mown Clover, Tares, or Rape, and by this means $\frac{3}{8}$ of an acre of corn, $\frac{3}{8}$ of an acre of Linseed, with $1\frac{1}{4}$ acre of Rape, Tares, and Clover, would be sufficient to feed four beasts through the 26 weeks of the summer half-year. Thus the quantity of land required to feed four full-grown beasts for a year is 6 acres.

But the whole of the produce of the 6 acres would not be required; for you will recollect that in this calculation I named $1\frac{1}{4}$ acres of Linseed. Now, if the fibre on this $1\frac{1}{4}$ acres of Flax be rough dressed for the market, it will yield a profit of about 12*l.* 10*s.*, independent of the Linseed used for the cattle feeding; and therefore this being the case, if we reckon 5 acres, we shall be much nearer the truth. Now, if it be found by experience that Flax is a more remunerative and profitable crop than most others, I do not see why it should not be grown under proper management, when it is also seen that the seed is so valuable in the feeding of cattle, besides which it is now well known that the manure produced by Linseed feeding is much more valuable than that produced by ordinary stall feeding; but the most profitable part of the crop is the fibre of Flax. I have taken some pains in endeavouring to ascertain the expenses of rearing and preparing a crop of Flax, and I find that the profits thereon are generally much greater than upon ordinary crops of corn, and from the information I have got I am led to believe

that 40 stones per acre is certainly not above an average crop; but which, without reckoning anything for the seed produced, would yield a profit of about 7*l.* per acre.

The expenses of cultivating an acre of Flax, and preparing it for sale, will be about as follows:—

	£.	s.	d.
Rent of 1 acre of land	1	10	0
Rates and taxes	0	10	0
Ploughing, harrowing, &c, ...	1	5	0
Seed, 2½ bushels	1	10	0
Weeding	0	12	0
Pulling	0	12	0
Saving and dressing seed	0	10	0
Watering and grassing	1	5	0
Carting home	0	10	0
Scutching 40 stones	2	0	0
Total expense per acre	£10	4	0
40 stones of Flax, at 7*s.*	14	0	0
18 bushels of seed, at 7*s.*	6	6	0
Total produce per acre	20	6	0
Deduct expenses as above	10	4	0
Profit per acre	£10	2	0

I must beg pardon for digressing from the question at issue, but I have done so to show that it is desirable that each farm should produce its own Linseed for feeding, and that it is profitable to do so; and also to show that it would not be fair to take the whole 6 acres which I before named into account for the feeding of four beasts for 12 months, but that 5 acres are sufficient as follows:—

First, for the summer 26 weeks.

	A.	R.	P.
Land to grow Corn for meal	0	2	20
,, ,, Linseed for steaming ..	0	2	20
,, ,, Clover, Tares and Rape ..	1	2	0
Total quantity for summer ..	2	3	0

Then for the winter 26 weeks.

Land to grow Corn for meal	1	1	0
,, ,, Linseed for steaming ..	1	1	0
,, ,, Turnips	0	3	0
Total for winter	3	1	0
Total for summer	2	3	0
Total for the year	5	0	0
Deduct for the Flax crop	1	0	0
Quantity of land required	5	0	0

This shows that 5 acres of arable land, of medium quality, under proper cultivation, is sufficient to feed four full-sized beasts for 12 months, whereas on a farm half arable and half Grass 8 acres at least would be required to do this; therefore this I think shows pretty clearly that a considerable quantity of more stock may be kept upon a farm in which the land is chiefly under the plough. Now, I would not confine the system to feeding beasts; if it answer well for fat stock, I don't see why it should not answer well for milk cows and other heavy cattle. A farmer's milk cow, upon ordinary land, generally consumes from an acre and a half to 2 acres for her summer's keep, and about as much more for winter; but I have no doubt if the same cow were fed in the house upon cut food, with a feed per day of the compound, that one half the quantity of land would be ample for the same purpose. Then if this be so, there can be no doubt but similar results would obtain in all cases of heavy stock being fed in the stall instead of in the pasture.

From inquiries which I have made, I find that in winter feeding with the steamed compound, the following quantity is sufficient for a grown beast per day:—

Linseed	2 lbs.
Ground Corn	5 ,,
Cut straw	30 ,,
Turnips	30 ,,

This quantity is given in two feeds of the compound and two feeds of Turnips, and a little straw is also given at night. Milk cows and other cattle might have one feed per day of this compound along with their ordinary food. The great advantage derived from the use of the compound which I have now partially described, seems to arise in different ways—1st, from the food being cut, ground, and given in a warm state, both mastication and digestion are considerably assisted, and thereby the animals obtain more rest, and consequently fatten in less time. 2d. By using the compound a greater number of cattle can be fed, which is a very important matter, more particularly where Turnips are not plentiful; and 3d, the manure produced by this method of feeding is found to be more valuable than by Turnip-feeding only.

Henry Chaytor, Esq., of Clervaux Castle, said that if the system of stall or box-feeding cattle were carried out to a greater extent than at present, he had no doubt but that it would be beneficial, more particularly if the Linseed required for the purpose was cultivated and grown upon the farm where it was consumed, and he had very little doubt but that the system detailed by Mr. Dixon might be carried out successfully as well as beneficially, and if the fibre of the Flax could be profitably saved and prepared for the manufacture, which he did not see any reason to doubt, he thought it would be the means of producing a good deal of labour in vacant seasons for the wives and families of the labouring men, which he considered would be a very good thing. Now a good deal had been said with regard to Flax being an exhausting crop, and no doubt it might be so; yet he had reason to believe that Wheat and some other crops were also exhausters of the land, perhaps as much as Flax; therefore, in that respect he fancied there was no difficulty but what could be removed by judicious cultivation, and a proper course of cropping. But in discussing this subject there were so many things which ought to be taken into account, that it was, he thought, utterly impossible for the present meeting to come to any correct conclusion; for although Mr. Dixon had entered pretty largely on the subject, yet there were many points which bore upon the subject that would require explanation; as for instance, he had not shown how it would answer to stall feed in summer with Grass cut from old sward, in comparison with Tares, Clover, or Rape. He also thought that Mr. Dixon's estimate of the expenses of cultivating an acre of land and winning the Flax was too high, as was also the value that he put upon the Flax itself, and perhaps upon the whole he had shown rather too great a profit upon an acre of Flax upon ordinary land; yet there was no doubt but the profit would be equal, if not superior to the profits upon ordinary crops of corn, if at all judiciously managed.

Mr. Walton said that the system of house-feeding cattle, as described by Mr. Dixon would impose a considerable increase of labour, and labour in his neighbourhood was scarce, and he was afraid that it would be difficult to carry the scheme out to advantage except in large establishments where men could be specially employed to attend to the preparation of the food and feeding of the cattle only.

FORM OF SCOTCH LEASE.

Having seen the subject of leases discussed in your columns, I send you a draught of one which I consider advantageous both for landlord and tenant.—*T. P. D.*

"It is contracted, agreed, and finally ended, between the parties following, viz. A. B., proprietor of the lands and others after mentioned on the one part, and C. D. present tenant of the farm of on the other part, in manner following, that is to say the said A. B. sets, and in tack and assedation lets, to the said C. D., and his heirs and executors, the farm and premises called E., in the parish of F., and county of G., all as presently occupied by H. J., on a lease of 20 years, from the term of Michaelmas, 1847, but expressly excluding all sub-tenants or assignees whether partial or total, legal or conventional. And the said A. B. reserves to himself, his heirs and successors, all wood, timber, and underwood, growing or to be grown, upon the said farm of E., with full right to him and them, or those having his or their authority, to enter the said lands for the purpose of cutting and carrying away the same, and if necessary to make roads for that purpose, always providing that the said A. B. or his aforesaids, shall pay to the said C. D. or his aforesaids, all surface damage done in the said cutting and carrying away of the foresaid wood or timber, and that at the valuation of neutral men mutually chosen, or their umpire. And the said A. B. reserves to himself and his aforesaids all mines and minerals in the said farm of E., with full right to work, win, and carry away the same, and if necessary to make roads for that purpose, the surface damage being fixed and paid for as above. Also the said A. B. reserves to himself and his aforesaids all the game upon the said farm with full liberty for him or them, or those having his or their authority, to enter upon and hunt, shoot, or course over the said farm of E. Also the said A. B. reserves to himself and his aforesaids a right of altering old or making new roads through the said farm, and of straightening marches with the neighbouring proprietors or tenants, and the value of the land added to or taken from the said farm by such alterations to be fixed by neutral men chosen as aforesaid, and the said value to be added to or taken from the rent after-named as the case may be. And on the other part the said C. D. binds and obliges himself, his heirs and executors, to pay to the said A. B. or his heirs and successors, or to his or their agent for the time being the sum of £ sterling, of annual rent, and that at two terms in the year, viz. Michaelmas and Lady-day, and commencing the said termly payments at the term of Michaelmas, 1848, and so on yearly and termly thereafter during the currency of this lease, and in case of failure in any of the termly payments, the said C. D. shall be bound as he hereby binds and obliges himself and his aforesaids, to pay legal interest thereon during non-payment thereof. And further, the said C. D. binds and obliges himself and his aforesaids to pay as they become due all public and parochial burdens (except landlord's income-tax and land-tax). Also to insure the buildings against loss by fire with some respectable insurance company, and to produce their receipts when required to do so; and to keep the said buildings and all gates and fences in good tenantable condition and repair, the proprietor supplying material in the rough for that purpose. And it is hereby expressly provided and declared that at no time during the currency of this lease shall any of the Grass land be broken up without the permission in writing of the proprietor or his agent for the time being. And in the event of any of the said Grass land being broken up without such permission, the said C. D. hereby binds and obliges himself and his aforesaids to pay to the said A. B. or his foresaids, or to his or their agent for the time being the sum of 4*l.* of additional annual rent for each acre so broken up, and that not as a penal but a stipulated rent. And in regard to the cultivation of the said lands of E. it is hereby expressly provided and declared that at no time during the currency of this lease shall there be more than one crop suffered to mature its seed on the same ground without a fallow or green crop intervening; but providing that should the said C. D. or his foresaids see fit, he or they shall be allowed, but not oftener than once in six years, to take a crop of Beans, Peas, or other pulse crop. And it is further provided and declared that at no time during the currency of this lease shall any straw, fodder, or green crop be sold or carried off the farm, but shall all be consumed thereon. And further it is provided and declared, that at the termination of this lease the said C. D. or his foresaids shall leave to the proprietor or his incoming tenant at least one-third of the whole arable land as a fallow brake. And further, in consideration of much of the said lands of E. being wet, the said A. B. hereby binds and obliges himself and his foresaids to thorough drain all the said wet land, and that within the first five years of this lease, for which the said C. D. binds and obliges himself and his foresaids to pay to the said A. B. and his foresaids, or to his or their agent for the time being in addition to and along with the rent aforesaid, 5 per cent. per annum on the amount so expended, commencing the first payment at the first term after the work is done. And further, upon the said C. D. or his foresaids leaving the said farm of E. at the conclusion of this lease, viz. Michaelmas 1867, the said A. B. binds and obliges himself and his foresaids, or his or their in-coming tenant, to give to the said C. D., or his foresaids, full permission to consume his Turnips and other green crops, as well as straw, in the yards and farm-buildings, of which he shall retain occupation until the following Lady-day (but providing that the in-coming tenant shall have the use of the stable, hay-room, cart-shed, and dwelling-house); also permission to consume such a portion of his root crop in the field on which they have grown as he may, according to his usual practice, deem advisable, the occupation of these fields being allowed him until the 1st of Feb. in the following year (1868); also the market value (to be determined by neutral men mutually chosen, or their umpire) of all made manure which may be on the farm or premises when he finally leaves them at Lady-day, as aforesaid; also the full value of all Clover and hay-seed sown, according to his usual practice, with his last grain crop;* also half the cost of the manure and cultivation of his or their last fallow crops, the same to be determined by the referees aforesaid, according to their real cost and value respectively. And further the said C. D. binds and obliges himself and his foresaids to remove forth and from the said farm of E. at the aforesaid term of Michaelmas, with the exceptions above mentioned; and finally to remove his or their servants, cattle, goods, and chattels at foresaid term of Lady-day, 1868, without any warning whatever, and in case of failure the said C. D. binds and obliges himself and his foresaids to pay to the said A. B. or his foresaids, or to his or their agent for the time, 4*l.* sterling of additional rent for each acre so occupied after the aforesaid terms of removal, and that not as a penal, but as a stipulated rent. And lastly both parties bind and oblige themselves and their foresaids to fulfil the foregoing covenants to each other, and that under a penalty of £ sterling, to be paid by the party failing to the party observing or willing to observe, and that over and above performance; and consent to the registration hereof in the books of council and session, or others competent, therein to remain for preservation; and, if necessary, that letters of horning, and all other execution, may pass hereon in form as effeirs, and for that purpose constitute our procurators."

"In witness whereof, &c."

* The next claim, though most desirable, I have never seen in a Scotch lease.

Home Correspondence.

Tenant Rights.—The tenant right question appears to me to have never yet been presented fairly to public consideration. It is the subject of frequent discussion at farmers' clubs, and has not seldom been handled by your own correspondents; yet I confess my opinion that there have been great defects in the arguments hitherto brought forward, arising chiefly from their one-sidedness, whilst the case itself has been shrouded too much in generalities. With your permission I will throw out a few scattered ideas on the subject, for the purpose of promoting reflection and future discussion amongst your numerous correspondents interested in the question. If I have rightly collected the prevailing sentiments at the discussions I have before alluded to, I shall be correct in stating the tenant's demand to be, that at the termination of his tenancy he shall receive compensation from his landlord or the in-coming tenant for the improved condition of his farm during his occupancy, whether from the erection or repair of buildings, drainage, or superior management of his land, such improvements having been accomplished at the tenant's cost exclusively. Now it must be evident to all dispassionate minds that a claim so broadly based as this would operate with the greatest injustice to landlords, and would ultimately re-act against tenants. I admit that it is the duty as well as the interest of a landlord to grant his tenant such a term and interest in the land as will enable him to secure a beneficial return from the investment of his capital in the best and most approved system of husbandry, and I assume a 21 years' lease absolute to be the proper period; but having done this, I deny that a tenant can have any just claim on his landlord for compensation at the end of his term for any improvements he may make on his farm, whether by drainage or superior cultivation, or otherwise, unless by mutual agreement between them. The landlord has an absolute moral right to expect that his land shall be managed according to the most improved course of husbandry; and if we are to have recourse to legislative enactments to settle the relative rights between landlord and tenant, I do not know that a more reasonable

provision, and the more likely to work well for both classes, and also for the community, could be introduced than a legislative clause, restricting landlords from letting their lands to tenants possessing less than 10*l.* an acre capital, in stock and money, and rendering it imperative upon them, under the penalty of a competent labour rate, to maintain in annual employ such a number of labourers on the land as, according to a survey to be made septennially of the parish, shall be awarded to be requisite for the full and complete management of land on the most approved system of husbandry. Something of this sort, in conjunction with an act abolishing the duties on all building materials, and compelling the landowners to build wholesome and comfortable cottages for their labourers, would soon empty the union-houses—those sinks of disease and demoralization, reduce the poor-rate, reclaim morals, and bring the land into such a state of fertility and beauty as to gratify both the moral and physical sense.—*R. L.*

White Mustard.—Having seen in the "Journal of the Royal Agricultural Society," vol. vii., page 31, a prize Essay on White Mustard, by Thomas Cooke Burroughes, recommending it as a green crop to be grown on poor land and ploughed in as manure for crop of Wheat, I shall be much obliged to you or any of the readers of your widely-circulated paper for information on this subject, arising either from their experience or from their observation of the practice of others. The result of the experiments tried by Mr. Burroughes, appears to me to be of the utmost consequence to the occupiers of mountain lands, as there are millions of acres in this kingdom at present destined to the starvation of a few poor miserable sheep; but which if made capable of producing tolerable crops of corn at so cheap a rate as that related by Mr. Burroughes, will in future render this kingdom independent of foreign supply. By paring, burning, and liming an old sward, we get a crop of Buckwheat, which if ploughed down will give a tolerable crop of Wheat, which is generally followed by a crop of Barley or Oats, and there the matter ends, as the land by such practice becomes so deteriorated as to be incapable of producing more than a poor crop of Grass, and the land is generally left untilled for many years before it can again be pared and burnt with a chance of success, as Buckwheat sown without a good supply of ashes will not produce more than a thin stunted crop not half sufficient to plough down as manure for a crop of any sort of corn. Is there anything beside White Mustard which may be expected to produce on our poor thin soils a sufficient green crop to be ploughed down as manure? Sir Humphrey Davy in his "Agricultural Lectures," page 243, says: "All green succulent plants contain saccharine or mucilaginous matter, with woody fibre and readily ferment. They cannot, therefore, if intended for manure, be used too soon after their death. When green crops are to be employed for enriching a soil, they should be ploughed in, if it be possible, when in flower, or at the time the flower is beginning to appear; for it is at this period that they contain the largest quantity of easily soluble matter. Green crops, pond-weeds, the paring of hedges and ditches, or any kind of fresh vegetable matter, require no preparation to fit them for manure. The decomposition slowly proceeds beneath the soil. The soluble matters are gradually dissolved, and the slight fermentation that goes on, checked by the want of a free communication of air, tends to render the woody fibre soluble without occasioning the rapid dissipation of elastic matter." May I beg the favour of an early insertion of the above in your excellent paper as may be convenient, as I apprehend there are many thousands of the occupiers of mountain lands who are deeply interested in the information they may receive through your means as well as—*A Mountaineer.*

Prevention of Foot-rot in Shed-feeding Sheep.—In reply to "Thomas Dixon's" inquiry respecting the foot-rot in shed-feeding sheep, I beg to refer him to Mr. Karkeek's prize report of the Farming of Cornwall, in the "Journal of the Royal Agricultural Society," page 450, where it is stated, "that the foot-rot was easily prevented by carting a quantity of earth, in the form of a mound, in the centre of the yard attached to the shed, upon which are occasionally strewed small quantities of slaked lime, and that simple remedy has prevented the disease."—*From a Correspondent.*

The Principles of Draining.—Experience had long shown to me the important difference between drains of 2½ and 4 feet in depth many years before Mr. Parkes had written on the subject, and so satisfactorily removed all doubts by his conclusive reasonings and experiments. I had found out that the deepest drains were the cheapest, most durable, and far more effectual in all soils: hence in all my practice I have long since abandoned putting in any in arable land at less than four feet. I have repeatedly had to redrain land that had been previously drained at shallow depths, and seen that the deeper drains run first, the longest, and discharged the greatest volume, and removed the cold damp from the surface, which the shallower had failed to do. The practice of shallow draining has arisen from the erroneous impression prevailing that their use is to take the surface water, and not to permit it to first soak down, whereas no rain water should pass off the ground, but all should be encouraged to go through it, and which, with proper tillage and drainage, it will do. Drains are intended to prevent the return of water upwards, and not to admit water from above. That draining is so little understood is hardly to be wondered at, when we consider that until Mr. Parkes's attention was directed to it, the practice had been generally confined to tenant farmers, and the advantages derived from extended experience and science were unknown. I confess, until I had read Mr. Parkes's Essay on "The Temperature of Soils as affected by Drainage," I was at a loss to give satisfactory explanations for my practice, although I had come to the same conclusion that reading his works will, I think, at once bring every one. To his works I would refer all who are about to drain, for it is a lamentable fact that by far the greater portion of the money spent in draining is comparatively lost, and as yet few are aware of the full benefit to be gained. One of the most important benefits to be derived from drainage is a higher temperature in the spring of the surface soil—a benefit of extreme importance in our climate, but which is not fully attained by drains of less than 4 feet deep, and scarcely felt at all when only 2½ feet. If rain passes through the soil to the depth of 4 feet, the temperature of the soil, by the passage of the water, is considerably raised; whilst on the contrary, if drained only 2½ feet down, the water from below is soaked upwards to the surface by capillary attraction, and will be continually passing off by evaporation—this rise of water, and the effect of evaporation producing extreme cold in the spring, appears too often unknown. I have drained all descriptions of soil, and as yet have never seen occasion to drain arable land less than 4 feet in depth, nor at distances less than 35 feet; of course the distance from 35 feet upwards will vary with the character of the soil, the lighter requiring fewer drains; but I take 4 feet to be the best depth for all soils, and the least expensive. I pay 9*d.* per rod for cutting and laying and filling-in 4 feet drains; but labour in England varies considerably. There are draining tools, which, in the hands of men accustomed to them and to the work, enable them to earn 3*s.* or 3*s.* 6*d.* per day at this rate of pay per rod. There is no material equal to tiles or pipes. The labour of picking and breaking stones is nearly equivalent to the cost of tiles. Where fuel is moderate, 1½-inch tiles may be made at from 10*s.* to 18*s.* per 1000, the cost of coals being from 8*s.* to 28*s.* per ton; and about 750 are sufficient for an acre at 40 feet distances. If tiles are used, no stones should be put on them. I put a little Heath or straw on the tiles to prevent their dislodgement by the fall of the earth in filling in, or soil working in at the joints. At the prices I have given draining costs from 65*s.* to 90*s.* per acre, including carriage of materials; I never use pipes or tiles less than 1½ inch bore. I think the use of stones alone is objectionable, and have lately heard great complaints where they have been used, and the draining cost from 8*l.* to 9*l.* per acre. All drains should be carried directly up the fall, never across. The object in view should be ever to give an even current with the greatest fall, and then there is every chance of the drain being permanent and always washing itself clean. A knowledge of geology will much assist in arranging the direction of the drains; cutting across the lines of strata or deposits lets out the water that lies between them. Before draining examine your land by sinking little wells 4 or 5 feet deep; and if you find a porous substratum that allows water to freely pass down, and you are not shown that water rises in winter, do not drain, for no benefit can accrue therefrom.—*Hewitt Davis.*

Tenant Rights.—When I penned my former letter to you on this subject, to which your correspondent, "A Northumberland Farmer," takes so much exception, I of course expected that it would provoke some angry replies, and was prepared to sustain them as every man ought to be who ventures to mingle passion with argument. Allow me, however, to set my northern friend right on one or two points where he has fallen into error. Your correspondent "R. L." is not "A Lincoln's-inn Receiver." He is what he represented himself to be, a landlord; and one whose tenants do not clamour for tenants' rights; one who has always been ready to meet his tenants more than half way in any improvements they may require or suggest on their lands, whether in draining or the erection of farm buildings, removal of timber or otherwise. Whether "A Northumberland Farmer" be what he represents himself I entertain some doubts. I happen to know something of the north; a shrewd race inhabit there, and should it really be the locale of your correspondent, the "Amateur," I feel inclined to believe he must have emigrated thither from Cockney-land, perhaps from Lincoln's-inn; in which case one may reasonably account for his unprofitable farming, and why his landlord refuses to drain for such a tenant. Badinage however apart, I wish to say that, according to my experience, no respectable landlord ever refuses to grant his tenant such a term and interest in his farm as will render him secure of a remunerating return from an outlay in capital in the improvement of it; for although some landlords will not grant leases, it is well known and understood that the security of tenure is equivalent to a lease so long as the tenant fulfils his part of the contract, and that in my judgment the increasing clamour for tenants' rights springs from one of the marked vices of the present times, viz., an inordinate thirst for emancipation from all ties and obligations, civil and religious. They have cast off the church, and the next attempt will be to reduce the land-owner to the condition of a mere annuitant. This will not, however, be accomplished without a struggle.—*R. L.*

House-fed Cattle.—There can be no doubt, if there is any truth in Liebig's doctrine, that a beast or sheep stall or shed-fed will produce the greatest quantity of animal food, on a given quantity of food; but I believe it has also been proved that a cow will give more milk when stall-fed, and the milk will throw up more cream (I am speaking particularly of winter), than when she is suffered to range throughout the day or a portion of it on a meadow, although she may be housed at night and secure a fair allowance of roots and hay. Whether there is more profit in one way or the other is not the point at which at present I wish to arrive; but do you not conceive that the flesh of a beast or sheep which is allowed the greatest quantity of liberty consistent with making a sufficiency of fat, would be not only more agreeable to the palate, but more wholesome; and that the cream of a cow so treated would make superior butter. [We should imagine so.] By wholesome, I mean more easily digested by the debilitated stomachs of those who move in the higher classes of life. Venison eaters all know that it is not worth eating if it has been fed in small enclosures, and is far inferior to good mutton, although it may be made very fat. Why should not the flesh of beef and mutton suffer in the same way; and if this be so, I can see no reason why a man who kills his own mutton and partakes of his own dairy should deteriorate the quality of either for the sake of a little quantity. There is nothing more unpatriotic in it than in preserving game, which certainly eat and destroy food which would produce far greater weights than their own carcases if consumed by domesticated animals. This said game, by the way, and venison (properly reared), are always recommended by the faculty when the digestive powers are not in plough-boy order. Is not this confirmative of my views? To determine this point is of more importance than any at first sight appear; for it is next to impossible for the class of persons I am speaking of to carry out the unnatural system to perfection; it requires the constant attention of the principal, and the chances are, if he attempt it, that as much (or more) food is consumed or wasted as in the more natural way [No! No!], and if I am right in my conjectures, he puts into his unfortunate stomach a worse quality of food.—*W. C.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held at the Society's house, in Hanover-square, on Wednesday, the 9th December; present, the EARL of EGMONT, President, in the chair, Duke of Richmond, Lord Portman, Lord Southampton, Hon. R. W. Wilson, Sir Matthew White Ridley, Bart., David Barclay, Esq., M.P., Thomas Raymond Barker, Esq., Samuel Bennett, Esq., Humphrey Brandreth, Esq., W. R. Browne, Esq., Colonel Challoner, John Bell Crompton, Esq., Richard Garrett, Esq., Brandreth Gibbs, Esq., W. G. Hayter, Esq., M.P., C. Hillyard, Esq., W. Fisher Hobbs, Esq., John Hudson, Esq., Samuel Jonas, Esq., John Kinder, Esq., Philip Pusey, Esq., M.P., Professor Sewell, William Shaw, Esq., William Shaw, jun., Esq., H. S. Thompson, Esq., George Turner, Esq., Thomas Umbers, Esq., W. B. Wingate, Esq., B. Almack, Esq., J. B. Browne, Esq., Rev. Daniel Gwilt, Rev. James Linton, Samuel Solly, Esq., Thos. Tweed, Esq., and F. E. Williams, Esq.

The following new members were elected:—

Freeman, John Gardner, Rockfield, Hadleford
Nash, Thomas T., Great Chesterford, Saffron Walden, Essex
Greg, Thomas, Ballymenock, Belfast
Douglas, Rev. H. B. Cockburn, Weaverthorpe, Sledmere, Yorks
Sampson, Samuel, Gloucester road, Regent's Park, London
Longmore, George, Orleton Court Farm, Ludlow, Salop
Smith, James, Ickleshan, Rye, Sussex
Rummell, Thomas, Sturry-road, Canterbury
Fowler, Richard, jun., Graveley Hill House, Birmingham
Harrison, Rev. Robert John, Caerhowel, Welshpool
Jones, Joseph, Welshpool, Montgomeryshire
Green, Daniel, Fingringhoe, Colchester, Essex
Oswald, Thomas, Old Palace, Croydon, Surrey
Ramsden, Henry, Ledstone, Pontefract, Yorkshire
Sancton, Philip, The Ley, Ley Lane, St. Alban's, Herts
Jackson, Charles Roger, Barton, Preston, Lancashire.

The names of 10 candidates for election into the Society at the next meeting were then read.

PRIZE ESSAYS.—Mr. PUSEY, M.P., chairman of the Journal Committee, reported the adjudication of prizes for Essays.

MISCELLANEOUS COMMUNICATIONS.

1. Communications from Viscount Palmerston, H.M. Principal Secretary of State for the Foreign Department, having reference to Reports on the Potato Disease in Poland and the United States of America.
2. Communications on the Potato Disease, from Mr. Darby, Dr. Reidy, Mr. Whytell, Mr. Rogers, Mr. Tillcard Ward, and Mr. C. Williams.
3. A Paper on Mineral Poisons used as Therapeutic Agents by the Agriculturist, from Mr. Read, of Crediton.
4. Specimens of Soil from a field in Jamaica, on the property of Mr. Beckford, known as the "Lightning Field," on account of its peculiar liability to injury during thunder-storms.
5. A communication from Dr. Spurgin, of Guildford-street, explaining the construction and advantages of a portable contrivance for supplying given quantities of liquid manure to the roots of plants.
6. Communications from Mr. Dean and Mr. Charnock on Draining Tiles.
7. A copy of Mr. Bayldon's new Work on Grasses, illustrated by natural specimens dried for the purpose, and guarded in the alternate leaves of the work on pages opposite to the letter-press.
8. Papers from Mr. Coxworthy, requesting the appointment of a committee for the consideration of his suggestions.
9. Letter from Dr. Dickson in reference to his work on Flax.
10. Paper from Dr. Murray on Hydrophobia.
11. Report from Mr. Dean on the progress made in carrying into effect the provisions of the Contagious and Epidemic Diseases Prevention Act in the parish of Tottenham.
12. Specimen of Asphaltine, for economical roofing, from Mr. Davies, of Driffwich.
13. Letters from Mr. Mumford, Mr. Piper, Mr. Fairbank, and Mr. Martin, on Wheat.
14. Letter from Mr. Salmon, of Bristol, on Guano

15. Letter from Mr. Broadhead, of Stalmsby Mill, on the preservation of Hay and Corn.
16. A communication from Mr. Osborn, on the application of steam-power to the cultivation of land.
17. A present from Mr. Shaw, of Cotton End, near Northampton, of a Hay and Corn Rick Borer, made by Samuel Ashley, of Northampton; capable of boring horizontally as well as perpendicularly, and thus forming apertures in different directions into the stack, by means of which a more complete circulation of air is effected.
18. A present from Mr. Casella, of Hatton Garden, of a self-registering Thermometer.
19. A present from Mr. Henry Strafford, of Moreton Villas, Camden Town, of the 6th volume (in continuation by him) of Coates's Herd Book of short-horned Cattle.
20. A present from Mr. T. C. Eyton, of Donnerville, Wellington, Salop, of the 1st volume of the Herd Book of Hereford Cattle.
21. A present from Mr. Glover, Secretary to the Newcastle Farmers' Club, of a copy of his paper on the cultivation of Flax, and the fattening of Cattle by Box-feeding.
22. A present from the Royal Society of Agriculture at Lyons, of the current volume of their Transactions.
23. A plan for an Agricultural Repository, from Mr. A. F. Campbell.

The Council, having ordered thanks to be returned for the favour of these communications, adjourned, on the motion of Mr. Raymond Barker, over the usual Christmas recess, to the first Wednesday in February.

A Special Council, by order of the President, was then held, at which Lord Portman, as Chairman of the General Northampton Committee, reported to the Council the recommendations of that Committee, which were unanimously adopted; and the Report of the Council to the General Meeting on the ensuing Saturday, was unanimously agreed to.

A Special Council, under the Bye-laws of the Society, was held on Thursday, the 10th of December: present, the Earl of Egmont, President, in the chair; Duke of Richmond, Sir Matthew White Ridley, Bart., Thomas Raymond Barker, Esq., S. Bennett, Esq., H. Brandreth, Esq., Colonel Challoner, F. C. Cherry, Esq., John Bell Crompton, Esq., S. Druce, Esq., John Ellman, Esq., R. Garrett, Esq., B. Gibbs, Esq., C. Hillyard, Esq., W. Fisher Hobbs, Esq., S. Jonas Esq., John Kinder, Esq., Philip Pusey, Esq., M.P., Professor Sewell, William Shaw, Esq., William Shaw, jun., Esq., John Villiers Shelley, Esq., Robert Smith, Esq., W. R. C. Stansfield, Esq., M.P., Charles Stokes, Esq., H. S. Thompson, Esq., George Turner, Esq., and Thomas Umbers, Esq.

Sir Matthew Ridley having laid before the Council a communication from Mr. Robertson, of Lees, near Coldstream, in reference to the condition applied to the Society's prize at Newcastle for thorough-bred Stallions; and Mr. Shelley a letter from Mr. Parkes, the consulting engineer to the Society, on the subject of the Prizes for Implements, the Council proceeded to the consideration and discussion of the several Prizes for the Northampton Meeting in 1847; and having arranged the Prize-sheet for that occasion, in which a sum of 1500*l.* is appropriated to the Prizes of next year (independently of the sum of 350*l.* previously voted for Essays and Reports), the Council declared the prizes to be finally determined, and ordered printed copies of the new Prize-sheet to be immediately prepared, for the purpose of being laid on the table at the ensuing General Meeting for the information of the members. The President notified his intention to direct a special Council to be summoned in February next, for the purpose of apportioning the sum voted for Implements into distinct prizes for competition.

Mr. Raymond Barker gave notice that, at the Monthly Council in February, he should move the "reconsideration of the Report from the Collection of Subscriptions Committee, with a view to limit its operations within the originally prescribed counties, and eventually to bring its labours to a close."

The Duke of Richmond presented to the Society, from Gordon Castle, a compact fibrous mass, obtained from a drain which it had entirely choked up to the extent of from 4 to 5 feet. The fibres had proceeded from the roots of an Ash-tree, growing at a distance of 15 feet from the drains, which were 2½ feet deep, and had been in operation for 18 months.

The December General Meeting was held on Saturday last, the 12th of December, the Earl of Egmont, President, in the Chair. The Secretary read the following Report, which was unanimously adopted by the Meeting:—

In commencing this report, the Council have no hesitation in stating that not only have facts of important practical bearing been obtained through the agency of the Society, from the varied localities of the kingdom, and again made known through the pages of the *Journal* to its members residing in every district throughout the country, but a spirit of inquiry on the best means of effecting agricultural improvements has been excited, both in individuals who have extensive opportunities of carrying out their views, and in local associations already established for agricultural objects, through which the amount of experience has been increased, and a firmer foundation laid for more secure advancement. Experiment has been actively at work, both in testing the accuracy of reported facts, and ascertaining for further application the conditions under which they have occurred, as well as in furnishing suggestions for new modes of practice, to be again submitted to the same strict practical investigation of condition and occurrence.

For the purpose of obtaining new and important facts, the Council, in addition to the prizes of the Society for Reports and Essays on various subjects, have been enabled, through the liberality of the Duke of Northumberland, the Marquis of Downshire, and Major Curteis, M.P., to enlarge the offer of its premiums. For the attainment of the same end by distinct research, they have concluded a satisfactory arrangement for an experimental investigation into the relation existing between the composition of the ashes of a plant and the fixed elements essentially required to be present in the manure or soil in which it is grown; and the first report by Professors Way and Ogston, of the Royal Agricultural College of Cirencester, will appear in the forthcoming part of the Journal. In the communication of information, the Council have not only made every increased exertion, at no inconsiderable expense, to facilitate the transmission of the Journal to the various members of the Society, but have enlarged the opportunities afforded by lectures and discussions for the elucidation or illustration of subjects of a practical and scientific character. The lectures of Professor Johnston and Mr. Parkes, at Newcastle, and the discussions to which they gave rise, formed a new and most successful feature in the Annual Country Meeting of the present year, held at that place.

The Council were so well satisfied with the result of the first trial of a discussion on the questions of practical interest and personal experience connected with agriculture at Newcastle, that they have resolved to make arrangements for a similar opportunity for the interchange of opinion on such topics, under similar regulations.

The Society has this year, in the course of its prescribed circuit, held its Country Meeting in the district comprised of the northern counties of England, and remote from the localities of former years; but they have the satisfaction of recording, that in every point of view the Newcastle Meeting has been a most successful one, not only in the fine exhibition of stock, and the trial of implements, but in the opportunity which it has afforded the Members of the Society of experiencing the hearty welcome, and the lively participation of the farmers of that district in the common object of their mutual interest. To Dr. Headlam, the Mayor, and the members of the corporation; to Sir Matthew Ridley, the Chairman, and the Members of the Local Committee; and to all the other individuals and public bodies in Newcastle and its neighbourhood, who had laid the Society under deep obligation by their zealous and efficient co-operation, the Council have had the grateful task of returning their unqualified thanks.

In consequence of parties having in many instances made entries for the Society's Shows and subsequently failed to send their stock or implements so entered, the Council have found it requisite to agree to the following rule, for the purpose of prevention:—

"That for the purpose of checking the entry of cattle and implements, which are not intended to be exhibited, a fine of 10*s.* per head for beasts and horses, and 10*s.* per pen for sheep or pigs, and 5*s.* or implements under, or 10*s.* for those of the price of 10*l.* or upwards, be charged on every animal or pen of animals, or implement entered and not exhibited, unless a certificate shall be sent to the Secretary on or before the day of exhibition, that the non-exhibition is caused by unavoidable accident. And that the Director and Stewards of the Yard be requested to report the names of the parties who have not exhibited as entered at the Show, or neglected to pay the fines."

The Council have also resolved to discontinue the Sale by Auction in the Show Yard at the Country Meetings of the Society.

The Journal Committee have reported during the past half-year the following adjudication of Prizes for Essays, namely—

To George Phillips, analytical Chemist to the Excise, the prize of 50 sovs., on the Duke of Northumberland's foundation, for the best Essay on the Remedy for the Potato Disease, and on its treatment in the various stages of planting, growth, and preservation.

To Henry Cox, of Longford's House, Minchinhampton, the prize of 20 sovs., on the Duke of Northumberland's foundation, for the second best Essay on the same subject.

To F. J. Graham, of Cranford, near Hounslow, the prize of 30 sovs., on the Duke of Northumberland's foundation, for the best History of the Disease at the present time affecting the Potato, involving a condensed detail of facts developed by experiments.

To Hugh Raynbird, of Bury St. Edmund's, the prize of 20 sovs. for the best Essay on Peat Charcoal, as a manure for Turnips and other crops.

To Wm. Pyle Taunton, of Ashley, near Stockbridge, Hants, the prize of 10 sovs. for the best account of the St. John's Day Rye.

The Council have accepted the liberal offer of the Marquis of Downshire to add 30*l.* to the sum of 20*l.* already voted by the Society for the best Essay on the Cultivation and Management of Flax, to be sent to the Secretary on or before the 1st of March, 1847.

The Finance Committee have reported that during the past half year 302 new members have been elected, 56 have died, and 789 have been struck off the list by order of the Council; and the Society now consists of—

Life Governors	89
Annual Governors	201
Life Members	587
Annual Members	5532
Honorary Members	20
	6429

Of the above 789 members whose names have been expunged, 519 are those of Members whose subscriptions for the years 1841 and 1842 have remained unpaid on the books of the Society for the last four years, and are still undischarged. Their names have been struck off the list of the Society by order of the Council, on the special recommendation of the Finance Committee.

The Committee have also presented the following statement of the arrears of subscription, made up to the first day of the present month.

Amount of arrears due for—

1843	£456
1844	911
1845	1520
1846	2488
	£5375

Of the amount of the arrears for 1846, nearly one-half has been discharged during the last ten days.

They have also reported that the capital of the Society invested in the public Funds stands at 7,000*l.* Stock, and that the current cash balance in the hands of the Society's bankers on the 1st inst. was 1,395*l.*

The auditors will lay before the Members the Half-yearly Balance-sheet of Accounts as audited by them on the part of the Society.

In filling up the vacancy in the list of the Trustees, occurring through the lamented decease of Mr. Handley, by the unanimous election of Lord Portman to that office, the Council have recorded on their minutes an expression of their deep sense of the severe loss the Society has sustained in the removal from its Councils of one so intimately connected with its existence and establishment as one of its founders.

In conclusion, the Council beg to congratulate the Members on the increasing usefulness of the Society, and on its steady progress in the prosecution of those national objects for which it was founded. They feel, however, that it is only by the individual interest and co-operation of its numerous Members, each within their local sphere, in carrying out its practical views, that its vigour and vitality can be efficiently maintained. And they repeat the invitation to the Members at large, to favour the Council not only with their attendance at the Weekly Meetings in London, and at the Meetings in the Country, but also from time to time with such practical suggestions and communications of interesting facts connected with the various topics of agricultural improvement as may promote both the objects of the Society and the public good.

By order of the Council,
James Hudson, Secretary.

London, Dec. 9, 1846.

Farmers' Clubs.

Smithfield Club: *Tenant Rights.*—At the annual dinner of this Society, Mr. Pusey, M.P., referred to this subject. He said he had told them last year that he was drawing up some agreement on the subject which he could send to his tenants. Since that time, with the assistance of Mr. B. Almack, he had done so, and he was glad to say that the result exceeded his anticipations. Indeed, one of his tenants was so anxious to commence building that having himself a salutary dread of bricks and mortar, and indeed all expenses above ground, though he thought they could not spend too much on draining, he was obliged to prevent his doing so. He was convinced the subject of the tenant-right was the life or death of practical agriculture. He could not then enter more upon the question; all he could say was, that he trusted before the Club met again it would make some decided practical progress.—The Duke of Richmond said, in the course of a speech: Before he sat down he must make one observation respecting what Mr. Pusey had said about tenant-right. He must be permitted to say that he thought the phrase "tenant-right" was an unfortunate phrase, inasmuch as it conveyed not to his mind, but to that of the landlords of the country an idea which it was not meant that it should convey. What he meant by tenant-right (and he hoped that in advocating it he should never be found backward) was justice to the tenantry of the country. No man would go further than the individual addressing them in doing justice to the tenantry of the country; but in this free country they must permit him to say that the choice of expression was a matter of great importance indeed. He believed that some years ago, when the question was first brought forward, if, instead of the phrase "tenant-right," they had adopted the phrase "justice to the tenant," at the present moment that justice would have been done to them which he believed was not done in many parts of this country. Many of them must be aware, coming as they did from various districts, that there was in this country considerable difference in what was called the custom of the country. Now he wished, if it were practicable, to see one general custom established by law for all; or, if it were incorrect there to refer to law, he wished to see one universal feeling among the landowners and occupiers of the country as to the system on which a tenant should leave his farm. If a tenant laid out a large sum of money in the improvement of the soil, he thought that if he were removed he ought to receive the value of the unexhausted improvements. He felt that it was of great importance this question should be settled. He did not doubt that it could soon be carried out, and he could assure them that, as president of that club, or an individual landowner, they should not find him backward in attempting it. The noble duke, in conclusion, urged the expediency of union between owners, occupiers, and labourers, as essential to the interests of the nation; and resumed his seat amid protracted acclamations.—Mr. Pusey, M.P., explained that he fully agreed with the chairman that "tenant-right" was an unfortunate phrase, but he had merely used it as one in common use, and generally understood. He thought the phrase

unfortunate, because it appeared as if the interest of the tenant was adverse to that of the landlord; but he was convinced that nothing could be more favourable to the interests of the landlords than that their tenants should have this right, because they would be induced to lay out money as soon as they had this security for doing so. All the landlord was required to say, and it was no great boon, was, that the outgoing tenant should receive this again from the incoming tenant.

DURHAM.—*The Tenants' Rights.*—At the late monthly meeting of this Club the following discussion took place on this subject.

MR. SPEARMAN, who introduced the discussion, said,—The resolutions, then, which I shall commence by submitting to you, are as follows:—"1. That in the case of a tenancy from year to year or other short term, it is highly advisable that an express stipulation be entered into by the parties, in the form of an agreement in writing, securing to the tenant remuneration for all such outlay as he may have made beyond ordinary good cultivation, and on which he shall not have been reimbursed before the determination of his tenancy: but that the interference of the legislature would be inexpedient; 2. That though this species of tenancy may be considered the best when circumstances render it impracticable to calculate the average price of agricultural produce for a series of years to come, yet when this is not impracticable, the best species of tenancy is a lease for a considerable period of years at a fixed rent." In supporting these resolutions I shall, with your permission, reverse their order by applying myself, in the first instance, to that which stands the last, and alleges the superiority of a tenancy under a long lease with a fixed rent. That it is infinitely preferable to any other species of tenancy where the circumstances adverted to in the resolution admit its adoption, whether considered in regard to the interests of the tenant, the landlord, or the community at large, long and most attentive consideration of the subject has thoroughly convinced me. And here I must be permitted to say a few words in reference to the interests of the tenant on a subject on which we have recently heard a great deal, namely, "tenant independence," and on which I must say I think we have heard a great deal of idle declamation, and of very shallow and mischievous sophistry. The present posture of agricultural affairs in this county does certainly, as we all frequently hear, demand great and increased exertions on the part of the farmers, and I for one, though a landlord, have, as most of the members of this club know, always maintained that it will also require most considerate and liberal dealing with their tenants on the part of the landlord. I sincerely believe the landlords of this country are well disposed thus to deal with their tenantry, to attend to and promptly to comply with their just claims. What then is the meaning of the cry about tenants' independence, as though it were a something to be wrested from landlords, and for which a war with them is to be waged? Rely on it, every man, tenant or not, has his independence in his own keeping, and I fear the battle to be done for its preservation is most frequently required to be done with ourselves. Do I counsel dependence? God forbid. No; rather pay to the uttermost farthing the value of your land than compromise your independence by throwing in a modicum of subservience to eke out rent. What is there in the relationship between landlord and tenant at this day necessarily interfering with independence, at least when the tenant pays the full value of that for which he has contracted, and takes common precautions in having his contract properly ratified? It is no small part of wisdom, however, to avoid placing ourselves in the way of temptation; and if annually or frequently negotiating a renewal of a tenancy, in which increase or diminution of rent is a prevailing topic, has or may have a tendency to induce the adoption of modes of payment other than money or money's worth, tending to a compromise of independence, then I say in a tenancy for a long term at a fixed rent we find the best security against temptation, and the best protection for independence. It has been urged undoubtedly that a long lease is not advantageous to the landlord, because a tenant, though cultivating his farm well during the early part of his holding, may be induced to relax towards the end of it, with a view to avoid having his rents raised on retaking it. This view of the matter is but a bad compliment to the honesty of the tenant farmers, and one which I am inclined to think they do not deserve; and it appears to me no less an ill compliment to their judgment. I am sure, at least, I address myself to no one now who would not rather give a high rent for land in a good state of cultivation, than a low rent for one in a contrary state; but, however this may be, I feel confident that the objection may be met by a well drawn lease, in which considerable latitude may be left to the tenant in the matter of management and rotation during the early part of his term, but in which he should be restricted in these particulars towards its conclusion, and be bound to give up his farm at the end of it in a high state of cultivation. Another great recommendation which a tenancy under a long lease, at either a fixed or fluctuating rent, possesses over a short lease under the tenant-right system, consists in its exemption from the everlasting round of valuations, arbitrations, and litigation, which form a necessary part of the latter system, and which, so far far as my experience has gone, generally terminate to the dissatisfaction of all parties. My second proposition admits, however, that, to render the adoption of the long-lease and fixed-rent system advisable, we should be in a situation to calculate pretty accurately what may be the average price of agricultural produce for a series of years to come; and I am afraid that, as yet, we are not so circumstanced. I am happy to think that allusion to the subject of Corn-laws and protection is not prohibited by the rules of our Society. We all remember the discussion it underwent some years ago, and I dare say it is not forgotten that I had the misfortune of standing pretty nearly alone on that occasion. I am happy to think, moreover, that none of those heats and animosities were thereby engendered which some gentlemen out of doors, as the phrase is, prognosticated. It will, perhaps, be recollected that one of the grounds on which I then advocated abandonment of protection and recourse to a natural state of things, was that by that means alone, would the tenant farmer be enabled to calculate safely on future prices, with a view to long leases and fixed rents—no dependence being to be placed on artificial prices, trimming legislators, and expediency statesmen; and I do not think that subsequent events have at all tended to alter my opinion. I owe it to truth and to candour to say that the present high prices, which I think likely at least to be maintained till our next harvest, despite the material alteration that has been effected in our Corn-laws, form no part of my calculation; and I am bound to say I think them attributable to peculiar circumstances, and that they will not be ultimately maintained. I think, then, that some time must yet elapse before any real farmer's friend can recommend to him the adoption of the long term and fixed-rent system; and next in merit, according to my first resolution, stands a tenancy for a short period with tenant-right stipulations. I know no language too strong in which to impress upon the tenant farmer who, under a yearly or other short holding, purposes anything like spirited farming, the wisdom and prudence and propriety of stipulating, according to the terms of my first resolution, "in the form of an agreement in writing, for remuneration for all such outlay as he may have made beyond ordinary good cultivation, and on which he shall not have been reimbursed before the determination of his tenancy." I have used the terms "outlay on which he shall not have been reimbursed," in preference to "unexhausted improvement," the common expression, because I do not think it a happy one, implying strictly, as it seems to me, more than the advocates of the tenant right system really intend. An equivalent for all that may remain unexhausted of improvement can only be claimed on the ground that the tenant if continuing would have had a right to go on actually to this kind of exhaustion, which I do not think is contended for: all I believe to be meant, at least all I mean, is a remuneration for outlay on which reimbursement shall not have taken place on the tenant's leaving his farm. Considerable practical difficulties do certainly present themselves in carrying out this form of tenancy. I do not think, however, that these are insurmountable difficulties. But, addressing myself now to the question, whether the interference of the legislature be or be not expedient, one cannot but ask how, if these matters be of difficult adjustment by parties having only their own peculiar case to provide for, is the legislature to be expected to deal with them. Every case must, as I have said, have its peculiar circumstances for which the parties concerned might, I think, provide; but how is the legislature to form a code of stipulations calculated to meet and to supply in advance what may be required in all possible and imaginary cases? All this, I maintain, can be much better effected by the parties themselves, which seems to me to present one of the great objections to legislative interference. But, furthermore, how would it consist with justice and policy were the legislature to confer on one set of men the power of rendering another responsible—rendering them in short debtors to an unlimited amount, without, in legal phrase, their knowledge, consent, or privity, directly, perhaps, contrary to their wish had they had an opportunity of expressing it, and to an amount it may be beyond their ability to pay. I have heard it said, however—"Oh, we don't mean that landowners should be made responsible in this way unconditionally; it must be provided that they have notice of what is going to be done and be consenting." But if this sort of option be left them, if they are to possess a veto, then it resolves itself into a matter of stipulation and agreement after all, which as I have so often said, needs not legislative interference, and can be best arranged without. In short, the legislature is to be called upon to do either a work of mere supererogation or of injustice and impolicy. I shall conclude by moving the adoption of the resolutions I have submitted to you.

The Rev. J. TYSON said—Mr. Spearman in the most handsome manner has referred to the independence of the tenant. Now I hold that to be a perfect bugbear. I cannot understand how a tenant or any other man can be independent. We are all dependent one upon another—knit together like unto a golden chain which hangs from the heavens to the earth. None of us are independent of one another, and I think it is one of the most beautiful provisions of Providence that this is so. Whatever may be the power that unites us—whether it is from character or from station, or the bestowal of favours, or gratitude for those favours bestowed, it appears to me that mankind are so bound up together that no one can be independent of another. In this country I hope that what is called the independence of the tenant will never occur; for if it were, extreme differences of opinion, and what I should call a disagreeable catastrophe would ensue. It would place the tenant and landlord in antagonist positions, and the present beautiful arrangement would be destroyed. Now the one receives and the other bestows—the landlord looks upon the tenant as a person he is interested in aiding and assisting, and thus society goes on flourishing, and I should deeply regret if anything were to occur to disturb the harmony which thus exists. Mr. Tyson then referred to and opposed Mr. Spearman's views on the Corn-laws.

THOMAS CROFTON, Esq., of Holywell, said: I will allude to a matter which seems to have escaped the attention of Mr. Spearman when he talked of tenants' rights and the taking of leases, which I consider of the highest importance, and that is the injury done to a farm by game. This is a source of greater grievance to a farmer than almost any other. A tenant takes a farm, for instance, and he neglects to make a reservation that the game upon it shall be his; the landlord comes and stocks the farm with game, what, I ask, is the position of that individual? You may talk about improving the land, but I am of opinion that all the improvements to which allusion has been made are of secondary importance compared to this subject. The injury committed by game is almost incalculable. I believe there is one farm upon the estate of Lord Prudhoe where, a few years ago, the whole of the crops were destroyed by game; I know of several others which I need not mention, and I believe that unfortunately game is greatly increasing in our own neighbourhood. Now, what I would recommend the tenant to do under these circumstances is this—when he thinks of taking a lease, take it upon the principle adopted by the Dean and Chapter of Durham, namely, a lease for 21 years, renewable every seven. I know of no plan more secure than this, and it is one which would do away with all those vexatious grounds of objection to which allusion has been made. In that lease he must also have a reservation that the game shall be his property. It is all very well for gentlemen to talk about enjoying the sports of the field, and thus preserving an enormous amount of game; but supposing such a reservation as I have described were granted in all cases, I feel quite certain that there is such a spirit in the British farmer that where he knows he has a landlord who is a sportsman he will protect to the utmost the game that he may require. At the same time I must be permitted to observe that there is that spirit in him which will not allow him to condescend to support that game when he sees that it is preserved for the benefit of the gamekeeper or his friends, and that when killed it is exposed for sale in the public market. I, for one, will never take a lease without a reservation secures me the game, and if the game is not to be mine, I will not take a lease at all. When we see a landlord desirous of possessing sporting occupation, no farmer will oppose his wishes. All he wants is fair compensation for the injury which that game may commit, and I believe there is not a tenant in this country who is not anxious to see his landlord supplied with game if he desires it. But when the whole crops are destroyed by rabbits or other game, I think it is but fair and reasonable that the tenant should possess the right of destroying them.—The discussion was afterwards adjourned.—*Abridged from a Durham paper.*

DORKING: *Planting of Coppice Woods.*—On the 3d inst., the meeting of the club took place. Mr. WILSON, steward to the Duke of Norfolk, read a paper upon the best method of managing woods and copses. The principal topic alluded to were the great importance, in a county like Surrey, that they should have the best opportunity of bringing the timber to the greatest perfection, and to yield a good return. Although he had had some experience in these matters, he could have wished the subject had fallen into abler hands to speak upon. He hoped, however, they would give him credit for endeavouring to be useful. First, in planting the timber, it was as necessary to prepare the land as it was to do so for a crop of corn; and the first thing necessary to be done was to form a boundary that sheep and cattle might not get in—the land cleared from water—and he recommended for this open ditches instead of under-draining. If the land was wet the trees became covered with parasites, which would materially injure the timber. The ditches should be from 18 to 24 inches deep. The pits should be two feet in diameter, one foot in depth, and six feet apart. For Fir, nine inches deep he considered sufficient; if the plantation was intended for profit only one sort of tree must be planted, if for ornament, quite a different sort. He would recommend—first, Oak and Fir; second, Oak, Elm, Oak and Ash—and he would particularly recommend one species of Oak—the Quercus sessiliflora, and not the Quercus pedunculata, which was far inferior. These were the most profitable. Mr. Wilson then detailed the various purposes to which these, as well as Beech, were applied, as well as the Spanish Chestnut. In the latter great care should be taken to obtain foreign seed, for if not, the trees never grew into much value. When the trees were thinned out the hard wood should be left at the distance of 20 or 30 yards apart, so that the boughs of one should not more than touch those of another. In order to afford a little shelter he would plant a few Larch, but he would not recommend much of this. If the plants should throw out more than one shoot the first year they should be broken off, and the ditch should be well cleaned out every two years. If the proprietor wished for a quick return—from a calculation he had made of the cost and produce of an acre of Larch, at the end of seven or eight years it left a balance of 4*l.* 19*s.* 8*d.*, which was upwards of 10*s.* per acre; but if for timber, and reckoning 40 years as sufficient, the profit, we understood, would be 264*l.* 10*s.*, or 6*l.* 13*s.* 3*d.* per year. He was not very nice in his calculation, but he believed he was correct. In reference to woodlands and underwoods, he recommended they should be planted in groups—and if any blanks arose they should be filled up in the autumn. He did not consider it desirable to grow timber and copse together.

Mr. WELLER said, in reference to planting, he thought it was quite a landlord's question; he entirely agreed with most of the remarks made by Mr. Wilson, to whom they were much obliged, but he did not quite agree with him as to planting underwoods in groups; he thought it would be a decided failure. He would plant all descriptions of wood, and if one did not answer he would plant rods or layers; he would recommend layers of Ash, Hazel, and especially that sort that had but little leaf; he would then plant Birch and Willow. There was one suggestion thrown out which he thought was very important, viz., separating the rods and layers from the stem. He thought trees in hedgerows should be entirely condemned; he thought the failure in the Turnip crop was frequently owing to this and the copses, and that all timber should be grown quite distinct from the corn fields.

Mr. BARCLAY, in reference to the growth of Larch, said a friend of his had had some land which was not worth 5*s.* per acre annually, and would not sell for more than 10*l.* or 12*l.* He had planted it with Larch some years since, and it was now worth 70*l.* per acre. He thought for timber plantations there should not be any copse allowed to grow. In reference to cutting trees, he was of opinion they were all wrong. He knew one gentleman who would not cut a single tree till they attained perfection, and he cut upon an estate of 2000 acres 30,000*l.* worth. He (Mr. Barclay) was inclined to think there was something in the Oak which was injurious to corn more than the shade it threw out, as he had noticed that field which had the most sun next the Oak the corn appeared more injured than the other side. Regarding the value of timber, when he and his brother went to Earl Lovelace's some time since, he talked of cutting 20,000*l.* worth. He (Mr. Barclay) had made a calculation of the difference if he had cut it in 1812 (during the war), and he found he would have obtained in the first place 40,000*l.* instead of 20,000*l*; and if it had been invested in the three per cents., it would have amounted to 200,000*l.* by this time. He thought it desirable in double spading, which he had done, to let the soil taken from the surface be returned to the surface again, and it was important to keep it free from weeds; in one place where he had neglected doing so, the trees did not grow for two or three years. As soon as his copse was cut, he went with his woodman and marked every tree that did not grow, and cut it down. In reference to timber in hedgerows, he was an advocate for larger fields, and not having any timber trees in the hedges; but he thought a few in meadows was beneficial, as they afforded shelter for the cattle. Another great benefit to the farmer he thought would be the destruction of hares, and he strongly advised the cutting off all splices the first year from the wood.

Reviews.

Blights of the Wheat and their Remedies. By Rev. E. Sidney. Religious Tract Society. London.

THIS little volume is one of a series issued at monthly intervals by the Tract Society—"Original, Scriptural, Popular, Portable, and Economical" Treatises on Historical, Descriptive, Scientific, and other subjects. They are very cheap—6*d.* a volume, and must obtain an immense circulation. The present number is full of information, very attractively told, of the highest interest to the farmer. The fungi attacking the straw, leaves, and chaff, flour and grain of our crops; the animalcules and insects to whose attacks they are liable, are the subjects discussed by Mr. Sidney. He gives their history and habits, and suggests remedies for, and preventives of the injury done by them. The following extract illustrates the style and character of the work:

"To return to the bunt; we may observe as before, that of the multitude of its sporules or fine contents no adequate conception can be formed. One grain of

Wheat is capable of containing four millions of spores; it is therefore beyond all calculation what quantity of sporules these may send forth. Care of the seed is the only way to prevent the encroachments of this pest, which will otherwise appear in almost every field of Wheat. The way in which this happens, is by most writers on the subject considered to be that when the grain is threshed, or from other causes, the bunted seeds are ruptured, and the cloud of sporules then escapes. They are of a greasy, oily nature, and consequently adhere to the skin of the sound grains. It is quite certain that the disease may be at any time propagated by rubbing sound Wheat against that which is infested by the fungus. If, then, the seed be sown in this condition, the result may be easily predicted. The method also of counteracting the evil at once suggests itself. It is merely to cleanse the Wheat which is about to be sown, from all the bunt which may have attached itself to it by reason of its unctuous character. The principle of effecting this object clearly must be, to use means to convert the oily matter which causes it to stick obstinately, into a saponaceous, or soapy matter, which will allow it to be readily washed off. Chemistry here comes to our aid. An alkali will convert oil into soap; and this is the basis of all effectual dressing, as it is called, of the seed-corn. Almost every district has its peculiar dressing, but the best are merely modifications of this principle. Whatever other ingredients may be used, the effective constituent is some alkaline matter in the form of a ley. Lime, which possesses alkaline properties, has accordingly been not unfrequently resorted to: it must not, however, be too much slaked in mixing, or it loses these properties, and thus often fails. Common potash, and substances containing ammonia, as, for example, the liquid excrements of animals, have been adopted for remedies. Some persons employ brine, sulphate of copper, arsenic, and other things not possessing alkaline qualities. Whenever these methods succeed it cannot be for the reasons advanced, but it may happen that they destroy the vegetative powers of the fungi, though they still remain fixed to the grain. It would be well to follow the advice given by Professor Henslow, and to institute a set of experiments on these points. They are curious and interesting questions; and indeed many things relating to these fungi still require minute and accurate investigation. It is unquestionable, however, that a good dressing of an alkaline ley thoroughly applied, completely arrests the evil. Whatever may be the views of some as to the value of sulphate of copper, it is obvious that the application of arsenic is undesirable, and indeed improper, from the dangers attendant on the use of so violent a poison. Nor are such things necessary, on account of the efficacy of the dressings upon the principle before mentioned. Indeed, in the fields of careful farmers, bunt has happily become rare.

"It is difficult to apply the same precaution against the smut, or *Uredo segetum* with equally good effect, because the scattering of the spores at an earlier season diffuses them extensively. But Barley fields, where they often adhere longer than in Wheat, ought to be more attended to than they are; for a great quantity of this grain is almost every year destroyed by it. As knowledge advances, it is to be hoped the prejudice which leads some to regard the appearance of this fungus with the complacency before mentioned, will be removed. It may happen that the state of the atmosphere which is favourable to its development, tends to a good yield of Barley; but it should be remembered that every ear so destroyed is a loss of superior corn. By all means dress Barley where there has been much smut the previous year. In this year, 1846, it is most lamentably prevalent.

"With regard to the *Uredo fœtida*, although judicious dressing has been found to check it to such a beneficial degree, that it is considered to be bad management to have much of it on any farm, it still abounds in districts where the agriculture is of an inferior kind. It is also found to prevail more in the spring than in the autumn sown Wheats. The safeguard is the perfect purity and cleanliness of the seed. When mixed with the flour it is excessively disagreeable; but whether it is injurious to health is not quite decided, though it probably does produce ill effects on the constitution."

Miscellaneous.

The Case of James O'Neill, of Garvagh: Advantage of Rape in Cow-feeding.—This man was a complete pauper when Lord Gosford bought the Graham estate; but, by the assistance and instructions afforded to him, had got his small portion of land into a good state, and last summer I lent him a sow, seeing that he would be able by proper attention to have kept her in the house all the year. He had not been possessed of one for years, perhaps never in his life; but his conduct did not afterwards show him to be deserving of what had been done for him. He would not sow his Rape in proper time, as he was desired, and I was at last obliged to discharge him from the work at Gosford, before he would be at the trouble of doing so. This neglect occasioned the crop to be late coming forward in spring, and he also wasted his Turnips, in beginning to them before they were ripe, and using them extravagantly, they were all finished before the Rape was fit for cutting. This being the case, he turned his cow into the Rape to graze, by which the crop was completely destroyed; and this failing, he put the cow to graze upon the young Clover. This being soon eat down, I found the animal eating the tender shoots of the young quicks, in one of the new made ditches, when, upon inquiry, all the foregoing circumstances came out. Being provoked at such conduct, I ordered the cow to be sold; but, when the day of sale came, he was able, from the improved state of his farm, to get one of his neighbours to go security for the payment of his arrears, his rent, and the price of his cow; and also that he would buy Rape elsewhere, and feed his cow in the house, as I required; upon which I did not persist in my intention of selling her. He accordingly bought a small piece of Rape ground (10 Irish perches, or 70 yards long, and 2 yards broad), which, with a little dry fodder, kept his cow in full milk for 30 days; and, upon that feeding, gave 14 quarts daily, whereas, upon dry food, she had fallen off to half the quantity. The immense produce of Rape, when well manured, is beyond anything almost that can be imagined, if let stand until it gets into blossom, which was the case in this instance. Manure makes the stalk tender and juicy which would otherwise be hard and dry, so that if cut into small pieces, not a bit will be lost, and it grows to a height of 6 feet. I am almost afraid to say that I believe, with the addition of some straw, an acre will keep 30 head of cattle in full milk for a month. I state these particulars to show you the folly and blindness of this man to his own interest. By neglecting to sow the Rape in proper time, it was not ready to supply the place of his Turnips, and everything went wrong by this first neglect, which appeared to him of no importance. If the Turnips had been properly managed they would have lasted out longer; if the Rape had been properly treated, it would have been ready sooner; and, if it had not been trampled down, would have lasted until the Clover supplied its place, and everything would have answered in its turn. Now he has been obliged to buy from others, at the rate of fully 10*l.* an acre, that Rape which his own land would have supplied him with in abundance, and he has injured his Clover so that he will lose half the benefit of it. But the advantage of the Rape is seen particularly in this, that, notwithstanding the high price he paid for it, it was better for him to buy it than to feed his cow on straw, even supposing he had got the straw for nothing, which is very easily demonstrated:

For the 14 quarts produced by the Rape feeding, at 1½*d.* a quart, comes to	1*s.* 9*d.*
The price paid for it only cost 2*d.* per day, to which add ½ stone of straw, 1*d.* (being at the rate of 16*d.* per 112 lbs., which is above the general price of that article), and the expense, daily, comes to	0 3
Leaving a clear profit, per day, arising from feeding on Rape, of	1 6

When the cow had been fed on straw, she only gave seven quarts, and very soon would have given still less, the price of which, daily, would be only 10½*d*; therefore, if he got the straw for nothing, he would only have 10½*d.* a day by the cow; whereas, after paying for the Rape, he gained 18*d.*; but if he had to pay for the straw (the cow would require 3 stone, which, at 16*d.* a cwt., would be 6*d.*, and deducting this from 10½*d.*, the price of the seven quarts of milk), there would only be a profit by the cow of 4½*d.* a day, in place of the 18*d.* a day yielded by the Rape. The same thing may be proved in regard to Turnip feeding in winter. If a cow calves at November, and is fed on Turnips, she will keep up her milking; but, if fed on straw, she will fall off immediately to half the quantity. Now, allowing the acre of Turnips to be worth 10*l.*, which is more than any other crop generally produces, and reckoning the produce at 30 tons (although, by good cultivation, Mr. Mitchell had 55 tons to the acre last year):

The 5 stone of Turnips, which I reckon good daily feeding for a milch cow, would cost	0*s.* 2½*d.*
And a stone of straw would cost, at 16*d.* a cwt. ..	0 2
Total cost per day for Turnips and straw	0 4½

whereas, 3 stone of straw, which she would require if fed on straw alone, at 16*d.* per cwt., comes to 6*d.* a day; so that, by the use of Turnips in winter, it appears you can feed your cow (after allowing 10*l.* an acre for the farm) at 1½*d.* a day less than upon straw alone, and you get double the quantity of milk; so that one cow fed in this way yields you fully as much milk as two would give fed on straw, and the manure is also twice as valuable. This ought to show you all the error you fall into. When you talk of keeping a cow all the winter upon straw, you merely talk of keeping her alive, but your object should be to keep her so as to yield you a profit; and this can only be done by keeping her on moist food, which, I have shown you above, it is more profitable for you to do than to feed her on straw, supposing the straw was made a present to you.—*Blacker's Essay on Small Farms.*

Notices to Correspondents.

An Acre of Land—*J Grey*—If drained, you should dig it up to the full depth of the soil as soon as you can, in perch-wide beds. Manure it well, and sow ½ of an acre to Mangold Wurzel, ¼ of an acre to Carrots, ¼ of an acre to Lucerne, and the other quarter to Vetches, to be sown during the first open weather, and to be succeeded by Rye for fodder early next spring. A part of the Carrot-land should be devoted to the Early Horn variety (the remainder to the White Belgian), and as soon as the land is cleared of that, which will be by September, you can transplant some early Cabbage-plants for early spring food; and a corner must be found for some Cabbage-plants to be planted in March for consumption in August and September. But if you want to keep two cows, you must buy some hay for them in addition to this.

Biggs' Composition—*R J G*—The information you ask for would be taxable as an advertisement: Mr. Biggs should advertise.

Books—*W Cardiff*—Blacker's "Essay on Small Farms;" and we have no specific work on swine, except a "Prize Essay" by P. L. Simmonds; but there are chapters in most works on agriculture; see Low on "Practical Agriculture."

Devon Farm—*A Would-be Farmer*—We would not take a dry arable farm larger than our capital would cover 10*l.* per acre thick; and if it were wet, it would take other 4*l.* per acre to drain it, though that of course might be done piecemeal. As regards your predecessor, you will probably be required to pay him for Clover seed in the land, for his Wheat in the land, for all labour connected with the Wheat, for all stubbles ploughed, for any manure he may have on the farm, for his straw. You ought to pay him just as he was required to pay *his* predecessor. And the more liberal (in reason) towards the outgoing tenant that his successor is required to be, the better. As regards hay, we have farmed for years without using any. The quantity you will require will depend on what other food you give; 2 lbs. a piece daily to the sheep, 10 lbs. a piece daily to the cattle, and 15 lbs. a piece, besides corn, daily to the horses, in addition to roots, will be well repaid. You cannot give cattle better food than the mixed Linseed and Beans, and hay chaff with Turnips, which Mr. Warnes recommends. Further, another time.

Drainage, &c.—*Very Stupid*—Five feet deep, 20 feet apart, is unnecessarily expensive; 3 feet 6 in. deep and 30 feet apart would be as good and cheaper. The water ram would not do for you; it is suitable in places where there is great abundance of water and little fall; nine-tenths of the water goes to waste, and one-tenth of the water which passes through it in your case, would, we imagine, hardly be enough for you. A ram might be made as ornamental as you like, or it might be put altogether out of sight—the pump must not go within 18 inches of the bottom of the tank—which must be cleaned out once a year.—The gardener's judgment of the strength of the liquid must just be acquired by experience. We are not aware whether an instrument on the principle of the saccharometer would be applicable.—As regards the overflow of the manure tank, your having no outlet, except through a neighbour's nursery, need be no difficulty; he will be very glad to have the surplus. Some kinds of lime will set under water—that from the blue lias (in our neighbourhood) for instance: and with this you may build your tank.

Fatting Sheep—*Norice*—Our meaning was this:—That, assuming the carcase of your full-grown sheep to weigh, when the animal shall be fat, 25 lbs. a quarter, it will consume every day *now* on an average, 25 lbs. of roots, as Swedes, &c., if fed on them alone. Buy shearing sheep if you intend to give them cake, &c., as well as roots. You may do *very well* without hay if you give oil-cake, or some other dry food. Whether you would do *better* with it our experience cannot tell you.

Foot-rot—*Anon*—Pare the hoof down to the quick, apply a mixture of muriatic acid and tincture of myrrh, and put a rag about it. Next day rub on and into it a mixture of equal parts of alum, blue vitriol, gypsum, and Armenian bole. Mr. Glendinning, Turnham-green.

Frosted Turnips—*Constant Reader*—They will rot shortly after a rapid thaw: and under any circumstances they will not keep so well; get them consumed as quickly as possible. We have nowhere seen any report of Liebig's manures, and have not tried them ourselves.

Garden Farm—*Capstick*—We cannot find your passage. But the following mode of cropping would probably do:—¼ acre to Lucerne; ¼ acre to Vetches, followed by Cabbages; ¼ acre to Mangold Wurzel; ½ acre to patches of Early Horn Carrots, followed by Rye and early Cabbages, Parsnips, &c.; ½ acre to Belgian Carrots.

Jerusalem Artichoke—*M* asks for the experience of any of our correspondents on the cut stems of this plant as food for horses.

Local Matters—*H C*—We would by no means exclude *all* local matter—only such as can affect merely local interests. To do the former would be to exclude results of all kinds, and confine our remarks to theory exclusively. We are always anxious to give reports, especially when in detail of local farming, as they are far from exercising a merely local influence. At the same time, we are disposed to acquiesce in your criticism of the particular report to which you allude. —The Nimble Hog Pen may doubtless be obtained from any of the London seedsmen. The name is familiar to us.

Mangold Wurzel—*A Subscriber*—Of course it will not do to shift the roots during frost. The chief advantage of transplanting in autumn is, that the field they occupied may be sown with Wheat in proper season.

Mummy Wheat—*C C V*—We must refer you to Professor Henslow's letter at page 757.

Poultry-moulting—*T S E* says, it is well known that the coats of horses are improved by feeding on grains, &c.; can any of our experienced correspondents advise the like aid for the moulting of poultry? besides warmth and Hemp-seed, or Moss-seed, for cage-birds?——In answer to *T S, T S E* proposes to collect his data for his letters on Diseases of Poultry, if he should be restored to comparative health.

Small Farm—*Sub*—On looking over your letter again, we find it does not state the value of the land, nor its character, nor the neighbourhood of market (or is *all* its produce to be consumed), &c. Particulars necessary for "M. S." to know before he can assist you, which he will be happy to do. As regards your buildings, we would not recommend yards and sheds; try boxes: and it would be better were the straw barn nearer the cattle.

Soap Ashes—*W Cardiff*—You may apply 6 or 8 cart-loads per acre after they have been exposed to the air for some time. They consist of chalk and gypsum, and some kelp-ashes and salt, &c.

Spring Wheat—*B T*—The sorts you allude to we know to answer very well for spring sowing; but the Bellevue Talavera is perhaps our best spring variety.

To Preserve Turnips—*A Subscriber*—Certainly; keep them dry as well as warm. The plan we recommended has the three merits of keeping out frost, of keeping them dry, and of permitting free ventilation. About Guano see a Leading Article at page 761.

Waterproof Boots—*T G M*—Warm them and then rub on a little melted mixture of bees' wax and tallow, let them stand in a warm place for a bit, and then rub them dry. It will certainly make them stiff, but they will be waterproof.

Erratum—At page 827, col. *c*, in article "To have laying Poultry," seven lines from the end, for "satisfy," read "satiety."

Markets.

POTATOES.—Southwark, Waterside, Dec. 14.

The supply during the past week was very limited; but it was quite equal to the demand, and notwithstanding the cold and frosty weather the trade was by no means brisk. The following are the present prices:—

York Regents, 140s to 160s	Cambridgeshire Kidneys, 100s to 120
Do. Shaws, 120s to 140s	Kent and Essex Regents, 140s to 160
Lincolnshire Regents, 130s to 150s	Do. Shaws, — to —
Cambridgeshire Regents, 130s to 140s	Do. Kidneys, 140s
Do. Shaws, 120s to 140s	French Whites, 110s to 120s

Richard Marris.

HAY.—Per Load of 36 Trusses.

Whitechapel, Dec. 15.

Fine (Old Hay)	70s to 75s	Old Clover	80s to 85s		
Inferior Hay	55 60	Inferior	75 80	Straw	26s to 28s
New Hay	— —	New Clover	— —		

Cumberland Market, Dec. 17.

Prime Mead. Hay	70s to 75s	Old Clover	80s to 85s		
Inferior	55 60	Inferior do.	75 84	Straw	25s to 26s
New Hay	— —	New Clover	— —		

Joshua Baker, Hay Salesman.

HOPS, Friday, Dec. 18.

Messrs. Fattorini and Sons, Hop Factors, report that the Market is very firm, with a tendency to advance. Fine Hops with colour and quality were seldom so scarce at this season of the year.

COVENT GARDEN, Dec. 16.—Fruit and Vegetables are sufficient for the demand, and trade is a little brisker. Pine-apples are scarcer; and likely to become dearer, and Grapes, both English and Foreign, are scarce—the former rising in price. Apples and Pears are scarce and consequently rising in price. Oranges are excellent, and brought in greater abundance; but still continue to fetch good prices. Nuts are sufficient for the demand. Walnuts are scarcer, and there is little demand for Filberts. Lemons are rather more plentiful. Of Vegetables, Cabbages, Cauliflowers, &c., are good and plentiful. Carrots and Turnips have altered but little in price. A few French Beans have made their appearance. Celery is good in quality. Good Potatoes are scarce, and fetching good prices. Lettuces and other Salading are plentiful. Horseradish continues to be imported. Cut Flowers chiefly consist of Heaths, Jasmines, Camellias, Pelargoniums, Gardenias, Cacti, Neapolitan Violets, Luculia gratissima, Bignonia radicans, Roman Narcissus, Allamanda cathartica, Fuchsias, Azaleas, and Roses.

FRUITS.

Pine Apple, per lb., 4s to 7s	Almonds, per peck, 4s
Grapes, Hothouse, per lb., 2s to 8s	Sweet Almonds, per lb., 2s to 3s
— Portugal, per lb., 1d to 2d	Filberts, English, p. 100 lb., 100s to 120s
Apples, Dess., per bush., 6s to 12s	Nuts, Cob, per 100 lbs., 100s to 120s
— Kitchen, 2s to 3s	— Barcelona, 90s
Pears, per hf.-sieve, 12s to 16s	— Brazil, 14s to 16s
Oranges, per dozen, 1s to 3s	— Spanish, 14s
— per 100, 8s to 14s	Walnuts, per bushel, 10s to 24s
Lemons, per dozen, 1s to 3s	Chestnuts, per peck, 1s to 2s
— per 100, 6s to 14s	

VEGETABLES.

Cabbages, per doz., 6d to 1s 6d	Shallots, per lb., 6d to 10d
— red, per doz., 2s to 4s	Garlic, per lb., 6d to 8d
Savoys, per doz., 6d to 1s 6d	Spinach, per sieve, 1s 6d to 2s
Broccoli, per bundle, 1s to 2s	Asparagus, per 100, 3s to 7s
Cauliflowers, per doz., 4s to 10s	Seakale per punnet, 2s 6s to 4s
Artichokes, Jer., p. hf.-sieve, 1s to 2s	Salsify, p. bundle, 1s 3d to 1s 6d
French Beans, per 100 3s to 4s	Scorzonera, 1s 3d to 1s 6d
Sorrel, per hf.-sieve, 6d to 1s	Brussels Sprouts, p hf-sv 2s to 4s
Potatoes, per ton, 6l to 9l	Lettuce, Cos, per score, 1s to 1s 6d
— own, 8s to 10s	Endive, per score, 1s to 2s
— bushel, 3s to 6s	Beetshes, per doz bunches 1s to 1s 6d
— Kidneys, per bushel, 4s to 8s	Mushrooms, per punn, 6d to 1s 3d
Turnips, per doz bunches, 2s to 4s	Small Salads, per punnet, 6d to 9d
Red Beet, per doz., 1s to 1s 6d	Fennel, per bunch, 2d to 3d
Horse Radish, per bundle, 1s to 4s	Savory, per bunch, 3d to 6d
Cucumbers, each, 6d to 1s 6d	Thyme, per bunch 2d
Leeks, per doz., 2s to 4s	Watercress, p. 12 sm. bun. 6d to 9d
Celery, per bundle, 1s 6d to 2s	Parsley, per bunch, 1d to 2d
Carrots, per doz bunches, 4s to 7s	— Roots, per bundle, 1s to 1s 6d
Parsnips, per doz., 6d to 1s 6d	Tarragon, per bunch, 3d
Onions, per bushel, 6s to 9s	Mint, green, per bunch, 6d to 8d
— Spanish, per doz., 1s 6d to 2s	Marjoram, per bunch, 3d to 4d

SMITHFIELD, MONDAY, Dec. 14.—Per Stone of 8 lbs.

Best Scots, Herefords, &c.	4s	4	6s	8	Best Lamb-wool	4s	8	5s	4
Best Short Horns	4	8	4	6	Ditto (shorn)	—	—	—	—
Second quality Beasts	3	6	4	0	Ewes and second quality	4	0	4	6
Calves	4	0	4	8	Ditto (shorn)	—	—	—	—
Best Downs & Half-breds	5	0	5	4	Lambs	—	—	—	—
Ditto (shorn)	—	—	—	—	Pigs	4	0	5	0

Beasts, 3470. Sheep and Lambs, 26,570. Calves, 93. Pigs, 240.

On this the great Christmas Market-day, a large supply of good Beasts is always expected. This year we have a very superior show, and a larger number than usual, although not so many as was generally anticipated. Some of the choicest descriptions made 6s per 8 lbs—but these being extraordinary ones, and the occasion being also extraordinary, the price cannot be quoted as an average. The weather being so favourable, comparatively not a large number were left unsold. We are tolerably well supplied with Sheep—the general quality not very good. There are some superior Downs shown, which make about 5s 6d. Trade is not at all good for the biggest descriptions of Long Wools, and 4s 8d is quite the outside price of them. Trade for Calves is very slow. Pigs are more readily disposed of.

FRIDAY, Dec. 18.

The day considered our supply of Beasts is not large. The time to elapse between this and Christmas Day owing just as much as all is the convenience of the butcher; to prepare for that event causes a very brisk trade and the prices of Monday are fully sustained. A little advance is realised on a few of the choicest descriptions; but our tabular statement above gives a fair average of this day's transactions. These remarks apply also to the condition of the Sheep-trade. We have from Holland and Germany 150 Beasts and 800 Sheep. Trade for Calves continues to be very heavy—the best qualities with diffeulty make 4s 6d. Pork-trade is dull at late prices.

Beasts, 4470; Sheep and Lambs, 26,950; Calves, 190; Pigs, 280.

41, West Smithfield.

MARK-LANE, MONDAY, Dec. 14.

The supply of Wheat from Essex, Kent, and Suffolk, this morning was moderate, and sold at 3s per qr. over last Monday's prices. The demand for Foreign improves, and superior qualities are held firmly for an advance of 2s to 3s per qr.—secondary are comparatively neglected; but inferior meet an extensive sale at fully 3s to 4s per qr. more money. Barley is unaltered in value from this day se'nnight—secondary sorts, however, sell more freely.—Beans remain the same. Hog Peas are 1s, and Foreign White 1s to 2s per qr. dearer.—Oats find a better demand at late rates. Maize continues in great request, both afloat and for spring shipment, at rising prices.—The top price of town-made flour is fixed at 56s per sack, being an advance of 3s; barrels meet an improved inquiry, and must be noted 1s to 2s, and whole meal 10s per ton, higher.

BRITISH, PER IMPERIAL QUARTER.	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	—	White 60	68	Red	54 61
—— Norfolk, Lincolnshire, and Yorkshire	—	54	60	White	54 62
Barley, Malting and distilling Sussex	—	Chevalier	52	60	Grind. 32 34
Oats, Lincolnshire and Yorkshire	—	Polanda	28	30	Feed 26 29
—— Northumberland and Scotch	—	Feed	27	30	Potato 32 34
—— Irish	—	Feed	25	30	Potato 28 32
Malt, pale, ship	—	—	—	—	
—— Hertford and Essex	—	—	—	—	
Rye	—	—	40	44	
Beans, Mazagan, old and new	38	to	40	Tick	36 41
—— Pigeon, Hungerland	44	to	48	Winds	35 70
Peas, White	—	—	46	to 50	Maple 49 48

Harrow	38	48				
Longpod	38	45				
Grey	38	44				

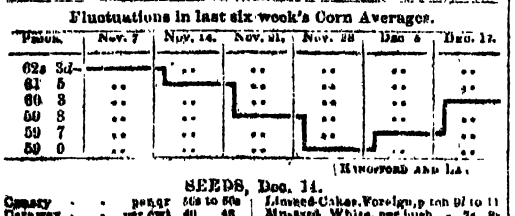
FRIDAY, Dec. 18.

On Wednesday a very considerable business was transacted in Wheat and flour at advancing prices. This morning the little English Wheat on sale realised 2s to 3s above our Monday's quotations. Foreign must be written 3s to 4s higher than on that day. Bonded is also in demand at 1s to 2s per qr. more money.—Barley must be noted 2s per qr., White Peas 3s to 4s per qr. dearer. Beans are held for higher rates, Egyptian 2s to 3s per qr.—Oats sell readily at 2s per qr. advance.—The top price of flour has been raised to 60s per sack. Barrels are 2s dearer. Whole Meal 10s per ton.—Of Maize there is little offering.

IMPERIAL AVERAGES.

		Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Nov.	7 per Quarter	60s 3d.	44s 5d.	27s 8	41s 8d	45s 6d	46s 1d
—	14	61 6	44 6	28 9	42 4	46 10	46 10
—	21	59 8	42 11	28 10	42 7	46 4	48 0
—	28	59 0	44 9	28 11	41 8	45 10	47 6
Dec.	5	59 7	42 11	28 7	40 8	44 4	48 0
—	12	60 3	43 1	28 5	40 11	45 0	48 7
6 weeks' Aggreg. Aver.		60 4	43 5	28 5	41 8	45 11	49 1
Duties on Foreign Grain		4 0	2 0	1 0	2 0	2 0	2 0

Fluctuations in last six week's Corn Averages.



SEEDS, Dec. 14.

Canary	per qr	56s	to	60s	Linseed-Cakes, Foreign, p ton	9l	to 11
Caraway	per cwt	40		48	Mustard, White, per bush	7s	8s
Clover, Red, English	—	—		—	— superfine	—	—
— Foreign	—	—		—	— Brown	9	11
— White, English	—	—		—	Rapeseed, English, per last	21l	24l
— Foreign	—	—		—	Rape Cakes per ton	—	6l
Coriander	—	10		10	Saintfoin	—	—
Hempseed	per qr.	34		36	Tares, Essex, winter, p. bush.	4s	5s 6d
Linseed	per qr.	50		51	— Foreign	—	4s 6d 5s
— Baltic	—	45		47	Trefoil per cwt.	1l	1l
— Cakes, Eng. per 1000		12l		13	Turnip (too variable for quotation)		

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

ANNUAL COUNTRY MEETING OF 1847, TO BE HELD AT NORTHAMPTON,

In the District comprising the Counties of Bedford, Berks, Buckingham, Hertford, Huntingdon, Northampton, Oxford, and Warwick.

The principal day of the Show will be THURSDAY, the 15th of JULY, unless prevented by the appointment of the County Assizes.

The Prizes are open to General Competition. Members have the privilege of a Free Entry, but Non-subscribers are allowed to Compete, on the payment of a Fee of 5s. on each Certificate. Forms of Certificate to be procured on application to the Secretary, 12, Hanover-square, London. All Certificates for Implements must be returned, filled up, to the Secretary, on or before the FIRST OF MAY, and all other Certificates by the FIRST OF JUNE; the Council having decided that in no case whatever shall any Certificate be received after those dates respectively.

*** *The usual Auction Sale in the Show-yard will be discontinued.*

PRIZES FOR IMPROVING THE BREED OF CATTLE: 1847.

SHORT-HORNS.

CLASS 1.—To the owner of the best Bull calved previously to the 1st of January, 1845. 50*l*.
To the owner of the second-best ditto, ditto. 20*l*.
2.—To the owner of the best Bull calved since the 1st of January, 1845, and more than 1 year old. 20*l*.
To the owner of the second-best ditto. 10*l*.
3.—To the owner of the best Cow in milk or in calf. 20*l*.
(In the case of the Cow being in calf and not in milk, the prize will not be given until she is certified to have produced a calf.)
To the owner of the second-best ditto. 10*l*.
4.—To the owner of the best in-calf Heifer, not exceeding 3 years old. 15*l*.
5.—To the owner of the best Yearling Heifer. 10*l*.

HEREFORDS.

CLASS 1.—To the owner of the best Bull calved previously to the 1st of January, 1845. 50*l*.
To the owner of the second-best ditto, ditto. 20*l*.
2.—To the owner of the best Bull calved since the 1st of January, 1845, and more than 1 year old. 20*l*.
To the owner of the second-best ditto. 10*l*.
3.—To the owner of the best Cow in milk or in calf. 20*l*.
(In the case of the Cow being in calf and not in milk, the prize will not be given until she is certified to have produced a calf.)
To the owner of the second-best ditto. 10*l*.
4.—To the owner of the best in-calf Heifer, not exceeding 3 years old. 15*l*.
5.—To the owner of the best Yearling Heifer. 10*l*.

DEVONS.

CLASS 1.—To the owner of the best Bull calved previously to the 1st of January, 1845. 50*l*.
To the owner of the second-best ditto, ditto. 20*l*.
2.—To the owner of the best Bull calved since the 1st of January, 1845, and more than 1 year old. 20*l*.
To the owner of the second-best ditto. 10*l*.
3.—To the owner of the best Cow in milk or in calf. 20*l*.
(In the case of the Cow being in calf and not in milk, the prize will not be given until she is certified to have produced a calf.)
To the owner of the second-best ditto. 10*l*.
4.—To the owner of the best in-calf Heifer, not exceeding 3 years old. 15*l*.
5.—To the owner of the best Yearling Heifer. 10*l*.

CATTLE OF ANY BREED.

Not qualified to compete in the foregoing Classes.
(Cross-bred Animals will be excluded.)

CLASS 1.—To the owner of the best Bull calved previously to the 1st of January, 1845. 25*l*.
To the owner of the second-best ditto. 10*l*.
2.—To the owner of the best Bull calved since the 1st of January, 1845, and more than 1 year old. 15*l*.
3.—To the owner of the best Cow in milk or in calf. 15*l*.
(In the case of the Cow being in calf and not in milk, the prize will not be given until she is certified to have produced a calf.)
4.—To the owner of the best in-calf Heifer, not exceeding 3 years old. 10*l*.
5.—To the owner of the best Yearling Heifer. 10*l*.

HORSES.

CLASS 1.—To the owner of the best Stallion for Agricultural Purposes, of any age. 40*l*.
To the owner of the second-best ditto, ditto. 15*l*.
2.—To the owner of the best 3 years old ditto. 15*l*.
3.—To the owner of the best 2 years old ditto. 15*l*.
4.—To the owner of the best Mare and Foal for Agricultural Purposes. 20*l*.
To the owner of the second-best ditto. 10*l*.
5.—To the owner of the best 2 years old Filly. 10*l*.

SHEEP.

PRIZES FOR IMPROVING THE BREED OF SHEEP: 1847.

LEICESTERS.

CLASS 1.—To the owner of the best Shearling Ram. 40*l*.
To the owner of the second-best ditto. 15*l*.
2.—To the owner of the best Ram of any other age. 30*l*.
To the owner of the second-best ditto. 15*l*.
3.—To the owner of the best pen of Five Shearling Ewes. 20*l*.
To the owner of the second-best ditto, ditto. 10*l*.

SOUTH-DOWN SHEEP.

CLASS 1.—To the owner of the best Shearling Ram. 40*l*.
To the owner of the second-best ditto. 15*l*.
2.—To the owner of the best Ram of any other age. 30*l*.
To the owner of the second-best ditto. 15*l*.
3.—To the owner of the best pen of Five Shearling Ewes. 20*l*.
To the owner of the second-best ditto, ditto. 10*l*.

LONG-WOOLLED SHEEP.

Not qualified to compete at Leicesters.

CLASS 1.—To the owner of the best Shearling Ram. 40*l*.
To the owner of the second-best ditto. 15*l*.
2.—To the owner of the best Ram of any other age. 30*l*.
To the owner of the second-best ditto. 15*l*.
3.—To the owner of the best pen of Five Shearling Ewes. 20*l*.
To the owner of the second-best ditto, ditto. 10*l*.

PIGS.

CLASS 1.—To the owner of the best Boar of a large breed. 15*l*.
To the owner of the second-best ditto, ditto. 5*l*.
2.—To the owner of the best Boar of a small breed. 15*l*.
To the owner of the second-best ditto, ditto. 5*l*.
3.—To the owner of the best Breeding Sow of a large breed. 10*l*.
4.—To the owner of the best Breeding Sow of a small breed. 10*l*.
5.—To the owner of the best pen of 3 Breeding Sow-pigs of a large breed, of the same litter, above 6 and under 12 months old. 10*l*.
6.—To the owner of the best pen of 3 Breeding Sow-pigs, of a small breed, of the same litter, above 4 and under 10 months old. 10*l*.

CHEESE.

To the exhibitor of the best Hundred Weight of Cheese (of any kind) made within the District. 10*l*.
To the exhibitor of the second-best ditto. 5*l*.

AGRICULTURAL IMPLEMENTS.

A sum not exceeding 350*l*. The apportionment of this sum into specific prizes will be made by the Council in the month of February next. By order of the Council.
London, 10th December, 1846. JAMES HUDSON, Sec.

PHOSPHORIC RAT POISON.—This preparation is offered to the Public with the greatest confidence, being decidedly superior to all those poisons containing arsenic and other minerals. It is most greedily eaten by rats and mice as long as it is offered to them, and invariably proves certain destruction. Prepared only by EDWARD PRESSER, 30, Bridge-street, Blackfriars, London. Sold in pots, with full directions for use, at 4s., 8s., and 20s. each.

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PATENT ASPHALTE FELT, FOR ROOFING,
As adopted by Her Majesty's Woods and Forests, and by the ROYAL AGRICULTURAL SOCIETY OF ENGLAND, on their buildings at Newcastle-on-Tyne, and Hanover-square, London; also, by the leading members of the above and other Agricultural Societies of England, Scotland, and Ireland.

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*** An Assistant wanted in the above school after the Christmas vacation. A gentleman who could teach French and Drawing would be preferred. Good testimonials as to character, and a personal examination requisite. Salary according to ability, &c.

School will re-open January 13, 1847.

ROYAL POLYTECHNIC INSTITUTION.—(By Permission)—Professor SCHOENBEIN'S Gun Cotton, differing from all other specimens recently before the public, is lectured on, with other explosive Compounds, by Dr. Ryan, daily, at half-past three, and on the evenings of Mondays, Wednesdays, and Fridays. The principle of the Electric Telegraph demonstrated daily by Professor Bachhoffner, especially with reference to the new Patent of Messrs. Nott and Gamble, called the Royal Electro-Magnetic Telegraph. By the Oxy-Hydrogen Microscope are exhibited Specimens of the Diseased Potato, showing the Leaves, Cuttings of the Tubers, &c., together with the destructive Insect, supposed by A. Smee, Esq., F.R.S., to be the cause of the disease. The Physioscope, Diving Experiments, Dissolving Views by Smith, &c. &c. Admission 1s.; Schools, half-price.

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By Augmentation of the Sum Insured, or,
By Reduction of the Future Annual Premium.

Low Premiums, without Profits, particularly for Limited terms of years. Increasing, Decreasing, and other Kinds of Premium. Claims paid in 30 days after proof of Death. Prospectuses, Proposals, &c., may be obtained at the Office. Parties resident in the country are not required to appear personally in London. EDWIN CHARLTON, Secretary.

SCOTTISH UNION INSURANCE COMPANY.—THE ANNUAL GENERAL COURT of Proprietors of the Scottish Union Insurance Company was held in the Waterloo Hotel Edinburgh, on Wednesday, the 2d day of December, 1846 JOHN JARDINE, Esq., Sheriff of Ross-shire, in the chair

A report by the Directors, giving a detailed statement of the Company's affairs for the year ending 1st of August last, and embracing the results of the investigation into the life department for the five years preceding that date, was submitted to the Meeting and unanimously approved of

It was stated in the report that the business done in the life department during the past year considerably exceeded that done in the previous year, both in the number of policies issued, and in the amount insured

A bonus was declared upon all policies entitled to participate, effected prior to 1st August 1846 averaging more than one and three-quarters per cent per annum on the original sums insured

The following table exhibits the additions made to policies of 1,000*l* each which have been in existence 12 complete years, from 1st August 1834 —

Age when first Bonus for Assured under	Second Bonus, for Five years, from 1841 to 1846	Total Sum Payable in Case of Death
	£ s d	£ s d
30	113 7 6	72 3 8	1205 11 2
35	135 19 0	73 5 7	1209 2 7
40	138 15 6	74 9 7	1213 5 1
45	142 4 0	76 18 9	1219 7 9
50	148 17 6	81 8 4	1230 5 10

A Dividend was declared payable to the shareholders on 2d January 1847, at the rate of 6½ per cent, free of income tax.

London Offices, 37, Cornhill

Governor—His Grace the Duke of HAMILTON and BRANDON
Deputy Governor—The Most Noble the Marquis of QUEENSBERRY.

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By order of the Board, F. G. SMITH, Secretary.
Scottish Union Office 47 Cornhill London

PROVIDENT LIFE OFFICE, 50, Regent street, London, Established 1806.—Invested Capital 1,200,000*l* Annual Income 140,000*l* Bonuses declared 320,000*l*. Claims paid since the establishment of the Office 1,820,000*l*.

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1 The Rates of Premium are those adopted by the principal Life Offices at the rate without bonus is lower than that of most other Offices

2 The Bonuses are added to the Policies, or applied to the reduction of the Premiums or may be received in cash as soon as declared, at their then present value

3 Loans are granted upon the Policies issued by this Office or the Policies are purchased at their full value

4 If a party neglect to pay for the renewal of his Policy, he may regain the omission any time within 12 months, upon proof of good health

Bonuses paid upon Policies which have become CLAIMS.

Life Insured	Sum Insured	Sum paid
	£	£ s d
John Wharry Esq Skelton Castle	5000	7706 6 0
Sir J Johnstone Nobright Bart	5000	7652 13 4
Sir William Wake Bart	5000	7500 5 9
Lord Stormont	5000	7128 15 8
Rev T W Champneys Canterbury	3000	4500 1 1
The Marquis of Wellesley	2000	3411 1 1
Earl Cathcart	1000	1862 4 11

Prospectuses and full particulars may be obtained upon application at the Agents of the Office in all the principal towns of the United Kingdom and at the Head Office No 50 Regent street JOHN A BEAUMONT, Managing Director

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December 1846

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Do. for Meat only	0 6 6
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Lactometers, for Ascertaining the quality of Milk, with instructions	0 5 0
Hydrometers for Sulphuric Acid	0 5 0

Rain Gauges from 12*s* 6*d*, which show the quantity fallen in gallons per acre, and also in inches.

THE MAN IN THE MOON.

On the 1st of January, 1847, will be published, price 6*d*., edited by ALBERT SMITH and ANGUS B. REACH, Esq. I. of

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This PROBLEM is clearly demonstrated in the FARMERS' MAGAZINE for the 1st of December Office, 96, Norfolk-street, Strand May be had of all Booksellers Price 2*s*.

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Comparison between budding and grafting

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 52—1846.] SATURDAY, DECEMBER 26. [PRICE 6d.

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TO THE SUBSCRIBERS TO THE GARDENERS' BENEVOLENT INSTITUTION.—The favour of your vote and interest is earnestly solicited for JOHN MOORE, who is 78 years of age, has been a Gardener 60 years, living in first-rate situations, and has brought up a family of 12 children; but is now incapable of work through old age, and being badly afflicted with Rheumatism. His testimonials are of the highest order, and his case (which is a truly deserving one) is strongly recommended by the following:—Messrs. Noble, 152, Fleet-street; Messrs. Garaway, Mayes, and Co., Durdham-Down Nursery, Bristol; Mr. J. C. Wheeler, Kingsholm Nursery, Gloucester.

DOUBLE ITALIAN TUBEROSE ROOTS, 4s. per dozen.—The above named Bulb, famous for its beauty and the fragrance of its blossom, has been just received from Italy, and may be obtained at A. CORBETT'S Italian and Foreign Warehouse, 18, Pall Mall. A choice collection of Orange, Lemon, Citron, and Shaddock Trees; Azorian, Catalonian, and Arabian Jasmines expected in January next.

AMERICAN POTATO SEED.

J. M. THORBURN AND CO., SEEDSMEN, &c., 15, John-street, New York, U. S., offer for Sale (price 5l. 5s. per lb., or 10s. 6d. per oz.) 25 lbs. of the finest WHITE KIDNEY POTATO SEED, raised the present year in one of the Northern States, by an experienced farmer, with the utmost care, from Potatoes entirely free from disease; indeed the opinion is prevalent in America among practical men, that roots affected with the rot do not mature the blossom, and of course are seedless. Whether this theory is correct or not, it is certain the Seed now offered was gathered from a vigorous healthy field.

Orders, with a remittance, will meet with prompt attention, or may be left with Mr. GEORGE CHARLWOOD, Covent-garden, London, where a sample of the Seed may be seen.

EVERGREENS. — The unrivalled collection of Ornamental Trees, Roses, &c., now selling 25 per cent. below usual prices. DAVID ALLAN RAMSAY, Nurseryman and Landscape Gardener, takes the liberty of reminding noblemen, gentlemen, and others, of the rare opportunity offered to purchasers at the Arboretum, Queen's Elms, Fulham-road, Brompton. Plans and Estimates submitted for the carrying out all kinds of Ornamental ground-work and Planting in any part of the country.

POTATO SEED.—The Produce of Potatoes (from the Azores) grown last season, perfectly free from disease, by Mr. HAYWARD, Lymington, Hants. Mr. H. has a small quantity of this Valuable Seed, which he is anxious should be distributed as widely as possible. He will forward a packet to any address on receipt of 13 postage stamps.

BERNARD SAUNDERS, NURSERYMAN and FLORIST, Jersey, has several Hundred of fine, young Dwarf trained NECTARINE, PEACH, and PEAR TREES, warranted correct to Name, which he intends to dispose of at a Low Rate, in order to clear the ground, and would be happy to treat with any person requiring a quantity. He continues to cultivate a large Collection of PEAR TREES of all the choicest and most approved kinds.

B. S. has also a fine stock of large Shrubs, both Evergreen and Deciduous, adapted to giving immediate effect to Plantations. A remittance or reference required from unknown correspondents.

N.B. — Constant communication with the Southern and Western ports of England by trading vessels and steamers.

UNDER THE PATRONAGE OF HIS GRACE THE DUKE OF BUCKINGHAM AND CHANDOS.

D. FERGUSON, NURSERY and SEEDSMAN, Aylesbury, Bucks, respectfully informs the Nobility and Gentry that from the encouragement he is receiving as a Landscape Gardener, contracting planter, thinning and filling up neglected plantations, &c. &c.; he intends devoting a great part of his time to that branch of his profession. From the opportunities he has had of gaining experience in the course of 25 years' service in some of the largest places in England and Scotland, he hopes to be enabled to give satisfaction to those that employ him. Charges moderate, and distance no object. D. F. has a large quantity of very fine Standard Roses, upwards of 100,000 strong Larch from 2 to 6 feet, and other nursery stock.—Experienced gardeners recommended.

NEW KITCHEN GARDEN SEEDS.

No. 1—Complete Collection, consisting of 20 quarts of best kinds of PEAS and all other Seeds in proportion, and of the most approved kinds for one year's supply £3 3 0
No. 2—Complete Collection, in smaller quantities, equally choice sorts 2 2 0
No. 3—Ditto, ditto, ditto 1 1 0

Messrs. SUTTON and SONS have the honour and privilege of referring to Gardeners and Gentlemen residing at the undermentioned places who have annually availed themselves of this economical and advantageous mode of obtaining the best sorts of GARDEN SEEDS, and who have expressed themselves in the highest degree pleased with the crops, viz., at or near Glasgow, Perth, Edinburgh, Aberdeen, Newport, Monmouth, Cardigan, Brecon, Carlisle, Carmarthen, Ludlow, Gloucester, Hull, Newcastle-upon-Tyne, Bury St. Edmund's, Wolverhampton, York, Bristol, Exeter, Brighton, Plymouth, Isle of Wight, Windsor, Bath, Newbury, Oxford, Maidstone, Cirencester, Liverpool, Hertford, Grantham, Canterbury, Portsmouth, Ireland, and many others, of whom the addresses may be had on application.

Early orders are requested and recommended, as some sorts are in great demand.

*** Parcels delivered free to any office in London, or any Station of the Great Western Railway between London and Bristol.

Remittances are not required from known correspondents, nor from those who give satisfactory references.

Reading Nursery, Reading, Berks, Dec. 26.

PEAR TREES.

RENE LANGELIER, of the Clarendon Nursery, St. Helier, Jersey, respectfully announces that he has on Sale upwards of 30,000 fine PEAR TREES, from his unrivalled collection of upwards of 1200 varieties, of which a Catalogue may be had on application, post paid, and a penny stamp inclosed, among which will be found several new ones, in particular his new Beurré, which proves again this year to be one of the best fruit known; also one called Grosse Calebash, measuring from 8 to 8½ inches, weighing from 20 to 21 ounces, a perfectly melting fruit, ripens in November, quite different from Calebash Boss, both in shape, size, and flavour.

All the sorts insured to be true to name, and none sent out by R. L. unless proved by him,—by application, as to the time of maturity, and description of fruit,—as sufficient. Having devoted his particular attention to the above culture, he flatters himself he has the most select collection in England or France.

Price:—Langelier's Beurré, from 3s. 6d. to 5s. each tree; Grosse Calebash, 5s., fine trees. Those who do not possess these varieties should not be without them.

A Descriptive Catalogue of Pears is in progress, and will much interest Pear Growers, and proper pruning will be treated according to the plan they are grown in his garden, which is different from all other pruning.

All letters prepaid, and remittance or reference from unknown correspondents.

IRELAND can now be supplied with an excellent substitute for the Potato. Read the Leading Article in the *Gardeners' Chronicle* of December the 19th, referring to the valuable mixture of Beet-root and Wheaten flour, recommended by the Right Hon. T. F. KENNEDY, Paymaster of Civil Services in Ireland.

The importance of this discovery at this momentous period is immense, and all those who wish to grow a crop of Beet-root during the ensuing season should procure their seed immediately (as the demand will no doubt be very extensive), which the Subscribers can supply at the following prices:—

White Sugar Beet	...	...	2s. 6d. per lb.
Red Ditto	...	...	3 0 ,,
Parsnip	...	...	1 6 ,,
White Belgian Carrot	...	...	2 6 ,,

*** *All orders above £5 will be delivered free of package and carriage to Cork, Dublin, or London. Steamers three times a week to each port.*

Apply to WILLIAM L. RENDLE AND CO., Plymouth.

KENSINGTON (NEAR LONDON) AND READING NURSERIES, BERKSHIRE.

MESSRS. FORREST and CO. beg respectfully to direct attention to their SUPERIOR COLLECTION of FRUIT TREES of all kinds in these Grounds, and also their General Nursery Stock. They also beg to draw attention to their General Collection of Vegetable and Flower Seeds, which are of the best description. Packages suitable to Gardens of all dimensions, carefully forwarded at the most reasonable charges. Carriage paid to any station on the Great Western Railway, between London and Bristol. Catalogues may be had on application.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN & OTHERS
ABIES CANADENSIS, or HEMLOCK SPRUCE.

G. BAKER, NURSERYMAN, Bagshot, Surrey, having the Largest Stock in Europe, of various sizes and in fine condition, can with confidence recommend this noble tree to the notice of the public, at the following prices:—

1 ft.—Transplanted	..	..	at £0 12	0 per 100
2 ,,	,,	..	.. ,, 0 16	0 ,,
3 ,,	,,	..	.. ,, 1 5	0 ,,
3 to 4 ft.	,,	..	.. ,, 1 10	0 ,,
PICEA BALSAMEA.				
1½ to 2 ft.	,,	..	.. at £0 8	0 ,,
2 ,, 3 ,,	,,	..	.. ,, 0 12	0 ,,

G. B. having a fine Stock of Flowering KALMIA LATIFOLIA can supply them at the following low prices:—

9 to 12 inches	..	..	.. at £2 10	0 per 100
12 ,, 18	,,	..	.. ,, 3 15	0 ,,
18 ,, 20	,,	..	.. ,, 5 0	0 ,,

Fine Specimen Plants from 3s. 6d. to 5s. each.

N.B.—Large purchasers will have considerable reduction.—The usual allowance to the trade.

SPLENDID CAMELLIAS.

NEW AMERICAN SEEDLINGS—The Proprietor of these magnificent CAMELLIAS takes great pleasure in announcing to his European Friends, that these most superb new varieties will now be offered to them. The Proprietor believes it will only be necessary to give the Reports of the Massachusetts Horticultural Society upon their introduction, to secure the entire confidence of the community that they are most worthy their attention.

SUPERB NEW CAMELLIAS.—The most remarkable novelties in the horticultural world at home, are the NEW CAMELLIAS, which have been raised by Col. WILDER, of Boston. Among all the exquisite sorts that the skilful and long-continued devotion to this plant have produced in Europe we may safely say that none surpass, in beauty of colour and perfection of form, these two new American Varieties. These Camellias were first exhibited on the 14th February, and the Massachusetts Horticultural Society, in their usual handsome manner, immediately signified their appreciation of their merits, by awarding their originator a piece of plate of the value of 50 dollars. The following extract from the proceedings of the Society comprises a full description of the new Camellias, and we therefore place it upon record:—

"At a meeting of the Massachusetts Horticultural Society, on Saturday, Feb. 14, 1846, a vote was passed, directing the committee on Flowers to take *special notice* of the fine seedling Camellias exhibited at that time by Marshal P. Wilder, president of the Society. Agreeably to this vote, the Flower Committee submit the following report:—The number of seedling Camellias exhibited was five. Two of them were of surpassing beauty and perfection. As the committee have had the pleasure of often examining the extensive collection of the President, as well as those of other gentlemen in the vicinity, embracing the most perfect varieties known among amateurs, they feel themselves sufficiently acquainted with this beautiful class of flowers, to judge the comparative merits of the seedlings under consideration, and they have no hesitation in pronouncing them as varieties of the very first order, and such as will be difficult to surpass in this or any other country. The production of two such remarkable varieties, by one person, we believe unprecedented, and will reflect much honor on our President abroad, as well as upon the Society of which he is the head. We, therefore, recommend that a gratuity be awarded to the President, for these two superb American Camellias, and that it consist of a Piece of Plate of the value of Fifty Dollars, and of such form and design as he may elect.—JOS. BRECK, Chairman."

DESCRIPTION OF THE SEEDLINGS.

No. 1. CAMELLIA JAPONICA, var. WILDERI. Leaves 3½ inches broad, and three long, oval, acuminate, slightly dentated, very dark green, with prominent midrib; petioles short; a shrub of free, upright, but rather slender growth; buds quite round, with pale-green scales; flower medium size, three-and-a-half to four inches in diameter. Colour delicate clear rose, petals 75 to 80 in number, imbricated, of the most perfect rose-leaf shape, and arranged with most exquisite regularity, from the circumference to the centre; corolla very round, persistent, free in its inflorescence, every flower expanding perfectly, retaining its beauty for a long time. The superiority of this variety, when compared with those established favourites, the *Old Double White*, *Lady Hume*, *Imbricata*, and others, is its beautiful round petal, with scarcely a serrature or indentation on the edge. Raised from the seed of the single red Camellia, fertilised by Camellia japonica, var. punctata; the mother plant and all the stock, with the exception of a single graft, having been destroyed by fire, in the year 1841.

No. 2. CAMELLIA JAPONICA, var. MRS. ABBY WILDER. The name was given by the committee, in honour of the lady of the President. "This variety is a very beautiful one: a vigorous shrub of upright growth and strong branches; foliage large and handsome; leaves 4 inches long, by 2½ broad, roundish oval, a little reflexed, coarsely dentated, acuminate, with pale prominent midrib and nerves; yellowish green, resembling in colour those of Camellia Japonica Lady Hume; bud round with pale green scales, flower large, 4 inches or more in diameter, thick, full, and perfect; petals of beautiful form, very numerous, 90 to 100 in number, the exterior rows broad, circular, gradually diminishing in size to the centre, and arranged with great regularity; colour white, with an occasional stripe of light rose, after the manner of Camellia Japonica Duchess d'Orleans; corolla very round and of great depth. Produced from seed of Camellia Japonica var. Middlemist."

The Proprietor, now on a visit to Europe, will occasionally be found at the Seed Warehouse of Geo. Charlwood, Esq., 14, Tavistock-row, London. Subscriptions will be received for these Two Camellias, deliverable in the early autumn of 1847. Price Ten Guineas the pair. Orders left at G. CHARLWOOD'S, 14, Tavistock-row, London, or forwarded to the Proprietor, Nonantum Vale Gardens, Brighton, Massachussetts, covering the amount, will receive prompt attention. None but good strong Plants will be sent; orders shall receive immediate attention, and be served in the order they are received.

Drawings of these beautiful Camellias will be exhibited in London and Paris in the month of March. Notice will be given in the public papers.

London, December, 1846. JAMES L. L. F. WARREN.
Office, Nos. 1 and 2, Tremont Temple, Boston, Mass. U. S. A.

SEEDS.—CORNER OF HALF-MOON-STREET.
THOMAS GIBBS and CO.,
(By Official appointment), the SEEDSMEN to the "ROYAL AGRICULTURAL SOCIETY OF ENGLAND," Beg to remind the Members of the Society, and Agriculturists in general, that their only Counting House and Seed Warehouse is at the Corner of HALF-MOON-STREET, PICCADILLY, London, as for the last Fifty Years.

Priced Lists of Agricultural Seeds are always ready, and may be had on application.

FLOWER-POTS AND GARDEN SEATS.

JOHN MORTLOCK, 250, Oxford-street, respectfully announces that he has a very large assortment of the above articles in various colours, and solicits an early inspection. Every description of useful CHINA, GLASS, and EARTHENWARE at the lowest possible price, for Cash.—250 Oxford-street, near Hyde-park.

FOREIGN AND BRITISH SHEET AND CROWN GLASS, for Horticultural and general purposes, to be had in boxes as imported, of 100 and 200 feet each; also Glass Pantiles, 11s. per dozen. Propagating and all kinds of Horticultural Glasses. Oils, Colours, Brushes, &c., of the best description, at lowest prices, at F. ELRICK'S, 28, Castle-street, East, Oxford-street. ☞ For Ready Money only.

☞ PATENT VENTILATORS for Public Offices, Smoking Rooms, &c.

GLASS FOR CONSERVATORIES.

APSLEY PELLATT AND CO., Falcon Glass Works, Holland-street, Blackfriars, are prepared to supply (in quantities not less than 100 square feet) SHEET AND CROWN GLASS OF BEST QUALITY, at the following *Net Cash Prices*:

Any size under 2 feet super.	Per square foot.
13 oz. weight per foot	4d.
18 oz.	5
24 oz.	9
26 oz.	11

Small Squares up to 10 ins. by 8 ins., from 1½d to 3d. per square foot.

N B. The 16 oz. is full strength for Greenhouses.

GLASS MILK PANS, White, 5s. 6d. each; Green, 4s. each.

TO NURSERYMEN, FLORISTS, &c.

GLASS.—Any quantity of 16 oz. Sheet Glass, in small sizes, packed in boxes, containing 100 feet each, from 2d. to 3½d per foot, according to size.

Every description of Horticultural Glass, from 13 to 32 oz. to the foot.

GLASS DAIRY PANS, the same size and strength as earthenware, from 3s. 1d. to 4s. 6d. each.

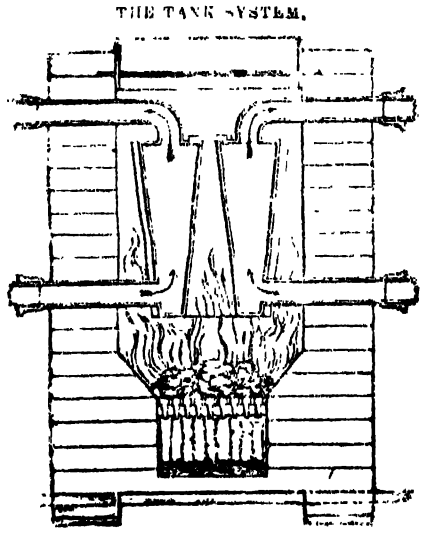
Improved Garden Hand Lights, 21 oz. Glass, Pantiles, at 11s. per dozen.

EDWARDS AND PELL, 15, Southampton-street, Strand.

BAKER'S PHEASANTRY, Beaufort-street, King's-road, Chelsea (by appointment to Her Majesty and H. R. H. Prince Albert), ORNAMENTAL WATERFOWL, consisting of Black and White Swans, Egyptian, Canada, Chinese, Barnacle, Brent, and Laughing Geese; Sheldrakes, Pintail, Widgeon, Summer and Winter Teal; Gadwall, Labrador, Shovellers, Gadwall and Dun Diver, Carolina Ducks, Call Ducks, &c., domesticated and pinioned, also Spanish, Cochin China, Malay, Polish, Surrey, and Dorking Fowls; and of 3, Hollamoon-passage, Grace-church-street.

White, Japan, Pied, and Common Peafowl, and pure China Pigs.

THE TANK SYSTEM.



BURBIDGE AND HEALY having heated a considerable number of Pits and other Horticultural Structures for the cultivation of Pines, Melons, Cucumbers, and other tropical plants, particularly upon the plan recommended by Mr. MILLS's recent work on the Culture of Pines and Cucumbers, many of which are working at the present time, prove beyond a doubt that every kind of structure may be heated by BURBIDGE and HEALY's peculiar Tank Apparatus, with the absolute certainty of producing the desired result. Their Apparatus may be seen at work, at the following places:—Horticultural Garden, Chiswick; Royal Botanic Gardens, Kew; Baroness Rothschild's Gardens, Gunnersbury; Mr. Glendinning, Chiswick Nursery, Messrs. Henderson, Pine-apple-place; and in more than one hundred other places.—136, Fleet-street, London.

HOT WATER APPARATUS FOR HEATING HORTICULTURAL BUILDINGS, DWELLING-HOUSES, CHURCHES, and MANUFACTORIES, upon improved principles, and at very moderate charges, erected by DANIEL and EDWARD BAILEY, 242, HOLBORN.

D. and E. BAILEY having devoted much time to the consideration of this subject, and had much experience in the erection of apparatus for the above mentioned purposes, have, by improvements suggested in their practice, rendered their mode of heating not only very efficient, but very simple, and have combined durability in the apparatus with economy in the charge. They have erected apparatus in England, Scotland and Ireland, for many noblemen and gentlemen, and have had the honour to be employed by the Horticultural Society of London, in executing the works of their splendid Conservatory erected at Chiswick.

D. and E. BAILEY also construct in metal all descriptions of Horticultural Buildings and Sashes, and invite Noblemen, Gentlemen, and the Public, to the inspection of their various drawings and models, at 242, Holborn, where they have the opportunity of exhibiting, amongst other metal works, an extremely complete and convenient kitchen apparatus, or range adapted for the continued supply of hot water, and an arrangement of the oven more complete than has hitherto been brought before the public.

D. and E. BAILEY were the first to introduce metallic conservatory houses to horticulturists, and can refer to the Conservatory attached to the Pantheon as one of their works, besides many others in this country, and on the Continent.

D. and E. BAILEY have prepared a quantity of the Galvanic Plant Protectors, which are now ready for immediate delivery; they beg to introduce to public notice a new Trough Pipe, for Orchidaceous or other Houses where vapour is constantly, or at intervals, required, and which may be seen at their Manufactory.

STEPHENSON AND CO., 61, Gracechurch-street, London, and 17, New Park-street, Southwark, Inventors and Manufacturers of the Improved CONICAL and DOUBLE CYLINDRICAL BOILERS, respectfully solicit the attention of scientific Horticulturists to their much approved method of applying the Tank system to Pineries, Propagating Houses, &c., by which Atmospheric heat as well as bottom heat is secured to any required degree without the aid of pipes or flues. S. & Co. have also to state that at the request of numerous friends they are now making their Boilers of Iron, as well as Copper, by which the cost is reduced. These Boilers, which are now so well known, scarcely require description, but to those who have not seen them in operation, prospectuses will be forwarded, as well as reference of the highest authority; or they may be seen at most of the Nobility's seats and principal Nurseries throughout the kingdom.

S. and Co. beg to inform the trade that at their Manufactory in New Park-street, every article required for the construction of Horticultural Buildings, as well as for heating them, may be obtained upon the most advantageous terms.

Conservatories, &c. of Iron or Wood, erected upon the most ornamental designs. Balconies, Palisading, Field and Garden Fences, Wire Work, &c. &c.

HOT WATER APPARATUS.—The attention of Architects, Builders, and others, is respectfully requested to BENJAMIN FOWLER'S superior method of Heating Churches and Chapels, Halls, Stair-cases, Conservatories, Forcing and Greenhouses, Manufactories and Warehouses, Kilns, Rooms for Drying Timber, &c., and every variety of purpose for which artificial heat is required. Within the last 20 years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency. An improved wrought-iron boiler, which requires no brickwork, may be seen in action upon the premises.

BENJAMIN FOWLER, 63, Dorset-street, Fleet-street.

WARMING AND VENTILATING.

GEORGE HADEN, ENGINEER, MANUFACTURER OF VENTILATING WARM AIR STOVES, WARM WATER AND STEAM APPARATUS, &c., for Churches, Dwelling-houses, and Horticultural Buildings, 6, St. Andrew-square, Edinburgh.

G. H. has for many years been extensively engaged throughout the Kingdom in Warming and Ventilating the Mansions of the Nobility and Gentry, Churches and Chapels, Colleges, Infirmaries and Schools, County Buildings, Court Rooms and Prisons, Banks, Conservatories, Hothouses and Vineries, &c. G. H. begs to intimate that the Apparatus are manufactured under his immediate superintendence, and he has at present an extensive supply on hand.

The Advertiser is prepared to give Designs and Estimates, and furnish every information to Noblemen and Gentlemen requiring such Apparatus on applying at his Office.

POLMAISE HEATING.

G. H. begs to state that the Apparatus erected in the Vinery at Polmaise, and which has for the last three years caused so much sensation, was constructed, and the arrangements of the Flues planned by him, and that the whole design was carried into effect under his direction.

The utmost attention will be paid to all orders committed to his care. 6, St. Andrew-square, Edinburgh.

PERUVIAN AND BOLIVIAN GUANO ON SALE, BY THE ONLY IMPORTERS,
ANTONY GIBBS AND SONS, LONDON;
WM JOSEPH MYERS AND CO., LIVERPOOL;
And by their Agents,
GIBBS, BRIGHT, AND CO., LIVERPOOL and BRISTOL,
CUTHBERTH, POWELL, AND PRYOR, LONDON.

To protect themselves against the injurious consequences of using inferior and spurious guano, purchasers are recommended to apply only to Dealers of established character, or to the above-named Importers, who will supply the article in any quantity, at their fixed prices, delivering it from the Import Warehouses.

LIQUID MANURE.

ENGLAND INDEPENDENT OF THE WORLD FOR CORN.

THE attention of the Agricultural Interest, at this momentous crisis, is requested to the great importance of LIQUID MANURE, and the ease with which it may be appropriated by the use of FOWLER'S PUMPS, made expressly for the purpose, either portable or fixed; Garden, Ship, and Barge Pumps; also those for Distillers, Brewers, Soap Boilers, and Tanners, for hot and cold liquor. Pumps kept for hire, for Excavations and Wells. Buildings heated by Hot Water for Horticulture, and every variety of manufacturing purposes.

The Trade supplied on advantageous terms, by BENJAMIN FOWLER, Engineer, &c., 63 Dorset-street Fleet-street, London

GUANO, &c.

MARK FOTHERGILL begs to offer the following MANURES on the best terms, viz:
GUANO, PERUVIAN and AFRICAN, direct from Import Warehouses.
Ditto, PATAGONIAN and SALDANHA BAY. Ditto.
SODA ASH, for destruction of Wireworm.
SUPERPHOSPHATE OF LIME (See Royal Agri. Soc. Journal, Vol vi. Part 2).
GYPSUM (Pure Sulphate of Lime).
BONE DUST and BONE POWDER.
SULPHURIC ACID. CHARCOAL.
PETRE SALT and AGRICULTURAL SALT for Composts.
SILICATES of SODA and POTASH, and all other Manures.
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KAGENBUSCH AND Co.'s GERMINATING COMPOUND.—Price 2s and 4s per packet. The best Steep for Wheat and other Grain; Turnip, Clover, Onion, and all other Seeds and Pulse. This is the gardener's best friend.

KAGENBUSCH AND Co's GERMAN SCIENTIFIC MANURES, which fertilise the Land without exhausting it, at 30s. per acre for Meadows, once in three years; for Tillage 35s. per acre, and for Hops 40s. per acre, annually. Price 7l. 10s. per ton for Meadows and Tillage, and 9l. per ton for Hops. One ton is sufficient for 4 acres.

These articles are kept at Hibernia Wharf, London-bridge, and Mr. JOSEPH EDWARDS will deliver them to any one ordering the amount in cash.

Manufactured by KAGENBUSCH and Co., Agricultural Chemists, Leeds. Sold by JAMES and Co., Agents for the South of England, 55, King William-street, City; and POTTER BROTHERS, Agents for the North, Cromford-court, Manchester.

☞ Vessels of 50 tons, drawing 5 feet, load at the Works in Leeds, and can ascend the creeks of every port in the Kingdom, so that Dealers or Farmers, and Landed Proprietors, clubbing together, may be supplied direct, at a saving of expence.

A liberal allowance to the Trade.

LAWES' PATENT MANURES.—Turnip Manure, 7l. per ton. Clover Manure, 14l. per ton. Corn Manure 14l. per ton. Superphosphate Lime, 7l. per ton.

A Pamphlet on Artificial Manures will be forwarded to any person enclosing two postage stamps to Mr. WILSON, at Mr. LAWES' Factory, Deptford Creek, London.

FOR WHEAT, TARES, &c.

THE VIRATE OF THE LONDON MANURE COMPANY will be found a most valuable Manure for the above crops—it is permanent in its effects, and has stood the test of five seasons with increasing success each year. The Company also supply genuine Peruvian Guano, Gypsum, Superphosphate of Lime, Sulphate and Muriate of Ammonia, Charcoal, Bone Sawdust, Sulphuric Acid, and every Artificial Manure, at the lowest market price.—EDWARD PURKIS, Secretary, 40, New Bridge-street, Blackfriars.

CHEAP AND DURABLE ROOFING.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. M'NEILL & CO., of Lamb's Buildings, Bunhill-row, London, the Manufacturers and only Patentees of THE ASPHALTED FELT FOR ROOFING Houses, Farm Buildings, Sheding, Workshops, and for Garden purposes, to protect plants from Frost.

At the Great National Agricultural Shows, it is this Felt which has been exhibited and obtained the Prize, and is the Felt patronised by

HER MAJESTY'S WOODS AND FORESTS,
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ROYAL BOTANIC GARDENS, REGENT'S PARK,

And on the Estates of the Dukes of Sutherland, Norfolk, Rutland, Newcastle, Northumberland, Buccleuch (at Richmond), the late Earl Spencer, and most of the Nobility and Gentry; and *at the Royal Agricultural Society's House, Hanover Square.*

It is half the price of any other description of Roofing, and effects a great saving of Timber in the construction of Roofs. Made to any length by 32 inches wide.

PRICE ONE PENNY PER SQUARE FOOT.

☞ Samples, with Directions for its Use, and Testimonials, of seven years' experience, with references to Noblemen, Gentlemen, Architects, and Builders, sent free to any part of the town or country, and orders by post executed.

☞ The Public is respectfully cautioned that the only Works in Great Britain where the above Roofing is made, are

F. M'NEILL AND CO.'S

Patent Felt Manufactory, Lamb's-buildings, Bunhill-row, London, where Roofs covered with the Felt may be seen, as also the new Vice Chancellor's Court, and the Passages and Offices at the entrance to Westminster Hall, and other buildings at the New Houses of Parliament, done under the Surveyorship of Charles Barry, Esq., R. A.

Note.—Consumers sending direct to the Factory can be supplied in lengths best suited to their Roofs, so that they pay for no more than they require.

TO BRICK AND TILE MAKERS.

BRICK AND TILE MACHINES.

THE AINSLIE PATENT TILE MACHINE COMPANY (JAMES SMITH, Esq., of Deanston, Chairman), invite attention to their improved TILE MACHINE, and to their new Patent Improved Kilns, for drying and burning Bricks and Tiles, by which a saving of from two-thirds to three-fourths of the fuel is effected, and all the articles are burnt equally without loss or damage. The Machines at work and a Model of the Kilns to be seen, and all particulars to be obtained from Mr. JOHN PATON, Secretary, 193A, Piccadilly, London. Agents wanted.

TO OWNERS AND OCCUPIERS OF ESTATES.

WILLIAM BULLOCK WEBSTER, of Hounsdown, near Southampton, Draining Engineer to Her Majesty, at Osborne, Isle of Wight; the inventor of a Patent Tile and Pipe Machine (applicable to making Bricks); also a new Machine for taking roots and stones out of clay, both which are to be seen at the Royal Polytechnic Institution, Regent-street,—offers his assistance as a thorough practical man to Landlords who may require information on any subject connected with the Drainage of their Estates. P.S.—Land drained at a fixed sum per acre, including every expense.

IMPORTANT TO FAMILIES.—THE POPULAR REMEDY.

PARR'S LIFE PILLS.—A mild, safe, and most effectual cure of Indigestion, Bilious, Liver, and Stomach Complaints, Sick Head ache, Costiveness, &c. &c. Their composition is truly excellent; they are compounded entirely of vegetable products, freed from all irritating and deleterious matters, which renders their operation mild and agreeable; they do not require the least confinement or alteration of diet, and may be taken by the invalid with perfect safety: as an occasional dose in all nervous and debilitated cases, recoveries from protracted diseases, &c., they will be found highly valuable, imparting vigour and tone to the system when emaciated by disease.

Their value as a general tonic and restorative of the impaired stomach and biliary system, is daily manifested to the Proprietors, by their increasing rapid sale, and the numerous Testimonials forwarded by those who have proved their efficacy. The following has just been communicated by Mr. G. BATTERS, Agent for the sale of PARR'S LIFE PILLS, Nottingham.

"Sirs,—The many thousand boxes I sell in the course of a year fully testify the superiority of PARR'S LIFE PILLS over every other Patent Medicine. Old and young, rich and poor, all acknowledge the great benefit they derive from taking them; many ladies and gentlemen of high standing in society, and numerous respectable families have adopted PARR'S LIFE PILLS as a family medicine; and thousands have given me full proof verbally of the cures which PARR'S LIFE PILLS have effected. I remain, Gentlemen, yours, obediently, G. BATTERS, June, 1846."

BEWARE OF SPURIOUS IMITATIONS.

None are genuine, unless the words, "PARR'S LIFE PILLS" are in WHITE LETTERS on a RED GROUND, on the Government Stamp, pasted round each box; also the fac-simile of the signature of the Proprietors, "T. ROBERTS & Co., Crane-court, Fleet-street, London," on the Directions.

Sold in boxes at 1s. 1½d., 2s 9d., and family packets at 11s. each, by all respectable medicine vendors throughout the world.

WARMING AND VENTILATING CHURCHES, LARGE BUILDINGS, GENTLEMEN'S ENTRANCE HALLS, &c., &c.

CUNDY'S PATENT STOVE for these purposes, is the most efficient and economical yet introduced to public notice. The price of No. 1 Stove, calculated to Warm and Ventilate Buildings from

5,000 to	10,000	cubic feet, 1s 15l.
No. 2, from 10,000 to	50,000	do. 20l.
No. 3, from 50,000 to	100,000	do. 28l.

Ample testimony can be adduced. They may be seen in daily operation at the PANKLIBANON IRON WORKS, the Great Western Emporium for Stove Grates, Kitchen Ranges, Fenders, Fire Irons, &c. Where is also the largest assortment in the Kingdom of General Furnishing Ironmongery, in Tinned Copper, Tin, and Iron Cooking Wares; best Sheffield Plate and Table Cutlery; Japanned Paper and Iron Tea-Trays; Bronzed Tea-Urns; Baths of all kinds; Brass and Iron Bedsteads; Wire Trellis Work; Garden Ornaments; Verandahs, &c. &c.

THORPE, FALLOWS, & Co., Panklibanon Iron Works, 58, Baker-street, Portman-square.

HORTICULTURAL SOCIETY OF LONDON.—Notice is hereby given, that the EXHIBITION OF FLOWERS AND FRUIT, at the Society's Garden, in the ensuing season, will take place on the following Saturdays, viz., May 8; June 19; and July 17; and that Tuesday, April 20, is the last day on which the usual privileged Tickets are issued to Fellows of the Society.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 26, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

Friday,	Jan. 1—	Botanical	8 P.M.
Monday,	— 4—	Entomological	8 P.M.

An ingenious invention, which appears likely to be of great value to those who grow Plants in their sitting-rooms, has lately been brought under our notice. It is well known that in such situations plants suffer principally from the dryness to which their roots are necessarily exposed, in addition to the evils of a fluctuating temperature in the soil—as a remedy for which double-sided pots, slate pots, and other such methods have been proposed. None of them have, however, a right to say that they fully answer the purpose; they are all imperfect attempts at improvement, and one of the best proofs of their not entirely answering the purpose is, that they are so little used.

The invention to which we would now draw attention seems to be a really effectual *apparatus*, for so we must designate it. Let the reader imagine a metal case, open upwards, closed below, except at an aperture for the escape of surplus water; let this case be furnished with a moveable stand, which can be taken out at pleasure, together with a garden pot, for receiving which it is intended; suppose this stand, with its garden pot, introduced into the metal case, and the upper part, previously open, closed by two other plates of metal, and some idea may be had of the simplicity and general nature of the contrivance. It will be obvious, if we have made ourselves understood, that when a garden pot is introduced into the case, and the upper part is covered in by the two moveable lids, any water which may be poured into the case will rise in the form of vapour, and keep the sides of the pot in a uniform state of moisture, without much variation of temperature. The roots of the plants will, in fact, thus find themselves in a hollow case always equally damp. This is precisely what is wanted, and all that is wanted, to preserve plants in health in sitting-rooms, provided they are also kept clean and near the light.

We have not seen the apparatus in action, although we soon shall make ourselves personally better acquainted with it; but we are assured that it answers perfectly. Mr. Phillips, a very ingenious and philosophical gentleman, who hit upon the contrivance, states that "if a Pelargonium or Fuchsia in bud be placed in the apparatus, and another plant of the same kind somewhat its superior be treated by the ordinary method, and the flowers and foliage of both are compared after the lapse of some days, a remarkable difference in their beauty will be seen; and so perceptible will this be, that the most inexperienced eye will detect it." He adds that "many experiments have been made upon Pelargoniums, Fuchsias, Polyanthuses, and other plants with the apparatus, and the results, without one exception, were all of the most satisfactory character." We have no doubt of the accuracy of this statement, firstly, because we know Mr. Phillips, and can answer for his good faith, and secondly, because it is just what we should have expected under the circumstances. Mr. Phillips has, in fact, proceeded upon strictly philosophical principles, and of course has obtained a result which might have been foreseen.

We have not at present the space required for going into a detailed examination of all the points that suggest themselves in reading over the pamphlet which is given away with this apparatus;* nor, indeed, is it necessary. For it, like all other contrivances, will require different treatment according to seasons and the plants which it receives. We would, however, suggest one thing—namely, that instead of watering the soil in which a plant is growing, it would be quite sufficient to introduce some wet sponge into the cavity between the flower-pot and its metal case, keeping that sponge moist. One of the greatest difficulties with plants in pots consists in the continual abstraction from their soil of the soluble matters which it contains, and this deteriorating action will of course be greater in sitting-rooms than anywhere else, partly on account of the necessity of large supplies of water in order to compensate for the quick evaporation that is always going on there, and in part because of the little skill that is shown in gardening by mere domestic servants. But no such loss will be sustained if the interior of the apparatus is kept damp merely by vapour suspended in the atmosphere which the case contains; an abundance of water will, we suppose, be supplied by that vapour. At all events the plan we propose would obviate much of the necessity of watering.

But we must refer the reader for further details to the pamphlet and apparatus, which we feel sure will amply reward him for the small sum it may cost to procure the latter. The pamphlet is full of good sense, and to the principles it inculcates we see no reason to object, except so far as the importance of porous pots is insisted upon. No doubt they must be porous for Mr. Phillips's apparatus, but porosity is no advantage in general—rather the reverse.

We may as well add that this apparatus is neat and ornamental, as well as useful. In fact it is got up in various ways to suit the taste and pocket of buyers.

* *Phillips's Plant and Flower Improver; an elegant and pleasing apparatus for improving the growth of plants and flowers.* E. Bryady, Halkin-street.

THE POTATO DISEASE AND THE APHIS VASTATOR OF SMEE.

In Smee's work on the Potato plant it is stated that an Aphis is the cause of the disease that has recently appeared with so much virulence, and that the same insect has attacked the Spinach, Turnip, Carrot, and numerous other plants as well. The alarming account which Mr. Smee has given of the destructive ravages of the Aphis, that he has described in his work as the vastator (248, 274, 275, 276, 294, 332, and 462), its wonderful fecundity (267, 268), and the threatened consequences to the human species of death by famine to the amount of millions (404, 462, 522), has induced me to study the character of the creature from which, according to Mr. Smee, man has so much to apprehend.

The Aphis vastator, then, according to Mr. Smee, is the cause of the Potato disease. It has attacked the Spinach and diseased that also, and numerous other plants as well. My present business, however, is with the Potato and Spinach; and I intend to see how far facts warrant the conclusion of Mr. Smee as to the office and power of the Aphis in connection with the disease of those plants; and as I apprehend that Mr. Smee is, like myself, an enquirer after truth wherever it may be found, I am sure he will rather rejoice in my attempt to discover it, than consider the inquiry on my part either invidious or unfriendly.

For the purposes of this inquiry I have carefully and minutely examined several plants from a crop of Spinach, the produce of seed sown in August last, and which were all more or less diseased; I have also examined plants the produce of seed later sown, and in which no disease at the present could be detected by the naked eye. In the first crop the Aphis vastator of Smee exists; in the second, none could be found.

Finding the Aphis on the leaves of the first crop, I undertook a lengthened microscopical examination of the insect, its mode of feeding, what it appeared to feed on, and the condition of the vessels of the roots, stems, and leaves of the plant in which it was found. The results of these various examinations I will now state.

The drawing in Smee's work of the Aphis vastator corresponded with the Aphis I found, excepting the proboscis, which I examined under a power of 480 diameters, with the usual compound arrangement. The proboscis of the vastator appeared to me to be a tube within a sheath, and not formed of three pieces, as described by Smee. In all other respects, however, the insect agreed with Smee's description, and I have, therefore, no doubt of its identity. Its solitary habits, its mode of attachment to the leaf, and general characteristics were as laid down by Smee. Having satisfied myself of the identity of the Aphis, I patiently studied its feeding, in order to ascertain its effect on the leaf. To do this advantageously, I selected a portion of a leaf on which an Aphis was feeding, and brought the proboscis of the insect, by placing its head opposite to the object glass, within the field of vision. Thus arranged, with an object glass of 125 diameters, in a powerful compound apparatus, and with a very brilliant light concentrated on the point of the proboscis of the insect and the part of the leaf to which it was attached, I awaited its liberation from feeding to ascertain its effect on the leaf. During the action of feeding no motion of the proboscis was perceptible, and the body of the insect was so quiescent, that in one instance I thought the creature was dead; after a lapse of 20 minutes, however, in this case, the insect removed its proboscis, and on its removal I minutely examined the spot from which it had been taken No puncture of the cuticle or any discoloration or disorganisation of that part of the leaf was observable, and I could discover no difference in the texture from that of the parts immediately surrounding it. I repeated this experiment five or six times, with other insects, on different leaves, and with precisely the same results. The cuticle was uninjured and no discoloration observable. The cuticle of the Spinach is formed of minute tubes, overlaying a membrane; these tubes are arranged angularly, and between these, it was observed, the Aphis thrust its proboscis. The insertion of the proboscis extended only superficially inwards among the tubes, as I could observe the point of it during the whole time of its feeding. I have now to relate a discovery, which requires, I admit, further confirmation before it can be said to determine the precise office of the Aphis, but which, I think, may probably lead to a better understanding of its character and uses in the economy of nature than those assigned to it by Mr. Smee.

In one of the Spinach plants that I examined, the central leaves were covered with a minute fungus, the head of which was globular. This head was attached to a footstalk, which was about equal in length to two diameters of the head of the fungus. The footstalk was a simple tube, formed of a membrane peculiar to many kinds of fungi that I am acquainted with—the Boleti, Botrytis, and others of that class; and it stood erect from the leaf, so that at first sight the stem was seldom perceived, and indeed might have been easily overlooked in a cursory examination, and the head mistaken for the ovary of some insect, which at first sight I believed it to be, especially as I found nearly three-fourths of the heads broken and emptied of their contents. After I had satisfied my mind as to the character of these fungi, I selected one of the leaves that was completely covered with them, and which contained two Aphis vastators feeding; I watched one Aphis very closely, and observed its actions minutely; following it with the microscope through all its wanderings for some time, when at length I observed it seize one of the heads of the fungi and empty it of its contents This circumstance opened a new field of thought as to the probable office of the Aphis, and its uses in the order of Nature, and I pursued the inquiry further, for the purpose of eliciting other proofs of the same kind In the examination, however, that I refer to, I only succeeded in procuring a partial confirmation of the fact, in an Aphis seizing a head, which I could not detect that it emptied. The fact of the number of heads of fungi broken and emptied of their contents, and that of the Aphis emptying one, incline me to believe that the office of the Aphis has a relation to fungoid matter, and the relief of vegetation from their external action, as from considerations hereinafter to be named, I deem the Aphis incapable of injuring any other vegetable life than that of a parasite similar to what I have already named.

As the action of the Aphis on the leaf of a plant, neither punctures nor discolours the cuticle in any way that is perceivable, it cannot injure either the external tissues or internal organs. It is, therefore, difficult to perceive in what way the abstraction of the juices of a plant, admitting this to be so for the moment, of which however we require proof, causes a disease of the vessels, as in the case of the Potato and Spinach. I have examined several plants of Spinach microscopically from the roots upwards, and in all of the diseased ones I found globular and stellate fungi. In the leaves also of some plants, which appeared perfect to the eye, and on which no Aphis or external fungi could be found, I have discovered the globular fungi in the vessels of the leaf-stalk. In all these cases the fungi may be traced from the root upwards, and they diminish in intensity as we approach the leaf. The origin of the fungi in the Spinach is clearly at the base or root, as was the case with the Potato, and as it is found in the vessels of the plant before either external fungi or Aphis appear, we have facts that bespeak an abnormal or unhealthy condition of the plant before the Aphis is seen As the fungi, therefore, precede the Aphis, the Aphis cannot be the cause of their appearance; and as fungi cannot sensibly exist in plants without disturbing their functions, the unhealthy condition of the Spinach and Potato is not referable to the Aphis. But beyond these facts, the formation of the Aphis forbids the idea of its being destructive of healthy vegetable life. Its simple proboscis that does not penetrate the cuticle of the leaf it inhabits is all the means the insect possesses to commit the dreadful ravages Mr. Smee attributes to it; the diameter of which does not exceed $\frac{1}{3000}$ of an inch. How insignificant is this tube compared with the jaws of a caterpillar, which in power and capability is a very Behemoth to the poor little roving Aphis; and yet the caterpillar, with all its powers, has never been so heavily taxed as the Aphis vastator. An observation which Mr. Smee has made would, if he had followed it up, have led, as I believe, into the right path, and induced him to have arrived at a different conclusion with regard to the Aphis than the one he has promulgated. Mr. Smee states, p. 86 (267), "The Aphis vastator comes upon the Potato plant in the winged state, and there brings forth its young alive. These generally prefer at first a large and rather debilitated leaf."

What is a debilitated leaf but a diseased one? And why do the vastators prefer diseased leaves if they are destructive of healthy life?

These queries are answered at p. 90 (286), and at (451).

(286). "The vastator does not commit the same amount of mischief on every kind of Potato. *It dislikes those leaves where moisture is to be found on the under surfaces in the morning, and thus, according to the state of the plant, it passes over with greater or less rapidity.*"

(451). "There is an exquisite relation existing between the effects upon the plant and the welfare of the animal. *This creature cannot well live upon a very vigorous plant, because it would be drowned by the water transpired at night. Hence it generally commences upon leaves which have in a great degree lost their vigour. On placing insects upon the new leaves of very vigorous plants, I have observed that the creature has always been obliged to leave them. It commences upon the larger and nearly exhausted leaves; from these it passes to others, and so on till the entire foliage is affected.*"

Now what is this but simply saying that the Aphis

prefers a diseased leaf to a healthy one, and that it attacks only such! for Mr. Smee asserts that it cannot well live upon a very vigorous plant, as it would be drowned by the exhaled water; and what is a very vigorous plant but a healthy one! If the Aphis, therefore, cannot live upon a healthy plant, Mr. Smee's case is gone, and that too by his own showing; and the poor little Aphis is not the destroying agent Mr. Smee has represented it to be, but a simple and harmless little Aphis denuded of the vastator. It is to be regretted that Mr. Smee could have penned paragraphs 286 and 451, without seeing their consequence, and the inference naturally and legitimately deducible from them; as it would have saved him from the awkward position in which he has placed himself, of attributing to the Aphis powers which these paragraphs deny; but he has the consolation, however, of having given the fact and erred in the inference only, a position that reflects no discredit on the integrity of the writer, but rather bespeaks an honesty of purpose that no individual need blush to own. Beyond all that has been here stated of the Aphis, I would remark that very cogent facts may be adduced to shew that it could not have caused the Potato disease, and further, that the Aphis cannot destroy healthy vegetable life. It must be borne in mind that Mr. Smee has not adduced a single fact, so far as I can perceive, in support of the destroying powers of the Aphis, and he has completely negatived any suppositions on that head by paragraphs 286 and 451. The extent of my letter reminds me that I cannot enter into any facts regarding the cause of the Potato disease; I will therefore conclude with a summary of Mr. Smee's account of the Aphis, and some counter assertions of my own, so as to exhibit a balance sheet of what the Aphis is, and what it is not.

Smee's Aphis.—1. Is the cause of the Potato disease page 162 (586), and page 132 (143).

2. After its attacks fungi grew. Page 162 (8).

3. The Aphis prefers Turnips, but feeds on the Potato. Page 96, (313 and 314).

4. The Aphis cannot exist on a vigorous plant (451), and yet it punctures the leaf, &c., and causes disease. Page 162 (6).

5. The Aphis from a unit becomes in five generations 5,904,900,000; and 20 generations may exist in a year; page 86 (268), yet it may be destroyed by ichneumons and lady-birds; page 136 (159); and page 124 (417).

6. The vastator would be drowned by the transpired water of a healthy plant; page 133 (451), yet "neither water nor thunderstorms seem to have much influence upon it;" page 140 (468).

7. The Aphis vastator has destroyed the balance of creation; page 123 (413); yet it cannot bear the water of a transpired plant; page 133 (451).

8. The Aphis has threatened millions of men, p. 120 (405); it has baffled science, politics, and powers; it has invaded our territories in spite of our armies, fleets, and forts, pp. 134 and 135 (453); and yet it may be destroyed by tobacco smoke, p. 139 (466).

The above is a faithful representation of Mr. Smee's Aphis vastator, as described by him; and I leave the chameleon in the hands of those who feel disposed to study its anomalous propensities, and close my balance of the account with a few assertions of what the Aphis is not:—1st. The Aphis vastator is not the cause of the disease either in the Potato or Spinach; 2d. The Aphis is not the cause of fungi; 3d. It cannot destroy healthy vegetation; 4th. It has never threatened millions of men with starvation; 5th. It has not destroyed the balance of creation, or the harmony of the universe.—*G. Phillips, 4, Upper Park-street, Islington, Dec. 21.*

PLAN OF BELLE VUE, NEAR MASHAM,

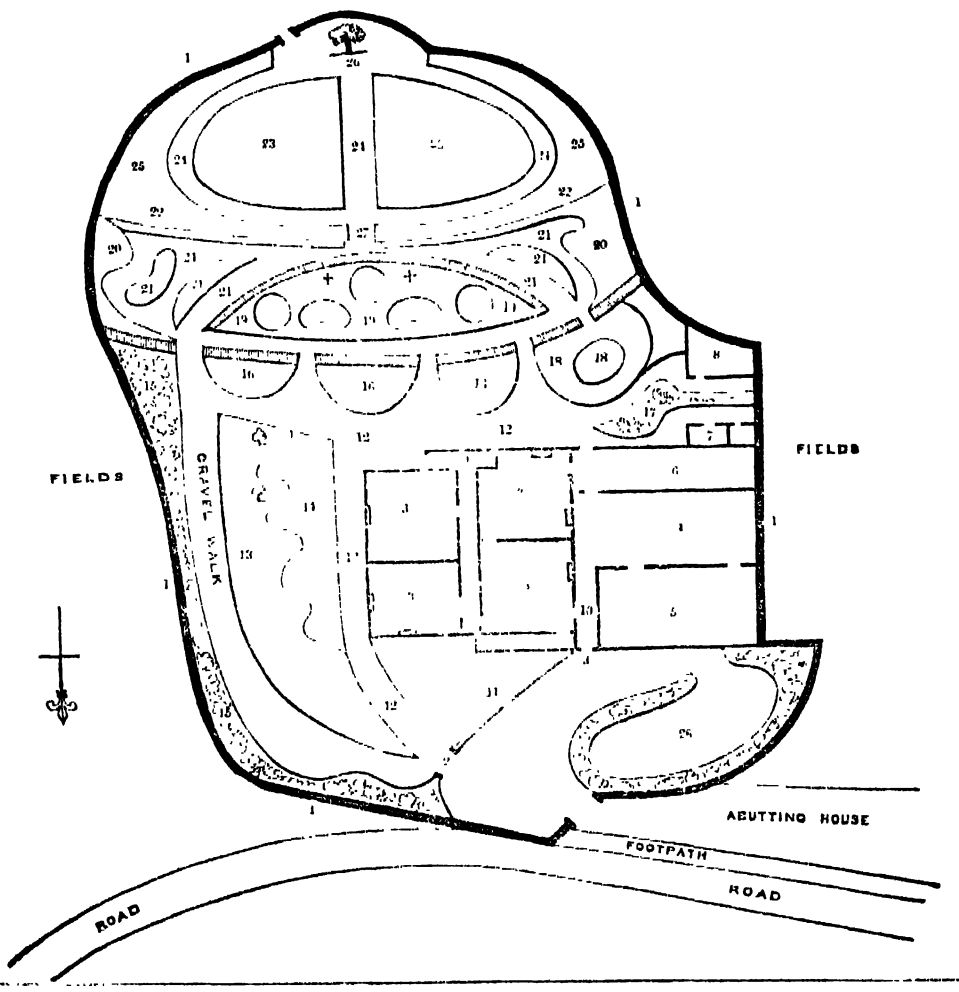
THE RESIDENCE OF G. CUITT, ESQ.

It has occurred to me, that much might be done towards creating and advancing a taste for horticultural pursuits among what may be termed the middle classes, if small plans could occasionally be given, to show what may be done with only a small piece of ground, if the work be properly set about at first. Many a man of comparatively limited income, retiring from a harassing profession, or the worry of business, would gladly resort to gardening as a source of both health and pleasure, were he not too frequently disgusted in the outset by finding or fancying it impossible for him, with his limited means and space, to accomplish anything pleasing or picturesque, and he consequently does nothing; whereas if he had a way pointed out to him at first, his little home would ere long become in his estimation a paradise, not to be exchanged for the palaces or parks of princes.

With this view I beg to give the following plan of a little place in this neighbourhood, the whole extent of which, including the space on which the house and offices are erected, is under half an acre; it was designed by its present proprietor, George Cuitt, Esq., and certainly affords a full exemplification of what may be achieved in a small space, where taste and method are properly made to bear on the subject, for it surpasses any place with which I am acquainted for compactness, neatness, and just arrangement in every respect.

The piece of ground is entirely surrounded by a boundary wall, but not so high as to exclude views of the surrounding country (here very picturesque); and some of these from the windows are very beautiful, more especially one where the river Ure is seen winding through the meadows, with Masham-bridge for the foreground, and Colsen Castle in the distance. The house itself is situated at the north end of the ground, as shown in the plan; and for comfort, convenient arrangement, and unpretending elegance, is, I should imagine, not to be surpassed. The garden is certainly a complete *multum in parvo*, and contains a great number of choice plants, all accurately named, and arranged with the strictest regard to harmony and effect, whether in the beds or borders, or on the rocks; the shrubs are as healthy as possible, and are so tastefully planted in groups and belts as to render the picture pleasing both winter and summer; at one place there is a group of scarlet Rhododendrons; at another, one of the commoner kinds; in another herbaceous plants, and so on. The hedges are very ornamental; the Beech one is about 10 feet high, through which five arches are cut at equal distances; the evergreen Privet hedge has no passages through it but is cut the reverse of the other; that is to say with the arch cut concavely, giving the effect of green drapery hanging in festoons.

The vegetable and fruit departments are also well managed; anything new that is worthy of cultivation is added to the stock; and Mr. Cuitt has himself been very successful in raising new things. Some of his Potatoes I have formerly noticed, and his seedling Strawberries are celebrated throughout the neighbourhood; nor are the beauties of Flora neglected, there is a very good collection of Roses, besides other plants too numerous to particularise; in a word, I consider the place as a perfect model for the imitation of those who desire to possess a little spot wherein they may find health, pleasurable employment, and an inexhaustible source of refined and ennobling amusement.—*J. L. Snow, Swinton Park, Bedale.*



Reference to Plan—1, Approach to front gate and boundary wall; 2, Door into the garden; 3, Entrance door to kitchen, and ground plan of the house; 4, Kitchen yard; 5, Offices and wood-house; 6, Tool shed; 7, Fruit room; 8, Poultry house; 9, Front door; 10, Kitchen door; 11, Holly hedge; 12, Gravel walks surrounding the house; 13, American border; 14, Grass lawn; 15, Plantation; 16, Rockwork, with shrubs at the back, next to Beech hedge, through which are arches cut as entrances to the flower-garden, &c.; 17, Shrubs; 18, Rockery, with circular bed of Roses and tree Pæony in centre; 19, Flower garden on turf, partially surrounded by a Privet hedge, ornamentally pruned; 20, Shrubbery, with Hollyhocks, and other flowers; 21, Flower beds and gravel walks; 22, Espallier Apple trees; 23, Quarters for vegetables; 24, Gravel walks; 25, Strawberries, &c.; 26, Large Elm tree; 27, Rose arch, giving admission to kitchen garden; 28, Soil and compost ground, enclosed from observation by shrubbery; +, +, Two large Apple trees, trained in the form of arm-chairs.

CULTURE OF THE PINE APPLE.

[Sixth Notice.]

At Meudon four fruiting pits, as I have formerly stated, are employed. This constitutes one of the most remarkable features in the whole plan. It will be observed that the pits individually are small; externally they might be taken for one good sized pit, with wooden boxes in front of it. With these Mr. Pelvilain produces annually an enormous quantity of fruit of the first excellence. These are not produced at one season only, but through the whole year. This circumstance renders the system of vital interest and importance in most establishments in this country. In fact it is of the utmost moment to produce a regular supply of fruit, and this alone would secure for the system a preference above other systems. Mr. Pelvilain can have Pines in four different stages, each approaching maturity in succession, and I shall now endeavour to show how this is accomplished.

Suppose a pit to be empty at the end of the year; this is immediately replenished with fruiting plants from the bâches. It is just possible that these would be matured and cleared by the end of July. Mr. Pelvilain would not certainly wait until the following January to get in a fresh stock; having always an abundant supply on hand, he immediately renews it with other plants. These may possibly ripen fruit in the following spring, having started them before Christmas. It therefore does not follow that one pit ripens one crop annually. On the contrary, it is quite compatible with his mode of culture to ripen three crops in two years; and if driven hard, two might, in the same period, be matured, although, probably, this would be at the expense of weight. It must be emphatically understood that no plant is removed into the fruiting pits until it has attained a position to justify this; otherwise it would be an act entailing delay and derangement in the place of culture. At Meudon it is not likely that this would occur, the supply being always abundantly ample. The immense number of Pines that may be grown in a very limited space upon the plan I am now detailing, must forcibly strike all Pine growers; and it is with a view to its general introduction that my feeble efforts have been stirred in the matter, convinced that no plan of culture hitherto adopted is able to produce, with the same trouble and expense, a supply of Pine-apples equal in size at all seasons of the year to those grown at Meudon.

I formerly promised to explain why the system of transplanting is adopted. This, I think, almost explains itself. In the first place it is more economical to grow the plants in boxes where they stand in closer proximity to each other. This cannot admit of a doubt; besides the temperature also required for the young plants is different from that in the the fruiting pits. It has been found in practice that a lower temperature, charged with vapour, is more congenial to the growth of the young plants. The foliage does not become lanky and attenuated, but with an artificial temperature of 60° during the night, accompanied with moisture, the leaves are thrust up broad and stout, as in the case of those at Meudon. The plants must of course be kept near the glass, so as to give them the full benefit of the light. This treatment and temperature I have observed is found more suitable for the growth of the succession plants; but, in the climate of England, these conditions are not calculated to mature the Pine-apple in that perfection which it is capable of attaining. Therefore a higher temperature is required, and much drier, to bring up the saccharine qualities of the fruit, particularly as it approaches ma-

turity. Thus, therefore, the Meudon plan of growing them, in small pits, presents other advantages which cannot be obtained by the common modes of culture; because the whole of the plants in the pit closely approximate the same conditions. There are none producing foliage only—none with fruit half ripened, and others in blossom. These conflicting circumstances never occur under the management of Mr. Gabriel Pelvilain; and I apprehend that no real practitioner in the art will lightly value the importance of such an arrangement, more particularly in the dark and cloudy months of winter, when fruit is expected to be produced in all establishments where the culture of the Pine forms an important item in the garden expenses.

Independently of the economy attending the arrangement of cultivating the young plants separate from those in a fruiting state, their removal has a tendency to throw them more rapidly into fruit; as they are, however, transplanted with the whole of their roots, the constitutional vigour of the plant is not thereby impaired; on the contrary, when they begin to require greater support, the roots have penetrated into the fresh soil; hence they are shortly in a position to supply a larger portion of nutriment than if their removal had not taken place. These facts are self evident, and therefore not to be disputed. Any objections, however, which practical men may urge to the Meudon system, I am willing to discuss, and therefore solicit such, that the public may reap the advantage of practical opinions. It is a subject too important to be scanned over; perfection has not yet been attained even at Meudon; the arrangements there are not perfect, not indeed in the estimation of Mr. Pelvilain, as I shall hereafter show the alterations he has commenced, or about to commence, with a view to simplify and economise his proceedings. —*Mirabile dictu.*

THE AMATEUR GARDENER.

THE CLOSE OF THE YEAR.—Amateur gardeners! we wish you "A merry Christmas and a happy New Year." Amidst Holly and Mistletoe may you enjoy all the luxuries of the present season. Every blooming plant in your greenhouse and every exotic in your drawing-room smiles a cheerful welcome to you, and thanks you for your past care. Now the budding Hyacinths, just beginning to develope their colours, repay you for past exertions, and incite you to future labours. Lest the frost and snow without, prostrating all the beauties of your gardens, should engender a feeling of apathy, and cool down your floricultural tastes, the treasured Roses and Violets and Hyacinths within still link your memory to past and future glories, and "tell a flattering tale that spring will soon return." The very odour of a flower at this sterile season revives a thousand dormant recollections, and makes you long for the time when budding Nature will invite to fresh exertions in her wide domain. Of one thing we may speak confidently, that, other things being equal, the gardener, even at Christmas, will have many pleasures, which he must want whose tastes lie not this way.

Among the dry details of gardening operations, which it has been our duty to present to the amateur gardener during the last twelve months, we have endeavoured to intersperse snatches of thought and sentiment appealing to that hidden and subjective life which perceives natural things in their causes, their intentions, and their results. We would hang a wreath upon the plough, and honour with a chaplet even the humble spade, because these have to be employed by beings whose privilege and duty it is to combine intellectual pleasures with more manual operations. We would not have the gardener forget how all that submits to his hand and appeals to his eye is intended to do more, and to enlighten his understanding and purify his heart. A mere gambler is he who can go to an horticultural show with no higher end than to secure a prize, as though Carnations were edged and Tulips graced with symmetry of form merely to help to fill his pockets. To such a man, flowers bear somewhat the same relations as the beauties of an Oriental slave-market do to the trader in flesh and blood. He is the happy gardener who can soliloquize on a Daisy with Burns, or on a Crocus with Bernard Barton, and who in the shifting seasons and the various beauties by which they are all distinguished, feels himself raised to contemplate their great Author, and "look from Nature up to Nature's God."

> God might have made the earth bring forth
> Enough for great and small,
> The Oak tree and the Cedar tree,
> Without a flower at all.
> * * *
> Our outward life requires them not—
> Then wherefore had they birth?
> To minister delight to man,
> To beautify the earth;
> To comfort man, to whisper hope
> Whene'er his faith is dim;
> For whoso careth for the flowers,
> Will much more care for him!
>
> MARY HOWITT.

When the first Number of the *Chronicle* for 1847 comes into the hands of its readers, that turn of the year will have taken place which immediately gives indications of the great resurrection of Nature. After every frost something will peep up from its earthy bed; leaf-buds will become more plump and prominent, and an occasional flower will herald in the coming festival of the year. To the amateur who is about to dedicate himself still to Flora we hope still to be of use. Numerous are the subjects yet untouched, and the suggestions which remain to be offered. We are gratified at knowing that our labours have not been without their use, and we intend to pursue them as heretofore, mingling the useful with the sweet. If but a very small number of our readers are made to take as much pleasure in gardening as we ourselves enjoy, an ample reward will be ours. These healthful and elevating recreations or duties must be taught to our children, that our pleasures may be theirs; for sure are we that the best hopes of future generations must be based on intellectual toil. We quite agree with the poet that the study of the fine arts corrects brutality and softens manners, and we reckon floriculture among those arts.

> —— ——Ingenuas didicisse fideliter artes
> Emollit mores, nec sinit esse feros.

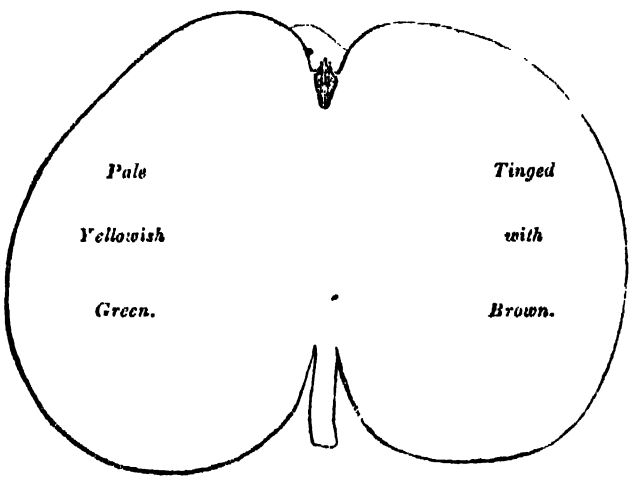
—*H. B.*

THE WORMSLEY PIPPIN.

Synonym, Knight's Codlin.

THIS excellent Apple, either for dessert or kitchen use, derives its name from Wormsley Grange in Herefordshire. The first account of it is to be found in the Transactions of the Horticultural Society, vol. i., p. 288, communicated by Mr. Knight, together with cuttings of the variety, in 1811.

The flesh is white, crisp, juicy, rich, and sugary. In perfection in October and November. Tree vigorous, an abundant bearer, not subject to canker. Shoots dark brown, under a thin silvery cuticle and slight pubescence, sprinkled with roundish pale-grey dots. Leaves large, ovate, acuminate, cordate at the base; petioles about an inch in length, pubescent, slightly tinged with red. Flowers middle sized; petals obtusely ovate, somewhat cordate at the base.



As a kitchen Apple, the Wormsley Pippin possesses peculiar excellence. It requires very little sugar, some say none; however, with comparatively little, it far exceeds the generality of kinds employed for culinary use. When the fruit is so well exposed as to acquire a brownish tinge next the sun, its flavour proves such as to rank the variety amongst first-rate dessert Apples, notwithstanding its rather objectionable large size. But doubtless when it becomes well known, objections with regard to size will decrease, as in the case of the celebrated Newtown Pippin. When it was first made known by Mr. Knight, as above-mentioned, he stated that many of his friends thought it the best Apple of its season; and in his own opinion, the consistence of its pulp more nearly resembled that of the Newtown Pippin than any Apple with which he was acquainted.

It deserves most extensive cultivation. In an account by Sir George S. Mackenzie, Bart., of some varieties of the Apple which were found to succeed in a garden in Ross-shire, lat. 57° 34′, published in "Hort. Soc. Trans.," vol. 7, p. 333, it is stated that "the Wormsley Pippin, trained on an espalier, has proved hardy, and attains a very large size." Being thus hardy, and a good bearer, it is certainly a very suitable variety for cultivation in cottage gardens. It appears from Mr. Downing's excellent work, the "Fruits and Fruit trees of America," that a very different and inferior sort of Apple, with firm acid flesh, is cultivated in that country under the name of the Wormsley Pippin; perhaps also in this country, if in it the source of the above error has ever existed.—*R. T.*

Home Correspondence.

Vitality of Diseased Potatoes.—I beg to mention that I spread a few Potatoes, both good and bad, about 3 inches underground, so that they should not touch, in the end of September. Observing sprouts, I opened them in about six weeks. I found that none of the sound ones had sprouted, but all the bad ones had. It appeared to me that there were also tubers forming.—*Investigator.*

Bees' Comb.—"A Bee-keeper," p. 778, notices what I stated, p. 760, respecting pure combs, both in glasses and under hives, being of much use when the bees begin to work afresh in them the next season. "I do not question," says he, "the use of the comb to the bees, but I do the advantage of letting it remain to the bee-keeper." Now, what is of use to bees must, of course, be profitable in the end to their master. Bees having pure comb to begin afresh with is objected to on these grounds, that "the next year many of the cells, instead of containing honey, will be filled with young brood." In my practice with bees I have always had more reason to complain of their not working in glasses, from the want of comb to entice them than of brood in them. Indeed, when bees are properly managed they seldom have brood in glasses or caps; and were it not for want of space in the hive they would not have recourse to such a plan. Perhaps the combs in the glasses in question were formed in the latter part of the season, and were not for brood; supposing they were, still there would be no certainty of brood being in them when used again, especially if the glasses were on the hives about the 1st of April or middle of May, according to the season. During the past season I put a bit of dark brood comb in a glass, which reached from top to bottom, the cells of which the bees themselves lengthened, and this superadded work of theirs made it to outward appearance as clear and fresh as new comb; so clear indeed was it, that I obtained the first prize at the Norwich Horticultural Society. If this is not enough, I ask why do practical opinions recommend fixing combs in glasses, in order to entice bees to work in them? As regards leaving pure combs in under hives, there is much time saved by it; but if they were "cut out" would that induce the bees to make honey cells instead of brood ones? My decided opinion is, that it would not. Both sorts of combs would nearly correspond with those in the hive above, the brood ones in the centre, and perhaps some of them would contain eggs, when only about the size of an oyster shell. And why not? such would only show the prosperity of the colony.—*H.*

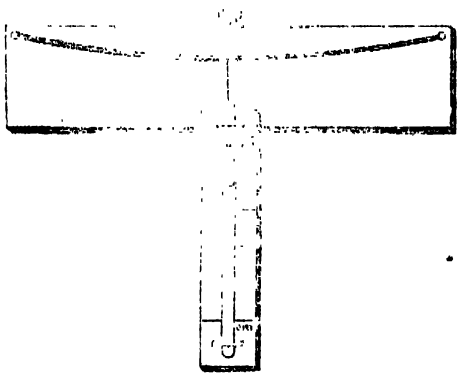
Strawberries.—I am extremely glad to find the Hautbois Strawberry taken up as a theme by one of your correspondents, and I sincerely trust that many others will contribute their mite to explain the mystery which appears to enthrone this invaluable fruit. The experience of "B" with regard to the distinction of sexes is, however, at variance with my own observation on the subject, although consonant with popular opinion. The talismanic change effected in both his beds, and with each individual plant, is indeed a *lusus naturæ*, if it be not traceable to some mistake. To the latter cause only, I think, can the scientific enquirer refer it. It is so much at variance with Heaven's fast laws, the order and design which pervade creation. Surely some error must have occurred. In submitting the plan for forming a bed, as proposed by the late Rev. Sidney Smith, I confess I had no serious intention of recommending it, and only communicated it as a satirical hint. I have frequently examined some hundreds of blossoms of the Hautbois without finding one which had not the rudiments of both sexes, but the receptacles of many flowers never seem to enlarge, after a certain period turning brown and drying up. To what cause this is owing I must leave those to determine who have a more profound knowledge of structural botany than a practical man can be supposed to possess. I am of opinion that the plants cannot be properly selected at the period of blooming, and last year succeeded in getting a productive bed from runners traced out when the parents were in full bearing; this I have found to be a sure course of proceeding. The soil for the Hautbois should be strong and rich, and it is probable that the uniform moisture afforded by such sods greatly assists the enlargement of the fleshy receptacle, as compared with lighter ones, which are more susceptible of sudden changes and upon which the fruit often shrivels up.—*Henry Bailey, Nuneham.*——I would add that in the gardens here the Hautbois is extensively cultivated without any regard to the intermixing of the male and female plants, and bears most abundantly; indeed, the clusters are so fine and numerous they might be mown down; the situation is partly shaded; soil, a sandy loam, highly cultivated, and the plants planted in single lines with a well-trodden pathway on one side. This last condition I find highly advantageous, particularly in dry adverse seasons, not only for this but for all Strawberries.—*H. Bowers, Busbridge, Godalming* —— Your correspondent "B." seems unaware that there are varieties of the Hautbois Strawberry, some having the male and female organs in the same blossom; others the male organs in one, and the female in another; but I have always observed the latter bear the finest fruit, and the condition of the soil in which your correspondent's plants were grown, being good, I have no doubt induced a change of the condition of the plant, and caused the production of both organs in the same blossom, as I have myself before observed. I believe the Hautbois prefers a rich, good soil, and lasts but a few years, and is very liable to degenerate; at least I have found it so with mine, and I should be glad to obtain plants of your correspondent "B." to make trial of, and to pay for them, if he will favour me with his address. The liability to change in many of the newly-raised kinds is known to most growers. Some years ago I cultivated one of the early raised new varieties—the Wellington (a sort, I believe, not unknown), and being about to leave home, I planted a small bed in a secluded spot, hoping at some future day to find the stock. I had frequent opportunities of seeing them, and by neglect they all became blind. A few years afterwards, having settled where I now reside, I took up several roots, and planted a single row in a small bed, and in a soil admirably suited for Straw-

berries, and carefully trained each runner, reserving only the best plants, and to these I gave every encouragement, and obtained a fine bed of healthy stocky plants, and in the following year they all produced fruit, but neither of them having any resemblance whatever to the original Wellington; all were a white, pithy kind, and to which I have frequently found other kinds degenerate. I think the most suitable kinds for general cultivation are Keens' Seedling for an early supply, the old Pine for a general crop, and the Elton Pine for a late crop; but I must add I know of none better than a dish of fine well ripened Hautbois. The most extraordinary crops I ever saw grown have been in a nursery garden close by me; for the last 18 years I have known the beds (upwards of half an acre) never to have failed, and I understand they have been constantly grown there many years previous without the slightest attention, except merely raking off the weeds and rubbish, and when the beds have become too foul, digging them up immediately after the crop, and replanting in the autumn following. I have never observed any tendency among them to degenerate. The sorts now grown are Keens' Seedling, and the old Pine, formerly the latter kind only. The soil is a deep rich rather tender loam, and partially shaded by fruit trees.—*George Wood, Rochford, Nov.* 23.

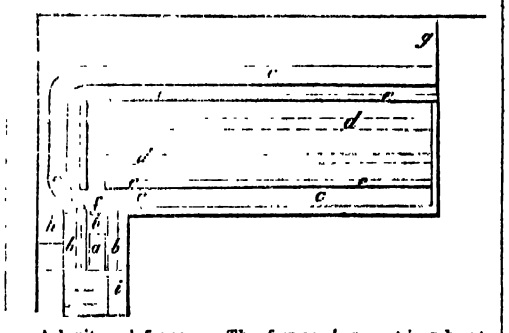
Aphis Rapæ.—I see by my journal that this insect swarmed everywhere last autumn in the Turnip fields. On the 13th of Oct. this Turnip louse (or Smother-fly, as it is called by the farmers), was abundant in houses, and on both sides of my Vine leaves, but it did not pierce them for nourishment. I named it Aphis Rapæ, in the 3d vol. of the "Royal Agricultural Journal," published in 1842, and also gave magnified figures of the sexes to illustrate its history. As it breeds upon the Turnip-leaves, I cannot see any reason for superseding the name of Rapæ, even if it were not contrary to the law of priority established by men of science to prevent confusion. This insect, which has lately been noticed under the name of A. vastator, may be universally distributed, but it is not destined, I apprehend, to feed on various vegetables, and in all probability is confined to edible Cruciferæ. I, therefore, believe it is only found accidentally upon the Potato, as it is in the autumn upon every green leaf that falls in its way during its migrations.—*J. Curtis.* [*Qu.*: Does Mr. Alfred Smee know Aphis Rapæ when he sees it?]

Polmaise Heating.—It will be satisfactory to Mr. Meek, who has so generously given the public the benefit of his talents, to state that Mr. Plumridge, of Bletchingley, has built a stove and apparatus for me, to heat a lean-to greenhouse, 33 feet long, and that it answers in every way. The colder the external atmosphere the greater is the draft; and in the late very severe frost, the temperature of the further end of the house was easily regulated to 45° average, with less consumption than a bushel of coke and cinders per day. —*G. E. H., Ramsgate, Dec.* 21.

Hygrometers.—The annexed is a simple contrivance for measuring the moisture in hothouses. Its inexpensiveness and efficiency for ordinary purposes may render it acceptable where more complicated instruments are not attainable. Procure a thin piece of board, $\frac{3}{4}$ths, well dried and painted, 18 ins. long, and 9 ins. broad, and nail on in front, within an inch of its lower lengthway edge, exactly in the centre, and at right angles, a strip of the same thickness, 2 ins. wide and 12 ins. long. Within an inch of the top of the cross piece at each end a brass nail is to be driven, and stretched across from nail to nail is a bit of well-twisted whipcord in a perfectly wet state, having been previously soaked in a solution of common salt and water; the cord is not to be drawn very tight, but merely gently brought into a straight line: to this a fine bit of silk thread, about 11 ins. long, well waxed, is to be attached, and suspended from it a small glass weight, such as is used in common wheel barometers. A glass tube is to be affixed to the narrow strip of wood, of the length of the strip (*i. e.* 12 inches), of a calibre just sufficient to allow of free play to the glass weight. The strip of wood should have a fine stout piece of paper pasted over its whole front before fixing the tube. Upon this a mark is to be made at the lower extremity of the glass weight now placed within the tube, which will indicate the extreme point of saturation of the cord, it being thoroughly wet. The nails must be of sufficient length to allow the cord to have free play, and the silk thread to be exactly plumb with the tube. The instrument must then be placed before a fire, so as gradually to drive off all the moisture from the string. The little weight, as the string dries, will descend into the tube, and when perfectly dry, a line is to be drawn on the paper immediately below the weight, which will indicate extreme dryness. A scale of tolerable accuracy may afterwards be drawn on the paper from between these two points. It does not answer to have this contrivance as a fixture in the stove or Orchid house; but whenever required, it can be taken into either house for about an hour, by which time the string will have absorbed a sufficiency of moisture to indicate the degree of humidity of the atmosphere. I should recommend when the instrument is not required, that it be always kept in a very dry place; and should the cord be damp in any degree, when about to make use of the instrument, it will be as well to place it before the fire for a few minutes, to entirely dissipate all moisture. One on a smaller scale than this answers the purpose; but this is the rough kind of thing which may be got up by anyone with very little trouble or expense, and it will be found to answer very fairly, where the more costly and delicate hygrometers cannot be had.—*R. M.*



Polmaise Heating.—I have made an experiment on a very small scale (in a forcing house 16 feet long by 8 feet wide), the results of which I send, together with a plan of the house and situation. I may say here that the situation limited me in the size of the house, and I am aware that the furnace (a cast iron box of 9 inches wide by 11 inches high, and 2 feet long) is sufficient to warm a range of building much larger, probably four or five times the space. The thermometer has ranged during the last month from 56° at 10 o'clock at night, to 50° in the morning; the last few days the temperature has been kept lower, from 50° to 45°, the variation being the same. Together with this equal temperature, there is a steady bottom heat of at least 70° in the plunging pit. These two advantages show a large balance in favour of the Polmaise system; although in an economical point of view there is a great waste of the warmth to be derived from the smoke. But I acted upon the very decided advice you gave in a Leading Article, and discarded the smoke altogether. In estimating the value of the different systems, it must be borne in mind that with hot water pipes, as in Polmaise, the value of the smoke is lost; while comparing Polmaise with smoke flues, a purer and more lasting atmospheric heat is obtained, plus the bottom-heat. The cost of the setting the furnaces and flues was, perhaps, a few shillings more than a smoke flue would have cost; because the work was new to the bricklayer, and he often had to stand still for instructions. Expense will be saved, and failure avoided, only by the master making himself thoroughly acquainted with the principle and details, before he sets men to work. The water-pan I have placed in the neck of the flue running from the hot-air chamber into the hot-air reservoir under the plunging pit; an old furnace door that was at hand is fitted in, and the water-pan put through it, so that it can be moved nearer to or farther from the hot-air chamber, as experience may guide; and the water is supplied through the door instead of by a pipe through the roof, as I remember was the case in one of your published plans. Below is a plan and explanations.



a. Ash-pit and furnace. The furnace is a cast-iron box to prevent the escape of smoke; cost 24*s.* Probably fire-brick sides and an iron top, with the ends returned, would do as well.

b b b. Hot-air chamber, leading from

c c. Cold-air drains, the sides supported with Elm boards, instead of brick, 3 feet below the floor.

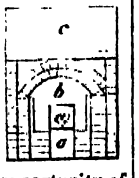
d d. Substruction of the plunging pit: open brick-work, serving as a reservoir of warm air, from whence it flows into the house at

e e. Apertures. One brick out. Let it be the *top* one, else you have more bottom-heat than you want, and too little in the house.

f f Neck of flue leading from *b* to *d*, in which place the water-pan.

g. Doorway; *h.* chimney, outside the house; turn of the chimney in house; *i*, place for fuel.

Section of the lean-to, containing the furnace, &c.



a. Ash-pit and furnace.

b. Hot-air chamber, covered with a brick arch that is covered with sand; then come the slates; then more sand, and the outside covering, *c*, is a sheet of prepared zinc.

—*W. S.*

Polmaise Heating.—Having had the opportunity of seeing the Polmaise system of heating carried out by Mr. Kendall, I perceived so much advantage in it as decided me on immediately applying it to my own houses, and for that purpose I called in the assistance of Mr. Lewis, builder, of Stamford-hill, who has devoted much consideration to the subject. I wished to apply the new plan to my old furnace and flues; and the surface over the furnace available for an air-chamber being very limited, seemed to present an obstacle to the attainment of much heating surface. Mr. Lewis immediately suggested a second or middle plate, an inch or two shorter than the air-chamber, which gives twice the distance for the air to travel through. The upper, or third plate, has an aperture in it, on which is placed a small shaft, 3 feet in height; and about one hour after the fire was lighted we had the satisfaction of finding the air rushing into the house at a temperature of 220°. The only aperture by which the cold air is supplied is within a few inches of the shaft; thus proving the simplicity and great power of this new application, I believe, of the system, as the whole of the plates and the two air-chambers are only 6 inches in depth. My old flues and furnace remain as usual, the only alteration being the taking off the brick crown of the furnace, and substituting an iron plate. The following is the temperature of my houses, three in number, and about 75 feet in length, communicating with each other by doors only:—

	Tuesday night, 11 *o'clock.*	*Six o'clock next Morning.*
6 feet from the fire	48°	42°
25 ,, ,, ...	40	39
50 ,, ,, . .	38 . .	36
End of another house, the fire being between the houses ..	37	34

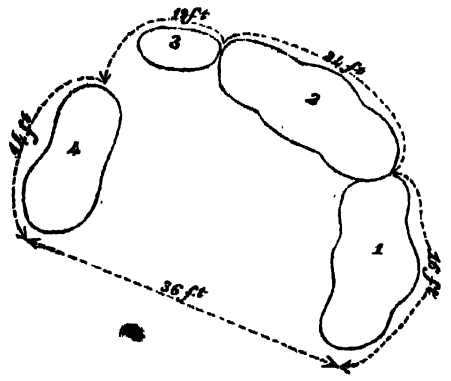
The thermometer being with me the same at 11 at night as at 6 in the morning, viz., 25°.—*J. Brampton, Albion-road, Stoke Newington, Dec.* 17.

Foreign Correspondence.

Constantinople, October 25th, 1846.—Crossing the Black Sea from Odessa to this place the contrast is as great in agriculture as in everything else—if the word agriculture may be applied to the routine process by which the steppes are made so productive—for here both agriculture and production seem to be wanting. It is almost inconceivable that a town like Constantinople, covering such an immense extent of coast, and often to a considerable breadth with its dense population should terminate so abruptly in unproductive wastes on the European as well as on the Asiatic side. From the suburbs west of the Seven Towers, almost to Bujuhdére, a distance of near 14 miles, there is an uninterrupted line of building along the European shore, and for several miles the houses are closely crowded on each other to the breadth of one, two, or even three or four miles, and, with the exception of the palaces of the sultan and the grandees, the tenants as closely packed in the houses as in any capital in Europe; but I never saw any large town where the surrounding country was less made to supply its wants. As soon as you leave the last houses, you come into heaths and rough pastures covered with Poterium spinosum, and other dwarf shrubs, furnishing a scanty food to a few herds of oxen or flocks of sheep. In a few valleys opening on the Bosphorus, or on the Sea of Marmora, are some small meadows and kitchen gardens now containing little but Tomatoes, Aubergines, Bottle-gourds, Cabbages and weeds. About Scutari, and in a few places along the Bosphorus, are vineyards and orchards from whence Grapes for eating, and other fruits, are sent to the markets of Constantinople, and in the interior a small patch of young corn, or of ploughed ground, may be met with here and there, but beyond that Constantinople is entirely supplied with provisions brought from a distance by water; mostly from the Black Sea. The corn is chiefly from the northern provinces towards the Danube; the best fruit and vegetables from the coast and islands of the Sea of Marmora.

The soil of this part of Rumelia, as well as of the opposite Asiatic coast, is, it is true, in many places very poor, and would nowhere produce fine crops without care, as in South Russia; but a great deal of it might certainly be made productive, as is evident by the vigorous growth of undershrubs, as well as of the few trees scattered here and there, and which resist the fury of the elements even in very exposed situations. Those planted by man are in general Plane trees, near where there is water, Cypresses near tombs, Stone Pines near habitations and in gardens, with a few Ashes, Elms, and sometimes Limes in the valleys; but on the summit of Bulgurla, a hill above Scutari, the highest in the neighbourhood, and the most exposed to wind is a small group consisting of two spreading Cypresses, an Ash, and two or three Alders; and not much lower a few Oaks, Stone Pines, and Planes all evidently very old and yet retaining a great deal of vigour. The Plane tree is everywhere the Oriental one, and attains an enormous size. One in one of the courts of the Seraglio measures 42 feet round the stem at 5 feet from the ground, but is now fast decaying, and is quite hollow. The celebrated Seven Brothers of the meadows of Bujuhdéré, have now suffered much, partly from age and natural injuries, but still more from the hand of man. These singular trees are Oriental Planes of immense height, so grown together at the bottom that it is impossible to say how many there originally were. There are now nine stems, and a tenth is said to have died but lately, and they form at present four groups, of which this is a rough sketch. Nos. 1 and 2 are each divided into three, at the height of from 2 to 4 feet from the ground, and No. 4 into two stems, likewise at a few feet from the ground; No. 3 is a single stem, but the roots or base of the trunks of Nos. 1, 2, and 3, are so intimately grown together to the height of several inches above ground that they all appear to spring from one root, like the stems that spring up from one root in a copse wood; No. 4 is a little removed from No. 3, but there appears to have been a stem between them

If this group is really formed of a number of trees planted close together in a square, as the Turks often do round a fountain, their intimate union at the bottom is very remarkable, and one can hardly conceive that they can have sprung from one trunk, which must in that case have been 40 feet in diameter. No. 4 is now fast decaying, and the hollow in it is so large that a gentleman of our party rode into it, and turned his horse round in it; the others are still in tolerable vigour.



The Cypresses give a very peculiar character to the burial grounds, where they form dense groves, and to many gardens, where they are mixed with other trees. They are generally the erect variety, and of great beauty. One in the Seraglio gardens, of great height and perfect symmetry, had a stem of 15 feet circumference 5 feet from the ground. There is also a good many of the spreading Cypress, evidently a mere variety, and a few intermediate forms, but none equalling the erect one in beauty. The only Pines I have seen are the Stone Pine, and those apparently all planted. The Ash is probably indigenous, and is a very handsome variety (?) of F. excelsior, with a more slender and graceful foliage than our common northern form, and appears to retain its leaves very late. The form of its leaflets and fruits are, however, much nearer to our F. excelsior than to the F. oxycarpa of the south of France and of the south coast of Crimea. The common Oak about Constantinople (where it is, however becoming scarce) and especially about Scutari and along the Asiatic shore of the Bosphorus, is a very beautiful variety of Q. pedunculata, with graceful slender branches, having a great tendency to hang or *weep*, as our gardeners term it, together with a dwarf prickly evergreen species, probably Q. coccifera, though with a darker foliage than is usual in the south of France. A few miles to the north of Constantinople we meet with a good deal of a cut-leaved Oak, of which I only found old Acorns, but I have little doubt of its being a variety of Q. Cerris. It is generally so much cut as to be reduced to a bush, but even in the forest of Belgrade, where it is less molested, it forms but a poor tree. This forest, about 18 miles from Pera, at the foot of the extremity of the Balkan, from the form of the hills and the richness of the vegetation, even at this dry season, is celebrated among the beautiful spots of the neighbourhood; and though there is nothing in it to compare to the Bosphorus, yet it abounds in rich forest scenery. It consists almost entirely of Oak, Chestnut, and Hornbeam.* The Oak, besides a few Q. Cerris, is the Q. sessiliflora, but varying so much in the form of the leaf, the length of the leaf stalk, the colour of the foliage, and the mode of growth of the tree, that I could not believe that there were not several species, till on the comparison of a great number of trees I could find no definite limits to any one form. The Hornbeam is the Carpinus Ostrya, not the C. orientalis, which I had gathered at Trieste on the one side, and in South Crimea on the other. The Terebinth trees are not uncommon close about Constantinople, and sometimes grow to a considerable size. They have now lost their fruit, and almost all their leaves, but appear to me to belong to the same species as the Crimean Pistacia mutica, not to the shrubby P. terebinthus of the south of France.

Reviews.

Outlines of the Geography of Plants. By F. J. F. Meyen. Translated by Margaret Johnson for the Ray Society. London. 8vo.

We thank the Ray Society for this addition to the literature of Botany; we thank the fair translatress (is there such a word?) for the way in which she has performed her task; but we do *not* thank the Editor for the supervision he has given to the work as it passed through the press, for it is full of misprints which would have been discreditable to even the "Reader" in a printing-office, who is not expected to understand technicalities, if there had not been a scientific (?) editor specially charged with the duty of looking to details. As it is the misprints are disgraceful. Take the following examples: Tigrina, p. 150, for *Tigridia*; Lianas, p. 151, &c. &c., for *Lianes*; Boemehriæ, p. 141, for *Boehmeriæ*; Hackeæ, p 136, for *Hakeæ*; Psidrum, p. 138, for *Psidium*; and a thousand more; to which we should have added the word Isochimenal, for *Isochimal* as it is always written in English, if both words were not perhaps ill constructed, and if the former were not sanctioned by Meyen. And then what can we say of an Editor, a Secretary of the Ray Society! who after perpetrating these offences cannot see that when the author compared the climbing plants of Europe with those of the tropics, he *must* have inadvertently written Lonicera Xylosteum, for L. Periclymenum. Does the Editor *not know* that L. Xylosteum is not a climber?

Passing by these matters, which, as we have said, are discreditable to the Ray Society and its Editor, we must add a word respecting the work itself. Prof. Meyen may be said to be the best person on whom the mantle of Humboldt has fallen: and this is quite true, however ungainly he wore it, or however much it was patched and torn. Humboldt, we repeat, is the only man who has been able, from his manifold acquirements and his admirable power of generalising, to deal with a subject the beauty and importance of which are only excelled by its difficulty. Humboldt saw the value of Botanical Geography in its high applications; he perceived that if it were possible to show that the forms of vegetation depend upon cosmic forces, upon heat, moisture, atmospheric pressure, soil, &c., and that if any rules could be obtained which would serve to connect the one with the other, that would be indeed a noble branch of science. He made the attempt, with wretched materials, and he succeeded — so far as to induce others to pursue the same train of inquiry. But how have they pursued it? Not by a skilful application of well ascertained facts to rational theory; not by building a plausible theory out of the rough materials around them; not by any one process of generalization or combination. On the contrary, some have limited themselves to the details of a province; others have been contented with collecting facts, or what are called facts, and throwing them pell mell into a bag out of which those may fish them who have a mind to it. Writings of this class form a very valuable ore no doubt—to those who have patience to roast it and reduce it—but are only shapeless stones to the mass of the world. Meyen is an exception; he had great personal experience in the facts of Geographical Botany, and he had a good turn for generalization, but he wanted accuracy, and he was crotchety. Nevertheless his book is the only one since Humboldt's early essay, in which a consistent and intelligible account of the whole subject is to be found. Are there no new labourers in this ground? is there no highly educated patient German capable of giving consistency to the flashes of his great country-man? If not, we despair of any further progress being made in a very curious department of science, in which it is almost vain to expect that any of the restless struggling throng of Englishmen should give himself the time to distinguish himself.

Bordeaux, its wines and the Claret country. By C. Cocks, B.L. 8vo. Longmans.

The most important part of this book is what relates to the Bordelais wines, and that is chiefly compiled from Franck's valuable "*Traité des vins du Medoc.*" The critical reader who wishes to understand the quality of claret, will of course refer to the original; others may be satisfied with the account given by the English author. Buyers of claret may also find additional information as to the vintages since 1834, when M. Franck's account closed. The substance of this information is that the only good years have been 1841 and 1844, all the others having produced bad or inferior wines.

New Garden Plants.

62. Coelogyne ochracea. Ochre-spotted Coelogyne. *Stove Epiphyte.* (Orchids.*) Mishmee Hills.

From T. Brockelhurst, Esq., of the Fence, near Macclesfield. Its pure white flowers, with bright orange yellow blotches on the lip, are very pretty; and they are, moreover, extremely sweet-scented. Like most of such plants, it may either be grown in a pot, or fixed upon a block of wood, and suspended from the rafters of the house. The chief point to be attended to is to rest it judiciously, by keeping it cool and dry, after the growth is completed for the season. It is multiplied in the usual manner, by dividing the pseudobulbs.—*Botanical Register.*

63. Calycotome spinosa. Spiny Calycotome. *Hardy Shrub.* (Leguminous plants.*) South of Europe and Barbary.

A pretty shrub, capable of withstanding the ordinary winters in the open border, but injured by severe ones. It grows freely in any dry loamy soil, and flowers in June. It is increased by seed, and is two years before the plants bloom, which is in May.—*Botanical Register.*

Miscellaneous.

Dr. Sprengel's Herbarium.—We understand that the heirs of this celebrated botanist are desirous of selling his herbarium. It is represented to consist of 21,800 species (without reckoning the numerous sub-species and varieties) in the best order, and arranged after C. Sprengel's Systema vegetabilium, with an exact catalogue written by himself. It comprises unique duplicates of the herbarium of John Reynold Forster, the companion of Captain Cook (of 800 species), the rich presents of the East India Company, and almost all the collections of travelling botanists which were sold in the first third of this century. The price is 200*l.*, as we learn from his son, Dr. Anthony Sprengel, of Halle, in Prussia.

The Tein-ching, or Chinese Indigo.—When in the north of China my attention was directed to a plant largely cultivated by the inhabitants for the sake of its blue dye. In the southern provinces a considerable quantity of indigo (Indigofera) is cultivated and manufactured, besides a large portion which is annually imported from Manilla and the Straits. In the north, however, the plant which we call indigo is never met with—owing, I suppose, to the coldness of the winters—but its place is supplied by this Isatis indigotica, or the "*Tein-ching*," as it is called by the Chinese. I met with it in the Nanking cotton district, a few miles west from Shanghae, where it is considered a plant of great importance, and covers a large tract of country. It is grown in rows, a few inches apart, and at a distance looks like a field of young Turnip or Cabbage plants. In June, 1844, when I was in that country, the plants were from 6 inches to 1 foot in height, and being considered in perfection the natives were busily employed in cutting them and removing them to the manufactory. One of these places which I inspected was close on the bank of the canal, and was placed there for the convenience of the farmers, who brought their leaves in boats from the surrounding country, as well as to be near the water, a large quantity of which was requisite in the manufacture. It consisted of a number of round tanks, which are built for the purpose of steeping the leaves. The leaves are thrown into the tanks and covered with water, and, after remaining for a certain length of time, the juice is drawn off into other tanks, where I believe it is mixed with lime. The colour of the liquid at first is a kind of greenish blue, but after being well stirred up and exposed to the air it becomes much darker and very like the well-known indigo of commerce. I suppose it is thickened afterwards by evaporation in some way, but that part of the process did not come under my observation. I am very much inclined to believe that this is the dye used to colour the green teas which are manufactured in the north of China for the English and American markets; this, however, is only conjecture. The plant has a half-shrubby stem covered with a fine bloom. Its root-leaves are oval-lanceolate, on long stalks, sharp pointed, slightly toothed, and somewhat fleshy; those on the upper part of the stem, near the flowers, are linear. The stem is decumbent, a foot and a half long, and divided at its extremity into several drooping racemes about 6 inches long; on its sides it bears here and there small clusters of leaves like those of the root. Flowers very small, yellow. Silicles black, quite smooth, 6 lines long by 2 wide in the broadest part, oblong, obtuse at each end, a little contracted below the middle, with a thin edge and a single median line.—*Fortune, in Journal of the Horticultural Society.*

Oregon Mammillarias, their Natural Habits.—The one from the Platte-plains is small in size, somewhat Pear shaped, with very dense and closely radiating spines, which cross each other; the flowers likewise small, rose coloured. It was first discovered by Dr. Mersh, of Luxemburgh, in the suite of Sir Wm. Stewart; so I noted it down in my journal as M. Mershii. A third species of Mammillaria I found on the Oregon plains, while searching for a Melocactus. Of this I brought dry specimens to London, and Mr. Scheer, at Kew, has already raised several from seeds. The above mentioned Melocactus was gathered by Chief-factor Macdonald, at Fort Colville, but the exact habitat was forgotten; the one specimen found was afterwards in possession of Dr. Tolmie on the lower Columbia. From the information I could gather at Fort Walla-Walla, the true habitat of this Cactus is at the "Priests' Rapid," on a rocky island in the Columbia river, about sixty miles above Fort Walla-Walla. A circumstance seems to me to deserve some notice respecting the above three Mammillariæ; they become buried by sand and dust at the approach of winter so as to be hardly visible; even in the summer months they scarcely show more than one third above ground. This seems, indeed, a provision of Nature to protect these tender succulents against the intense cold of so high a latitude and altitude. Such is not the case with M. simplex and vivipara, which remain firm above the hard gravelly surface, or granite rock. There is, however, a great difference in the seasons, which is in favour of the latter two, while the former are yet covered with deep snow, these are already vegetating (May), and about the middle of June the pulpy fruit is already coloured, on the growth of the same spring; so that the plant has the whole long summer to harden its texture for the very severe winter. Those in the higher altitudes are scarcely in bloom (beginning of September), when snow-storms have already set in, therefore the fruit has not time to ripen the same year, and the fructification is, so to say, biennial, or on the growth of last year. Among the Opuntiæ is the fragilis, Nutt, the lowest and not seldom covered with sand, but it also occurs on firm soils, though a prostrate species; the same is the case with O. vulgaris, on the granite rocks in the neighbourhood of New York, and in the sandy Oak-barrens of northern Illinois, near Beards-Town; O. Missurica remains erect and quite

* Murray's "Handbook for the East," in speaking of this forest, says, "These (the Beeches), with Birches, Oaks, Plane-trees, the Ilex and the Pine, the Elm and the Poplar, interweave their branches and foliage." Of the eight kinds here mentioned only one (the Oak) forms any considerable portion of the forest, the Poplar (P. tremula?) is very scarce, Planes, Pines, and Elms are only in the gardens of the village of Belgrade, and neither Beeches, Birches, or Ilex are to be seen at all, whilst the Chestnuts and Hornbeam, which together form half the forest, are not mentioned. We are told also that the trees are never touched by the axe, whereas in a great part of the forest there are few that are not mutilated by the most wanton lopping and hacking.

* See Lindley's "Vegetable Kingdom" for an explanation of these terms.

flam. The Mammillariæ afford quite a seasonable refreshment in the Missouri Plains; though only during the time of growth while the fibres are tender. In taste they resemble raw Cucumbers; the same may be said of the young shoots of the Opuntiæ; the latter, however, proved a great annoyance to the travellers, especially as there are no other shoes worn in that part of the wilderness than of buck-skin; they are more easily avoided by day, but it is quite impossible to move about at night, even horses get lamed by stepping carelessly in these thorny bushes. In the month of June they show their large bronze-yellow flowers in abundance, which are only open during noon-day hours; and in warm weather the stamens evince the same irritability as those of Berberis and Sparmannia.—*Hooker's Journal of Botany.*

Hops.—Mr. Epps, Bower Nursery, Maidstone, has received instructions to ship 50,000 sets of Hop plants for Hobart Town, where the soil and the climate are said to be most congenial.

On the Duration of Woods, and means of prolonging it.—The following are the results of experiments made with great care and patience by M. G. L. Hartig:—Pieces of wood of various kinds, $2\frac{5}{8}$ inches square, were buried about an inch below the surface of the ground, and they became decayed in the following order:—The Lime, American Birch, Alder, and the Trembling-leaved Poplar, in 3 years; the common Willow, Horse Chesnut, and Plane, in 4 years; the Maple, Red Beech, and common Birch, in 5 years; the Elm, Ash, Hornbeam, and Lombardy Poplar, in 7 years; the Robinia, Oak, Scotch Fir, Weymouth Pine, and Silver Fir, were only decayed to the depth of half an inch in 7 years; the Larch, common Juniper, Red Cedar (Juniperus virginiana), and Arbor-vitæ, at the end of the last-mentioned period remained uninjured. The duration of the respective woods depends greatly on their age and quality, specimens from young trees decaying much quicker than those from sound old trees; and, when well seasoned, they last much longer than when buried in an unseasoned state. In experiments with the woods cut into thin boards, decay proceeded in the following order, commencing with the most perishable:—

1 Plane.	10 Maple.
2 Horse Chesnut.	11 Silver Fir.
3 Lime.	12 Scotch Fir.
4 Poplar.	13 Elm.
5 American Birch.	14 Weymouth Pine.
6 Red Beech.	15 Larch.
7 Hornbeam.	16 Robinia, or Locust.
8 Alder.	17 Oak.
9 Ash.	

It has been proved by repeated experiments that the best mode of prolonging the duration of wood is to char it, and then pay it over with three or four coats of pitch. But simply charring the wood was of very little utility, as were likewise saturations with various salts, acids, &c.—*Hartig, Revue Horticole.*‖

Calendar of Operations.
(*For the ensuing Week.*)

Preparation of Fermenting Materials.—In most gardens in the country leaves can be collected, and when properly managed they form perhaps the most useful source of bottom heat with which we are acquainted, except, of course, the tank. All the leaves necessary for carrying on the business of the ensuing year should be collected as early as possible in the autumn, and laid in a body close together to ferment. After fermenting for three weeks or a month they are in excellent order for use; in this state they will both heat with more certainty and tread more closely. In order to be ready for forcing of all kinds, to form powerful linings, or to build new beds, it is necessary to have a mixture at hand, composed of hot dung and leaves. In the course of December, therefore, the whole of the hot dung should be drawn from the stable yard to the leaf yard, and immediately thrown together, and well watered, in order to dispel the fiery heat. When fermented thus for a week or so, it may be mixed with leaves. About four parts of the leaves to one part of hot manure will make a powerful and enduring mixture, and in most cases provide a bulk of material which will carry out all the hotbed and lining affairs for two months to come. This provided, a gardener can make up a frame or pit at any time, or furnish new linings at a couple of hours' notice; for if the dung has had one powerful heating previous to its mixture with the leaves, little danger need be apprehended from impure vapours, provided the most ordinary precautions are observed.

CONSERVATORIES, STOVE, &c.

Conservatory.—Observe to keep as moderate a temperature as possible where the Camellias are in bloom, in order to prolong their season. We found drip to be rather inconvenient during the frost, and withheld water altogether for a few days; yet this did not entirely prevent it. We then covered the roof with a canvas screen, which, by preventing condensation through the low roof temperature, accomplished the object effectually. Scarcely a drop has fallen since, and we are now enabled to water all available surfaces, to keep up a considerable amount of atmospheric moisture, which Camellias so much delight in. We have had hundreds of very fine blossoms out for many weeks, and have scarcely found one spotted through condensed steam, although water has been bountifully applied morning and evening. We keep a little air both front and back, day and night; even with the thermometer at 19° out of doors, a very little was left. The thermometer was generally about 40° at night, and 45° by day. It is impossible for plants to look better. *Stove and Orchids.*—It will soon be time to commence potting the Orchids. Let a stock of proper materials be provided, therefore, without delay. Free fibrous heath soil, cut into squares about the size of a Walnut; fresh Sphagnum, chopped or cut; plenty of broken crocks, and charcoal in lumps; and some chopped sticks (avoiding Fir-wood), will be found all that is necessary. The whole of these materials, except the crocks and charcoal, should be subjected to some process that will destroy snails or other insects, with their eggs. We have generally scalded the Sphagnum and peat, but I object to this from experience, as the process so much hastens decomposition in the vegetable matter, that it soon becomes a pulpy mass impervious to the atmosphere. It is better to lay it in some very warm and dry place, turning it occasionally. *Mixed Greenhouse.*—Observe the conservatory directions. Beware of much night heat.

KITCHEN GARDEN FORCING.

Early Vineries.—Where the buds are beginning to swell, or are starting a little, increase of temperature must be allowed—say 60° by day, 55° by night. Take care that plenty of atmospheric moisture is maintained by syringing or otherwise. Do not, however, keep them constantly wet. Allow the stems to become comparatively dry at intervals. The oftener the fermenting materials are turned the better. Let newly introduced Vines be bent down where practicable, to equalise the sap. *Late Vineries.*—As soon as the Grapes are all cut, let the Vines be pruned immediately, stopping every cut with white-lead. Whether taken out to rest or not depends, of course, on other arrangements. If they are taken out, be sure to cover them well with old mats and litter. Vines love rest undoubtedly, but depend upon it they do not love a thermometer at 18°, especially if they have recently been subjected to a high temperature. *Peach-house.*—Increase the heat gradually here also. If in blossom, withhold water in every shape, and be moderate in the increase of heat in proportion to the absence of atmospheric moisture. Give air at every opportunity, leaving a circulation day and night, if possible. *Figs, Cherries, &c.*—It will be time enough to say a few words about these in the early part of January.

FLOWER-GARDEN AND SHRUBBERIES.

Go on according to the advice of last week; everything that can be done by anticipation here, also, will be found of value ultimately. The Chimonanthus fragrans, with us, has stood the late frost well, although in full bloom: it has, however, had a thick piece of canvas over it.

FLORISTS' FLOWERS.

Take the first opportunity, when fine weather sets in, of carefully looking over Carnation layers that are in frames; it is possible that dirt may have settled in the axils of the leaves; as this retains moisture in a very inconvenient degree, it is highly necessary for the health of the plants that it should be removed. With respect to Ranunculuses, lose no time in making the necessary purchases, and take care during this rather variable weather that the roots do not contract mouldiness, which is fatal to them. Refer to preceding Calendars for other operations; and, of all things, we would advise the amateur, who intends to excel, not to be chary of his trouble; and, in concluding our directions for the present year, we would counsel all cultivators of florists' flowers, and especially those who are about commencing, always to bear in mind that quality is preferable to quantity, and that it is always the best policy to purchase good strains and good sorts. During some 30 years of cultivation we have paid dear for not acting on this principle; and, in truth, we can assert with Dr. Franklin that "we have paid dear for our whistle."

KITCHEN GARDEN AND ORCHARD.

Seize on the first moment when a thaw in earnest arrives to follow out trenching, &c., as a preparation for spring cropping. Proceed with all pruning and nailing; do everything, in fact, which can be done to ease the spring of its burdens. Do not forget to have a good breadth of short top frame Radish, sown on raised beds, in a warm aspect. Soak the seeds for six hours in luke-warm water; and when sown, cover the beds directly with some clean new straw.

COTTAGERS' GARDENS.

Where a cottager, having a garden, is sometimes thrown out of work in winter, a capital opportunity occurs for deep digging, trenching, or draining his plot. There will be no real loss in the end, if these things are done justice to. As before observed the Parsnip crop (which will be ere long better esteemed, if the Potato murrain unfortunately continues), should be left in the ground until mid-winter, or early spring, with a coat of manure spread over the crowns for the next crop. Such being the case, they may be trenched out as opportunity serves, leaving the ground in ridges, to fallow: such will be fit for any crop in March.

FORESTING.

Now a thaw has arrived, planting may again be resumed. Young Oak coppice may stand at from 8 to 10 feet apart. Some dense screen should be planted as protection, in very cold districts, on the bleak sides thereof. In marshy spots Birch and Ash may be introduced.

State of the Weather near London, for the week ending Dec. 26, 1846, as observed at the Horticultural Garden, Chiswick

Dec.	Moon's Age.	Barometer. Max.	Min.	Thermometer. Max	Min.	Mean	Wind	Rain
Fri. 18	●	30.166	30.119	34	23	28.0	S.W.	.22
Sat 19	1	29.964	29.814	44	41	42.5	S.W.	.04
Sun. 20	2	29.785	29.635	48	42	45.0	S.W.	.07
Mon. 21	3	29.580	29.004	49	25	37.0	S W	.11
Tues. 22	4	29.125	29.011	49	26	37.6	W.	.37
Wed. 23	5	29.024	28.880	39	34	36.5	N E.	.10
Thurs. 24	6	29.332	29.150	35	26	29.5	E.	.01
Average		29.422	29.240	42.4	31.5	36.7		.95

Dec. 18—Sharp frost; clear and frosty; overcast; rain
19—Rain, foggy, overcast
20—Rain; cloudy, partially overcast at night
21—Rain; densely clouded; rain; clear; foggy
22—Slight frost and fog; fine with sun; cloudy
23—Rain; barometer remarkably low; constant rain
24—Foggy; rain, with a little sleet; overcast.
Mean temperature of the week 3 deg. below the average.

State of the Weather at Chiswick during the last 20 years, for the ensuing Week ending Jan 2, 1847.

Dec.	Aver. Highest Temp.	Aver. Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sun. 27	42.4	30.6	31.5	-	0.60 in	1	4	1	3	3	3	5	1
Mon. 28	41.7	30.5	36.1	8	0.16	2	1	2	3	2	1	5	4
Tues 29	44.1	35.0	39.1	9	0.45	1	2	1	3	3	2	6	3
Wed 30	45.6	36.8	38.9	8	0.18	1	3	2	2	—	5	6	1
Thur. 31	45.2	38.9	39.6	6	0.42	—	4	—	1	3	6	9	2
Jan. Fri. 1	43.2	39.4	36.3	7	0.70	3	2	1	1	3	3	6	4
Sat 2	41.8	39.4	39.6	7	0.41	1	1	3	—	3	3	8	5

The highest temperature during the above period occurred on the 30th 1838—therm. 56°; and the lowest on the 1st, 1837—therm. 15°.

Notices to Correspondents.

BACK NUMBERS—One Shilling each will be given for Numbers 31 and 38—1846.

BOOKS—*J Norris*—Warnes or Dickson on Flax. All booksellers supply all books, or can if they choose. ‡

CORRESPONDENTS whose letters are this week unanswered are requested to have a little patience, and to ascribe any omission to Christmas day falling on the Friday.

CUTTINGS—*J G M*—Take them off now, and lay them by the heels till they are wanted.

GAS v. PLANTS—*Reader*—Gas, however pure, is injurious to plants; for if the air is not contaminated by it, it at least dries it too much for their healthy existence. Cannot you employ Polmaise? It is the cheapest and best plan. ‡

HEATING—*Tolla*—The cold air entrances pass as you suppose; but they are seldom used. If you look at the plan again you will find that they are capable of being closed up by a lid. The drains are usually led from the inside of the house exclusively.

ICE HOUSES—*G F*—Many plans have already been given. See pp. 117, 572, and 853, 1814; and 576, 1845. The main points are to secure perfect drainage, and at the same time to prevent the ingress of air at the egress for water. A deep hole, such as you describe, is not fit for the purpose.

INSECTS—*C D*—The Aphis vastator of Smee is identical with the Aphis Rapæ of Curtis, described and figured in the 3rd vol. of the "Royal Agric. Journal."*R.*——*E J*—It has been long known that dusting Gooseberry and Currant bushes with *fresh* Hellebore powder will preserve the leaves from the attacks of caterpillars, and we thank you for informing us that guano is equally effective. In dry weather the bushes must be first watered, that the powder may adhere to the leaves.*R.*——*Entomologicus Junior*—The stand of your globe is eaten by Anobium striatum. Pteromalus puparum is a parasitic species which infests Chrysalides, large and small, and in all probability deposited its eggs in the pupæ of the insects which had caused the galls on the Spiræa. Pteromali, and the four genera following in the Guide, are considered synonymous, therefore No. 100 is Pteromalus puparum. *R.*——*W M T*—The pest you sent is the Thrips adonidum, which is described in the 1st vol. of this Journal, p. 228. It is a tropical visitor, which can withstand so great a degree of heat that you have no chance of expelling it except by cold. *R.*

MANURE—*Henry*—We do not understand Mr Lawes' objection to sulphuric acid to apply to fluids—only to solid manure. We do not conceive that the superphosphate will remove the evil you complain of.

NAMES OF FRUITS—*W W*—1, Passe Colmar; 2, Beurré Diel; 3, Old Colmar; 4, 5, 6, Glout Morceau.‖

NAMES OF PLANTS—When plants are sent to be named, it is most particularly requested that they may be in flower, and as perfect as circumstances permit. Most especially is it requested that the country whence they have been received, and whether they are annuals, perennials, or shrubs, hardy, greenhouse, or stove plants may be stated, because specimens by post are generally bad and incomplete, and much valuable time, which such information would save, is needlessly wasted.——*P B*—1, Lobia anceps; 2, Brassavola venosa, 3, Odontoglossum Cervantesii, 4, Od. Rossii, fine things well blossomed.

PELARGONIUMS—*M H F*—We have received the money, and quite agree with you as to the manner of applying it. But before we publish your letter we must beg you to let us know whether it is your wish to offer it in one prize or in two and if the latter, in what amounts.

POTATOES—*M R W*—Thanks for the extracts from the papers. The vegetable called *Challotte* is the *Chuno* of the Mexicans; the Sechium edule of botanists; the Choco of Madeira, a kind of Gourd. But it has not a fleshy root that we know of; on the contrary, it is an annual, and there is some error on the part of Senor Thomaso. It is of no importance in Ireland; nor can any of the West Indian vegetables be grown there in the open fields.——*J P* inquires whether Potatoes are cultivated in Egypt; and if they are, whether the disease appeared there? Does any one know?

RASPBERRIES—*Juvenis*—Your wish shall be complied with. Any respectable nurseryman can provide you with whatever is procurable.

SCHIZANTHUS—*W*—The specimen does not enable us to say whether S. nivalis is the same as S. candidus. If they are the same the former name must be cancelled. The seeds shall be sown, and if you remind us next year you will learn what they produce.

WATER-PIPES—*A B C*—If you can manage glass pipes they will be the best; but we cannot tell how far the glass works can supply them. Of course they would be made of green bottle glass. The manner of jointing them would require consideration; plaster of Paris would probably answer. Enquire of Messrs. Hartley, of Sunderland. If not glass, then use iron; on no account lead. Remember how near you are to Southampton.

MISC—*A Hutchins*—There is no plant known generally by the name of the Siberian Honeysuckle, and the account you give of it shows it not to be a Honeysuckle at all. Perhaps the Secretary of the Caledonian Horticultural Society can tell you what was meant.——*An Amateur*—The New Holland seeds are not likely to be new: but they may be pretty, and they may be worth sowing. The plant from St. Jago is some Spurgewort, and not worth raising.——*E Young*—Your letter never reached us. ‡——*Sub*—Where Apple-trees are planted as Espaliers, it does not signify what aspect they face. ‡——*Enquirer, Peter Perrin*—For the price of superphosphate of lime, see Mr. Lawes's Advertisement in another column.——*H W G*—We *really cannot* recommend Nurserymen; it would be most unfair to do so. Any respectable firm can supply you.—*H S*—Do not lose a day in planting your Hollies. See Leading Article at p. 849. Seakale plants transplanted six weeks ago should not be forced this season. ‡

SEEDLING FLOWERS.

CINERARIAS—*A Ripon Gardener*—Neither of your seedlings are equal to similar coloured varieties of the present day.*

ERRATA—In Messrs. J. and H. Brown's Advertisement of Dec. 12, "Andromeda floribunda should be 24*s.*," instead of "10*s.*"—In the Article on "Entomology," p. 836, col. 3, for "are" read "were."

BY HER MAJESTY'S ROYAL LETTERS PATENT.

LIGHT, CHEAP, AND DURABLE ROOFING.

THOMAS JOHN CROGGON, of 8, Laurence-Pountney Hill, Cannon-street, London,
Begs to call the attention of Noblemen, Gentlemen, and the Public, to his
PATENT ASPHALTE FELT, FOR ROOFING,
As adopted by Her Majesty's Woods and Forests, and by the ROYAL AGRICULTURAL SOCIETY OF ENGLAND, on their buildings at Newcastle-on-Tyne, and Hanover-square, London; also, by the leading members of the above and other Agricultural Societies of England, Scotland, and Ireland.

The Price of the Felt is only ONE PENNY PER SQUARE FOOT, being considerably less than half the price of slates, Tiles, Thatch, &c. There is also a very great saving in the wood-work, as the Felt, from its lightness, does not require half the weight of timber that slates or tiles do. The Felt can be manufactured of any required length, by 32 inches wide.

THOMAS JOHN CROGGON, 8, Laurence Pountney-hill, Cannon-street, London.

Of whom also may be had Railway Felt, Sheathing Felt for Ships' Bottoms, and Dry Hair Felt for covering Boilers, Steam Pipes, &c.

The Agricultural Gazette.

SATURDAY, DECEMBER 26, 1846.

MEETINGS FOR THE TWO FOLLOWING WEEKS.
THURSDAY, Dec. 31—Agricultural Imp. Soc. of Ireland.
WEDNESDAY, Jan. 6—Highland and Agricultural Society.
THURSDAY, — 7—Agricultural Imp. Soc. of Ireland.

LOCAL SOCIETIES.
Ross—Antrim Union—Ga's on—Portarlington.

FARMERS' CLUBS.

Dec. 30—Newton-Dorking	Dec. 31—Carlton-on-Trent
— 31—Rolsover—Otter St. Mary—Grove Ferry	Jan. 1—Wrenham—Tavistock—St. Germans

A DISPASSIONATE judge must, we think, conclude that the ANNUAL EXHIBITIONS of our great AGRICULTURAL SOCIETIES are more useful in their indirect tendencies than they are, directly, and in themselves. It is not so much the 'Show' as the 'gathering' that does the good.

Public opinion, in connection with farming as a *business*, is ascertained and corrected by weekly meetings at market-places; prices and prospects being there settled and discussed; and how shall public opinion on the details of farming as an *art* be published, or even formed, unless, for these, too, we have meetings at convenient intervals. It is as important that right notions prevail in the one case as in the other; the 'business' is founded upon the 'art;' and surely the latter deserves as much attention and investigation as the former.

This has been generally acknowledged: and, hence, the many Farmers' Clubs established for monthly discussions in all our districts and counties. And we confess that it is to those points in which they resemble the meetings of a Farmers' Club rather than to those which constitute their professedly characteristic features that we look for the usefulness of our great annual agricultural assemblages. Meetings of so many, and the discussions which ensue, whether they be officially superintended or not, certainly do most usefully inform the general mind. We have no doubt that the English Agricultural Society, for instance, has (not to speak of its influence in improving agricultural machinery and in maintaining our improved breeds of cattle and sheep) done much good in *this* way. To take a general illustration, we may safely say, that to it, by these meetings, we owe the establishment of right notions about the relations of science and practice in agriculture, and the greatly improved position of the former consequent upon the sobering down of those extravagant expectations in which many indulged, from the late happy union of the two.

These meetings, in short, gather farmers together from all parts of the country, and the exhibition gives them matter for discussion—they may disparage the specimens exhibited, or even condemn the principle which has collected them—but the benefit of converse on these and other topics remains.

We would apply these remarks more particularly to the Smithfield Club's Annual Show of Fat Cattle at Baker-street. The 'meeting' is *useful*, and as long as the means which attract it are harmless, good is done, and people may be glad of it. We by no means admire the laughter in which the *Times* indulges at its own caricatures on this subject: but, certainly, excluding the Implement Show, and the *indirect* advantage to which we have alluded, we must believe that this exhibition of fat cattle is of very little benefit indeed to the '*art*' of farming. Let those who, for itself, admire it, ground their praise on its affording a sort of agricultural holiday at this merry-making time of year—or, even, let them, if they can, argue for its value to their 'business' as affording a *profitable* sale of fat stock, and we have no word of reply; for, no doubt, it has all the useful influence of a holiday—doubtless farmers going up to London on its account consider it so; and, no doubt the 'meat' of fat beef *is* so much better than that of lean, as to command a higher price—doubtless, also, the tallow market as well as the butcher's shop must be supplied; but let them attempt to advocate its merits as (what all such exhibitions ought to be) *directly* influential in improving the practice of agriculture; and we must take up that position of protest in the matter which we have all along maintained.

These remarks, we repeat, are directed merely against the Show itself, not in disparagement of its indirect advantages, which are many. Amongst these we may name the proof which it certainly affords of the profits of feeding; for, properly understood, the exhibition illustrates the extent rather than the height to which the practice of fattening is carried in this country; the specimens shown are but the ones or twos out of large herds, and the greater the loss upon the individuals, the stronger is the inference that the returns from the whole are abundantly sufficient to bear it.

The extent to which profitable feeding can be carried is no doubt much overpassed by the exhibitors at Smithfield; but it is worth while remarking that to a certain extent there are advantages attendant on permitting the process to its last stage. (1.) As the animal becomes covered with fat, a saving of food takes place, so much is not required as fuel for the maintenance of animal heat. (2.) And in addition to this the manure of a *fatting* animal is more valuable than that of one which is also *growing*. Food *minus* the matter secreted by the one leaves a richer residue than the same food *minus* the matter secreted by the other. Food *minus* fat—the manure in the one case is richer than food *minus* flesh and bones—the manure in the other.

WE have still a few words to add on the subject of FARM ACCOUNTS.

There is one class of expences which should be kept separate from all the others—*viz.* those which are incurred in the permanent improvement of the land, and in bringing it into that state of cultivation which it is intended to maintain. Many tenants, secured by a lease, are engaged in this which is properly landlords' work; and for them, in the first and second years of their occupation, to charge against the returns of those years the whole cost which has been then incurred would be obviously wrong. Wherever the same capital is invested, and the same skill and judgment exercised, the accounts should, certainly, show a similar annual income; and so, no doubt, if properly kept, they will, *plus* or *minus* the *extra*-ordinary effect of weather and prices. But to do as is often done—to charge upon each year all that, during it, has been invested in the permanent improvement of the land, would have the contrary effect of exhibiting a *loss* upon every fresh investment of capital, and consequent additional exercise of skill. All such expenses should be placed in a 'dormant capital' account, and which on the *whole* sum which appears there at the end of each year (along with all the rest of the farm capital) the usual per centage should be charged in the annual balance sheet, such a portion only of the *principal* should also annually be charged before the 'balance' is struck, as shall exhaust the 'account' by the end of the lease. If 100*l.* be spent in draining during the 10th year before this period, then year after year on the Dr. side of the dormant capital account the sum standing will be 90*l.*, 80*l.*, 70*l.*, &c.; 10*l.* per annum being annually abstracted and charged on the gross produce of the farm before the clear profit of the year can be ascertained, and in addition to this, 5 per cent. has also every year to be charged on the 90*l.*, 80*l.*, 70*l.*, respectively, which at those periods represent the amount of the farmer's capital still remaining invested in that particular form.

Now as regards the yearly inquiry into the profit or loss attendant upon the twelvemonth's proceedings, it is really a very simple affair. Suppose a farmer to have commenced his year's accounts aright, he then entered (whether actually or not), by *purchase*, into his position; and the several portions into which his capital at that time invested might then have been divided were placed on the debtor side of the several accounts which concerned them. The Sheep account received its record of the value of sheep on hand, and of that portion of food to be consumed by them then remaining; the Wheat account received its record of grain in rick and barn, of seed sown, of ploughings, harrowings, &c., by which the crop had till then been benefited: and so on. Since then, payments on account, whether for labour or stock, or food; and receipts on account, for produce of all kinds, have been regularly entered; and all that has now to be done is to estimate the present position of the farmer just *as if he were about to give up business altogether*, and to place as per valuation his *present* invested capital on the creditor side of the several accounts to which it belongs. It then merely remains to arrange the balances of these accounts—debtor or creditor as the case may be—in columns on a sheet; to charge 5*l.* per cent. upon the working capital of the concern together with that share of the dormant capital which *this* year must return; and the balance when struck will represent the income of the year.

THE RIGHTS AND PRIVILEGES OF LANDLORD AND TENANT.

By C. WREN HOSKYNS, Esq.

[THE following remarks on this subject were delivered at the July meeting of the Stratford-on-Avon Agricultural Society.]

If the subject of our discussion involved nothing more important than the questions—whether draining-tiles should be laid 3 or 4 feet deep; whether Turnips were best drilled upon the flat or on ridge; whether guano should be applied to grain crops direct, or through the intervention of a fallow crop; whether fallow crops shall be consumed on the land, or whether even upon light soils it were not the best economy, in the end, to continue them in the yard or in covered sheds; whether the Suffolk punch or the Cleveland bay was the best horse for agricultural purposes. If it were any such question as this, upon which I had simply to ring the first peal, in order to furnish the subject for your own harmony of discussion when my strain was over, I could of necessity feel no more than a pleasing interest in the statement of my own views, and in the after effect which they might have upon the minds of others. But when I see that the subject which we are to consider to-day is one which, besides its own inherent difficulty and intricacy, has, ever since the day on which your chairman first announced to me the desire that I should undertake it, been the topic of so much consideration and debate at many recent agricultural meetings throughout the kingdom, and is so closely interwoven with the great questions which have for many months occupied the Legislature of this country, I need hardly assure you that I approach it with as deep a sense of its difficulty, and of diffidence of my own power to grapple with it, as the most cautious hearer, or the most interested party on either side, could desire. It is one of those subjects which the more I have studied and the more fully I have considered, the more I have felt that he who undertakes it at all must expect the fate that is said to await the candid umpire, *namely*, to afford but small satisfaction to each of the parties whose interest he is called in to consider relatively with the other. Yet in the discharge of such a task a man must make up his mind before hand that if he is to speak usefully he must speak boldly, and that if his hearers first on one side and then on the other should not find his words agreeable, that both should at least have cause to confess that they are sincere. Amongst those that I address, there are both proprietors and occupiers, and I myself should feel unqualified to speak at all unless I could speak in both characters.

I am not one of those who would endeavour to screw down modern agricultural practice to the forms of ancient usage or worn out habits; yet in the discussion of a subject so old as the relation of landlord and tenant, I think it may throw some light upon the situation of each party, to cast an eye back to the circumstances and course of events out of which that relation had its origin. I shall not detain you long upon this, because I am more anxious to come to the present and practical part of the subject, but it will facilitate that object to trace from its commencement the agricultural tenure of land, in order that if we should find that at the present day there is much in it that is artificial, and much that is undefined, we may be able to form an idea how it arose and why it is so, and may therefore see what may be required in the progressive demands of society, to put it upon a more certain and a more *natural* footing.

The origin of the present relation of landlord and tenant was that establishment which prevailed over nearly the whole of Christendom, called the feudal system; under this system the king was not only the ruler but in point of fact the proprietor of the whole lands of the kingdom. These he granted in immense tracts, including in some cases nearly a whole county, to the first lords or barons of the realm, in reward generally for services in war, and in return for which they became his vassals, and followed him with the armies raised out of their fiefs or possessions, so granted to them. They again in turn let out to inferior vassals the different portions of these goodly estates, in return for services paid to them, either in men or in money. War was the universal trade, and the relation of the tenant to his landlord under the feudal system was universally, and from the highest rank to the lowest, a system of regular gradations, like that in a well disciplined army, where every one, whatever his position, served with the most unhesitating obedience and vassalage the one next above him, and commanded those below him. This arrangement of the classes of society, which were few in number, and separated by an almost impassable gulf from each other, extended not over this county alone, but over the greater part of

Europe. It formed a sort of social pyramid: the Sovereign at the top, next to him the great barons of the realm, few and powerful, and standing in about the same relation to their *country* as the Sovereign did to the whole realm. Next to them came that class which gradually acquired the name of the Commons, and below them were the class composed of labourers and artisans. Such was the structure of that great establishment, if I may so call it, which for many centuries existed, under the name of the feudal system—a system well suited to its day, when population was thin, and the classes of mankind so few, and so entirely distinct from each other. Now it is easy to see, and it is to this that I would draw attention, that in such a state of society the tenure of land was not so much a *legal contract between one man and another*, as a *service* or *vassalage* acknowledged as to a superior or lord. Hence the term land-*lord*, which still remains in use, together with other vestiges of a system so widely spread and so long predominant. The first thing which began the breaking up of this system was the increase and extension of towns, and the gradual accumulation of wealth in the hands of corporate bodies. Kings and barons found war an expensive amusement, and were glad to borrow some of its sinews from the wealthy burgesses, who took care to make their own bargain in lending it, and obtained in return from successive Sovereigns and feudal lords, charters of incorporation, which increasing their union and therefore their power, their privileges and means of securing and extending their trade, laid the foundation of that large and influential body which is now known under the general name of the middle classes of society. You must not suppose that the system or course of events to which I have alluded is by any means one of such remote antiquity as to be beyond our notice. The beautiful castles which, though in partial decay, adorn this and many neighbouring counties, are not more visible and evident records of those times than many of the social habits and modes of thought and expression which still form part of our daily intercourse with each other.

Now the object with which I have drawn your attention to this historical sketch, is in order to account for that which would otherwise appear unaccountable, namely, the uncertain and indefinite state, in the present day, of the relation of landlord and tenant. We ourselves can almost remember the day when a man who could command a team of horses and a few cows thought himself eligible to apply for a farm of 200 or 300 acres. Those things called 'permanent improvements' were unheard of; under-drainage, immensely important and necessary as it may now appear to [redacted], was a thing comparatively unknown; 'bone dust' was confined *to the churchyards*; 'nitrate of soda,' 'guano,' 'gypsum,' and 'superphospate of lime,' were words uncoined; the field cultivation of Turnips, bringing with it the winter feeding of stock, and *the buildings necessary to feed them in*, is all comparatively of modern introduction; and the capital needed to set agoing such machinery and such an establishment was, therefore, never dreamt of as required by a farmer. In a word, many men now living must be able, on looking back, to see that a complete revolution has gradually overtaken the whole system of agriculture in this kingdom. The first person, perhaps, who may be instanced as having given it open declaration was the celebrated Mr. Coke, of Norfolk, afterwards Lord Leicester, of whom, it is said, that when applied to for a farm, his first question was, "What capital have you got? Have you got 10*l.* to an acre? If not, it's useless your taking it. I'm told that *I'm* a pretty good farmer, and *I* couldn't venture to take it without; so I won't do you the mischief of letting you do so." Here we find the first recognition of the absolute necessity of capital in the hands of the tenant. That point once admitted, the consequence is inevitable. If the landlord says to the tenant 'You must have capital:' the tenant who has it naturally replies, 'Will you give me security for the investment of it?' The one question is as fair as the other; and, indeed, *follows out of it*: for I have no more right to ask a man to lay out his capital on my land without giving him a security for its investment than he has to require me to lend him my land to trade without his having the capital requisite for its proper cultivation. Thus the necessity for capital in the hands of the tenant, which modern agriculture requires puts the respective rights of the parties in some measure on a new footing. Instead of the tenant holding the position of a sort of annual bailiff, as formerly, and paying to his landlord a portion of the produce either in corn or in money, he now naturally *requires a security* on his own side *proportionate to the joint stock he risks* in the establishment which the modern requirements of agriculture demand. Wonderful it would indeed seem that so little should be known and so few principles established, as regulating the present relation of landlord and tenant: were it not obvious from what I have stated, that the very basis and foundation of that compact is itself so entirely of modern growth. The fundamental cause which has occasioned it is the rapid increase of population, and the demand for a vastly increased produce from fields that are the same size as they used to be, which can only be accomplished by increased outlay.

I remarked just now that this subject has been of late much considered at agricultural meetings and farmers' clubs; and you will believe that I have read the reports with an additional interest as bearing upon our discussion to-day; but I must confess to having experienced some disappointment in the want of candid and comprehensive views with which it appears to me that the question has been handled. The speakers have been for the most part occupiers, who having suffered under some particular inconvenience, were a little too apt to suppose that the remedy for *that* evil, whatever it was, would set all right. We are all of us liable to be misled by our own supposed interest, and wherever that is the case, are prone to fall into a narrow view of the matter at issue. This has shown itself in the reports. One man thinks he has got too many hedges in his farm, another too many trees; another thinks he should do very well if he had but a lease; another wants to plough up his old Grass land, because they do it in Scotland; another wants the land to be drained for him at the sole expense of the proprietor. One man, again, proposes a corn rent, and another a 'compensation-clause,' as a remedy for all evils; and it is curious to see the confidence and warmth with which each nostrum is put forward as the *one* thing needful; each speaker may indeed be right in his own particular case; but the error lies in that want of comprehensiveness of view, which prevents his perceiving that his remedy may not be applicable to others, or that other interests besides his own have to be considered; or, again, that there may be causes in operation which may make what is desirable in one place wear a very different aspect at another. First, with reference to Leases: the common lease of 21 years, determinable at 7 and 14, may be all very well, and is indeed unavoidable in the case of church or corporate property, where the lessor or grantor is a permanent body with a perpetually shifting and renewing interest, neither holding nor transmitting any hereditary claim, but as an agricultural lease it has not one feature to recommend it; it is the very worst that a landlord could give or a tenant accept. Again, a corn rent may be endurable enough, where the proprietor has no objection to a perpetually fluctuating income, or the tenant to an annual inquisition into every bushel of corn he sells or consumes in his house or stables; but there are objections to the whole principle of a corn-rent more serious than either of these, as I will presently show. Again, a compensation clause may answer very well, where the proprietor has an entire and devisable interest in the soil; but cases of frightful hardship might easily be mentioned, where a lease so framed has happened to expire at such a time that the widow or executors of a deceased tenant for life has been called upon to reimburse extensive outlays, the benefit of which has gone to the next tenant-in-tail, upon whom there is no law in existence that could throw the charge, though he would reap the entire profit. Again, the ploughing up of Grass lands is a matter of very difficult arrangement in reference to future interests in the land, even supposing the fullest capacity to judge of its expediency, in the present owner and occupier; and in a dairy country might lead to the most injurious consequences if hastily or ignorantly adopted. I mention these instances to show, not that each proposition may not be in some cases applicable, but merely that they are to be received and adopted with caution; inasmuch as a system which may suit particular districts, particular proprietors and particular occupiers, and even particular farms, may not be suitable to others, and that the attempt to lay down one general rule of tenure would be as preposterous as to endeavour to farm every description of soil alike.

(To be continued.)

MANAGEMENT OF MANURE.

I regret the same captious tone in your Cornish correspondent's second communication that there was in his first; his mode of expression is calculated to call forth irritable replies, and to deter timid persons from communicating information of real utility; but is it wise to write in this style; will it convince your intelligent readers that he is right, and that I am wrong? I think not. I will endeavour to meet the long string of objections raised by your correspondent, not expecting to convince him, but to satisfy the minds of others who have a more modest opinion of their own judgment, that my plan has not absurdity stamped upon the face of it, and that it may after all contain something worthy the consideration of practical men. The effect produced by cattle treading upon litter, is to reduce the whole to a pulpy consistence. In this state it cannot, I apprehend, be in the form suited as food for plants; it must undergo other changes to fit it for this purpose; there must be a process which renders the whole soluble. This can only be effected by the introduction of an alkali, or some substance containing it. Animal matter contains nitrogen, water contains hydrogen, the two combined form ammonia, the most valuable of the alkalies for the purposes of agriculture; here, then, we have the alkali a bond of union betwixt the other elements of the manure, and by means of which they are rendered soluble in water, and so taken up by the plants. How are we to bring about this combination of elementary matter, the crude farm-yard manure with the alkali? I should say that one way of doing it is, by means of fermentation—an exciting of internal motion—which separates the component parts of the materials forming the crude manure, the simple elements being disengaged, enter into new combinations, one of which, the ammonical gas, becomes dissolved in the water constituting the moisture in the manure. Now, if the fermentation is carefully conducted, and other means employed to prevent the dissipation of the gas into the atmosphere, but little of it will be wasted. Time is necessary for all this; wherever there are suitable receptacles for storing manure, it would, I believe, be improved by being kept at least one year before it was applied to the land. The straw, which always forms by far the most bulky portion of the crude manure, is the most difficult to reduce to a friable and portable condition; in my last communication I suggested the use of a caustic solution of either potash or soda, for the purpose of dissolving the silica of the straw; it would, I think, break up the organic structure of the straw and greatly accelerate its decomposition. The elements of the straw itself cannot act as fertilisers whilst in the form of straw; *it* must be decomposed before they can be taken up by the plant. Your correspondent says there are various opinions as to the merits of fresh dung, and well-rotten dung; it is true there are such opinions on this point, but whether fresh or rotten, the decomposition must be complete before it can become food for plants. This is what I have always understood must be the condition of a fertiliser, and if so, where is the advantage of carting manure to the land in a crude and bulky form?

Now as regards my manure-bin towers, I understand your correspondent to mean that receptacles for manure are of no importance whatever, and that all farm-yards are capacious enough. I do not know what size the Cornish farm-yards may be, but here in Yorkshire they are not so very capacious as to render it unnecessary to cart the manure elsewhere until it is required to be applied to the land. The practice of leaving manure to open exposure in all weathers, does not appear to be an objection with Mr. Adams; but it always has been objected to by scientific and practical men, and for reasons obvious enough and well known to most of your readers. If, therefore, it is desirable to have the manure in a perfectly decomposed state, and as a consequence, in a friable condition and very portable form, as I believe it may and ought to be, how can it be best accomplished? Certainly not by leaving it in large heaps, subject to waste by exposure to sun, wind, and rain; but by enclosing it within the walls of a pit, and what sort of a pit must it be that will hold 250 cubic yards of manure, if only a few feet deep? I should infinitely prefer a high tower to a low pit; its height is an object of no consequence [The labour required is, we fear, fatal to the plan: the height is a matter of consequence as involving extra labour, whatever be the way in which the contents are hoisted,] as the facilities afforded by cranes would enable men to transport manure with the greatest ease and expedition, and this will be admitted by all who have had any experience in the use of them. With respect to the fermentation of manure, your correspondent seems to think that it may be carried on as well in an open pit as in a tower. Now in order to carry on fermentation in a successful manner, there must [1] be one uniform degree of temperature kept up during the whole period of the process, and how is this to be accomplished in an open pit over which the air in the course of the 24 hours may vary 30 degrees. A tower constructed as I have designed, would afford the means of carrying on fermentation much more successfully; the air could be admitted or excluded, and other means employed so as to maintain a tolerably uniform degree of heat. If the process was carefully conducted, (and any man of ordinary capacity could manage it very well), there would be no waste of elementary matter. The utility of receptacles for manure, whether solid or liquid, is becoming more apparent every day, and we shall, bye and bye, see them constructed in every large town, and the manure, when collected and properly prepared, become an article of trade between the city and the country. If a farmer had a tower containing manure in a properly decomposed state, it might be employed as a vehicle for conveying other fertilizers into the soil; for instance, suppose an artificial manure is required to be made (you will perceive that I am anticipating a period when agriculture will be conducted on more scientific principles) to suit a particular description of soil, one whose properties are known, and in which certain elements are wanting to enable it to produce a crop of a certain description of grain, &c.; the decomposed manure would in this case be a valuable material, as it might form the basis of all other compound fertilizers for particular kinds of soil and grain, a given quantity of it mixed with the mineral fertilizers by means of a mill; when I say a mill, I do not mean a mill requiring several horse-power to drive it, but one occupying a few cubic feet of space, and easily worked by one man. Another mode of employing the decomposed manure would be, to pour over and mix with it such of the mineral fertilizers as are soluble in water, —take for instance the superphosphate of lime, as an example of the utility of a friable and portable manure. The superfluous water used in the operation would easily be got rid of,—I dare say your Cornish correspondent will presume this mode of applying fertilizers quite as great an absurdity as that of erecting towers, &c.; some one, however, who reads it, may be so void of prejudice as to try it, and then it will be seen whether a dry mixture of a soluble ingredient with the decomposed manure, or the same dissolved in water in the manner I have described, best answer the purpose of a fertiliser; the latter plan effects a more intimate union of the elements, and if I am correct in taking this view of it, they will the more readily be taken up by the plant. There will in time be an end to the importation of guano, and then agriculturists will be driven to find out substitutes for it; high cultivation is progressing, although but slowly, and it cannot be carried on without increased consumption of fertilising

matter in some shape or other. Farmers, as they become more scientifically educated, will better understand the necessity and advantage of encouraging every attempt at improvement in the preparation of manure, and projects now sneered at will then be seriously considered and tried before they are condemned. Your correspondent says that I have not mentioned the cost of the tower, mill, and sheds—the 3*d.* per cubic yard includes the cost of the tower, crane, and grab, from an estimate given to me by a respectable builder, but exclusive of cartage of materials, and it is presumed that considerable labour would be rendered by the farm servants, and in this way further reduce the expense of constructing the tower; the mill also (as I said before, it will be a very small affair), is included in the charge of 3*d.* on the cubic yard. In many situations, where rough stone and timber could be procured, the cost would be below my estimate. I thought it a better plan to put the expence in the form of a permanent charge, than to occupy your pages with the details of it. The shed is not included in the estimate, because very simple and cheap substitutes could be found for it; indeed, it is very probable they would not be needed at all, or only such as were on the premises. The liquid manure tank is not necessarily a part of my plan, but the best situation for it would be under the tower; tanks are very expensive structures, much more so in proportion to their cubic capacity than a tower would be; my plan would do away with the necessity of having them so large, and here would be a considerable saving, which ought to be deducted from the cost of the tower, &c., and in places where there are walled receptacles for holding manure, they also should be deducted as being unnecessary under a different system of managing manure.

I will now conclude by repeating my firm conviction, that a time will come when we shall need every available means to enable us to make the most of our farm manure, and by some such plan as I have described. I believe it to be a step towards further improvements, having a national object in view, and it will afford me great pleasure to see others take it up, but it must not be in the spirit of your Cornish correspondent, Mr. Henry Adams. —*Henry Liddell, Beverley-road, Hull, Dec.* 14.

Home Correspondence.

Richmond Testimonial.—I hope you will allow me a corner of your Journal to express the gratification I feel at the announcement of the formation of an Institution for Tenant Farmers reduced by adverse circumstances. I cannot collect from the public papers the exact particulars of the proposed establishment; indeed, they seem to be not yet fully matured. But enough appears to satisfy me of the benevolent and very useful character of the Institution, and sincerely do I applaud the disinterested conduct of the nobleman who appears to have originated it, for instead of appropriating the large sum of money raised for the purpose of a testimonial to himself for his past exertions in behalf of the farmers, I understand that he at once expressed the manly wish that it should be applied to some such object as this. In my mind this is genuine philanthropy; I earnestly hope that this benevolent project will meet with the support of every agriculturist in the kingdom, and that all will unite in promoting a scheme which, if fully carried out, will afford assistance to their brethren, in the hour of distress, and a refuge to them in old age. I am ready to add my humble contribution towards this charitable purpose, and shall be happy to forward it through the medium of your Agricultural Journal, if so permitted.—*F., Berks.* [We shall be happy to receive and transmit subscriptions; or they may be at once sent to Mr. W. W. Burrell, No. 18, North-street, Brighton.]

Threshing Machine v. *Flail.*—I read with some interest the article in your last paper—"Threshing Machine *v.* Flail;" and whilst on the one hand I am no opponent of the former on the score of injury to the labourer, for I believe it is innocent of any such transgression, yet, on the other hand, it seems to me that its advocates have been far too lenient in passing over, or but slightly adverting to, its injurious effects on the grain, more especially Barley. These are so great, as in many cases to render the corn so threshed totally unfit for malting purposes. I speak not lightly; but from an experience of 15 years to the extent of 8000 to 10,000 quarters annually, and to prove the immense superiority to the maltster of flail-threshed over engine-threshed Barley, I inclose samples of malt, both at 14 days' old from the couch and ready for the kiln. "Look on this picture and on that!" Now turn to the other two samples of dry Barley—the one from the engine, the other from the flail. Naturally, the first is the best; but it has been so skinned, broken, and be-devilled by the machine, as to be, if not wholly unfit, greatly injured for malting purposes. It has been literally engine-turned from a malting to a grinding Barley. Shillings per quarter would not make it equal to the flailed. I may be told that the engine here used was a bad one, or if good, improperly used. It is an old but a true saying, that bad workmen often complain of their tools. I do not believe in the existence of bad machines. Agricultural mechanism is far too advanced in the present day to warrant any such belief; but I certainly do believe they are too often abused by unskilful persons, who, penny-wise and pound-foolish, do not care how they mutilate the corn, so as they but get it out of the straw. If I am told that this is an argument rather against the abuse than the use of the machine, my answer is that this is no remedy for the evil. We, the malsters, cannot pretend to instruct the farmers in mechanical knowledge. The fault may rest with them; but the effects must be and are visited on us. In plain English the machines are ruining our best Barleys.—*Samuel Taylor, Stoke Ferry.* [The samples certainly bear out the assertions of our correspondent. That there are, however, machines which when properly worked, answer better in this, or in all other respects, than the flail, is evident from the partiality of Scotch maltsters for engine-threshed Barley.]

Tenants' Rights.—A great deal of your valuable Paper has been taken up lately with tenants' rights; what are they? There seems to be as many different opinions on that subject as there are on the Potato disease. I see by the *Daily News*, of the 12th inst., that Mr. Pusey said at the Smithfield Club dinner that he had drawn up a lease for his tenants, which he found to work well, but will he undertake to say that it would work well for all places and all counties? The custom of the county is another thing that the farmers talk much of; what is it? Will any one say that the custom of Middlesex (I believe there is none) would do for Buckinghamshire. I believe that no code of laws can be drawn up to suit all parties and all places. Landlords' rights and tenants' rights seem to me to lie in a nut-shell. I would say to the tenant come out, and leave your "law" craft behind you; and to the landlord, throw all your little prejudice overboard; meet each other upon just terms; look at the state the farm is in; if it is near the market or far off, roads good or bad; and then throw customs of the county and all other things overboard. Ploughings, dressings, half-dressings, and other improvements, are things to squabble about. Before all or any of these things are done, let the tenant give notice to the landlord, or his agent, that he may see that they are done; and if done properly, there will be no dispute about allowing for them. If there should be, the landlord or his agent is a rogue. I have been a visitor to the Smithfield Show for many years, and I have read evil reports and good reports, but the best that I have met with is a leader on the subject in the *Daily News* of the 12th instant. I should like for all breeders and feeders to see it, and say whether it is correct or not. I am afraid that you will think me troublesome, but when I see so much foolishness I cannot withhold my pen.—*Brutus.*

The Liverpool Swede.—*Thin Sowing.*—I read with much pleasure the account by "Amicus," p. 828, of a crop of Swedes, which he says averaged 2 feet 3½ inches from plant to plant. I think the large crop may be in a good degree attributed to the room allowed the plants to arrive at perfection, as well as to the liquid manure. More crops are diminished by crowding the plants than by allowing plenty of room. I once calculated a table of crops at every distance from one foot from plant to plant, to 6 feet; and am satisfied that larger crops may be obtained by allowing plenty of interval to well work the soil during the growth of plants. For instance, Turnips at 2 feet asunder every way, and averaging ten pounds per plant, will produce 50 tons per acre. That they will attain this size is certain. I remember once walking over a field of red Norfolk Turnips, broadcast, and meeting with one standing alone which weighed 23 lbs., and measured 41½ inches in circumference. Again, suppose a crop of Cabbages, at 4 feet from plant to plant, weighing 30 lbs. each (and I have grown them 40 lbs.), the crop will be 40 tons per acre. Although I so strongly recommend plenty of room for green crops, I am not a convert to the thin-sowing of corn; long and dearly-bought experience convinced me that it is the surest way to allow seed enough; there is seldom too much plant in spring.—*Lusor.*

Farm Accounts.—In a former number you very shortly and very clearly stated how a Dr. and Cr. account of a farm may be kept, and on which side the balance should be placed. Seeing you have resumed it last week, I take the liberty of asking you a question I here briefly, and in round numbers, give you my account according to your former directions.

Farm		*Dr.*			*Cr.*		
Jan. 1, 1846.—To stock taken Dec. 31, 1845, including cattle, hay, straw, Oats, and Potatoes, all of which have been consumed on the farm	£400	0	0	Dec. 16, 1846.—By live and dead stock, Oats, hay, straw, Potatoes, all of which will be consumed on the land	£400	0	0
To cash paid out including labour, lime, draining, &c.	300	0	0	By cash received for stock, &c.	200	0	0
	£700	0	0		£600	0	0

So that it would appear that I am *minus* 100*l.* I have expended 100*l.* in draining, liming, &c., which is hardly fair, perhaps, to charge on one year. But the point I wish to be informed on is this:—Whether having on the 1st of January last, taken hay, straw, Oats, into stock, and consumed them on the farm, I ought to credit the farm their value, as though I had sold them; for then I should have credited the farm for so much cash received. Of the straw of 1845, and taken in to stock 1st January, 1846; for instance, I made and carried out upwards of 200 one-horse cart-loads of dung for Turnips, Grass, and for the crops now on the ground. It appears to me the Oats, straw, &c., then taken in to stock, ought to be credited somewhere and some how, and in settling my small accounts it is the disposal of this stock which puzzles me.—*W. Northumbriensis.* [See Leader of to-day.]

Poultry, their Diseases, and Incitements to Laying.—Breeders of poultry are specially indebted to your correspondents "J. S." and "D. S. E." To the former, for pointing out the best and most profitable mode of training fowls to lay; and to the latter, for indicating the nature and cure of the diseases to which they are subject. Both these matters interest me, in common with others; and I do hope "D. S. E." will continue to enlighten us on a subject he appears so well to understand—I mean, the Diseases of Poultry. No person can take more pains than I do with my fowls. The place I have assigned them is favoured both by nature and art. I have built them snug habitations, carefully protected at all points from north and east winds, and I provide them daily all the little luxuries in which they delight. Still, either from our variable climate or from some other cause, at present unknown, I have several of my most choice fowls on the list of "incurables." Those which appear to suffer most are the gold-spangled Bantams, known as Sir John Sebright's breed. They are perpetually gaping, their eyes inflamed, their heads swollen. In addition, there is a discharge of fetid matter from their eye-lids and nostrils, particularly at night; and this I cannot effectually remove. In the day time they droop, are dainty over their food, sit solitary, and seem gradually wasting away. Can this be the roup? I am told that baneful disorder is superinduced by cold, dirt, hot feeding, and the want of clean water. Now, as I scrupulously guard against all these evils, I am puzzled as to the why and because of my fowls' visitation. They have plenty of play-ground allotted them, and are abundantly supplied with grit, ashes, dry mould, vegetables, &c., &c., as recommended by "J. S." Still they do not thrive. Perhaps some of your intelligent correspondents will be kind enough to throw a light upon what, to me, is as puzzling as it is distressing; for I dearly love all animals under my care to be well and happy. I shall immediately adopt the system pointed out by "J. S." as being calculated to make fowls lay. A constant succession of eggs, during each month in the year, is as desirable as it appears easy, by proper and judicious management. It is, moreover, a welcome addition to one's revenue.—*William Kidd, Sanders' Cottage, New Road, Hammersmith, Dec* 12.

A Falling off in the Milk.—On reading your Paper to-day, my attention was attracted, in your Notices to Correspondents, to the following: "Milk Cow.—H. W. —We cannot account for the falling off in the milk." It savours somewhat of self-assurance, or clairvoyance, in me to endeavour to answer a question put to you, the words of which are left to my own imagination. Two years since, within five miles of town, a gentleman kept a cow upon two paddocks of an acre each; the cow, an Alderney half-bred, yielded her required quantity of milk when in one paddock, but neither gypsum, guano, nor other agricultural essences, could alter the soil, to produce milk from grazing in the other; the cow-doctor's bill in the meantime was increasing. Two pigs who were turned out every morning, and yet appeared in a state of repletion, were physicked. It was altogether unaccountable. The idea of a pig sucking a cow, suggested by the writer, was as much scouted as the probability of a hedgehog doing the same thing. However, the pigs one morning, when let out (after perhaps a stronger decoction than usual, over night, had excited impatient cravings of hunger), at once ran to the cow that was standing, and though their hind legs were only on the ground, the cow stood quietly while they were sucking her teats; and this secret of a falling off in the milk, or *lusus naturæ*, was solved. And the probability is, the same event often occurs in farm-yards, when cows lying down, and pigs, foraging about the litter, fall in with the udder. The circumstance would not be perceived, perhaps, unless the cow was standing, and then only would be attempted by a pig whose instinct had led him to the agreeable repast before.—*L. A.*

Dairy Management.—"Lactometer" says, "I write to ask if any of your correspondents will give me their experience as regards setting milk pans on stone or wooden shelves. My dairy does not answer so well as it ought to do, considering the care and good feeding my cows have. I wish, therefore, to know whether wooden shelves are preferable to stone ones, especially in the winter season." [The dairy should be kept as nearly and constantly as possible at a temperature of about 45° F.]

Thrashing Machines.—Which of the following sorts of thrashing machines would you prefer—Meikle's Scotch, the English, or the Pegdrum machine. Which requires the least power to drive, and which does its work the best? I have at present a Scotch one, but as I fancy it does not do its work so clean as it should do, I am inclined to change it for one that would do it better, being fully aware that the saving of grain would soon repay the difference between the value of it and a first-rate one. But perhaps the machine is not in fault, but my not knowing the proper distance of the rollers, and the concave from the edge of the beaters. It is a machine which three horses can work comfortably. The drum makes 290 revolutions per minute; has four beaters; is 4 feet long; and from the outside edge of one beater to the outside edge of the opposite beater, is 3 feet 3 inches. The rollers make 70 revolutions per minute; they are placed ¾ of an inch clear from the edge of the beater; the lower edge of the concave the same distance; and top or farthest side of it from the rollers about an inch from beaters. Is this the proper distance? Do the beaters go too fast or too slow? Or is the speed of the rollers correct to the speed of the drum? I have 80 acres of arable land on which

I intend house-feeding 25 head of cattle, and three horses, the manure of which will enable me to carry on the four-course rotation; but if the crops produce, as may be expected, the horses may work the land well, but not have time to thrash all the grain; as it will frequently happen that the cattle will want straw when the horses will be badly wanted on the land. Now, will it be better to have an extra horse, or a small non-condensing steam-engine. I can procure good coals to work the engine, at the best hand, from 10 to 11*s.* per ton; the waste steam can be made to pass the outside of a pan, and so be making compound after the fashion of Mr. Warnes, whilst the engine is working, which will reduce the expense of fuel; and the spare hands on the farm can be thrashing whilst the horses are at work, which should never be neglected.—*Mona's Isle.* [We prefer the English machine, and should recommend keeping a hand or two more at work with the spade, &c., and thus let your horses off to thrash, instead of having a steam-engine on so small a farm. Perhaps some correspondent will speak of your thrashing machine.]

On Feeding for Profit.—In watching the progress of events it is curious to observe how hints are thrown away, when they might be acted upon with advantage, although at a future period circumstances compel their observance. I am induced to make these remarks from reading an account of the want of cheap meat in the markets, which the farmers must remedy, unless they intend foreigners to supply the deficiency, which in course of a few months they will endeavour to accomplish, and in which they will succeed. It is refreshing to observe influential journals taking up the subject of stuffing prize beasts till they become a mass of fat. Some months ago I touched upon this question, pointing out the absurdity of giving premiums to men who, regardless of expence, pampered up animals disgusting to the sight, and useless as food. At the time I was rather abused, as being ignorant of the advantage of such experiments; however, I cannot yet understand what great gain there can be to the community at large in noblemen and gentlemen year after year feeding Herefords, Durhams, &c., breeds well known (till they cannot move), without following my former suggestion of keeping a Dr. and Cr. account, which would then prove the real benefit of increasing the weight of tallow for the sake of a Medal. On an experienced farmer being asked the other day why he did not show his animals at the agricultural meetings, he answered, "I farm for profit." I should like to see prizes introduced for the best crops of Wheat, or other grain, roots, &c., produced at the least cost, and the land left in good health for the next sowing. Also for the best animals ready for the butcher, reared at the smallest outlay. This would be a criterion of business like farming, and require economy in all its branches.—*Falcon.*

Societies.

HIGHLAND AND AGRICULTURAL SOCIETY.

At the late monthly meeting a communication on Agricultural Statistics, from Mr. Sandars of Hemel Hempstead, in England, was read, with forms of proposed returns for the purpose of ascertaining the quantity of land under cultivation, and the produce of the country in cattle and crops of every description. The Secretary stated, that as the subject was one of importance, and exciting peculiar interest at the present juncture, it had been remitted by the directors to the meeting in order that any member of the Society might have an opportunity of communicating his views in regard to it. He adverted to the total want of all machinery for arriving at any estimate, on which reliance could be placed, of the agricultural produce of the country, available for the food of the population. The next subject brought before the meeting was the changes rendered necessary in agriculture consequent on the failure of the Potato crop. The Secretary mentioned that he had received a communication from Dr. Gesner, Cornwallis, Nova Scotia, in reference to two plants indigenous to that climate, recommended by him to be tried as a substitute for the Potato. Dr. Gesner had shipped a parcel of roots, addressed to the Society, which had unfortunately gone astray. The native names of the plants are Saa-gaa-ban and Mus-qua-sote, the former of which Dr. Gesner states to be the Glycine Apios of Linnæus, and the latter the Claytonia Virginica of Linnæus. A letter was read, addressed to the Secretary, by Colonel Kinloch of Kilry, in which that gentleman recommended that the Society should encourage the more general introduction of Mangold Wurzel, a plant the cultivation of which was in general but little understood, and in some districts unknown to the farmers. He had this year raised some in his garden at the rate of 32 tons an acre, exclusive of stems and leaves. The ground, though a good deep soil, was in bad heart, having been scourge-cropped for nine or ten years, with very little dung for the last three years, and none this. The crop was sown with some guano, and a little bone dust in the drills. Swedes and yellow Turnips on the same ground were not nearly so heavy. Had the ground been properly manured, he had no doubt but that the crop would have exceeded 40 tons; and he conceived it to be a plant peculiarly suitable for the garden of the cottager, which was generally well trenched and manured. The Secretary mentioned that Mr. MacCormack of Marino, in Ireland had this year raised it to the extent of 80 tons per acre, though, in his calculation, he assumed 40 to be a tolerable crop. —(*Irish Farmers' Gazette*, 28th Nov.)

Mr. Clark of Ulva said, that so far as the range of his observation extended over the Western Highlands and islands, the inhabitants of these localities would do well to consider the great risk which attends trusting to the Potato next year as a staple article of food. His observations applied particularly to the small farmer and crofter. Hitherto these had looked on the Potato as their chief, if not their only, food; and in a year like the present, when that support had failed, they necessarily were exposed to all the calamities of famine. The season was approaching for preparing the ground for next year's crop; and, if to the difficulty of procuring sound and untainted Potato seed, there was added the chances of the same unknown and undefined malady again making its appearance to blight the prospects of the poor man, surely it was but reasonable that attention should now be turned more to the cultivation of something else. He thought that in the localities of which he spoke, the sowing of Oats and Bere, or Barley, should be more largely resorted to, and the raising of Turnip and Carrot, which succeed admirably, and grow luxuriantly in the West Highlands and islands.

Mr. Dickson, Sauchton Mains, said he had grown Mangold Wurzel for three years consecutively, and that he had given it up, finding that it did not produce a heavier crop, and was not more fattening than Turnip. But it might be desirable, however, to introduce it as a change in the Turnip rotation.

Mr. Milne referred to an elaborate experiment conducted by the late Earl Spencer, as detailed in the journal of the Royal Agricultural Society of England, for 1841. Of two animals selected, one was fed for a month on Swedes, and the other on Mangold Wurzel. The food was then changed, No. 1 was put on Mangold, and No. 2 on Swedes, and again both were put on Mangold Wurzel. The result of the experiment, under every trial, showed the Mangold Wurzel to be much superior to Swedes in producing weight.

Mr. Milne, of Milnegraden, read a report by the directors on the Drainage Act, 9th and 10th Victoria, cap. 101. The objects of the Act are the increase of the productiveness and value of land by drainage, the employment of agricultural labour, and the improvement of the general health of the community. To effect these important purposes, an advance of two millions for Great Britain, and one million for Ireland, is authorised to be made by the Treasury out of the consolidated fund. The inclosure commissioners for England and Wales are nominated commissioners for carrying the act into execution in Great Britain, and all applications from Scotland for advances under it must be addressed to them. The financial advantages offered by the measure to a party taking advantage of it are, that the outlay expended on his draining is advanced to him in the form of a loan, bearing interest at 6½ per cent. for a period of twenty-two years, at the expiry of which the debt is extinguished. In other words, the borrower gives 4 per cent. for the advance, and 2½ for twenty-two years to pay it off; and if 4 per cent. be taken as the ordinary rate at which country gentlemen can borrow, the necessary calculation would show that 2½ per cent. will not in twenty-two years wipe off the whole of the sum received. There is, besides, the benefits of an accumulation and extinction of debt within a limited period, in a manner which cannot, under ordinary circumstances, always be commanded—and that without any of the expenses attending the occasional transfer of securities and termly payments of interest. In order to secure these advantages, there is, fortunately, no expensive preliminary procedure. The machinery provided by the Act is as simple and economical as could be devised, and may be worked by any country gentleman, while the commissioners are ready to give effect to it, so as to expose applicants to the smallest possible expense. The report referred in terms of high eulogium to a printed letter circulated by Mr. Blamire, one of the commissioners, which, though not an official communication, might be read as an exposition of the interpretation which Mr. Blamire believes his colleagues are disposed to give to the Act. The principal advantages held forth were, that the commissioners would, to save expense, name as inspectors trustworthy persons residing within the district from which an application was presented, that proprietors would not, in draining, be trammelled by any precise rule or system, but that each operation should be conducted according to its own circumstances; and that in regard to uncultivated lands, expenditure in trenching will probably be authorised as a necessary accompaniment of drainage. The report contains some suggestions offered by the directors, which will be published at length in the Transactions with the Journal. It strongly impresses on the tenantry the importance of co-operating with their landlords when necessary, by joining in their applications, and becoming parties in payment of a portion of the interest, which by the Act they are entitled to do; and it concludes by expressing the opinion of the directors that the Act confers a great boon on the landed interest, and particularly on proprietors holding their estates under settlements of entail.

AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

The half-yearly meeting of this Society was held on Dec. 12. The following are extracts from the report read by the Secretary:—

"The continued infliction of the Potato disease has occupied the serious attention of the council since the last meeting. The effect of the visitation has been universally felt in the existing relations of the agricultural community, and the most serious consequences are likely to result from the changes which must take place in consequence of the sudden destruction of what has hitherto been considered the staple food of so large a portion of our population.—In accordance with the wish of many influential members of the Society, the council have offered the gold medal for 'The best Essay on the system of cropping and mode of cultivation of land which should be henceforth adopted by the small farmers of Ireland; and they confidently hope that the effect of this prize will be the publication of good practical instruction suited to the capacity and means of the small farmers of the country.'—When the Society was originally founded in 1841, the following regulation was adopted, commonly known as the 14th rule, viz.—'That it be a fundamental rule of the Society that no question shall be discussed at any of its meetings of a political tendency, or which shall refer to any matter to be brought forward or pending in either House of Parliament.' This was taken from the rules of the Royal English and Highland Societies, and was framed principally, it is believed, for the purpose of guarding against discussion on subjects connected with the duties then levied on the importation of foreign corn.—Influenced altogether by considerations of the pressing emergency and the sudden and grievous affliction of those whose interests they represented, the council thought themselves justified in departing in some measure from the letter in the above rule, and accordingly, when it was known that Government had determined to avert the calamity which it had pleased Providence to inflict upon this island by the direct imposition of taxation; and moreover, when it appeared that this taxation would be attended by the expenditure of immense sums of money, in the execution of public works of very questionable utility, and not in operations of a profitable and reproductive nature. At a meeting of the council, held on Thursday, the 10th of September last, the Earl of Charlemont, vice-president, in the chair, it was resolved—'That, after full consideration of the question, it did not appear to the council that the propositions then proposed, or any suggestions the council may consider it their duty to make at the present crisis as to the profitable employment of the labouring population appeared to be in any way an infringement of the 14th rule.' This resolution was subsequently confirmed at a further meeting of the council held on Thursday, the 24th of September last. Many of the best friends and supporters of the Society having since, however, expressed the strongest apprehension that even the temporary suspension of a portion of the rule would ultimately lead to discussions not professed or contemplated by those who proposed the suspension, the council have unanimously come to the determination of recommending to the meeting that the 14th rule should be restored in its integrity, and that an additional rule be adopted with reference to the general rules of the Society, as will, they conceive, fully satisfy the objections, and quiet the apprehensions of those who are anxious that the Society should be carried on in strict conformity with its original rules.—In concluding these observations, the Council have to regret that the support which the Society has hitherto received from the landed proprietors in Ireland has not been equal to their anticipations. Of the different noblemen who have estates in Ireland there are no less than 120 who have never contributed to the funds of this Society. There are only the names of 31 of the members of Parliament for Ireland on the list of its supporters, and the same want of active co-operation exists amongst the other large proprietors. This apathy is the more extraordinary when contrasted with the spirit and emulation which the proceedings of your Society has excited among the farming classes, who, by the interest they express, and their eagerness to avail themselves of the opportunities of improvement which it affords, bear ample testimony to its merits; yet it is to those who possess property, and whose tenants derive benefit from the exertions of the Society, that the council have reason to look for co-operation and support. The council have also to state that arrangements have been made for holding the next great cattle show and annual meeting of the Society in Londonderry, which will take place in the month of August next under the patronage of the nobility and gentry connected with that locality."

—The adoption of the report was moved by the Duke of Leinster, seconded by the Earl of Clancarty, and carried unanimously.—Mr. Lambart then moved that the 14th general rule of the Society, which had been partially suspended at the late special meeting, held for that purpose, on Wednesday, the 11th November last, should be restored to the code of fundamental rules, in all its integrity. The resolution was carried unanimously.

—Mr. G. A. Hamilton, M.P., proposed the next resolution, that no general rule of the Society be henceforth rescinded, suspended, or altered, except at one or other of the half-yearly meetings of the Society, and then only upon the recommendation of the council adopted at a meeting of the council held one month at least before said stated meeting, and promulgated by public notice to the members of the Society one fortnight previously.—Mr. Charles Roper seconded the motion, and it was adopted unanimously. A resolution was then passed regretting that the suspension of the 14th Rule had caused the resignation of the Duke of Leinster, and hoping that his Grace would again resume the position of President of the Society.—The Duke of Leinster returned thanks. He said that the proceedings of the day showed him that the Society appreciated the

motives that had compelled him to resign the Presidency of the Society. There were so many subjects that such a Society could consider, that there was no necessity for infringing a rule which their lamented founder (Mr. Purcell) was most anxious to see carried out in its strict spirit; and as it was restored to its former place amongst the rules he would again take the chair with the greatest pleasure, and would always feel the kindness of the Society in replacing him in it.—The meeting shortly after broke up.

BELFAST FLAX SOCIETY.

At the monthly meeting of Committee, on the 25th of November, it was stated that arrangements were being made by the landlords in the south for the supply of prime Riga and Dutch sowing seed to their tenants, in many cases giving the seed on credit until the harvesting of the Flax crop, a course which would ensure an extensive breadth being sown, and would secure good fresh seed for the farmers. The description of seed hitherto used in the south and west has been of the worst possible kinds; but the farmers have been content with it, as they have, until now, merely sown small patches of Flax, for spinning and weaving into a domestic manufacture of linen, and not for sale, like any other agricultural produce; hence cheapness was considered by them more important than quality. In allusion to this point, the Secretary read a letter from the Very Reverend T. Mathew, in which he remarks: "A respectable firm in Cork, the most extensive in the importation of Flax seed, candidly admit that the Dutch seed is the best, but that it is not fit for the Cork market, from its high price. The cheap American and Russian (Odessa) seed, though inferior, is the only saleable article. This is a deplorable prejudice, and should be taken into the consideration of your honourable association. If Dutch Flax seed was imported, and distributed for sale amongst the different police stations in Ireland, it would be purchased with avidity, if sold at cost price. This would contribute more to the future profitable employment and feeding of the people than any other Government relief. The good would be permanent. Now is the period, when hundreds of thousands of Potato gardens lie uncultivated. Should this opportunity be neglected, the friends of humanity will not easily be able to repair the loss." Among the correspondence submitted to the meeting was a letter from Mr. Warnes, of Trimingham, Norfolk, of which the following is an extract:—"The use of Linseed, to fatten cattle, is every day becoming more popular in England, and must result, I think, in an extended cultivation of Flax, if only for the sake of the seed. I wish I could hear that the Irish farmers were more alive to the importance of this part of the crop, with reference to the consumption of it on their farms." The Secretary reported that he had been kindly furnished by the Board of Trade with the usual returns of the quantities of Flax and seed imported during 1845, and the nine months ended 1st August, 1846. He had, in addition, requested this year a return of the quantities of Hemp imported, as the question had been of late raised, whether it might not be of importance to make a trial of this plant in Ireland. The return of the quantity of Hemp imported into Great Britain and Ireland, given in this communication from the Board of Trade, is—for the year 1845, 931,850 cwt. Taking this at an average value of 30*l.* per ton, it would appear that 1,397,775*l.* had been expended for this article in one year's consumption. Through the kindness of Mr. Andrews, of Comber, a report of his trial of this crop, and his mode of cultivation, had been received; and to Mr. Niven, of Lambeg, the Society was indebted for a report of the mode of growth practised in the United States in America. These would be inserted in the appendix of the Society's report for this year, when published, and attention directed to them, with a view of inducing gentlemen in different parts of Ireland, to experiment on the capability of different soils, and especially peat, for the production of this plant, and to test its value on the score of profit.

Farmers' Clubs.

Debenham.—The seventh annual meeting of this Club was held on Friday, Oct. 30th. The show of fruit and vegetables, the production of cottagers in that village and its neighbourhood, for prizes offered by the Club, was smaller than on former occasions; still the quality of those produced was equal, if not superior, to previous exhibitions. In the course of the evening, Mr. Mechi took occasion to impress on the meeting the necessity of agricultural improvement by deep draining and deep cultivation. The two must be united, for without deep drainage, said Mr. M., woe betide the unlucky wight who might resort to deep cultivation. He was aware there was a prejudice against deep drainage on stiff clays. He was anxious that every one should try at least one acre, and then if he (Mr. M.) was wrong, they might convict him by facts.

Botley, *Nov.* 10: *Annual Report.*—At a meeting of the Club, the subject proposed for discussion was by Mr. Wm. Gater: "On the most Economical Mode of Keeping Farm Horses."

"Mr. Gater commenced his observations by stating the practice in many parts of the country of a greater variety of food being given to horses, and the good results proceeding from it, particularly as regards Swedish Turnips. He proposed that the food during the different seasons should consist of the following provender, commencing September 29:—

13 weeks—on 1½ bushels of bruised Oats	£0	5	3
,, 2 pecks of bruised Beans	0	2	7
,, 1½ cwt. of hay	0	6	0
	£0	13	10
13 weeks—on 2½ bushels of pollard	£0	2	1½
,, 2 pecks of bruised Beans	0	2	7
,, Straw	0	1	9
,, 70 lbs. of Turnips	0	0	8
	£0	7	1½
13 weeks—on 2½ bushels of pollard	£0	2	1½
,, 2 pecks of bruised Beans	0	2	7
,, 1½ cwt. of hay	0	6	0
	£0	10	8½
13 weeks—on 2 bushels of bran	£0	2	0
,, 1 peck of Beans	0	1	3
,, Cut Clover, Tares, and Pasture	0	3	6
	£0	6	9

"Mr. Twynam, after a few remarks on Mr. Gater's resolution, proposed the following kind of food, as an amendment, commencing in the autumn:—

13 weeks—on 1½ bushels of Oats	£0	5	3
,, 1 peck of Beans	0	1	3
,, 1 cwt. of hay	0	4	0
	£0	10	6
13 weeks—on 2 bushels of Oats	0	7	0
,, 1 peck of Beans	0	1	3
,, 1 cwt. of hay	0	4	0
	£0	12	3
13 weeks—on 1 bushel of Oats	£0	3	6
,, 3 rods of Clover, Vetches, &c.	0	3	0
	£0	6	6
13 weeks—on 1 bushel of Oats	£0	3	6
,, 2½ rods of Clover	0	2	6
	£0	6	0

"After many other gentlemen had spoken, Mr. Twynam's amendment was carried by a majority of the members present."

At a meeting of the Club on Jan. 5, Mr. G. H. Appleby opened the subject for discussion, namely—"On the best method of cultivating strong clay soils, with a view of supporting the greatest number of sheep, and growing the most corn, at the least expence."—"Upon a strong poor wet clay land, supposed to consist of 200 acres of arable land, and from 10 to 20 acres of pasture land, the following conditions should be adopted:—The lease should be granted for not less than 14 or 16 years, landlord should do all the underground draining, tenant paying 4*l.* per cent. for landlord's outlay, or landlord find tiles, and tenant labour; tenant should be recommended to chalk, but not obliged to do so; tenant should be paid at the end of his term for all permanent improvements, and for half the value of the bone manure, or other artificial manure of the same quality, used in the farm during the last two years, and also one sixth part of the value of all Linseed cake or corn given to sheep throughout the last two years. The tenant should be recommended to adopt the following system of cultivation, or as near to it as circumstances and the seasons will admit:—

"TURNIP AND GREEN CROP.

	Acres.
Swedes, after Wheat, to be only once ploughed if the land be tolerably clean, the Swedes to be fed off late in the next spring	15
Common Turnips, after Wheat. If the Turnips are a good crop, half of every alternate ridge may be pulled up and carried into a ley field for feed in wet weather, and some may be carried to a yard for the fattest sheep, previous to being taken to market	15
Early Turnips, 10 acres, and 5 acres may be Rape after Swedes, half of the Turnips should be carried into a ley field, and some into a yard, for the same purposes as the other common Turnips	15
Tares, 15 acres Winter, and 5 acres Summer.—Tares to be fed off by sheep, not later than the end of July. Land ploughed up as fast as fed off, and all ploughed three times. A light coat of dung should be put on before the last ploughing, which should be completed in ridges for sowing by the end of September, so that the Wheat may be put into the land in two or three days, about the 20th of October	20
	65

WHEAT CROP.

After Tares, as stated above	20
After Rape and Early Turnips, which should be all finished feeding, and the land sown with Wheat by the first week in November	15
After hay cut (Clover), or Grass fed, to be well dunged, and ploughed only once, and sown in October	15
	50

SPRING CORN.

Barley or Oats, after Wheat, to be sown with Grass seeds, Clover once in eight years	20
After common Turnips, and sown with Oats and Grass, seeds as before directed	15
Oats after ley, where the Turnips fed in wet weather; or part of this may be sown with Beans or Peas if required	15
	50

"The foregoing system will give 35 acres of Clover, or other Grass, for hay, or part may be fed; and the 15 acres of Oats, after ley, should be sown with winter Tares; and, as 20 acres will be ley every winter, it will afford 15 acres for Oats and 5 acres for Summer Tares. The Turnips should be all drilled 24 or 27 inches wide, with bones mixed with as many ashes as possible, or road scrapings, or fine earth, from 30 to 40 bushels per acre. The Turnips being properly set out, the horse-hoe may be advantageously used between the drills, two or three times during the summer, in dry weather, which will be equal to a fallow. This system will enable the tenant to fatten from 400 to 500 sheep annually, or improve that number to the amount of 200*l.* to 250*l.* per annum, and at the same time grow more corn than under the old system of fallow, which rendered it necessary to plough four or five times during the summer, and by which very few sheep, if any, could be kept.

"Mr. Blundell proposed that the following rotation of crops would be preferable to that proposed by Mr. Appleby, upon the better description of clay and clay loam soils:—

1st year. Wheat—one-third sown with Clover.

2d year. One-third Clover, mowed for hay; one-third Beans, Oats, Peas, or Vetches; one-third Swedes, Rye, or Winter Barley; Vetches are usually sown on a portion of the Swede field.

3d year. One-third Clover-fed, summer-tilled, or sown to green crop; one-third early Turnips, or Rape; one-third Rape or Summer Vetches; or some prefer a clean fallow.

"After many remarks among the members present, it was considered that both Mr. Appleby and Mr. Blundell's rotation of cropping were in every way applicable to the different variety of soils alluded to in each proposition."

At a meeting of the Club on February 2, the Chairman called on Mr. Spooner to proceed with the subject named for discussion:—"The use of superphosphate of lime as a manure for the Turnip crop."

"Mr. S., after treating of the composition of bones, as proved by analysis, and pointing out that it was principally the earthy portion of bones that rendered them so valuable as manure for Turnips, proceeded to explain the chemical changes effected by the agency of sulphuric acid, the principal of which was to convert the phosphate of lime, which was difficult of solution, into a superphosphate, which was readily soluble and possessed a double proportion of phosphoric acid. After relating the other chemical changes effected, he proceeded to state the proportions of acid and of water most desirable to employ, supporting his opinion both by theoretical reasoning as well as by the result of practice. He afterwards related a number of instances in which the manure manufactured by himself had been tried by various agriculturists, and with almost unexceptionable success, the experimenters, in many cases, being members of the Club. He also related various experiments, instituted by himself, and amongst others one of the continued good effect of an experiment which he brought before the Club during the last year, in which two bushels of the superphosphate had successfully rivalled 16 bushels of bone-dust in the growth of Swedish Turnips. He was now enabled to state that the crops of Oats which succeeded, was, to say the least, as good where the superphosphate of lime had been employed, and the promise of the Clover crop was also equally favourable. He finished his subject by calling the attention of the Club to the following conclusions, which he considered they might justly deduce:—

"That superphosphate of lime is the essential manure for Turnips, and particularly for Swedes. That with it alone a good crop can be raised, but without it the Turnip will not thrive, however rich the manure may otherwise be.

"That vitriolised bones may be used either alone or with other manures, and that when the latter are at hand, it is more advantageous to use the former in combination with them. For instance, if there are 30 acres to be prepared, and only sufficient dung to dress 15 acres, it is better to give a half-dressing of dung over the whole of the Turnip break, and make up the deficiency by means of sulphated bones. Thus the plant will be forced in its early, and supported in its later growth. For the same reason vitriolised bones may be advantageously combined with guano.

"That vitriolised bones are equally advantageous to the second year's crop, when the Turnips are either wholly or partially fed off with the sheep.

"That while the economy of this manure is thus proved by practice, it can be as readily explained by theory. The tops of Swedes are known to possess double the phosphoric acid contained in the bulbs. Thus, the superphosphate of lime in the manure causes the rapid development of the leaves—one of its peculiar properties. The leaves being thus early and largely developed, are enabled to extract a considerable portion of nourishment from the atmosphere, much more indeed than where the leaves are small and backward. The difference between the amount of food derived from the atmosphere by a forward and flourishing crop, and that obtained by a backward and dwarfish crop, is so much absolute gain to the farmer, or rather to the land. It costs nothing on the one hand, but yields considerably to the land if the crop is fed off on the other. A manure that would thus force on the Turnip in the early stages of its growth, was long felt to be a desideratum by agriculturists. This want has now been supplied, and even if this were the only recommendation sulphated bones possessed, its discovery and introduction would still be a boon.

"The value of vitriolised bone may now be considered to be fully and fairly established. Its claims rest not on the assertions of a few experimenters; it has been tried during the last season by hundreds with success, and in the next it will be tried by thousands."

Newcastle, Dec. 5: *On the Cultivation and Produce of Kohl Rabi.*—After ordering several works for their library, several donations to the Club were recorded. Amongst them were specimens of Kohl Rabi, or Turnip Cabbage, from Mr. G. Bates. Attached to one of these specimens was the following label:—"*Kohl Rabi*, sown exactly like Turnips in drills, on the 15th of May last, and afterwards thinned in the same way as Turnips, and the thinnings transplanted like Cabbages. Soil, a sandy loam." "The proof of the pudding is in the eating." So one or two of Mr. Bates's Turnip-looking donations were cut up, that the members might have a taste. The Kohl Rabi surpasses even the core of a Cabbage, being more juicy and saccharine.

Mr. Anderson (when the "dessert" was done) rose to read a paper on the provender of which the company had been partaking. It was a native (he said) of Germany—in which country, and in the Low Countries and the North of France, it was much cultivated, and was chiefly given to cows. It was well adapted for this purpose, being devoid (or nearly so) of that acridity which affected milk and butter, when cows were fed on Turnips. It was first introduced into England by Sir Thomas Tyrwhitt. The produce was nearly the same as that of the Swedish Turnip, and the soil best suited the one was equally suited for the other. It was not only hardy in the field,

that kept better in store than any other plant of its kind. It might be sown in drills, or raised in beds, and transplanted like Cabbages. If in beds, they must be made and sown in the preceding autumn. 2 lbs. of seed would produce a sufficiency of plants for an acre of ground. Hares were so fond of the crop that to grow it where these animals abounded had been found impracticable. The Rev. Thomas Broughton, in a paper to be found in the seventh volume of the "Bath and West of England Society's Transactions," described his success in cultivating the plant under unfavourable circumstances. In the spring, the produce was given to sheep, which were very fond of it. Part was saved for seed, and, having ripened, was cut about the middle of July. The average weight of the bulbs, Mr. Broughton found to be about 5 lbs. Many of them weighed 8 lbs. or 9 lbs., and some few 14 lbs. or 15 lbs. They possessed some advantages over the common Turnip. They had a strong power of resistance to putrefaction, and of consequence endurance of frost and wet. They were more nutritious than the Turnip; and being of a closer texture, and less watery, they contained more food in the same space. By rising above the ground on a foot-stalk they were more readily come at in winter during a snow-storm. If the land were in good proof, the beginning (or even the middle) of July would be early enough for planting; and this would give the farmer a long summer to clean his ground. He (Mr. Broughton) imagined they might be preserved almost as late in the spring as the farmer pleased. He had found the bulbs nearly as fine and sweet after the seed had been cut as before. The leaves, not being bitter, like those of the Turnip, were more readily eaten by cattle. On the whole he could not but think they would prove, upon trial, a very valuable article of fodder to the farmer. The earlier the seed was sown in the spring, and the earlier, consequently, the plants were put out, the better; especially on poor soils. In strong land, and with a favourable season, a good crop might be procured by sowing in the first or second week of May. If sown ever so early, they never run to seed the first summer; save one here and there, which had run from its sort. In good ground the rows might be from 3 to 5 feet asunder, and not less than 3 feet in the rows. Great care must be taken not to plant too deep; and, when hoed, not to draw the mould too high on the stalks. A piece of Wheat stubble, between 2 and 3 acres, lying in a small common field, the soil a free-stone grit, and its value about 8*s.* per acre, was twice ploughed, cleaned, and dunged. It was then ridged up in two-bout ridges, part having their centres 3 feet distant from each other, and part only 2 feet. The plants were all set out in the middle of the ridges, and at the distance of 4 feet from each other in the rows, but at three different times, viz., the first seed sown in the middle of March, the second at the beginning of April, and the third at the end of April. On the 2d of December three square perches were cut in three different parts of the field, and the weight found to be as follows:—

No. 1.—One square perch, ridges somewhat more than 3 feet, plants 3 feet in the rows, seed sown middle of March .. .. 1030 lb.
No. 2.—One square perch, ridges barely 3 feet, plants 3 feet in rows, seed sown at the beginning of April .. .. 1060 lb.
No. 3.—One square perch, ridges about 2 feet, plants 3 feet in rows, seed sown at the end of April. .1060 lb.

The average weight was somewhat more than 18 tons per acre. On the 19th of December 40 large wether sheep were taken in, weighing on an average upwards of 25 lbs. per quarter. A small piece of the Turnip-Cabbage was hurdled off for them, which they devoured very greedily. Late in the evening they were driven back into a small paddock adjoining, about 2½ acres, which had before been eaten down bare. In the morning nearly as much fresh ground was taken into the former pen as would serve them for the day, and they were put back to the paddock in the evening as before. This course was pursued through the whole of the experiment—excepting that, after a few days, the fresh pen was kept separate from the stale one, and the sheep only suffered to remain in the former about two hours in the morning and two in the afternoon: the rest of the day they passed in the stale pen—by which means many stalks, not wholly consumed, were afterwards eaten. The sheep were kept exactly two months. The quantity consumed was then measured, and found to be a trifle more than a statute acre and a quarter. Though these sheep were kept in a fattening way, they had no hay given them—twice only excepted, when, after a considerable fall of snow, succeeded by rain, and that again by a severe frost, a little hay was sent to them on a horse, of which they ate but little, finding no difficulty in coming at their green food in spite of the deep snow. The neighbours were not only struck with the great advantage of the crop over common Turnips in this respect, but likewise in wet weather, when the sheep were able to walk about among the bulbs without the least detriment or waste. On the 6th of January, and again at the close of the experiment, four of the sheep were weighed, with the following result:—

	January 6.	February 12.
No. 1 weighed	.. 9 st. 4 lb.	.. 9 st. 14 lb.
No. 2 ..	.. 8 st. 8 lb.	.. 8 st. 12 lb.
No. 3 ..	.. 9 st. 5 lb.	.. 9 st. 9 lb.
No. 4 ..	.. 10 st. 11 lb.	.. 10 st. 14 lb.

Some of the sheep were weighed on a full stomach, in the first instance, and not half so full on the second, through the carelessness of a servant. Some of the flock were killed immediately from the Turnip-Cabbage, and died very fat, and in the best order. They were never seen to scour during the experiment. An acre of the Cabbage, there was reason to conclude, would keep 40 stock sheep, without hay, at least two months. Mr. Bates stated, in reply to one of the members, that the seed should be sown early in March.—Mr. Johnson, of Prudhoe, suggested that the seed should be raised in a garden.—Mr. Ramsay moved a vote of thanks to Mr. Anderson. He had never before seen the Kohl Rabi. He had read of it in Bailey's Report on the Agriculture of Durham, where it was stated that hares came from all parts to eat it; and this was as strong evidence as could be given in its favour.—Mr. Burnett seconded the motion. He had grown the Kohl Rabi last year, but had no samples to show, for the hares had eaten the whole crop. (Laughter).—Mr. Bates stated, that Mr. Archibold, M.P., had informed him, during the meeting of the Royal Agricultural Society in Newcastle, that M. Latouche, the Dublin banker, grew 4 or 5 acres every year, to feed his cows, that he might have milk for his family which had no unpleasant taste. The motion having been passed and acknowledged, Mr. Ramsay exhibited to the members what at first we took to be an Indian war-spear, but which proved to be a stalk of Indian corn! It was upwards of 10 feet long! and reminded us of "Jack and the Beanstalk." The seed was planted in Mr. Ramsay's garden so late as the second week in June. He had no expectation that it would come to anything, and paid little attention to it at first; but as it gradually rose higher and higher, he became interested in its progress—more he than in anything else he grew—for he began to see that he should have something worth showing to the Farmers' Club. At length (without any manuring) it got to the height of the garden-wall, and then it ceased to grow in altitude; but, to his surprise, it put out a shoot resembling a feather—which became an ear, or cone, and arrived at full maturity. [Here Mr. Ramsay drew aside a leaf, and displayed a large head of corn.] He had no idea that such a plant could have been produced in this country—especially when sown so late. And he begged to remind the Club that Indian corn had been selling in Liverpool market at 62*s.* a quarter.

Miscellaneous.

The Elements of Disease may be made the Source of Fertility.—The very refuse of the materials which have served as food and clothing to the inhabitants of the crowded city, and which, if allowed to accumulate there, invariably and inevitably taint the air, and render it pestilential, promptly removed and spread out on the surface of the surrounding country, not only give it healthfulness, but clothe it with verdure, and endue it with inexhaustible fertility.—*Southwood Smith.* The condition of large rural districts in the immediate vicinity of the towns, and of the poorest districts of the towns themselves, presents a singular contrast in the nature of the agencies by which the health of the inhabitants is impaired. Within the towns, we find the houses and streets filthy, the air fetid, disease, typhus, and other epidemics rife amongst the population; bringing in their train destitution and the need of pecuniary as well as medical relief; all mainly arising from the presence of the richest materials of production, the complete absence of which would, in a great measure, restore health, avert the recurrence of disease, and, if properly applied, would promote abundance, cheapen food, and increase the demand for beneficial labour. Outside the afflicted districts, and at a short distance from them, as in the adjacent rural districts, we find the aspect of the country poor and thinly clad with vegetation except rushes and plants, favoured by a superabundance of moisture, the crops meagre, the labouring agricultural population few, and afflicted with rheumatism and other maladies, arising from damp and an excess of water, which, if removed, would relieve them from a cause of disease, and the land from an impediment to production; and, if conveyed for the use of the town population, would give that population the element of which they stand in peculiar need, as a means to relieve them from that which is their own cause of depression, and return it for use to the land as a means of the highest fertility.—*Poor Law Commissioners.* The most effectual, as well as the most economical method of restoring the balance between the town and country, would be to avail ourselves of that enormous accumulation of animal exuviæ which the existence of a crowded city necessarily occasions; and to convert that which is now a pabulum of disease into a source of life and abundance. As indeed the geologists of the present day cite, as a proof of the ignorance or neglect of their predecessors, that the stone required for the fortifications at Gibraltar was brought out from England, when it might have been obtained upon the very spot; so I conceive our descendants will marvel at the inattention to chemical science evinced by the present generation of farmers, in importing from distant regions, such as South America, substitutes, and those perhaps but imperfect ones, for that fertilizing material, of which the greater part is allowed to deposit itself unprofitably in the beds of our rivers.—*Daubeny.* Thousands of hundred-weights of those phosphates flow annually into the sea, with the Thames and with other of the British rivers.—*Liebig.* It is to the use of this substance (town refuse) drawn from reservoirs in the towns, that Belgium, in a great degree, owes her fertility; while in many large cities of Germany, it is allowed to drain into the rivers. Since 1200 pounds' weight of it yearly may be reckoned for each unit of population, it is easy to see, where population is counted by millions, how important its application must be.—*Sprengel.*

Instance of Grass-land broken up.—This farmer, in 1844, broke up a piece of land, a sandy loam of tolerable depth, with a stratum of gravel under, on a subsoil of Oxford clay. This land in pasture produced a very scanty herbage, and was grazed with young stock, and scarcely worth 20*s.* per acre. He pared and burned, and ploughed and sowed Turnips, and bush-harrowed them in, the turf being of a looser texture than is often met with, but this operation did little more than cover the seed. He had a very fine crop, which was eaten off with sheep, and in autumn the land was sown with Wheat, of which he had an excellent crop. His next crops will be Swedes, Barley, seeds, and then Wheat again. The method of putting in the Turnips is not to be recommended as safe. Certainly not on all soils. About 20 years ago I practised it myself on tender sward with success, but on very tough turf full of the fibrous roots of vegetable substances, &c., it failed.—*Mr. Bravender, in Eng. Ag. Soc. Jour.*

Analyses of Sewer Water.—These salts, as they are derived in great measure from the excretions which have passed into the sewer, are principally composed of the ashes of our bodies, resulting from the food we have digested; and as we have received these salts either directly from plants, or indirectly through animals from plants, it is evident they must be the food of plants, and plants receive these substances from the soil, which they must gradually exhaust. Now, amongst these substances, we find three which are especially valuable to plants; of these three, the most important is ammonia; ammoniacal salts exist in these waters to a considerable extent:—and in addition to these, we have alkaline salts, potash, and common salt; potash is not so abundant as common salt:—and in the third place, earthy phosphates, containing the whole phosphoric acid. I mention these three compounds in particular, because they are substances that are found in the soil in but small quantities, and yet are absolutely essential to the maintenance of vegetable life. The quantity of potass which passes out of this sewer per day (estimating the average discharge of the sewer at about 30 gallons in a second, so that the average daily discharge would be about 2 millions and a half of gallons), the average quantity of potass would be about a ton weight, and about the same quantity of phosphates of the earths pass off every day; *i. e.* about a ton of phosphoric acid, in combination with lime and magnesia, emptied from this sewer every day in waste. Of ammonia there is more than that, nearly double that quantity, nearly 2 tons of ammonia. The two analyses differ in some respects; the ammonia varies. In one case I find about a ton, and in the other about 2 tons per diem. In the case where the water was stopped by flood-gates, which I consider the fairest average of the two, I find as much as 2 tons turned out into the Thames per day; the quantity will vary according to the season.—*Evidence of Professor Miller, of King's College.*

Calendar of Operations.

Winter.—During frosts to carry out dung, repair roads, and carry grain to market; during thaws, to plough stubbles where they are not already ploughed, and (on dry land) to sow Wheat where the sowing has been unavoidably delayed till now, to drain land too as well as to attend to the irrigation of water meadows, and to attend to stock at all times. All this is the work of this season of the year.

We have made arrangements for presenting to our readers every week during the ensuing year in this section of the Paper, no longer occasional remarks from one pen only, but actual records of the proceedings on 8 or 10 farms, under Spade Husbandry and Horse Husbandry, Stock Farms, Grazing Farms, Dairy Farms, Corn and Green Crop Farms, Hop Farms, &c. &c., in all the different principal agricultural districts in England and Scotland. This, at the same time that it will give information of greater variety than any one writer could communicate, will be more useful to our readers, scattered as they are over the three kingdoms, than were the paragraphs, as heretofore, to represent the experience of but one district.

Notices to Correspondents.

Agricultural Education—*A Barnacster*—Your works appear well selected; you may easily acquire membership in the English Agricultural Society by application to the Secretary. Three months' practice will not give the 'skill,' though books may give the 'intelligence,' which a farmer requires; and you will not be safe in venturing your capital upon that amount of experience.

Books—*Guernsey*—The Notes, &c., were printed for private circulation. It was properly described in our notice of it. We have lost the address of the author.

Deer Park—*A Constant Reader*—Your best plan will be after thorough drainage to manure well say with 5 cwt. of guano per acre, and then fold sheep over it. If in addition to this you take pains to root out all weeds, the Grass will be good enough next year.

Digging Fork—*A Rector*—We do not know "the pulveriser" by Mr. Smith of Droitwich, and would be glad of a description from Mr. Smith.

Dingle's Seed Dibble—*W S W* asks for the *experience* of some practical farmer on the use of this machine.

Gorse—*T Milner*—To grow Furze with success, the land having been previously prepared either by the plough or the spade in November, drill 8 lbs. of seed to the acre (where it is to remain) in drills 18 inches asunder, and cover lightly. No farther care or attention is required. We cannot recommend transplanting; but if it must be done, let it be done as soon as possible in the same way that forest trees are planted, and 18 inches from plant to plant. *J. C.*

Iron Hurdles—*Brass*—The cheapest form, 3 feet 6 inches high, will suffice. The lowest 2 or 3 bars should be half distance apart, if they are to confine lambs.

Lime—*West Suffolk*—You may most conveniently apply it on a corn stubble in the autumn, ploughing it under before winter with a somewhat shallow furrow; or early in spring, placing it in heaps, hot from the kiln, and covering them over with the earth, and spreading them about in a week's time. Apply about 100 bushels per acre. Peas, Potatoes, Sainfoin, and Clover are all plants requiring much lime.

Manures—*Subscriber*—If you can manage on your land (and we do not doubt it) to get a good crop of Turnips by using guano, then provided you consume these Turnips on the land, the soil will be rich enough to grow any grain crop without further manuring. If you intend to use artificial manures extensively, you must change them as often as possible—guano one year; bonedust and soot another; gypsum and salt, and superphosphate, and so on, a third.

Refuse of Bleaching Works—*W H B*—Sulphate of manganese and of soda. The latter has been found useful as a manure for Potatoes (1 cwt. per acre). The former would either be useless, or if it be in the form of a proto-sulphate (a salt not thoroughly oxidised), probably injurious. If the latter, it may be cured by long exposure to the air.

Stall-feeding—*Manx-man*—Your Clover will probably be ready the second or third week in May, and if your Swedes and Rape are, and your Vetches shall be, a good crop, they will keep your cows well till then. The earliest spring food you can have is Rye, sown early in September (fit in April); Italian Rye-grass (fit in May); Early York Cabbage, transplanted in September (fit in May); Winter Vetches, sown in October (fit in May); Clover and Vetches and Lucerne (fit in May, June, July, &c.). Then may come Early Horn Carrots, sown in March (fit in August); early Turnips, sown in April (fit in August and September); and then come Turnips, Swedes, Carrots, and Mangold Wurzel all the rest of the winter.

Sundries—*O P*—To stop moles from working, you must catch them. About fences, we must direct you for the present to a series of articles in the last number of our vol. for 1845. As regards tiles, kilns, and machines, which we shall probably take up in our next year's vol., look at p. 798, 1846.

Taking a Farm—*Poulton*—See a useful chapter towards the close of Stephens' Book of the Farm. About rabbits we have a paper in type, which shall soon be published.

Trottles—*Anon*—The word is probably a corruption of "Truffle," about which you will find particulars at pages 271, 287, 313, 1845.

Erratum—*For* "then," at the 13th line from the bottom of col. *a*, p. 841, *read* "thus."

*** Communications reaching town after Wednesday cannot be answered the same week.

Markets.

POTATOES.—Southwark, Waterside, Dec. 21.

In consequence of the frost last week, the supply to this market was very small; yet there was but little demand for small and inferior samples, but the best samples were cleared away at last week's quotations. The following are our present prices.

York Regents, 140s to 160s
Ditto Shaws, 100s to 120s
Lincolnshire Regents, 130s to 140s
Cambridgeshire Regents, 120s to 140s
Ditto Shaws, 100s to 120s
Cambridgeshire Kidneys, 120s to 130
Kent and Essex Regents, 120s to 130
Ditto Shaws, — to —
Ditto Kidneys, 140s
French Whites, 110s to 120s

Richard Mann.

COVENT GARDEN, Dec. 26.—Fruit and Vegetables are sufficient for the demand, and trade is a little brisker. Pine-apples are scarcer, and the same may be said of Grapes both English and Foreign—the former are rising in price. Apples and Pears are also scarcer. Oranges are excellent, and brought in greater abundance; but still continue to fetch good prices. Nuts are sufficient for the demand. Walnuts are scarcer, and there is little demand for Filberts. Lemons are rather more plentiful. Of Vegetables, Cabbages, Cauliflowers, &c., are good and plentiful. Carrots and Turnips have altered but little in price. French Beans in small quantities continue to be supplied. Celery is excellent. Good Potatoes are scarce, and fetching high prices. Lettuces and other Salading are plentiful. Horseradish continues to be imported. Cut Flowers chiefly consist of Heaths, Jasmines, Camellias, Pelargoniums, Gardenias, Cacti, Neapolitan Violets, Luculia gratissima, Bignonia radicans, Roman Narcissus, Allamanda cathartica, Fuchsias, Asalea, and Roses.

FRUITS.

Pine Apple, per lb., 4s to 7s	Almonds, per peck, 6s
Grapes, Hothouse, per lb., 5s to 8s	Sweet Almonds, per lb., 2s to 3s
— Portugal, per lb., 1s to 2s	Filberts, English, p. 100 lb., 100s to 120s
Apples, Dess., per bush., 8s to 12s	Nuts, Cob, per 100 lbs., 100s to 120s
— Kitchen, 6s to 8s	— Barcelona, 90s
Pears, per hf.-sieve, 10s to 16s	— Brazil, 12s to 16s
Oranges, per dozen, 1s to 2s	— Spanish, 14s
— per 100, 8s to 14s	Walnuts, per bushel, 16s to 24s
Lemons, per dozen, 1s to 2s	Chesnuts, per peck, 4s to 7s
— per 100, 6s to 14s	

VEGETABLES.

Cabbages, per doz., 6d to 1s 6d	Shallots, per lb., 6d to 10d
— red, per doz., 2s to 4s	Garlic, per lb., 6d to 8d
Savoys, per doz., 6d to 1s 6d	Volsenh, per sieve, 1s 6d to 2s
Broccoli, per bundle, 1s to 2s	Asparagus, per 100, 4s to 7s
Cauliflowers, per doz., 4s to 10s	Seakale per punnet, 2s 6d to 4s
Artichokes, Jer., p. hf sieve, 1s to 2s	Salsify, p. bundle, 1s 3d to 1s 6d
French Beans, per 100 3s to 4s	Scorzonera, 1s 6d to 1s 9d
Sorrel, per hf.-sieve, 6d to 1s	Brussels Sprouts, p hf-sv. 2s to 4s
Potatoes, per ton, 6l to 9l	Lettuce, Cos, per score, 1s to 1s 6d
— cwt., 6s to 1s	Endive, per score, 1s to 2s
— bushel, 3s to 5s	Radishes, per doz bunches, 1s to 1s 6d
— Kidney, per bushel, 4s to 6s	Mushrooms, per pottle, 9d to 1s 3d
Turnips, per doz bunches, 2s to 4s	Small Salads, per punnet, 3d to 6d
Red Beet, per doz., 1s to 1s 6d	Fennel, per bunch, 2d to 3d
Horse Radish, per bundle, 1s to 4s	Savory, per bunch, 3d to 6d
Cucumbers, each, 6d to 1s 6d	Thyme, per bunch 3d
Leeks, per doz., 2s to 4s	Watercress, p. 12 sm. bun. 6d to 8d
Celery, per bundle, 1s 6d to 2s	Parsley, per bunch, 1d to 3d
Carrots, per doz. bunches, 4s to 7s	— Roots, per bundle, 1s to 1s 6d
Parsnips, per doz, 6d to 1s 6d	Tarragon, per bunch, 2d
Onions, per bushel, 6s to 8s	Mint, green, per bunch, 6d to 8d
— Spanish, per doz., 1s 6d to 3s	Marjoram, per bunch, 3d to 4d

SMITHFIELD, MONDAY, Dec. 21.—Per Stone of 8 lbs.

Best Scots, Herefords, &c	4s	4	to	4s	8		
Best Short Horns	4	0		4	4		
Second quality Beasts	3	4		3	10		
Calves	4	0		5	0		
Best Downs & Half-breds	4	10		5	2		
Ditto (shorn)	—			—			
Best Long-wools	4s	8	to	4	8		
Ditto (shorn)	—			—			
Ewes and second quality	4	0		4	4		
Ditto (shorn)	—			—			
Lambs	—			—			
Pigs	3	8		5	0		

As is usual on the Monday after the great Market, we have but a small number of Beasts on offer to-day. The demand for the best qualities is brisk, and almost everything is readily disposed of a fully late prices. Although the number of Sheep also is but small, it is a fair supply for the day, and the demand is not exceedingly limited that a clearance can scarcely be effected at, for the most part, rather lower prices. Calves being scarce there is a briskness in the trade, and a little more money is obtained for the best qualities. The trade is very dull for Pigs

Beasts, 1853; Sheep and Lambs, 16,230, Calves, 54; Pigs, 310.

FRIDAY, Dec. 25.

This being Christmas Day a very few of either Beasts or Sheep are brought into Market. There were not many purchasers—but the supply being an very small, the best qualities met a ready sale at fully Monday's quotations. As no sales were allowed to be effected after eleven in the forenoon, some out of the very scanty supply remained unsold.

Beasts, 356, Sheep and Lambs, 220; Calves 4; Pigs, 30.

41, West Smithfield.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Dec. 24.

Prime Mead. Hay	70s to 75s	New Hay	— to —s	New Clo.	—s to —s
Infr. New & Rowen	45 60	Clover	70 95	Straw	26 30s

JOHN COOPER, Salesman.

CUMBERLAND MARKET, Dec. 24.

Prime Mead. Hay	70s to 75	Old Clover	90s to 95s		
Interior	55 63	Inferior do.	75 84	Straw	21s to 24s
New do.	— —	New Clover	— —		

JOSHUA BARER, Hay Salesman.

HOPS, FRIDAY, Dec. 24.

Messrs. PATTENDEN and SMITH, Hop Factors, report that the London brewers have bought extensively within the last few days, and that the merchants and factors have seldom, if ever held, so small stocks of good Hops at this season of the year. No doubt as soon as Christmas is over there will be an advance in prices. Our following quotations are fully supported.

Mid and East Kents, from	£5	0	to £6 10
Weald Kents	4	0	— 5 0
Sussex	3	15	— 4 10
Farnhams	5	15	— 6 10
Yearling Kents	3	3	— 4 4
Ditto Sussex	3	0	— 4 0
Old Hops	2	0	— 4 0

MARK-LANE, MONDAY, Dec. 21.

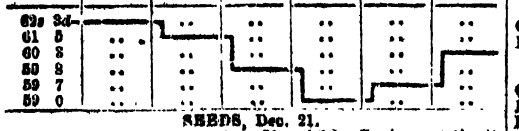
There was a fair supply of Wheat from Essex and Suffolk this morning, and large from Kent; the condition was generally much affected by the change in the weather from severe frost to rain. Factors at the opening of the market held for a considerable advance, but where sales were effected it did not exceed 1s to 2s per qr. upon the quotations of this day se'nnight. In free Foreign business was limited, holders not being disposed to submit to any reduction upon Friday's terms.—Barley must be written 1s to 2s; Beans, 1s; Hog Peas 1s to 2s, and White Peas 2s to 4s per qr. higher.—The Oat-trade was dull, dealers being unwilling to comply with the advance, which was 1s per qr upon the business done.—Flour remains as on Friday, the top price being 60s per sack; barrels were a less free sale than last week.

BRITISH, PER IMPERIAL QUARTER,	s.	s.		s.	s.
Wheat, Essex, Kent, and Suffolk	White	60	70	Red	56 67
—— Norfolk, Lincolnshire, and Yorkshire		58	66	White	60 70
Barley, Malting and distilling	ditto new Chevalier	42	51	Grind	32 34
Oats, Lincolnshire and Yorkshire		Potands	28	34	Feed 26 29
—— Northumberland and Scotch			27	32	Potato 30 34
—— Irish			Feed	23	28 Potato 29 30
Malt, pale, ship				—	—
—— Hertford and Essex				—	—
Rye				41	46
Beans, Mazagan, old and new		38 to 41		Tick	38 42 Horse 40 44
—— Pigeon, Hedgeland		44 to 48		Harrow	38 42 Long 39 43
Peas, White		40 to 44		Maple	42 50 Grey 38 43

IMPERIAL AVERAGES.

	Wheat.	Barley.	Oats	Rye.	Beans	Peas
Nov. 7 per Quarter.	62s 3d	44s 2d	27s 3d	41s 5d	46s 6d	50s 11d
— 14	61 5	44 6	26 9	42 4	46 10	50 10
— 21	60 8	42 11	26 10	42 7	46 4	49 0
— 28	59 9	42 9	25 11	41 7	45 10	47 5
Dec. 5	59 7	42 11	26 7	42 5	45 4	48 0
— 12	60 3	43 1	26 5	42 11	45 0	48 7
6 weeks' Aggreg. Aver	60 6	43 3	26 8	42 8	45 11	49 1
Duties on Foreign Grain	4 0	2 0	1 6	2 0	2 0	2 0

Fluctuations in last six week's Corn Averages.



SEEDS, Dec. 21.

Canary per qr	Scarce	Linseed Cakes, Foreign, p ton	9l to 11
Caraway per cwt	40 45	Mustard, White, per bush	7s 9s
Clover, Red, English	— —	— Superfine	— —
— Foreign	— —	— Brown	9 11
— White, English	— —	Rapeseed, English, per last	21l 24l
— Foreign	— —	Rape Cakes per ton	— 9l
Coriander	16 16	Rapeseed	— —
Hempseed per qr.	34 36	Tares, Essex, winter, p bush.	5s 6s
Linseed per qr.	39 41	— Foreign	4s 6d 5s
— Baltic	43 47	Trefoil per cwt.	16 19
— Cakes, Eng. per 1000	12l 13	Turnip (not certain for quantities)	

KINGSFORD AND LAY

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MR. KIRKE will sell by Auction, on the Premises, Brompton Park-lane, and Bell and Horns-lane, Old Brompton, on Tuesday, January 12, 1847, and following days, at 10 for 11 o'clock, by order of the proprietor, Mr. Joseph Kirke, giving up business, all the very superior and choice Collection, comprising 5000 standard and dwarf Apples by name; 4000 standard and dwarf Pears of the newest varieties; 3000 standard and dwarf Cherries; 1000 standard and dwarf Plums; 1200 Apples, on Paradise stocks; about 3000 standard and dwarf Trained Trees, consisting of French and other Peaches, Nectarines, Apricots, Pears, Plums, and Cherries; 1200 Maiden Peaches, Nectarines, and Apricots; 3000 budded Muscle Stocks; 500 Brompton budded, with French Peaches; 800 Cherry Stocks; 400 Vines, Figs, Caspard and Prolific Nuts; 1200 white and red Currants; 700 fine fruit-bearing Apple and Pear Trees; Evergreens and Shrubs; variegated and gr. en Hollies, from 3 to 20 feet high; 700 Aucuba Japonicas; 500 Laurels and Laurestinus; 200 Phillereas and Magnolias; Rhododendrons; Box-edging, two years old; Asparagus, Strawberry Plants; white, red, and double-bearing Raspberries, &c. Carts, Barrows, Tools, Nests of Drawers, Counting-house Desk, &c. May be viewed three days prior to the Sale. Catalogues (1s. each, returnable to purchasers) had on the Premises; of Messrs. GAINES, Seedsmen, Covent-garden; and at the Offices of the Auctioneer, Mr. PHILIP KIRKE, 19, Brompton-row, Brompton.

N.B.—Mr. Joseph Kirke, jun., begs to announce that he will attend the Sale, and purchase by Commission.

NEVENDON, ESSEX.

TO BE LET, a SMALL FARM, by Tender. By the Churchwardens and Overseers of the Parishes of Saint Olave and Saint John, Southwark. The FARM is known as "Foreriders," and is situate at Nevendon; consisting of about 42 Acres of Arable and Pasture Land, with Dwelling House, Barn, Stabling, and Garden, and is now in the occupation of Mr. Abraham Bell.

A LEASE will be granted for a term of 14 years from Michaelmas last, at such rent as shall be offered and accepted, and will contain such covenants as are contained in the Lease just expired, of which a Copy may be seen at Mr. Abraham Offin's, of Hutton; or at the office of Messrs. Corner, Solicitors, 1, Dean-street, Southwark; or Messrs. Slee and Robinson, 1, Parish-street, Southwark. Tenders in Writing to be sent to Messrs. Corner, or to Messrs. Slee and Robinson, on the 30th day of December inst. The in-coming Tenant will be required to pay the out-going Tenant's Valuation in the usual way, according to the terms of his Lease.

The Lease and Counterpart will be prepared by the Solicitors for the Lessors at the expence of the Lessee.

N.B. The Trustees do not bind themselves to accept the highest Tender.—Dec. 21, 1846.

CHRISTMAS HOLIDAYS.

ROYAL POLYTECHNIC INSTITUTION.—Professor Schonbein's GUN COTTON, and other EXPLOSIVE COMPOUNDS, with brilliant Experiments, lectured on by Dr. Ryan, daily at ½ past 3 o'clock, and on the Evenings of Mondays, Wednesdays, and Fridays. The principle of the various ELECTRO-MAGNETIC TELEGRAPHS explained daily by Prof. Bachhoffner, including the Patent of Messrs. Cook and Wheatstone, which is in use on the Railways, and the more recent Patent of Messrs. Nott and Gamble. The various Models explained. Magnified specimens of DISEASED POTATOES exhibited by the OXY-HYDROGEN MICROSCOPE, with the DESTRUCTIVE INSECT, supposed by A. Smee, Esq., F.R.S., to be the cause of the disease. A beautiful Series of NEW DISSOLVING VIEWS. The DIVING-BELL and DIVER, with EXPERIMENTS. The PHYSIOSCOPE, New CHROMATROPE, &c. &c.—Admission, 1s.; Schools, Half-price.

MAUND'S BOTANIC GARDEN, with Engravings of Flowers, Directions for Culture, &c., is now Enlarged, without increase of Price, by the addition of THE FRUITIST, with Engravings of Apples, Pears, and other Fruits, their History, Qualities, Culture, &c.

The Number for January, 1847, being the commencement of the volume, affords a most favourable opportunity for all who are fond of Fruits and Flowers, to commence taking this very complete assistant to the garden.

May be ordered of any Bookseller. Large 1s. 6d., Small 1s., Gardeners' Edition, without Fruitist, 6d.

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